

ENVIRONMENT & ECONOMY SCRUTINY PANEL

Subject: **PLUVIAL URBAN FLOODING**
Cabinet Portfolio: Environment & Transport
Corporate Lead: Environment & Economic Services
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Status: **Public**
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For Information

The purpose of this paper is to update members on the current situation regarding the drainage infrastructure in Bournemouth and the impact of flooding caused by heavy rainfall within the catchment.

Recommendation

That this report be submitted to the Cabinet Member for Environment and Transport so that the matters raised can be progressed with the relevant bodies.

1. Historical perspective

1.1 Bournemouth in historical terms is a relatively new town being almost non-existent before 1870 (then population 6,500). It then consisted of a series of small isolated villages. What little drainage there was probably discharged into the nearest water course. However with its mild climate, sandy beaches and the coming of the railway, it grew rapidly as a holiday destination, retirement location and major commercial centre so by 2005 it had a population of 163,600. Along with the growth in population came more roads, roofs etc all requiring to be drained.

1.2 Under the various Public Health Acts of 19th Century (mainly initiated by serious epidemics in the heavily built up Urban Areas) the local Council's became responsible for sanitation and were given far reaching legal powers and duties by Parliament. These were rationalised in a major piece of legislation - the 1936 Public Health Act.

1.3 By 1934 the majority of Bournemouth foul sewage was discharged to sea having first passed through mechanical disintegrators and then to a number of sea outfalls of various diameter and length along the coast. The exception to this was the Northbourne & Kinson areas (transferred to Bournemouth in 1931) which were served by a sewage treatment works at Ensbury constructed in

1926. Most surface water still discharged to the nearest water course which was usually the River Stour or the Bourne Stream.

1.4 In 1934 the then County Borough of Bournemouth started discussing setting up a joint sewerage board with Poole & Christchurch to afford full treatment of sewage prior discharge to sea. This was to protect the areas beaches and tourist trade. No agreement could be reached and with the intervention of the Second World War no further progress was made until 1955 when the County Borough of Bournemouth resolved to go it alone and construct a sewage treatment works at Holdenhurst. All foul sewage was to be diverted at the Sea outfalls via a new Coastal Interceptor Sewer (CIS). It would be given full treatment prior to discharge into the River Stour. (PA Added 24/2/2014 - Design Work commenced in 1956 and construction started in 1959. The first sewage was treated in 1963 when Winton and Moordown systems were diverted to Holdenhurst Works)

1.5 The new sewage treatment works was commenced by the County Borough of Bournemouth in the early 1960's and the majority of the flows were diverted to treatment by 1974 with the last flows from Alum Chine and Southbourne connected in 1976. The CIS was a major scheme in its own right involving some 10km of 1.8m dia tunnel.

1.6 The Water Act of 1973 transferred all "Public Sewers" owned by the Council to one of the 10 new regional Water Authorities. These were organised on what was at the time considered a radical step of basing them on river catchment boundaries. However this thinking has now been adopted across much of Europe as the best way to manage the water cycle. All Bournemouth Public Sewers were transferred to Wessex Water (WW) but this excluded certain Private drains serving "Council" owned housing and Highway Drainage. At this stage Bournemouth Borough Council became agents to Wessex Water

1.7 Further Acts in 1989 and 1991 lead to the segregation of certain duties carried out by the Water Authorities and the creation of the National Rivers Authority (NRA) who in turn became part of the Environment Agency (EA) in 1995. It also placed legal duties for sewerage on the Secretary of State which are largely administered by OFWAT. Further the 1989 Act transferred the water and sewerage assets to limited liability companies. Shares in these new companies went sale from the 1st November 1989

1.8 In early 1993 Wessex Water plc gave notice of the termination of the Agency agreement with the possible option of the Council continuing after this date under a management contract. Discussions commenced on this option but it became apparent that Wessex Water wished to put such onerous conditions on it that the Council could not accept it. WW in turn were having to make significant operational savings as instructed by OFWAT. The drainage agency formally finished on the 31st March 1996.

1.9 There have been a number of further pieces of legislation but these have largely affected the internal workings of the companies. However European

Legislation has now also been incorporated starting with the Urban Waste Water Treatment Regulations in 1994 which has since been subsumed by the "The EU Water Framework Directive - integrated river basin management for Europe" (23 October 2000, Directive 2000/60/EC of the European Parliament).

