Report of a review of the arrangements for determining responsibility for surface water and drainage assets

May 2020

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Executive summary

I was asked towards the end of last year to review the arrangements for determining responsibility for surface water and drainage assets and to identify recommendations for how to make these more straightforward for property owners and others. My terms of reference asked me to consider in particular the working of certain provisions of the Flood and Water Management Act 2010. The review is one of the actions to which the Department for Environment Food and Rural Affairs (Defra) committed in their Surface Water Management Action Plan, published in July of 2018.

Surface water flooding occurs when the volume and intensity of rainfall overwhelm local drainage. It is a risk described by Defra as affecting over 3 million properties in England. Like all flooding, it can cause significant disruption to people's lives and livelihoods. It can damage homes and businesses, causing people distress and anxiety, and can result in the closing of roads, railways, schools and hospitals, as well as having environmental impacts.

There is a growing scientific consensus that climate change, related to global warming, is bringing not only rising sea levels, but also more regular extreme rainfalls and storms. Much of our drainage infrastructure is ageing, and in need of significant maintenance or replacement. New development risks reducing the capacity of the land to provide natural drainage, and has the potential to increase surface water run off.

Clarity as to who is responsible for constructing and maintaining drainage systems and their various components is crucial for their effective working. Such clarity is often lacking in our present arrangements. Ownership of surface water drainage features is fragmented across a range of both public and private parties, including local authorities, highway authorities, internal drainage boards, water companies, and private individuals and businesses. Powers and duties to manage drainage features are often less than clear cut.

I have found that there is a widely held perception among flood risk management practitioners and others that existing planning and building regulation control often provide insufficient focus on how surface water can best and most sustainably be managed in new development. I have recommended that the National Planning Policy Framework be reviewed to ensure that national advice on the vital importance of achieving sustainable drainage for all new development is prominent, clear, and unequivocal. I have also highlighted the importance of appropriate professional expertise being brought to bear in decision making on all planning applications where there are surface water drainage implications.

I have found that it is not possible to go far into a conversation about surface water flooding before someone brings up the issue of Schedule 3 to the Flood and Water Management Act 2010. This Schedule, which has not yet been brought into effect in England, provides for the Minister to publish national standards for the implementation of sustainable drainage for managing rainwater. It provides that construction work which has drainage implications may not be begun unless a drainage system for the work has been agreed by the "approving body" – the county or unitary authority for the area – which, once the system is properly constructed, will become responsible for its maintenance. Defra officials have told me that, after consultation on the implementation of the Schedule, the government have taken an alternative approach to the delivery and maintenance of effective sustainable drainage systems, through changes to the planning regime. I have drawn attention in this report to a widely and strongly held view among flood risk management practitioners and many of the organisations who have made submissions to me that the present approach is not working.

Section 19 of the 2010 Act provides that a lead local flood authority (the county or unitary authority), on becoming aware of a flood in its area, must to the extent that it considers it necessary or appropriate, investigate and report. I have found that this function is generally supported, not least as a means of encouraging a collaborative approach among the various bodies concerned in addressing surface water flood risk in particular cases. I have suggested that the system could be improved by better national guidance on investigations, including on the importance of engaging with local communities. I have also suggested that better use could be made of the reports, by the Environment Agency monitoring and periodically reporting on national or regional trends and lessons to be learned, and by Regional Flood and Coastal Committees having the opportunity of monitoring implementation of their recommendations.

Section 21 of the 2010 Act provides for lead local flood authorities to maintain registers of structures or features which are likely to have a significant effect on a flood risk in their area. I have found general support for the overall usefulness in principle of maintaining a register, but inconsistency in how, and the extent to which, the registers are kept and used. I have recommended that national guidance should be developed on the keeping of these registers, with a view to seeking a comprehensive set of records for each area, and to securing a common and comprehensive approach for the recording, inspection, monitoring and maintenance of these structures or features, in whosever ownership they may be: a system for the management of water is only as effective as its weakest link.

Section 30 and Schedule 1 of the 2010 Act empower "designating authorities" to designate structures and natural or man made features which they consider affect a flood risk. While designation does secure some public benefit – a designated

structure or feature may not be altered or removed without the consent of the designating authority – it does not in itself create or secure a duty of maintenance. I have found that the power of designation is rarely used.

There are a range of different organisations and people with overlapping responsibilities for addressing aspects of surface water flood risk. I have been given striking examples of the perplexity that this can cause to people whose homes are affected or at risk. As one respondent commented to me, the customer does not care where the flooding comes from but they would like to be able to get a response from a single source. I have recommended that each lead local flood authority should ensure a clear and appropriate point of contact for residents with reports or queries about surface water flooding.

While there is a case for reorganising the structures and functions of relevant public service bodies so as to achieve greater clarity as to who is responsible for what, an alternative and probably more pragmatic approach would be to ensure that the separate organisational boundaries matter less and that all work to a common sense of purpose and public interest. It is difficult to prescribe for constructive partnerships: they depend crucially on good local trust and working relationships. I have referred to some examples of what seem to me to be successful and promising partnership approaches. I have made some recommendations as to how such arrangements between relevant bodies may be encouraged so as to foster close and collaborative working on surface water flood risk management.

I have found that there is a lack of clarity and understanding as to the responsibilities of private landowners as to the maintenance of watercourses, culverts, and structures and features that are likely to affect flood risk. I have recommended that national guidance on the subject be reviewed and better promoted. A particularly difficult issue is how the maintenance of privately owned features, and in particular culverted watercourses, may be secured. I have found that in many cases there is not even clarity as to the location of these. I have outlined a number of possible approaches to addressing the issue, but I have found no consensus on which should be pursued. I have recommended that Defra give further consideration to this important issue.

I have found that existing appeal and dispute resolution arrangements are rarely used, and that other than the limited jurisdiction of the Agricultural Land and Drainage Tribunal to determine drainage disputes between landowners, they play little part in the current scheme of things.

Defra and the Environment Agency have committed to improve surface water flood risk mapping, so that households, businesses and local government can be better informed about surface water risks in order to be able to take mitigating action and build resilience. While property level resilience and protection should never be a

substitute for effective surface water management, I have recommended that lead local flood authorities offer advice and support to owners of homes and businesses at risk of surface water flooding to help them achieve greater protection and resilience.

Not surprisingly, funding is an issue that is prominent in just about all the submissions I have received. I have made a number of recommendations, seeking to ensure that surface water flooding is not overlooked in decisions on the allocation of funding for flood risk management; that collaborative cross sector working is encouraged; that existing assets and systems are properly maintained; and that appropriate professional capacity and expertise are developed and deployed.

This report was largely drafted, and the recommendations largely shaped, before the coronavirus pandemic reached the United Kingdom. I am sharply aware that addressing the pandemic and its consequences will now be the overriding priority for public service organisations and budgets.

I have been greatly assisted in this review by officers of the Flood and Water Management Team of Hampshire County Council, to whom I am most grateful.

Most of all, I am grateful to those who have taken the time, trouble and patience to contribute to this review: this report is largely a synthesis of their experiences and perceptions.

David Jenkins
May 2020

David Jenkins has been Chair of the Wessex Regional Flood and Coastal Committee since 2015. He is by background a solicitor, having worked for a number of local authorities and for the local government ombudsman service. He is a former Chief Executive of Dorset County Council, and has conducted independent reviews for a number of other local authorities. David has served as Deputy Chair of NHS Dorset Clinical Commissioning Group, as President of the Dorset Association of Town and Parish Councils, and as a trustee and chair of a number of charities concerned with the arts and with education. He is a trustee of the Association of Drainage Authorities, a board member of the Somerset Rivers Authority, and a deputy lieutenant of Dorset.

Recommendations

Sustainable drainage

That the appropriate government departments and the Environment Agency pursue opportunities to promote better understanding of best practice in surface water management through relevant professional and trade bodies, including through the promotion and celebration of innovation and good practice in the design and implementation of sustainable drainage schemes.

Planning system

That the Ministry of Housing, Communities and Local Government, in their forthcoming review of the National Planning Policy Framework, ensure that advice on the vital importance of achieving sustainable drainage in all new development is prominent, clear and unequivocal.

That local planning authorities ensure that appropriate professional expertise is brought to bear in decision making on all planning applications where there are surface water drainage implications.

That local planning authorities ensure the submission of drainage plans at an early stage in the planning approval process, and that the whole development is carried out in accordance with the approved plans.

Schedule 3 to the Flood and Water Management Act and adoption and maintenance of SuDS

That Defra take note of the strong views of respondents outlined in this report on the weaknesses of the present arrangements for ensuring appropriate standards of design and construction, and effective continuing maintenance, of sustainable drainage systems for new development.

That the case be re-examined for bringing into effect Schedule 3 of the Flood and Water Management Act of 2010, or some equivalent mandatory arrangements.

That, in particular, Defra re-examine the working of Section 106 of the Water Industry Act of 1991, so as to ensure that the sewerage system is not subjected to unnecessary flood risk through the connection of surface water drainage.

Section 19 investigations

That Defra ensure the ready availability of national guidance in relation to Section 19 investigations and reports.

That the proposed national guidance include the importance of engaging with local residents and businesses affected by the flood, and of relevant risk management authorities collaborating in the investigation and in the implementation of its recommendations.

That lead local flood authorities provide a copy of each completed Section 19 report to the Environment Agency, who should be entrusted with periodically reporting on any national or regional trends and general lessons to be learned from them.

That section 19 reports, or summaries of them, be reported as a matter of course to the appropriate Regional Flood and Coastal Committee, who should have the opportunity of monitoring implementation of their recommendations.

Asset registers

That the Environment Agency develop and issue national guidance to lead local flood authorities, and also to all other risk management authorities, on the keeping of registers of structures and features which are likely to have a significant effect on flood risk, including from surface water, with a view to seeking a comprehensive set of records for each area, and to securing a common and comprehensive approach for their recording, inspection, monitoring and maintenance.

Designation of assets

That Defra note that designation of a structure or feature under Schedule 1 of the Flood and Water Management Act of 2010, while securing some public benefit, does not in itself create or secure a duty of maintenance, and so other means must be pursued if maintenance of privately owned assets affecting flood or coastal erosion risk is to be secured.

Who is responsible for what – individuals' and communities' experiences

That each lead local flood authority should ensure a clear and appropriate point of contact for residents in their area with reports or queries about surface water flooding.

That if the appropriate officer considers that the capacity to address the report or query better lies with another body, then s/he should help the resident refer it appropriately.

Partnership arrangements

That the Environment Agency ensure that there is at least one representative of a local water company on each Regional Flood and Coastal Committee (RFCC).

That officer level partnership arrangements be put in place in each RFCC area to ensure close and collaborative working on surface water flood risk management.

That the Environment Agency, in pursuance of their power under section 7(6) of the Flood and Water Management Act, should issue guidance on establishing and maintaining partnerships for these purposes, drawing on existing best practice.

That each of these partnerships should report periodically on objectives and progress in delivering them to the appropriate RFCC.

Riparian and land owners' responsibilities

That in accordance with the commitment set out in the Surface Water Action Plan, the Environment Agency, in consultation with others as appropriate, review their guidance to landowners on owning a watercourse, in particular to ensure that this is as clear and comprehensive as possible on riparian owners' responsibilities for maintenance of watercourses and related features, and that this guidance be promoted widely to those affected by it.

That Defra consider what further steps the public interest requires to be taken, to ensure the maintenance of privately owned watercourses and related features, including culverted watercourses.

Dispute resolution arrangements

That Defra make arrangements with the Agricultural Land and Drainage Tribunal for the publication of summaries of the Tribunal's judgments, so that the principles of their decisions may be readily available to those seeking guidance on good and expected practice.

Flood risk mapping and property resilience

That lead local flood authorities be encouraged to offer advice and support to owners of homes and businesses at risk of surface water flooding so as to help them achieve greater protection and resilience for their properties.

Resourcing surface water flood risk management

That Defra and the Environment Agency, when reviewing their criteria for the award of grant for flood risk management schemes, ensure that funding is available to support schemes for surface water flood risk management, and that the availability of such funding is communicated effectively to practitioners.

That in view of overlapping responsibilities for surface water management, referred to throughout this report, appropriate funding and grant giving bodies review their funding criteria so as to ensure incentives are provided to encourage collaborative cross sector working.

That bodies concerned with the allocation of funding for flood risk management should accord proportionate recognition and priority to the financial demands of maintaining existing assets and systems, as well as to providing new ones.

That Defra consider the extent to which public funding for agriculture may be used to incentivise good practice in the routine management of soil, watercourses and ditches for the benefit of the environment, including the reduction of flood risk.

That lead local flood authorities, and other risk management authorities involved in local flood partnerships, recognise the importance of developing, resourcing, and having in place appropriate professional capacity and expertise to enable them properly to discharge their functions.

Commissioning of review, terms of reference and support arrangements

In July of last year, Dr Therese Coffey, the then Parliamentary Under Secretary of State for the Environment, announced that she had appointed me to undertake an independent review of how responsibility for surface water and drainage assets is determined locally. The carrying out of this review was an action to which the Department for Environment Food and Rural Affairs (Defra) had committed in their Surface Water Management Action Plan, published in July 2018.

A letter of appointment, with terms of reference, was sent to me in October 2019: the terms of reference are reproduced at Appendix 1.

Arrangements were made for me to be supported in this work by officers of the Flood and Water Management Team of Hampshire County Council. I am most grateful to Hampshire County Council for providing this support, to Vicki Westall, who leads the team, and to Jemima Phipps and Mike Barry, who have worked with me on the review.

Assembling of evidence and stakeholders' views

I began by reading a range of background documents, and consulting the principal legislation on flood risk management and surface water drainage.

I wrote to a range of representative organisations, letting them know of the review, setting out the terms of reference, and inviting views. Those to whom I wrote are listed in Appendix 2. Some responded to request additional time. Some took steps specifically to consult their members before responding. The National Flood Forum, a charity that supports and represents people at risk of flooding across England and Wales, consulted with Flood Action Groups across England, and passed on to me all the responses that they received. These provided most helpful insight into the perspectives of some of those who have been directly and adversely affected by surface water flooding: I refer to a number of them in this report. I received written responses from most of those to whom I wrote, and I am most grateful for the time and trouble that people have taken to assist me. I have set out in Appendix 3 a list of those who sent me written responses.

