KENT FLOOD RISK MANAGEMENT COMMITTEE

Monday, 16th July, 2018

2.00 pm

Council Chamber - Sessions House

Kent County Council
kent.gov.uk

AGENDA

KENT FLOOD RISK MANAGEMENT COMMITTEE

Monday, 16th July, 2018, at 2.00 pm Ask for: **Andrew Tait**

Council Chamber - Sessions House Telephone **03000 416749**

Tea/Coffee will be available 15 before the start of the meeting in the meeting room

Membership (6)

Conservative (5): Mr A R Hills (Chairman), Mrs C Bell, Mr A H T Bowles, Mr K Pugh and Vacancy

Liberal Democrat (1) Mr I S Chittenden

UNRESTRICTED ITEMS

(During these items the meeting is likely to be open to the public)

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1. Substitutes

2. Declarations of Members' Interest relating to items on today's agenda

3. Minutes of the meeting on 5 March 2018 (Pages 5 - 16)

4. Presentation by Mark Rogers from the Met Office (Civil Contingencies) on the Met Office early severe weather warning, climate trends and their implications for flood risk

5. Presentation by the Environment Agency on future flood risks to Kent

6. Kent and Medway Offsite Reservoir Inundation Emergency Plan (Pages 17 - 18)

7. Environment Agency and Met Office Alerts and Warnings and KCC flood response activity since the last meeting (Pages 19 - 22)

8. Other items which the Chairman decides are Urgent

EXEMPT ITEMS

(At the time of preparing the agenda there were no exempt items. During any such items which may arise the meeting is likely NOT to be open to the public)

Benjamin Watts
General Counsel
03000 416814

Friday, 6 July 2018

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KENT COUNTY COUNCIL

KENT FLOOD RISK MANAGEMENT COMMITTEE

MINUTES of a meeting of the Kent Flood Risk Management Committee held in the Council Chamber, Sessions House, County Hall, Maidstone on Monday, 5 March 2018.

PRESENT: Mr A R Hills (Chairman), Mr A H T Bowles, Mr I S Chittenden, Mrs R Doyle (Canterbury CC), Mrs C Mackonochie (Tunbridge Wells BC), Ms G Brown (KALC) and Mr C Mackonochie (KALC)

IN ATTENDANCE: Mr T Harwood (Resilience and Emergency Planning Manager), Mr A Turner (Water Resources Manager) and Mr A Tait (Democratic Services Officer)

UNRESTRICTED ITEMS

1. Minutes of the meeting on 13 November 2017
(Item 3)

RESOLVED that the Minutes of the meeting held on 13 November 2017 are correctly recorded and that they be signed by the Chairman.

2. An Overview of River Basin Management Plans and related issues covering Kent: Presentation by Environment Agency Groundwater and Hydrology Team
(Item 4)

The Chairman informed the Committee that Mr Ian Murrell from the Environment had been forced to send his apologies due to the urgent need to respond to problems arising from the current thaw, following the recent heavy snowfall.

3. South East Water's Water Resources Management Plan and Drought Plan - Presentation by Lee Dance, Head of Water Resources South East Water
(Item 5)

(1) Lee Dance, Head of Water Resources at South East Water gave a presentation. The accompanying slides are contained within the electronic agenda papers on the KCC website.

(2) Mr Dance began his presentation by saying that South East Water had a statutory duty to prepare a Water Resources Management Plan and a Drought Plan at least once every five years. The consultation draft of the 2019 Water Resources Management Plan had recently been published. It would cover a period of sixty years, instead of the usual 25 years.

(3) Mr Dance said that South East Water supplied 2.2m customers and that its supply area was divided into a western region in Hampshire and Berkshire, and an eastern region in Kent, Surrey and Sussex. South East Water was not the sole water supplier in these counties. It was in fact part of a patchwork of companies carrying out this role. Affinity Water was the supplier in South Kent, and Southern Water supplied the Medway Towns.

(4) South East Water supplied about 520 m litres of water every day, increasing to over 650m litres per day in hot dry periods. This water came from groundwater sources (73%), surface water (19%) and neighbouring companies (8%). The latter statistic was the largest for any water company in the UK, demonstrating good integrated working with its neighbours.

(5) Mr Dance then gave a breakdown of water resources in various parts of Kent. In Ashford, 100% was supplied by 16 groundwater sources. In Maidstone, 12% came from Bewl Water which was owned by Southern Water. The remainder (78%) came from groundwater. In Cranbrook there was an even split between Bewl Water (49%) and groundwater sources (51%). Tunbridge Wells was 100% groundwater dominated.

