

Wessex Water Services Ltd Response to Ofwat's PR19 Draft Determination – August 2019

Representation reference: Cost Assessment C10

Representation title: Sewer flooding

Summary of issue

At the draft determination Ofwat rejected our cost adjustment claim (CAC) of £87m for the sewer flooding programme. It considered that there was no need for an adjustment on two grounds:

- i) That achieving the common performance commitments (i.e. internal flooding) is covered by the base plus cost allowances
- ii) That outperforming the targets is funded under the outcome delivery incentive (ODI) framework.

We disagree that the implicit cost allowances within the base plus model are sufficient to deliver the targets and programme of work that we have agreed with customers and stakeholders.

Ofwat's approach seems to ignore the specific circumstances and new obligations that we face. The main reasons we disagree with the approach on sewer flooding are:

- a) The base plus cost allowance are based on achieving industry average performance. Since we are an upper quartile performer, additional funding will be required to improve further.
- b) The need for infiltration sealing is unique to Wessex Water and companies in the south of England.
- c) Parts of our programme are clearly enhancements and are not reflected in industry historical costs and therefore in the base plus cost models e.g. Drainage and Wastewater Management Plans (DWMP), which will be statutory.
- d) Partnership working on flooding, which is recognised by all stakeholders as a valuable way to deliver benefits for our customer and the general public, is not fully represented in historical costs and therefore in the base plus cost allowances.

Ofwat have intimated that there is an implicit allowance of £60m for sewer flooding in their draft determination base plus allowance. No analysis is provided to support this figure and we have not been able to reproduce it. We do not consider that this is a reasonable value for the implicit allowance for sewer flooding, given the scope of work to be delivered.

The levels of service that are implicitly funded through Ofwat's base plus models, which are based on historical spend, are those of an average performing company, not the upper quartile performance. Wessex Water is, and has been, upper quartile for the internal flooding metric and near upper quartile for external flooding. Therefore the funding required to continue to achieve our stretching upper quartile performance is not covered by the allowances estimated from the base models. We have given our customers additional

protection by continuing the innovative Risk Grid performance commitment for hydraulic flooding programme.

Change requested

We request that our sewer flooding cost adjustment claim programme is accepted on the basis that the new base plus cost models do not fully reflect the scope of work required to deliver the targets and programme of work agreed with stakeholders.

Relevant values are summaries in the table below along with confirmation of the value we request.

Sewer flooding	Totex £m	Comment
PR19 business plan (IAP)	84.605	
Draft determination	59.553	
Representation request	84.605	Through implicit allowance and cost adjustment claim

Rationale (including any new evidence)

After some introductory remarks about the modelling approach, we provide additional evidence regarding:

- 1) Our historical performance, and therefore the need for additional funding compared with the average performer
- 2) Infiltration sealing
- 3) Drainage and water Management plans
- 4) Partnership working for flood management.

Model allowances

We have commissioned a study by Reckon, jointly with other companies, on a proposed approach to implicit allowances relating to enhancement operating expenditure. This is included in full as Appendix C11.1.

In summary, the paper sets out the concept of enhancement operating expenditure, uses simulation analysis to illustrate how implicit allowances relate to that expenditure with an explanation of how they can be categorised, and sets out options for how Ofwat might deal with the concept in its determinations.

Also we previously commissioned a study by Reckon, jointly with other companies, on a proposed approach to enhancement operating expenditure. This was included in full in our IAP response as Appendix 13.

In summary, the previous paper sets out policy issues associated with enhancement opex, deficiencies in the way Ofwat's IAP dealt with that opex and potential remedies. Whilst some

of those have been adopted by Ofwat to some extent in the draft determinations, there remains a significant issue regarding the performance levels covered by base allowances and those achievable with enhancement opex.

Reckon go on to explain how they “do not see any general case for thinking that the implicit allowances from the historical models of base costs cover the costs of delivering performance levels beyond the industry-average levels of performance (assuming no explanatory variables for the relevant aspects of performance are included in the models).”

Further, “in the absence of evidence and analysis that relates directly to a given aspect of service quality or environmental performance, we propose that the implicit allowances for base costs should be understood as funding a level of quality/performance that is the industry-average over the historical period covered by the data used for the modelling. We feel that this is the natural assumption in the absence of further evidence, given the statistical properties of the models and the allowances derived from them.”