I also undertook a series of meetings and telephone conversations, seeking the views and experiences of a range of people on the matters the subject of the review. I attended:

A meeting in Somerset of the South West Flood Risk Managers' Group, attended by officer leads from twelve lead local flood authorities, along with officers of the Environment Agency and Wessex Water.

A meeting of flood risk manager practitioners specially convened by officers of the Environment Agency Wessex regional office; to share and discuss experiences of the matters the subject of this review. Twenty people attended, from six local authorities, the Environment Agency, and Wessex Water.

Three meetings of English Regional Flood and Coastal Committee Chairs, at which I outlined the scope of the review and invited views.

I met with senior officers of the National Farmers Union (NFU) and of the Association of Drainage Authorities (ADA), and attended a meeting of the South West Branch of ADA. I also met with the Chief Executive and Planning Officer of the Somerset Drainage Boards Consortium, who also helpfully prepared a written note.

I visited the offices of Wessex Water at Bath and met with a number of their managers. We had a useful discussion, and they also referred me to a number of relevant documents, from the perspective of the water and drainage sector.

I have met and/or had telephone conversations with a range of officers of the Environment Agency, from both their headquarters and regional teams. I am particularly grateful to their Senior Managing Lawyer, with whom I checked aspects of my understanding of the relevant law. I have also had a telephone discussion with the Chair of the Southern Regional Flood and Coastal Committee.

I have spoken on the telephone to the Team Leader at the General Regulatory Tribunal on the subject of jurisdiction to hear appeals.

I had a particularly useful telephone conference with members of the Northumbria Integrated Drainage Partnership, representing the Environment Agency, Northumbrian Water, and a lead local flood authority. They told me of their arrangements for and approach to partnership working locally, of some of their successes, and of some of the things that have caused them difficulties in their work.

On two occasions, a meeting was set up in Wakefield, under the auspices of the Yorkshire Regional Flood and Coastal Committee, of representatives of that Committee and of practitioners in that region, to share experiences of and views on surface water flooding and flood risk. Unfortunately, both meetings had to be cancelled, in view of severe weather. The Flood Risk Manager at Wakefield Council, who convened the meetings, has kindly prepared written views for me, informed by an earlier meeting of practitioners in the region on the topic of surface water flooding, and also informed by written views from those who were to have been participants in the cancelled meetings.

In early March, I attended a meeting convened by Wessex Water, attended by flood risk management and drainage practitioners from the Environment Agency, local authorities and Wessex Water, at which I tested out some of my emerging views, and listened to others' perspectives.

I have had monthly telephone conferences with officials at Defra on the conduct and progress of the review. Towards the end of the review, I provided them with a draft of my report, on which they offered helpful comments, which I have taken into account before finalising it.

Defra officials sent a draft of this report, including recommendations, to the main stakeholder organisations that had been consulted during the review. Three telephone conferences were held in late April and in May, during which representatives of those organisations offered further comments on the issues covered in my draft report and recommendations. I have taken these too into account.

Survey of English Lead Local Flood Authorities

In order to ensure that the views and evidence on which this report is based were widely drawn, I decided to ask for the help of all 151 lead local flood authorities in England, through an online survey: lead local flood authorities are the statutory bodies most closely involved in the issues I was asked to consider. The views and perspectives gathered in initial correspondence, meetings and telephone conversations were useful in scoping and informing the compilation of the survey. The resulting questionnaire was tested in draft on two local authorities, and their comments taken into account in finalising it. The contact details of the lead officers to whom it was addressed were taken from a list of lead local flood authority contacts held by the Environment Agency.

An initial e mail to these contacts was sent in December, forewarning recipients of the survey, its scope and its purpose. The online survey, hosted by SurveyMonkey, comprised 39 questions in total, covering the topics of asset registers, Section 19 reports, designation of flood risk assets, enforcement under the Land drainage Act of 1991, and dispute resolution. The only mandatory question was the name of the lead local flood authority on behalf of whom the response was sent. Most questions were designed to have set responses from a list of options, for ease of analysis. At the end of each topic, an open question was inserted to provide the opportunity for any additional comment in free text. A final open question asked whether there was anything respondents would like to see strengthened, streamlined, or otherwise improved in the legislation, guidance, or other arrangements governing their work as a lead local flood authority, particularly in relation to surface water flood risk. The survey was tested, within Hampshire County Council and externally, so as to identify any issues within the SurveyMonkey system.

The survey was launched on Monday 6th January by means of an e mail linking to it. It was originally intended to be open for two weeks. 23 authorities responded on the first day. A chasing e mail was sent on 13th January to those authorities yet to respond, attaching a copy of the questionnaire. At the request of some respondents, the survey was in the event left open until the end of January.

Overall, 95 authorities responded to the survey – a 63% response rate. Of these responses, there was an 83% completion rate. The average completion time was 36 minutes, which provided me with reassurance that the task I had asked authorities to

undertake was not unduly onerous. Where an authority had submitted multiple responses, the most complete response was used for further analysis.

While it is gratifying that 63% of English lead local flood authorities responded, it is of course noteworthy that 37% did not. This may be related to the fact that there were serious flood events in various parts of the country throughout January 2020, which will have stretched the professional flood risk management resources of a number of authorities.

Surface water flooding and maintenance responsibilities

Defra's Surface Water Management Action Plan describes surface water flooding as happening when rain from major storms overwhelms local drainage. It is a significant risk, stated to affect 3.2 million properties in England. It also affects transport and other infrastructure. Like all flooding it causes significant disruption to people's lives and livelihoods, damages homes and businesses, causing stress and anxiety, and can result in the closing of roads, railways, schools and hospitals, as well as having environmental impacts.

There is a growing scientific consensus that climate change, related to global warming, is bringing not only rising sea levels, but also more regular extreme rainfall and storms. The introduction to the Environment Agency's Draft National Flood and Coastal Erosion Risk Management Strategy for England states that the most recent climate change predictions confirm that we will experience wetter winters and drier summers, with an increased likelihood of more intense rainfall leading to flooding. Rainfall and river level records are broken with increasing frequency. The Agency report that a quarter of their gauges of water volume and flow on main rivers have broken previous records over the last ten years: 10% of them broke previous records, over the 2019/20 winter alone. February 2020 was the wettest February on record in England, and the fifth wettest for any calendar month since 1862. Rainfall across England was 258% of the average for the month, and in some places 400%. During the same month, the highest or second highest levels on record were recorded in 13 rivers.

Much of our drainage infrastructure is ageing, and in need of significant maintenance or replacement. New development risks reducing the capacity of the land to provide natural drainage, and has the potential to increase surface water run off. It is important to ensure that new properties have effective ways of managing the surface water that the sites generate, and also to ensure that drainage systems and "assets", old and new, are well maintained, so that they perform to their intended capacity. As the Ministerial Foreword to the Surface Water Management Action Plan states, surface water flooding problems can be caused by what might sometimes seem small or rather mundane issues, such as a blocked grate over a drain, as well as more major ones such as inadequate drainage arrangements for a new property development. They can be about maintenance of ditches, drains or sewers, or clearing of gullies and trash screens. Any drainage system is only as effective as its weakest link.

The causes of flooding in urban areas can be complex, and can involve interactions between assets owned by various parties, such as public sewers, private drains, highway drainage, and riparian watercourses. Such complexity can exist in rural areas too, for instance where land drainage and/or agricultural surface water run-off overwhelms or contributes to the blockage of highway and other drainage systems in towns and villages.

Agricultural practice is an important issue in relation to surface water management generally. I have been told of a government initiative to address "catchment sensitive farming", being developed by Natural England and the Environment Agency. I have therefore not addressed that issue further in this report, other than adopting a recommendation made to me by ADA as to the possibility of using public funding for agriculture to incentivise good practice for the reduction of flood risk.

Clarity as to who is responsible for doing what, including constructing and maintaining drainage systems and their various components, is crucial for the effective working of any system for the management of water. Such clarity is often lacking in our present legal and administrative arrangements for surface water management, and for maintenance of drainage systems. Ownership of surface water drainage features is fragmented across a range of both public and private parties, including local authorities, highway authorities, internal drainage boards, water companies, and private individuals and businesses. Powers and duties to manage drainage features are often less than clear cut.

Legislative background

In 1991, earlier legislation relating to water and to land drainage was consolidated into a number of new Acts of Parliament. These were later amended and substantially supplemented by the Flood and Water Management Act of 2010.

Section 6(4) of the Environment Act of 1995, as amended by the 2010 Act, provides that the Environment Agency shall exercise a general supervision over all matters relating to flood and coastal erosion risk management. Section 7 of the 2010 Act provides, more specifically, that the Environment Agency must develop, maintain, apply and monitor a strategy for flood and coastal erosion risk management in England.

The Environment Agency refer to this as their “strategic overview” role. I suggest that it might more usefully be thought of as their “strategic leadership” role. The Agency in May 2019 published and consulted on a revised draft National Strategy. As at May 2020, the draft Strategy is with Defra for the Secretary of State’s review and approval. References to it in this report are therefore to the Draft Strategy.

Section 165 of the Water Resources Act of 1991 (as amended) confers a power, but not as I understand it a duty, on the Environment Agency to carry out flood risk management work on main rivers, including maintaining the watercourse. The Agency see this “operational role” as distinct from their strategic leadership role.

The Water Industry Act of 1991 sets out the main powers and duties of the water and sewerage companies. Section 94 of that Act provides that it shall be the duty of every sewerage undertaker (a water company appointed by the Secretary of State for this purpose) to provide and maintain a system of public sewers so as to ensure that the area is and continues to be effectively drained.

Section 106 of the Water Industry Act provides that, subject to certain exceptions, the owner or occupier of any premises, or the owner of any private sewer that drains premises, shall be entitled to have his drains or sewer communicate with the public sewer of any sewerage undertaker and thereby to discharge foul water and surface water from those premises or that private sewer. Where separate public sewers are provided for foul water and for surface water, the right to connect does not authorise the drainage of surface water into a sewer provided for foul water.

The Land Drainage Act of 1991 sets out the functions of internal drainage boards. These boards exist only in certain parts of the country, mainly in open lowland areas or within certain river floodplains. They are responsible for managing water levels. Section 1 of the Land Drainage Act provides that a board shall exercise a general supervision over all matters relating to the drainage of land within their district. They may maintain and improve existing works, and construct new works (other than on

main rivers) for the drainage of land. They do not however have powers to carry out works in relation to surface water flooding. Section 7 of the Land Drainage Act provides for the Environment Agency to have general supervisory powers over internal drainage boards.

Local authorities also have powers under the Land Drainage Act to enter land and carry out certain drainage works.

The Highways Act of 1980 places a duty on highways authorities (Highways England in respect of trunk roads, Transport for London for certain roads in London, and the unitary or county council in respect of other highways) to ensure that the highway is not dangerous to the traffic that uses it. This duty is taken to include the duty to provide adequate drainage and to ensure that the highway is free from flooding. The highway authority has a duty to protect the rights of people to use and enjoy the highway, and the responsibility to prevent any obstruction and remove any encroachment. Flooding is generally considered to be an obstruction. Section 100 empowers the highway authority to construct highway drains and to erect barriers to divert surface water.

Section 299 of the Highways Act gives the highway authority the right for surface water drains to discharge into “any inland waters, whether natural or artificial, or any tidal water”. These will include watercourses, which may be privately owned and so the responsibility of the riparian owner. The performance of such a highway drain may therefore be dependent on the maintenance of the privately owned watercourse.

The responsibilities of owners and occupiers of land in relation to drainage and the management of water derive largely from common rather than statute law. Case law establishes a general duty on an occupier of land where there are natural hazards to do all that is reasonable to prevent or minimise the risk of foreseeable damage to other people’s property. The responsibility for ensuring the free flow of a watercourse, including a culverted watercourse, normally rests with the riparian owner, that is any landowner whose holding is in actual contact with a stream, whether or not the landowner owns the soil beneath that stream. Case law is also taken to establish that a landowner has the right to drain surface water naturally on to lower land, but that if the higher owner becomes aware or should be aware that natural surface water draining from his land is causing damage to the lower owner, he comes under a duty of care to take reasonable steps to abate any nuisance caused.

Historically, many watercourses and land drainage channels were culverted or piped and then concealed, as areas became urbanised. That practice is now discouraged, but there is a large legacy population of culverted and concealed watercourses, dating from the nineteenth and twentieth centuries. I understand that there is now

often uncertainty surrounding the legal status and responsibility for maintenance of such culverts, and even as to their actual location. An officer in a large lead local flood authority has commented to me that there are thousands of culverted watercourses in the area of that authority alone where ownership and responsibility are uncertain.

Water UK, the trade association that represents the major water companies of the UK, in 2019 issued a "Protocol for Correctly Classifying Culverted Watercourses and Sewers", providing advice to water companies on how to relinquish responsibility for maintaining particular assets, such as culverted watercourses, for example where maintenance responsibilities have been inherited from predecessor public bodies but where the water company takes the view that the watercourse should not properly be their responsibility. Water UK tell me that, as at February 2020, they are not aware of any culverted watercourses or public sewers that have been reclassified under this protocol.

Some local maintenance obligations can arise under land drainage byelaws, and under some historic local legislation.

The Flood and Water Management Act of 2010 gave effect among other matters to the government's response to Sir Michael Pitt's review, completed in June 2008, into the lessons to be learned from the summer floods of 2007. This Act created the new function of lead local flood authority, to be exercised by unitary and county councils. The lead local flood authority has a duty, under section 9, to develop, maintain apply and monitor a strategy for local flood risk management in its area. Local flood risk is defined as flood risk from surface runoff, groundwater, and ordinary watercourses. The local strategy must be consistent with the Environment Agency's national strategy.

The 2010 Act inserted a new Section 14A into the Land Drainage Act of 1991, which provides (among other things) that a lead local flood authority may carry out work to manage a flood risk from surface runoff or groundwater, if it considers the work desirable having regard to its flood risk management strategy.

Section 21 of the Land Drainage Act, as amended, also provides that the internal drainage board (or the lead local flood authority if there is no internal drainage board for the area) may enforce any obligation, existing before the commencement of the Act, to do any work in relation to any watercourse, bridge or drainage work.

Section 23 prohibits the erection of structures in an ordinary watercourse, or the erection or alteration of culverts so as to affect the flow of an ordinary watercourse, without the consent in writing of the internal drainage board or lead local flood authority. Contravention constitutes a nuisance, which may result in firstly an abatement notice, and, if contravention continues, prosecution.