1.10 Prior to 1973 the situation was quite straight forward. The Council was responsible and liable for the sewerage system. Since then there has become a multitude of other bodies' involved making life considerably more difficult for the public to understand especially on the regulatory side. BBC also still has legal powers under the various "Land Drainage Acts" but these usually give powers rather than impose duties.

2. Flooding in Bournemouth

2.1 On the 5th June 1983 Bournemouth suffered an extreme rainfall event which resulted in wide spread flooding. Just over 2 weeks later on the 24th June, the Town was again hit by another torrential down pour. These storms caused considerable flooding and raised the public profile of the subject. The then Borough Engineer reported to the Transport and Works committee on the 30th June 1983 that over 300 complaints regarding flooding had been received and he would be preparing a report on the situation. He also took the opportunity to express his views as to the "totally inadequate" budget assigned to Bournemouth by Wessex Water.

2.2 As a result of the huge public outcry and pressure from this Council Wessex Water agreed to use Bournemouth as a pilot study for the then new procedures identified in the Sewerage Rehabilitation Manual developed jointly by the Water Research Centre (WRC) and the Water Authorities Association (WAA). This laid down a methodology to look at entire networks rather than isolated problems. Part of this approach was to develop computer models of the sewerage system to allow analysis of hydraulic problems. The aim of the procedure was to develop a long term asset management regime as the most cost effective approach.

2.3 As a result of the drainage area studies some £30 million pounds (1985 prices) of works were identified to bring the system up to capacity. (The then design standard was no internal flooding from the public sewerage system for a 1 in 20 year return period storm). The need for this investment was attributed to historical underinvestment, intensification of urban development and continuing expansion of the conurbation.

2.4 From 1985 to 1993 Wessex Water invested at least £20 million in the infrastructure of Bournemouth with the works being largely carried out by the Council as agents to WW. To target this expenditure a cost benefit approach was adopted with those schemes giving the highest "return" carried out first. After about 1993 the level of expenditure declined significantly and effectively ceased in about 1996. By this time most of the "high priority" areas had been addressed but there were still a number of "lower" benefit areas that no works had been carried out in.

2.5 Since 1996 Wessex Water has had to concentrate funding on a number of key areas like drinking water standards, pollution and sludge treatment. They have constructed two very large holding tanks at Bournemouth Pier and Hengistbury Head to limit overflow discharges to sea but apart from a few isolated works (East Avenue Attenuation Tank and Southbourne Coast Road sewer upgrade) there has been no further investment in the sewerage network in Bournemouth.

2.6 There have been a number of significant storms since 1983 but these have not generated the huge number of flooding complaints across the whole borough. For example there were only 21 complaints as a result of the torrential rain on the morning of 20th July 2007. However there are still a few areas of concern which for the individuals involved are very distressing.

3. Current Problems

3.1 The current problems with the drainage system fall in to two distinct areas; operational and strategic.

3.2 Operational Concerns

3.3 Flooding in times of heavy rain. Bournemouth Council as the Highway authority is responsible for draining the highway. However most of the road gullies connect to the Surface Water Sewerage network belonging to Wessex Water. During times of heavy rainfall it is almost impossible to determine if flooding is being caused by inadequate capacity in the sewerage system, lack of road gullies, blocked gullies etc. Many of the roads in the borough do not meet modern standards for highway drainage so any excess rain water simply runs along the road until it either can find a gully with capacity, ponds on the road or floods off the road. Gullies get blocked even if they have been cleaned. (Current funding levels for gully emptying only allow gullies to be cleaned once every 15 months or so although the target is once every 12 months). This is especially a problem in autumn when heavy rain will bring down huge quantities of leaves over a very short period of time. Where there is inadequate capacity in the sewers and the system is surcharged water will actually flow back up gully connections to flood on to the surface or flow down the roads. Large volumes of water drain off land on to the highway which are totally beyond the systems capacity to cope with. This has been exacerbated over time as more gardens are surfaced over to provide off street parking. While it is illegal to discharge water on to the highway nobody has ever enforced this for the literally thousands of drives / paved gardens etc which now produce run off on to the highway. Enforcement would be practically impossible.

3.4 Blockages. The sewerage system will always experience blockages through collapses, silting, the build up of fat, root infestations or general abuse by the public who see the sewerage system as a convenient dumping ground. Bournemouth Council while agents to Wessex Water used to have a regular programme of jetting certain known problem sewers but this is believed to

have stopped after the agency terminated. Blockages are the responsibility of Wessex Water but they do affect residents and capacity of the system.