1) Upper quartile performance

We are an upper quartile performing company for internal flooding and near upper quartile for external flooding. Figures 1 to 3 shows that our performance far better than average performance.

In section 5.4 of our DD summary representations document we set out our overall conclusion that Ofwat’s base plus models at best only make sufficient cost allowances for average levels of performance. Therefore, as an industry leader, we will require more funding than is allowed in the base plus allowance.

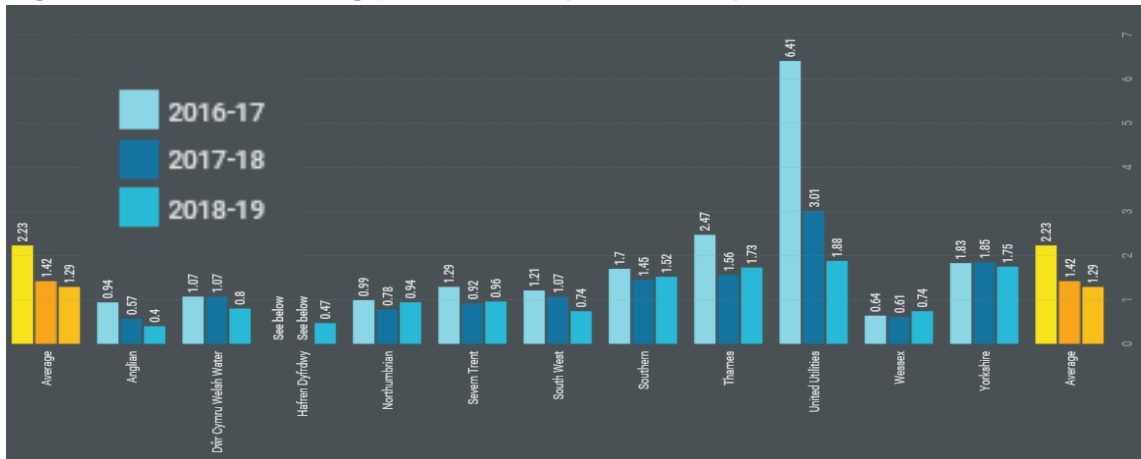
Where our performance is beyond that implicitly funded by base costs allowances we consider that an additional cost allowance over and above the base cost allowances needs to be made. This position applies to sewer flooding where our performance is upper quartile, and for which we request acceptance of our request for additional enhancement funding.

Figure 1 shows the discover water flooding (internal) performance for the last 3 years for all WaSCs. These graphs exclude section 105a sewer flooding incidents. It is clear that Wessex Water are industry leading.

Figure 2 shows the shadow reported performance data on flooding (internal) for the past 3 years. This definition includes section 105a sewer flooding incidents. Again Wessex Water is clearly upper quartile.

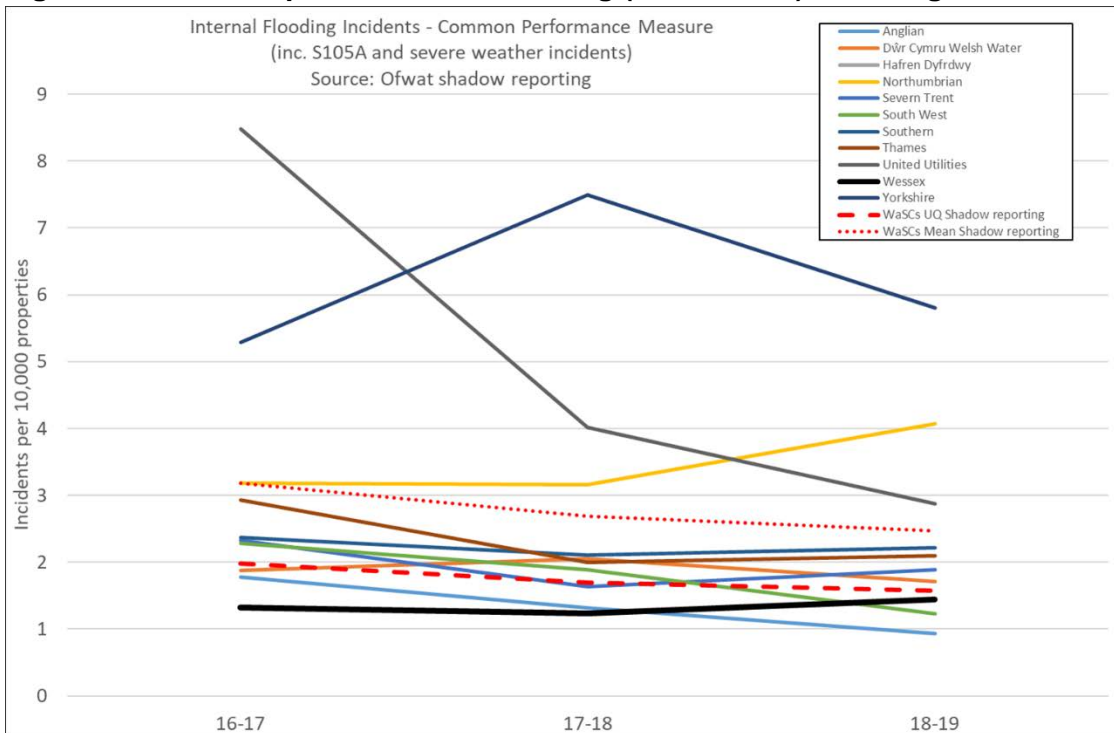
Figure 3 shows our historical performance compared to other WaSCs. Again this confirms our upper quartile performance, and how much better that is compared to the industry average. These graphs exclude section 105a sewer flooding incidents.

