

Update on Flood Risk Management Activities

Report of the Head of Planning, Transportation and Environment

1. Summary

This report sets out the ongoing progress made by Devon County Council's Flood and Coastal Risk Management Team acting as the Lead Local Flood Authority (LLFA) in accordance with the Devon Local Flood Risk Management Strategy. It also provides an update on the resolutions made at the Corporate Infrastructure & Regulatory Services Scrutiny Committee in November 2017, when this service was last reviewed, which included: the resources and performance of all Risk Management Authorities (RMAs) in their delivery of the Devon Local Flood Risk Management Strategy; a jointly prepared overview of key flood risk issues/priorities across Devon; and the adequacy of arrangements in place for Sustainable Drainage Systems in new development.

2. LLFA Responsibilities

2.1 Local Strategy

The Devon Local Flood Risk Management Strategy was first published in June 2014 and is due to be updated after 6 years. Unlike the initial process for developing the Strategy, there is no available guidance on how this update process should be undertaken. An officer will be assigned the task of reviewing the current Strategy and will make any appropriate changes to reflect current standards and best practice. Consideration will also be given to the format in which it is to be presented and the content to be covered.

The DCC Annual Action Plan, which supports the Strategy, now has a well-established format and approval process; its purpose is to clearly identify the investment being made in flood risk measures in the current financial year. The proposed Action Plan for 2019/20 will be considered by Cabinet at its meeting on 13 March.

Partnership working with other RMAs in Devon continues to operate very well through platforms such as the Devon Operational Drainage Group (DODG), South West Regional Flood and Coastal Committee (SWRFCC) and the Devon Community Resilience Forum (DCRF). Staffing levels for those involved in flood risk management and drainage work at the District Councils have been maintained; however, as previously reported, this is very limited for some authorities. Despite this, most Districts remain well engaged with the various forums and do the best they can with their available resource. Given the lack of any significant changes, no attempt has been made to formally assess the respective performance of other risk management authorities, nor repeat a survey process, as previously undertaken and reported to this Committee in 2017.

2.2 Flood Risk Management Database

DCC has developed an in-house bespoke database of all flood related information on the corporate ArcMap Geographical Information System (GIS). Layers have been produced to support not only the statutory requirement for holding an asset database, but also to record information relating to Land Drainage Consents, flood incidents, EA Flood Maps, Property Level Protection schemes, Natural Flood Management Capital Flood Improvement Schemes, etc. Such layers can be turned on and off to see all information required for any specific location to aid the detailed understanding of the risks for individual communities.

This information is used to prioritise the risks across Devon, with one significant layer providing a visual appreciation of the high, medium and low risk communities requiring intervention. This is derived through the investment criteria, as defined in the Devon Local Flood Risk Management

Strategy and assists in the development of the DCC Annual Action Plan. Screen images of this FloodArc system have been included for reference in Appendix II of this report.

Local discussions are now being held with other Risk Management Authorities with the aim of sharing information through an online version of the software. This will further assist in looking for synergies and opportunities for collaborative partnership working and will help map the future investment in flood risk management for Devon. DCC's Flood Risk Manager is involved in the working group for a national platform of information sharing, called the Flood Plan Explorer. This is likely to be introduced as part of the Environment Agency's Flood Risk Management Plan (FRMP) update, which should represent a significant improvement to their current document.

2.3 Statutory Consultee for Sustainable Drainage (SuDS)

DCC is a statutory consultee to all Local Planning Authorities (LPAs) in Devon on the suitability of surface water management proposals for new 'major' development applications. Over the past year we have been consulted on over 470 new planning applications, which have been reviewed in line with DCC's Guidance for Sustainable Drainage. As well as these new cases, many applications require ongoing dialogue with the Local Planning Authorities and/or the applicant and their consultants at numerous stages throughout the planning process. We have recorded an additional 233 follow-up consultations as a result of our initial intervention.

To improve the efficiency of the consultation process, a fee-paying 'pre-application service' was introduced in October 2018; this should help encourage the early uptake of appropriate sustainable drainage systems and assist with a more strategic approach being adopted by developers. A sliding scale fee system has been established, with an initial free signposting service and up to a £500 charge for the largest developments. In the first few months of delivering this additional service we received 21 'pre-app' requests, with 6 requiring a detailed response, bringing in an additional £1,300 of fees. Demand for this service is expected to rise over time.

One outstanding concern in relation to SuDS is the review of 'minor' applications, which remains the responsibility of the Local Planning Authority. There is a varied level of support within those authorities from colleagues with specialist knowledge and in some authorities is left to the planning officer to agree the surface water drainage proposals. There are occasional requests from these authorities for DCC to review these 'minor' application and, wherever practical, we will assist accordingly; however, this is subject to DCC's own workload and priorities at that time. The Sustainable Drainage Systems Guidance for Devon document, which was, primarily, produced to assist with 'major' SuDS proposals, does provide Planners with the required technical information; however, South Hams District Council has produced a useful short version, that is better aligned to these 'minor' developments.

