Members of the South West Regional Flood and Coastal Committee

Our ref: swrfdc/letb
Your ref:

Date: 19 December 2018

Dear Member

SOUTH WEST REGIONAL FLOOD AND COASTAL COMMITTEE – 10 January 2019

Please find attached the agenda and papers for the meeting of the South West Regional Flood

and Coastal CommitteeTaking aking place on Thursday 10January 2019 in the Fernworthy Meeting room roadford Reservoir,

Roadford Lake, Broadwoodwidger, Lifton, Devon PL16 0RL

The programme for the day is:

9.45am – tea/coffee will be available in the Fernworthy room
10.00am Committee meeting will start
1.30 pm – Lunch will be served

Please note that an induction session will be arranged for later in the year.

If you have not already done so, please would you confirm your attendance by emailing or telephoning Sarah Harding, Committee Services.
Sarah's contact details are below.

Yours sincerely

Emma Baker
Area Director, Devon and Cornwall and the Isles of Scilly Area

Encs

Please ask for Sarah Harding Tel: 02030252478 or 07976256299
Email: sarah.harding@environment-agency.gov.uk

The Environment Agency
Manley House, Kestrel Way, Sowton Industrial Estate, Exeter, EX2 7LQ

ENVIRONMENT AGENCY – DEVON, CORNWALL & THE ISLES OF SCILLY
SOUTH WEST REGIONAL FLOOD AND COASTAL COMMITTEE
Thursday 10 January 2019
The Fernworthy room, Roadford Reservoir,
Roadford Lake, Broadwoodwidger,
Lifton,Devon **PL16 0RL**

There will be no site visit before this meeting. An induction session will be arranged later in the year

10.00	**Committee meeting**		
13.00	**Lunch**		
10.00	**1. Apologies**		
10.05	**2. Declarations of Members' Interests:**		
	DISCUSSION ITEMS		
10.10	**3. Chairman's Report**	Chairman	**Oral Report**
10.20	**4. Financial and Business Planning; to include**		
	a) Local Levy Paper and Vote on Local Levy by Authority Members		**SWRFCC/19/10**
	b) Update from Finance sub-group meeting		
	c) Current Year Progress Report and Future Investment Programme		**SWRFCC/19/11**
11.00	**5. Climate Change update**		
	a) UKCIP18 National Paper & Presentation		**SWRFCC/19/12**
	b) Impact of IPPC climate change report on the Coastline	Laurence Couldrick	**Oral report/ Discussion**
11.30	**6. Updates:**		
15 mins	**a) Environment Sub-Group – update Including environmental benefits (i.e. what is enhancement compensation) and what is an OM4**	Laurence Couldrick	**Oral report/ Discussion**
15 mins	**b) Coastal Issues**	John Cocker	**Oral report/ Discussion**
12.00	**7a Area flood and coastal risk management report**		**SWRFCC/19/13**
12.15	**7b Risk Management Authority updates** (5 mins each)		**SWRFCC/19/14**
	M INUTES / MATTERS ARISING – for approval		
12.45	**8. Minutes: 10 October 2018**		**SWRFCC/19/15**
12.50	**9. Matters Arising**		**SWRFCC/19/16**

12.55 **10. Forward look** future items for discussion:
(1) Effects of Climate Change on Critical Infrastructure – Torbay Case Study on Coastal Flooding – Dave Stewart

13.00 **11. Date of next meeting: 11th April 2019, 11th July, 10th October, 9th January (2020)**

13.00 **Lunch**

Information papers:
(1) Area FCRM Update November 2018
(2) 2019/20 National Allocation Paper for Capital & Revenue Funding

swrfcc/ag_jan11 19 v 5
as at 6.12.18

Appendix A – Local Levy Programme (2 Parts)
Appendix B - Exeter Surface Water Local Levy Request
Appendix C - Stibbs Lane Local Levy Request
Appendix D - Devon PLR Local Levy Request
Appendix E - Stokeinteignhead Local Levy Request
Appendix F - The Barbican, West Pier Local Levy Request
Appendix G - Mount's Bay Local Levy Request
Appendix H - Teignmouth Beach Local Levy Request
Appendix I – Coly & Corry NFM Local Levy Request

ENVIRONMENT AGENCY SOUTH WEST

SOUTH WEST REGIONAL FLOOD & COASTAL COMMITTEE – 10th JANUARY 2019

PAPER BY: **AREA FLOOD AND COASTAL RISK MANAGER**
TITLE: **FINANCIAL AND BUSINESS PLANNING – LOCAL LEVY PROGRAMME PROPOSED 2019/2020 LOCAL LEVY INCREASE**

RECOMMENDATIONS
The Committee is recommended to:

- Note the content of this report
- Approve an overall Local Levy increase of 10% (£115,860) for 2019/20 as recommended by the Finance sub-group
- Note that an estimated £7.1million of Local Levy partnership funding enables the investment of approximately £106 million of FDGiA into the delivery of Levy funded projects within the DCIS catchment.
- Approve the latest Local Levy Programme.
- Consider the new Local Levy requests for inclusion in the Local Levy programme and note the updates on Conditional Offers

1. Local Levy 2018-2019 – Please Refer to Appendix A

The Local Levy programme for 2018/19 is set out in Appendix A (Table 1) and represents an investment of £1.61m (£1.21m on Capital projects and £400k on Revenue projects, Table 2). This investment will enable the delivery of projects which will provide flood and coastal erosion risk protection to 1,928 households.

Capital project expenditure to 30th November was £128,000. This is in line with expectations due to historic trends showing the majority of Local Levy claims being made in quarter 4 of each financial year (March).

2. Local Levy Requests

The following projects have submitted a request for Local Levy:

- Exeter Surface Water Improvements - £50,000 in 2019/20 — Appendix B
- Stibbs Lane, Ivybridge – £70,000 in 2019/20 — Appendix C
- Devon PLR – £60,000 in 2022 to 2025 — Appendix D
- Stokeinteignhead Flood Improvements –£120,000 in 2019-2021 — Appendix E
- The Barbican, West Pier north sides reconstruction – £150,000 — Appendix F
- Mount's Bay - £270,000 in 2019-2021 — Appendix G

- ❖ Teignmouth Beach Management Plan – £155,000 in 2019-2022 Appendix H
- ❖ Corry & Coly NFM - £50,000 Appendix I

Together these projects equate to a total of £925,000 in Local Levy requests. The impact upon the Local Levy closing balance if all requests are agreed can be seen in Table 2 of Appendix A.

Two projects currently have a conditional Local Levy offer which are detailed below. Combined these projects equate to a total of £320,000 in conditional offers, this figure has been included within the closing balance figures.

Please note that balances in years 8 and 9 remain mostly unallocated. This is a positive position as we are yet to understand the conditions around the next 6 year programme and we need to maintain flexibility e.g. In order to 'Pump Prime' locally politically important schemes or save to be able to promote larger projects.

3. Local Levy Conditional Offer Projects – Updates

3.1. Connecting the Culm (£100k Conditional Offer)

- The project team is progressing on bids to secure further funding e.g. WEIF and InterReg and partnership contributions.

3.2. Clyst St. Mary (£220k Conditional Offer)

- The project team has advised the likelihood of securing a contribution from South West Water is low as there is not a benefit to SWW operations.
- Devon County Council have offered to bring forward their £50k contribution to enable the funds to be spent this Financial Year to maintain progress on the project.
- Without the Local Levy there would be a funding gap for this scheme

4. Proposed Local Levy increase for 2019/20

The committee is asked to increase the overall Local Levy contribution by 10% (£115,860) for 2019/20. The increase in levy for each LLFA is set out below.

South West Regional Flood and Coastal Committee					
Proposed increase to Local Levy (2019/2020)					
LOCAL AUTHORITY	Council Tax base 18/19 Band D Properties	2018/19 Levy	Increase for 2019/20 FD levy per band D property	Proposed increase 2019/20 Levy	Proposed 2019/20 Levy
SOUTH WEST RFCC:	£	£	£	£	£
Devon County Council	287,049	550,898	TBC ~2.11	55,089	605,987
Plymouth Council	71,932	138,049	TBC ~2.11	13,805	151,854
Torbay Council	44,865	86,105	TBC ~2.11	8,611	94,716
Cornwall Council	191,398	367,326	TBC ~2.11	36,733	404,059
Somerset County Council	7,126	13,677	TBC ~2.11	1,368	15,045
Council of the Isles of Scilly	1,325	2,543	TBC ~2.11	254	2,797
	Total	**1,158,601**		**115,860**	**1,274,458**

6 Year Local Levy Programme by RMA
The following table summarises the local levy contribution towards projects in the six year programme (2015/16 – 2020/21) and the FDGiA investment allocated to that project.

Through contributing approximately £7.1 million of Local Levy towards projects within the 6 Year programme (2015/16 to 2020/21) it is estimated that approximately £106 million of FDGiA will be allocated. On consideration of the 6 year programme as a whole, for every £1 of Local Levy invested over £15 of FDGiA is provided In return.

Projects Per RMA Area - LA	**Local Levy (£k)**	**FDGiA (£k)**
South West Area Projects		
Devon and Cornwall Floods Recovery 2012	£ 1,540,464	£ 2,245,000
	£ 1,540,464	**£ 2,245,000**
Cornwall Council		
IPP East Cornwall CFMP Year 2	£ 11,880	£ 99,000
IPP East Cornwall CFMP Year 3	£ 11,880	£ 99,000
IPP West Cornwall CFMP Year 2	£ 11,880	£ 99,000
IPP West Cornwall CFMP Year 3	£ 11,880	£ 99,000
IPP Tamar CFMP Year 2	£ 11,880	£ 99,000
IPP Tamar CFMP Year 3	£ 11,880	£ 99,000
Long Rock Coastal Improvements East	£ 34,000	£ 3,762,000
Tumble Tyn and Paul Stream Culvert Improvements	£ 75,000	£ 260,000
Par Lane Improvements late claim	£ 33,000	£ 208,000
Keveral Gardens, Seaton Culvert Improvements	£ 85,000	£ 445,000
	£ 298,280	**£ 5,269,000**
Devon County Council		
Axminster Millbrook	£ 50,000	£ 998,000
Devon County Council PLR (2018-2019)	£ 20,000	£ 681,600
Devon County Council PLR (2019-2020)	£ 20,000	£ 120,000
Devon County Council PLR (2020-2021)	£ 20,000	£ 120,000
Devon County Council PLR (2021-2022)	£ 20,000	£ 120,000
Uplyme Flood Resilience Scheme	£ 30,000	£ 278,173

Braunton Flood Improvements	£	55,000	£	400,000
Stokeinteignhead 2012 - Remedial Works	£	30,000	£	470,000
Modbury Flood Improvements	£	100,000	£	837,115
Exeter Flood Surface Water Improvements	£	50,000	£	800,000
Colaton Raleigh Flood Improvements	£	30,000	£	230,000
Sidmouth Surface Water Flood Improvement scheme	£	30,000	£	625,000
Stibbs Lane, Ivybridge	£	30,000	£	690,000
	£	**485,000**	**£**	**6,369,888**
Teignbridge Council				
Combeinteignhead, Shaldon Floods 2012 Remedial works - culvert replacement	£	30,000	£	150,000
	£	**30,000**	**£**	**150,000**
Isles of Scilly				
Flood / erosion improvements in IoS	£	15,000		TBC
	£	**15,000**		
East Devon District Council				
New Feniton Flood Alleviation Scheme	£	300,000	£	1,530,000
Whimple Flood Defence Improvements	£	2,820	£	1,032,000
	£	**302,820**	**£**	**2,562,000**
Exeter City Council				
Topsham Tidal Defence Scheme	£	50,000	£	597,000
	£	**50,000**	**£**	**597,000**
Plymouth City Council				
Dean Cross IUDM Flood Alleviation Scheme, Plymstock	£	100,000	£	616,000
Flood Recovery Project 2012 Longbrook Street IUDM scheme, Plympton, Plymouth, watercourse capacity improvements	£	60,000	£	272,000
Flood Recovery Project 2012 Honicknowle Lane, Plymouth, New trash screen and headwall	£	14,000	£	58,000
Flood Recovery Project 2012 Laira Avenue/Lipson Vale IUDM scheme, Laira, Plymouth, additional highway drainage capacity and culvert improvements	£	10,000	£	2,500,000

Stoggy Lane Culvert Improvements	£	34,000	£	64,000
Western Approach/King Street IUDM Flood Alleviation Scheme	£	150,000	£	784,845
	£	**160,000**	**£**	**4,294,845**
Torbay Council				
Paignton Seafront	£	500,000	£	1,933,000
River Fleet Flood Alleviation Scheme	£	500,000	£	5,359,000
Collaton St Mary Flood Alleviation Scheme	£	50,000	£	495,000
	£	**1,050,000**	**£**	**7,787,000**
Environment Agency - PSO East (Devon)				
Kingsbridge Flood Improvements	£	50,000	£	570,000
Totnes Flood Defence Improvements	£	210,000	£	3,545,000
Clyst St Mary Flood Defence Improvements	£	100,000	£	1,359,782
Dawlish Warren and Exmouth Beach Management Scheme	£	150,000	£	12,049,913
East the Water, Bideford	£	25,000	£	1,485,000
Ilfracombe Sea	£	23,000	£	994,416
Kenwith, Bideford	£	25,000	£	4,272,619
Metcombe	£	20,000	£	75,000
Seaton Estuary Imporvements	£	150,000	£	641,568
Wrafton Flood Defence Scheme	£	75,000	£	447,272
Bampton Scheme Upstream Improvements	£	125,000	£	1,070,000
Bayards Cove IPP (Dartmouth)	£	25,000	£	210,000
Bishops Tawton Flood Defence Scheme	£	60,000	£	1,139,000
	£	**1,038,000**	**£**	**27,859,570**
Environment Agency PSO West (Cornwall)				
Calstock Flood Defence Improvements	£	72,000	£	2,138,750
Chaddlewood screen upgrade	£	67,000	£	599,696
Copperhouse Gate Refurbishment	£	67,000	£	942,948
Drakewells stream culvert inlet screen refurbishment	£	23,000	£	329,446
Fowey FAS	£	105,000	£	1,128,221
Latchbrook Impoundment Dam Refurbishment	£	23,000	£	586,100

Mevagissey - fluvial	£	210,000	£	2,868,000
Helston (River Cober)	£	78,540	£	4,670,040
Par/ St. Blazey	£	60,000	£	26,469,945
Paul Stream channel/ culvert refurbishment	£	67,000	£	1,403,757
Penryn Tidal	£	23,000	£	490,000
Perranporth (Bolingey River) FDS	£	318,000	£	1,152,967
Polperro trash screen refurbishment	£	23,000	£	971,580
Portreath FAS	£	430,000	£	4,043,483
Portreath Sea Wall Emergency Repair	£	40,000	£	840,000
Tamerton Foliot Stream Screen refurbishment	£	23,000	£	249,002
Braunton Burrows Velator Great Sluice Refurb IDB	£	15,000	£	30,000
Chyandour Stream d/s Channel Imp. Penzance	£	489,000	£	259,000
	£	**2,133,540**	**£**	**49,172,935**
Total LL	**£**	**7,103,104**		
				£106,307,238

7. Forecast RMA Local Levy Claims 2018-2019.

The following table summarises the forecast Local Levy claims by RMA for projects in 2018-2019. The anticipated claims from RMA's for Local Levy at the end of each financial year will be sent to each RMA prior to the claim deadline, this is to ensure the balances can be accurately carried.

Projects Per RMA Area - LA	Local Levy (£k)	
South West Area Projects		
Cornwall Council		
IPP East Cornwall CFMP Year 2	£	11,880
IPP West Cornwall CFMP Year 2	£	11,880
IPP Tamar CFMP Year 2	£	11,880
	£	**35,640**
Devon County Council		
Devon County Council PLR (2018-2019)	£	20,000
Devon County Council PLR (2021-2022)	£	20,000
Uplyme Flood Resilience Scheme	£	30,000
Modbury Flood Improvements	£	50,000
Exeter Flood Surface Water Improvements	£	35,000
Sidmouth Surface Water Flood Improvement scheme	£	30,000
Stibbs Lane, Ivybridge	£	10,000
	£	**195,000**
Teignbridge Council		
Combeinteignhead, Shaldon Floods 2012 Remedial works - culvert replacement	£	5,000
	£	**5,000**
Isles of Scilly		
Flood / erosion improvements in IoS	£	15,000
	£	**15,000**
East Devon District Council		
New Feniton Flood Alleviation Scheme	£	100,000

	£	**100,000**
Exeter City Council		
Topsham Tidal Defence Scheme	**£**	**50,000**
Plymouth City Council		
Dean Cross IUDM Flood Alleviation Scheme, Plymstock	£	100,000
Flood Recovery Project 2012 Longbrook Street IUDM scheme, Plympton, Plymouth, watercourse capacity improvements	£	120,000
Flood Recovery Project 2012 Laira Avenue/Lipson Vale IUDM scheme, Laira, Plymouth, additional highway drainage capacity and culvert improvements	£	10,000
	£	**230,000**
Environment Agency - PSO East (Devon)		
Kingsbridge Flood Improvements	£	50,000
Seaton Estuary Improvements	£	150,000
	£	**150,000**
Environment Agency PSO West (Cornwall)		
Calstock Flood Defence Improvements	£	72,000
Copperhouse Gate Refurbishment	£	67,000
Portreath FAS	£	40,000
Braunton Burrows Velator Great Sluice Refurb IDB	£	15,000
	£	**194,000**
Total LL	**£**	**974,640**

Ben Johnstone
Area Flood and Coastal Risk Manager

Jenny Hart
FCRM Senior Team Leader - Programme

Appendix B- Exeter Surface Water Improvements request for additional Local Levy Support

Project Summary

The project looks to project properties in the Higher Northbrook area of the city in Beacon Heath and Georges close by installation of improved drainage, property Level protection measures and a low level bund that will look to intercept and store overland surface water flows.

Finance Breakdown

The scheme has a total value of £600k with an adjusted PF score of 128%. Contributions from DCC of £100k and ECC of £100k have been identified along with £300k of GiA. With £100k of Local Levy being required.

Year	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	2024/2025
Programmed Levy Spend (£)	15,000	35,000					
Additional Levy Request (£)		50,000					

Total Levy amount requested: £100,000
FDGiA Allocated (2015-2018): £1,240,000

Outcomes & Delivery

The project will look to achieve 55 om2's (residential properties being moved to a lower risk band)

Appendix C - Ivybridge, Stibbs Lane Surface Water Improvements request for additional Local Levy Support

Project Summary

Out of bank watercourse flows result in a risk of flooding to the residential area of Slipperstone Drive and Claymans Pathway in north west Ivybridge. The scheme will look to install a new large diameter culvert as an overflow system to convey flood floods downstream of the area at risk. This will be supplemented with natural flood management techniques in the upper catchment and SuDS features downstream to reduce residual risk.

Finance Breakdown

The scheme is currently valued at £600k with an adjusted PF score of 103%. Contributions of £250k from DCC have been identified along with £250k of GiA. With £100k of Local Levy being required.

Year	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	2024/2025
Programmed Levy Spend (£)	5,000	25,000					
Additional Levy Request (£)		70,000					

Total Levy amount requested: £100,000
FDGiA Allocated (2015-2018): £80,000

Outcomes & Delivery

The project will look to achieve 50 OM2's (residential properties moved to a lower risk band)

Appendix D - Devon Property Level Resilience request for additional Local Levy Support

Project Summary

Following the 2012 flood events in Devon, a large proportion of properties flooded were identified to be in locations where there was little or no chance of a community scheme. Because of this property level resilience measures in the form of flood boards, flood gates, air brick covers and non-return valves are often the only way of offering a property an increased standard of protection. DCC therefore has initiated a grant scheme making £5k per property available.

Finance Breakdown

The project has a projected annual spend of £120k and adjusted PF score of 140%. With £50k contribution from DCC, £50k from GiA. With £20k of Local Levy being required.

Year	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	2024/2025
Programmed Levy Spend (£)	20,000	20,000	20,000	20,000			
Additional Levy Request (£)					20,000	20,000	20,000

Total Levy amount requested: £60,000 (£20,000 per year)
FDGiA Allocated (2015-2018): £250,000

Outcomes & Delivery

The scheme will look to achieve 25 om2's a year (properties moving to a lower risk band)

Appendix E - Stokeinteignhead Flood Improvements request for additional Local Levy Support

Project Summary

Out of bank watercourse flows on two tributaries are being targeted that converged in the centre of the village. Current proposals show that one watercourse will have flows attenuated behind a bund and the other will be culverted through the highway in a large diameter pipe.