Figure 1: Internal flooding performance (2017 – 2019)

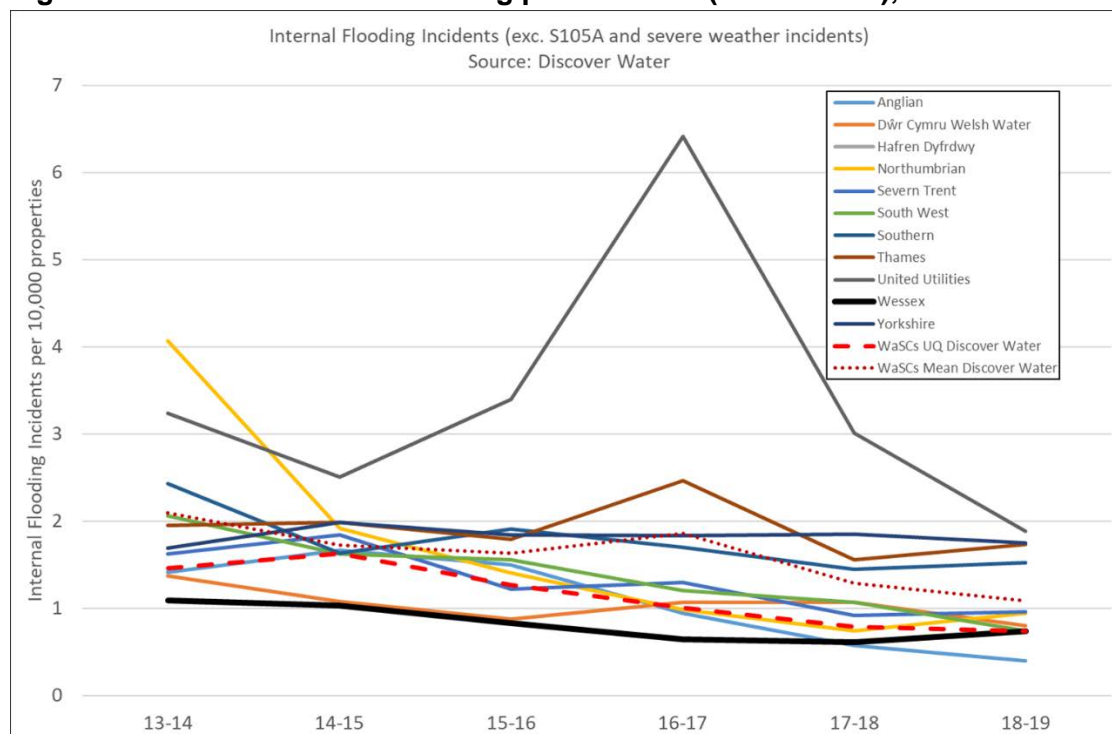


Source: Discover Water

Figure 2: Shadow reported internal flooding (2017 – 2019) including s105a



Source: Shadow reporting Table 3S

Figure 3: Historical internal flooding performance (2014 – 2019), excludes s105a

Source: Discover Water

2) Infiltration sealing

Wessex Water and other southern WASCs have a more challenging environment in relation to flooding risk due to infiltration sealing in chalk catchment than other companies in the industry. Therefore any implicit allowances from cross-industry base plus models would be insufficient given these circumstances. We provide below more information on the particular issue and our approach to infiltration sealing.