(6) Mr Dance moved on to describe the creation of the draft Water Resources Management Plan. This had been developed according to set guidelines from the environmental and economic regulators (Environment Agency and Ofwat). The draft Plan explained the chosen methodology and had been prepared with input from customers, communities, other water providers and stakeholders.

(7) The challenges addressed in the document took account of future population and housing growth as well as uncertainty around climate change impacts in an area classified by Defra as “serious water stress.” The Plan also focussed to a far greater extent than before on water resilience. It aimed to increase affordability by sharing resources with other companies, and considered improving environmental resilience through catchment management and other measures.

(8) Mr Dance then described South East Water’s achievements since the production of the 2014 Plan. He showed a slide which demonstrated how water leakage had been reduced through investment in new technology and reduced repair times. Over the past three years it had reduced from @ Ml per day to some 88 Ml/d, exceeding the set reduction target.

(9) Mr Dance said that water efficiency had been improved through a compulsory metering programme over the previous 8 years, aiming to achieve metering of 90% of customers by 2020. “Behavioural change experiments” had been introduced where the company would demonstrate to customers how water use was being reduced in other similar properties. Overall, the leakage and metering programmes had contributed to a saving of 21 Ml/d since 2016/17 at the same time as some 40k new homes had been built across the region. Meanwhile, investments in works were complementing these results by increasing supply. The key works in this field were at Forest Row WTW in Sussex and Haywards Heath.

(10) Mr Dance then discussed the Plan itself. This needed to be developed by forecasting supply for each of the 60 years covered, including projected changes in

population and demand. This indicated that in the early years there would be a surplus of supply over demand, but that this would be dramatically reversed, particularly during the summer peak periods from 2029 onwards, culminating in a demand for an additional 113Ml/d during the summer of 2070/80 in Kent (260Ml/d in the entire SE Water region).

(11) The Plan's response to the identified water needs encompassed a variety of solutions such as new resource development, reservoirs, desalination and groundwater options. These solutions (some 500 in total) were sub-divided into "unconstrained" and "constrained" options. These options were then modelled in terms of feasibility, reducing the number to 172. Further modelling was then undertaken to identify the most effective combinations in terms of affordability, environmental performance and adaptability to uncertainty.

(12) Mr Dance said that the Plan had also identified customer preferences. Strong support had been identified for work to be undertaken on reducing leakage rates and improving water efficiency, whilst effluent re-use and desalination were the least popular options.

(13) Mr Dance then described the modelling exercises. These involved taking all the acquired data on water supply, demand, cost, environmental performance and customer preference, and then running this model against various scenarios in order to identify solutions. These scenarios included various levels of drought and population increase. The conclusions derived from this work were that it was necessary to improve levels of resilience to cope with a drought of a one in 200 year severity. Climate change impacts were identified as "modest" but work had nevertheless been undertaken to adapt to the wide variabilities that could occur. The twin track approach of demand management and new resources would continue.

(14) Mr Dance said that in order to be able to cope with a one in 200 year drought, an additional 294.2 ML/d would need to be found by 2079. Until 2030, this would mainly be achieved through leakage reduction, water efficiency and groundwater improvements (reliant upon the successful outcome of negotiations with the Aylesford Newsprint site. Later on there would be more new use schemes and reservoirs.

(15) Mr Dance then said that because the Plan took a traditional approach to demand management and new resources, it needed to consider the question of whether it was ambitious enough. With this in mind, the Plan had modelled water consumption in terms of litres per head per day which was expected to reduce from 147.4 in 2019/20 to 137.6 by 2079/80. The cumulative water efficiency saving was projected to be 20.7 litres per head per day over the same period whilst the total water leakage reduction would be 14 Ml/d.

(16) Mr Dance showed the Committee a map of new supply options. He said that whereas the current sources were predominantly groundwater-based, the sixty year Plan period envisaged a greater variety including desalination, effluent re-use surface water storage as well as new transfers.

(17) Mr Dance went on to break down the options by water resource zone. Ashford would see improved leak reduction and water efficiency measures until 2025. From then until 2045 there would be further WTW improvements, the development of the

Broad Oak reservoir and improved pipe connectivity. Effluent re-use and desalination schemes would be developed in the 2045-2080 period.

(18) The Cranbrook water resource zone would also see a focus on leak reduction and water efficiency until 2025, followed by water pipe connectivity in the Haywards Heath area between 2025 and 2045. The final period would see the improvement and expansion of Bewl Water.

(19) The Tunbridge Wells water resource zone would see similar developments in terms of leak reduction and water efficiency between 2020 and 2025. A significant feature of the following period was the future regional transfer with Surrey and East Sussex Water, which was under review at this stage.