Finance Breakdown

The current scheme has an adjusted PF score of 101% and is estimated to be in the region of £970k. Contributions of £490k have be identified from DCC, £330k from GiA. With £150k of Local Levy being required.

Year	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	2024/2025
Programmed Levy Spend (£)		30,000					
Additional Levy Request (£)		45,000	75,000				

Total Levy amount requested: £120,000
FDGiA Allocated (2015-2018): £220,000

Outcomes & Delivery

The scheme will look to achieve 40 OM2's. (properties moved to a lower risk band).

Appendix F - Plymouth, The Barbican , West Pier north sides, reconstruction request for additional Local Levy Support

Project Summary

Structural repair works to west pier to maintain integrity of flood defence and installation of new foundations for new flood defence wall to allow upgraded standard of protection to manage climate change sea level rise.

While this project is currently programmed for FDGiA spend in 2021-2023 a time limited opportunity has arisen where Plymouth City Council (owners of west pier) are planning significant public realm improvement works as part of the Mayflower 400 celebrations in 2020. This is a listed structure and these works are an opportunity to undertake essential structural repair works to the pier, while the cobbled surface of the pier is removed.

This is a fast moving project and local levy has been requested for year 2020/21 on the basis that there can be some flexibility on when PCC draw down these funds and this could be post construction works. Mayflower 400 anniversary is in September 2020.

Finance Breakdown

[*Please detail the total amount to be requested and fill in the below table stating the profiled spend of the Levy if granted across the relevant years. N.B. If the project already has existing Levy allocated please only profile the additional amount*]

Year	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	2024/2025
Levy Spend (£)			150000				

Total Levy amount requested: £150,000

Outcomes & Delivery

[*Please state the benefits / outcome measures this project will deliver and the forecast project delivery date*]

Up to 84 OM2's in 2019

Appendix G - Mounts Bay Strategy request for additional Local Levy Support

Project Summary

There are over 800 properties at risk of coastal flooding and erosion within Mounts Bay, alongside critical infrastructure such as the mainline railway, A30, SWW assets and the local road network. Additionally the historic harbours of Penzance, Newlyn and Mousehole are located within this area. The Shoreline Management Plan identifies significant pressure due to sea level rise, coastal squeeze and increased storminess, with risks in both the immediate and long term, increasing with climate change.

In 2017 FCERM funding was approved for the Long Rock Strategic Coastal Improvements project, partnership funded with ERDF. This Cornwall Council/Environment Agency partnership scheme is set to deliver an interim solution for part of the frontage. The 20 year design life prevents the imminent failure of the existing defence line – which would result in loss of the rail line and flooding to properties in Long Rock.

Current FCERM activity is investigating how to achieve a sustainable shoreline right across the frontage, including the key communities from Marazion in the east, to Mousehole in the west. Currently packages of work are being undertaken for discrete sections of the frontage, backed up by a growing evidence base. Information detail varies along the frontage.

Whilst the current FCERM policy across the frontage (until 2025) is *Hold the Line*, the SMP and more recent 'Strategic Assessment of Adaptive Frontages' report identified a reshaping of the coastline is needed to achieve a more sustainable long-term frontage, and provides information on potential proactive long term sustainable management of the Mount's Bay frontage. Constrained over the short term, from a strategic perspective the realignment creates exciting opportunities with multiple benefits and beneficiaries.

The interaction of fluvial/tidal/wave action at the numerous rapid reaction catchments draining to Mounts Bay is an important consideration not yet considered strategically.

There is no EA approved FCERM Strategy in place to enable the progression of the current or future required business case appraisals through the Agency's approval process. Recent feedback on the Long Rock Strategic Coastal OBC from NPAB through the approval process confirmed this gap in the Five Case Model approach.

A plan will be delivered setting out for the strategic implementation and alignment of the various FCERM initiatives across the frontage, to identify efficiencies and synergies in timing and sequencing, community engagement, cumulative opportunities for improving both environment and the public realm, construction practice, materials sourcing and funding opportunities etc.

Appendix *X*- Mounts Bay Strategy request for additional Local Levy Support *(Continued)*

Current and past FCERM activity in Mounts Bay:

- SMP2 adopted in 2011
- Strategic Assessment of Adaptive Frontages (2014-15)
- Marazion Beach and Dune Management Plan (2016)
- Penzance Promenade to Wherry Town Appraisal (2016-17)
- Long Rock Strategic Coastal Improvements Project (2017 – 2020)
- Marazion Marsh Water Level Management Plan (2017 – 2018)
- Long Term Options Feasibility Study Marazion to Penzance Stages 1 & 2 (2017-18)
- Newlyn Tidal and Fluvial Flood Risk Appraisal (2016 – 2019)
- Penzance Harbour Breakwater Options and Design (2015 – present)
- Community FCERM Initial Assessments for Marazion and Mousehole (2018 – 2019)
- Coastal Data Collection via Plymouth Coastal Observatory (2007 – present)

Finance Breakdown

Year	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	2024/2025
Levy Spend (£)		135,000	135,000				

Total Levy amount requested: £270K

N.B. Total value of the Mounts Bay Strategy project is £300K – a £30K match-funding contribution will be made by Cornwall Council.

Outcomes & Delivery

This Local Levy supported investment will deliver an EA approved FCERM strategy which takes on (i.e. doesn't repeat) and extends as appropriate (to fill in the gaps) the existing and current evidence base (data, plans, strategic assessments, feasibility studies etc.) this will provide the approved strategic direction for sustainable FCERM of the frontage and its fluvial interaction as far as estimated tidal/wave action limits in 2105, in accordance with the PAG3 guidance and 5 case business model.

In addition, consultation with the Defra family identified these wider objectives that will be met:

Cornwall Council

- Meet the objectives of the Cornwall Council Environmental Growth Strategy as appropriate within Mounts Bay/the context of FCERM "In 2065, Cornwall's environment will be naturally diverse, beautiful and healthy, supporting a thriving society, prosperous economy and abundance of wildlife".

Natural England

- Natural capital approach to value wider benefits.

Marine Maritime Organisation

- Sustain/maintain integrity/condition of Mounts Bay Marine Conservation Zone

Environment Agency

- Delivery of Shoreline Management Plan intent

De**livery Date: March 2021**

Appendix H - Teignmouth Beach Management Plan request for additional Local Levy Support

Project Summary

The project will carry out bathymetry surveys and produce a Beach Management Plan to inform potential for future beach management and identification of schemes to reduce risk to property from coastal flooding at Teignmouth and Dawlish.

It is vital that this work is funded for both Teignbridge District Council and the Environment Agency to understand the coastal issues, behaviour of the frontage and performance requirements of defences prior to Network Rail starting their work on the Parsons Tunnel to Smuggler's Cove frontage. The outputs of this work will give both RMAs a strong position to know how to advise NR on their work to ensure no net detriment to the management of the coast, and hopefully how to provide some betterment.

Finance Breakdown

[*Please detail the total amount to be requested and fill in the below table stating the profiled spend of the Levy if granted across the relevant years. N.B. If the project already has existing Levy allocated please only profile the additional amount*]

Year	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	2024/2025
Levy Spend (£)		85,000	60,000	10,000			

Total Levy amount requested: £155,000

NB there is potential to reduce the amount by £10,000 if possible to obtain the 2021/22 figure from FDGiA in the first year of the next capital programme period.

Outcomes & Delivery

[*Please state the benefits / outcome measures this project will deliver and the forecast project delivery date*]

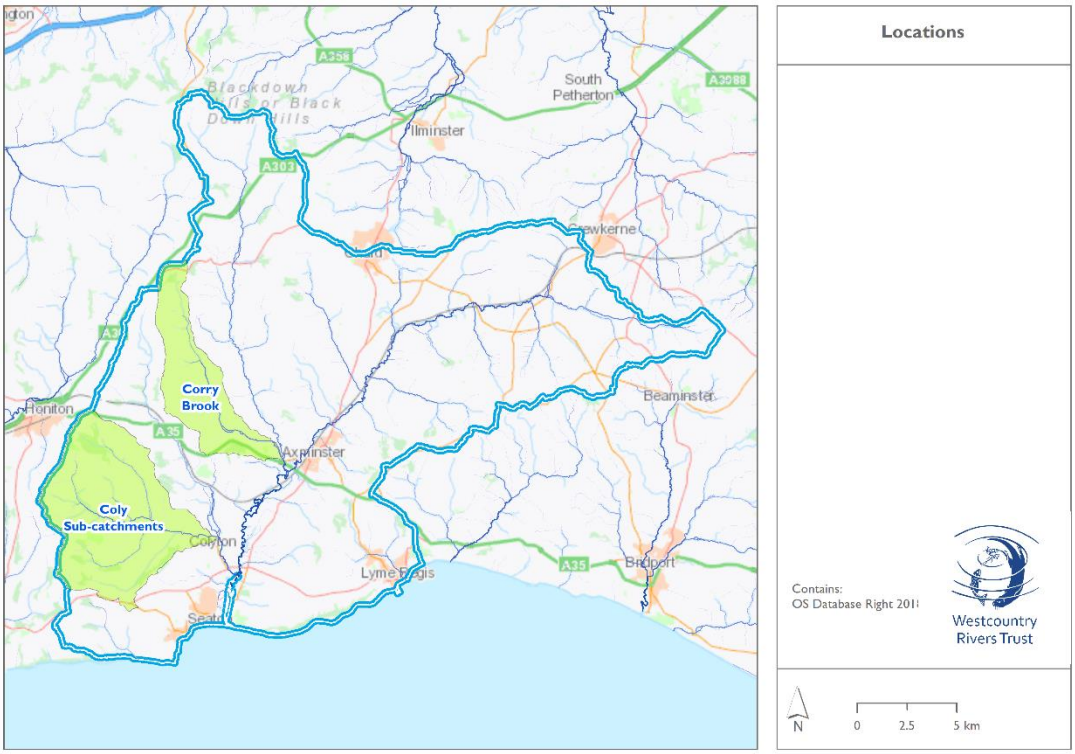
There are no outcome measures directly associated with this project. However the outcomes of this project will inform £700,000,000 of investment made by Network Rail by ensuring the both Teignbridge DC and the EA have the right understanding of the frontage before NR propose changes. It will also subsequently ensure that the Teignmouth Beach Management Scheme (SWC501E/000A/085A) can proceed on a well evidenced and scientifically informed basis which will result in delivery of 289 OM2s in 2024/25.

Appendix *I* - Corry and Coly Natural Flood Management Project request for additional Local Levy Support

Project Summary

[*A short summary of the project and the reason for the additional Levy request. Please add any pictures as necessary*]

The Corry and Coly Natural Flood Management (NFM) Project takes an evidence-based approach and will deliver natural flood management (NFM) interventions in two target sub-catchments of the river Axe (see map below) in two phases: phase 1 quick wins in 18/19 and phase 2 in 19/20. Total project cost is £145.50K and **the local levy ask is £50,000.**



Within the Coly and Corry catchment, further targeting of NFM measures will be undertaken to focus on the upper Corry and the Southleigh sub-catchment of the Coly. **Currently, 21 properties are at risk from flooding; this project aims to reduce the risk to these properties while providing multiple environmental benefits.** The settlements of Dalwood and Colyton are located downstream of the upper Corry and Southleigh sub-catchments respectively.

The rationale for the project is:

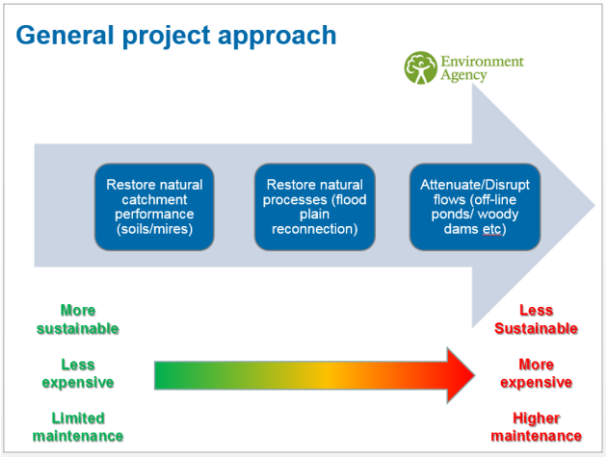
1) The Westcountry Rivers Trust have just completed a contract: *Watkins I, September 2018, Ground-truthing Natural Flood Management (NFM) modelling data on two target sub-catchments [Corry & Coly] in East Devon* to ground-truth the Natural Processes Environment Agency open source data. The main output of the contract was a blueprint for the sub-

catchments, taking the natural processes dataset and undertaking site visits to establish feasibility of individual NFM interventions, discussing proposals with landowners to determine likelihood.

2) The ground-truthing report used the following GIS based criteria to drill down from the natural processes national data determine target areas that were then ground-truthed: properties at risk, number of landowners, rainfall acceptance potential, hydrological connectivity
3) Through this work, the upper Corry and Southleigh sub-catchment of the Coly were identified as the highest priority.
4) From this, the Woods for Water Environment Agency/ Forestry Commission project has been deployed to target advisory effort (via FWAG SW) into the target areas to take the feasibility work and work directly with landowners to design interventions, primarily new woodland planting but also woodland SuDS (for which there is a small capital grant available).
5) It is clear, however, from the ground-truthing contract and through working with landowners to co-create solutions, that there is significant demand and interest in installation of NFM measures in the target areas and **this local levy bid will enable a more robust, sub-catchment implementation of NFM interventions.**
6) A comprehensive £16K hydrological monitoring programme has just started via Westcountry Rivers Trust, to create a baseline in the target catchments, following national NFM guidelines.
7) **This forms the basis for the local levy bid i.e. there is clear evidence of need, demand from landowners and a well-established and trusted partnership in place to deliver.**

The project has been developed in partnership through the East Devon Catchment Partnership (EDCP) and is on the EDCP Action Plan. Key players are the Blackdown Hills AONB, East Devon AONB, Environment Agency, DCC Flood & Coastal Risk team, FWAG SW and Westcountry Rivers Trust.

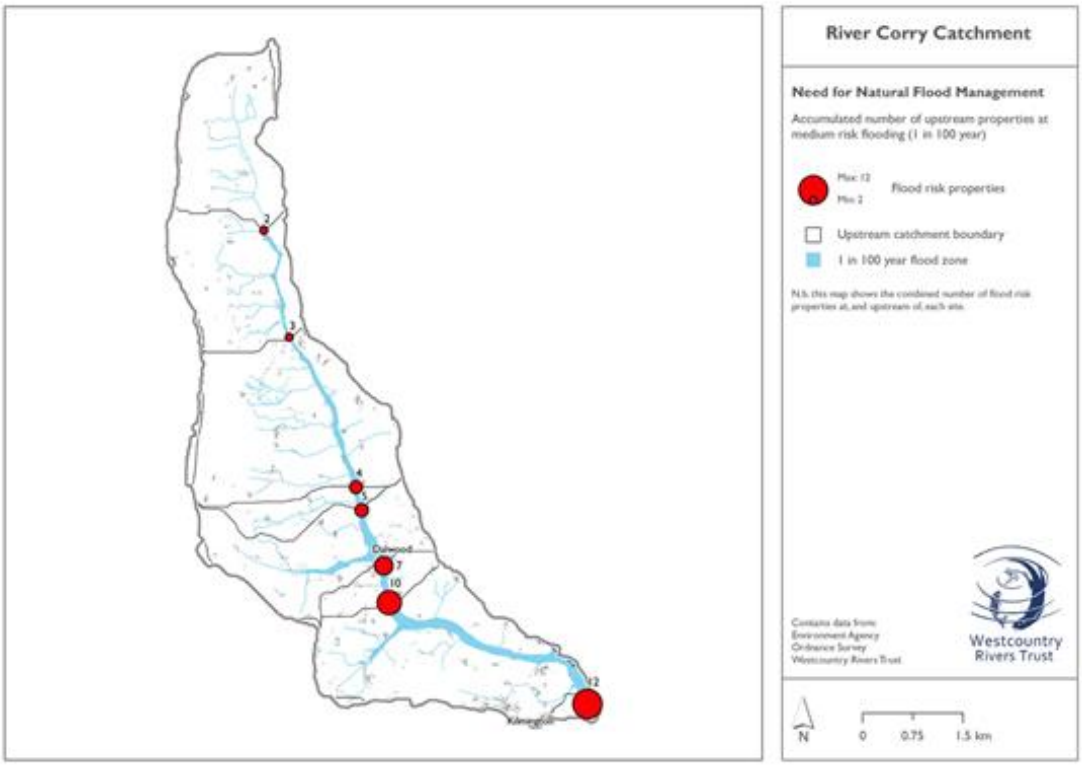
The project keys into the national NFM programme, especially the Dartmoor project, in order to follow the best practice guidelines that have been developed including EA's general project approach- see below.



The project is innovative as it seeks to develop a way of working that combines national NFM best practice approaches with a cost-effective way of implementing multiple benefit, natural flood management solutions in priority catchments.

The NFM interventions to attenuate and reduce peak flows will include: debris dams, flow spreaders, leaky (attenuation) ponds and water diversion/ management.