Parts of the south of England have a chalk geology which is prone to becoming overwhelmed during prolonged wet periods, which then continues to cause groundwater flooding for several weeks continuously. Many villages in the south are named after winterbournes, which are watercourses that are dry in summer conditions but are rivers in wet winters. In these areas anything underground becomes saturated, unless it is perfectly watertight. Unfortunately sewers (public and privately owned) are not watertight, so are vulnerable to becoming inundated. This can cause restricted toilet use, continuous sewer flooding from our sewers, and continuous spills from our overflows, for several weeks.

We have proposed to significantly increase our sewer sealing activities, to continue our requirements with a Regulatory Position Statement, issued by the Environment Agency. This was a new obligation from the Environment Agency's (EA) Regulatory Position Statement, 2013. Our DWMP website (www.wessexwater.co.uk/DWMP) contains an annual update report on our Infiltration reduction activities, reporting how we are currently investing £1m a year in making our sewers in these vulnerable catchments watertight. We are proposing to double this investment in AMP7.

Groundwater inundation of our sewers in wet winters, was described further in our previous submissions; IAP response Appendix 7 Section 3.4, Appendix 7 Annex B and supporting document 5.4 Section 2.4.

This phenomenon only affects a few WaSCs, and is therefore clearly not reflected in the allowances provided for by Ofwat's 'base plus model'.

Figure 4 shows the extent of the chalk geology in England, that only affects the southern WaSCs.

Figure 4: Chalk geology in England

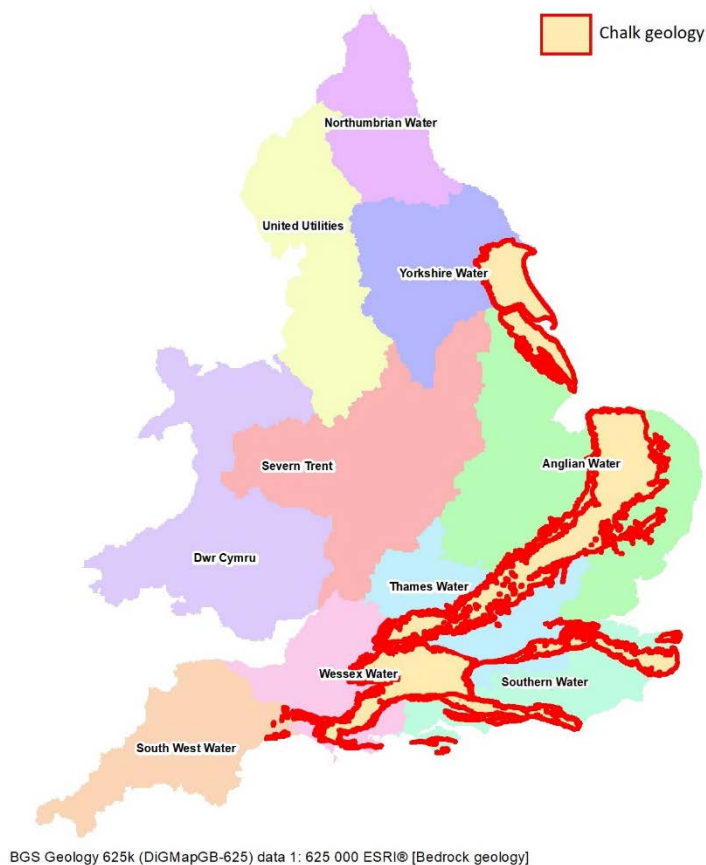


Figure 5 is an extract of the [video \(click this link\)](#) that we created to explain the geologically local problem and the difficulty in solving the problem.

In the 21st Century Drainage programme task & finish group that focussed on Groundwater inundation of sewers, only 4 WaSCs were involved (Wessex Water, Southern Water, Thames Water and Anglian Water). The other WaSCs did not join the group as they did not have groundwater inundation problems.