3.5 Mechanical failure. Failure of pumps can lead to significant flooding especially if they fail during major rainfall event (for example the Lower Gardens in Bournemouth). Again these failures are the responsibility of Wessex water but they can have significant impacts on the businesses and residents of the town.

3.6 **Strategic Concerns**

3.7 Development. Bournemouth is experiencing continued development which has a number of consequences on the sewerage system. New developments have a statutory right to connect to the sewerage system although the Water companies can impose certain conditions. The general increase in paved areas is leading to more run off to the system either via the highway or directly. Coupled with this is the continued growth in water consumption by existing users which again puts more of a strain on the system. While Wessex Water cannot deny a request to connect to the public sewerage system (sect 106 of the 1991 of Water Act for which a charge is made), they can, if they think the development will overload the system, carry out hydraulic modelling to check. If the system would be overloaded arrangement have to be put in place to provide the capacity for which the developer pays. However hydraulic modelling is expensive and complicated and as such is only applicable to large scale developments. Small single developments are simply too small to have a calculatable effect.

3.8 Sustainable Urban Drainage Systems (SUDS). There are now policies in place within the planning process to encourage the use of SUDs on new developments. However most of the techniques available need room (for example you can't build within 5m of a soak away) so many developers are reluctant to use these techniques as it reduces the space available on what are often all ready congested sites. BBC Planning department have limited powers to insist on SUDS if alternative adequate drainage is proposed. Further there are major problems with who becomes responsible for them after completion. By their nature they are often require quite high maintenance obligations to work properly. BBC Highways department currently will not adopt systems based on ponds, swales etc because of the maintenance cost implications. They will, in certain limited circumstances, adopt soakaways dealing with highway drainage but a commuted sum is required to cover future maintenance liabilities. SUDS are only applicable in certain circumstances and while they have a role to play will not have a major impact on the situation for many years.

3.9 Global Warming. The consensus of opinion about Global warming is that it is happening and the predicted consequence for this are is that rainfall will become more extreme which in turn will lead to increases in flooding.

3.10 Ageing Sewerage System. Much of the sewerage network is still heavily based on the pipes installed in the late 1880,s to early 1900 so much of it is at least 100 years old. Sewerage networks are remarkably resilient and indeed there are places still using sewers constructed by the Romans 2000 years ago but they do not last for ever. Many of the sewers are laid in the highway and this is having to take more and heavier Lorries all of which put additional loading on the ageing pipes.

3.11 Increasing Expectations. There is a general increase in expectations from the public. They do not expect to have to experience flooding. In the past surface water discharges to water courses were accepted but society is beginning to realise that these have significant impacts on the environment. Indeed this is already a concern in that the new EU directive requires the Environment Agency looks at the impact of all major discharges to the environment as well as diffuse sources of pollution (like agricultural run off).

3.12 Lack of Information. In some instances people seem reluctant to report flooding incidents. Either they seem to accept the situation as inevitable or don't wish the information to be in the public domain for some reason. This makes it difficult to examine problems if nobody is aware of them.

4. Progress

4.1 Wessex Water has undergone a considerable period of change but over the last eighteen months or so a good working relationship has been achieved by Council Officers within Technical Services. Quarterly meetings are now held and reported incidents of flooding are looked at to try and determine the cause. Then solutions can be identified and instigated although any solution is dependent on available resources.

4.2 The BBC Public Protection Environment & Pollution Team also hold regular meetings with Wessex Water staff mainly to look at pollution and nuisance problems (usually smell or sometimes flooding). They too report an improved working relationship and a willingness to now more regularly jet wash clean some particular nuisance sites.

4.3 Gully cleaning has improved in the Borough although these improvements are at risk due to continuing budgetary pressures. Also the cost of emptying is rising with increased standards. (for example the Traffic Management costs now required to enable BBC to clean gullies on say the Wessex Way far exceeds the cost of actually cleaning the gullies). There are also a very limited number of disposal site which will accept arisings and disposal costs are rising far higher than inflation

4.4 The BBC Technical Services section has undertaken a comprehensive programme of remedial works to defective gully lateral connections throughout the borough.

4.5 The BBC Technical Services will now supply sand bags to any resident who requests them (although we will only supply a reasonable number). It is accepted that if an incident is actually occurring it is probably too late but if flooding is predicted BBC will respond.

5. Future Challenges

5.1 A continued close working relationship with Wessex Water is vital to identify problem areas and resolve flooding issues.

5.2 Wessex Water need to be encouraged to complete resolving all the remaining under capacity problems identified in the original drainage area studies and further invest in increasing the capacity of the network. However it must be realised that they can only do this if their funding regime allows it.