(20) The Maidstone water resource zone would concentrate on the development of the Aylesford Newsprint water resource. A joint scheme was planned with Southern Water for water re-use at Aylesford between 2025 and 2045. A desalination project in the tidal area of the River Medway was planned for the post 2045 period.

(21) Mr Dance then gave details of some of the pending schemes. The Broad Oak Water project would have a maximum capacity of 5,126m litres and would be capable of supplying 19.6m litres per day. It was to become operational in 2033.

(22) The Aylesford water re-use scheme would involve upgrading Southern Water's existing WTW and pumping the treated water into the Medway near Barming. Water would be extracted downstream near Allington and pumped for full treatment at South East Water's WTW near Burham. This project would become operational by 2038, supplying 9m litres of water per day.

(23) The Aylesford Water Treatment Works would, if negotiations went as well as expected, be built on the old Aylesford Newsprint site, using existing groundwater sources. It would become operational by 2023 and be capable of treating 18.2m litres of water per day.

(24) Mr Dance showed the Committee a slide which summed up the highlights within the plan and the work and investment that this would entail. He added that the Plan's publication would enable South East Water to negotiate with Universities in the light of greater certainty over the improvements to equipment and technology which would be required.

(25) Mr Dance concluded his Water Resource Plan presentation by setting out the key dates. The plan had been submitted to Defra in December 2017 and the three-month consultation period which had begun in February 2018. Following review and update the Plan would be finalised in Autumn 2018 and published in Winter 2018.

(26) Mr Dance was asked to comment on South East Water's response to the current weather conditions. He said that it had been anticipated that there would be a thaw after the snow and ice over the previous week. On this occasion, the effects had been unprecedented. South East Water's volunteers had walked the entire water network route and discovered very few obvious leaks from the pipes. The problems had occurred because the ground had initially frozen up very quickly followed by a very rapid thaw. This had caused the ground to move and unsettled the joints between the pipes. As a result, it had taken a great deal of time to identify

exactly where the water was coming from. The Fire and rescue Service had reported that a large number of private properties were also experiencing leakage of a similar nature. Hundreds of South East Water's staff had been taken away from their normal work in order to carry out "find and fix" duties or the provision of bottled water to affected properties and supermarkets. Events were occurring rapidly, particularly in the Crowborough, Rotherfield and Crowhurst area where some 13,000 properties were without water. Lenham had also been affected; It had come back on line but there were still intermittent problems. This figure was purely for properties served by South East Water. The priority was to get water to those people whose supply had been cut off.

(27) The Chairman read a message he had received the previous evening from Katie Stewart, Director of Environment Planning and Enforcement. This gave a figure of 26,000 properties affected in Kent overall.

(28) Mr Dance replied to a question from Mr Bowles by saying that whenever a leak was repaired, it needed to be repeatedly checked afterwards. South East Water was aiming to bring leakage down over time through better pressure management and improved monitoring. Before the current thaw, they were putting 500m litres into the system, however an additional 130m litres of demand had arisen once the thaw started. Although there were small leakage peaks every winter, the resources were normally available to cope with them. On this occasion, far greater resources were needed. These were now starting to have success in getting the water supply back to areas in their region.

(29) Mr Harwood said that a tele-conference emergency planning meeting had taken place during the morning involving South East Water and the other utilities in SE England as well as a number of Strategic Commanders to look at strategic water supply issues in the county following the thaw after the recent cold weather. He understood that there would still be intermittent water pressure drops leading to possible supply problems across the network. A Strategic Co-ordinating Group had been constituted under the Civil Contingencies Act 2004 chaired by Kent Police, which had just met. KCC had offered to support the water companies in the distribution of bottled water across impacted communities. The identification and resolution of leaks was going to be a slow, systematic and methodical piece of work.

(30) Mr Bowles said that as a Member of Swale BC (served by Southern Water) the biggest complaint he had received over the previous two days was the lack of available information provided to elected Members by the water utilities. This was an important omission because members of the public assumed that Councillors would be aware of what was happening and would therefore contact them rather than anybody else.

(31) Mrs Brown said that since the floods of 2013, UK Power Networks had set up a completely new system. This had enabled her to receive constant updates from them over the previous week. She suggested that the water companies could consider setting up a similar system.

(32) Mr Dance said that South East Water had tried very hard to get messages out. The snow during the previous week had not given rise to any particular problems for the water companies. The rapid nature of the thaw had caught them by surprise. He

assured the Committee that once the crisis was over, they would carefully examine their communications set up with the aim of identifying improvements.

(33) Mr Chittenden said that public and elected Member communication by KCC had been excellent over the previous week of snow and cold weather. He suggested that KCC could support the water companies by sharing their contingencies for emergency public information messaging, such as the Kent Snow#.

