WORSHIPFUL COMPANY OF WATER CONSERVATORS (WCWC)
SOME FURTHER THOUGHTS ON SEWER OVERFLOWS AND THEIR IMPACT ON RIVER QUALITY

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SUMMARY

S1 This think piece is produced by the Worshipful Company of Water Conservators, the City of London Livery Company, focussed on the long-term health of our water resources and the broader environment. Our members include senior professionals from water, environmental and related industries and regulators, along with others who share our passion for water and the environment. Our experience and knowledge ranges from the complexities of environmental sciences, through the application of engineering to deliver the goals identified by those sciences, and the subsequent management of the assets created. The Company's purpose is ***Promoting a diverse and sustainable environment***.

S2 The WCWC has decided to refresh its thinking on the subject of sewer overflows following the implementation of the Storm Overflows Reduction Plan (The Plan) in August 2022 and the announcement in January 2023 that Schedule 3 of the Flood and Water Act 2010 (2010 Act) will be implemented during 2024.

S3 The practical operational issues identified and the suggestions made by the WCWC in its response in March 2022 to the Defra Consultation, still need to be addressed and not be overlooked in any review of the timescale of the Plan

S4 The WCWC suggests that the execution of the Plan for the reduction of overflows would benefit from the introduction of a management protocol for each combined sewer overflow (CSO) which is recognised as having a high risk of damage to river ecology, public health and social welfare. Both the Environment Agency (EA) and Water Companies should be able to nominate relevant CSOs. This concept should be capable of initial quick implementation on priority CSOs. Some elaboration is given at the end of this paper but in simple terms:

1. The protocol should encompass a review of the dry weather flow (DWF) for each catchment, the sewer network hydraulic capacity, the waste water pumping stations (WWPSs) and waste water treatment works (WWTWs) capacities (flow forward to treatment (FFT) and storage) thus to identify the severity of risk of failure due to inadequate infrastructure.
2. It should include asset condition and performance criteria to help prioritise work and instil rigour into operations and design.
3. The requirement for CSO screening should be part of the protocol.
4. Following on from the current permitting, all high priority CSO discharges should be recorded for volume and duration and a record made of the availability and operability of all downstream assets.
5. The protocol should require identification of routine maintenance systems and evidence that they are being properly followed.
6. The need for genuine emergency operation of CSOs should be recognised and a protocol setting out conditions of operation developed.

S5 The WCWC reiterates its response to the Defra Consultation on single use wet wipes in January 2022 that a much a broader strategy is needed to control sanitary litter including the better labelling of products and an extension of product regulation.

S6 All companies should be required to execute a communication and marketing plan to take hold of the narrative by explaining their approach to the CSO problem including interactive digital maps showing the location and timing of planned works.

S7 The WCWC welcomes the announcement of the long-awaited implementation of Schedule 3 of the 2010 Act. Further, it recognises that it is important to understand the implications of doing so as part of the national effort to implement the Plan. Although it looks forward to the formal consultation for that implementation it has a number of immediate concerns.

It is suggested that the consultation might consider:

1. There needs to be greater clarity on when the application of the concept of sustainable drainage systems (SuDS) will require discharge of surface water outside of a sewer network and when it will allow discharges of flow balanced waters into the network; i.e., how the basic choice will be made on whether surface waters are disposed by soakaways or via public surface sewers or via combined sewers or even surface water sewers after passing through sustainable drainage systems.
2. The creation of national standards might be best contained in a Statutory Code of Practice.
3. The management of the discharge of surface waters is as much about sewer management as it is about flood protection.
4. In this context there will be more to be discussed about the designation of SuDS Approval Bodies (SABs) At the very least it is suggested that Sewerage Undertakers and the Environment Agency be statutory consultees.
5. The use of sewer flow balancing, be it by the use of (SuDS) for new discharges or by balancing tanks for existing flows, will need a rethink of what is understood by base flows (a more contemporary definition of DWF). Coupled with the changes of metrological events and the reduction of per capita domestic water demand, the WCWC re-iterates its suggestion made in March 2022 in response to the Defra consultation that the concepts in the 1970 Report, now the 2018 EA guidance documents, on sewer flow management be revisited. The national standards envisaged by the government will offer the opportunity of doing so.