Section 25 empowers the internal drainage board or lead local flood authority, where an ordinary watercourse is in such a condition that the proper flow of water is impeded, to serve notice on the owner or occupier, or person whose act or default has caused the condition, requiring remedy. There is a right of appeal to the magistrates' court. Subject to that, failure to comply is an offence.

The 2010 Act declares that each of the following is a "risk management authority" – the Environment Agency, a lead local flood authority, a district council, an internal drainage board, a water company, and a highway authority. The Act declares that risk management authorities must co-operate with each other in the exercise of their respective flood and coastal erosion risk management functions. (A water company's "flood risk management functions" relate only to its duty to provide and maintain a system of public sewers that convey surface water.) They may share information with each other, in furtherance of this co-operation. Section 7(6) provides that the Agency may issue guidance, among other matters, about how risk management authorities are to comply with their duty to co-operate.

The 2010 Act also created Regional Flood and Coastal Committees. There are currently twelve of them covering all of England. The Committees bring together representatives of the lead local flood authorities in their area and other people of relevant experience and expertise, under the chairmanship of an independent person appointed by the Minister. The Environment Agency must consult the committees about the way in which they propose to carry out their flood and coastal erosion risk management functions, and take into account the committees' representations. The Committees are empowered to recommend to the Environment Agency the raising of funds from the lead local flood authorities in their area, known as "local levy", and also to allocate those funds for flood risk management purposes.

The terms of reference for this review refer particularly to three specific functions of lead local flood authorities, created by the 2010 Act.

Section 19 provides that on becoming aware of a flood in its area, a lead local flood authority must, to the extent that it considers it necessary or appropriate, investigate which risk management authorities have relevant flood risk management functions, and whether each of those risk management authorities has exercised, or is proposing to exercise, those functions in response to the flood. The authority must publish the results of its investigation, and notify any relevant risk management authorities. The purpose of the provision seems to be to establish where responsibility for managing the flood risk lies, and what is being done about it.

While risk management authorities are under a duty to collaborate in their flood risk management functions, there do not appear to be any clear powers that the lead local flood authority can use if the responsible person or authority does not respond

and/or cooperate in trying to resolve the problem. (Although there is a default provision under section 20 of the 2010 Act, which provides that the Secretary of State may direct a risk management authority to exercise a flood or coastal erosion management function on behalf of another risk management authority, if the defaulting authority has failed to exercise the function, or has failed to exercise it in accordance with the national or local strategy.)

Section 21 provides that a lead local flood authority must establish and maintain a register of structures or features which, in the opinion of the authority, are likely to have a significant effect on a flood risk in its area, and a record of information about each of those structures or features, including information about ownership and state of repair. The Minister may by regulations make provision about the content of the register and record. No regulations have yet been made, and there appears to be wide variation in how authorities go about maintaining these registers, and the criteria they apply for what is registered. Contrary to the impression given in the terms of reference for this review, the register is not required to include a record of the responsibility for maintenance. Registration does not appear to create, or clarify, responsibility for maintenance of a registered feature or structure.

Section 30 brings into effect Schedule 1 of the Act. The schedule provides that the Environment Agency, lead local flood authorities, district councils, and internal drainage boards, are all “designating authorities”. If a designating authority thinks that the existence or location of a structure or a natural or man-made feature of the environment affects a flood risk or a coastal erosion risk for which that authority has flood or coastal erosion risk responsibilities, and the owner of the structure or feature is not itself a designating authority, then the authority may designate the structure or feature.

The effect of designation is that a person may not alter, remove or replace the structure or feature without the consent of the responsible authority. A designation is registerable as a local land charge. However, the fact of designation does not place the owner, or anyone else, under any responsibility to maintain the feature or structure.

The Designation of Features (Appeals) (England) Regulations 2012 provide a right of appeal for an owner to the First Tier Tribunal against a designation, and against certain decisions of an authority in relation to the designation. An official of the General Regulatory Chamber of that Tribunal has advised me that no appeals have ever been made under these regulations.

The Agricultural Land and Drainage Tribunal has a narrow jurisdiction to deal with certain drainage issues under Sections 28 to 30 of the Land Drainage Act of 1991. The Principal Judge of the Tribunal has explained to me that the Act and its predecessors, going back to the nineteenth century, were intended to deal with a

lacuna in the common law as a result of some old cases which held that a landowner was not liable to his neighbouring land owner if he failed to maintain his ditches so that his neighbours' land was thereby damaged. The law of negligence has now developed to such an extent that that lacuna in the common law has disappeared, leaving the Tribunal with a limited role in dealing with disputes concerning flooding from ditches. In 2018 the Tribunal received five applications in England, and in 2019 they received nine. When an application is received, the Tribunal almost always asks for an expert's report, which is generally prepared by ADAS, a national environmental consultancy, and paid for by Defra. The expert reports to the Tribunal but the parties are provided with copies of the report which can form the basis of settlement.

Main report

Sustainable drainage

The NFU have helpfully provided me with a copy of their published Flooding Manifesto. Under the heading "Planning for urban run-off", this states:

> "Increasing coverage of impermeable surfaces in urban areas prevents surface water from soaking into the ground, increasing the risk of flooding and pollution from heavy rainfall**.**
>
> The incremental impact of development in urban areas over time, increasing the extent, duration and frequency of flooding, puts additional pressure on the floodplain downstream and farming in the urban fringe.
>
> Sustainable Drainage Systems (SuDS) are designed to mimic natural drainage and filter and retain rainfall where it lands to prevent drainage systems from becoming overwhelmed during storm events.
>
> SuDS should be implemented across all substantial developments with clear ongoing responsibility for maintenance and aim of reducing all run-off from the development."

Water UK, in their submission to me, make a similar point. They write:

> "New development plays a key role in managing surface water, both from greenfield and brownfield development sites. Returning water to the environment, either directly to a watercourse or through infiltration to the ground, will in most cases be preferable to directing surface water runoff to public sewers. There are a number of ways to do this, including the provision of sustainable drainage systems (SuDS)."

Anglian Water have told me of their significant investment in surface water management focused on reducing the volume of surface water entering sewerage catchments leading to flooding and pollution. They say that the new approach of managing rainwater closer to where it lands and reducing the impact of surface water on their assets is a cultural change that will take many years to implement. They are collaborating with partners and customers to plant 1 million trees, shrubs or hedging plants, disconnecting 1 million downpipes at residential and commercial properties across the region, retrofitting SuDS into every school across their region, and educating 500,000 schoolchildren.

Anglian Water have referred me to a number of practical partnership projects. At Basildon and Thurrock University Hospital, the courtyards now include permeable paving and a number of planters, whilst the adjacent area has been resigned and re-landscaped to temporarily store an additional 2.800m3 of water during extreme weather events. Among the several benefits are a reduction in impermeable area, reduction in roof runoff by over 60%, and a 12% reduction in peak flows downstream.

Wessex Water have shown me their headquarters building at Bath, where parts of the curtilage and car park have a permeable surface, and run off from impermeable surfaces is channeled in a managed way, enabling rain water to be collected and used for servicing the building and surrounding grounds rather than running off and/or entering the public drainage system.

How can such innovative approaches to sustainable drainage, whether in new development or by retrofitting to existing development, be encouraged so that they become mainstream? United Utilities, the water company for the North West, have made the point to me that national activity supported by the Ministry of Housing, Communities and Local Government could promote better understanding of SuDS and surface water management among local planning authority and lead local flood authority staff. This could create opportunities to influence the provision of low impact drainage solutions on new developments. They also favour government led influencing of developers, architects and drainage design consultants through professional trade bodies to ensure that enough focus is applied to source control of surface water and to lead to a more considered approach to surface water drainage.

Defra officials have drawn my attention to “Susdrain”, a community of interest that provides a range of resources for those involved in delivering sustainable drainage systems. It was created by the Construction Industry Research and Information Association, and is supported by a range of private and public sector bodes, including the Environment Agency.

Susdrain promote an annual awards scheme, inviting submissions from community projects and from the wider industry across the UK to showcase outstanding innovative and high quality SuDS schemes. They also annually invite nominations for a “SuDS Champion” – an individual who has gone the extra mile to promote and deliver “multi-beneficial SuDS”. This seems to be an excellent initiative to share, encourage, and celebrate good practice.

I recommend

That the appropriate government departments and the Environment Agency pursue opportunities to promote better understanding of best practice in surface water management through relevant professional and trade bodies, including through the promotion and celebration of innovation and good practice in the design and implementation of sustainable drainage schemes

Planning system

Defra officials have drawn my attention to the Ministry of Housing, Communities and Local Government's review of the application and effectiveness of planning policy for Sustainable Drainage Systems, published in August 2018. The review found that 80% of adopted local plans contained policies that clearly reflected the requirement of the National Planning Policy Framework extant at that time that SuDS be prioritised in those areas at risk of flooding, and that that figure increased to just over 90% for emerging local plans. 80% of all adopted and 95% of emerging local plans reflected the requirements of a written ministerial statement that SuDS were to be provided in all major new developments wherever this is appropriate. The review found that almost 90% of all approved planning applications sampled featured SuDS.

The review also found that in general, local planning authorities had no specific checking regimes in place to ensure that SuDS had been constructed as agreed, and that more emphasis on SuDS adoption and maintenance arrangements by applicants is required.

The government's Planning Policy Guidance on sustainable drainage, last revised in March 2015, states that generally the aim should be to discharge surface water run off as high up the following hierarchy of drainage options as reasonably practicable:

1. Into the ground (infiltration)

2. To a surface water body.

3. To a surface water sewer, highway drain, or another drainage system.

4. To a combined sewer.

This guidance is a material consideration for local planning authorities in determining planning applications. United Utilities has commented to me that application of this hierarchy is key to achieving the most sustainable drainage route for surface water run off generated by development, but that commonly local planning authorities are unwilling or unable to exert strong influence on developers in this regard. They say that often this can result in surface water being connected to a combined sewer network leaving water companies with capacity challenges and increased sewer flood risk legacy. They say that this occurs sometimes even when there are more sustainable discharge routes available. United Utilities say that there is an urgent need to ensure optimal surface water management on new developments.

The government's National Planning Policy Framework was last updated in February 2019. It sets out the government's planning policies for England and how these are expected to be applied. Planning authorities must take them into account in the preparation of their development plans, and they are material considerations in planning decisions.

Paragraphs 155 to 165 deal with planning and flood risk. Paragraph 163 provides that development should only be allowed in areas at risk of flooding where, among other matters, it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate. Paragraph 165 provides that major developments should incorporate sustainable drainage systems unless there is clear evidence that this would be inappropriate. The systems should, among other matters, have maintenance arrangements in place to ensure an acceptable standard of operation for the lifetime of the development.

Although these words seem clear, I have found from the meetings of flood risk practitioners that I have attended, that there is a widely held perception that existing planning and building regulation control often provide insufficient focus on how surface water can best and most sustainably be managed in new development. Five of the respondents to the online survey replied, unprompted in the final open question, that they would like to see stronger planning guidance and/or control.

The Environment Agency have told me that one of the key points relating to surface water management, raised by respondents to their consultation on their revised National Strategy, was that current planning policy and its implementation should be improved to manage surface water risk. Another was that there needs to be "a step change in influencing developers towards the most sustainable drainage solution".

The point has been made to me that the words “unless there is clear evidence that this would be inappropriate”, in paragraphs 163 and 165, provide room for equivocation. And that paragraph 165 in any event is stated to apply only to “major developments”. I have been told by practitioners that this paragraph is commonly interpreted as not applying to developments of nine dwellings or fewer, and that flood risk management and water company professionals therefore commonly do not get to advise on these developments. I have also been told that sometimes, once planning consent has been granted for nine or fewer dwellings, and the principle has been established of building without a sustainable drainage scheme, an application for variation is made, increasing the number of dwellings to ten or more. Water company officials have told me that they are particularly concerned that the flow into an existing drainage system should not be allowed to exceed its intended capacity: there is an automatic right to connect to the existing public drainage system for an owner or occupier of any premises, under present legislation, until Schedule 3 of the 2010 Act is implemented. (This is explained more fully in the next section of this report.)

The point has also been made to me that it is questionable whether the relevant paragraphs are given sufficient prominence in a National Planning Policy Framework that extends to 217 paragraphs.

Water UK, in their submission to me, say that they believe that the government should strengthen the National Planning Policy Framework, in relation to SuDS.

Anglian Water comment:

> “…there currently remains a void in both the delivery and adoption of SuDS, and significant ambiguity within the planning system that is unhelpful for local authorities, water companies and developers, which reduces the incentive to include such schemes in new developments. We believe it is in the interests of developers and new and existing residents if this situation is addressed.”

ADA, in their submission to me, wrote:

> “The Achilles heel in effectively managing surface water flooding often sits with (the) inability of local planning authorities to be able to impose the necessary water management solutions on housing or business development. It is unfortunate that in many instances, outside of unitary authorities, planning matters typically sit with local authorities that are not lead local flood authorities. This can result in planning authorities lacking sufficient technical expertise on flood risk and drainage matters. Consequently planning authorities may lack the due regard that they (should) give to flooding matters, given the myriad of wider aspects a planning authority must consider from a development.”

The Chief Executive of the National Flood Forum makes a similar point. He comments that there are real capacity and capability issues across the different planning, LLFA, and other risk management authority systems that mean that processes consistently fail to deliver the right outcomes.

ASA, the Association of SuDS Authorities, observe

> "Lead local flood authorities as statutory consultees within the planning process are key to recognition of where issues arise in relation to ownership with creation of new drainage assets which integrate with the existing drainage but also the actual creation of new assets and how they are recorded."

A particular issue that has been raised with me is that drainage issues are sometimes left until the end of the planning process, as a reserved matter, where a condition of the planning consent is that a satisfactory drainage plan is submitted. In practice, this can mean that drainage, rather than being regarded as a fundamental issue underlying the whole development, may be treated as one of the last aspects of a development proposal to be examined in detail, by which time the planning officers and/or flood risk advisers feel that there is an expectation that the development must be allowed to proceed. The Chief Executive of the National Flood Forum has urged that drainage plans be required at outline planning stage, and that they should bind the whole development, including any parcels of land that are subdivided as the development proceeds.