2.4 Land Drainage Consents

The Flood and Coastal Risk Management Team administers the Land Drainage Consent process, through which changes to 'Ordinary Watercourses' are considered, such as bridge improvements, bank stabilisation works and culverting for essential access. This same process is delivered by the Environment Agency for those watercourses designated as 'Main River'. In 2017/18 a total of 56 applications were received; the situation remains broadly similar in 2018/19, with 49 applications received by the end of January (month 10).

2.5 Enforcement

Under the Land Drainage Act 1991 DCC, as the LLFA, has powers to ensure a free flow of water is maintained and that impeding structures are not constructed on an 'Ordinary Watercourse'. There is an ongoing workload resulting from public and landowner enquiries and complaints relating to such obstructions, as well as other drainage and flood risk issues. Such cases are often time-consuming and, sometimes, highly contentious. For most situations the aim is to liaise with the relevant landowners and reach an amicable agreement for them to take the appropriate action; however, on two occasions this year there has been a requirement to issue a formal enforcement notice to remove an obstruction and maintain the free flow of water.

2.6 Flood Investigations

In accordance with the Local Flood Risk Management Strategy and the duty on the LLFA stemming from Section 19 of the Flood and Water Management Act, a flood investigation is undertaken and a resulting report produced in response to a significant flood event. In Devon, this process is triggered by internal flooding to five or more properties in a single location. At times, where this threshold has not been met, but where there has been flooding to small numbers of properties at multiple locations across Devon, a decision is made as to whether an investigation report would be of benefit. In the past couple of years there hasn't been a major incident affecting a single community in a significant way. However, events such as Storm Eleanor in December 2017/January 2018 caused flooding to 14 properties across Devon; a further unnamed event in January 2018 affected 19 residential and 4 commercial properties in the North Devon area; and Storm Emma in March 2018 affected 17 properties, mainly in the coastal areas of South Hams. Section 19 Investigation Reports were produced for each of these particular events.

3. DCC Role in Supporting Flood Prevention

3.1 Flood Improvement Schemes

The Flood and Coastal Risk Management Team has continued to work in partnership with other RMAs to investigate areas at risk of flooding and to deliver critical flood improvement schemes to communities that have either suffered significant flooding in recent years or have been identified to be at significant risk. Almost £3million has been invested in 2018/19 with over £940k of national flood funding drawn down from Defra, £150k through the SWRFCC's Local Levy and £222k from others, including £100k from South West Water and £50k from South Hams District Council. As a result, 150 properties have benefitted from a reduced risk of flooding through completed schemes, including those at Modbury, Uplyme, Bideford and Frogmore. In addition, over 200 further properties are due to benefit from schemes that are currently underway in Exeter, Sidmouth and Ivybridge. A detailed account of all schemes that have received investment during the 2018/19 period can be found in Appendix I

3.2 Community Resilience

As a legacy of the Defra-funded Community Resilience Pathfinder Project completed in 2015, the Devon Community Resilience Forum was established in partnership with DCC, the Environment Agency, Fire and Rescue and the Police and is hosted by Devon Communities Together. This is now in its third year and continues to pull communities together to share knowledge and best practice and help them to help themselves in dealing with emergencies, of which flooding is one of the main risks. Grants are available for communities to develop an emergency plan for their area and to purchase equipment, such as tabards, torches, sandbags, etc to enable their plans to be operated.

In addition to this community engagement, DCC has also developed the opportunity for individual property owners to apply for up to £5k of flood resilience measures to protect their properties. The initiative has been operating for over 2 years and has supported over 100 applications. This is a unique scheme being offered by DCC and is well received by the property owners, who otherwise would be unlikely to benefit from any long-term investment for a large flood improvement scheme in their area. The annual target is to support between 20 – 25 home owners; however, due to a re-allocation of budget for minor works, we have been able to provide resilience measures to 40 properties in 2018/19.

3.3 Natural Flood Risk Management

All flood risk management schemes now consider the wider catchment for opportunities to deliver natural flood management (NFM) measures to slow the flow and reduce the scale of engineered solutions. It is recognised that NFM is unlikely to provide a high standard of protection against the more significant flood events with a long 'return period'; however, the introduction of such measures can have huge benefits for higher frequency events, reducing nuisance run-off and also lowering the impact on downstream engineered works. In some situation it may be enough to future proof schemes by compensating for the increased flood risk due to climate change.

Various NFM works are being progressed as part of the current DCC Action Plan, including schemes at Ottery St Mary and at Ivybridge, where upstream flood management is being delivered through a series of check weirs and grips to re-route and slow the flow. These works will have a major benefit to the downstream urban area by reducing the constant run-off being experienced. Works at Ottery are being undertaken in collaboration with the East Devon Catchment Partnership and those at Ivybridge are linked to the Environment Agency led Dartmoor Headwaters Project; both have received Defra funding as part of a Government initiative for learning lessons from the implementation of NFM.