(34) Mr Dance replied to a question from Mrs Doyle by confirming that the planning process for the Broad Oak Water project would start in 2020. Meetings had been held with the local Parish Councils and the Broad Oak Preservation Society in order that they could share with them details of how the reservoir might look, including the environmental and recreational benefits such as walking.

(35) Mr Dance replied to a question from Mr Mackonochie on the Pembury catchment area by saying that Pembury featured a number of springs and that there were some historical problems with the use of oxadixyl (a chemical for pesticide use). South East Water had been working very closely on these issues with the EA and some of the landowners in that area, whilst also looking at this question in more general terms. Similar work was also being undertaken at Arlington Reservoir where problems had arisen connected to the use of slug pellets. These problems had been reduced by discussion, training, recalibration. These two examples demonstrated the effectiveness of catchment management.

(36) Mrs Mackonichie asked whether the problems at Pembury had affected drinking water. Mr Dance replied that oxadixyl had affected one particular borehole which had been decommissioned. Once this chemical problem was resolved, the borehole would once again become available as a source.

(37) Mrs Mackonochie asked whether South East Water was involved in the production of Local Plans. Mr Dance replied that the South East Water region encompassed 33 Local Planning Authorities. South East Water had contracted *Experion,* a local demographics company to obtain and analyse data from these Local Authorities on their housing population forecasts. The results of this investigation had enabled South East Water to develop its own sixty-year Plan. The complete accuracy of these forecasts could not be guaranteed, particularly as the Local Plans were at different stages. *Experio*n had therefore needed to make its best assessment based on the figures and had also set out the potential range of variables to them. These variations had informed South East Water of the most likely areas where its own Plan might need to be changed, resulting in work being undertaken to assess the potential problems in doing so.

(38) Mr Dance continues that South East Water had a statutory duty to supply all new housing and therefore took a keen interest in Local Plans as they were developed. The greatest problems could arise when a significant relocation of housing was proposed within a Local Planning Authority area. In such cases, the company might need to warn the Local Authority of any infrastructure problems it considered might arise.

(39) Mrs Doyle noted that the use of slug pellets had escalated since stubble burning had been prohibited. Mr Dance said that South East Water had indeed understood this point and that it was trialling various alternative chemical solutions.

(40) Mr Dance then introduced the second part of his presentation, which was on the Drought Plan. This was a statutory plan which had to be reviewed and consulted upon every 5 years. The last review had taken place during 2017 resulting in publication of a revised draft for consideration by Defra on 15 December 2017. This Plan went beyond the 1 in 200-year event considered in the Water Resources Management Plan, considering even more extreme conditions.

(41) Mr Dance showed a map of the region which identified monitoring points for rainfall levels, groundwater levels, levels of demand, winter rainfall and recharge. An example of a monitoring site for groundwater levels was Duckpit Farm in the chalk North Downs during the period from 2004 to 2007 when there had been some dry winters. This had identified a point where severe drought had been reached in January 2006 when Temporary Use Bans had been brought in (although water levels had risen again immediately afterwards. The data from all of the monitoring points was transferred to a matrix known as a "trigger Schematic Tool" which enabled South East Water to act speedily as soon as it was necessary.

(42) Mr Dance showed the Committee the Drought Plan Guidelines published by Defra in 2015 in response to widespread concern over the dry winters of 2010 and 2012. These guidelines had resulted in stronger linkages between the Water Resource Management and Drought Plans. On result of this had been the increase in levels of resilience in the former from 1 in 100 to 1 in 200 year events.

(43) Mr Dance gave the dates for the exhibitions in respect of the Water Resources Management Plan. These were:-

20 March Kings Studio, Aylesford
23 April at Tyler Kiln
24 April Broad Oak Village
26 April Sturry Social Centre.

(44) RESOLVED that Mr Dance be thanked for his presentation and that its content be noted for use in future discussions.

4. Flood and Water Management Team activities and projects to deliver improved water management
(Item 6)

(1) Mr Turner introduced himself as KCC's Water Resource Manager within the Flood and Water Management Team – Spatial Planning and Policy Unit. The slides of his presentation are contained within the electronic agenda papers on the KCC website.

(2) Mr Turner said that his team maintained a high level overview of Kent's 5 water companies: South East Water, Affinity Water, Southern Water, Thames Water and Southern and East Surrey Water. It also maintained an overview of some of the broader issues such as population growth, climate change, infrastructure provision, and environmental constraints. Some of this was done through the Kent and Medway Infrastructure Framework which set out the infrastructure requirements to

meet future growth and also provided detailed demographic information such as population change, household occupancy trends and age distribution. This information was made available to a large number of utility providers for use in infrastructure planning.