River Corry catchment with properties at risk



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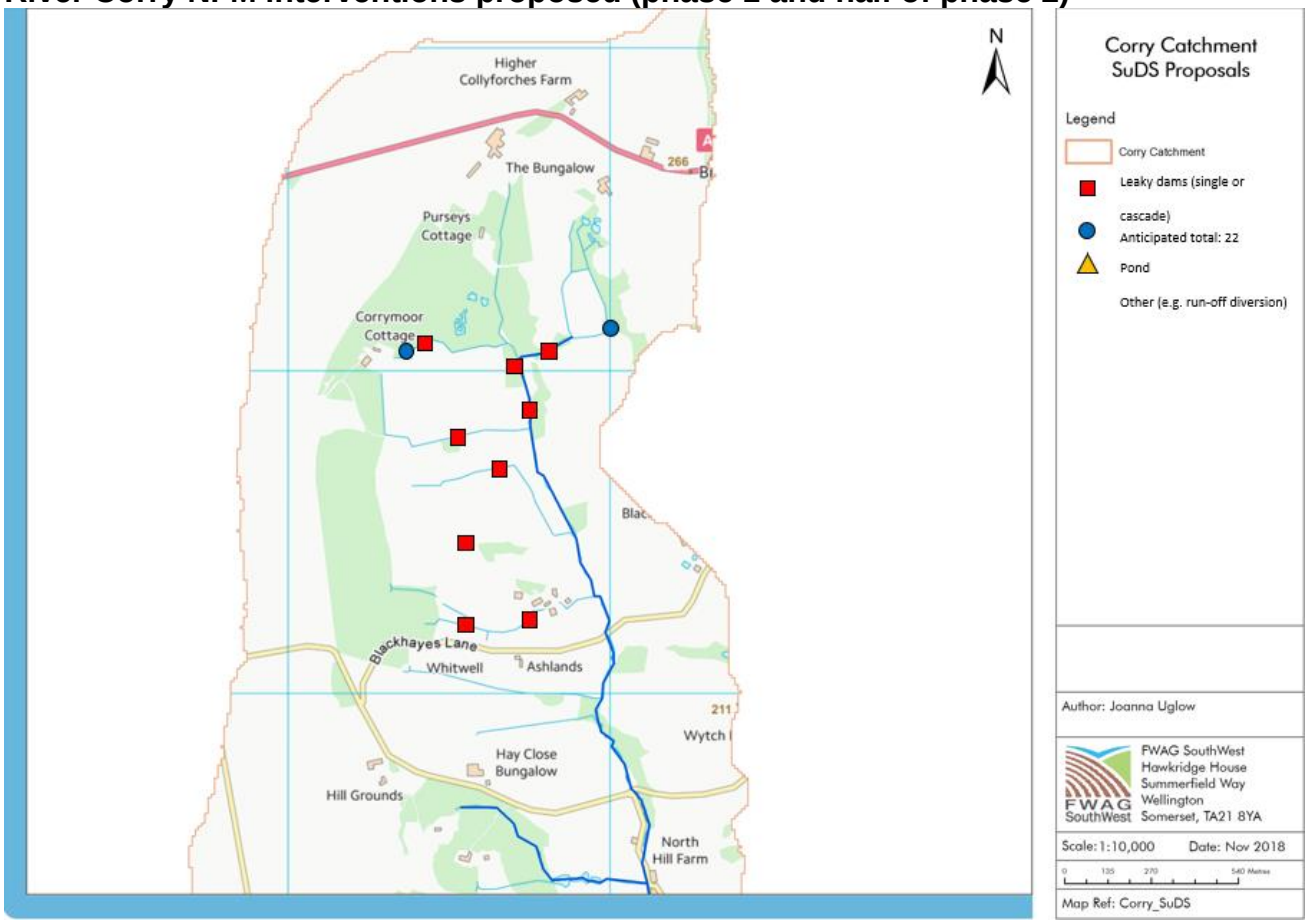
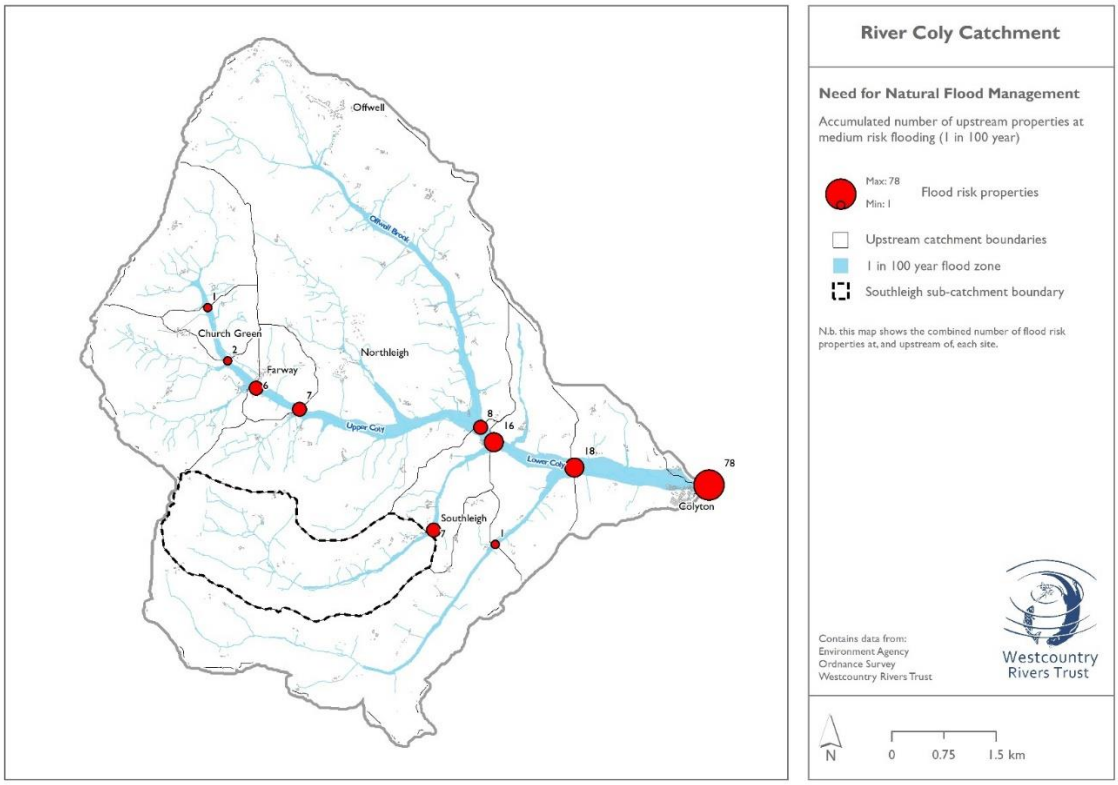
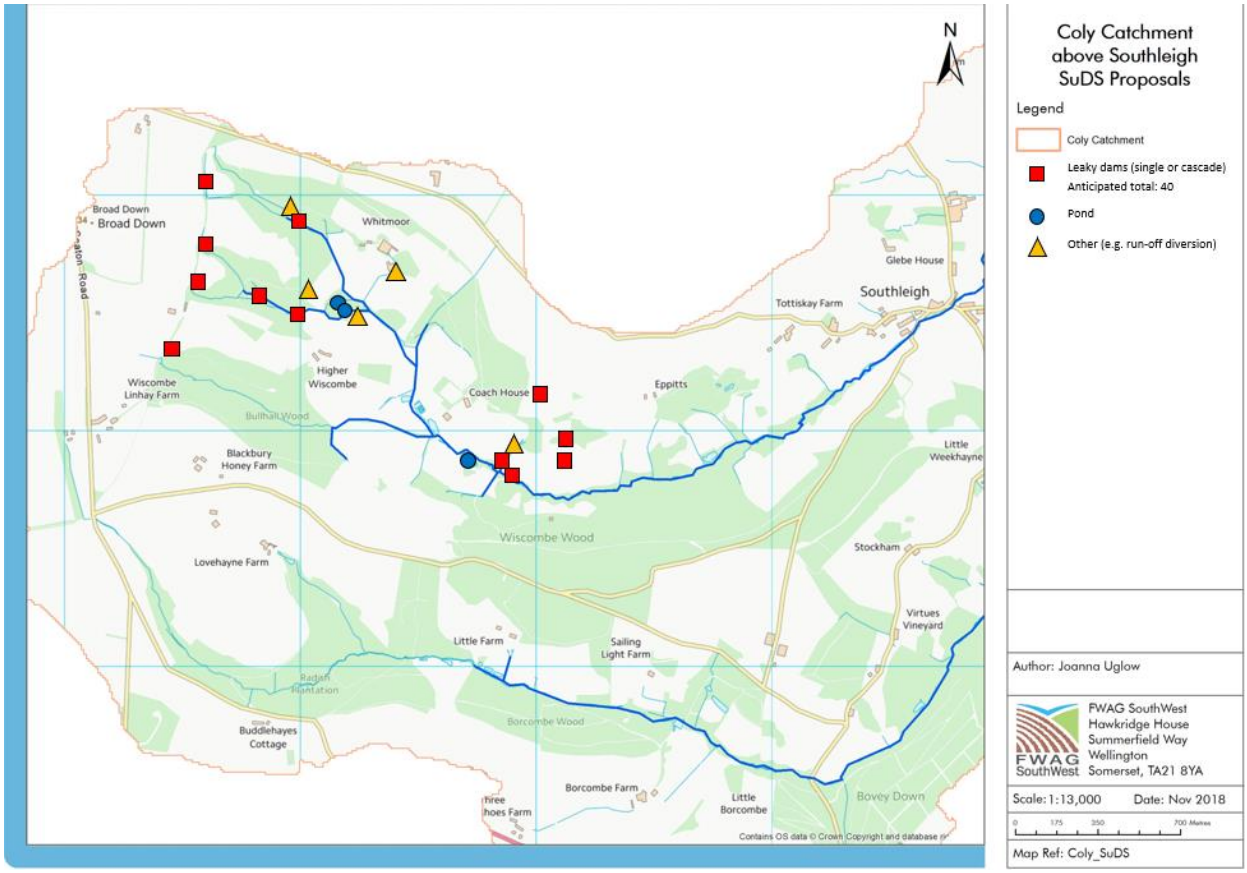
River Corry NFM interventions proposed (phase 1 and half of phase 2)



River Coly (Southleigh catchment shown as a dotted line) showing properties at risk



Southleigh sub-catchment showing intervention types (phase 1 & half of phase 2)



Finance Breakdown

[*Please detail the total amount to be requested and fill in the below table stating the profiled spend of the Levy if granted across the relevant years. N.B. If the project already has existing Levy allocated please only profile the additional amount*]

Year	2018/2019	2019/2020	2020/2021	2021/2022	2022/2023	2023/2024	2024/2025
Levy Spend (£) Phase 1 quick wins	10,000						
Levy Spend (£) Phase 2		40,000					

Total Levy amount requested: £ 50,000

The project delivers excellent value for money/ return on investment (with on-going citizen science added value):

- **Total project cost= £145.50K**
- Additional (match) investment includes £70K Woods for Water (advisory, monitoring contract, NFM interventions) plus £10K DCC Flood & Coastal Risk Team (NFM ground-truthing study)
- Landowner contribution= £12.50K
- In-kind from the partnership group, estimated at 12 days @ £250/day= £3K

Outcomes & Delivery

[*Please state the benefits / outcome measures this project will deliver and the forecast project delivery date*]

Benefit and outcome measures

- NFM interventions in discrete and targeted locations based on robust evidence and ground truthing (alongside catchment wide measures via associated projects on improving soil infiltration and catchment performance) will attenuate and reduce peak flows, thereby reducing the risk of surface water flooding to downstream properties.
- This project is a package that builds on ground-truthing work to use local levy funding is a mechanism to deliver NFM interventions on the ground.
- Landowners are more engaged in natural flood management and act as advocates and a catalyst to their neighbours (some in farm facilitation schemes) who work collaboratively to install NFM on a sub-catchment scale
- Robust data collected and benchmarking against the national NFM pilots demonstrates the value of NFM to reduce downstream flooding
- Multi-objective benefits include improvements to water quality as a result of NFM interventions that trap sediment. WFD failures on these moderate/ poor status catchments are largely as a result of phosphates and sediment. In-river and riparian biodiversity benefits will also accrue.
- The project will help build community resilience to flooding by engaging landowners and local communities.

The forecast project delivery date is the end of March 2019 (phase 1 quick wins) and March 2020 (phase 2).

Risks will be mitigated and minimised by:

- Designing and implementing NFM measures based on a robust evidence base, using trusted contractors (via competitive tendering) who have done this type of work before.
- We are programming the majority of the on-site work into 19/20 to ensure we have the correct ground conditions to do the work, especially on sensitive soils and slopes.
- Having already secured landowner agreement to allow the work to proceed, we are confident that the 18/19 quick wins can be delivered this financial year. We have carefully triaged the schemes to deliver the ones that are ‘ready to go’ in the 18/19 winter.
- Through site visits and ground-truthing work, we already have enough demand from farmers in the target catchments to know that we can deliver further schemes in 19/20.
- As part of this process, full constraints checks will be undertaken. Through a track record of working with DCC Flood & Coastal Risk team, the process of securing Land Drainage Consent for non-main river work has been streamlined.

APPENDIX A - **DEVON AND CORNWALL FLOOD AND COASTAL EROSION RISK MANAGEMENT PROJECTS - LOCAL LEVY PROGRAMME**

CAPITAL PROGRAMME

Table 1

Project Specific Information					Local Levy Proposed Forecast Spend (£)						Total Local Levy (£)
Project Title	Authortiy Type	RMA	# Houses moving flood risk Band	LL Contribution per Household (£)	2018/19 (Year 4)	2019/2020 (Year 5)	2020/2021 (Year 6)	2021/2022 (Year 7)	2022/2023 (Year 8)	2023/2024 (Year 9)	Total Spend (All Years) Actual + Forecast
Axminster Millbrook	LA	Devon County Council	161	£ 310.56	£ -	£ -	£ -	£ -	£ -	£ -	£ 50,000.00
Bampton Scheme Upstream Improvements	EA	PSO East	75	£ 1,666.67	£ -	£ -	£ -	£ 125,000	£ -	£ -	£ 125,000.00
Bayards Cove IPP (Dartmouth)	EA	PSO East	19	£ 1,315.79	£ -	£ -	£ -	£ 25,000	£ -	£ -	£ 25,000.00
Bishops Tawton Flood Defence Scheme	EA	PSO East	34	£ 1,764.71	£ -	£ -	£ -	£ -	£ -	£ -	£ 59,999.91
Braunton Flood Improvements	LA	Devon County Council	70	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ 30,000.00
Braunton Burrows Velator Great Sluice Refurb IDB	IDB	PSO West	3	£ -	£ 15,000	£ -	£ -	£ -	£ -	£ -	£ 15,000.00
Calstock Flood Defence Improvements	EA	PSO West	11	£ 6,545.45	£ 72,000	£ -	£ -	£ -	£ -	£ -	£ 72,000.00
Chaddlewood screen upgrade	EA	PSO West	48	£ 1,395.83	£ -	£ -	£ -	£ -	£ -	£ -	£ 66,995.81
Chyandour Stream d/s Channel Imps Penzance	EA	PSO West	17	£ 28,764.71	£ -	£ -	£ -	£ -	£ -	£ -	£ 318,306.23
Clyst St Mary Flood Defence Improvements	EA	PSO East	46	£ 2,173.91	£ -	£ 88,000	£ -	£ -	£ -	£ -	£ 99,782.20
Colaton Raleigh Flood Improvements	LA	Devon County Council	20	£ 1,500.00	£ -	£ -	£ 30,000	£ -	£ -	£ -	£ 30,000.00
Colebrook Flood Risk Management Scheme	LA	Devon County Council	0	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ 250,000.00
Collaton St Mary Flood Alleviation Scheme	LA	Torbay Council	12	£ 4,166.67	£ -	£ 50,000	£ -	£ -	£ -	£ -	£ 50,000.00
COMBEINTEIGNHEAD, SHALDON FLOODS 2012 REMEDIAL WORKS - CULVERT REPLACEMENT	LA	Teignbridge Council	15	£ 2,000.00	£ 5,000	£ 25,000	£ -	£ -	£ -	£ -	£ 30,000.00
Copperhouse Gate Refurbishment	EA	PSO West	138	£ 485.51	£ 67,000	£ -	£ -	£ -	£ -	£ -	£ 67,000.00
Dawlish Warren and Exmouth Beach Management Scheme	EA	PSO East	2281	£ 65.76	£ -	£ -	£ -	£ -	£ -	£ -	£ 149,673.17
Dean Cross IUDM Flood Alleviation Scheme, Plymstock	LA	Plymouth City Council	15	£ 6,666.67	£ 250,000	£ -	£ -	£ -	£ -	£ -	£ 250,000.00
Devon and Cornwall Floods Recovery 2012	EA	EA	644	£ 2,392.02	£ -	£ -	£ -	£ -	£ -	£ -	£ 1,540,463.82
Devon and Cornwall RMA Coastal Asset Management Review	LA	Teignbridge Council	N/A	£ -	£ 40,000	£ -	£ -	£ -	£ -	£ -	£ 400,000.00
Devon County Council PLR (2018-2019)	LA	Devon County Council	20	£ 1,000.00	£ 20,000	£ -	£ -	£ -	£ -	£ -	£ 20,000.00
Devon County Council PLR (2019-2020)	LA	Devon County Council	20	£ 1,000.00	£ -	£ 20,000	£ -	£ -	£ -	£ -	£ 20,000.00
Devon County Council PLR (2020-2021)	LA	Devon County Council	20	£ 1,000.00	£ -	£ 20,000	£ -	£ -	£ -	£ -	£ 20,000.00
Devon County Council PLR (2021-2022)	LA	Devon County Council	20	£ 1,000.00	£ -	£ 20,000	£ -	£ -	£ -	£ -	£ 20,000.00
Drakewalls stream culvert inlet screen refurbishments	EA	PSO West	17	£ 1,352.94	£ -	£ -	£ -	£ 23,000	£ -	£ -	£ 23,000.00
East The Water, Bideford	EA	PSO East	46	£ 543.48	£ -	£ 25,000	£ -	£ -	£ -	£ -	£ 25,000.00
Exeter Flood Surface Water Improvements	LA	Devon County Council	80	£ 625.00	£ 35,000.00	£ 15,000.00	£ -	£ -	£ -	£ -	£ 50,000.00
Flood Recovery Project 2012 Honicknowle Lane, Plymouth, New	LA	Plymouth City Council	13	£ 1,076.92	£ -	£ -	£ -	£ -	£ -	£ -	£ 14,000.00
Flood Recovery Project 2012 Laira Avenue/Lipson Vale IUDM scheme, Laira, Plymouth, additional highway drainage capacity and culvert improvements	LA	Plymouth City Council	102	£ 98.04	£ -	£ -	£ -	£ 65,000.00	£ -	£ -	£ 65,000.00
Flood Recovery Project 2012 Longbrook Street IUDM scheme, P	LA	Plymouth City Council	17	£ 3,529.41	£ 120,000.00	£ -	£ -	£ -	£ -	£ -	£ 120,000.00
Fowey FAS	EA	PSO West	21	£ 5,000.00	£ -	£ -	£ -	£ 105,000.00	£ -	£ -	£ 105,000.00
Helston (River Cober)	EA	PSO West	121	£ 649.09	£ -	£ -	£ -	£ -	£ -	£ -	£ 78,540.00
Ilfracombe Sea	EA	PSO East	55	£ 418.18	£ -	£ -	£ -	£ -	£ -	£ 23,000.00	£ 23,000.00
IPP East Cornwall CFMP Year 2	LA	Cornwall Council	18	£ 660.00	£ 11,880.00	£ -	£ -	£ -	£ -	£ -	£ 11,880.00
IPP East Cornwall CFMP Year 3	LA	Cornwall Council	18	£ 660.00	£ -	£ 11,880.00	£ -	£ -	£ -	£ -	£ 11,880.00
IPP Tamar CFMP Area Year 2	LA	Cornwall Council	18	£ 660.00	£ 11,880.00	£ -	£ -	£ -	£ -	£ -	£ 11,880.00
IPP Tamar CFMP Area Year 3	LA	Cornwall Council	18	£ 660.00	£ -	£ 11,880.00	£ -	£ -	£ -	£ -	£ 11,880.00
IPP West Cornwall CFMP Area Year 2	LA	Cornwall Council	18	£ 660.00	£ 11,880.00	£ -	£ -	£ -	£ -	£ -	£ 11,880.00
IPP West Cornwall CFMP Area Year 3	LA	Cornwall Council	18	£ 660.00	£ -	£ 11,880.00	£ -	£ -	£ -	£ -	£ 11,880.00
Kenwith, Bideford	EA	PSO East	182	£ 137.36	£ -	£ 25,000.00	£ -	£ -	£ -	£ -	£ 25,000.00
Keveral Gardens, Seaton Culvert Improvements	LA	Cornwall Council	24	£ 3,541.67	£ -	£ -	£ -	£ -	£ 85,000.00	£ -	£ 85,000.00
Kingsbridge Flood Improvements	LA	PSO East	100	£ 500.00	£ 50,000.00	£ -	£ -	£ -	£ -	£ -	£ 50,000.00
LA - Beach Management Plan Strategic Prog	LA		N/A	£ -	£ -	£ -	£ -	£ 40,000.00	£ -	£ -	£ 40,000.00
LA - Flood/erosion improvements in IoS	LA	Isles of Scilly	TBC	£ -	£ 5,000.00	£ -	£ -	£ -	£ -	£ -	£ 5,000.00
Latchbrook Impoundment Dam Refurbishment	EA	PSO West	46	£ 500.00	£ -	£ 23,000.00	£ -	£ -	£ -	£ -	£ 23,000.00
Long Rock Coastal Improvements	LA	Cornwall Council	267	£ 127.34	£ -	£ -	£ -	£ -	£ -	£ -	£ 34,000.00
Metcombe	EA	PSO East	10	£ 2,000.00	£ -	£ -	£ -	£ 15,000.00	£ 5,000.00	£ -	£ 20,000.00
Mevagissey - fluvial	EA	PSO West	102	£ 2,058.82	£ -	£ -	£ -	£ 210,000.00	£ -	£ -	£ 210,000.00
Modbury Flood Improvements	LA	Devon County Council	50	£ 2,000.00	£ 50,000.00	£ -	£ -	£ -	£ -	£ -	£ 100,000.00
New Feniton Flood Alleviation Scheme	LA	East Devon District Council	63	£ 4,761.90	£ 100,000.00	£ -	£ -	£ -	£ -	£ -	£ 200,000.00
Paignton Seafront	LA	Torbay Council	185	£ 2,702.70	£ -	£ 100,000.00	£ 100,000.00	£ 300,000.00	£ -	£ -	£ 500,000.00
Par Lane Improvements late claim	LA	Cornwall Council	0	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ 33,000.00
Par/st. Blazey	EA	PSO West	213	£ 281.69	£ 30,000.00	£ 30,000.00	£ -	£ -	£ -	£ -	£ 60,000.00
Paul Stream channel/culvert refurbishments	EA	PSO West	32	£ 2,093.75	£ -	£ 67,000.00	£ -	£ -	£ -	£ -	£ 67,000.00
Project Specific Information					Local Levy Proposed Forecast Spend (£)						Total Local Levy (£)