S8 S106 of the 1991 Water Industry Act (1991 Act) giving an automatic right of connection needs a separate review in relation to foul water discharges to sewer. The concept of funding new assets out of growth via infrastructure charges does not recognize the immediate impact on sewer loadings that new connections will make. Nevertheless the WCWC recognises the potential conflict with the demand for new housing. This must be taken into account in the Levelling Up and Regeneration Bill and in the planned review of the Planning Framework with the minimum change being to make the Water Companies and the EA Statutory Consultees.

S9 The creation of an overall strategy for managing river qualities and uses would be a good place to fit the intentions of managing sewer and pumping station overflows.

S10 The framework of the relevant strategies and plans is difficult to navigate. There needs to be one consolidated place of coordinated action and information. The interaction between the Plan and execution of the implementation of the Schedule 3 of the 2010 Act, EA permitting guidance, drainage plans and the requirements of the Infrastructure Commission report on flood prevention needs to be better developed.

SOME FURTHER THOUGHTS

1 In recent times there has been a great increase in concern in England about environmental water quality, such as the impact of storm sewage overflows, water resources during drought, and the performance of water companies and their regulators. Some criticism is well-founded, some ill-founded. A more reasoned debate is needed in order to ensure that, whatever changes are made, they are well-founded and focussed on productive, properly prioritised, improvement.

2 The WCWC is striving to provide opportunities for constructive conversations on water conservation and to aid that process it is producing a series of think-pieces on the delivery of future water conservation in England. The issue of sewer and pumping station overflows continues to be one of emotive interest. This think-piece is part of that initiative. There is a challenge in reconciling diverse views on the subject, which the WCWC found in producing this think-piece, and it is not possible to embrace all views in moving forward.

3 During 2022, not only did the state of the rivers of England become a matter of debate in the media and in politics, but as part of routine business, Defra issued several consultation documents on matters related to water conservation to which the WCWC has responded (these are found on its website).

What has the WCWC said so far

4 In March 2022, the WCWC responded to the Defra consultation on the reduction of storm overflows. The WCWC stands by its suggestions for the numerous issues identified as being crucial to the successful delivery of any reduction plan. Several of the points it raised are yet to be addressed. However, circumstances have evolved. The Plan was published in August 2022 and is discussed at length later. The recommendation related to the implementation of Schedule 3 of the 2010 Act, along with the recommendations of many other organisations, has now been accepted in January 2023 for implementation, probably in 2024. (https://www.gov.uk/government/news/new-approach-to-sustainable-drainage-set-to-reduce-flood-risk-and-clean-up-rivers). The WCWC is pleased to note that the focus is on SuDS in all situations as sewer overflows can occur as a result of surface water overloading in rural situations as well. This is discussed in more detail in later paragraphs.

5 This will still leave the automatic right to connect foul waters to foul and combined sewers thus contributing to overloading problems. This is the subject of much debate and any change might well be controversial in relation to planned housing developments. See Supreme Court Judgment Barratt Homes vs Welsh Water 2009. (https://shepwedd.com/knowledge/barratt-homes-limited-v-welsh-water-dwr-cymru-cyfyngedig-2009-uksc-13). The WCWC is mindful of the conflict over planning restrictions arising from the implementation of 'Nutrient Neutrality'. There is a view that the demand created by new connections is provided for by funding from growth through infrastructure charges. However, this does not recognise the

void between the economic strategies of the Price Review processes and the immediate impact of new connections on a local sewer. Flooding may occur before there can be any practical extension of sewer or treatment plant assets. This might explain some of the unacceptable discharges reported in the press. The WCWC reiterates its suggestion that Sewerage Undertakers and EA ought to be, at the very least, Statutory Consultees in planning decisions and recognises that this might mean a modification of S106 of the 1991 Act. This must be taken into account in the Levelling Up and Regeneration Bill and in the planned review of the Planning Framework.

6 The responses on the need for emergency overflows remains ambiguous and this is essential if the balance of risks of property flooding against discharges to the environment is to be resolved. The 2018 EA permitting guidance only refers to emergency overflows from pumping stations yet the hydraulics of a sewer system might need more than this. There may well be inherited sewer overflow consents which might refer to emergencies. This is a very controversial area and needs more attention as to how such matters can be handled in future.