Notwithstanding the findings of the government's review carried out in 2018, and the subsequent revision of the National Planning Policy Framework, I have found a continuing view among the practitioners with whom I have met, and of some of the stakeholders who have written to or spoken with me, that sustainable drainage considerations are too often insufficiently prominent and fundamental in planning decisions. This seems to be a reflection both of the somewhat equivocal nature of the present planning guidance, and of the extent of the capacity and will of local planning authorities to give weight to sustainable drainage considerations in their planning decisions.

In March of this year, the Ministry of Housing Communities and Local Government issued a document called "Planning for the Future". The document sets out an intention to revise the National Planning Policy Framework. In particular, there is an intention to review policy on building in areas of flood risk. There is a commitment to assess whether current protections in the Framework are enough, and to consider options for further reform. This review will provide a welcome opportunity to review the guidance on sustainable drainage.

I recommend

- That the Ministry of Housing, Communities and Local Government, in their forthcoming review of the National Planning Policy Framework, ensure that advice on the vital importance of achieving sustainable drainage in all new development is prominent, clear and unequivocal.

- That local planning authorities ensure that appropriate professional expertise is brought to bear in decision making on all planning applications where there are surface water drainage implications.

- That local planning authorities ensure the submission of drainage plans at an early stage in the planning approval process, and that the whole development is carried out in accordance with the approved plans.

Schedule 3 to the Flood and Water Management Act and adoption and maintenance of SuDS

I have found that it is not possible to go far into a conversation about surface water flooding before someone brings up the issue of Schedule 3 to the 2010 Act. This has not yet been brought into force in England nearly ten years on from its enactment, although it has in Wales. (Most of the 2010 Act does not apply to Scotland, but through a different legislative route, SuDs are a legal requirement for all new developments there, except for surface water drainage from single dwellings and developments that drain into coastal waters.)

Schedule 3, enacted in response to the recommendations of the Pitt Report, provides for the Minister to publish national standards for the implementation of sustainable drainage for managing rainwater. The standards must address the way in which drainage systems are designed, constructed and maintained, and operate. The Schedule provides that construction work which has drainage implications may not be commenced unless a drainage system for the work has been approved by the "approving body" – i.e. the lead local flood authority (the unitary or county council) for the area. Approval decisions are to be made in accordance with the national standards. Before approving an application, the approving body must consult various other public bodies with related responsibilities. Where an approved drainage system is constructed in accordance with the approval, the approving body must adopt it, subject to certain exceptions relating to systems serving single properties or highways, or relieving public sewers. The approving body then becomes responsible for maintaining the system.

Schedule 3 would remove the existing right to connect surface water drains to public sewers: connection could only be made if part of an approved surface water drainage scheme. I have found that removal of this existing automatic right is a matter of particular importance to water companies who are concerned that the capacity of their surface water or combined sewers should not become overloaded, thus increasing flood risk.

Although I deliberately did not refer to Schedule 3 in my letters inviting submissions, as it is not referred to within my terms of reference, a number of the submissions I have received nevertheless urge that it be brought into effect. The point has been raised and emphasised by participants at each of the meetings of practitioners that I have attended for the purposes of this review. I have been told of concerns about unsatisfactory standards of design and construction, and of difficulties of ensuring proper maintenance once the developer has left the site and has passed on responsibility for maintenance, for example to a management company.

Before the last general election, ADA published "Seven Key Policy Asks For Better Flood and Water Management". Item 3 is:

> "The next government needs to fully implement Schedule 3 of the Flood and Water Management Act 2010, to ensure future development can keep pace with the challenges of the changing climate, by ensuring that SuDS are maintained over the lifetime of a development."

ADA reiterate this view in their submission to me.

The NFU make the same point, but from a slightly different perspective. They write:

> "Sustainable drainage systems are being increasingly installed and implemented to help overcome the increasing pressures from surface water flooding. Some LLFAs are doing this and then relying on the landowner to carry out maintenance and take on the responsibility of this feature. We believe that this cannot continue and that Schedule 3 … must be enacted as soon as reasonably possible."

Water UK, Anglian Water, and Wessex Water have all submitted to me that they would like to see Schedule 3 brought into effect, and the automatic right to connect surface water drainage systems to combined sewers, removed. Water UK write:

> "We continue to believe that such an approach would incentivise developers to consider comprehensive SuDS schemes in place of traditional surface water drainage schemes, providing better drainage management and protection against future flood risk for both the new development and residents in surrounding areas. In Wales (where Schedule 3 has been enacted), Scotland and Northern Ireland, the automatic right to connect surface water has already been removed."

The Chief Executive of United Utilities, also argues that the automatic right to connect surface water drainage to existing sewer systems is an area that needs greater legislative control, particularly where surface water is drained to combined sewers, as any additional surface water in sewers will increase the risk of sewer flooding. Combined sewer systems quickly respond to storm events and increased surface water elevates sewer overflow and flood risk. He states that he firmly believes that the removal of the right to connect surface water to the sewer network would focus all involved in the planning of developments and maintenance of infrastructure and encourage a more responsible approach to sustainable drainage.

Feedback to me from a workshop of local authority, water company and Environment Agency practitioners under the auspices of the Yorkshire RFCC included the statement:

> "The use of SuDS in new development is also an area of great concern: since Schedule 3 of the Act was not enacted in England, the powers of the LLFA are very weak to request SuDS."

Flood risk management practitioners at the Somerset IDB Consortium, and at the Wessex and South West meetings I have referred to, emphasised the importance they attach to this schedule being brought into effect, and what they saw as the weakness of the options for ensuring satisfactory and properly maintained sustainable drainage systems without it.

Representatives of the Northumbria Integrated Drainage Partnership, which I refer to more fully later in this report, say that they feel "hamstrung" by there being no clear route to getting SuDS identified and adopted. They say that these are in all manner of different ownerships and responsibilities, and that some are "homeless". They say that the problem needs sorting, and that achieving clarity and consistency across the country is really important.

The problems of maintenance and adoption of SuDS systems were also a recurring issue raised in the free text section of the online questionnaire to lead local flood authorities. Of 64 authorities that took the opportunity to answer the question as to whether there was anything they would like to see strengthened, streamlined or otherwise improved, in the legislation, guidance, or other arrangements governing their work as a lead local flood authority, 25 referred to the problems of the standards, adoption or maintenance of SuDs systems: 18 of these referred specifically to Schedule 3 and/or to the need for a SuDS approval body. This was the largest number referring to any single issue.

The Association of SuDS Authorities point out, in their written submission to me, that as adoption of drainage assets is not mandatory, if the housebuilder chooses that the drainage system remains "private", then information within the drainage network will not be recorded or captured, unless planning conditions capture "as built" information.

"Transparency and clarity is needed on who is responsible for the long term maintenance and upkeep of SuDS" was one of the key points raised by respondents to the Environment Agency's recent consultation on their Draft National Strategy."

A lead local flood authority commented in the online questionnaire:

> "The non- statutory technical standards for sustainable drainage systems should be made statutory: the ambiguity makes our role very difficult when developers are uncooperative."

Highways England comment that third party development adjacent to their network can result in increased pressure by developers to connect their drainage into the highway drainage system. They say that this can result in reduced capacity of the highway drainage and increased risk of flooding and pollution. The Department for Transport have therefore issued national guidance providing a presumption against this form of third party connection.

The Chief Executive of the National Flood Forum comments that in their surveys, SuDS and riparian management consistently top the lists of issues that people are concerned about. He writes that SuDS, their specification, design, implementation, enforcement, designation and maintenance are hugely contentious subjects, often linked directly to drainage matters, particularly the lack of drainage plans at outline planning stage, the poor quality of flood risk assessments, the poor quality and inappropriateness of drainage schemes, and the lack of knowledge about existing drainage schemes. He adds:

> "Underlying this are real issues of thousands of people's lives being ruined by the failure to address these issues effectively and consistently everywhere."

There would of course be significant resource consequences to lead local flood authorities of assuming responsibility for the maintenance of drainage schemes that are not at present their direct maintenance responsibility. That point should not be underestimated or overlooked. Legislative provision could perhaps be made for payment by the developer to the authority of a capital sum, in recognition of the future commitment being taken on by the authority.

Defra officials have pointed out to me that other processes, outside my review, are in place to examine the question of whether now is the right time to bring Schedule 3 into effect.

They have also told me that the government consulted on the implementation of Schedule 3 between December 2011 and March 2012, when local government and housebuilder representatives identified a number of issues. These included the impact on development of approving sustainable drainage systems under a separate consenting regime from that to approve planning applications, and the fact that these regimes were to have been run by two different parts of local government. Additional concerns were raised by local government about the mechanism for charging householders to pay for sustainable drainage systems maintenance. The Local Government Association (LGA) were keen that introducing these new responsibilities should not result in councils shouldering unfunded burdens.

In 2014, the government consulted on an alternative approach to the one envisaged in the 2010 Act to deliver effective sustainable drainage systems that will be maintained for the lifetime of the developments they serve through changes to the planning regime. This approach built on the existing planning system to ensure that changes could be introduced relatively quickly ensuring that sustainable drainage systems flood risk benefits were brought forward as soon as possible. Lead local flood authorities became statutory consultees for "major development with surface water drainage". The changes took effect in April 2015.

I would however be remiss if I did not report the weight of submissions that I have received on the point, and how strongly flood risk management practitioners in particular feel about what they see as the weaknesses of the present arrangements for ensuring satisfactory standards of design, construction and maintenance of sustainable drainage systems for new development. It might be said that part of the answer is for planners and flood risk management practitioners to work together more effectively, so as to ensure that full advantage is taken of existing powers under the planning system. But I am struck by the extent and strength of submissions that I have received as to people's experience of the inadequacies of the present arrangements.

Water UK have told me that new rules have been introduced from 1st April 2020 on surface water sewers that will apply to all water and sewerage companies in England. The new rules, which are part of the Sewerage Sector Guidance documentation approved by OFWAT under its Code for Adoption Agreements, allow English water and sewerage companies to adopt a wider range of sewer types, including those with sustainable elements, than they have done to date. The LGA suggest that it may be appropriate to see this approach bed in and assess its impact in the first instance, before making any calls to bring into effect Schedule 3. However, this approach is voluntary. Developers do not at present have to offer their SuDS and sewers for adoption by a water company, or anyone else.

Wessex Water officers told me that they have been discussing with developers whether they will build drainage systems to national standards with a view to having the systems adopted by Wessex Water. Roughly a third of developers have said that they will build to these standards and will seek to have their systems then adopted; roughly a third do not intend to build to these standards; and roughly a third were undecided. This seems to suggest that a voluntary system is not enough.

A view has been put to me, by a water company and by the LGA, that there is a case for water and sewerage companies, rather than unitary and county councils, to become the "approving bodies" for SuDS, and so also the bodies responsible for maintenance after adoption. It has been put to me that this approach would simplify the pattern of accountabilities, and might also better secure the obtaining of funding through the established arrangements for collecting surface water drainage charges, and its protection from other competing public funding pressures. A contrary argument is that water companies generally cover much wider geographical areas than lead local flood authorities, and so might be less connected to the local issues involved. Schedule 3, as it stands, specifies that the approving body is the county or unitary authority, and so to change this would require not only Schedule 3 to be brought into effect, but amending primary legislation.

I recommend

- That Defra take note of the strong views of respondents outlined in this report on the weaknesses of the present arrangements for ensuring appropriate standards of design and construction, and effective continuing maintenance, of sustainable drainage systems for new development.

- That the case be re-examined for bringing into effect Schedule 3 of the Flood and Water Management Act of 2010, or some equivalent mandatory arrangements.

- That, in particular, Defra re-examine the working of Section 106 of the Water Industry Act of 1991, so as to ensure that the sewerage system is not subjected to unnecessary flood risk through the connection of surface water drainage.

Section 19 investigations

The function of a lead local flood authority of investigating a flood in its area, establishing whether each risk management authority has exercised, or is proposing to exercise, flood risk management functions in response to the flood, and publishing a report, is generally welcomed and supported by respondents to this review. It is particularly useful, in the context of the overlapping and interrelated responsibilities of a range of bodies, relevant to a particular flood risk.

Officials of Wessex Water told me that they found it a useful and worthwhile process. They cited a number of cases where a lead local flood authority's investigation, carried out in liaison with them, had revealed that flooding had been caused partly from fluvial water and partly from surface water, and had resulted in their participating in the development of schemes to improve the system. They had found that the process had encouraged a partnership approach to investigating and remedying flood risk. Participants in the Northumbria Drainage Partnership, representing Northumbria Water, the Environment Agency, and local authorities, have told me of their similarly positive experience of a partnership approach. One respondent to the online survey wrote:

> "The content of a Section 19 report is of less value than the journey of preparing one. By conducting a section 19 investigation, the LLFA will need to speak to each partner, understand their role, and if they intend to carry out any action. This, in itself, generates action and ownership. Does a section 19 report reduce flood risk? No. It will clarify who had the power or duty to reduce flood risk."

71 authorities responded to the online question on how their section 19 reports have been used. 58 had used them to inform their local flood risk management strategy; 24 for budget setting; 50 for business cases and funding bids; 54 for prioritising work programmes; 40 to inform strategic flood risk assessments; and 42 to improve stakeholder engagement. Only three said that reports are not used in any of these ways, and 10 used them for other purposes.

There are a variety of thresholds applied by authorities for deciding when to conduct a section 19 investigation. 79, or 91%, of the 87 authorities who answered the online question about this, said that they had regard (in most cases, among other matters) to the number of flooded residential properties. Some LLFAs will investigate, under the Section 19 procedure, every internally flooded property. Commonly, a threshold of five flooded properties is applied. Seven authorities apply a threshold of ten. One authority applies a threshold of 20 flooded properties. That authority has made the point to me that all reports of flooding are investigated, but that the full Section 19 procedure is applied only to the larger events.

Another authority commented that if the source of flooding is clear, there is no need for a section 19 report, and that many LLFAs complete detailed post flood reports with investigation and recommendations, but falling short of the full Section 19 procedure. Another commented that the process needs to be flexible and proportionate to the event.

While the absence of a common threshold for triggering a Section 19 report might be seen as a matter for concern, it can also be argued that it is appropriate for authorities to have a discretion as to the circumstances in which “it considers it necessary or appropriate” to conduct an investigation: there would be limited benefits, for example, if the reason for the flooding is already clear, and if a remedy is under way.