Other NFM works are also being delivered in partnership with DCC's Flood & Coastal Risk Team and the East Devon AONB through the 'Woods 4 Water' and 'Connecting the Culm' projects. Further works are being progressed by the North Devon Biosphere Reserve, such as in the Acland catchment near Braunton, which include the installation of leaky dams and gabion structures to restrict and slow the flows and hence reduce run-off down slope.

4. Consultations/Representations/Technical Data

As individual flood improvement schemes are developed, there is the need to consult with all those that will be affected by the works, including landowners, local businesses and service providers (e.g. bus companies). It is also of great benefit to consult any flood action group, parish/town council, elected members and other RMAs to understand any local requirements and to explore partnership funding opportunities.

The method and level of consultation used for each scheme depends on the scale of flood improvements. Minor works, such as property level resilience measures, affecting only 1 or 2 properties, only require consultation with the property owners; in contrast, larger community projects may require full public exhibitions and presentations to be given at relevant parish/town council meetings.

Technical information will be shared amongst other RMAs to consider opportunities for collaborative partnership working. This can minimise disruption, achieve multiple benefits and provide valuable funding contributions for the much-needed flood improvements. All RMAs continue to meet regularly through the Devon Operational Drainage Group to share information on past, present and future flood improvements and an online platform is being developed to further enhance the sharing of technical information on the communities at risk.

5. Financial Considerations

Funding of flood risk management activities is available through various local and national sources. Some initial studies and minor works have been funded locally through DCC's internal budgets alone. External funding can be drawn down through Defra Flood Defence Grant in Aid (FDGiA) and/or the Local Levy administered by the SWRFCC; however, this mechanism requires an element of local partnership contribution. It is, therefore, essential to consider what multi-agency benefits could be achieved through the delivery of flood improvements and, where possible, to obtain third party contributions to support scheme delivery.

In the current period of the Defra 6-year programme (2015–2021), DCC has secured over £2.3million of FDGiA, with a further £600k allocation awaiting approved, together with over £630k of Local Levy and £440k from other partners for the delivery of capital projects. DCC's own contribution towards these flood improvements have exceeded £3 million, with a further £3 million capital contribution towards the Exeter Flood Defence Scheme, which is being delivered by the Environment Agency.

6. Sustainability and Equality Considerations

The potential environmental implications and opportunities presented by the Devon Local Flood Risk Management Strategy were considered through a Strategic Environmental Assessment of the

published document. This was supplemented by DCC's own Impact Assessment process to ensure consideration was also given to social (including equality) and economic considerations. Beyond this, more detailed and specific consideration of these issues is undertaken for individual flood improvement schemes, with a full assessment carried out through the detailed design process.

Devon County Council's Flood & Coastal Risk Management Team encourages the use of sustainable drainage for all new development, through its role as statutory consultee to the Local Planning Authorities. All 'major' developments must provide a suitable surface water management system that would mimic pre-development 'greenfield' run-off rates and have a robust maintenance regime in place.

7. Legal Considerations

The main duties on and powers available to Lead Local Flood Authorities are defined in the Flood and Water Management Act 2010 and the Land Drainage Act 1991; all flood risk management activities carried out by DCC in this role accord with these Acts. Where necessary, the available enforcement powers are used to ensure watercourses maintain a free flow of water and there are no unlawful activities or structures built within an ordinary watercourse. Any works involved in delivering flood improvements, that require access onto third party land, require a legal notice to be served on the landowner, whereby compensation is payable.

8. Risk Management Considerations

There is a high risk of flooding to many communities in Devon and, over recent years, this has proven to be a reality for many property owners. It is part of DCC's role, as Lead Local Flood Authority to contribute to an analysis of this risk and to address it through the Local Flood Risk Management Strategy for Devon. To mitigate these risks an annual Action Plan is produced, which is targeted at reducing the risk of surface and ground water flooding to those communities considered to be at greatest risk and with greatest need for intervention. A similar process is undertaken by the Environment Agency for those affected by coastal and river flooding. All information relating to flood risk informs the South West River Basin District Flood Risk Management Plan (FRMP) which was published in 2015 and due for review in 2021. Work is already underway for the review process, with all RMAs engaged at an early stage to develop a more targeted and useful document. A more local approach in Devon is also being considered to build on the success of the DCC FloodArc platform and the sharing of information across RMAs.

The current financial situation is a considerable risk to the delivery of many essential flood improvements. Defra funding and Local Levy is limited and prioritised against government targets, known as outcome measures. The key national target is to reduce the risk of flooding to 300,000 properties across the country. Many communities in Devon have low numbers of properties, which proves challenging when competing against more urban areas in the country, especially as some of the larger communities in Devon are already being tackled.

In many locations the implementation of flood improvements affects third party landowners or areas of the community that will not actually benefit from the works. Recently this has presented one of the greatest challenges in progressing flood schemes, with the potential to prevent delivery entirely.