Project Title	Authortiy Type	RMA	# Houses moving flood risk Band	LL Contribution per Household (£)	2018/19 (Year 4)	2019/2020 (Year 5)	2020/2021 (Year 6)	2021/2022 (Year 7)	2022/2023 (Year 8)	2023/2024 (Year 9)	Total Spend (All Years) Actual + Forecast
Penryn Tidal	EA	PSO West	20	£ 1,150.00	£ -	£ -	£ -	£ -	£ 23,000.00	£ -	£ 23,000.00
Perranporth (Bolingey River) FDS	EA	PSO West	107	£ 2,971.96	£ -	£ -	£ -	£ -	£ -	£ -	£ 318,112.63
Polperro trash screen improvements	EA	PSO West	23	£ 1,000.00	£ -	£ -	£ -	£ -	£ -	£ -	£ 22,997.33
Portreath FAS	EA	PSO West	137	£ 3,138.69	£ -	£ 25,000.00	£ 405,000.00	£ -	£ -	£ -	£ 430,000.00
Portreath Sea Wall Emergency Repair	EA	PSO West	69		£ 40,000.00	£ -	£ -	£ -	£ -	£ -	£ 40,000.00
River Fleet Flood Alleviation Scheme	LA	Torbay Council	498	£ 1,004.02	£ -	£ 100,000.00	£ 400,000.00	£ -	£ -	£ -	£ 500,000.00
Seaton Estuary Improvements (DC5)	EA	PSO East	62	£ 2,419.35	£ 40,000.00	£ -	£ -	£ 102,000.00	£ -	£ -	£ 149,567.76
Sidmouth Surface Water Flood Improvement scheme	LA	Devon County Council	120	£ 250.00	£ 30,000.00	£ -	£ -	£ -	£ -	£ -	£ 30,000.00
South Molton Flood Risk Improvements	EA	PSO East	216		£ 45,000.00	£ -	£ -	£ -	£ -	£ -	£ 45,000.00
Stibbs Lane, Ivybridge	LA	Devon County Council	43	£ 697.67	£ 10,000.00	£ 20,000.00	£ -	£ -	£ -	£ -	£ 30,000.00
Stoggy Lane Culvert Improvements	LA	Plymouth City Council	17	£ 2,000.00	£ -	£ -	£ -	£ -	£ -	£ -	£ 34,000.00
Stokeinteignhead 2012 - Remedial Works	LA	Devon County Council	36	£ 833.33	£ -	£ 30,000.00	£ -	£ -	£ -	£ -	£ 30,000.00
Tamerton Foliot Stream Screen refurbishment	EA	PSO West	9	£ 2,555.56	£ -	£ -	£ -	£ -	£ -	£ -	£ 23,001.67
Topsham Tidal Defence Scheme	LA	Exeter City Council	26	£ 1,923.08	£ -	£ 50,000.00	£ -	£ -	£ -	£ -	£ 50,000.00
Totnes Flood Defence Improvements	EA	PSO East	202	£ 1,039.60	£ -	£ -	£ -	£ -	£ -	£ -	£ 72,378.05
Tumble Tyn and Paul Stream Culvert Improvements	LA	Cornwall Council	20	£ 3,750.00	£ -	£ -	£ -	£ 75,000.00	£ -	£ -	£ 75,000.00
Uplyme Flood Resilience Scheme	LA	Devon County Council	10	£ 3,000.00	£ 30,000.00	£ -	£ -	£ -	£ -	£ -	£ 30,000.00
Western Approach/King Street IUDM Flood Alleviation Scheme	LA	Plymouth City Council	52	£ 2,884.62	£ 25,000.00	£ -	£ -	£ -	£ -	£ -	£ 25,000.00
Whimple Flood Defence Improvements	EA	East Devon District Council	33	£ 85.45	£ -	£ -	£ -	£ -	£ -	£ -	£ 2,820.24
Wrafton Flood Defence Scheme	EA	PSO East	34	£ 2,205.88	£ -	£ -	£ -	£ 75,000	£ -	£ -	£ 75,000.00
					£ 1,114,640	£ 768,640	£ 935,000	£ 1,160,000	£ 113,000	£ 23,000	£ 7,741,918.82
Conditional Local Levy Offers					£ 100,000	£ 220,000	£ -	£ -	£ -	£ -	
TOTAL OM's			**9,140**								
TOTAL CAPITAL EXPENDITURE					£ 1,214,640	£ 988,640	£ 935,000	£ 1,160,000	£ 113,000	£ 23,000	
TOTAL REVENUE EXPENDITURE					£ 400,000	£ 300,000	£ 310,000	£ 260,000	£ 250,000	£ 250,000	
TOTAL OVERALL EXPENDITURE (Cap + Rev)					£ 1,614,640	£ 1,288,640	£ 1,245,000	£ 1,420,000	£ 363,000	£ 273,000	£ 7,741,918.82
(Finance) Opening Balance					£ 1,332,000	**£ 876,360**	**£ 862,178**	**£ 1,019,082**	**£ 1,141,176**	**£ 2,474,480**	
Levy Annual Income (estimated)					£ 1,159,000	£ 1,274,458	£ 1,401,904	£ 1,542,094	£ 1,696,304	£ 1,865,934	
Closing Balance					**£ 876,360**	**£ 862,178**	**£ 1,019,082**	**£ 1,141,176**	**£ 2,474,480**	**£ 4,067,414**	

TABLE 2

Balance Adjustments if All New Local Levy Requests are Agreed

	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24
New Local Levy Requests	£ 10,000.00	£ 425,000.00	£ 420,000.00	£ 10,000.00	£ 20,000.00	£ 20,000.00
Opening Balance	£ 1,332,000.00	£ 866,360.00	£ 427,178.00	£ 164,081.80	£ 276,176.20	£ 1,589,480.04
Levy Annual Income (estimated)	£ 1,159,000.00	£ 1,274,458.00	£ 1,401,903.80	£ 1,542,094.40	£ 1,696,303.84	£ 1,865,934.22
Closing Balance if all requests agreed	**£ 866,360**	**£ 427,178**	**£ 164,082**	**£ 276,176**	**£ 1,589,480**	**£ 3,162,414**

Appendices
Appendix A – Update on environmental outcomes (OM4) from FCRM Capital Programme 2015 – 2021

ENVIRONMENT AGENCY SOUTH WEST

SOUTH WEST REGIONAL FLOOD & COASTAL COMMITTEE –10th January 2019

PAPER BY: **AREA FLOOD AND COASTAL RISK MANAGER and FLOOD AND COASTAL RISK MANAGEMENT – SENIOR TEAM LEADER (PROGRAMME)**

TITLE: **FINANCIAL AND BUSINESS PLANNING - 2018/19 PROGRESS REPORT AND FUTURE PROGRAMME**

RECOMMENDATIONS
The Committee is recommended to:
- Note the content of this report

1. Overview

- 6 year Outcome Measure (2&3) forecast slightly ahead of programme.
- Financial forecast at the end of November is on track against the budget allocation.
- The Environment Agency asset maintenance programme on schedule.

2. 2018/19 Programme (detail to be presented at the meeting)

2.1. Key Metrics *Figures at 30 November 2018*

Description	Spend to date £m	Year End Forecast £m	Target/Budget £m
Capital			
Total spend on all FCRM activities	19.7	34.8	36.0
EA Capital Programme GiA	16.6	23.7	25.2
RMA Capital Programme GiA	1.6	7.3	5.3
Partnership Funding (exc. Local Levy)	2.0	2.6	3.4
Local Levy Spend	0.3	1.2	2.1

Outcome Measures	Delivered to date	Year End forecast	Target/estimate
Outcome Measure 2	150	5,675	4,744
Outcome Measure 3	0	49	33
Outcome Measure 4a	0	146	146
	Actual to date £m	**Year End Forecast £m**	**Target/Budget £m**
Efficiencies	0.9	?	2.9

2.2. Capital Programme Overview 2018/19

2.2.1. We are forecasting to exceed the 'in year' target for outcome measures. We are currently waiting for the National Team to confirm the new target for the programme following the recent refresh and local choices.

Outcome Measure 2/3 progress against the consented programme of February 2018.

	15/16	16/17	17/18	18/19	19/20	20/21
Consented	474	1,191	1,425	5,196	2,374	2,383
Consented Cumulative	474	1,665	4,823	10,019	12,393	14,776
Actual / Forecast	**447**	**822**	**3,589**	5,675	2,641	2,383
Cumulative **Actual**/ Forecast	**447**	**1,269**	**4,843**	10,785	12,393	14,776

2.2.2. All Partnership Funding (non-Local Levy) has been secured for this year. We have re-balanced the use of this funding following the local choices exercise.

2.2.3. Local Levy spend to date is below expected, as is the end of year forecast spend at £0.2m and £1m respectively. Currently we do not expect to spend this year's £1.7m programme allocation. This underspend reflects previous trends. The Local Levy paper sets out this in more detail and includes the new bids for funding which reflects the opportunity to make good use of the balances we currently hold.

2.3. Revenue Maintenance Overview 2018/19

The revenue maintenance programme is on schedule. At the end of October, we had completed 67% of the programme. Overall the budget is likely to be overspent this year by around £1m due to the emergency pumping operation at Loe Bar. This is now reducing its monthly cost and the capital work is in progress.

3. Flood Defence Grant in Aid (EA and LLFA GiA) Capital Schemes

3.1. Environment Agency

Our current GiA forecast is £1.2.m below the allocation. There have been changes to forecasts across the programme, however we have seen increases particularly from the emergency works at Loe Bar outfall (£1.6m) and Budleigh Salterton Bank (£200k).

As our allocation was derived from a nationally over-programmed pot, we need to outturn less than the £25.2m we received so that the national programme is balanced at the end of the year.

We are revising forecasts this year in line with the refresh / local choices as we now have projects that do not have funding for the rest of the programme. These will be paused until the next programme starting in 2021/22.

So far this year we have reduced flood risk to a total of 150 properties (108 - Paignton Green; 28 - Padstow stream; 14 – Bodmin Town Leat). Almost all of the remaining OMs are forecast to be delivered in Q4, with the associated risk of slippage, however we are work to ensure that this is minimal.

3.2. Risk Management Authorities

The GiA forecast is £7.3m, which is greater than then allocation of £5.3m. The emergency capital works at Loe Bar (£1.6m) are reflected here as this was claimed through the Coastal Emergency funding route. The works at Whimple and Plymouth have also been included in this programme following our successful bid into the Governments £36m acceleration fund.

Claims made this year include:
Braunton Flood Improvements, Cockington Flood Alleviation Scheme, DCC PLP, Exmouth Rock Replenishment, Kenton Flood Improvements, Modbury Flood Improvements, Monksbridge Flood Alleviation Scheme, Bideford Culvert Replacement, Uplyme Flood Resilience Scheme.

We continue to encourage RMAs to make claims for GiA in the year is has been bid for.

4. Local Levy (see Local Levy paper)

Our Local Levy forecast spend is currently around £900k lower than the approved programme. This shortfall is due to reduced forecasts against projects that are delayed and is further discussed in the Local Levy paper.

Projects identified as requiring Local Levy funds are:

- Exeter Surface Water - £50,000
- Stibbs Lane, Ivybridge - £70,000
- Devon PLR - £60,000
- Sidmouth Surface Water Improvements - £70,000
- Stokeinteignhead Flood Improvements - £120,000
- The Barbican, West Pier - £150,000
- Mounts Bay - £270,000
- Teignmouth Beach Management Plan - £155,000
- Corry and Coly NFM - £50,000

For further details of these and previous conditional Local Levy allocations see Local Levy paper.

5. Contributions 18/19

We are now forecasting that £2.6m of contributions (excluding Local Levy) will be drawn down to support this year's programme. This has been adjusted due to the re-balancing of funding this year to maximise use of FDGiA in future years. (e.g. Exeter scheme).

6. Outcome Measures (OM2, 3 and OM4)

6.1. Outcome Measure 2 (Flood Risk) and 3 (Coastal Erosion)

The majority of the outcome measures are reliant on two significant projects (Exeter and Starcross) delivering in Q4. If delays are encountered on these projects, it will not be possible to achieve the in-year target. However, as these projects are in construction there remains a high degree of confidence that they will deliver in Q4. We are working hard to minimise slippage across the programme.

6.2. Outcome Measure 4 – water dependant habitat created

Environmental outcomes recorded under OM4 cover the 6 year programme from 2015 to 2021; they do not change significantly on a quarterly basis. The Environmental sub group have been reviewing the delivery of OM4's and this was discussed the meeting in December.
We have 4 partnership schemes (Culm grassland, Exmoor Mires, Tamar estuary and River Camel restoration) which will deliver between 75 – 95 % of all the OM4's identified. Please see Appendix A for more details.

7. Efficiencies

We are currently behind the in-year target for efficiencies, however, the cumulative position for the programme is ahead of the target.

We continue to encourage all contributors in the delivery partnership to help towards this condition of the Grant in Aid allocation.

8. 6 Year Capital Investment Programme

8.1. Capital Programme Refresh 2019/20

Following the Capital Programme refresh in June 2018, and the following local choices exercise, we are now awaiting the response from the national team. This will then give us the revised programme that will be consented in February 2019.

Many EA schemes are now not funded for the remainder of the programme. Plans are being put in place to bring these projects to a sensible position to pause them until at least 2021/22. This will have an impact (minimal) on the forecast for spend this year (2018/19), and also on the communities that will remain at risk.

8.2. Support Schemes Refresh 2019/20

In addition to the Capital Programme Refresh process, we submitted bids for the revenue and support schemes. The allocations for these are as follows:
Hydrometry and Telemetry - £245,000
Flood Resilience - £20,000
Modelling and Forecasting - £537,000
Reconditioning works - £300,000
Environmental schemes - £296,000

8.3. Government special funds

Acceleration Fund
The projects at Laira Avenue/Lipson Vale, Plymouth and Whimple are progressing as planned and will deliver the outcomes in the 6-year programme.

Deprived Communities Fund
The projects at Par/St Blazey, Paul Stream (Mousehole) and Portreath are all progressing as planned and are expected to deliver the outcomes in the 6-year programme.

9. 2019/2020 Revenue Maintenance allocation and 5 year programme

Our 2019/2020 and 5 year Revenue maintenance bid is detailed below and we are continuing to develop the 2019/2020 programme of maintenance work.

Area	2019 (£)	2020 (£)	2021 (£)	2022 (£)	2023 (£)
Devon and Cornwall	6,848,400	5,995,628	5,581,970	4,524,009	4,123,219

Ben Johnstone
Area Flood and Coastal Risk Manager

Jenny Hart
FCRM Senior Team Leader - Programme

Explanation of terms used

Maintenance

- Frequent Maintenance – Generally those activities which occur more frequently than once every five years
- Intermittent Maintenance – Usually replacement or changes to existing assets or additional Health and Safety or enforcement work
- Routine Maintenance – Frequent and Intermittent (Revenue funding)
- Non-routine Maintenance – Recondition, Capital Maintenance (Capital funding)
- Minimum Needs – The lowest unavoidable cost to maintain statutory compliance and operational readiness for a system over a 12 month period accepting that the Standard of Service may decline as a result.
- Identified Needs – The optimal solution required to manage the system to achieve its desired target condition
- Recondition – Capital maintenance to restore an assets to target condition of value ≤ £100k per asset.
- Capital Maintenance – Work to restore a failing asset/s that does not improve the standard of service or protection (i.e. the height of an existing flood wall).
- Standard of Protection - The effect of the asset on the flood risk. The standard is often measured in a return period such as 1:100. The Standard of Protection is determined partly by the asset's design and current condition but also by other factors such as climate change and altered river flows.
- Standard of Service - The performance of the asset at a point in time. When an asset is built, it has a designed performance such as a crest level. The 3Standard of Service begins to fall once the asset reaches the end of its residual life or when defects reduce its performance below that required.
- System Asset Management Plans (SAMPs) are tactical long term plans for the management of assets forming individual Flood Risk Management systems.

Programmes

- Capital – Funding for scheme and non scheme capital projects
- Revenue – Funding for staff, support costs and non capital eligible projects e.g. asset inspections and surveys.
- Capital Schemes – Projects including Capital Maintenance, New Flood Defences or individual Property Flood Resilience.
- Support Scheme – Projects including Modelling and Mapping, Telemetry sites and Fish and Eel passage.
- FDGiA Bid – The bid for Flood Defence Grant-in-Aid usually the sum of the proposed programme.
- Proposed Programme – The programme of work for that year submitted to National for funding approval.
- Indicative Allocation – The amount of funding initially allocated by DEFRA in response to the proposed programme.
- Local Choices – The process where RFCCs prioritise key projects at a local level.
- Final allocation – The final amount of funding allocated by DEFRA following each regions local choices.
- Affordable Programme – The key list of projects which make up the programme.
- Over Programme – A smaller additional list of projects which pick up any attrition in the affordable programme. These may or may not be delivered depending on the financial position nationally. Surplus funding may be allocated to deliver these projects in addition to the affordable programme but this is not guaranteed.

ITEM 4b

SWRFCC/19/11

Appendix A: Update on environmental outcomes (OM4) from FCRM Capital Programme 2015 – 2021.

1. Introduction

Environmental outcome measures were originally recorded as part of the current 6 year FCRM capital programme from 2015 onwards. Initially there were 3 measures (OM4 a-c); these were expanded in April 2017 to include a further 5 measures (OM4 d-h), to better reflect the range of environmental outcomes from FCRM schemes. The outcome measures are defined in Appendix 1.

OM4 measures have changed significantly during the first four years of the programme. This update includes the reduction in FDGiA and therefore excludes those schemes which will not proceed until the next 6 year programme.

2. Results

Figure 1 on page 3 shows the predicted outcomes originally set out in 2015 and the likely forecast for OM4's by 2021, supported by Table 1 on page 4. 35 FCRM schemes originally identified OM4 outcomes in 2015, however the number of schemes contributing to OM4 has reduced significantly and of the 180 schemes in the current programme only 14 are now forecast to deliver OM4's.

In addition 4 of the original 10 environmental support schemes are underway with high confidence in delivery of OM4's by 2021. These 4 partnership schemes (Culm grassland, Exmoor Mires, Tamar estuary and River Camel restoration) deliver between 75 – 95 % of all the OM4's identified.

The figures for OM4a have increased by 134 ha from the original 2015 forecast with major contributions to WFD objectives from Helston (Loe Pool), culm grassland and Exmoor Mires. OM4b has decreased significantly due to reductions in the amount of intertidal habitat being created within the Tamar estuary, the loss of forecast intertidal habitat at Clyst St Mary, Wrafton and Wadebridge which will not be funded in the current programme, and on the Lower Otter which will not start construction until 2021/22. The length of SAC rivers enhanced (OM4c) is largely unchanged due to the successful Water 4 Growth project on the River Camel.

The figures for OM4d (kms of WFD water body enhanced) are low and warrant further review to ensure WFD requirements are integrated with FCRM work where possible. The length of river enhanced (OM4f) and opened up for fish passage (OM4e) is significant again due to the Water 4 Growth project on the River Camel.

The area of existing habitat enhanced (OM4g) is significant and is mainly focussed on SSSI's with a major contribution from the Helston scheme by achieving better control of water levels within Loe Pool which will restore the SSSI to favourable condition. 162 ha of new habitats will be created (OM4h) by 2021, this includes the 36 ha of intertidal recorded under OM4b.

3. Key points

This update has:

- Highlighted the need for more accurate reporting of environmental outcome measures internally
- Identified the need to establish a habitat loss and gain account for the Area to clearly identify net gains.
- Emphasised that there is little opportunity for environmental enhancements on many traditional FCRM schemes. Where opportunities do exist it is not always possible to achieve benefits due to insufficient funding or lack of support from landowners.
- Highlighted that most of the OM4 benefits have been delivered through the environmental support (ENV coded) schemes in the current programme; in particular Exmoor Mires, the R Camel restoration and the Culm grassland schemes have delivered good value for money.

Lyn Jenkins

V3 22 Nov 2018.