87 authorities answered the online question as to how many Section 19 reports they had issued. 15, or 17%, had issued none at all. 47, or 54%, had issued one to five. Six, or 7%, had issued over 25.

There is no common format for reports. A number of respondents to the online survey advocated more guidance and greater consistency. There is a British Standard for them. However, only 12, or 14%, of the 85 authorities who responded to our online question on this, use the standard, and nearly 50% were unaware of it. I have not had access to the standard or to any feedback on how useful those authorities that have used it, found it, other than from one practitioner who thought it “gold plated” and unlikely to be a practicable proposition for most authorities. An authority has to make a payment to the British Standards Institute before having access to it, which some have referred to as an obstacle. One authority commented

that the standard should be freely available free of charge to ensure a common approach across all LLFAs. Another commented on problems with ordering.

ADA argue that it would be beneficial to introduce greater independence into the investigatory system. They say that good examples of Section 19 reports include those prepared by multiple or independent authorities.

The National Flood Forum make the point that local knowledge is vital and is often ignored. They say that the greatest complaint they hear from people is that they are not listened to, even when they present clear evidence about issues and relate to professional interests. Their Vice Chair, in a useful individual submission, makes the point that Section 19 report processes need to include the local community, and that on many occasions they do not. Of the 71 authorities who answered the online question as to which bodies they normally work with when producing Section 19 reports, only four mentioned residents. (It may be that the word "bodies" in the question did not naturally prompt respondents to think of residents.)

There is no general system to follow up recommendations of Section 19 reports, and no requirement on anyone to implement their recommendations. A number of authorities commented, in the online questionnaire, on the difficulty of pushing forward recommendations without enforcement ability, and of the lack of a duty on risk management authorities to action the recommendations. While I would not go as far as recommending that risk management authorities be under a statutory duty to implement the recommendations of the reports, it seems to me that it would be good practice for Section 19 reports to be reported as a matter of course to someone at arm's length from the originating LLFA. The LLFA's own local scrutiny arrangements may well have a useful part to play in this. The Regional Flood and Coastal Committees could also provide such a forum, and an opportunity for the LLFA to gain support, if support were needed, in following up on recommendations and for others to be called to account for their actions in response. The information from authorities as to numbers of reports issued seem to indicate that such a process would not become unmanageable. A regular schedule to the committee, including progress on follow up actions, would seem helpful.

Neither, to my surprise, is there at present any system, nationally or regionally, to monitor Section 19 reports in order to see what general trends or lessons may be learned from them. Only 40% of the 70 authorities who answered this question say that they send their section 19 reports to the Environment Agency. I think that this should become standard practice.

In 2015, Defra commissioned a review, by the Water Evidence Research Consortium, of factors contributing to surface water flooding, based on a review of 140 Section 19 reports. The reports were sought out and found largely through internet searches. The review concluded that the concept of Section 19 reports

being led by a single authority (locally) is very effective as a point of reference that all stakeholders can look to for detailed flooding information and for coordination of an integrated solution to address any drainage problems. In my view, a general overview of all Section 19 reports, aimed at establishing and passing on the general lessons to be learned from them, as a means of promoting good practice, should be carried out continually, and as a matter of course, rather than as a one off exercise. It would seem to fit naturally with the Environment Agency's strategic leadership role.

I recommend

- That Defra ensure the ready availability of national guidance in relation to Section 19 investigations and the content of reports.
- That the proposed national guidance include the importance of engaging with local residents and businesses affected by the flood, and of relevant risk management authorities collaborating in the investigation and in the implementation of its recommendations.
- That lead local flood authorities provide a copy of each completed Section 19 report to the Environment Agency, who should be entrusted with periodically reporting on any national or regional trends and general lessons to be learned from them.
- That section 19 reports, or summaries of them, be reported as a matter of course to the appropriate Regional Flood and Coastal Committee, who should have the opportunity of monitoring implementation of their recommendations.

Asset registers

I have noted earlier in this report that there is wide variation in how authorities go about maintaining their asset registers, required under Section 21 of the 2010 Act, and in the criteria that they apply as to what is registered. Defra comment, in their Surface Water Management Action Plan, that while the register is a useful mechanism for understanding the overall drainage system, and can be used for highlighting assets which are problematic or in need of repair or maintenance work, in practice there is significant variation in the approaches taken by LLFAs.

Of the 95 lead local flood authorities that responded to the online survey, 89 said that they maintained an asset register, four replied that they did not, and two did not answer the question. Of the 85 authorities that responded to the question as to how often they updated their asset register, three replied monthly, five quarterly, 20 annually, 55 replied that they did so whenever a new asset is identified, and 2 said never.

There is considerable inconsistency as to which assets are included. Of the 82 authorities that answered this question, 25 included trunk road highway assets, 44 included county road highway assets, 43 included Environment Agency assets, and 45 included water company assets. There is also inconsistency as to whether ordinary watercourses, main rivers, gullies and pipes are included.

Among the 86 authorities that answered the question as to what their asset register includes, there was a variety of practice as to whether the landowner, asset owner, asset maintainer, type of maintenance, and state of repair is recorded.

Authorities commonly supported the overall usefulness in principle of maintaining a register, but pointed out weaknesses in the present system. One authority commented that a single centrally maintained register would be better than individual agencies holding different information. Another commented that while they have access to the water company's records, they do not have access to those of other parties such as Highways England, the Canal and River Trust, and Network Rail. Several authorities commented on the resource requirements of adequately maintaining the register. One commented that populating the data is a full time job, which they are unable to cover at present, and pointed out that landowner data can be subject to change of ownership, without notification to the LLFA. A number commented that a shared asset register with IDBs, with the Environment Agency, with a water company, and the highways authorities, would be more worthwhile, could provide the basis for access to all pertinent flood risk assets, and be added to. A common approach to the compilation and format of data would be needed for this. One authority concisely advocated:

> "A trimmed down data scheme to allow easy integration with asset registers held by other LLFAs and the Environment Agency."

LLFAs in one region commented on a continued difficulty in data sharing between the LLFA and the water company. They say that there is a willingness by local officers but that the concerns of the water company as a private organisation relating to liability arising from data sharing is a problem. They report that often it is found after the fact that records were available that would have reduced the time for issues to have been resolved. Defra comment in their Surface Water Management Action Plan, in relation to surface water flood risk maps, that commercial confidentiality and copyright issues can be barriers to data sharing: they hold out the possibility of using enforcement powers to require risk management authorities to provide information, if problems with data sharing persist.

A number of authorities commented on the limited usefulness of maintaining information on structures for which third parties are responsible, as the LLFA does not have responsibility for managing, restoring, altering, or maintaining their effectiveness. At one of the meetings of practitioners that I attended, the question

was posed as to precisely what was the point of maintaining the register: it was pointed out that a schedule of assets and their state of repair is usually the starting point for an asset maintenance programme: but in this case, there are no overall arrangements for the maintenance of registered assets: so what is the point? Another comment was that as the LLFA's only role in improving third party assets was through enforcement, effectively the authority were waiting for the condition of a registered asset to cause a flood before their responsibilities allow them to take action.

While the statutory duty to maintain a register under Section 21 of the 2010 Act lies with the lead local flood authority, in practice the function overlaps with similar functions of other risk management authorities. Water companies, highway authorities, internal drainage boards, and other risk management authorities generally maintain their own separate asset registers. Water and sewerage companies are required to keep sewer maps under Section 199 of the Water Industry Act. Highways England have told me that they maintain their own register of drainage assets, including their condition, and a record of flood events on or near the network. The register includes structures such as highway drains and culverts which, if not managed effectively, could affect flood risk in LLFA areas. They also hold information on locations recorded and identified as being vulnerable to repeat flooding across their highway network. They say that while this data is freely available on request and some LLFAs have made use of it, it is unclear whether this is widely recognised and understood. They make the point that greater transparency and exchange of data is an area where improvements can be made. I agree.

ADA comment that there has been a reduction in the maintenance of flood and water management assets and systems across local government and national agencies as a result of budgetary constraints and changes in political emphasis. They also conclude that a significantly simpler, and perhaps mandatory, solution needs to be found for asset registration, which is transparent to all risk management authorities.

The Environment Agency, in their written submission to me, have commented that the mixture of defence owners creates a complex picture of responsibility for the operation, maintenance and management of flood assets. They say that part of the Environment Agency's strategic overview role is to oversee the condition of the nation's flood and coastal defences, regardless of ownership, and that to support this, we need to adopt a common approach for the inventory, inspection and monitoring of all flood and coastal defences. I agree. And I would add maintenance to the list: the inventory, inspection and monitoring must surely be a means to that end, rather than ends in themselves.

Defra have already committed, at paragraph 8.15 of their Surface Water Management Action Plan, that the Environment Agency, working with LLFAs and other expert bodies, will develop a guidance note setting out best practice on local

asset maintenance and management, including local flood risk asset registers. I welcome this commitment, and would urge that the guidance should also address the difficult and elusive issue of how different sorts of public bodies can collaborate so as to achieve an overall and integrated set of records and maintenance approaches on structures and features that will have a significant effect on flood risk. I do not underestimate the practical difficulties and challenges, including financial challenges, of achieving this. But I am encouraged by the Environment Agency's commitment, in their written submission to me, to try. And the public interest calls for a concerted attempt.

While my terms of reference relate specifically to the management of surface water, the duty on lead local flood authorities to maintain a register under Section 21 of the 2010 Act extends to structures and features that will have a significant effect on all forms of flood risk.

I recommend

- That the Environment Agency develop and issue national guidance to lead local flood authorities, and also to all other risk management authorities, on the keeping of registers of structures and features which are likely to have a significant effect on flood risk, including from surface water, with a view to seeking a comprehensive set of records for each area, and to securing a common and comprehensive approach for their recording, inspection, monitoring and maintenance.

Designation of assets

The recording of structures and features in the statutory register does not create any duty on anyone to maintain them. Neither does "designation", under Section 30 and Schedule 1 of the 2010 Act. As stated earlier, if a designating authority thinks that the existence or location of a structure or a natural or man-made feature of the environment affects a flood risk or a coastal erosion risk for which that authority has flood or coastal erosion risk responsibilities, and the owner of the structure or feature is not itself a designating authority, then the authority may designate the structure or feature. The designating authority for the purposes of a structure or feature affecting a surface water flood risk will be the lead local flood authority. The effect of designation is that a person may not alter, remove or replace the structure or feature without the consent of the lead local flood authority.

It is clear that the power to designate is rarely used. Of the 86 authorities who answered the online question on the point, 60, or 70%, said that they did not have criteria for designating flood risk assets. 81 of the authorities had never designated an asset: 5, or 6%, had. The assets that had been designated were a flood wall,

flood resistant gates, doors and no-return valves on a number of properties (same location); flap valves, raised embankments, and controlled outfalls; overland flow routes, trash screens, earth bunding and overflow areas; and flood embankments. Reasons given for the exercise of the power were the context of the flooding at the location and political and local pressures; that failure of the assets could result in flood events; and to help protect them from development and removal. None of the five authorities who had used the power of designation had taken any follow up enforcement proceedings. As I have stated earlier in this report, an official of the First Tier Tribunal has advised me that no appeals relating to designation have ever been made.

The free text answers to the question as to why the power had not been exercised referred commonly to resource constraints, and to the limited benefits that would be achieved. A number of authorities referred to the fact that designation did not create a responsibility to maintain. This was also a point strongly made at meetings of practitioners that I attended.

Designation of a structure or feature has some benefit, in that powers become available to prevent its alteration or removal. And registration as a local land charge will alert an intending purchaser of an interest in the land to the existence of the flood risk management issue. If there is a clear existing obligation to maintain the feature (and I am not clear how this might be established), and it is relevant to surface water flood risk, then arguably the lead local flood authority could enforce under Section 21 of the Land Drainage Act. But the issue clearly arises as to whether designation should in itself create an associated duty to maintain.

The NFU in their submission to me anticipate this point, and express concern at the additional risk to their members. The CLA similarly argue that responsibilities on land drainage must be clearly delineated and any changes to these responsibilities must not place an undue burden on farmers and landowners.

The Environment Agency have told me that their forthcoming National Strategy will introduce a number of measures for encouraging the owners of flood defence assets better to understand and take responsibility for achieving flood resilience in local places.

I recommend

- That Defra note that designation of a structure or feature under Schedule 1 of the Flood and Water Management Act of 2010, while securing some public benefit, does not in itself create or secure a duty of maintenance, and so other means must be pursued if maintenance of privately owned assets affecting flood or coastal erosion risk is to be secured.

Who is responsible for what – individuals' and communities' experiences

As Water UK comment, in their submission to me:

> "Ownership of surface water drainage features is fragmented across a range of both public and private stakeholders, including private individuals and businesses, local authorities, highway authorities and water companies. Powers to manage drainage features are also exercised by the Environment Agency and internal drainage boards."

The CLA make a similar point:

> "There is currently a lack of clarity around roles and responsibilities for flooding and land drainage. While it appears that the combination of local authorities, internal drainage boards, the Environment Agency, local communities, regional flood and coastal committees, and landowners, work collaboratively to support coastal erosion and flood management works, the delineation between the roles and responsibilities of each is unclear, and therefore not transparent."

They add that for farmers and landowners, it is often unclear where their responsibilities end and the lead local flood authority's or the Environment Agency's begin.

One of the respondents to the online questionnaire writes:

> "We have layers of organisations dealing with different types of flooding and with different powers or byelaws. It takes time and resource to bring these organisations together to create partnerships etc. At a local level the customer does not care where the flooding comes from but they would like to be able to get a response from a single source …."

ADA offer the comment that it is generally clear that the Environment Agency does not involve itself with surface or ground water flooding, but that there could be a grey area where such flooding occurs as a result of main rivers not being able to convey flood water efficiently and therefore causing surface water or ground water systems to surcharge. They make the point, too, that while lead local flood authorities have the responsibility for overseeing surface and groundwater flooding, this does not extend to managing, maintaining, altering, or restoring the effectiveness of any surface or ground water systems or assets. They are able to influence asset owners on isolated issues, but are generally not equipped to be proactive or take ownership of these issues. ADA say that there are a number of councils where these responsibilities are well addressed, either through their own actions or in partnership

with others, and that good examples are generally where LLFAs have maintained dedicated flood risk management resources and provide a well documented and publicly accessible service.