7 Some sewer overflows are caused by blockages and the WCWC responded to the Defra consultation on the ban of wet wipes containing single use plastics, by supporting such a ban, but advocating a much wider solution to the problems of disposal of used sanitary wear. The WCWC notes that the government is yet to announce its response to that consultation. In the Plan there is still a focus just on wet wipes. Whilst banning wet wipes with single use plastics will be very helpful, the ultimate answer to sewage borne sanitary litter is much wider than just this.
(https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1101686/Storm_Overflows_Discharge_Reduction_Plan.pdf)

8 The WCWC has also noted that the current headline statistics on the quality of river waters can be misleading and that the statistic of zero good chemical status is not caused by the impact of sewer overflows, but rather substances designated as ubiquitous (appearing or found everywhere), persistent, bio-accumulative and toxic. The two issues of sewer overflows and poor chemical status are often coalesced. In addition, the whole topic of inland bathing waters is often correlated to sewer overflows although their suitabilities are usually impacted by other factors. To draw all these issues together the WCWC have suggested that a national framework of river quality objectives should be re-examined. This should allow better prioritisation and resource allocation. The WCWC observes that this concept fits in well with those relating to the qualities and uses of receiving waters in the 2018 EA permitting guidance and the Plan.

Historic perspective

9 There is a legacy, dating back to the early 19th century, of sewers which combine both surface and foul sewage. These combined sewers were generally sized to carry at least six times DWF based on predictions of future population and water use. Until 1970, WWTWs at the end of the sewerage network were required to provide full treatment up to three times DWF and then storm water storage for three to six times DWF with at least 2 hours retention before discharge. To allow for rainfall in excess of the design parameters, an overflow to a nearby watercourse was built into the design to ensure that the overflow operated automatically in storm conditions. This was necessary in order to prevent the sewage works being flooded by excess flows and similar overflows were provided within the sewerage network to avoid sewerage back-up into homes and commercial properties. In 1970 a new

approach was introduced which resulted in reducing design flows into the sewage works, but the capacity of the sewers remained unchanged. The focus has always been sewer overflows per se, in line pumping station overflows and excessive flows from sewage treatment works. https://wellcomecollection.org/works/s8xfk4kp.

10 The algorithms for design were updated by the EA in its 2018 Permitting Guidance for Sewer Overflows and Emergency Overflows.
https://www.gov.uk/government/publications/water-companies-environmental-permits-for-storm-overflows-and-emergency-overflows,
https://www.gov.uk/government/publications/calculating-dry-weather-flow-dwf-at-waste-water-treatment-works/calculating-dry-weather-flow-dwf-at-waste-water-treatment-works

11 Sewers are buried at a depth, usually over 1.5 metres, under public highways in towns and cities. Their condition is regularly surveyed and monitored by digital cameras but work to replace or re-configure the network requires extensive disruption at high cost because of depth and accessibility issues. Separation of systems usually involves the construction of separate foul and surface water sewers.

12 When designing and constructing sewerage infrastructure today every effort is made to allow rainfall to drain either by soakaways, SuDS or by separate surface water sewers so that storm events result in either ground retention or the direct discharge of natural runoff by surface water sewer to watercourses, without becoming contaminated by foul sewage. There is a detailed manual of practice published by Water UK (https://www.water.org.uk/wp-content/uploads/2021/07/SSG-App-C-Des-Con-Guide.pdf) and most companies produce their own advice for developers. But this has not been enough to avoid problems.