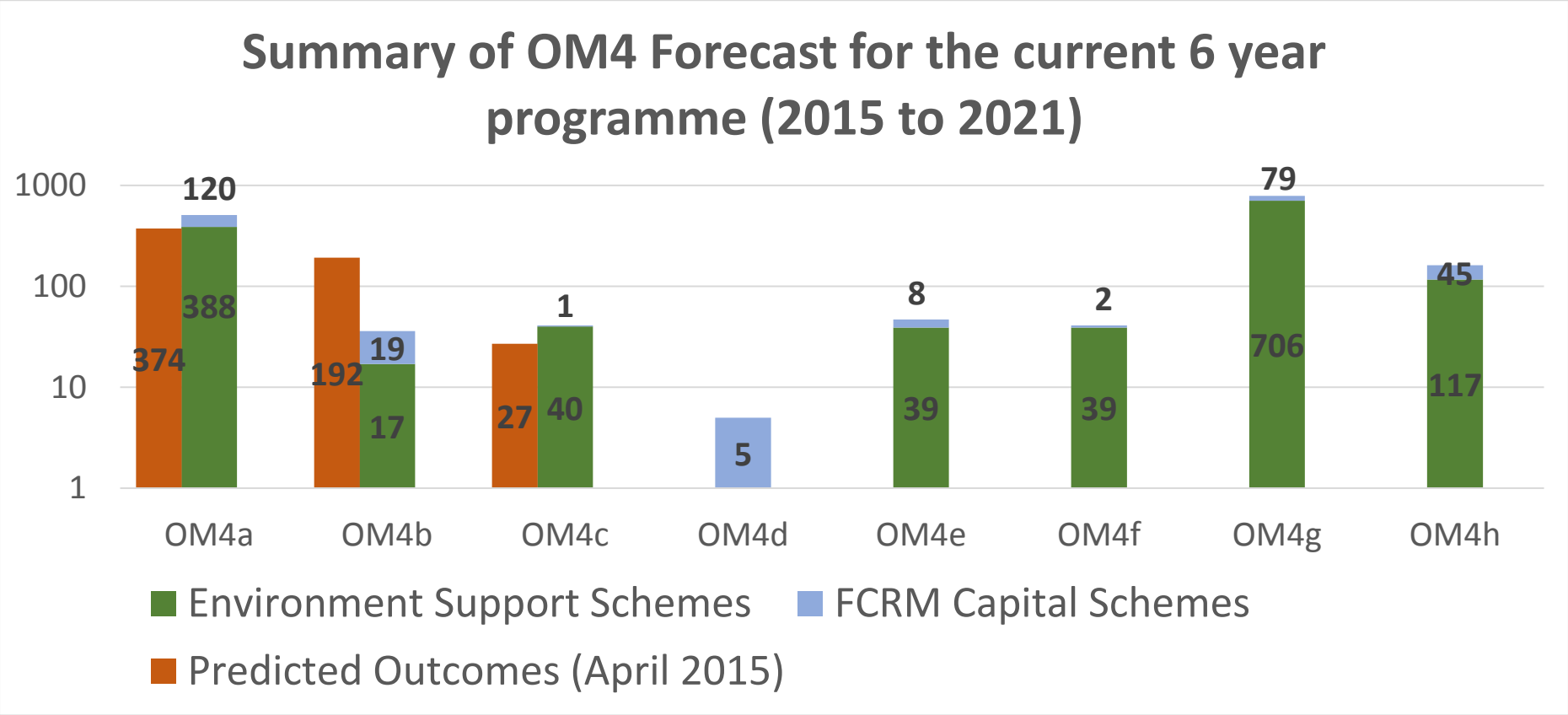

Summary of OM4 Forecast for the current 6 year programme (2015 to 2021)
1000
100
10
1
120
388
374
192
19
17
1
27
40
5
8
39
2
39
79
706
45
117
OM4a
OM4b
OM4c
OM4d
OM4e
OM4f
OM4g
OM4h
Environment Support Schemes
FCRM Capital Schemes
Predicted Outcomes (April 2015)

Table 1: Results of OM4 recorded during the current 6 year investment programme 2015 – 2021.

Timeframe	**OM4a ha of water dependent habitat created or improved to meet WFD.**	**OM4b ha of intertidal habitat created**	**OM4c kms of SAC river improved.**	**OM4d kms of WFD water body enhanced**	**OM4e kms opened for fish**	**OM4f kms of river habitat enhanced**	**OM4g ha of habitat enhanced**	**OM4h ha of habitat created.**
Predicted outcomes April 2015	374	192	27					
Revised forecast (June 2018)	336	100	63.5	4	92.9	0.5	685	171
Revised forecast Nov 2018 (post refresh and FDGiA reduction**)	508	36	41	5	47	41	785	162
Comments	High confidence in delivery by 2021. Main schemes: Anchorwood, Exeter FDS, Helston (Loe Pool), Culm grassland, Exmoor Mires.	0 ha delivered to date. 36 ha high confidence in delivery by 2021 Three schemes: Anchorwood, Calstock, Tamar estuary (South Hooe).	30 kms delivered to date with a further 11 Kms high confidence in delivery by 2021 3 schemes: R Camel restoration, Calstock, Tamar estuary (South Hooe).	0 kms delivered to date. One scheme Dartmoor NFM	30 kms delivered to date with a further 9 kms with high confidence in delivery by 2021 Three schemes: R Camel restoration, Exeter FDS and Dartmoor NFM	30 kms delivered to date Three schemes: R Camel restoration, Exeter FDS and Dartmoor NFM	424 ha delivered / high confidence in delivery by 2021 Main schemes: Dawlish Warren BMS, Helston (Loe Pool), Culm grassland, Exmoor Mires.	110 ha delivered / to date. Main schemes: Anchorwood, Exeter FDS, Calstock, Helston (Loe Pool), Culm grassland, Tamar estuary.

** excludes Lower Otter which will not deliver by 2021.

Appendix A. OM4 definitions

The table over page summarises the OM4 measures. There are two groups

• 'New' Measures (OM4 d to h): these were introduced at Defra's request to demonstrate a wider range of environmental outcomes than the 'old' measures.

• 'Old' Measures (OM4 a to c): these are a subset of the new measures and are shown in italics in the table over the page. The table shows how they fit under the 'new' measures. These measures can attract FCERM Grant-in-Aid funding by entering them into the partnership funding calculator.

Headline Outcome Measure	Name		Measure
Kilometres of water body enhanced through FCRM	Km of WFD water body enhanced through FCRM	OM4d	A measure or action implemented as part of a FCRM scheme that helps a WFD water body improving towards Good Ecological Status (GES) or Good Ecological Potential (GEP)
	Km water body opened up to fish / eel passage through FCRM	OM4e	A measure or action that addresses an obstruction or abstraction that currently prevents fish and/or eel passage along a water body so that fish and/or eels can migrate beyond the obstruction/ abstraction
	Km of river habitat (including SSSI) enhanced through FCRM	OM4f	A measure or action implemented as part of a FCRM scheme that either: - Implements an identified 'remedy' agreed with Natural England as being FCRM's responsibility, for a component SSSI unit of a designated SAC, SPA and/or SSSI (as recorded in Natural England's CMSi database) - Restores, improves or enhances (undesignated) priority habitat as identified as a 'Habitat of Principal Importance' under §41 of the Natural Environment & Rural Communities Act 2006. *May also qualify as OM4c (Kilometres of rivers protected under the EU Habitats/Birds Directive improved to help meet the objectives of WFD) and attract £80,000 per km in the Partnership Funding Calculator.*
Hectares of habitat enhanced through FCRM	Ha of habitat (including SSSI) enhanced	OM4g	A measure or action implemented as part of a FCRM scheme that either: - Implements an identified 'remedy' agreed with Natural England as being FCRM's responsibility, for a component SSSI unit of a designated SAC, SPA and/or SSSI (as recorded in Natural England's CMSi database) - Restores, improves or enhances (undesignated) priority habitat as identified as a 'Habitat of Principal Importance' under §41 of the Natural Environment & Rural Communities Act 2006 *May also qualify as OM4a (Hectares of water dependent habitat improved to help meet the objectives of WFD) and attract £15,000 per hectare in Partnership Funding Calculator.*
Hectares of habitat created through FCRM	Creation of any new freshwater/intertidal/ other habitat	OM4h	A measure or action that creates any new Habitats of Principal Importance 'Habitat of Principal Importance' under §41 of the Natural Environment & Rural Communities Act 2006 – freshwater, intertidal or other. *May also qualify as OM4a (Hectares of water dependent habitat created to help meet the objectives of WFD) and attract £15,000 per hectare in Partnership Funding Calculator (PFC) or OM4b (Hectares of intertidal habitat created to help meet the objectives of WFD for areas protected under the EU Habitats/Birds Directives) and attract £50,000 per hectare in PFC*

UKCP18 Headline Findings

The climate is changing. Even given strenuous efforts to limit the cause of global warming, further climatic changes are inevitable in the future. The UK needs to manage the growing risks from climate change. In order to adapt and build resilience, up-to-date information on climate change is needed to inform decision-making. UKCP18 is the fourth generation of national climate projections for the United Kingdom and will provide users with the most recent scientific evidence on projected climate changes with which to plan for the future.

It is therefore a cornerstone principle of resilience preparation that we plan for a wide range of possible future changes, in parallel with taking actions to reduce the likelihood of the worst scenario becoming reality. So, while we continue to play a leading role in international efforts to keep the global temperature rise to well below 2 °C and pursue efforts to limit it to 1.5 °C (by reducing our own emissions, supporting the developing world to do the same and contributing to global diplomatic and scientific efforts), our adaptation plans should include preparation for worse climate change scenarios.

Here we provide headline findings for both low (RCP2.6) and high (RCP8.5) greenhouse gas emission scenarios. For more information on the new scenarios and how they compare to UKCP09 see the online explainer 'A guide to Representative Concentration Pathways (RCPs)'.

Introduction

- **The UK Climate Projections 2018 (UKCP18) are the first major update to the UK's national climate change projections for nearly 10 years.** The information available will equip government, business and other interested parties to assess the challenges and opportunities we face from our changing climate.

- **The projections are based on the latest developments in climate science and were subject to an independent peer review, from the commencement of the project, to assess the science and methods that underpin UKCP18.**

- **Building on the learning from UKCP09, user groups for government and wider society, along with the peer review panel, have helped to shape UKCP18, co-designing tools and capabilities to better meet user needs.** For example, (i) changing the format of the data that is provided to the widely-used Ordnance Survey's coordinate system, (ii) an enhanced user interface that uses the latest web design and (iii) providing datasets that represent UK climate in scenarios of 2 °C and 4 °C of global warming.

- **Like UKCP09, UKCP18 includes estimates of the range of probable outcomes of future climate.** UKCP18 uses newer climate models, additional observations and more recent views of how emissions may change in the future. These improvements increase our confidence in the ranges of future climate over the UK.

- **UKCP18 adds tools and capabilities, providing new insight compared to the previous projections, thus enhancing capacity for analysing climate risks.** For example, UKCP18 includes projections for the globe, enabling projected climate changes on the UK to be examined in a global context.

- **Climate science is continually advancing.** In 2019, additional projections will be provided, to complement those launched in November 2018, at finer spatial scales comparable to those used for weather forecasting. This high resolution data will provide information on events such as localised heavy summer rainfall, which can result in flash floods and surface water floods.

- **Like UKCP09, products and services will continue to be developed following the launch.** A UKCP18 helpdesk will be available for users to raise queries and provide comment. Feedback will be used to continually evolve and improve products and services to better suit user needs.

Observations

In the most recent State of the UK Climate 2017 report, trends show that the UK climate is continuing to warm and that sea levels continue to rise.

- The average temperature over the most recent decade (2008-2017) has been on average 0.3 °C warmer than the 1981-2010 average and 0.8 °C warmer than the 1961-1990 average. Nine of the ten warmest years have occurred since 2002.

- The longest running instrumental record of temperature in the world, the Central England Temperature dataset, shows that the most recent decade (2008-2017) was around 1 °C warmer than the pre-industrial period (1850-1900). This temperature rise in the UK is consistent with warming that has been observed at a global scale, of around 1 °C since pre-industrial.

- The average hottest day of the year, in the most recent decade (2008-2017), has been on average 0.1 °C warmer than the 1981-2010 average and 0.8 °C warmer than the 1961-1990 average hottest day of 26 °C.

- In the past few decades there has been an increase in annual average rainfall over the UK, particularly in Scotland for which the most recent decade (2008-2017) has been on average 4% wetter than 1981-2010 average.

- Summers in the UK, for the most recent decade (2008-2017), have been on average 17% wetter than 1981-2010 and 20% wetter than the 1961-1990 average. However, very long-period natural variations are also seen in the longer observational record.

- Total rainfall from extremely wet days (days exceeding the 99th percentile of the 1961-1990 rainfall) has increased by around 17% in the most recent decade (2008-2017), for the UK overall. However, changes are largest for Scotland and not significant for most of southern and eastern England.

- Mean sea level around the UK has risen by about 16 cm since the start of the 20th century (when corrected for land movement).

Projections Over Land

General climate change trends projected over UK land for the 21st century are broadly consistent with earlier projections (UKCP09) showing an increased chance of milder, wetter winters and hotter, drier summers along with an increase in the frequency and intensity of extremes.

- **When we compare the full range of possible outcomes from UKCP09 and UKCP18 there is a great deal of overlap, although users may want to investigate differences.** For example, in the extreme ends of the ranges.

- **By the end of the 21st century, all areas of the UK are projected to be warmer, more so in summer than in winter.**

- In UKCP18, the probabilistic projections provide local low, central and high changes across the UK, corresponding to 10%, 50% and 90% probability levels. These local values can be averaged over the UK to give a range of average warming between the 10% and 90% probability levels. By 2070, in the high emission scenario, this range amounts to 0.9 °C to 5.4 °C in summer, and 0.7 °C to 4.2 °C in winter.

- **Hot summers are expected to become more common.** In the recent past (1981-2000) the chance of seeing a summer as hot as 2018 was low (<10%). The chance has already increased due to climate change and is now between 10-20%. With future warming, hot summers by mid-century could become even more common (~50%).

- **Rainfall patterns across the UK are not uniform and vary on seasonal and regional scales and will continue to vary in the future.**

- In UKCP18, the probabilistic projections provide local low, central and high changes across the UK, corresponding to 10%, 50% and 90% probability levels.

These local values can be averaged over the UK to give a range of average precipitation changes between the 10% and 90% probability levels. By 2070, in the high emission scenario, this range amounts to -47% to +2% in summer, and -1% to +35% in winter (where a negative change indicates less precipitation and a positive change indicates more precipitation).

- **In addition, UKCP18 enables users to explore projected climate variability and changes for a greater range of metrics using new global and regional climate model outputs.**

- **The global models provide 28 alternative views of the climate in the future and allows users to maintain consistency across their area of interest, as well as looking at a greater number of climate variables.** This enables users to look at global climate impacts, for example, risk assessments on global food supply chains.

- **Regional model projections enable users to look at greater detail over the UK including a greater focus on climate extremes,** for example, localised heavy rainfall for flood risk assessments.

Marine Projections

A new set of marine projections show that sea level around the UK will continue to rise to 2100 under all emission pathways.

- **The pattern of sea level rise is not uniform across the UK.** Sea level rise is less in the north and more in the south, this is mainly due to the movement of land, up and down.

- For London, sea level rise by the end of the century (when compared to 1981-2000), for the low emission scenario is very likely[1] to be in the range 0.29 m to 0.70 m. For a high emission scenario, the range is very likely to be 0.53 m to 1.15 m.

- For Edinburgh, sea level rise by the end of the century (when compared to 1981-2000), for the low emission scenario is very likely to be in the range 0.08 m to 0.49 m. For a high emission scenario this range is very likely to be 0.30 m to 0.90 m.

[1] *The IPCC use likelihood to provide a standardised language for describing quantified uncertainty. It can be used to express a probabilistic estimate of the occurrence of a single event or of an outcome (e.g., a climate parameter, observed trend, or projected change lying in a given range). A statement that an outcome is 'very likely' means that the probability of this outcome can range from ≥90% to 100% probability. This implies that all alternative outcomes are 'very unlikely' (0-10%).*

- **We can continue to expect increases to extreme coastal water levels driven mainly by increases in mean sea level rise, although we cannot rule out additional changes in storm surges.**

- **UKCP18 includes exploratory estimates of sea level rise out to 2300, which show continued rise beyond 2100.** Sea level rise is a long-term challenge that initial results suggest varies substantially depending on how successful we are at curbing global greenhouse gas emissions in the coming years.

- **UKCP18 sea level rise is projected to be higher than in UKCP09, but this increase has already been factored into current adaptation planning**. Due to the new treatment of land ice contribution to sea level rise, UKCP18 is higher than UKCP09. For example, the upper end of the range of sea level rise in UKCP18, for the high emission scenario for London, is around 25 cm higher than in UKCP09 at 2100. This is not unexpected and has been factored into adaptation planning.

What does this mean?

The headline results in the latest set of climate projections are broadly consistent with UKCP09, although there are some differences (e.g. temperature and rainfall) that may be important for climate risk assessments. The differences between UKCP09 and UKCP18 depend on season, location and greenhouse gas emission scenario. Risk assessments and adaptation decisions should use these new projections but will also need to be regularly reviewed to ensure they take account of the latest scientific understanding, longstanding and emerging vulnerabilities, as well as changing socio-economics for example.

- **Government will make use of UKCP18 to inform its adaptation and mitigation planning and decision-making.**

- **The previous set of projections, UKCP09, were used to assess climate risks for the 2017 UK Climate Change Risk Assessment and inform how to respond to these risks (National Adaptation Programme).** UKCP18 will provide the most up-to-date assessment of how climate in the UK is expected to change over the coming century and will be used to inform the next CCRA, due in 2022.

- **UKCP18 will help businesses and individuals to take action to improve resilience.** Web pages have been designed and tested to enable users to access information quickly depending on what people want to use it for, as well as being able to visualise the results. Guidance materials describe the different components of the project in detail and explain how to use them.

ITEM 7
SWRFCC/19/13

Environment Agency - Devon, Cornwall and Isles Of Scilly

South West Regional Flood & Coastal Committee

Paper By: Area Flood & Coastal Risk Manager

Subject: Area Flood & Coastal Risk Manager's Report

RECOMMENDATION

The committee is asked to:

1) Note the content of the report and the work undertaken on behalf of the committee to reduce flood and coastal risk

REPORT HIGHLIGHTS

- Comprehensive training and exercising of incident management duty staff to ensure we're winter ready and resilient.
- Community resilience support expanded due to training and grants from the Emergency Flood Resilience Fund.
-
- Significant resource will continue to be needed to manage residual flood risk now and into the future.
- Continuing to provide better protection to households, businesses and infrastructure through ongoing maintenance, creation of flood risk management schemes, and influencing new development.

1. Incident Response

1.1. Flood Warnings Issued

Activity for the period 29 August to 31 October 2018 is shown below.

	Cornwall Tidal	Cornwall Fluvial	Devon Tidal	Devon Fluvial	Total
Flood Alert	12	3	8	6	**29**
Flood Warning	2	0	2	0	**4**
Severe Flood Warning	0	0	0	0	**0**
Pilot Warnings & Alerts	0	0	0	0	**0**
Gate Closures	32	0	5	0	**37**

1.2. Flood Incidents

Over the period 29 August to 31 October 2018, there have been no notable tidal or fluvial flood events across DCS Area, requiring heightened response.

1.3. Flood Resilience & Incident Preparedness

Community Emergency Plans
We're continuing to provide targeted support to help flood action groups across Totnes, Teignmouth, East Budleigh, Exmouth, Brixham, Starcross, Cockwood, Horrabridge, Lympstone, Topsham, Budleigh Salterton, Buckfastleigh, Tiverton and Exeter St Thomas to prepare for emergencies such as flooding.

Lottie with her mother Amy at home in Tiverton (Source: Devon Live)

Tiverton Town Council recently received external praise for their Community Emergency Plan.
A mother has expressed her thanks to Tiverton Town Council for helping to establish a community landing site for Devon Air Ambulance (DAA). The community landing site provided vital help to her family, when her daughter suffered a severe burn. "Within 25 minutes, we had landed at Southmeads Hospital in Bristol and then transferred to Bristol Children's Hospital," (Amy Guscott, Mother). She added: "There is no doubt that the speed that DAA got Lottie to hospital made a world of difference. Exeter does not have a specialist burns unit so getting her quickly to the right treatment was also very important. It looked really bad at the time but Lottie has healed amazingly well."

This testimonial is just one example of the wider benefits of helping communities to prepare emergency plans to respond to the possibility of flooding.

Meanwhile, Topsham's Flood Group are trailblazing a new approach to identify vulnerable people in their community. Jane Fletcher-Peters, who has helped Topsham Flood Group to develop their Community Emergency Plan, has said, "The Flood Group have established a partnership with Estuary League of Friends and their local health centre, so that they can help emergency responders to direct help where it may be needed most in an emergency, rather than maintain their own sensitive records of vulnerable people. This is a really effective and efficient approach. I'm keen to promote this case study so that other communities may replicate this model."

Devon Community Resilience Forum and **Cornwall Community Flood Forum** are expanding community resilience support across the Area, thanks to SWRFCC funding made available this year.

Devon Community Resilience Forum have awarded 7 grants from the Emergency Flood Resilience Fund to:

- Thornbury Parish Council
- Bampton Town Council
- Newton Poppleford & Harpford Parish Council
- Buckfastleigh Parish Council
- Braunton Parish Council
- Harberton Parish Council
- Rattery Parish Council

Of the 7 approved grants 2 communities had existing up to date Emergency/Flood Plans. One community submitted a new Emergency Plan and another community submitted an updated plan. The other three communities are committed to producing plans this autumn.

Cornwall Community Flood Forum's annual conference was held in Truro on 2 November, with a focus on Natural Capital and the vision for the future. Over 100 people met to hear from speakers from Forest Enterprise, the National Flood Forum and others discuss the impacts of flooding and severe weather across the county and the importance of Natural Capital.

George Eustice MP praised the way we were working with Cornwall Council and others to protect and enhance communities across Cornwall.