(3) Mr Turner then said that infrastructure growth did not necessarily mean an increase in water demand. To illustrate this point, he displayed a graph produced by Southern Water showing how much water they were putting into their network on a daily basis between 1961 and 2015. The graph peaked in 1989/90 when the water industry was privatised (leading to capital investment in control of leakage) and then reduced by some 25%. The reasons for the continuing reduction were continued leakage reduction, the decline in industrial demand and metering programmes which had led to greater water use efficiency. The other water companies had experienced a similar trend.

(4) Mr Turner said national sources of information also contributed to his work. The *Water Resources Long Term Planning Framework 2015 – 2065* had been commissioned by Defra and published by Water UK in 2016. This study took a long term approach and considered the changing pressures on water resources, including more severe drought conditions which could arise beyond what had happened historically, whist assessing a number of measures that could strengthen resilience. It had also made high level recommendations on water resources management.

(5) The *Water Resources Long Term Planning Framework 2015 – 2065* had analysed a number of future scenarios for population growth and water demand. Its recommendations focussed strongly on water demand management, new resources and regional transfers from areas that had a surplus to those that did not.

(6) The Flood and Water Management Team also conducted more local specialised analysis such as the *Kent Water for Sustainable Growth Study*. This study had looked at water supply and demand issues up to 2031 and examined the scope for water neutrality (e.g. compensating for the increase in water usage arising from new homes by reducing water usage in neighbouring homes). It had also assessed the potential around Waste Water Treatment Works. The Study had concluded that the water companies' current Water Resource Management Plans had been produced before the housing growth projections had significantly increased. This meant that the supply would need to accommodate these new projections. The Team would be looking closely at the companies' data in their new draft Plans. The second conclusion was that there was a greater need for water neutrality, particularly in those areas where growth projections were showing a very marked increase. The third conclusion was that there were grounds for concern over whether technical improvements to Waste Water Treatment Works would be able to keep up with growth levels. Technology was developing rapidly and appeared to be keeping pace with growth levels although there were some locations in Kent which would need careful monitoring.

(7) Mr Turner then said that the Flood and Water Management Team was also involved in supplying advice for new developments (such as Otterpool Park) advising local councils on integrated water management, including changes to the rules on competition in the water industry which enabled other companies apart from the five in Kent to supply water to them. The Team also helped to bring about better

collaboration between water companies, local planning authorities and housing developers.

(8) Another area that the Team was active in was around water management for horticulture. Mr Turner said that it was easy to forget that water management was not just about resources, it was also about a lot of other users of water, many of whom took their water directly from the environment. KCC was working with a range of partners such as NIAB EMR (formerly East Malling Research), South East Water and the Environment Agency. New systems were being developed to provide water savings and increased productivity as well as business profitability. These systems also reduced flood risk and pollution. Finally, the new Water Efficient Technology Centre in West Malling was also bringing new business activity into Kent.

(9) in response to a question from the Chairman, Mr Turner clarified that "integrated water management" meant that surface water run-off and waste water sewage was all part of one approach. There was no such thing as water that was not a water resource. Less clean water was simply a less useful resource. Waste water treatment technology was developing rapidly to the point where consideration would soon be given to whether the word "waste" was redundant. Surface water needed to become as recoverable as possible so that it could be re-used close to the point where it landed. He personally believed that the correct approach was an integrated engineered system around new neighbourhoods and developments.

(10) Mr Turner replied to a question from Mr Chittenden by saying that waste water was currently being treated to the standard that could be achieved through current technology before the effluent was discharged into the river. These discharges of effluent needed to be licensed by the Environment Agency in respect of the flow and quality of the effluent. Whenever the volume of flow increased, the quality of the effluent needed to improve by a corresponding factor in order to avoid the creation of an additional burden on the environment.

(11) Mr Chittenden asked whether waste that was discharged into the sea still came back to shore in an untreated state. Mr Turner replied that for the most part, all waste water was treated to a high standard at a WWTW with the effluent being discharged under tight control from the Environment Agency. There were still, however, problems arising from overflow which meant that untreated discharge took place. The River Thames was particularly vulnerable to this problem. Efforts to reduce this problem were on-going.

(12) RESOLVED that Mr Turner be thanked for his presentation and that its content be noted for assurance.

5. Environment Agency and Met Office Alerts and Warnings and KCC Flood Response activity since the last meeting
(Item 7)

(1) Mr Harwood tabled an update sheet incorporating the recent snow and cold weather events and response.