13 The discharges are permitted by the EA as set out in its 2018 Guidance which has several aspects relevant to the Reduction Plan. It has extensive detail on what is taken into account, for example reference to Ofwat guidance on preparing drainage area strategies. It refers to relevant strategies and practices for example adherence to the principles of Urban Pollution Management.
http://www.fwr.org/UPM3/
https://wrcknowledgestore.co.uk/collections/manuals/products/sewers-for-adoption-7th-edition-a-design-construction-guide-for-developer
As referred to in the preceding paragraphs, it also has an update of the principles of the design of sewer overflows and on the volumes of sewage taken forward to treatment that were set out in the 1970 report. The update of the definition of DWF is contained in a separate document (https://www.gov.uk/government/publications/calculating-dry-weather-flow-dwf-at-waste-water-treatment-works/calculating-dry-weather-flow-dwf-at-waste-water-treatment-works). It also contains guidance on matters like event monitoring, screening of discharges and sets out the environmental criteria by which discharges are judged. It recognises the issue of deemed consents and was equivocal about inherited emergency overflows from sewers. It made it plain that only emergency flows from pumping stations would be consented, and then very strictly. It also issued its Storm Overflows Assessment Framework (SOAF) https://www.water.org.uk/wp-content/uploads/2018/12/SOAF.pdf

14 From February 2022, the Government required the development of drainage and waste water management plans by Water Companies to maintain, improve, and extend robust and resilient drainage and wastewater systems. This might help with forward planning on the

impact of housing development, but will not resolve the overall problems arising from S106 of the 1991 Act.
(https://www.gov.uk/government/publications/drainage-and-wastewater-management-plans-guiding-principles-for-the-water-industry

15 According to Defra, England has hundreds of thousands of kilometres of combined sewers. As Defra says, "overflows of diluted sewage during heavy rainfall are not a sign that the system is faulty. Combined sewer overflows are a necessary part of the existing sewerage system preventing sewage from flooding homes and businesses." (CSOs explained July 2020, Defra).

Defra leadership

16 In anticipation of S82 of the Environment Act 2021 (2021 Act, water companies must monitor the water quality impact of their assets that discharge sewage, including storm overflows and continuous discharges from wastewater treatment works), in January 2021 Defra established the Storm Overflows Taskforce – made up of Defra, the EA, Ofwat, and the Consumer Council for Water.

17 The Task Force commissioned Stantec to produce an evidence report which was published in November 2021. The Consultation document and subsequent August 2022 Reduction Plan are based on the evidence provided. It estimated that there are around 15,000 storm overflows of which 13,350 discharge to inland rivers. In 2020 these operated 342,000 times. This compares with an estimated 650,000 storm overflows across continental Europe.

18 Much of the evidence arises from much more extensive monitoring. The frequency of operation and duration of discharges is now being measured and the results show that the performance of some overflows is unacceptable. Defra state that some 402 rivers fail to achieve Good Ecological status because of intermittent pollution caused by CSOs discharging sewage, microplastics, nutrients, litter etc. These failures have a social impact as well as an ecological disbenefit leading to demands for immediate remedial action.

19 In July 2020 Defra reported that they had identified a further 700 overflows to be investigated and 40 to be improved within the period 2020 to 2025. Campaigners have commented adversely that this shows little ambition and reflects resource limitations. The figures for failure would be much worse were it not for improvements to over 7,000 overflows already made by water companies since privatisation (Defra, July 2020).

The August 2022 Storm Overflows Reduction Plan

20 Following on from the consultation earlier in the year, in August 2022 Defra launched the Plan. The Secretary of State for Environment, Food and Rural Affairs presented the Plan to Parliament. He heralded the Plan as the largest infrastructure project ever to restore the environment in water company history. He noted that the steps already planned would reduce overflow discharges from 2020 levels by around 25%.

21 The Plan contains new targets so that **by 2035** water companies will have improved **all** overflows discharging into or near every designated bathing water and improved **75%** of overflows discharging to high priority sites. **By 2050** no storm overflows will be permitted to operate outside of unusually heavy rainfall periods or to cause any adverse ecological harm.

Storm overflows will not be permitted to discharge above an average of 10 rainfall events per year by 2050. The Secretary of State described this as a mandatory £56bn plan to sort the problem out and declared that Ofwat is legally required to act to enable appropriate investment for companies to meet these targets. The Government committed to reviewing the targets in 2027.

22 Section 3 of the Plan proposes that the Government:

Publish the review and decision regarding implementation of Schedule 3 to the Flood and Water Management Act 2010 in Autumn 2022.

If implemented, this schedule would:

• Introduce standards for new sustainable drainage systems (SuDS);

• Introduce an 'approving body', and;

• Remove the automatic right to connect to the public sewer system, to prevent new developments adding more surface water to the combined sewer network when it rains.