Figure 5: Extract of our video showing chalk regions in the UK and groundwater infiltration into sewers



If funding for infiltration reduction plans is in Ofwat's base model, then the other WaSCs have been funded for something they do not need.

Our previous submissions explained that we have only inspected and sealed 21 catchments of the known 78 catchments that need making water tight, and last year we sealed some sewers in a further 10 catchments. We also need to check that the public sewers are watertight and to expand our search for infiltration in the s105a sewers and private sewers.

Infiltration reduction is such a significant issue for Wessex Water, we have given it a bespoke 'catchment indicator' in the DWMP screening process to prioritise those catchments for future investment. Our DWMP portal ([here](#)) which is public domain also contains a tab detailing our Infiltration reduction programme, see Figure 6.

Figure 6: Extract of our DWMP website, showing infiltration



Another reason for doubling our proposed infiltration sealing programme was because of the introduction of the Storm Overflow Assessment (SOAF) framework (see Supporting document 5.4, page 18). The SOAF is a framework to encourage WaSCs to improve the performance of frequent spilling overflows (e.g. an overflow that spills more than 40 times a year).

The SOAF will identify frequent spilling overflows that are caused by excessive and prolonged groundwater infiltration inundation. For example, a catchment that suffers groundwater infiltration inundation can become overwhelmed for weeks. Where there are no storm overflows this causes sewer flooding. Where storm overflows exist, then these can spill continuously for days and weeks, becoming FSOs. These spills in these groundwater inundation scenarios often do not have an impact on the environment, because the spill is

mostly spring water and the receiving waters are very swollen, so there is a large dilution factor. One example is the Piddle Valley catchment where we have 2 permanent overflows to act as Infiltration inundation relief points [See the DWMP portal Piddle Infiltration reduction plan/inflow management plan]. Sampling during spills proves that the discharge have no notable impact on the environment.

However, in some cases, where the dilution of the watercourse is low, there can be more of an impact.

The SOAF states that FSOs caused by infiltration are not deemed to be 'hydraulic' issues, so cannot be funded through the WINEP **or** our bespoke performance commitment on non-WINEP FSOs.

The Wessex Regional Floods and Coastal Committee includes Groundwater as one of their high priorities in their strategy ([here](#)). The first paragraph of the WRFCC Strategy is extracted below in Figure 7.

Figure 7: Extract from the WRFCC showing the scale of Groundwater flood risk

1.0 Introduction

In 2013/14 Wessex experienced a major flooding event that resulted in long-lasting flooding on the Somerset Levels and Moors, extensive damage to coastal defences along the Dorset coast and more than 1000 properties suffering groundwater flooding across Dorset and Wiltshire.

Infiltration sealing is **not** undertaken to reduce the risk of collapses, so is not included in the base model of Sewer rehabilitation programme. The rehab programme addresses structural integrity issues where sewers are at high likelihood of collapsing. The infiltration sealing programme needs to resolve much more minor issues such as cracks or displaced joints. The minor defects can let groundwater inundate or sewers, but the structural integrity of the sewer is intact, so the sewers do not need refurbishing for structural integrity. It just needs making watertight. The only way to make these minor defects is to use full Epoxy liners, as explained in our video ([here](#)).

The chalk valleys in the south of the UK make this a significant for us, hence including it in our CAC.

3) Drainage and wastewater management plans (DWMP)

Drainage and wastewater management plans (DWMP) are a new obligation, as described in our previous submissions (see IAP response Appendix 7, Section 4).

Ofwat's IAP asked us to 'provide a commitment to provide a detailed work programme by end August 2019 to assure us that the company will deliver appropriate drainage and wastewater management plans. The programme should ensure that the company can prepare and consult on its first drainage and wastewater management plan no later than the summer of 2022 to enable revised plans to be prepared in early 2023 to inform PR24 business plans'

Ofwat's draft determination document 'PR19-Draft-Determinations-Wessex-Water---Targeted-controls-markets-and-innovation-actions-and-interventions' refers to this DWMP action, shown in Figure 8. It states that Wessex Water completed the action WSX.CMI.A2 in our response to the IAP in April 2019. No further action was required from Wessex Water with regard to the action.

We do still however have to implement the DWMP framework by the summer of 2022.