ADA report that they receive regular phone calls from members of the public seeking advice on responsibilities and that they then liaise with their strong network of contacts in other organisations to help provide answers on local responsibilities. They report that many individuals have already passed between various risk management authorities, before coming to ADA, "somewhat exasperated". ADA suggest that the appropriate point of contact within local authorities on flooding and drainage should be more clearly defined and publicised, to ensure that correct and consistent information is provided. This strikes me as a very sensible suggestion, and in line with the comment of a respondent I have cited earlier in this section, and with the experiences of community flood action groups that I refer to below.

The Environment Agency have told me that key points raised by respondents to their recent consultation exercise on their forthcoming National Strategy was that there is uncertainty as to who is responsible for surface water flooding, and that roles and responsibilities need to be strengthened and clarified. Defra's Surface Water Management Action Plan includes a commitment that the Environment Agency will clarify the roles of risk management authorities, and other key players, in delivering the revised National Strategy, including the roles they will play in surface water management.

The responses from individuals and local action groups, forwarded to me by the National Flood Forum, illustrate vividly the exasperation felt by those who have been affected by flooding, and are anxious about being affected again, and their concern to establish with clarity who is responsible for what, and who will accept responsibility to take preventative action. A representative of a flood action group has told me about a ditch, enclosed by fencing, running between properties on a new housing development. She says that houses, ground floor flats, and their gardens have been flooded, because the ditch was overgrown and blocked with rubbish. A complaint to the local district council resulted in the developer of the estate clearing the ditch, which they were responsible for five years under a maintenance plan associated with the planning consent, after which responsibility would pass to a maintenance company. My correspondent says that she had been asking the developer to clear the ditch for months previously, but to no effect. She also says that, now that responsibility has been passed to the maintenance company, the ditch is blocked again. Regular telephone calls to the maintenance company and to the district council resulted in no action. The intervention of the local MP resulted in the local housing association, who owned the properties, making representations to the maintenance company, who took some, but inadequate, maintenance action. In 2018 flooding to properties adjoining the ditch recurred. Since then, no one has

taken any remedial action or carried out any maintenance. The submission tellingly concludes:

> "Every time it rains we are all on tenterhooks: it is stressful and not a nice way to have to live.

A representative of another Flood Action Group writes:

> "A more proactive approach in flood risk areas would be much appreciated and could solve problems before they become emergencies. It is extremely frustrating as residents in a flood risk area to report flooding issues to (the Council) only to find that the responsibility for a particular pipe or sewer rests with (the Water Company) and is therefore not in their control and vice versa. We just see a problem that needs sorting urgently before it becomes an emergency."

Another gentleman, who has lived in the same house for 33 years, writes that since 2008, his house has been internally flooded three times. He says that the area is heavily reliant on a drainage system that was put in place hundreds of years ago, to drain farmland, and that there has been no appropriate upgrade of the system to take into account the substantial rise in industrial and residential development that has taken place in recent years. Trees, hedges and shrubs have been cleared which has an adverse effect on drainage and flooding. He writes:

> "There is a reluctance to accept responsibility if blame can be deflected elsewhere …. Strong leadership is in short supply."

There are a range of different organisations, and landowner interests, with overlapping responsibilities that impinge on the causes of surface water flooding. The perception of some individuals and local communities who have been adversely affected by surface water flooding is sometimes that no one individual or organisation is prepared to accept responsibility for the maintenance and improvement of drainage assets and systems. On the other hand, an officer of a large lead local flood authority has made the point to me that it is unrealistic for any resident to expect that it is within the capacity of the authority to solve all surface water flooding problems, and to remove flood risk. I consider that it is a reasonable expectation, though, that residents should be helped to find their way through the administrative system so as to increase the possibility of finding a solution.

I recommend

- That each lead local flood authority should ensure a clear and appropriate point of contact for residents in their area with reports or queries about surface water flooding.

- That if the appropriate officer considers that the capacity to address the report or query better lies with another body, then s/he should help the resident refer it appropriately.

Partnership arrangements

A research report by UK Water Industry Research, "Surface Water Assets – A Review of the Extent of Surface Water Assets in England and Wales", published in 2019, concludes:

> "…that the current management of surface water drainage is fragmented and requires engagement with a number of stakeholders when issues arise within the drainage network. A transfer of assets between risk management authorities could, in theory, reduce the complexity of long-term catchment planning and implementation of solutions, but would require many legislative changes to enable this. The scale of the impact would depend on the direction of the transfer of ownership between risk management authorities."

The House of Commons Environment, Food and Rural Affairs Committee in their report on flood management in 2016 commented on the current "fragmented, inefficient and ineffective" flood risk management structures. They proposed major reform of current arrangements, including a new governance model led by a Floods Commissioner for England. They recommended that Water and Sewerage Companies should become Water and Drainage Companies, taking on local authority drainage responsibilities including management of surface water and non main rivers.

A contrary perspective is articulated in a submission to me by another Flood Action Group:

> "Any discussion of who should take lead responsibility for assets and drainage needs to take full account of the very serious problems of the current arrangements, but also the danger of further reorganisations. Our worst problems occurred on sites in the early years of the LLFA when the EA had lost overall lead and the LLFA was not fully operational. …Also no reassignment of roles can make up for the failings of basic drainage design and estimation of sustainable drainage requirements, lack of real acknowledgement of climate change, unwillingness to place strong regulation on developers of new buildings, or clarity on natural interests and incentives of privately run companies or utilities."

One RFCC chair commented to me that where local arrangements for surface water flood risk management work well, it is often despite, rather than through, the current

management and accountability arrangements. While there is a case for reorganising the structures and functions of relevant public service bodies, an alternative and perhaps more pragmatic approach is to ensure that the organisational boundaries matter less and that all the relevant public service bodies work to a common sense of purpose and of public interest.

The Environment Bill, which as at April 2020 is currently before Parliament, will introduce a statutory requirement for water companies to produce Drainage and Wastewater Management Plans (DWMPs). I have been told that water companies are already working on these, on the recommendation of the National Infrastructure Commission and under the direction of OFWAT. Water UK describe them as long term strategic plans that will set out how wastewater systems, and the drainage networks that impact them, are to be extended, improved and maintained to ensure that they are robust and resilient to future pressures. The first DWMPs will be published in the summer of 2022. Implementation nationally is being overseen by a steering group which includes representatives from among others, water and sewerage companies, Defra, OFWAT, a consortium of voluntary organisations, and local authority officers. The plans should set out a clear programme of work for each water company. In view of the interrelationship of overlapping drainage responsibilities, it clearly will be vital that other risk management authorities are involved in their preparation at local level. I suggest that this should normally be through the appropriate local partnership, rather than creating new or separate ones just for this purpose.

I was heartened to read a submission to me from OFWAT, the regulator for water companies, saying:

> "We would encourage you to consider how greater collaboration and partnership working between the various parties with a direct role in local flood risk management, including water companies, can be encouraged."

In their recently published strategy, "Time to act together", OFWAT set out as a strategic goal "For water companies to serve a wider public purpose".

I have noted earlier in this report that the various risk management authorities are already under a statutory duty to co-operate with each other in the exercise of their flood and coastal erosion risk management functions. They are also empowered to share information with each other for the purpose of discharging their duty of co-operation. The Environment Agency, as well as having responsibility for developing, maintaining, applying and monitoring a strategy for flood and coastal risk management, and for supervision of internal drainage boards, have powers to issue guidance about how risk management authorities are to comply with their duty to cooperate with each other, and how lead local flood authorities are to exercise their powers to obtain information from others. The existing legislation therefore gives the

Environment Agency a strategic leadership role over the present arrangements, including over partnership arrangements.

It is difficult to prescribe for constructive partnerships: they depend crucially on good local trust and working relationships, across organisational boundaries. The importance of these, in my view, cannot be overstated. The pattern and nature of partnership arrangements will vary from one region to another, but it should be possible to identify certain approaches that will increase the chances of success.

Strategic oversight of flood and coastal risk management in each region is provided by Regional Flood and Coastal Committees. As I have noted earlier, membership comprises representatives of lead local flood authorities, others appointed by the Environment Agency, and a chair appointed by the minister. In practice, chairs have commonly ensured that one of the Agency appointees is a representative of a local water company, in view of the crucial interrelationship between lead local flood authorities' and water companies' functions. I recommend that this should become an integral aspect the composition of Regional Flood and Coastal Committees.

The Southern RFCC have recently established a Surface Water Working Group, consisting of representatives of lead local flood authorities, Southern Water, and independent members of the RFCC. Their overall purpose is to advance inter-agency cooperation and thinking on surface water and drainage in the Southern Region in a bid to avoid too many bilateral conversations and keep their focus on strategic issues. They are currently looking at ways to work together, through their Drainage and Wastewater Management Plan process for example. Areas of common interest they have identified include:

- Reducing flood risk from all sources.
- Regarding water as a resource and building sustainable communities with a holistic approach to water management.
- Aligning priorities, responsibilities and investment programmes.
- Creating new ways of looking at asset ownership and maintenance to move away from a defensive approach.
- Aligning payment mechanisms and funding.
- Encouraging above ground sustainable drainage systems and the multiple benefits that these systems provide.

Issues that this new partnership group have identified as barriers to more efficient and effective working include the quality of data and the ability to share it effectively across organisations; the quality and consistency of data about asset health, and

how this is communicated to the public; trigger points and methodology for Section 19 investigations; legislative powers of each risk management authority to easily and effectively enforce management of surface water drainage assets.

The Northumbria Integrated Drainage Partnership is a longer established arrangement. It brings together Northumbria Water, the Environment Agency, and the 14 lead local flood authorities whose areas lie partly or entirely within the area of the partnership. (There are no IDBs in the area.) The conditions for the partnership are helped by the fact that the areas covered by Northumbria Water, the RFCC, and the area office of the Environment Agency are the same. The partnership works at officer level, with each representative being of sufficient authority to be able to commit the organisation that s/he represents. They meet four times a year. They prioritise areas for examination and expenditure, based on information on flood risk. They agree a 10 year programme of work, and they report on progress to their RFCC. Some schemes are delivered through the local authorities, some through the Environment Agency, some through Northumbria Water, and some jointly. Good and professional relationships across teams are crucial.

Funding for the work of the partnership comes from a combination of “grant in aid” and “local levy” which are administered through the Environment Agency, and local authority and water company funds. A partnership representative made the interesting suggestion that, nationally, the criteria for the awarding of funds might be used to incentivise a partnership approach.

Where there are initial differences of view or perspectives between partners, the partnership has found it possible, without exception, to resolve the differences without resort to mediation or arbitration, working as they do primarily to a common sense of purpose to further the interests of local people, rather than defending their separate organisational interests and budgets. They also have experience of coming to agreement with landowners.

I was impressed that the approach of the partnership was to establish what needed doing in the public interest, and how best and pragmatically to get it done. One representative commented to me:

> “We get it done. We don’t necessarily follow the letter of the law.”

This seems to me to accord entirely with the Southern RFCC working group’s approach of creating new ways of looking at asset ownership and maintenance and moving away from a defensive approach. If it can be achieved, it is an attractive and pragmatic alternative to legislation aimed at changing organisational structures and responsibilities.

The thinking and experiences of the Southern and Northumbrian partnerships should be valuable to the Environment Agency in providing advice to other areas on the forming and sustaining of surface water partnerships.

I recommend

- That the Environment Agency ensure that there is at least one representative of a local water company on each Regional Flood and Coastal Committee.
- That officer level partnership arrangements be put in place in each RFCC area to ensure close and collaborative working on surface water flood risk management.
- That the Environment Agency, in pursuance of their power under section 7(6) of the Flood and Water Management Act, should issue guidance on establishing and maintaining partnerships for these purposes, drawing on existing best practice.
- That each of these partnerships should report periodically on objectives and progress in delivering them to the appropriate RFCC.

Riparian and land owners' responsibilities

The responsibilities of landowners, or "riparian owners", are a vital contribution to flood risk management systems. The common law assumption is that a landowner is responsible for a private drain or culvert passing through their land. I have been told that landowners are often not aware of this responsibility. The position can become particularly complicated where an old urban culvert passes below several separately owned properties. I have been told that in such cases, sometimes not only is there not clarity as to who is responsible for maintenance of the culvert, but there may not even be clarity that the culvert is there at all.

Wessex Water have told me that some culverts and drains are the responsibility of the highway authority, some of the water company as sewerage undertaker, and some of private landowners. They are not comprehensively mapped. Wessex Regional Flood and Coastal Committee (RFCC) recently approved a bid for local levy funds to map the culvert system in Bath and North East Somerset, as a preliminary step to ensuring its maintenance.

Broadly, the water company sees its duty as draining properties, and sees the responsibility to ensure the drainage of land as the lead local flood authoritys. The highway authority is responsible for the highway drainage system. A riparian owner is responsible for the maintenance of a watercourse, including a culverted

watercourse. In reality these systems will often interrelate, and a failure of one is likely to affect another. The mapping and recording of structures and features which are likely to have a significant effect on flood risk, on a cross sector basis, as I have recommended earlier in this report, is of particular relevance in these respects.

In the section of this report under the title "Legislative background", I have summarised Sections 23 to 27 of the Land Drainage Act of 1991, which provide ways in which an internal drainage board, or if there is not one for the area, a lead local flood authority, may intervene where the flow of an ordinary watercourse is impeded.

In the online questionnaire to lead local flood authorities, I asked about the exercise of enforcement powers under Section 25 of that Act. Of the 80 authorities who answered this question, 64 or 80% had issued an initial prompt letter, 63 or 66% had issued a formal letter before action, 31 or 39% had issued a formal notice, 19 or 24% had directly carried out works, and six or 8% had recovered costs.

I enquired of ADA as to the extent to which internal drainage boards (IDBs) used their own enforcement powers. Having consulted with a representative group of IDB clerks and engineers, ADA advised me that for many IDBs the use of prosecutions is occasional or rare, but they do annually deal with a range of enforcement cases. By way of example, one group of six IDBs had 34 open enforcement cases at various stages. Another group of three IDBs had 6 open enforcement cases. ADA make the point that enforcement, and particularly prosecutions, does consume costs and resources, and can take a long time, even when apparently straightforward. But they comment that the ability to threaten both prosecution and the fact that an IDB has the means of remedying the breach and recovering the costs of the works is often highly effective. IDBs therefore prefer to persuade compliance through initial letters and open conversations in the first instance, escalating to more formal steps in those cases where this proves necessary. ADA are currently working with Defra on drafting a strengthened set of model byelaws and developing guidance around enforcement of byelaws and enforcement action.