9. Conclusion

The Devon Local Flood Risk Management Strategy provides clarity on the roles and responsibilities of all Risk Management Authorities and helps to ensure a collaborative approach is adopted by all concerned in flood risk management. Despite the limited resources available at the District Councils, there continues to be good communication and engagement with relevant officers. A platform has been developed for the collation of flood related information and discussions are ongoing to enable sharing of information on a wider scale.

DCC's responsibility for reviewing surface water management proposals for major new development and to encourage the use of SuDS is now well-established and our local guidance is frequently used by developers, consultants and the local planning authorities in shaping the way forward and setting out the required standards.

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Electoral Divisions: All

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Local Government Act 1972: List of Background Papers

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Background Paper	Date	File Reference
1. Flood and Water Management Act	2010	http://www.legislation.gov.uk/ukpga/2010/29/pdfs/ukpga_20100029_en.pdf
2.. Devon Local Flood Risk Management Strategy	June 2014	https://www.devon.gov.uk/floodriskstrategy
3. Sustainable Drainage Systems: Guidance for Devon	January 2017	https://new.devon.gov.uk/floodriskmanagement/sustainable-drainage/
4. South Hams District Council: Drainage Assessment Guidance	-	https://www.southhams.gov.uk/article/3483/Drainage-Assessment-Guidance
5. DCC Flood Investigation Reports	Various	https://new.devon.gov.uk/floodriskmanagement/flood-investigations-reports-and-studies/
6. Devon Community Resilience Forum web site	-	https://www.devoncommunities.org.uk/projects/devon-community-resilience-forum
7. South West River Basin District Flood Risk Management Plan	March 2016	https://www.gov.uk/government/publications/south-west-river-basin-district-flood-risk-management-plan

Glossary

DCC	Devon County Council
DEFRA	Department of Environment, Food and Rural Affairs
EA	Environment Agency
FDGiA	Flood Defence Grant in Aid
FRMP	Flood Risk Management Plan
LLFA	Lead Local Flood Authority
LPA	Local Planning Authority
NFM	Natural Flood Management
PLR	Property Level Resilience
RFCC	Regional Flood and Coastal Committee
RMA	Risk Management Authority
SEA	Strategic Environmental Assessment
SuDS	Sustainable Drainage System
SWMP	Surface Water Management Plan
SWRFCC	South West Regional Flood and Coastal Committee
Management Activities	hk 02 140319 mh050319cirssc Update on Flood Risk

Achievements in Flood Risk Management in 2018/19

1.0 Introduction

This report provides an update on Devon County Council's (DCC) achievements in delivering the 2018/19 Flood Risk Management Action Plan. Many schemes are ongoing and will continue to be delivered through 2019/20.

2.0 Progress of Flood Improvement Projects

2.1 Modbury

In July 2012 at least 27 properties suffered internal flooding and, since then, a number of properties have suffered repeated flooding. As a result, DCC has developed a scheme, which is nearing completion, to reduce the risk of flooding to 50 residential and 32 commercial properties from storm events with a probability of once in one hundred-years plus a further allowance for climate change.

The scheme is divided into 2 areas, with storage attenuation being provided in each. Area 1 includes two low-level bunds to create attenuation areas that will fill simultaneously to hold back the flow and are designed to pass forward only what the downstream system is able to cope with. Area 2 has a single 5m high dam constructed across the valley to attenuate up to 8000 cubic metres of water. Also, natural flood management measures are being installed in the upper catchment to control surface run-off and further reduce the impact on the downstream system.

The overall cost of the scheme, including all studies, site investigations, design, supervision and construction is estimated to be in the region of £1.2 million.



i. Area 1 site preparation – upper area



ii. Area 1 site preparation – lower area



iii. Area 2 site preparation - upstream

iv. Area 2 site preparation - downstream



i. Looking eastwards towards Area 2 bund, with scour protection laid (to be covered with topsoil and seeded)



ii. Looking southwards to Area 1 lower bund

2.2 Bideford, Moreton Park

The scheme to replace a collapsed culvert, giving flood benefit to 25 properties, is now complete. The contract involved the replacement of 90m of 600mm diameter culvert at depths of over 3m, the removal and rebuilding of a block of garages and the diversion and replacement of the local gas main. This was all very challenging due to the extreme proximity to a terrace of residential properties, causing difficulties to the technical elements of the culvert installation and the social elements of managing the residents affected. The works were funded in part by £89k Defra FDGiA, £130k DCC and a £72k contribution from an insurer of one of the affected properties.

It is important to note that the responsibility for these works was with the riparian landowners. However, as there were other properties at risk due to the collapsed culvert and the vulnerability of those residents with riparian responsibilities, DCC acted on behalf of the residents for the good of the area, whereas all other RMAs refused to assist. Works had to be coordinated with Wales and West Utilities to enable the diversion of the gas main, which ran above the length of the culvert, with much of those costs covered by the gas company.



i. CCTV images showing collapsed culvert and a ground level image taken of the sinkhole.



ii. Tight working area through gardens

iii. Reinstatement on completion of works

2.3 Uplyme

The flood improvements in Uplyme are now complete, providing a reduction in flood risk to 12 properties and the regular threat of flooding to the highway, which was a significant nuisance in the village. The cost of the overall project, including design and construction, was almost £300k funded by £103k FDGiA, £30k Local Levy, £55k from East Devon District Council and £110k from DCC.