23 The third of these proposals is absolutely key if the problem of CSOs is to be tackled but it only refers to the loss of automatic right of connection for surface waters to combined sewers. Since the 1960s developers have been required to provide separate systems to service their developments, but in spite of problems, the S106 of the 1991 Act has preserved the right for them to connect to the nearest public sewer, with the result that both foul and surface water sewers are discharged into the existing combined sewerage system. The announcement in January 2023 that Schedule 3 of the 2010 Act will be implemented during 2024 is welcome. This does not deal with the existing problems, but will be a benefit in not making them worse. The 2018 Guidance on permitting made it plain that the expectation is that for new developments, surface waters will be dealt with separately and SuDS has been voluntary, but this has not worked – hence the need to introduce Schedule 3.

24 There needs to be greater clarity on when the application of the concept of SuDS will require discharge of surface water outside of a sewer network and when it will allow discharges of flow balanced waters into the network, i.e., how the basic choice will be made on whether surface waters are disposed by soakaways or via public surface sewers or via combined sewers or even surface water sewers after passing through sustainable drainage systems. In large storm events SuDSs normally have little impact in reducing the risk, mostly just reduce the effects of smaller events. They can reduce the frequency of smaller spills, but have little impact in allowing overflows to be removed or decommissioned entirely unless also involve disconnection from combined systems. This can have the benefit of reducing surface runoff pollution getting to watercourses.

25 Although there is an emphasis on SuDS, there is a rider contained in subsequent sections of the August 2022 Plan that says *"The Storm Overflows Evidence Project concludes that SuDS cannot be used on a national scale to achieve complete elimination on their own."* This is because SuDS require permeable ground conditions that may not be available in urban environments. It is essential that this is recognised and accepted by any "approving body" such as the EA. A degree of pragmatism may be needed, such as accepting discharge of surface water drainage to local water courses, or the construction of surface water sewers when local solutions are impractical. The implementation of Schedule 3 of the 2010 Act must take this into account.

26 For developments that have been correctly designed and constructed in the last 60 years, there is the opportunity to remove considerable amounts of surface water from the combined

sewerage system. Design is based on separate systems and the surface water drainage should be capable of being removed from the combined sewer connection. It will then need to be dealt with by construction of SuDS or an alternative such as flow balancing by storage.

27 The WCWC suggests that there is a need for increased powers for water companies or local authorities to enforce landowners to disconnect impermeable areas from sewer systems either by re-connecting to a surface sewer or by replacing with SuDS compliant infrastructure and achieving soak away of all storm flows (not increasing flood risk though). The same applies to the need for rights to reconnect to surface systems or highway drains. This needs better co-ordination and a clearer Plan.

28 The WCWC considers that one aspect overlooked is the need to reduce ground water infiltration into foul and combined sewers. This is a serious issue in some catchments which in winter, in particular, experience raised water tables and hence greater infiltration – this can lead to overflows spilling for days or even weeks at a time, continuing between rainfall events. Though diluted this does still contain significant quantities of foul sewage which get spilt to watercourses. Lining of sewers to cover the cracks and joints through which the groundwater enters the sewer is normally the only solution other than complete sewer renewal. It is noted that the Plan acknowledges provision to treat rather than prevent such groundwater derived spills due to difficulties of repair and lining. A prime difficulty is that ground water can infiltrate through private connections to the public sewers and the water companies cannot line or by other means prevent this from happening.

29 The Plan also includes targets for significantly reducing harmful pathogens from storm overflows discharging into and near designated bathing waters by either applying disinfection or reducing the frequency of discharges by 2035 plus a requirement for screening controls consistent with the timetable for other targets, as described above. To reduce the environmental impact of discharges there is the option of disinfection.

30 The use of traditional disinfectants such as chlorine has to be controlled when the water has a high organic content because of the formation of complex compounds such as Trihalomethanes which are carcinogenic. Chemical alternatives include hydrogen peroxide and peracetic acid but these have challenges in terms of storage risks and emergency readiness. The alternative of ultra violet (UV) disinfection requires low turbidity water otherwise particles in the water prevent penetration by the UV light. Because CSO discharges are both high in organic content and relatively high turbidity any disinfection proposal requires regulatory clarification otherwise reducing discharge frequency will be the only viable solution. However, in practical terms such technologies are suited to continuous discharges rather than intermittent ones and easier to install for treatment works overflows than sewer overflows. No doubt the water companies will choose whatever works best and is most economical.