(2) Mr Harwood said that KCC, its Boroughs Districts, the emergency services and other partners had risen to the challenge and were widely acknowledged to have responded very effectively.

(3) Mr Harwood drew particular attention to the Severe Weather Advisory Group which had operated between 23 and 27 February. He said that it had been initiated by KCC following early warnings by the Met Office. This had enabled staff resources and infrastructure to be put in place, particularly the shifts, gritting and 4x4 resources that were to be essential for the coming response.

(4) Mr Harwood then said that Kent had now moved to the recovery phase for most of the County, although there were still a number of areas that were without water and still urgently required operational response activity.

(5) Messages had been sent out and constantly updated during the severe weather week using the Kent Snow#, which had been looked at by at least 1.8m different people. Public messaging had been very pro-active and had evolved with and sometimes led the news agenda. For example, early on there had been a strong focus on asking people to look out for their neighbours and vulnerable people during the heavy snowfall. The same message had been heavily promoted on both local and national TV. The messaging focus had then switched to driver behaviour once the weather broke and motorists started getting back in their cars whilst roads were still potentially icy and hazardous.

(6) Mr Harwood said that a lot of work was now being undertaken with the water companies and other partners in response to the leakage issue. Vulnerable people, isolated communities and livestock were particular concerns in relation to water supply disruption.

(7) Mrs Brown said that Yalding PC had received the messages after the event rather than before or during. Yalding PC had, nevertheless, given out messages of a similar nature to its residents. She added that it was important to learn from the experience and to make the necessary adjustments to ensure that messaging from all the agencies, including Parishes, went out early in a co-ordinated fashion. The Parish Councils had a vital role to play in achieving this goal.

(8) Mr Harwood said that a lot of information had been transmitted through the KALC during the recent severe weather event. The multi-agency Emergency Management Team had also worked closely with those communities that had their own Resilience Plans. He offered to take back Mrs Brown's concerns to Kent Resilience Forum colleagues.

(9) Mr Harwood then said that that there would be a number of opportunities for lessons to be learned through a series of debriefs that would be held by the various agencies, as well as an overall Kent Resilience Forum multi-agency debrief.

(10) Mr Harwood continued by saying that these reviews would look closely at some of the staff and contractor issues. The demands made upon gritter drivers and social care providers had been coped with, but it had been very fortunate that the weather broke when it did, as staff resource sustainability issues could have arisen otherwise.

(11) A key element of the work of the County Emergency Centre in Invicta House had been the very successful facilitation of 4x4s support for essential workers and vulnerable people. Work had also been done in matching the response skills of people who were unable to get to their normal place of work to alternative locations which they were able to access.

(12) Mr Harwood replied to a question from Mrs Doyle by saying that Southeastern and Network Rail had both been involved. Southeastern had been very successful during the early part of the week but had begun to find the conditions too great a challenge when ice became an issue towards the end of the cold snap. On Friday, 2 March there had been a total of 11 trains stranded in different parts of Kent. The Emergency Centre and Southeastern had worked very closely together to provide alternative forms of public transport for those affected. The transportation and welfare responses had gone on through Friday night and into Saturday.

(13) Mr Harwood then said that the freezing rain that had occurred in the Friday had been exceptional, badly affecting services that relied upon exposed electricity infrastructure. He strongly complimented Dover DC which had run numerous 4x4s to collect people from affected railway stations. The County Emergency Centre had been the hub whilst KCC operational teams, Districts, Boroughs, emergency services and voluntary sector had carried out a very high volume of operational activity.

(14) Mr Chittenden said that members of the public would ask a number of questions about the events, and it was important for the County Council to examine its overall winter preparedness rather than limiting this consideration to the recent emergency response (which had been excellent). A longer spell could have stretched the ability to respond effectively

(15) RESOLVED that the report be noted for assurance with particular reference to the response activity to the emergencies caused by the very recent heavy snowfall and thaw and their aftermath.

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To: Kent Flood Risk Management Committee – 16th July 2018

From: Tony Hills, Chair of Kent Flood Risk Management Committee

Subject: Kent and Medway Offsite Reservoir Inundation Emergency Plan

Classification: Unrestricted

Summary: To brief Kent Flood Risk Management Committee on the recently re-published Kent and Medway Offsite Reservoir Inundation Emergency Plan and contribute any additional matters arising from debate by the Committee

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1. Background

1.1 The Kent and Medway Offsite Reservoir Inundation Emergency Plan addresses planning for, response to, and recovery from offsite reservoir inundation emergencies occurring within, or impacting upon, the administrative boundaries of Kent and Medway. The plan incorporates technical data on 60 individual reservoirs.