Works included the provision of new or upsized culverts and the removal of a considerable flow restriction in the channel to increase conveyance through the village. Also, due to the very mobile watercourse, which caused a large volume of stone and rocks to be transferred downstream towards the new culverts, DCC has delivered further works to enhance the scheme and reduce the risk of blockage. A variation was submitted to the Environment Agency for additional funding, which was approved, and a series of check weirs/silt traps have been installed upstream.



i. New pipeline



ii. New bypass culvert



iii. Channel Improvements



iv. Mobile debris from upstream



v. New check weir installations

2.4 Property Level Resilience (PLR)

Devon County Council's PLR grant scheme is now very well established and has exceeded the expected number of projects for this year. A total of 43 properties are likely to be completed, with a further 9 properties already approved for delivery in 2019/20. Current year spend is estimated to be £175k against an initial budget of £120k. To continue delivery of these valuable works additional funding from DCC's Flood Risk Management budget will be allocated. This will be taken from the minor works budget.



2.5 Ivybridge, Stibbs lane

Over 14 properties were flooded during 2012, with some on multiple occasions. To reduce the risk of flooding from the 1 in 100-year event the project aims to reduce the risk to over 25 properties. The scheme is to be split into 3 phases with the first phase of works being carried out in the Woodlands Park area, to commence in March 2019. These improvements are to ensure that any additional flow being conveyed from the phase 2 works upstream will not pass on any greater risk to downstream areas.

The main element of works, proposed as phase 2, will be to provide a new and upsized culvert to convey flows downstream from Stibbs Lane and along Claymans Pathway. These works are due to commence in the summer months of 2019, with the aim of substantial completion prior to the main winter months. Including phase 1, the works are currently valued at approximately £600k, with contributions of £250k from DCC, £250k of FDGiA and £100k of Local Levy.

A third phase is also being progressed to further enhance the improvements being delivered. This will be through the use of natural flood management measures in the Hanger Down area of south Dartmoor to slow the flow of surface-water run-off. This is being included as part of the Environment Agency led Dartmoor Headwaters Natural Flood Management Project and has been an excellent example of partnership working to enhance and future proof the flood improvements being delivered by DCC.

2.6 Stokeinteignhead

The proposed flood improvements at Stokeinteignhead are proving to be the biggest challenge that we have faced in terms of affordability and deliverability.

Stokeinteignhead has a risk of flooding from surface water (pluvial) flows and Ordinary watercourse (fluvial) flows entering the village from two catchments, referred to as the Dean Road and Stoke Road catchments. Over the last few years, we have been investigating the level of risk and developing a number of options to provide Stokeinteignhead with a robust standard of protection up to the 1 in 100 chance in any one year, plus an allowance for climate change. For Dean Road the preferred option is to construct an earth dam across the valley to restrict the watercourse and hold back the excess volume, which is estimated to be 2,200 cubic metres of flood water, plus some additional upgrading and/or repairs to the existing pipework downstream are also required. All necessary site investigations, including topographical surveys, groundwater monitoring and ecological surveys, as well as hydrology and hydraulic modelling, have been carried out.

The preferred option for the Stoke Road catchment was also the installation of a dam; however, negotiations with the landowner broke down and an alternative option had to be sought. We now have two workable options, both of which involve laying a new upsized culvert along Stoke Road: i) a 600mm diameter culvert of approx. 217m from Dean Road junction and up past the school and beyond the Village Hall; or ii) a 600mm diameter culvert of approximately 84m from Dean Road junction up towards the school, along with likely repairs/rehabilitation of the existing culvert.

DCC's Flood & Coastal Risk Management Team has already contributed £180,000, to date, with the works already carried out at the lower end of the village through phase 1 and all the required investigations, studies and design elements to develop the Dean Road and Stoke Road improvements. Total costs are estimated to be between £800k and £925k, depending on the final option to be delivered.

Based on the number of properties benefitting from the works, calculated to be up to 40, we are aiming to submit a bid for up to £330k of FDGiA and we have already gained approval for £150k of Local Levy. In discussions with DCC Highways an allocation of £250k is being considered for the highway drainage element of the works and Teignbridge District Council has offered £10k towards the works. DCC will, therefore, need to consider a further allocation of up to £200k to enable the works to be progressed.

As there are two catchments providing risk we cannot contemplate just doing one side, as this will not provide the standard of protection required to maximise the drawdown of Defra funding and will leave some properties at risk.