31 Data from the water companies, contained within the official report, shows that there is a huge regional variation in the number of storm overflows and the modelled cost of improvements indicating that three companies (Yorkshire, United Utilities and Wessex) account for over three quarters of the investment required.

32 The 2018 EA permitting guidance refers to screening and there is reference to this in the Plan to exclude solids and plastics from watercourses. Mechanised screens are sophisticated pieces of mechanical and electrical equipment that require housing and security fencing, there

is no “nature based” alternative. Some screens return the screenings to the combined sewer down-stream of the overflow, others remove screenings which then pass to a skip or a compactor. A significant contribution to the long-term solution to this will be a national ‘bag it and bin it’ strategy.

33 The Plan also refers to the need for maps of the sewerage system. WCWC believes that the requirement should be for digital models which can properly represent the hydraulics, together with recent CCTV footage, that will identify structural and maintenance problems. These are essential if the root causes of failing CSOs are to be properly identified. Not all CSO discharges are caused by excessive flows. Lack of maintenance of sewers and mechanical equipment, e.g., pumps, can also result in discharges.

34 The WCWC observes that there is a need for data sharing agreements and transparency to be put in place. This could coordinate with the National Underground Asset Register, alternatively though projects such as the Data & Analytics Facility for National Infrastructure (DAFNI). The Centre for National Infrastructure Protection (CPNI) may also have a role in pushing for such data sharing. Access to the sewer records and hydraulic models for qualified users can also be important for managing public health threats through wastewater-based epidemiology (WBE) – the difficulties of data sharing were a major hindrance during COVID19 wastewater monitoring programmes. Caution must be exercised as the data in the asset databases and the models is never completely accurate, up to date or representative and so should not be on general public access. Just basic information should be public. This is clearly a topic which would benefit from more open discussion.

35 The 2018 EA Guidance on permitting sets out the conditions for monitoring. The Plan states that there are event duration monitors on almost 90% of the sewerage network. By the end of 2023 there will be 100% coverage and provide a complete picture of when, and for how long, each storm overflow operates. Near real time monitoring of CSOs is a major step forward and offers the potential for more modern dissemination of information than currently envisaged. If the data can be made available via the internet in a form where it can be analysed using data mining techniques in conjunction with real time data from the Met office, then real advances in predictive sewer management could be made. The Plan envisages the implementation of S82 of the 2021 Environment Act on the production of reports but the considerable amount of data available already, has contributed to the current debates.

36 The WCWC re-iterates the points which it made last year, in its response to the consultation; there are many practical and legal issues which must be taken into account in the Plan and these must not be overlooked in any review of the timescale of the Plan.

Reactions to the Plan

37 Some of the follow up demands have been practically impossible The WCWC draws attention to the wide range of views expressed on the internet, but notes for example two articles in leading newspapers.

38 Shortly after the publication of the Plan, The Times produced an article by Adam Vaughan Environment Editor “Grubby truth behind failure to clean up nation’s rivers condemning a lack of progress in improving river quality with no improvement since 2017. Ministers had promised four years ago to raise the proportion of rivers of good ecological status to 75% by 2027 but the figure remained at 16% in 2021. Although the article was referring to river

quality in general the operation of CSOs was used to dramatize the point saying that "A sewage spill has occurred every two minutes in England and Wales since 2016 according to Environment Agency figures obtained by Labour."

39 A few days later on November 5th, 2022, a two-page Times article by Emma Duncan, "The murky business behind Britain's polluted waterways", used information gleaned by an independent investigator to question the legitimacy of frequent operation of CSOs in specific instances. This created a platform to question the effectiveness of the Government regulators and companies. It led to a response from David Black of OFWAT on 12th November 2022 at the Utility Week Forum that water companies should "recognise the gravity of the public anger and that Chief Executives needed to talk more openly about the issue of CSOs." The Times and other newspapers continue with campaigns and the WCWC recognises a number of legal actions.