1.2 The plan was written in compliance with relevant legislation and guidance including The Civil Contingencies Act 2004, The Reservoirs Act 1975 (as amended by the Water Act 2003), The Flood and Water Management Act 2010 and Framework for Reservoir Inundation Preparedness Planning (Cabinet Office: October 2009).

2. Plan aim, testing and validation

2.1 The aim of the plan is to provide clear definitions of the roles, responsibilities and actions for responding agencies at the pre-planning, response and recovery stages of a reservoir emergency, encompassing:

- Outlining key principles of pre-planning for a reservoir inundation emergency;
- Describing the actions of the first responders on the scene and/or to receive the incident notification;
- Providing a response escalation procedure to cover actions from the initial alert through to stand-down and post-incident recovery;
- Setting-out the multi-agency co-ordination and control arrangements at each level of response;
- Specifying the manner in which warnings may be communicated to the public and partner agencies in an accessible and consistent fashion;
- Providing contact details to facilitate an efficient call-out of resources; and
- Outlining key principles of recovery for a reservoir inundation emergency.

2.2 The draft plan was tested and validated on 29 November 2017 at Exercise Tethys, a multi-agency event hosted by Kent Fire and Rescue Service and utilising a realistic yet challenging reservoir dam breach scenario.

3. Publication and next steps

3.1 A public version of the plan can be found on the emergency planning page of the Kent.gov website, while a technical, and protectively marked, version is held on Resilience Direct, the government's secure resilience platform.

3.2 The plan is a living document and will be updated as new reservoirs are commissioned or existing reservoirs modified or decommissioned. Further, the planning assumptions informing the plan will be pro-actively tested using forthcoming emergency planning training and exercise events.

4. Recommendations

4.1 That Members:

- Note the publication of the updated Kent and Medway Offsite Reservoir Inundation Emergency Plan; and
- Contribute any additional matters arising from debate by the Committee to the future evolution of the plan.

Tony Harwood, Resilience and Emergency Planning Manager, Growth Environment and Transport tel. 03000 413 386 e-mail tony.harwood@kent.gov.uk

Background documents: The Kent and Medway Offsite Reservoir Inundation Emergency Plan

To: Kent Flood Risk Management Committee – 16th July 2018

From: Tony Hills, Chair of Kent Flood Risk Management Committee

Subject: Environment Agency and Met Office Alerts and Warnings and KCC severe weather response activity since the last meeting.

Classification: Unrestricted

Summary: To update Kent Flood Risk Management Committee on the water resources situation, Environment Agency and Met Office Warnings, and flood response activity since the last meeting of the Committee on 5th March 2018. Members are requested to note this report.

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1. Background

1.1 KCC Resilience and Emergency Planning Service Duty Emergency Planning Officer (DEPO) and Contact Point receive Environment Agency and Met Office alerts and warnings on a 24 hour basis. Site specific severe weather impacts are notified to the DEPO by the emergency services and other resilience partners, with reports from the public received by Contact Point and passed to the DEPO and/or Kent Highways as appropriate. Potential impacts are assessed and a response mobilised as required.

1.2 Some 70,000 properties in Kent are located within areas identified as potentially at risk from fluvial (river) or tidal flooding. Where practically possible, these properties are offered a Flood Warning Service by the Environment Agency. However, other parts of the County are also vulnerable to surface and ground water flooding. Early warning of flood risk to communities (including areas outside of floodplains) is delivered through flood guidance statements, severe weather warnings and mobilisation of Kent Resilience Forum Severe Weather Advisory Group (SWAG).

2. Latest situation

2.1 The last meeting of the Committee took place during the rapid thaw following the cold snap dubbed the 'Beast from the East' by the media. Subsequently, three episodes of locally heavy rainfall affected Kent, in late March, April and May respectively. These contributed to a wetter than average spring in Kent, as can be seen from the table reproduced below.

Month	Kent rainfall (mm)	% LTA* for Kent
March 2018	83.7	173%
April 2018	81.4	165%
May 2018	62.7	123%
Spring 2018 total (Mar-May)	**227.8**	**153%**

***LTA = Long-term Average**

2.2 Intense and localised rainfall events experienced in late May saw sporadic surface water flooding across the county, with resultant property inundation and

subsidence impacts. Kent Highways chaired multi-agency SWAG teleconferences from 29 to 31 May, enabling effective co-ordination of planning and response.

2.3 By contrast June was notably dry and saw a rainfall total of just 4.6mm, or 10% of the long-term average in Kent. Despite a wet spring, soil moisture deficits increased markedly as this month progressed ending June well above average. Groundwater levels have been less affected by the recent dry weather and continue to range from normal to notably high. The legacy of spring's rainfall also kept most monthly mean river flows across Kent in the normal category, with only the River Eden below normal. Whilst reservoir levels declined in June, this is normal for the summer months, with Bough Beech ending the month at 84% of capacity and Bewl at 93%.