Due to resource issues we have had to change designers of the flood improvements, so all figures estimated above will need to be reviewed to ensure affordability of the works. Subject to funding, we would, ideally, like to deliver the Stoke Road works in the summer months of 2019, to avoid school term. The Dean Road works, which will require planning permission, will then commence in the drier months of 2020. We are keen to accelerate this wherever possible; however, planning permissions and land owner agreements are yet to be drawn up and agreed.

2.7 Sidmouth

Like Exeter, the proposed surface water improvements result from our proactive investigations and the production of a detailed Surface Water Management Plan (SWMP) for Sidmouth. Various options were presented in the report and prioritised in order to deliver the most beneficial improvements.

The preferred option for Sidmouth is to be divided into 2 phases, with phase 1 being improved surface water drainage within the town centre. It is proposed that these works will commence in March 2019 and complete in early May 2019. Phase 2 will be the provision of storage attenuation at The Knowle, created by an element of storage beneath the car park area and an above-ground pond. Subject to planning and landowner agreement, these works are proposed for construction at the end of summer 2019.

The total cost of both phase 1 and 2 is in the region of £700k and aims to reduce the risk of flooding to 100 properties within Sidmouth Town Centre. Funding of the works is to be achieved with up to £500k of FDGiA and Local Levy and the balance from DCC's Flood Risk Management budget.

2.8 Exeter Surface Water Improvements

As part of our proactive investigations into the flood risk from surface water and following on from the recommendations in the SWMP for Exeter, we have prioritised our attentions on the catchment area of Northbrook. This initial project for Exeter aims to protect 55 properties and is estimated to cost £600k. The business case has been submitted to the Environment Agency and has gained approval for £300k of FDGiA. Further funding of £100k Local Levy, £100k from Exeter City Council and £100k from DCC will support delivery of these essential flood improvements. Works are to be delivered in 2 phases with phase 1 commencing early March 2019 and phase 2 later in the summer of 2019. These include:

Phase 1 At Guinevere Way/Round Table Meet

- Alterations of kerbing and parking to create a barrier to flood waters to better protect the Beacon Heath Children's Centre

- Installation of a 300m long low-level wall along the cyclepath/footway from Beacon Lane to Bettys Mead playing fields to intercept an overland flow path.
- Significant highway drainage improvements to divert water into the Northbrook watercourse where there is spare capacity.

Phase 2 At Georges Close

- Construction of a low earth bund to create an above ground water storage area in the public open space, in order to reduce the risk of flooding from surface water flows. This will then drain down into the Northbrook watercourse, where there is sufficient capacity.

Property Level Resilience at Old Tiverton Road

- Property Level Resilience measures including flood doors, non-return valves and downpipe disconnections into the basement flats have been installed by Exeter City Council.

2.9 Chillington

The project has now been added to the 6-year programme and the business case for £65k FDGiA has been submitted and approved locally by the Environment Agency. The overall scheme to provide a new and upsized drainage system, which will benefit 13 properties (8 residential and 5 commercial), is estimated to cost in the region of £130k. The remaining 50% of the scheme budget is to be funded as a partnership contribution from DCC.

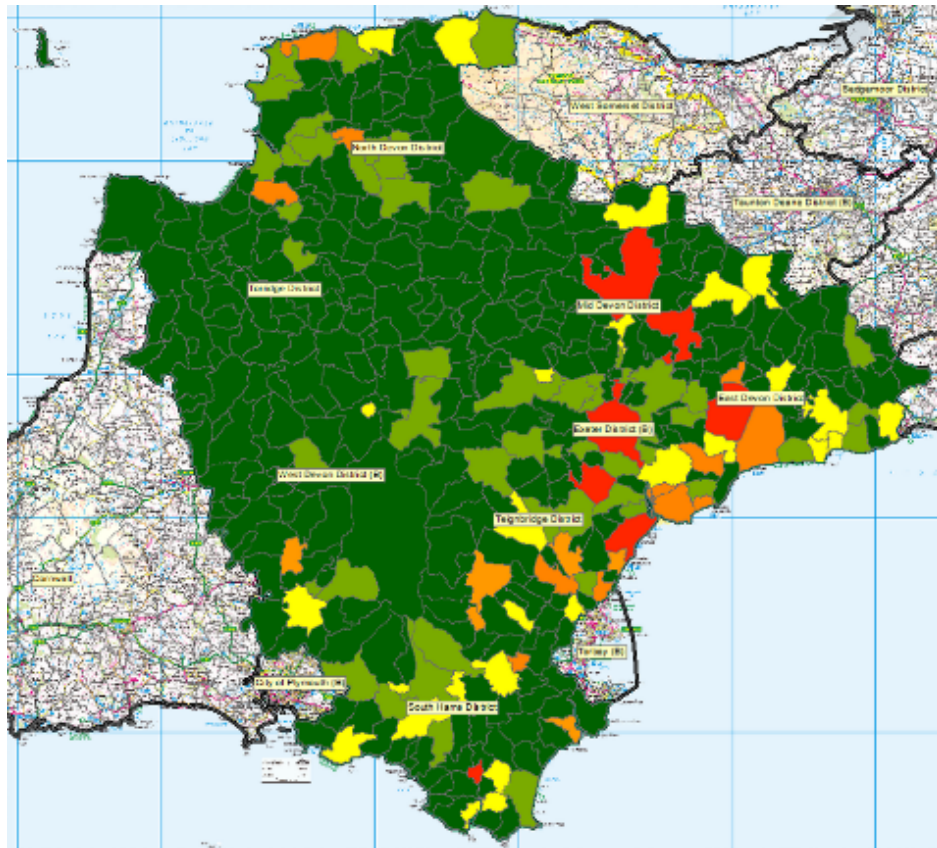
Due to negotiations with the landowner for agreement to install a new culvert the construction start date has had to be delayed. Alternative options may need to be considered, although these are very limited, if at all possible. Consideration of the works will now be addressed through the Action Plan for 2019/20