It has been a common theme in many of the written submissions that I have received, and in the meetings and personal conversations, that riparian owners' responsibilities with regard to flood risk management and maintenance are ill defined and poorly understood. For example, the CLA comment:

> "There is currently a lack of clarity around roles and responsibilities for flooding and land drainage. …for farmers and landowners, it is often unclear where their responsibilities end and the lead local flood authority's or Environment Agency's begin. …farmers and landowners are often well placed to undertake flood risk management and drainage work on their own properties, but they are often not clear on whether they are required or

> allowed to undertake this work, or if it is the responsibility of another body. Clarity on this is crucial to ensure fast response, recovery and resilience to flood events."

The CLA also refer to natural flood risk management and washland agreements, where farmers and landowners have entered into agreements to allow for the periodic flooding of their land to avoid more devastating flooding downstream. They recognise that these agreements are a useful mechanism for mitigating the wider damaging effects of flooding and surface water on high value commercial, residential, and industrial land, but they argue that they need to compensate adequately the farmer/landowner in a way that recognises the damage to crops, farm infrastructure and reduction in land capital value. The CLA would like to see such washlands considered surface water assets. They also refer to other natural flood risk management techniques that will require the cooperation and input of a farmer or landowner, including the use of new woodland planting, restoring bends in rivers, changing soil management and creating wetlands. They urge that these too should be listed as surface water assets, and that if there are consequent financial or management burdens on the farmer or landowner, that these should be recognised.

ADA urge:

> "That a greater onus should be placed on riparian owners to take an interest in flood risk issues on their land, the consequential impact on others, and know how to deal with them. In parallel, property title deeds should take greater legal account of riparian ownership responsibilities and perhaps some additions to the requirements of property conveyancing would be helpful in this respect. ….The role of riparian owners should not be overlooked, to ensure that they are effectively maintaining channels and water management assets on their land."

The Chief Executive of the National Flood Forum reports that in their surveys, riparian management responsibility is one of three issues that consistently top the lists of issues that people are concerned about. He says that people's awareness of them, their lack of enforcement and the role of maintenance in managing flood risk is a regular feature of discussions in flooded communities.

The Environment Agency comment:

> "The Environment Agency, lead local flood authorities, district councils, coast protection authorities and internal drainage boards have a variety of legal powers to intervene at their discretion where the condition of a defence presents a risk to people, property or the environment. Despite this there is no responsibility for flood and coastal asset owners to maintain their defences

> to a particular standard or the ability for risk management authorities to enforce a level of maintenance."

These comments of course are also relevant to the issue of the possible "designation" of third party assets, addressed earlier in this report.

While there was no specific question on the subject of riparian owners' responsibilities in the online questionnaire to lead local flood authorities, a number of authorities commented in the free text sections. One authority commented:

> "Many do not understand the roles and responsibilities of those involved in land drainage management, including property owners. There are public misconceptions around who should respond to flooding often leading to them believing the Council is shirking its responsibility and no one is willing to take action …Land drainage responsibilities, and the nature of what constitutes a violation of these, are not coherently set out. Many enforcement cases are therefore dealt with using an ad hoc approach based on the circumstances in which these have occurred. Likewise, case law provides a difficult context for pursuing enforcement, due to the lack of consistency of this being successful/unsuccessful in various cases …"

The Somerset Rivers Authority is an unincorporated partnership of the Somerset local authorities and internal drainage boards, the Environment Agency, Natural England and the Wessex RFCC, with the purpose of bringing together and strengthening their work in relation to flood risk and water level management in Somerset. One of the issues they have encountered is the uncertainty over land owners' own responsibilities. A scrutiny panel, formed by the participating local authorities, has expressed concern that public funds should not be used to relieve landowners of work and costs that should properly be the landowners' own responsibility. Conversely, at least one landowner has expressed unhappiness at feeling himself restrained by others from doing maintenance work that he would like to undertake, in order to improve the flow of ditches.

The Somerset Consortium of IDBs offer the general comment:

> "The range of guidance that is available is weighted in favour of the organisation that has written the guidance. There is no guidance that is impartial and that has any legal weight.

Defra officials have drawn my attention to guidance, issued by the Environment Agency in February 2018, on "Owning a watercourse". The guidance is published on the Gov.UK website. It replaces an earlier published booklet that was called Living on the Edge. The guidance, which is commendably clearly and plainly written, states that you normally own a stretch of watercourse, including a culvert, that runs on or

under your land, or on the boundary of your land, up to its centre. It sets out the responsibilities of an owner as being to report an incident of flooding, blockage, pollution, unusual changes in the flow, or collapsed or badly damaged banks, to the Environment Agency. It also sets out the owner's obligation to let water flow naturally, and to remove blockages if they obstruct or impede this. It states that the owner should leave all other trees, branches and shrubs, as they can help prevent flooding by varying the shape and flow of the channel and reduce erosion, and should also keep any trash screen, weir, mill gate or other structure, clear. The guidance goes on to refer to the owner's obligation to prevent pollution and to protect wildlife, and sets out where an owner may go for further advice. The guidance goes on to say that an owner must ask permission before changing, removing or building any flood defence on his land, or do any work within 8 metres of a flood defence, or within 16 metres of a tidal flood defence. It goes on to cover a number of other issues in outline.

I infer from the fact that respondents did not mention this guidance to me that it is not as well known or relied upon as it might be. Defra's Surface Water Management Action Plan, under the heading "Identifying who is responsible for managing local assets and risks", sets out the following commitment:

> "To improve the general level of awareness, the Environment Agency, ADEPT (the Association of Directors of Environment, Economy, Planning and Transport) and Local Government Association will agree key messages about local flood assets and responsibilities, for use in awareness raising and ongoing communications with key target groups (for example developers, local planning authorities, highways authorities, riparian owners)."

It is clear that riparian owners' responsibilities and rights need to be a particular focus in this task, especially with regard to maintenance.

I have given considerable thought, and discussed with others, how effective maintenance of privately owned assets or features, relevant to the effective management of surface water, may be secured. This has been the subject of a number of discussions with stakeholders, and there has not been a single or predominant view that has emerged, other than a consensus that this is a significant issue that the public interest calls to be addressed.

I suggest that the task should be firstly to ascertain, clarify, and publicise the responsibilities of riparian owners under the existing law.

Culverted watercourses, running under multiple properties, are a particular issue. Firstly, it needs to be established where they are, and they should be recorded. The register of structures or features, to be maintained by the lead local flood authority under Section 21 of the 2010 Act, would seem to be the appropriate way to do this. I

have been advised that the common law requires each landowner to maintain that part of the culvert that runs under their land. If this is the law, it needs to be more widely understood and made known. It is questionable whether it is practicable for each landowner separately to discharge such a maintenance duty. It has been suggested to me by one respondent that a duty, or possibly power, of inspection and maintenance of culverted watercourses might be conferred upon risk management authorities, such as the Environment Agency. If so, the question would arise as to whether a proportionate part of the cost should be recoverable from the riparian owner, or whether it should fall upon the public purse.

Important though the attribution of responsibility for culverted watercourses is, the issue goes wider than that. The Environment Agency have written to me, in their submission I have quoted above in this section, that there is no responsibility for flood and coastal asset owners to maintain their defences to a particular standard. So how can the public interest be secured?

One approach would be for legislative change, for example to bring it about that designation of an asset or feature, under Schedule 1 of the 2010 Act, would place the owner under a duty to maintain the asset or feature to a particular standard. Intending purchasers would become aware of this responsibility, as designation is registerable as a local land charge and so would appear on their local search.

Another approach would be, if the public interest requires the riparian owner to go beyond their pre existing legal responsibilities to accommodate and maintain structures or features on their land, for agreements to be entered into with them to achieve this, possibly involving payment of public funds.

In February of this year, Defra issued a policy discussion document on their Environmental Land Management Scheme. The introductory Overview to the document states that the scheme will transform how the agricultural sector is supported, by rewarding farmers, foresters and other land managers with public money for public goods. Some respondents have suggested that the development of this scheme could provide a framework for achieving agreements in some circumstances with riparian and possibly other landowners to accommodate or maintain structures or features on their land, which make a contribution to surface water flood risk management. Defra officials have indicated to me, however, that they do not think that this would be a fruitful or practicable avenue to explore.

Alternatively, or additionally, the Environment Agency might provide an advisory framework to facilitate risk management authorities entering into agreements with landowners to accommodate or maintain structures or features on their land, which make a contribution to surface water flood risk management. Representatives of the

Environment Agency have indicated that they are not attracted to this approach so far as maintenance is concerned, and would rather favour exploring the possibility of risk management authorities such as the Environment Agency themselves taking on the maintenance responsibilities.

This is a complex and difficult topic, and I have suggested a number of possible approaches to it. I have not however found it possible to perceive or establish a consensus among respondents as to the way forward, or to form a clear recommendation, other than to identify that the issue calls for wider examination and consultation.

I recommend

- That in accordance with the commitment set out in the Surface Water Action Plan, the Environment Agency, in consultation with others as appropriate, review their guidance to landowners on Owning a watercourse, in particular to ensure that this is as clear and comprehensive as possible on riparian owners' responsibilities for maintenance of watercourses and related features, and that this guidance be promoted widely to those affected by it

- That Defra consider what further steps the public interest requires to be taken, to ensure the maintenance of privately owned watercourses and related features, including culverted watercourses.

Dispute resolution arrangements

The terms of reference for this review include considering the existing mechanisms for resolving disputes over responsibility for surface water flooding. Like the responsibilities for surface water assets and for service delivery, these are rather fragmented. The Somerset Drainage Boards Consortium have observed to me that the legislation regarding sewers and drains is open to interpretation and ownership is not readily addressed. They comment that tribunals and arbitration are limited in their scope and the outcome does not necessarily determine ownership or long term responsibility. They add that where there are decisions that could form precedents, these are not necessarily shared.

I have referred earlier in this report to the narrow jurisdiction of the Agricultural Land and Drainage Tribunal to deal with certain drainage disputes concerning flooding from ditches, under Sections 28 to 30 of the Land Drainage Act. The Tribunal received five applications in 2018, and nine in 2019. I have no information or feedback from any user of the Tribunal and so my knowledge is limited. I have

asked the Principal Judge of the Tribunal whether Tribunal decisions are published, and whether any guidance is available to practitioners arising from them. The Judge replied that the Tribunal's decisions are available to all and so if a person knows of a particular case in which they are interested, then they can ask the Tribunal for a copy of the judgment. There is not yet an index of decisions or online access, but the Tribunal are looking into that.

I have noted earlier in this report the right of appeal to the General Regulatory Chamber of the First Tier Tribunal against certain decisions in relation to the designation of assets under Schedule 1 to the 2010 Act. I have also noted that the power of designation is very rarely used and that there have never been any such appeals.

The model form of byelaws that can be made by local authorities and by internal drainage boards under section 66 of the Land Drainage Act provides for certain rights for people against whom enforcement action is taken to refer disputes to the Secretary of State. 83 lead local flood authorities responded to my online question as to whether they have adopted such byelaws. 72, or 87%, replied that they had not. 11, or 13%, do have byelaws in place. Of these, four authorities had issued formal notices under the byelaws, and two had directly carried out works. I am informed by Defra officials that there have been no references to Defra under these provisions over the last eight years, which is the period for which they hold records.

Defra's Surface Water Management Action Plan states there are mechanisms for resolving disputes over responsibility for surface water assets. It cites the Agricultural Land and Drainage Tribunal, which I have referred to above. It also states that the government provides a list of registered mediation providers who offer fixed fee services, and also that arbitration can be a useful process for resolving disputes if both parties agree to appoint an independent arbitrator and to abide by the arbitrator's decision.

I asked lead local flood authorities through the online questionnaire whether they had experience of disputes in the field of flood risk management. 76 authorities answered the question in relation to mediation: 74, or 97%, had no experience of it: two, or 3%, did. 74 authorities answered the question in relation to arbitration: 71, or 96%, had no experience of it: three, or 4%, did. It appears, therefore, that these avenues are very rarely used. In the free text section, a number of authorities said that they had not heard of these avenues. Another commented:

> "Seemed a very complex and resource heavy process and lack of expert land drainage solicitors etc is difficult."

Other than reference to the Agricultural Land and Drainage Tribunal, it seems that mechanisms for resolving disputes over responsibility for surface water flooding play

little part in the present arrangements. If changes in the arrangements were to result in a significantly increased number and range of disputes and/or appeals, then I would recommend that consideration should be given to bringing responsibilities for determination together in one place, so as to create a centre of expertise in flood risk management dispute resolution. I make just one other modest recommendation in this area, relating to better publication of the principles of existing decision making, so as to support the development of good practice.

I recommend

- That Defra make arrangements with the Agricultural Land and Drainage Tribunal for the publication of summaries of the Tribunal's judgments, so that the principles of their decisions may be readily available to those seeking guidance on good and expected practice.

Flood risk mapping and property resilience

Defra's Surface Water Management Action Plan sets out the government's commitment to improve surface water flood risk mapping, so that households, businesses and local government can take fully informed decisions. The Action Plan states:

> "Government, households and businesses need to be properly informed about surface water risks, in order to be able (to) take mitigating action and build resilience."

The Environment Agency have told me that they develop and maintain national information on current and future risks arising from all sources of flooding and coastal erosion, including surface water flooding. They maintain and publish advice on risk mapping, modelling and data sharing and work alongside lead local flood authorities and other organisations to make sure that the appropriate data and information is shared consistently. They also provide information and guidance to help others such as developers assess specific flood risks where possible.

The Agency are currently developing a new National Flood Risk Assessment that will provide a single picture of current and future flood risk from rivers, the sea and surface water, to be launched in 2024. They tell me that between now and 2024, they will continue to make targeted improvements in surface water mapping and detailed local modelling for supporting flood risk projects and strategies. They are currently working with local partners to improve understanding of risk in targeted areas. They say that they will be including the new information in the publicly available surface water maps, alongside other local information where it exists.

Considerations of how to boost the resilience of property to flooding do not feature in my terms of reference, and so those who made submissions to me or responded to the online survey were not invited to comment or offer views. However, the issue features prominently in the Draft National Strategy. The Introduction sets out a vision:

> "for a nation ready for, and resilient to, flooding and coastal change – today, tomorrow and to the year 2100."