Figure 8: Ofwat's DD response to Wessex Water for Action WSX.CMI.A2

Test area	Action reference	Action type	Action	Date required	Summary of company response to action	Our assessment and rationale	Required interventions
	WSX.CMI.A2	Required	The company should provide a commitment to provide a detailed work programme by end August 2019 to assure us that the company will deliver appropriate drainage and wastewater management plans. The programme should ensure that the company can prepare and consult on its first drainage and wastewater management plan no later than the summer of 2022 to enable revised plans to be prepared in early 2023 to inform PR24 business plans.	1 April 2019	The company has provided a commitment in its 1 April 2019 submission. The company also provided a detailed work programme to assure us that they will deliver their drainage and wastewater management plans to the required timescales.	No intervention required. The company has complied with the action. We can confirm that we do not expect any further information from the company in relation to this action.	N/A

As we described in our IAP response (Appendix 7 Section 4.2) an investment of £12.7m is needed to:

- Complete model building of our assets to an appropriate level (1D)
- Survey important infrastructure to inform the modelling
- Keep our modelling stock up to date
- Expanding improved modelling techniques (2D)
- Use the models to inform the DWMP for future uncertainties and develop option for the higher risk areas.
- Model generic options elsewhere and for the long term scenarios of uncertainty planning
- Liaise with other risk management authorities
- Report.

This work cannot be reflected in historical costs because it is a new requirement for all companies that arose around September 2017. We recognise that there may be an implicit allowance for expenditure on sewer modelling. We would be pleased to assist in providing the necessary information for this allowance to be calculated.

4) Partnership working (Flood management)

Partnership working is recognised as an excellent way to deliver benefits for our customers and the general public. The scope and costs involved are particular to each company and a cross industry base plus cost models will not fully reflect the programme in our area and the benefits delivered. We describe below our approach in this growing area of multi-agency work.

We have been meeting and liaising with other risk management authorities to identify opportunities to deliver flooding schemes that address multiple RMAs for decades. For example, our PR14 plan referred to historical schemes including Marrisal Road in Bristol,

Leybourne Avenue in Bournemouth and the Bourne Stream Partnership in Poole. We currently attend about 150 flood risk meetings with our risk management authority partners.

In PR14 (2015-2019) we have contributed towards other RMA projects including: Brent Knoll (£50k), Cannington (£150k), River Parrett (£200k), Southmead Bristol (£25k), Wrington (£200k). This totals £0.7m towards partnership working in PR14.

As detailed in our PR19 plan, we are considering a contribution to the Corsham scheme (Supporting document 5.4, page 34) and also helping build integrated hydraulic computer models of catchments where there is interaction between the sewerage systems and the overland flow route, river systems or highway drainage (Appendix 7, pages 25 and 28).

Although we have offered such contribution towards FCERM partnership schemes at WRFCC meetings, and more localised RMA meetings, we are awaiting more detailed discussions with the EA and lead local flood authorities.

However, at the July 2019 Wessex RFCC, the Environment Agency stated that there was a shortfall of private contributions towards FCERM partnership schemes, and Wessex Water were asked to consider contributing more funds in the future. Our response was that we would contribute to schemes if our customers have a reduced risk of sewer flooding and if we are funded by Ofwat for this.

We will only contribute towards other risk management authorities Flood and Coastal Erosion Risk Management (FCERM) schemes where our customers will benefit from a reduction in sewer flooding. We consider these on a case by case basis.

Lead local authorities are at the early stages of developing schemes for FCERM flood reduction. Table 1 below lists some examples and potential contribution value.