2.10 Frogmore

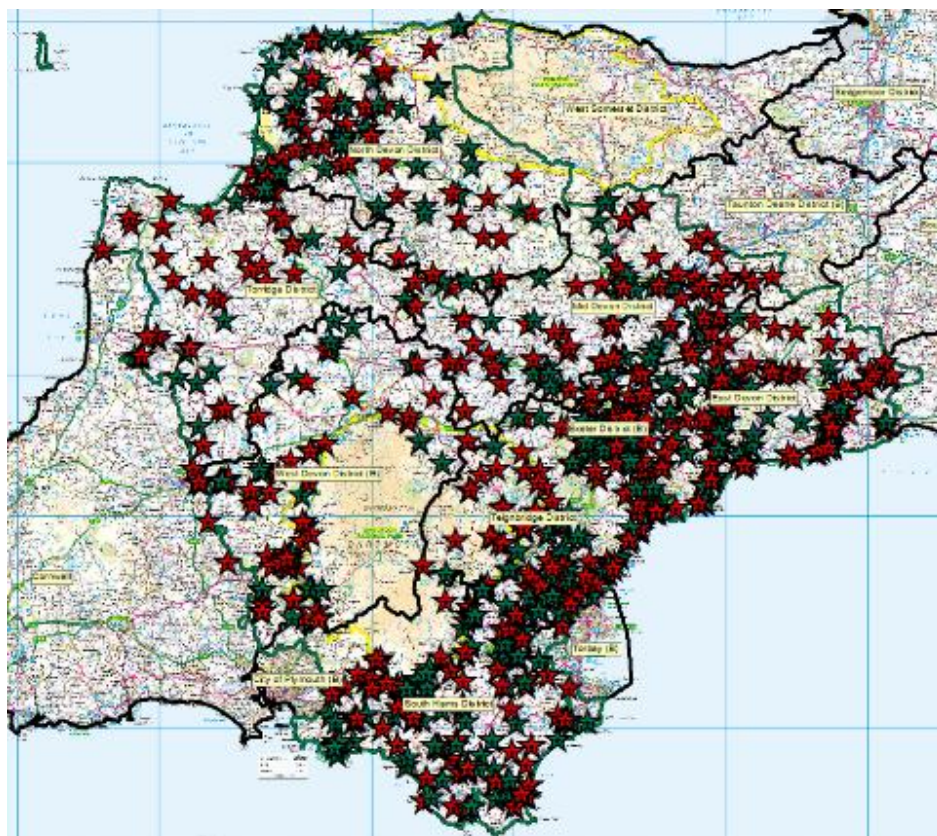
In 2012 there were 12 properties that suffered internal flooding from muddy surface run-off and many others threatened by such events. Due to the devastation caused and the necessary repairs some residents were unable to return to their homes for up to 9 months. DCC have been working with the Parish Council to develop a scheme that will reduce the risk of similar flooding affecting people's homes.

Works costing £35k, funded by DCC, commenced on 25th February to collect the run-off and convey flows to the estuary; this was completed ahead of schedule on 1st March. This included piping across the main A379, which required an unavoidable road closure due to the narrow width of the road at this location. This caused inevitable disruption in the area but was essential to deliver the much-needed flood improvements. Further works in the fields above, costing approximately £20k and also funded by DCC, will be carried out in the summer months of 2019 to ensure the flows are directed to the new collection and outlet system.