Ben Johnstone shared how we are using Natural Flood Management alongside traditional flood defences to protect communities while Philip Rees, Chair of SWRFCC talked of the funding challenges the area faces over the next few years.

Portreath Flood Group and St Ewe Parish Council explained how they developed their own emergency plans to minimise the impacts of flooding in their communities. Cllr Joyce Duffin described how she successfully activated Portreath's emergency plan when the sea wall collapsed during Storm Eleanor this year.

Community Volunteers Operating New Flood Defence Schemes

Starcross & Cockwood Flood Warden Training

Community volunteers from Cockwood and Starcross gathered at Starcross Pavillions on 3 October to receive training on how to operate the tidal flood gates, as construction of the new scheme approached completion. Starcross are repairing their Church Bells as the flood warning contingency for their community, to ensure there's a trigger to operate the tidal flood gates, thanks to local funding.

1.4. Flood Warning Duty Officer Training

Know the Patch Visits

We've completed another successful series of 'Know your patch visits' for our duty officers.

Highlights included visits to Truro, Ladock, Exeter, Dawlish Warren, Starcross and Cockwood**.**

Truro, and Ladock included an in-depth review of the at risk communities, the operation of the Newmills and Idless dams, as well as sharing knowledge and experience of past events.

The visits to Exeter, Starcross and Cockwood allowed our duty staff to familiarise themselves with the new flood defences schemes, operating procedures and community warning updates.

One of our trainee flood warning duty officers Kate Cheetham, has said, "The 'know your patch visits' are really useful to understand flood mechanisms, impacts to communities and operations of flood defence schemes. They have been invaluable during an incident, in terms of my own personal understanding of our procedures and being able to communicate this to other colleagues and the public".

Flood Warning Duty Officer Meeting at Roadford Lake Centre, Okehampton
Over 50 flood warning officers from both our Devon and Cornwall offices attended our joint annual meeting at the Roadford Lake Centre. The day consisted of workshops, training and presentations.

Highlights from the day include training in the use of Joint Emergency Services Interoperability Principles (JESIP). Officers had the opportunity to use the JESIP app which provides essential information required to support an effective multi-agency emergency response.

Incident management remains one of our top priorities and the Major Incident Ready2 (MIR²) Project continues to build on the work over the last few years. Our Implementation manager Adrian Buss highlighted the projects ambitions over the next year. These include incident management role harmonisation which will assist with requests for mutual aid and the drive for an incident management Centre of Excellence.

A workshop was held to introduce and gather feedback on our new Emergency Response Procedure Manual (ERPM). We highlighted the benefits of the new system and more efficient ways of working for Flood Resilience (FR) and Modelling and Forecasting (M+F) teams. We are aiming for the new system to go live in April 2019.

The feedback FR receives from these meetings enables us to tailor training programmes, identify skills/tools gaps; all of which continues to improve Devon and Cornwall's key performance indicators, and builds a consistent service for customers and partners.

Sophie Steele, our new team leader for the Devon and Cornwall Flood Resilience Team, has said, "It was great to see such a good turnout for the Flood Warning Duty Officer Meeting. Having officers from both Devon and Cornwall all in one room really helps share experiences and ideas for improving the service our customers receive".

Real time customer feedback dashboard
Through our Live Flood Warning service on GOV.UK. our Flood Digital team have developed a real time customer feedback dashboard. The dashboard is designed to aid duty teams in providing valuable, high quality and timely flood warning messages to customers.

This dashboard can be displayed in Area incident rooms. The feedback gathered through the tool could include valuable information about flood impacts in communities, and may also help duty teams to improve flood warning messages in real time.

1.5. Operational Flood Incident Response Training

The field teams were actively involved in an Incident Response Pollution training day based on the Newquay Airfield recently. The day was headed-up by Adrian Buss our MIR co-ordinator in conjunction with the Newquay Airport Emergency Response Staff. The exercise was designed to simulate an aviation fuel spill from a stricken Aircraft crash landed on the apron. Two Fire trucks were used to simulate the spilled fuel depositing their entire tanks simultaneously (dyed water) on to the apron. The field teams were then challenged to deploy their Oil Spill Booms to contain the spillage as effectively as possible.

For this purpose, a section of Watergate Flood barrier was utilised/deployed as part of the training exercise. Moreover, the team assembled and deployed our fast tank and skimming equipment/pumps to extract as much of the fluid as possible there thus minimising/reducing the impact of the Incident.

The images below give an overview of the day's events:


WATER-GATE.COM

2. Asset Management

2.1. Frequent Maintenance

We are reviewing our maintenance to increase biodiversity on the Bolingey Stream. For example, during the Asset Performance Team Environmental Leave Day we sowed wildflower seeds along the embankments of Bolingey stream.
Otherwise the field teams have been busy following their maintenance programme, which includes grass cuts and channel clearance.

2.2. Intermittent Asset Maintenance

St Erth embankment, River Hayle

Field Services have been onsite widening the berm beside the River Hayle and reshaping 300m of flood embankment to improve operative safety when tracking machinery along the river to carry out future grass cuts and channel clearances. This reduces the risk of ride on plant falling into the river, complying with the 2m control zone operating instruction as well as reducing the cost of frequent maintenance and increasing efficiency. Similar works were completed earlier this year on the opposite bank and is re-establishing well.

St Erth flood embankment works on the River Hayle. Completed works on the right bank. Current works on the left bank.

New Mills flood storage reservoir, River Kenwyn

New telemetry has been installed at New Mills flood storage reservoir on the River Kenwyn in Truro to improve our monitoring and incident response. Our Field team is now improving access to the channel, improving vehicle access and installing a new kiosk, above the 1 in 1000 year flood level, to increase the resilience of the defence

New telemetry, access improvements at New Mills flood storage reservoir, River Kenwyn.

Yeolmbridge Regrading, River Ottery

Material deposited in the River Ottery has been removed and the channel regraded to maintain conveyance and channel capacity at Yeolmbridge.

Before and after desilt and regrading at Yealmbridge on the River Ottery.

2.3. Routine Maintenance

The Q2 Devon routine maintenance programmes are substantially complete, and the AIMS programme delivery is up to date. The completed maintenance activities include our Area grass cuts (hand and machine), weed spraying, Hydrometry and Telemetry maintenance rounds and Flood Warning maintenance Rounds. Desilts of our flood defence schemes are largely complete. All desilt work is assessed prior to works starting. Some of the desilt work for Q2 was assessed as not being required as little or no silt to remove. These will be included as part of the 2019-20 programme and will be assessed again.

2.4. Budleigh Salterton bank collapse

A privately owned Environment Agency maintained drainage culvert has partially collapsed. This was followed by the failure of the surrounding flood embankment on the estuary side and structural failure of the outfall structure. The affected embankment was built more than two hundred years ago when large areas of land were reclaimed from the estuary. The structure is privately owned and provides flood defence benefit to the Budleigh Salterton Cricket Club and local farmland. The popular South West coastal footpath has been closed with a diversion put in place.

Location map

Initial collapse 14 Sept 2018

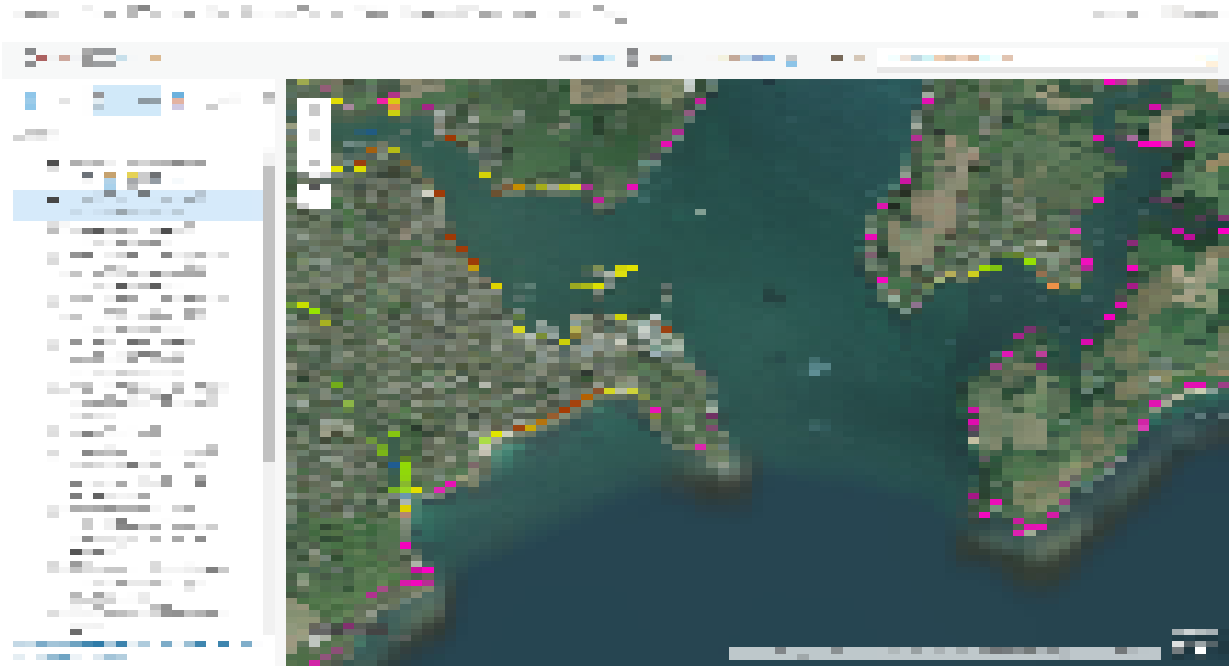
Coffer dam in place Oct 2018

The Environment Agency made the site safe and secure before the next high tide, working collaboratively with partners Clinton Devon Estates and their contractor Glendale, Devon County Council Public Rights of Way and East Devon District Council. Going forward these partners and the Budleigh Salterton Cricket Club are engaged ensuring they are all supportive of the proposed repair. It is planned that contractors will start works on site in late November to effect a repair to the culvert, embankment and outfall with completion planned for January 2019.

This site is part of the proposed Lower Otter Restoration Project which, if implemented, will include a managed breach of the embankment around the same location.

2.5. Devon Cornwall & Isles of Scilly Coastal Asset Review

The Coastal Asset Review work is progressing well on both site verification and the desk top data. The team hosted a successful meeting with the Coastal Partnership East, the Anglian Monitoring Programme and the EA's GIS teams to share experience and learning around similar projects collecting, storing and analysing data using Arc GIS Online tools.



2.6. Capital project pipeline

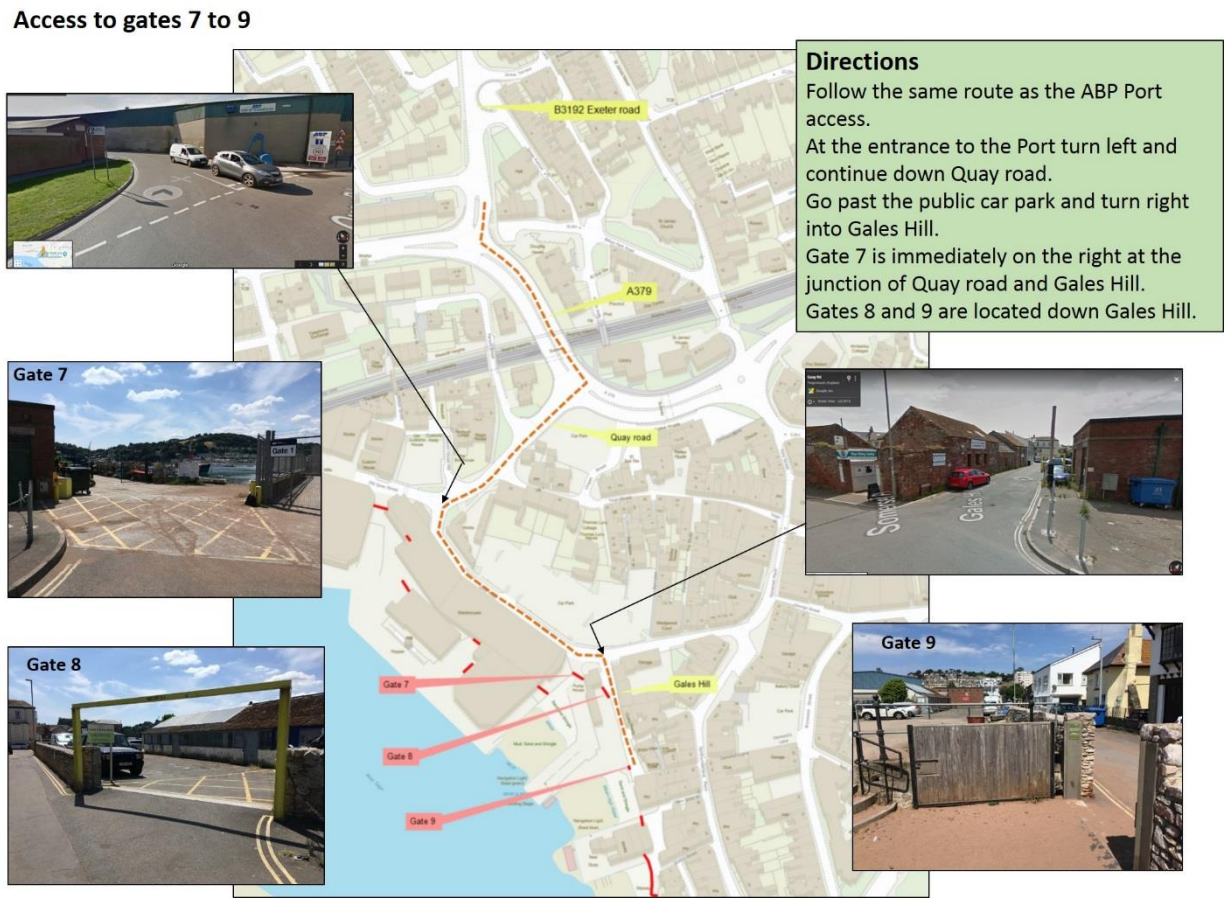
The Programme Delivery Unit and Asset Performance teams are working closely together to develop a pipeline of capital maintenance projects for the next 20 years. This is primarily concentrating on existing schemes from the 1960s and 70s which are reaching the end of their design life. We are also working to solve long term flood risk issues associated with problematic ageing third party owned assets.

2.7. Contingency Planning

We are preparing new and updating existing contingency plans for our sites across the area. Contingency plans for Shaldon, Teignmouth, Lympstone, Beesands TDS, Stoke Canon and North Tawton have all been completed and are being made available via the Incident Management toolbox. We have a rolling programme of testing with further exercises being organised for Q4 to robustly test the plans.

We are currently working on contingency plans for Kenwith (Bideford) and Paignton

Pumping stations.



Example of access plan as part of contingency plan documentation for Teignmouth

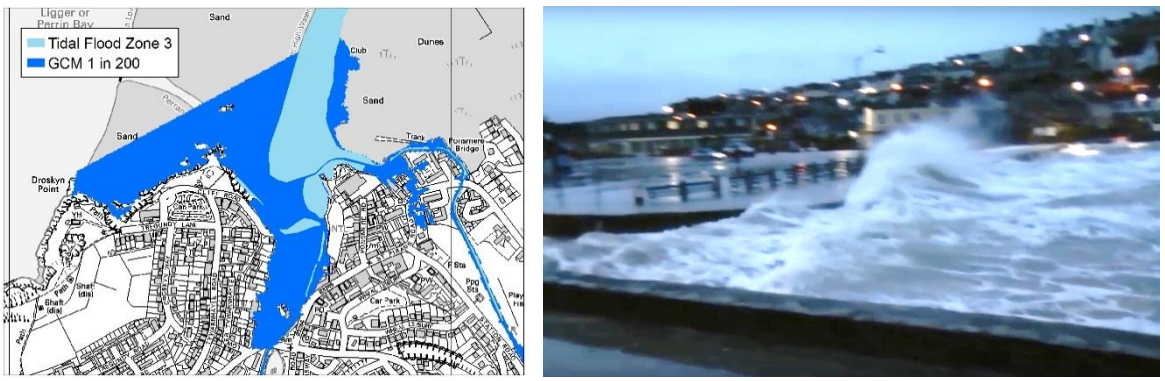
3. Project Updates

3.1. Modelling

Generalised Coastal Modelling

Historically, coastal flood risk has been under-represented due to complexities in modelling coastal flood mechanisms, and flooding from the sea has been represented by still water flooding only in the Environment Agency's flood maps. To address this issue, the recently completed Generalised Coastal Modelling (GCM) project was undertaken with the aim of developing and implementing a straightforward and simplified modelling approach that can be applied to numerous sites with a limited amount of computational effort and time constraints. Specifically, wave action and storm surge was incorporated into the modelling to improve our understanding of the risk of flooding from the sea for 53 key communities throughout Devon and Cornwall. The outputs from this project will be used to update a number of our datasets including our flood zones and NaFRA. Results of the study show a significant coastal flood risk to a number of communities that is not currently captured in our flood maps. For example, the current tidal flood zone 3 map for Perranporth show no properties at risk of flooding; however, results from GCM indicate that there are in fact a total of 79 properties at risk of flooding during a 1 in 200 year event (see figure below).

A second phase of this project is currently underway to further explore the intricate nature of coastal flood risk in DCIS by implementing a more bespoke modelling approach at 19 communities, including six that were not considered during the first phase.



Generalised Coastal Modelling: 1 in 200 flood map overlain with the current tidal flood zone 3 at Perranporth, demonstrating the increased coastal flood risk now recognised (left). Waves overtopping the Perranporth Beach frontage (right).

3.2. Design & Appraisal Projects Update

3.2.1. Cornwall

This package of Cornwall projects has been formed to efficiently deliver business case appraisals. We are making good progress with developing the appraisals on all of the projects. This will put us in good position to efficiently programme the delivery of the required outcome measures by 2020. The projects are primarily to provide flood risk benefits but there are a number of environmental and social benefits being incorporated. The details for the present stage of the projects are:

Hayle Foundry Square

Draft Business Case and the design rational report. Project is currently on hold awaiting for confirmation on trash screen guidance and funding availability.

Hayle River Flood Bank Realignment
The draft outline Business Case has been completed in December 2018. Funding availability is being reviewed.

Paul Stream and Tumble Tyn Culvert Refurbishments
The scope for Paul Stream is currently under review with the Area team due to the project receiving additional DEFRA funding to deliver the scheme. A Strategic Outline Case is set to be issued to the National Project Assurance Service for consideration within the forthcoming period for approval. Following this the project will progress with the appraisal stage.

Newlyn Tidal
Modelling to Newlyn Tidal is on-going and due to be complete January 2019, to confirm the extension required to the breakwater. Progression of the project in future years is subject to funding availability.

Newlyn Fluvial
The project is on hold pending further discussions with South West Water with regards to the potential management of Drift Reservoir. An internal meeting was held in October with regards to using the Drift Reservoir for flood storage. An initial meeting has been arranged with South West Water in December to discuss the options.

Penzance Wherrytown and Harbour Tidal
Due to the funding gap for the preferred option a summary report has been produced. We are currently engaging with Cornwall Council with regards to the future development of the Penzance Prom which would allow the project to continue.

Fowey
The primary objective is to appraise the tidal/fluvial flood risk management of Fowey harbour. Appraisal is complete and has identified a preferred option of a new wall, with funding shortfall. Engagement with the Town Council has identified doubt that a new wall would be acceptable. Consultation ongoing with no further project progress until community support and funding shortfall obtained.

Mevagissey Fluvial
Project has commenced to investigate options to reduce fluvial and surface water flood impact. An understanding of the system as a whole is required to determine what scale of overall improvements are required, in particular what an upgrade to the Chapel Square culvert might provide. New model of the catchment is currently being calibrated. Further survey is required to identify constraints within the culvert and improve model calibration.

Portreath FAS
Portreath FAS has received an additional £1.5mil funding through the DEFRA Depravation funding to assist the delivery of the scheme. The preferred option for the scheme is now looking at upper catchment storage reservoirs as opposed to solutions within Portreath itself. The upper catchment storage solution locations are currently being reviewed, landowner discussions are ongoing and initial ecology surveys undertaken.

Tinhay Scheme Refurbishment
Project has been delivered and is waiting closure.

Bude Flood Defence
The primary objective is to appraise the flood risk management of the River Neet at Bude. There are 28 residential properties at flood risk and provide up to 6.5ha of OM4h; Shortlist of options has been modelled and an economic assessment has being completed. The way forward is being reviewed in line with funding constraints.