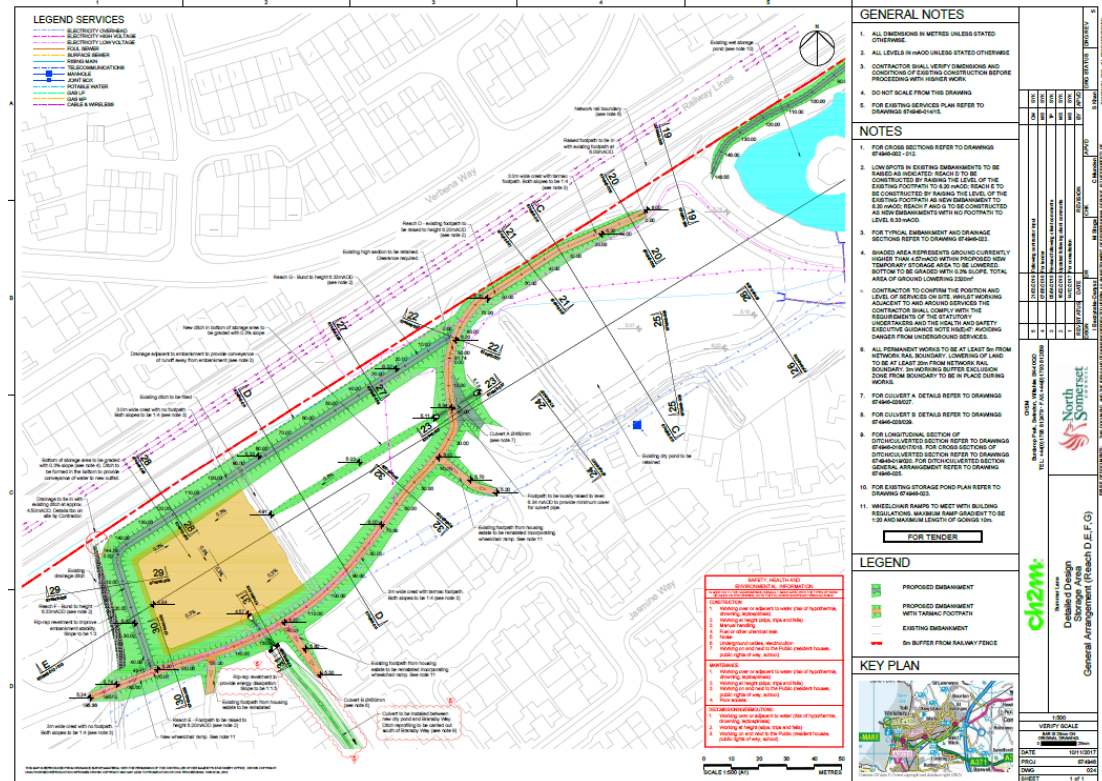
Table 1: FCERM Partnership working

Scheme	Description	Status	Potential value
Bradford on Avon	EA fluvial flood alleviation scheme will drown our surface water assets. Proposed surface water pumping stations.	Optioneering stage.	£1m
Bridgwater barrage	EA are proposing a barrage in Bridgwater. To-date we have refused to contribute to this scheme, as we do not see it reducing or increasing sewer flooding. However, if the Somerset levels and Moors flood again, our assets would become inundated and be impacted.	Design. We are awaiting to be asked to contribute towards this £100m scheme proposed to be built by 2023.	£1m
Corsham	Contribute towards ensuring culverted watercourse has capacity following recent significant flooding events and disconnection of surface water from our foul sewer	Optioneering stage.	£1m

Scheme	Description	Status	Potential value
Diamond Batch Weston Super Mare	North Somerset has designed a scheme to extend a flood attenuation pond. In 2013, 86 properties and a nursing home flooded and WW spent £50k on over pumping mitigation measures. Our assets drain into the pond and empty the pond. See Figure 9.	We have agreed a £200k contribution towards extending the pond to reduce risk to a 1 in 100 year level of protection.	£0.2m
Field Way Highbridge	Wessex Water led partnership scheme to give a culverted watercourse a positive outfall, to reduce the risk of our customers flooding	Detailed design.	£1.8m Definite
Bridport		Early negotiations	£0.2m
Dorchester		Early negotiations	£0.2m
Poole (Turlin)	Turlin Moor coastal protection scheme will require surface water management	Early negotiation	£2m
Salisbury	Fluvial, surface water and groundwater flooding risks. WSX has surface water assets that may need increased capacity.	Negotiations	£0.5m
Taunton	Hills to moors	Negotiations	£0.2m
Severnside	Interaction of major resilience scheme with Wessex Waters assets	Negotiations	£0.5m
Weymouth	Harbour walls failing and leaking which allows saline water inland, inundating our sewers. Coastal protection against climate change.	Negotiations	£0.5m

Figure 9 shows the advanced stage of design of the Diamond Batch pond extension. Wessex Water are committed to contributing towards this scheme on an asset which is integral to Wessex Waters surface water sewerage network, and a significant flood risk.