The January 2023 Announcement on Sustainable Drainage Systems and some suggestions for next steps

40 When Defra announced that it will implement Schedule 3 of the 2010 Act, it said that new developments and the environment will benefit from a reduced risk of flooding and pollution thanks to a new approach to drainage. The recommendation to make SuDS mandatory to new developments in England is the result of the Government's review. "This will reduce the risk of surface water flooding, pollution and help alleviate the pressures on our traditional drainage and sewerage systems. New developments can inadvertently add to surface and sewer flood risk by covering permeable surfaces like grassland and soil that would otherwise assist in dealing with heavy rainfall."

41 It said that the new approach to drainage will ensure that SuDS are designed to reduce the impact of rainfall on new developments by using features such as soakaways, grassed areas, permeable surfaces and wetlands. This reduces the overall amount of water that ends up in the sewers and storm overflow discharges. Certain features such as tanks and water butts also allow for water re-use and reduce pressures on water resources.

42 The Government will give consideration as to how Schedule 3 will be implemented, subject to final decisions on scope, threshold and process, while also being mindful of the cumulative impact of new regulatory burdens on the development sector. This will include a public consultation later this year, which will collect views on the impact assessment, national standards and statutory instruments. Implementation of the new approach is expected during 2024.

43 The WCWC welcomes this announcement of the long-awaited implementation and recognises that it is important to understand the implications of doing so as part of the national effort to implement the Plan. It looks forward to the formal consultation for that implementation. A number of issues arising are identified earlier in this think piece as matters needing to be taken into account in the Plan. It has a number of immediate concerns, and these are shared in the Summary.

WCWC suggestions for practical execution of the Plan

44 The Plan is vital, but it is not sufficient to moderate short term public concern and mistrust because macro numbers for future investment are unlikely to offset outrage over specific

spills where CSOs operate and create significant harm to the aquatic environment before planned work is completed.

45 The practical operational issues identified and the suggestions made by the WCWC in its responses to earlier consultations in 2022 need to be addressed.

46 A set of suggested actions is given in S4 – S8 of the Summary

47 It would be of value that the need for genuine emergency operation of CSOs is recognised and a protocol setting out conditions of operation developed. By way of elaboration of some points made in S4 of the Summary:

1. The sewer network hydraulics review described in S4.1 is supported by the EA Storm Overflow Assessment framework (SOAF). Unfortunately, most SOAF studies just use an event mean concentration to estimate the loads from the CSO spill. This can prove very conservative. It would be better to use a dilution of DWF basis – e.g., SimBasinQ or similar. This procedure also needs to consider the flow in the receiving water and the importance of the rivers downstream that are affected. It can get complicated and there is a need for a better indexing and assessment process for this. The SOAF Procedure does the assessment at the next EA Water Quality assessment point downstream, if this is close then the risk assessment will be high, if distant or downstream of additional tributaries then the assessed impact will be much lower – thus it varies randomly based on chance positioning.
2. The advantages of measuring the flows and volumes of CSO discharges described in S4.3 is that these can be compared with O&M performance, thus identifying where immediate improvements in company O&M behaviours can be made. This would include innovation such as regular sewer surcharging to wash through trash such as wet wipes in a controlled manner rather than have them impact load and block WWTW screens following storm conditions. However, the WCWC concedes that the current use of typically ultrasonic EDM level meters to measure flow can be inaccurate because small changes in level equate to large changes of flow.

48 Locations and conditions where there is a catastrophic risk to the river environment, property, public trust and corporate reputation arising from CSO operation should be recognised and prioritised within the Plan. Catastrophic risk covers high consequence / low frequency events for which there will be little tolerance of anticipated failure in the court of public perception.

49 Part of the reasons for including so many hyperlinks in this piece is not apply to provide relevant references, but in themselves to demonstrate how many elements there are to solving the national angst on storm overflows and it can be difficult for all, but the most involved, to navigate this complexity. There needs to be one consolidated place of co-ordinated action information. At the least the interaction between the EA permitting guidance Plan and execution of the implementation of the Schedule 3 of the 2010 Act, drainage plans and the requirements of the Infrastructure Commission report on flood prevention needs to be better developed.