2.4 However, dry conditions have continued into July, resulting in drought stress to the county's natural and farmed environments as soil moisture deficits intensify. Local water companies are now actively promoting water saving measures to customers.

2.5 Nonetheless, as a result of a particularly wet spring, a total of 20 flood alerts (18 fluvial and 2 coastal) were issued by the Environment Agency since the last meeting on 5th March 2018[1]. This contrasts with just 4 flood alerts (3 fluvial and 1 coastal) during the corresponding period in 2017.

2.6 A total of 15 yellow Met Office severe weather warnings have also been issued since the last meeting (6 for snow and ice, 2 for ice, 6 for rain and 1 for a thunderstorm)[2]. This compares with 6 yellow warnings (5 for heavy rain and 1 for high winds) during the same period last year.

2.7 The Thames Barrier was closed on 4 occasions since the last meeting of the Committee, all for test purposes[3]. The figure for the corresponding period in 2017 was also 4, again all for test purposes.

3. Next Steps

3.1 Prevailing dry conditions will continue to be closely monitored by KCC and the wider resilience community in Kent, informing emergency planning contingencies for drought, pollution and wildfire.

3.2 Elected Members will continue to be regularly briefed on the prevailing water resources situation, flood alerts, severe weather warnings, operational response and significant flood or other severe weather events affecting Kent.

4. Recommendations

4.1 That Members:

- Note the current water resources situation and the level of warnings received since the last meeting of the Committee; and
- Contribute any additional matters arising from debate by the Committee.

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Background documents: None

[1] Please see appendix 1
[2] Please see appendix 2
[3] Please see appendix 3

Appendix 1: Environment Agency Flood Alerts issued since 5th March 2018		
Flood Zone	**Date issued**	**Status**
River Beult	30/03/2018	Alert
Lower River Medway	31/03/2018	Alert
Lower River Medway	03/04/2018	Alert
Rivers Eden, Eden Brook and Kent Ditch	29/04/2018	Alert
River Rother	29/04/2018	Alert
Rivers on the Isle of Sheppey	29/04/2018	Alert
River Darent catchment	29/04/2018	Alert
Upper River Medway	29/04/2018	Alert
Upper River Stour	30/04/2018	Alert
Isle of Sheppey and coast from Kemsley to Seasalter	30/04/2018	Alert
Rivers Eden, Eden Brook and Kent Ditch	30/04/2018	Alert
River Bourne	30/04/2018	Alert
Plenty, Swalecliffe and West Brooks	30/04/2018	Alert
Great Stour from Lenham Heath to Hothfield	30/04/2018	Alert
Lower River Stour	30/04/2018	Alert
Lower River Medway	30/04/2018	Alert
River Beult	30/04/2018	Alert
Tidal River Stour	30/04/2018	Alert
New Romney Sewage Arm	01/05/2018	Alert
Rivers Shuttle and Cray	29/05/2018	Alert

Appendix 2: Met Office Severe Weather Warnings issued since 5th March 2018		
Met Office Warnings	**Date issued**	**Status**
Yellow Warning of Snow and Ice	14/03/2018	Warning
Yellow Warning of Snow and Ice	15/03/2018	Warning
Yellow Warning of Snow and Ice	15/03/2018	Warning
Amber Warning of Snow and Ice	16/03/2018	Warning
Amber Warning of Snow and Ice	17/03/2018	Warning
Yellow Warning of Snow and Ice	17/03/2018	Warning
Yellow Warning of Snow and Ice	17/03/2018	Warning
Yellow Warning of Snow and Ice	18/03/2018	Warning
Yellow Warning of Ice	18/03/2018	Warning
Yellow Warning of Ice	19/03/2018	Warning
Yellow Warning of Rain	21/04/2018	Warning
Yellow Warning of Rain	25/05/2018	Warning
Yellow Warning of Rain	27/05/2018	Warning
Yellow Warning of Rain	28/05/2018	Warning
Yellow Warning of Rain	30/05/2018	Warning
Yellow Warning of Rain	30/05/2018	Warning
Yellow Warning of Thunderstorm	05/07/2018	Warning

Appendix 3: Environment Agency Thames Barrier closures since 5th March 2018		
Thames Barrier closures	**Date**	**Status**
Thames Barrier closed	22/03/2018	Test
Thames Barrier closed	03/05/2018	Test
Thames Barrier closed	04/06/2018	Test
Thames Barrier closed	02/07/2018	Test

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