The Draft Strategy emphasises, among other things, the importance of moving from the concept of protection to resilience. For example, that property owners should be encouraged to build back better after a flood, through home improvements such as raised electrics, hard flooring, and flood doors. The chapter "Climate resilient places" includes, as one of a proposed "national suite of resilience tools", "adapting property and services to boost their resilience".

Flood Re is a joint government and insurance industry initiative with the purpose of promoting the affordability of household insurance for eligible homes at risk of flooding. In their Quinquennial Review, published in July 2019, they too refer to the importance of increasing the number of homes with property level resistance and resilience measures in place.

If households and businesses are to make good use of the promised greater availability of information about flood risk from surface water, so as to take mitigating action and build resilience, as envisaged by the government's Surface Water Management Action Plan, there will be a contribution that lead local flood authorities can make in providing advice and support to owners towards achieving greater resilience. In the Environment Agency's Wessex region, and I am sure elsewhere, some lead local flood authorities already provide such advice and assistance with property level protection, often in collaboration with officers from the local Environment Agency team.

The National Flood Forum have made the point to me that measures to achieve property level protection and resilience should not be allowed to be a substitute for proper surface water management, and I of course agree: the priority should be to manage the risk. But on occasions measures at individual properties or groups of properties can make a contribution to this.

I recommend

- That lead local flood authorities be encouraged to offer advice and support to owners of homes and businesses at risk of surface water flooding so as to help them achieve greater protection and resilience for their properties.

Resourcing surface water flood risk management

Not surprisingly, funding is an issue that is prominent in just about all the submissions and responses I have received.

Local authorities in particular have sustained very significant reductions in their budgets over the last ten years, since the Flood and Water Management Act was enacted. The LGA have told me that their recent analysis of funding pressures (before the Covid-19 pandemic) showed that local services in England face an overall funding gap of almost £6.5 billion by 2025, and that councils have lost nearly £15 billion in central government funding in the last decade. They say that feedback that they have suggests that access to funding is the most pressing issue for member councils in dealing with surface water and drainage assets. They say that the pressure on road maintenance budgets is an example of this, leading to a significant fall in spending on road cleaning and gullies. They argue that this needs to be addressed as part of a long term funding plan for local government.

A number of other respondents have commented on reducing standards of highway and gully maintenance. ADA write that financial pressures and changes of emphasis have resulted in a consistent decline in the workforce of local authorities and consequentially the knowledge they retain of local water management systems. They say that in many cases this has led to neglect and blockage giving rise to an increase in surface water flooding in certain places. ADA report an ever increasing number of blocked road gulleys where the level of gully clearance and maintenance has significantly decreased or stopped altogether. They say that this not only can have a material effect on surface water flooding but can pose structural risks to the road formation and safety risks from ice in cold weather.

On the other hand, in their Surface Water Management Action Plan, published in July 2018, Defra report that local government revenue spending on flood risk management has increased by 29% in real terms since 2010/11, supported by £31 million annual additional funding provided by the government to support the work of LLFAs.

The LGA cite research that they have commissioned, which included a survey of member councils, which found that it is difficult for councils to obtain funding for surface water projects compared to other types of flood risk. They point out that surface water schemes are often smaller in scale and benefit a smaller number of properties, making it difficult to develop schemes that demonstrate a strong case for funding. The research also identifies barriers to addressing surface water flooding, including the complexity of modelling the risk and the difficulty of securing initial funding. They see mismatched funding cycles between different organisations as a further barrier to effective action.

The LGA argue that the system should support flexible, local place-based solutions. They consider that this could be achieved by devolving capital and revenue funding for flooding, growth and environmental improvement to a single place based pot to allow local areas to support a more diverse set of outcomes that meet local priorities. I simply record this particular submission: I express no view on it as it raises issues beyond the scope of this review, and I think that there are other ways of improving the approach to surface water flood risk management.

Anglian Water, too, say that owing to the way that central government funding is currently allocated, schemes that manage surface water flood risk often score poorly, partly owing to the relatively small number of isolated properties, whether in urban or rural communities, that are affected by individual surface water flood events, which makes it difficult to justify a flood risk management scheme. Changes to the partnership funding rules, announced in April 2020, may help to address these challenges. Water UK make the same point. They say that currently more properties in England are at risk of surface water flooding (3.8 million) than fluvial flooding (2.4 million), and so these difficulties in obtaining funding for surface water schemes are particularly disappointing. They advocate partnership funding rules evolving better, so as to recognise the role that water company investment can make in reducing surface water flood risk. They advocate bringing together grant in aid, local levy and water company investment so as to deliver integrated sewerage, highway drainage and surface water management schemes. I have earlier in this report commended such a partnership approach.

ADA in their submission to me argue that future public funding for agriculture should incentivise good practice in the routine management of soil, watercourses and ditches for both the environment and reduction of flood risk as public good.

The Environment Agency have told me that between 1st April 2017 and 31st March 2018, they worked with other risk management authorities to complete 184 flood and coastal risk management schemes, and that 45 of these were built to better protect people and homes from surface water. They say that changes to the government's partnership funding policy include a new "intermediate" risk category that should help more surface water projects progress.

The Surface Water Management Action Plan includes a commitment that:

> "Defra will review the funding sources which are available for surface water risk management, considering how spending by water and sewerage companies, local and central government and others can best be directed to reduce surface water flood risk and whether the mechanisms are appropriate for these types of projects."

The public resourcing of surface water flood risk management does not of course depend just on capital allocation: revenue funding is also important. I am conscious that the implementation of some of my recommendations would have revenue funding consequences for risk management authorities.

I have emphasised throughout this report the importance of good asset maintenance, including the maintenance of ditches, culverts and watercourses. There is a danger that the demands of maintaining the assets that we already have are underestimated and are accorded a lower priority than the perhaps more glamorous functions of building new ones.

95 lead local flood authorities responded to the online question as to how many posts there are within their LLFA teams. The answers ranged from 0 to 38. The mean average was five and the median average was three. The numbers that were given most frequently were one and two (21 answers for each). It may be that some authorities rely upon partnership, agency, or contracted out arrangements: the questionnaire did not probe that point. Lead local flood authorities are also of significantly differing sizes, with significantly differing scales of task to cover. Even allowing for those factors, the answers show a surprising range of size of teams, and at least raise the question as to whether all lead local flood authorities are giving adequate priority to this important and statutory role. I realise that this is easier said than done, especially at a time when local authorities are in real difficulty in resourcing all the competing service demands upon them.

Achieving sufficient professional capacity is not just a question of funding, difficult enough though that challenge is. It is also a question of developing people with the right skills, and supporting collaboration, knowledge building, and sharing of good practice.

The government's Surface Water Management Action Plan states that lead local flood authorities are in the key leadership role on surface water, and it is essential that they have the right skills and resources to perform this role.

The Environment Agency have told me that earlier this year, they collaborated with a range of organisations to develop a matrix for improving skills and capabilities across the whole flood and coastal risk management sector. They say that once the matrix is completed, it will be possible to identify training and development priorities and opportunities for greater collaboration across risk management authorities.

It is pleasing to see that the Environment Agency's Draft National Strategy includes measures to influence universities and colleges to develop the capabilities and skills required for both the public and private sectors, and also for risk management authorities and others in the sector to support development programmes for their professionals.

I recommend

- That Defra and the Environment Agency, when reviewing their criteria for the award of grant for flood risk management schemes, ensure that funding is available to support schemes for surface water flood risk management, and that the availability of such funding is communicated effectively to practitioners.

- That in view of overlapping responsibilities for surface water management, referred to throughout this report, appropriate funding and grant giving bodies review their funding criteria so as to ensure incentives are provided to encourage collaborative cross sector working.

- That bodies concerned with the allocation of funding for flood risk management should accord proportionate recognition and priority to the financial demands of maintaining existing assets and systems, as well as to providing new ones.

- That Defra consider the extent to which public funding for agriculture may be used to incentivise good practice in the routine management of soil, watercourses and ditches for the benefit of the environment, including the reduction of flood risk.

- That lead local flood authorities, and other risk management authorities involved in local flood partnerships, recognise the importance of developing, resourcing, and having in place appropriate professional capacity and expertise to enable them properly to discharge their functions.

Appendix 1 – Terms of reference for a review of the arrangements for determining responsibility for surface water and drainage assets

Purpose

To examine the arrangements for determining responsibility for surface water and drainage assets (including the legal mechanisms, guidance and dispute resolution arrangements in the box below) to make evidence-based recommendations about actions Lead Local Flood Authorities (LLFAs), other parties (such as other Risk Management Authorities) and where necessary, government, could take to strengthen their efficiency and effectiveness in England.

Arrangements for Identifying Local Responsibilities

There are a number of formal mechanisms that can help with determining ownership and responsibility for surface water and drainage assets:

- **Asset registers** - Lead Local Flood Authorities (LLFAs) are required to maintain a record of structures and features (drains, ditches, pipes, gullies etc.), which are likely to have a significant effect on flood risk in their area, including who owns the asset and the responsibility for maintenance.
- **"Section 19" reports** - When a flood occurs, Lead Local Flood Authorities investigate which Risk Management Authorities have relevant flood risk management functions and whether they have exercised those functions.
- **Designation** - Where surface water assets are in private ownership, the LLFA, the Environment Agency, district council or Internal Drainage Board may "designate" them so that the owners must inform the authority before altering them

There is a range of guidance for local parties whose activities could have an impact on flood risk. This includes:

- guidance for developers who are building new sewerage infrastructure to serve new homes and businesses;
- a protocol to help determine whether a structure should be treated as a sewer or a "culverted watercourse", which comes with additional legal responsibilities;

- guidance about flood risk responsibilities for landowners who have watercourses on or under their land ("riparian landowners"); and
- guidance for highway authorities on the most cost effective approach to managing and maintaining drainage assets.

Finally, there are mechanisms for resolving disputes over responsibility for surface water flooding:

- **the First-tier Tribunal (Property Chamber) Agricultural Land and Drainage** can deal with issues being caused by blocked drainage channels or inadequate drainage on all types of land, not just agricultural land;
- the government provides a list of registered **mediation providers** who offer fixed fee services.
- **arbitration** can also be a useful process for resolving disputes if both parties agree to appoint an independent arbitrator and to abide by the arbitrator's decision.

Surface water flooding and local water courses will be considered as part of the review.

Main rivers and coastal flooding will be discounted in the review. Passing remarks may be made but no in depth analysis will be given on these sources of flooding as part of the review.

Scope

The review should:

- Gather and consider any relevant evidence about how effectively the requirements and mechanisms are being utilised individually and collectively (e.g. through examining available existing information and reports, interviewing a sample of representatives from relevant parties, requesting further information from relevant parties that is necessary);
    - Assess where arrangements are working well or where they are not and provide clear analysis of this;
    - Provide evidence of good practice of the mechanisms;
    - Prioritise the issues that are identified through the completion of the review;
    - On the basis of the evidence, value for money (time and resource implications) and deliverability considerations - make recommendations on the key actions that could be pursued by each or any party:
        - How these existing mechanisms might individually be strengthened, streamlined or otherwise improved – including

in ways that make things more straightforward for the property owner or public
    - How the relationships between these mechanisms could be improved so that they work effectively together, and
    - New or different mechanisms which might usefully add to or replace the existing ones.

It should also cover the following existing mechanisms (and further background information will be supplied regarding these mechanisms)

- Asset registers – According to the Flood and Water Management Act 2010, LLFAs must establish and maintain a register of structures or features which, in the opinion of the authority, are likely to have a significant effect on a flood risk in its area. They must keep a record of information about each of those structures or features, including information about ownership and state of repair and must arrange for the register to be available for inspection at all reasonable times.
- "Section 19" reports - When a flood occurs, Lead Local Flood Authorities investigate which Risk Management Authorities have relevant flood risk management functions and whether they have exercised those functions.
- Designation - Where surface water assets are in private ownership, the LLFA, the Environment Agency, district council or Internal Drainage Board may "designate" them so that the owners must inform the authority before altering them[1].
- The range of existing guidance for local parties whose activities could have an impact on flood risk.
- The existing mechanisms for resolving disputes over responsibility for surface water flooding.

Timing

The objective is that the review will be concluded by April 2020. An interim report is expected in December 2019.

Reviewer and support

David Jenkins, Chair of the Wessex Regional Flood and Coastal Committee will undertake this independent review. Hampshire County Council will be providing secretariat support.

[1] Floods and Water Act 2010

Appendix 2 -Stakeholders contacted for consultation for the review of the arrangements for determining responsibility for surface water and drainage assets

Stakeholders contacted for consultation:

- Agricultural Land Tribunal General Regulatory Chamber
- Association of Drainage Authorities (ADA)
- The Association of Directors of Environment, Economy, Planning & Transport (ADEPT)
- Association of SuDS Authorities (ASA)
- Consumer Councils for Water (CCW)
- Country Land Owners Association (CLA)
- Environment Agency (EA)
- Highways England (HE)
- Home Builders Federation (HBF)
- Local Government Association (LGA)
- National Farmers Union (NFU)
- National Flood Forum (NFF)
- OfWat
- Regional Flood and Coastal Committee (RFCC) Chairs
- United Utilities
- Water UK

Appendix 3 -Stakeholder responses to consultation letter for the review of the arrangements for determining responsibility for surface water and drainage assets

Stakeholder responses received:

- Anglian Water
- Association of Drainage Authorities (ADA)
- Agricultural Land Tribunal General Regulatory Chamber
- Association of SuDS Authorities (ASA)
- Consumer Councils for Water (CCW)
- Country Land Owners Association (CLA)
- Environment Agency (EA)
- Highways England (HE)
- Thames Regional Flood and Coastal Committee
- Local Government Association (LGA)
- National Flood Forum (NFF) (also including representations from various local flood action groups and individuals)
- National Farmers Union (NFU)
- OfWat
- Southern Regional Flood and Coastal Committee
- Staffordshire Lead Local Flood Authority
- United Utilities
- Water UK

This publication is available at www.gov.uk/government/publications

Any enquiries regarding this publication should be sent to us at: Department for the Environment, Food and Rural Affairs, Flood and Coastal Erosion Risk Management, Seacole Building, 2 Marsham Street, London, SW1P 4DF.

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