5.3 BBC needs to ensure funding levels are increased for highway maintenance, especially cleaning of gullies and resolving local highway drainage problems.

5.4 Levels of on street parking are increasing making it more and more difficult to get to gullies to clean them.

5.5 At some stage in the future Wessex Water may be looking to upgrade some of the sewers probably within the Highway. BBC has extensive powers

over works within the Highway so a positive attitude would encourage works to be completed to benefit all.

5.6 While Wessex Water does charge for connections to the sewerage network these costs do not always cover the combined impact of the smaller developments. It may be possible to do encourage more realistic charges for the impact these are having possibly through the planning process although this there would need to be certainty that such funds were actually spent on the sewerage system. This has been looked at in the past and not pursued.

5.7 The Planning process needs to be as robust as possible to encourage the further implementation of SUDS but this will only happen if legal issues around ownership and responsibility for future maintenance are resolved.

Appendix 1

Flooding / Pollution- Who does what		
Organisation	Address / contact details	Responsibility
Bournemouth Borough Council - Technical Services	Southcote Road Bournemouth Tel 01202 451199 Web www.bournemouth.gov.uk Email : highways@bournemouth.gov.uk	Maintenance of Highway Drainage and Gullies. Emergency Response Team
Wessex Water	Claverton Down, Bath BA2 7WW Telephone 01225 526 000 Web www.wessexwater.co.uk Email info@wessexwater.co.uk Sewage Flooding Hotline 0845 850 5959. For operational enquiries about your water and sewerage services including emergency problems. 0845 600 4 600	Public Sewerage System
Consumer Council for Water	2 The Hide Market West Street St Philips Bristol BS2 0BH Telephone 0845 707 8268 or fax 0117 955 7037 Web www.ccwater.org.uk Email wessex@ccwater.org.uk	Complaints regarding the Water Companies
Office of Water Services, (Ofwat)	Centre City Tower, 7 Hill Street, Birmingham B5 4UA Telephone 0121 625 1300 Web www.ofwat.gov.uk Email enquiries@ofwat.gsi.gov.uk	The economic regulator for the water and sewerage industry in England and Wales

Environment Agency	Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol BS32 4UD Telephone 0845 933 3111 Emergency hotline 0800 807 060 Floodline 0845 988 1188 Web www.environment-agency.gov.uk Email enquiries@environment-agency.gov.uk	Protection of the Environment
Bournemouth Borough Council - Public Protection Environment & Pollution Team	The Pollution Team Public Protection Town Hall St Stephen's Road Bournemouth BH2 6LL Tel 01202 451309	Environment & Pollution Control. Nuisance drainage problems in "private drains"
Bournemouth Borough Council - Planning Department	Town Hall Annex St Stephen's Road Bournemouth BH2 6EA Tel 01202 451451 Email planning@bournemouth.gov.uk	Planning Policy and Development Control
Bournemouth Borough Council - Building Control	Town Hall Annex St Stephen's Road Bournemouth BH2 6EA Tel 012 01202 451451	Inspection and approval of drainage to new properties (except on those new properties with "self certification")

Sewage

Sewer flooding

What causes sewer flooding | Whose responsibility it is when flooding occurs | Who to contact and what to do if your property is flooded | Our guarantees to you | How to claim for flooding damage | Bag it and bin it

Having your home or property flooded by sewage can be a particularly unpleasant and distressing experience.

Fortunately, only a small number of properties within the Wessex Water region are affected each year and we are carrying out improvements to reduce the problem still further.

For those affected by sewer flooding, Wessex Water is able to help and, where appropriate, to pay compensation.

If your property is flooded with sewage either externally or internally call our Sewage Floodline.
Telephone: **0845 850 5959** (24 hours)
Calls are charged at local rate

What causes sewer flooding?

Our sewers are designed to take away sewage from properties and in some cases surface water.

While our sewer system can cope with day to day flows, exceptional weather can overwhelm it and cause flooding. Blockages in a sewer or the failure of a pumping station can also result in flooding.

In the event of a sewer flooding, your property could be flooded both internally and externally. Internal flooding is less common and can be caused when the system backs up through the internal drains inside your property.

Depending on the cause of the flooding we will determine who is responsible.

Whose responsibility is it?

If the flooding is caused by a blockage in a public sewer, Wessex Water will arrange for the blockage to be cleared at our cost.