Figure 9: Extension of the Diamond Batch pond



The Field Way, Highbridge scheme is a Wessex Water led FCERM partnership scheme to give a culverted watercourse a positive outfall to reduce the risk of our customers flooding. This area has been at risk of flooding for decades. Historically Wessex Water excluded properties from the DG5 at-risk register because the root cause was a watercourse backing up (i.e. third party cause). However, customers have continued to flood on a regular basis. Wessex Water has decided to take the initiative and take the lead to deliver a surface water flood alleviation scheme. By working closely with Somerset council, the Internal Drainage Board and the Somerset Rivers Authority (SRA) we have got the support of these FCERM risk management authorities. The partnership scheme will be jointly funded by Wessex Water, the Local Enterprise Partnership via the SRA (£100k) and by Somerset Council (£50k).

In conclusion the Environment Agency is encouraging 'private' FCERM partnership funding (which includes water and sewerage companies) to boost council and government contributions. There is a large gearing ratio for these private contributions and the current private contribution are lower than the government's target. So WaSCs are being encouraged to 'do more'. In AMP6 we invested less than £1m in FCERM partnership contributions. Going forward, we will need to invest significantly more, probably £4m in AMP7, as shown in Table 1.

Why the change is in customers' interests

Sewer flooding is the worst type of WaSC service failure that our customers can suffer.

Ofwat's own report (Survey of customers affected by sewer flooding) states: 'The majority of customers are very or fairly concerned that their property could flood again and 70% or more state that it is very important that the risk of future flooding is reduced.' Flooding causes disruption, requires investment to clean or rebuild houses and gardens, but more importantly can be mentally distressing to residents and can cause pollution to the environment.

Ofwat's draft determination deep dive stated:

'With regard to the customer support for the investment, the paragraph 5.2 Customers willingness to pay (08.09.A - Claim WSX05 - Flooding programme.pdf, p.15) concludes that 'internal sewer flooding, external sewer flooding and restricted toilet use were the top three most impactful service failures that customers could experience', however we do not find the customer evidence supporting the need for further improvement in the area of sewer flooding (01.01 - Summary of research findings.pdf). Conversely, the customers rank sewer flooding high in terms of importance, yet they do not expect improvement in the area (01.01 - Summary of research findings.pdf, p.19).'

Our September 2018 submission (Supporting document 1.1 , p36) states: 'For the other categories [*including*] Sewer Flooding customers tended to draw on their own experience of the event i.e. if this was something that had happened to them they invested more in it and vice versa. The majority of our customers chose priority areas on the basis that they were important to THEM and rarely looked at or minded the cost implications.

Fortunately, very few customers are affected by flooding, hence the Summary of quantitative findings overall statement of 'they do not expect improvement in the area' (see Chapter 1 of our September plan, Section 3.6, page19). However, as Ofwat's report clearly identifies customers do support investment. We think Ofwat has taken our overall quantitative quote out of context.

Sewer flooding was one of our most widely covered performance commitments in our customer research, featuring in nine separate surveys. Ofwat is quoting just one of these.

Our September 2018 submission (Supporting document 1.1 page 19) states 'highest importance amongst all groups interviewed were (include) Reducing sewage flooding'. Therefore customers support reducing sewer flooding, and not just keeping stable performance.

Please also refer to Representation O3 on the sewer flooding performance commitment, which reiterates that our customers supported our business plan, with evidence of high acceptability and affordability. It also challenges the ODI flooding incentive rates.

Links to relevant evidence already provided or elsewhere in the representation document***Wessex Water's draft determination response, August 2019***

Internal sewer flooding performance commitment - Representation.

Wessex Water's response to Ofwat's Initial assessment of our PR19 plan, April 2019

Appendix 7 - Minimising sewer flooding - Response to IAP

Wessex Water's PR19 business plan submission to Ofwat, September 2018

Supporting document 5.4 - Minimising sewer flooding

Chapter 1 and associated appendices of business plan, including

1.1 Summary of research findings

Chapter 3 and associated appendices of business plan

Supporting document 8.9.A – Claim WSX05 - Flooding programme

Supporting document 8.10.A – Claim WSX06 - Pollution reduction strategy

Wessex Water's PR14 business plan submission to Ofwat, 2013

WSX - Chapter S3 - Increasing the capacity of our sewerage assets

Ofwat's website

Survey of customers affected by sewer flooding, 2004 (https://www.ofwat.gov.uk/wp-content/uploads/2015/11/rpt_com_survcustssewfld.pdf).

New

Appendix C11.1 Third party report – Reckon. Covering a discussion on implicit allowances relating to enhancement operating expenditure.