Calstock (River Tamar)
The primary objective of this project is to appraise the flood risk management of the River Tamar at Calstock. There are residential properties and critical infrastructure at risk of tidal or combined tidal/fluvial flooding. The project has potential to provide circa 14Ha of environmental benefits through inter-tidal habitat creation; Writing of the Environmental Statement and development of the deliverables for the planning application are underway (Including HRA, Statement of Community Involvement and Heritage Addendum). We forecast that a planning application will be submitted early in 2019. Final elements of ground investigation are being undertaken.

River Camel Restoration
The primary objective is to appraise removal of physical modifications on the River Camel to improve geomorphology and habitat and implement the agreed plan to restoring the SSSI. The EA will concentrate on delivery of its (3 no.) assets while partners will deliver the remaining. At Grogley GS we are working with Forestry Commission to agree routing of new channel across their land. Surveys have been completed and we are in the process of procuring a consultant for design. A business case is planned for delivery late 2019.

Wadebridge Flood Defence scheme
The primary objective is to appraise the flood risk management of the River Camel at Wadebridge. There are 171 residential properties at risk of tidal or combined tidal/fluvial flooding; Work to assess Polmorla Pumping Station (fish friendly replacement pumps) and the habitat creation are being investigated. Partnership funding opportunities are being identified.

Par Moor
Project has been paused whilst we investigate alternative funding routes as the appraisal has shown insufficient FDGIA funding is available.

Sandy River
Project has been paused whilst we investigate alternative funding routes as the appraisal has shown insufficient FDGIA funding is available.

Par/St Blazey
The primary objective is to appraise the flood risk management of the Par and St Blazey rivers, surface water and coastal flood risk. We anticipate improving the flood risk to 214 properties (OM2's) and improve 3 hectare of water dependant habitat. This project is part of our collaboration with Cornwall Council and South West Water to maximise opportunities for the St Austell Resilient Regeneration Project (StARR). Cornwall Council are leading the bid for ESIF funding to support the business case; We plan to deliver the project in two parts with Cornwall Council delivering the surface water elements and EA delivering the main river elements.

We have recently obtained FSoD approval to continue through detailed design and planning of the preferred option. Our consultant has been appointed for the design phase and Cornwall Council are in a similar position. The programme is for planning permission to be applied for in summer 2019, construction commencing in Autumn 2020 with completion by March 2022.

Tywardreath Stream Culvert Repairs
The primary objective is to repair a culvert to minimise flood risk. This project is part of our StARR project as detailed under Par / St Blazey project.

St Blazey Stream De-silt
The primary objective is to appraise the management of this watercourse. This project is part of our StARR project as detailed under Par / St Blazey project.

Prideaux and St Blazey Catchment Improvements.
The primary objective is to appraise the flood risk management of the Prideaux and St Blazey catchments. This project is part of our StARR project as detailed under Par / St Blazey project.

3.2.2. Devon

Bampton Flood Defence Improvements
The primary objective is to reduce the risk of flooding around the Brook Street Bridge and Shuttern Brook culvert. There is potential to create small scale catchment storage and use natural flood management techniques to slow flows upstream. Improvements are being made to the baseline model to ensure it calibrates from flood events, before modelling the do-nothing scenario and shortlist of options. Funding availability is being reviewed.

Hele
Works are planned for year 18/19 to reduce the risk of flooding to up to 13 properties in Hele, North Devon. The current situation is that a section of river channel up to 30m in length is at a significant risk of destabilising; a collapse of the gabion basket channel wall along the right bank could lead to blockage of a downstream culvert reducing conveyance capacity and increasing river levels.
The solution proposed by AP East is to stabilise the channel using pre-cast concrete U-sections which will be constructed up to the existing channel confines. This will prevent the need for disturbance of the existing channel reducing the risk to nearby property foundations. Early Contractor Involvement has estimated the project cost to be £150k and following tender to the FCRM Operational Framework construction is expected to commence mid-late January.

South Molton
We have set an ambitious programme of delivering the South Molton FAS from start to construction complete in a year. The work is being project managed and delivered in area with some assistance from our framework consultants and contractors.
Ground Investigations have identified a soft layer of soil and we may need to construct the flood walls on mini piles. The project has had some other challenges with unmapped high voltage cable and gas main and we have also had to do additional modelling and environmental surveys. These issues have delayed the project and we are currently reprogramming activities to try and keep construction from slipping into next year.

Tiverton Flood Defence Improvements
The primary objective is to appraise the risk from flooding at three discreet locations in Tiverton:

- Cottey Brook in the area of the Walronds housing estate.
- River Exe at Mountbatten Industrial Estate and Hospital.
- River Lowman – low spot in the defences in various areas.

Improvements are being made to the baseline model to ensure it calibrates from flood events, before modelling the do-nothing scenario and shortlist of options. Funding availability is being reviewed.

Seaton Estuary Flood Defence Improvements
The primary objective is to review tidal flooding from seawall overtopping and fluvial flood risk from the River Axe. We are focusing on identifying a scheme at the location of the Axe Yacht Club in order to cut off the flow route into Harbour Road. The potential options and high level costs have been reviewed. We are planning to undertake geotechnical investigation and level surveys in the next few months to enable elements of this work to be designed in-house. Funding availability is being reviewed.

Clyst St Mary Flood Defence Improvements
The primary objective is to improve the current standard of protection to the village of Clyst St Mary. The preferred option has been identified as a sheet piled solution and partnership funding contributions have been confirmed. Outline design complete, BCUR approved to progress with detailed design. Detailed design scope and pricing currently progressing.

Bishops Tawton Flood Defence Improvements
The primary objective is to improve the current standard of protection to Bishops Tawton. The modelling for Bishops Tawton is currently taking place, working with Devon County Council and South West Water. Funding availability is being reviewed.

Kenwith, Bideford Flood Defence Improvements
The primary objective is to upgrade the existing scheme to further reduce the risk of flooding in Kenwith, Bideford. The preferred option for the scheme has been selected, outline design has been finalised and environmental reports completed on the appraisal. The project team are continuing to identify partnership funding and undertaking discussions with potential partners for delivery of this project. Due to funding constraints though the project is currently on hold with future funding availability being reviewed.

Axminster
A project on the flood plain of the River Axe in Axminster. This scheme will raise the standard of protection to 10 residential and 13 commercial properties. The works will raise the level of existing flood banks and create by-pass flow route utilising additional parts of the flood plain.

Works commence on Phase 1 – wall raising in early 2019 with Phase 2 – Raising of Earth Embankments programmed for spring 2020.

3.2.3. Minor Work Package (DC9)
Chaddlewood Trash Screen Improvements

The planning permission application has been granted for the construction of the new trash screen on site and upsizing of the existing screen. Scheme has been tendered and the project team is reviewing the tender submission Return of tender submission has identified an affordability risk. Future funding availability is being reviewed.

Tamerton Foliot Trash Screen Improvements
Outline design rationale and trash screen agreed departure note has been produced for review and agreed with the Catchment Engineer.
The project is likely to require partnership funding for delivery and is currently under review. Project on hold until information received on funding.

Polperro Trash Screen Improvements
Project has received full business case approval. Trash screen design rationale has been agreed with the Catchment Engineer. Site investigations to inform detailed design are underway and project is to progress with detailed design.

Wooda Trash Screen Improvements
The appraisal is complete. Trash screen design rationale has been produced for the proposed improvement works and has been agreed with the Catchment Engineer. It is proposed that works are undertaken to the existing screen to provide a performance benefit which will therefore reduce the requirement for a raised wing wall. Due to funding constraints though the project is currently on hold with future funding availability being reviewed.

Drakewalls Stream Culvert Inlet Screen Refurbishment
Appraisal has identified that the culvert under station road blocks the river flows due to limited capacity. This is owned by Cornwall Council. Cornwall Council are currently reviewing the proposed works and confirming availability of partnership funding. Project awaiting confirmation of partnership funding and FDGiA funding ahead of progressing further.

Latchbrook Impoundment Dam Refurbishments
Detailed Designs are currently being finalised. Our contractor will look to commence construction in March 2019. A two month construction programme is currently anticipated, subject to final designs. The works will address measures raised in the interest of safety to both the dam's functionality and safe access to its crest during impoundment events, as well as installing an eel pass through the culvert outflow structure.

3.3. Devon & Cornwall Small Works Packages

2016-17 Package
Works for 16/17 year are complete. Project closure will be in Spring 2019.

2017-18 Package
The package is being delivered on programme and the appointed contractor continues to work pragmatically producing good cost effective results. Due to good project team performance, some additional works have been added for the 18/19 year. These include Hydrometery and Telemetry works at Gissage trash screen and repair works to the wave return wall on Teignmouth Beach.

2018-19 Package

This package will deliver works to recondition existing Environment Agency assets which are in poor condition and therefore fail asset condition surveys. The works are;

- replace an 85m wall in Lympstone,
- repair a leaking flood bank in Clyst St Mary,
- replace a revetment on a tributary of the River Neat in Bude and
- repair an attenuation wall on the Wooda Stream catchment in the centre of Launceston.

The contract has been awarded, and the contractor will begin on-site in November 2018.

3.4. Devon & Cornwall WEM Baseline Workload Appraisal Package

Wadebridge Steel Piles – A number of potential repair options have been priced, all involve significant investment. Funding contributions need to be identified before more substantial work can progress.

Bodmin Town Leat Culverts – Site works were completed in August and a final inspection was completed. Project to be closed.

Millbrook Tidal Barrier – The majority of works completed in September 2018 with MEICA commissioning and installation of eel pass outstanding. Replacement actuators are required, meaning works are expected to be completed in the early New Year.

Millbrook. Clockwise from top. Completed erosion protection to seaward face of Tidal Barrier. Inner sluice gate installed. Outer tide flap installed.

4. Construction Projects Update

Dawlish Warren Beach Management Scheme (protecting 2800 properties and 5k of main line railway)
Construction is complete and a 5 year programme of monitoring is continuing to evaluate scheme performance.

Exeter Flood Defence Scheme (protecting 3,270 properties)
The project is being undertaken in partnership with Exeter City Council (ECC) and Devon County Council (DCC). A further contribution of £1.47M (part cash, part works 'in kind') has been received from South West Water. Construction of Phase 1 (in-river permitted development works) is complete.

Construction work on Phase 2 continues. Works on right bank defences and the Countess Wear flood cell at the downstream end of the scheme are nearly complete. Some 2,800 properties will then benefit from reduced flood risk. Work progresses at the Cricklepit Leat adjacent to the Quay, Eagle Cottages, Bonhay Road and on Network Rail land around St David's Station continues and will reduce flood risk to the remaining properties. The works on the railway have been delayed due to rail line possessions being cancelled and are not expected to be complete until mid 2019, however the remaining defences are due to be complete by March 2019.

The demountable flood defences on the Quay will be the subject of a full trial deployment early in 2019. This will act as a means of refining the system's operation, training Exeter CC staff and providing an opportunity for the media and public to witness an important component of the scheme in operation.

The project team continues to work closely with partners to ensure that our communications with the public are informative and timely. The project Facebook is well used and reaches a large number of users. Please see https://www.facebook.com/Exeterflooddefencescheme/

Exeter Flood Defence Scheme. Clockwise from the top. Flood wall foundation under construction alongside the main line, north of St David's Station. Aerial view of flood defences and environmental mitigation works at Countess Wear. Completion of flood defences alongside the Malt House.

Exmouth Tidal Defence Scheme (protecting 1400 residential properties, 400 commercial)

Morton Crescent during Storm Callum 12th Oct (https://www.devonlive.com/news/devon-news/storm-callum-floods-exmouth-seafront-2101475).

We were reminded of the need for flood defences in Exmouth following recent storms in September and October, as can be seen in the accompanying photograph. The Planning Application for the scheme was submitted on 26 September 2018 to the local planning authority East Devon District Council. This was a 'Hybrid' application seeking 'Outline' approval for Alexandra Terrace junction, and 'Full' for all other areas of the scheme.

During the planning process the scheme has generated interest from the various residents, Councilors and stakeholders in the community. The concern/risk raised by a number of residents in Exmouth is the alignment of the secondary defence wall along Morton Crescent. With this in mind we have made a variation to the planning application seeking 'Outline' approval for this element. The project team are considering whether a change to the alignment can be made, and what impacts this could have. It is important to reduce flood risk to Exmouth as soon as possible, hence we are still seeking full planning approval for the majority of the scheme, so that construction work can begin in Spring 2019 as planned.

The Planning Application is due to be decided at January's 2019 Committee Meeting.

A second Application to seek 'Full' approval for Alexandra Terrace and Morton Crescent will be submitted March 2019.

Our Contractor has recently carried out ground investigation works in the area; this included 22 individual trial pits to establish ground conditions and service locations.

Detailed design is underway and we are working with our contractor with the aim of works starting on site in April 2019.

Starcross & Cockwood Tidal Defence Scheme (protecting 661 properties)
The works are substantially complete with only minor works being finished.

The new harbour wall at Cockwood is complete, with two new floodgates installed at the slipways. On the southern side of the harbour the earth embankment has been raised and profiled to tie in to the main line network rail embankment, providing the flood protection level around the entire harbour. A safe area for pedestrians has been provided alongside the southern harbour wall, along with improved surface water drainage.

At Starcross flood protection has been improved at three slipways, raising flood defence levels at slipways to the north of Starcross, at Starcross Fishing and Cruising Club and also Generals Lane Slipway.

The project team are working with local volunteers in the community and schools to plan the scheme opening event for early in the New Year.

We have also trained local volunteers/ flood wardens how to shut the newly installed flood gates.

Warden Training 3rd Oct.

Stoke Canon Flood Defence Improvements (protecting 154 residential properties)
Flood defence works are complete. Agreements to gain access for maintenance with Network Rail are being pursued, and once these are in place the project will be closed.

Totnes Flood Defence Improvements (protecting 213 properties and 204 commercial)
The works to reduce tidal and fluvial flood risk in Totnes over a 1.4km stretch of river are nearing completion. Works are now substantially complete and are now limited to snagging and the finalisation of a few elements of individual property level flood protection measures.

Completed works include the raising of approximately 500 metres of linear defences constructed in the original 1980 scheme and 140 metres of new flood wall constructed in Morrisions car park. The Environment Agency has built flood walls between properties, raised 150 metres of riverside wall at New Walk, raised a slipway and incorporated a number of buildings into the wider defence using individual property flood resilience measures such as flood resilient balconies, windows and doors. Works on individual property level flood resilience measures have been implemented on 8 properties. 3 flood gates have been installed.

Totnes Steamer Quay Wall Repairs
Construction of the works at Steamer Quay is now substantially complete and is in service protecting people in Totnes (including 83 residential properties).

Tamar Banks Habitat Creation Project
An area of circa 10ha for this epoch of habitat is required to provide compensatory habitat for tidal squeeze (in addition to that which is due to be delivered as part of the Calstock Scheme); enabling the Environment Agency to continue its current risk management activities on the Tamar. Heads of terms have now been signed by the landowner, this should enable habitat to be created at South Hoe. A scope for undertaking the detailed design has been developed – we are in the process of negotiating a deed of grand and option agreement with the landowner.

Perranporth (Bolingey Stream)
Construction work was substantially completed in June 2016. This project now provides a 1% AEP (1 in 100 year) standard of protection for 107 residential properties.

Compensation claims have now been finalised. The end of maintenance period inspection took place 28 June 2018. A few minor defects were identified and have since been rectified.

Chyandour (protecting 17 residential properties) Local Levy funded
The main works are complete with the exception of a few minor items (trash screen, flap valves). Our Contractor have received the Environmental Permit and are to return to site in near future to complete outstanding works and to rebuild the damaged flood wall.

The SWRFCC confirmed the low lying properties mainly in and around Chyandour Square should be offered protection using Property Level Resilience (PLR). Cornwall Council have agreed to add the Chyandour properties to their 2017-2019 PLR programme. The PLR installation works are expected to commence toward the end of the programme.

Helston River Cober
River Cober Loe Bar (Phase I)
Following storm damage at Loe Bar, it has been necessary to accelerate phase I of the Helston River Cober project. Water now discharges mid-way along the tunnel below a masonry retaining wall which is itself vulnerable to collapsing into the culvert and causing a total blockage to the only discharge point from Loe Pool. The 'new discharge point' in the tunnel is regularly filled with sand on the high tide and requires regular clearing with an excavator. A new project is commencing to repair the damaged section of tunnel.

In order to reduce the period of emergency pumping we have brought forward our planned works for Loe Bar. These works are now on site and consist of the construction of:

- 185m long, 1.8m diameter flood relief pipe installation below Loe Bar;
- Modifications to existing reinforced concrete inlet structure, including new roof slab, invert level changes and water level control structure;
- Steel sheet piled outlet structure incorporating reinforced concrete slab and energy dissipation apron;

The majority of phase 1 construction has now been completed, including the outlet, culvert and the majority of the intake. Works remaining are limited to penstock gates, trash screen, channel reinstatement and snagging.


Works at inlet structure.

The flood relief culvert will allow greater flows to be discharged from Loe Pool during times of flood. The lower invert level will also allow greater control on water levels within Loe Pool enabling the creation of increased wetland habitat.

Loe Bar Tunnel Repair
To ensure public safety a repair is to be undertaken to the existing damaged tunnel under the Coastal Protection Act. These works require the reinstatement of the section of damaged tunnel.

Initial works have been undertaken to stabilise the cliff (see void filling exercise in pictures below) and retaining wall to ensure safe working conditions for the workforce. Shipping containers will then be located on the beach to protect the reinstatement works prior to works beginning on the tunnel itself.

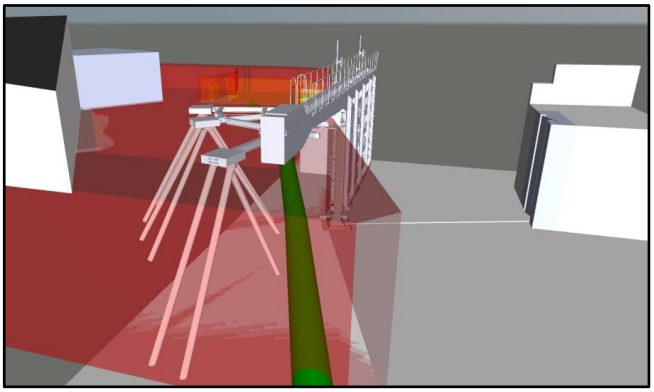

Photo showing rope access, shotcrete repairs, and mesh to stablise retaining wall above the failed tunnel. NB the failed tunnel is hidden from view below sand.

River Cober Town Works (Phase II)
As well as being at risk of flooding from Loe Poole, Helston town is at risk from the River Cober. Further work has been undertaken to refine costs of delivering phase II (River Cober Town works) and identify additional economic and environmental benefits. The business case update for these works has now been approved.

The final Detailed Design activities to complete phase II are now underway. Value engineering options are currently being considered. The project team has given a briefing to the Town Council. Environmental Surveys have been updated and a bat roost survey undertaken. It is currently forecast that the project team will be in a position to submit a planning application early in 2019.

Kenwith Pumping Station (Bideford) Operational improvements
The project is being delivered as part of the Devon and Cornwall Small Works Package. The plant has been procured and design and manufacture of new equipment to be installed within the existing control panel is ongoing. The project has remobilised to site for final installation of M&E plant.

Polperro Tidal Gate Refurbishment



3D model indicating proximity of sewer to required gate reinforcement.

This project is proposed to reinforce the gate supporting structure, improve the operating mechanism, and repaint the gate to extend the asset life. Delivery of this project will reduce the risk of tidal flooding and coastal erosion to properties within the historic harbour. The project is in the stages of finalising the detailed design, listed building consent approved for works on listed quay. Initial estimates for delivery of the project has identified a potentially significant funding gap. The project will undergo investigation into design optimisation to reduce cost in construction and look for funding partners.

The project has received feedback from utility companies with services in close proximity to the asset this presents a live ongoing risk to the project.

The project is in the process of finalising the temporary works proposal and considering the site contingency plan.

Padstow Gate Refurbishment

Refurbishment works to the gate and associated equipment completed in March 2018. Replacement handrail completed in October 2018. Information boards and new leaflets soon to be installed on site.

Copperhouse Gate

Contract for the works to refurbish the Copperhouse Gate structure and replace the existing gate has been awarded as part of the Devon and Cornwall Small Works Package 2016-17. The new tidal gate is currently in fabrication off site.