If the flooding is caused by a problem in your private sewer or drain, you will be responsible. If the sewer serves more than one property, your neighbour(s) may also be responsible.

Who to contact and what to do if your property is flooded

If sewage floods your property you should contact our Sewage Floodline immediately.
Telephone: **0845 850 5959** (24 hours)
Calls are charged at local rate

It is important that you contact us each time a flooding event occurs.

If your property is flooded with sewage, you should take the following precautions to protect you and your family:

- avoid contact with sewage wherever possible
- wear protective clothing
- protect any cuts and grazes
- dispose of any vegetables or fruit growing in your garden if it is flooded
- keep your children away from flooded areas for at least seven days after the area has been disinfected
- consult your doctor if you suffer vomiting or diarrhoea following a flooding incident.

Our guarantees to you

Under our customer guarantee scheme, the Wessex Water Promise, we aim to respond to all sewage flooding incidents within:

- two hours of a first report of internal flooding
- four hours of a first report of external flooding.

Often our response times will be much quicker.

We will also provide a clean up service where possible, within 12 hours where your property is flooded internally and 24 hours externally. This may involve the removal of litter, disinfection of the affected area and drying. Our staff will also help you by providing sandbags, moving furniture, etc. This service is free of charge.

If your property is flooded with sewage from a public sewer, we will compensate you.

For internal flooding, we will refund your sewerage bill for each flooding incident. We will also pay for any uninsured losses.

For cases of external flooding you can claim a minimum refund of 50% of your annual sewerage charges for each incident - subject to a maximum of £500 in any one year.

This refund does not apply if:

- the flooding happened because of exceptional weather conditions or industrial action
- the flooding was caused by your actions or any defect, blockage or inadequacy of private sewers, council or highway drains
- you notified us more than three months after your property was flooded.

We investigate fully all internal flooding incidents that are our responsibility. If you experience internal flooding, we will write to you within five working days with your compensation payment payable under our guarantee scheme. We will also inform you of the action we intend to take and any investigations we intend to make.

If applicable, we will write to you within one month of the flooding incident to update you on our investigations into the incident and the next steps.

How to claim for flooding damage to your property or contents

Sewage flooding damage is covered by most building insurance policies - you should contact your insurance company immediately to find out if you are insured.

If you believe Wessex Water has been negligent or if you incur uninsured losses leading to financial hardship, you should send details of your claim, together with any bills or repair estimates, to operational customer services at the address given at the end of this leaflet. They will ask our own insurance department to review your claim.

If you are claiming for uninsured losses leading to financial hardship you must also provide:

- a letter from your insurers stating that your policy does not cover sewage flooding, or
- written confirmation that you are not insured.

If you are making a claim, do not dispose of any damaged items as we may wish to inspect them.

If we need to visit, we will make an appointment that is convenient for you.

When we have assessed your claim, we will write to you with details of any payment or to explain why we do not intend making a payment.

Sewerage

SEWER FLOODING

If your property is flooded with sewage either externally or internally contact our Sewage Floodline.

Telephone: **0845 850 5 959** (24 hours)

Calls are charged at local rate.

Normally we will reply to a complaint of sewer flooding within two hours of a first report of internal flooding and four hours of a first report of external flooding.

If your property is flooded with sewage from a public sewer we will compensate you.

If your property is flooded internally you will automatically receive an amount equivalent to your annual sewerage charges (or £150, whichever is the greater).

If you experience internal flooding, we will write to you within five working days with your compensation payment and informing you of the action we intend to take and any investigations we intend to make.

Within one month of the flooding incident, we will write to you to update you on our investigation into the incident and the next steps we will take.

In each case of external flooding you can claim automatic compensation equivalent to 50% of your annual sewerage charges (or £75, whichever is the greater) - subject to a maximum of £500 in one year.

We will also pay for any uninsured losses as detailed in our section on [sewer flooding](#).

Compensation payments **do not apply if:**

- the flooding happened because of **exceptional weather conditions** or industrial action
- **the flooding was caused by** your actions or any defect, blockage or inadequacy of private sewers, **council or highway drains**
- you notified us more than three months after your property was flooded.

We will also provide a full clean up service where possible within 12 hours if your property is flooded internally and 24 hours if externally. This service is free of charge.

For more information visit our [sewer flooding section](#).

n.b. "exceptional" does not seem to be defined anywhere.

BBC does not automatically compensate any body who suffers flooding attributable to the Highway and any claim would be dealt with by our insurer's. The claimant would have to prove that BBC was in some way negligent.