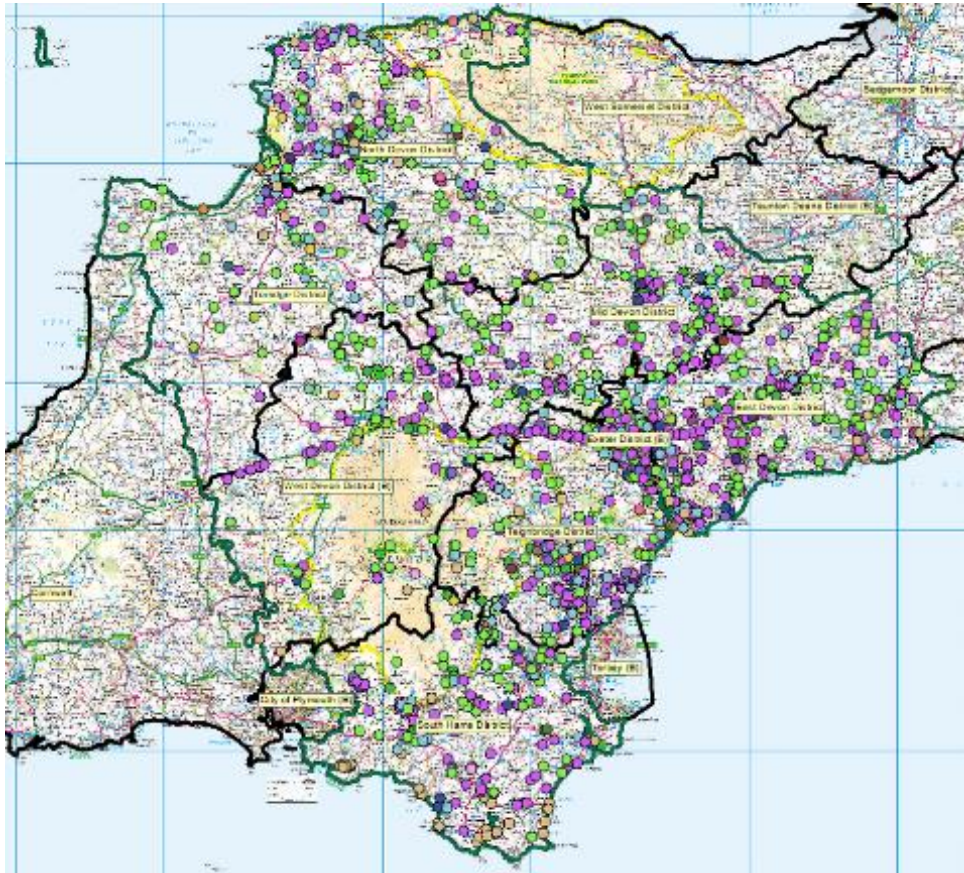
Screen Shots to Illustrate Devon County Council's FloodArc System



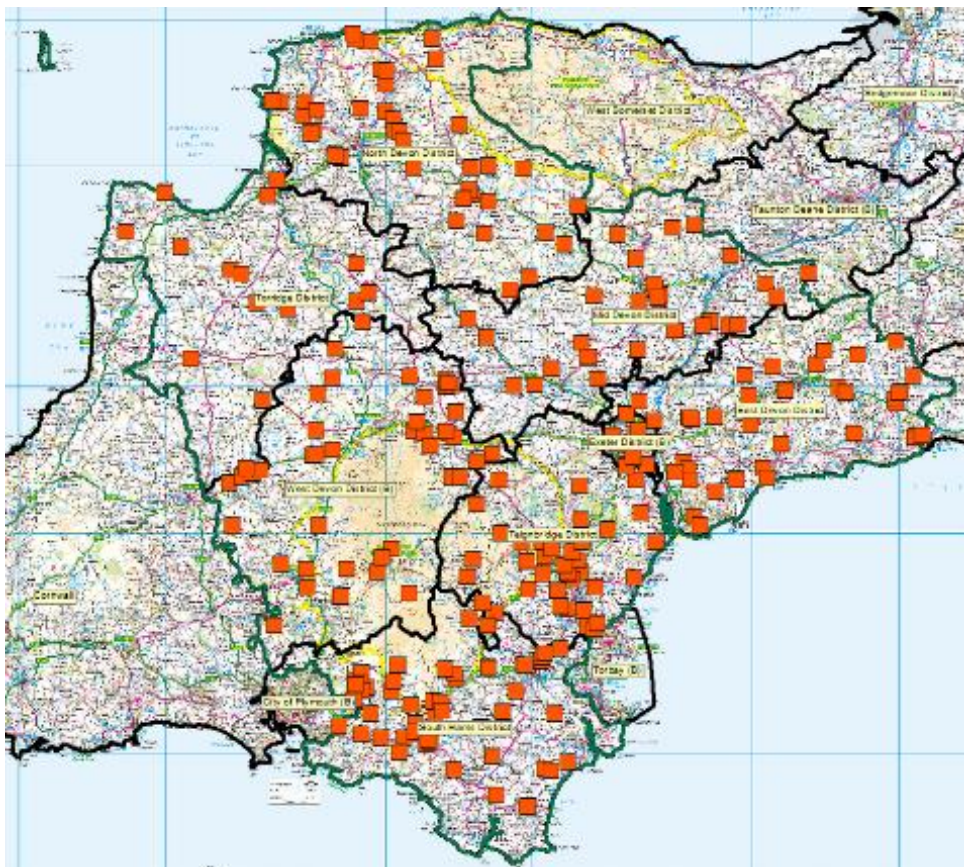
i. Parish Prioritisation



ii. Flood Incident Database



iii. DCC Asset Register



iv. Land Drainage Consents