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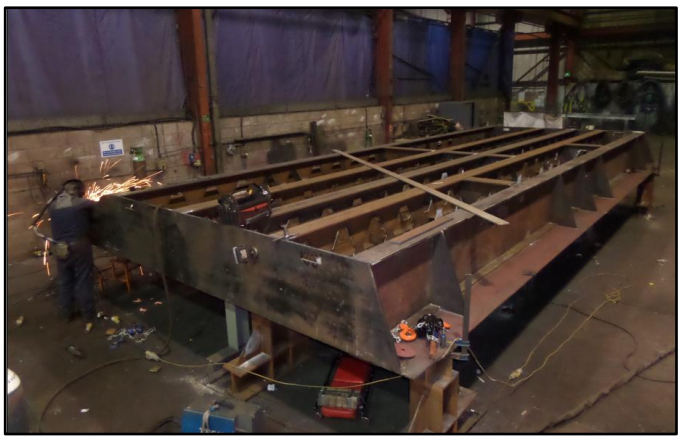


Copperhouse Gate offsite fabrication

The project is programmed to mobilise to site on the 12 November. The replacement gate is anticipated to be commissioned in December 2018.

Newton Abbot & Kingsteignton
Model updates continuing to combine the River Lemon and River Teign models with additional new survey of the River Lemon. Model calibration ongoing. Stakeholder workshop carried out with Teignbridge District Council, Devon County Council and South West Water to confirm overall flooding and surface water issues and opportunities within the Newton Abbot area.

Ilfracombe Sea Defence Improvements
No further progress, discussions with North Devon Council ongoing to confirm if possible to progress with improvements around Wildersmouth Beach.

Portreath Sea Wall
Option selected to rebuild the 23m section of sea wall which failed during Storm Eleanor in January 2018. Detailed design complete, with additional design to north end strengthening ongoing. Work started on site in November with; Western Power Distribution cable diversion, site clearance and groundworks.

New Mills Dam Improvements
Appraisal of options for measures to be completed in the interests of safety following Inspecting Engineer requirements under the Reservoirs Act to upgrade to a Programme Logic Controller and install additional hard stops to the radial gate. Construction anticipated for summer 2019/20.

5. Environmental Improvements and Natural Flood Management

Exe Estuary Habitat Delivery Project

This compensatory habitat is required to meet Habitat Regulations to enable improvements to FCRM schemes around the Exe Estuary. The proposed site for creating compensatory habitat is the Lower Otter, six miles east of the Exe Estuary. The site offers the opportunity to work with the landowner, Clinton Devon Estates, to deliver 58 hectares of intertidal habitat.

Groundwater modelling work, to assess whether nearby drinking water abstractions will be affected by allowing tidal water onto the flood plain more regularly, has taken longer than anticipated to finalise. We have an option that is currently preferred, subject to the results of the groundwater modelling. This would see the floodplain restored across the full area currently enclosed by embankments. Hydraulic modelling shows that flood risk in key areas is not increased. The preferred option includes raising an access road and relocating a cricket pitch out of the flood plain. Work on the new cricket pitch site needs to be started first, to allow time for the pitch to establish. The planning application for this will be submitted by the landowner to enable construction to start in late 2019.

Full funding from FDGiA has been agreed, because providing compensatory habitat is a legal requirement. However, we are continuing to seek alternative sources of funding. The Environment Agency is leading a bid to the EU Interreg France Channel England fund, which is progressing well. We intend to make this submission in January 2019.

Public consultation on the preferred option is expected to take place in spring 2019, in advance of a planning application for the main scheme. The Outline Business Case was submitted in October 2018. Construction completion is anticipated during 2021/22.

A section of the existing estuary embankment partially collapsed in mid-September 2018. A temporary repair was implemented immediately, with a more permanent repair currently being carried out by the Environment Agency. This will avoid unplanned inundation of the floodplain behind. For more information, see section 2.4.

Combe Martin

The objective is to reduce flood risk to properties in Combe Martin from a combination of surface water and fluvial sources. Also, addressing water quality issues within the catchment to improve bathing water quality. The scope is currently with suppliers to carry out analysis of natural flood management (NFM) options and review and update of existing model to determine if suitable for modelling of NFM options.

6. Development and Planning Work

A vital part of the Partnership & Strategic Overview (PSO) team is building excellent relationships with external partners and influencing others to have economic and environmental growth in a sustainable way. We advise, comment, and work with others to ensure new development and planning requests are working holistically for our catchments.
Since the beginning of October, we've responded to 128 planning applications and enquiries.

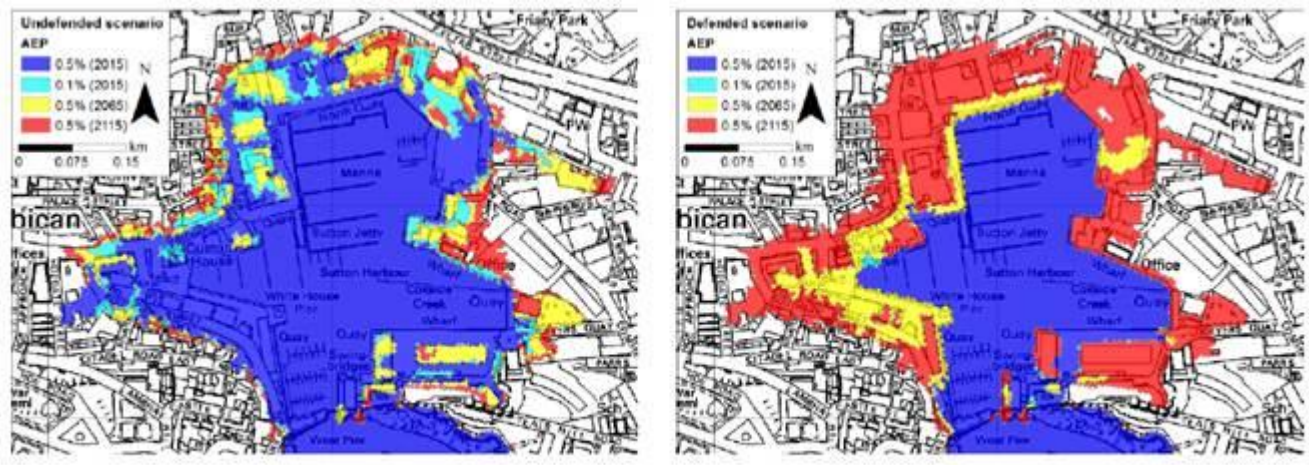
	April-June		July-Sept		Oct-Nov	
	Planning Applications	Planning Enquiries	Planning Applications	Planning Enquiries	Planning Applications	Planning Enquiries
PSO East	86	14	132	22	68	7
PSO West	26	5	91	10	50	3
Total number of planning consultations received	**112**	**19**	**144**	**25**	**118**	**10**

In the last quarter, our highlights for influencing development and planning work are the Plymouth Coastal Study, cost recovery on the North Devon Link Road, and strategic planning on the Greater Exeter Strategic Project.

Plymouth Coastal Study

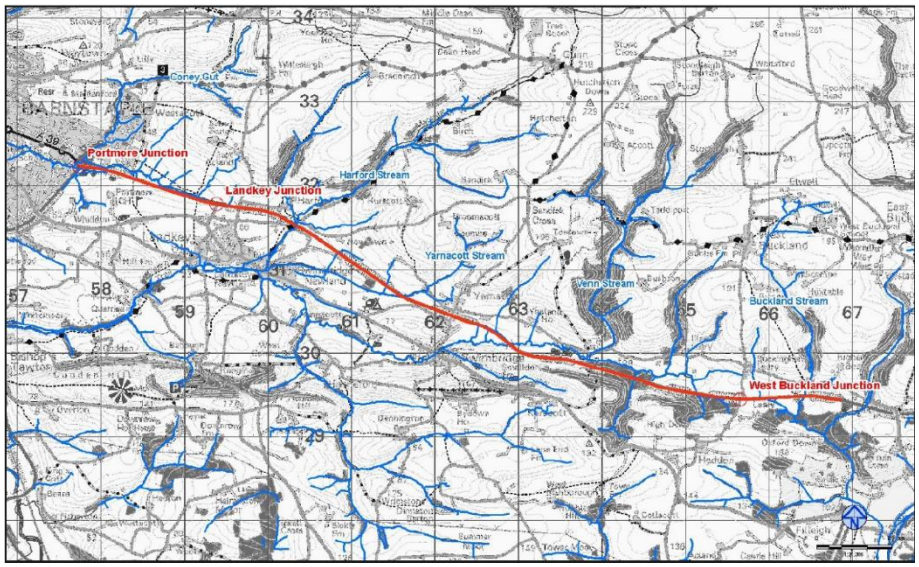
The Plymouth coastal study is now finalised and ready for use. This mapping and modelling study provides coastal flood risk data for communities from Cawsand to the west of Plymouth Sound, up the Tamar to Saltash, the whole of the Plymouth's coastal frontage, the Plym Estuary and to Fort Bovisand at the east of the sound.

We now better understand the role of the Plymouth Breakwater as we have simulated storms with the breakwater in place and removed. The outputs of this study will be used to update our flood mapping products and provide a valuable evidence base for those wishing to develop in and around the coastal zone. We will also be using this data to provide a more detailed flood warning service for the city and plan future investment on flood risk management with our risk management authority partners.



North Devon Link Road – Cost Recovery Service

A major planning application has been submitted for the improvement works to the North Devon Link Road (A361). PSO East had extensive pre application discussions with Devon County Council under our Cost Recovery service. This allowed us to resolve several flood risk issues, gain betterment to the current road drainage system and gain wildlife enhancements before the final design was produced. This allowed us to have a positive response to the recent application and well within the normal 21 day time constraints.



Greater Exeter Strategic Project (GESP) – Strategic Planning

The PSO East team have been involved in several Green Infrastructure Workshops for the GESP. This has allowed us to highlight flood risk constraints and potential solution to them, as part of any development in the GESP area. We have highlighted our Valley Park ideas, and how Natural Flood Management could help to resolve some current and future flood risk issues. These solutions could also have the added value of providing additional green space and safeguard, or indeed enhancements to landscape, heritage and wildlife sites.

BEN JOHNSTONE BEng (Hons) CEng MICE
Area Flood & Coastal Risk Manager
Making Devon, Cornwall and The Isles of Scilly an even greater place

January 2019

000c/19.

Cornwall LLFA update for SWRFCC, January 2019

1. Cornwall Beach Dune Management Plans and the EA's Coastal Communities Assessments

BDMP Actions

We are liaising with the EA over their work on assessment of shoreline management options for coastal communities being carried out by the EA's PDUs. We feel that this is a great opportunity for sharing information and partnership working to the benefit of both RMAs.

In particular we have issues at Pentewan, Perranporth and Mawgan Porth that we are hoping can be addressed through the EA's coastal communities initiative. We are liaising with the EA over a staged approach to deliver flood and coastal erosion improvements at Pentewan.

2. Newquay and Portreath Harbours

Both of these harbours require urgent attention for repair and refurbishment.

No FDGiA is available to deliver these as they are not flood defence assets. We have therefore secured internal funding to carry out the required works and this note is for information.

Newquay

Construction is around 50% complete. A late change of design has been required due to harder than expected rock encountered so that the sheet piles will have to be trenched instead of driven. The project schedule has slipped somewhat due to an additional MMO requirement in relation to new legislation on Marine Mammals but completion is still expected this calendar year.

Portreath

Design options are currently being reassessed and completion is expected this financial year.

3. Millpool Head (Millbrook) Phase 2

All works are completed but a compensation claim is outstanding and being challenged. An overspend on construction is likely to be covered internally leaving approximately £20k outstanding. We will be submitting a FCERM4 for variation of FDGiA award once the final costs are known.

4. Bude Canal Sea Wall

Partial works have been undertaken to repair damage to the upper canal revetment as part of storm Eleanor recovery. Further work has been undertaken on site investigation. Main works are planned to commence in January with completion by the end of the financial year. There is likely to be an overspend of around £37k, mainly due to the storm damage.

5. Property Level Resilience

This has not progressed as we have been awaiting rollout of the EA PLR Framework, which we believe has just become available.

Due to the embargo on new FDGiA projects in Years 5 and 6, we plan to spend as much FDGiA as possible in Year 4 (this year), continue running the project through Years 5 and 6 using the Local Levy

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and Cornwall Council match funding and spend the remainder of the FDGiA once available again in Year 7.

However, the OBC still needs to be submitted and the internal match funding of around £250k agreed so the scope for delivery and spend in the current year is likely to be limited.

We would like to continue delivering PLR schemes on a rolling programme in future.

6. Marazion West to Penzance Long Term Options

A feasibility study of long term options (including a potential "sandscaping" approach) is underway. This is being delivered through £50k FDGiA and £50k match funding from The Crown Estates. Phase 1 of the project has now completed and the study progressed to Phase 2.

Funding for a wider Strategy for Mount's Bay is currently being sought through the Local Levy bid considered today. The issue of an Outer Harbour Breakwater, the EA's aspirations for sea flooding defence and regeneration of Penzance are included and reported regularly to the Penzance Place Shaping Group.

After the successful Penzance EXPO held in 2017 another took place in early October 2018 and we had welcome support from the Environment Agency to help man the stands for Flood and Coastal defence.

7. Long Rock Coastal Improvements Project

This project involves a rock armour defence to the railway line and coastal path at Long Rock, in Mount's Bay, and environmental/flood risk improvements to Marazion Marsh SPA. £2.7M FDGiA has been provided matched with £1M ERDF funding. The project is running from July 2017 until December 2020.

The planning application for the coastal defence element was validated and posted in September and for the Marazion Marsh element application went live in November 2018.

Further details can be found at the following link:
http://www.cornwall.gov.uk/longrock

The EA is a Delivery Partner on this project.

8. St Austell Resilient Regeneration (StARR) Project

This project continues to progress. Additional funds have been secured in order to progress the development phase and further investigative works have been carried out within the project area. Surveying and modelling commissions are underway.

The EA have submitted the Outline Business Case to LPRG and conditions have been met and the FCERM2 submitted. The ERDF application is progressing.

Public and landowner engagement is continuing to take place with the next public engagement event anticipated for Jan 2019.

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Further details on the project can be found at the following link:
http://www.cornwall.gov.uk/starrproject

9. Coverack

The need for the work is partly due to erosion of the existing defences in the July 2017 event but also to address ongoing coastal erosion issues.

The coastal defence works will cost approximately £1.4M of which we are hopeful that some £1M may be available from FDGiA and £0.4M to be sought from Cornwall Council funds. CC is presently committed to the detailed design stage and commencing the highway protection element of the project due to the urgency of the work and increasing vulnerability of the road

We have been working with the EA on the business case but the funding route is still not entirely clear. If the main works can be accelerated to coincide with the emergency works then there would be significant efficiency savings.

10. Cremyll Quay

Works at Cremyll Quay following on from the 2014 storm recovery have been completed for some time now, and paid for by CC and Plymouth City Council but there have been ongoing issues with progressing the FDGiA claim.

We believe that these are now resolved but payment is likely to be deferred until 2019/20.

11. Hannafore Sea Defence

Improvement works are planned for this year and an OBC has been prepared but needs updating with new cost details. Further damage occurred in November and temporary works carried out for health and safety purposes. £80k has been allocated from FDGiA with an indicative £20k match from CC.

Emergency repair works have also been carried out at Swanpool sea wall and Penzance promenade.

12. Coastal Erosion and Planning Guidance

CC is in the process of providing guidance to Planners on developments proposed in areas vulnerable to coastal erosion and the designation of Coastal Change Management Areas.

Even though the guidance is fully in accordance with the NPPF, it provides our interpretation of policy and the implications for Planning and Development are likely to be controversial. A meeting between the EA and CC's Senior Planners took place on 10 October 2018. This has resolved that an MoU between the EA and CC Planning is required to avoid consultation charges being levied by the EA's Sustainable Places Team.

A number of Neighbourhood Development Plans have expressed an intention to declare CCMAs and we are providing advice on this.

13. Devolution and Future Planning

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To support the devolution work stream, the Strategic Resilience Board has held regular meetings (most recently on 6 December 2018). A consultancy providing a dynamic risk mapping tool has been completed and we continue to work with the EA and other partners on developing the MTP and Pipeline. These two elements will help guide the completion of the 25 Year Investment Programme into flood resilience, which has now entered the drafting stage.

14. EA Collaborative Learning Project

We have submitted an Expression of Interest to take part in the EA's Collaborative Learning Project on "Working Together to Adapt to a Changing Climate: flood and Coast". We have submitted potential case studies at Mawgan Porth, Coverack, Seaton & Downderry and Looe.

15. Cornwall Community Flood Forum annual meeting

This was held in Truro on 2 November 2018 with a focus on Natural Capital.

Prestigious speakers included the Secretary of State for Agriculture, the Head of Defra's Natural Capital Committee Secretariat, the Chief Executive of the National Flood Forum, the Chair of the South West Regional Flood and Coastal Committee and the Environment Agency's Devon, Cornwall & Isles of Scilly Area Flood and Coastal Risk Manager, along with four presentations by Cornwall Council Officers.

Dave Watkins

Flood and Coastal ReslienelLead

Cornwall council

Report of Devon County Council as LLFA to the SWRFCC – 10th January 2019

1.0 Introduction

This report has been produced to update the SWRFCC on actions being carried out by Devon County Council, as the Lead Local Flood Authority and the second-tier authorities for the area.

2.0 Progress of Flood Improvement Projects by DCC

2.1 Modbury

Progress on the bunds in Modbury have slowed due to the poor weather not mixing well with earthworks nature of the job. Although the main structures are in place tasks such as top soiling, landscaping and installation of the flow control devices will now be installed in the new year in a period of drier weather. Despite this, the scheme will be operational by the end of the financial year as programmed.

DCC is in detailed conversations with the contractor over the delays that have occurred which has resulted in a number of Project Managers assessments being made where DCC does not agree with the scale of some of the financial claims that are being made. If these cannot be agreed, then arbitration is the likely next step.

i. Looking East toward area 2 bund with scour protection laid (to be covered with topsoil and seeded)

ii. Looking south to area 1 lower bund

2.2 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 this financial year, 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.






2.3 Ivybridge, Stibbs lane
The business case is due for submission in January to cover the overall scheme which is being phased throughout 2019. The initial minor enabling works in the Woodlands Park area, to ensure flood risk is not passed on downstream, is commencing in February 2019. At the same time, the Natural Flood Management element of the scheme, which is being delivered in the Hanger Down area on the south of Dartmoor is also being delivered as part of the EA led Dartmoor Headwaters NFM Project. This has been an excellent example of partnership working to enhance and future proof the flood improvements being delivered by DCC.

The main construction of the flood alleviation culvert from Stibbs Lane and down Claymans Pathway is due to commence in the summer months of 2019 with the aim of substantial completion prior to the significant winter months.

The scheme is to provide 50 OM2s and is currently valued at £600k with an adjusted PF score of 103%. Contributions of £250k from DCC have been identified along with £250k of GiA and an increased request for £100k of Local Levy has been submitted.

2.4 Exeter Surface Water
The business case for the scheme was submitted at the start of October and, at the time of preparing this report, DCC are waiting to hear the outcome. We have however, been progressing at risk with the final detailed design and procurement of the contractor under the DCC highways framework. The phase 1 works are due for commencement in January 2019 with completion this financial year and phase 2 following on in the summer, subject to a prompt planning permission being obtained.

2.5 Sidmouth Surface Water
As with Exeter, the business case for the scheme was submitted at the start of October and, at the time of preparing this report, DCC are waiting to hear the outcome. We have however, been progressing at risk with the final detailed design and procurement of the contractor under the DCC highways framework. The phase 1 works are due for commencement in February and completion this financial year, although the consultants are revisiting the alignment and route of the new surface water culverts due to the presence of underground services and proximity to buildings.

Negotiations with EDDC have progressed well regarding the final position and make-up of the phase 2 flood attenuation works that are proposed within the grounds of East Devon District Council's current offices at the Knowle. It has been essential to ensure that our works do not compromise the current sale of the land, which will see the Council move premises next year. Subject to planning permission being obtained promptly, the works are proposed to start early summer of 2019 and will be completed by the end of the summer months.

2.6 Uplyme
As confirmed in the previous report, the main flood improvements for Uplyme were completed in the spring of this year. In the main these included the upsizing of culverts to increase conveyance through the village area. However, due to the very mobile watercourse upstream, which causes a large volume of stone and rocks to be transferred downstream, DCC are delivering further works to enhance the scheme and reduce regular ongoing maintenance. These works are now on site and due for completion early 2019.

2.7 Chillington
Unfortunately, land owner negotiations for the new pipeline are in a position of stalemate with very little progress being made over the last 6 months. Therefore, we have to report that delivery of the scheme this financial year is no longer a possibility. We are discussing with our Highways colleagues and legal advisors to determine whether DCC can use its statutory powers under the Highways/Land Drainage Act to proceed with the works without a negotiated agreement with the landowner. As a result, the proposed works will now have to be programme for a later date, which is to be confirmed. This will depend on the availability of GiA within the current 6-year programme and therefore may have to be delayed beyond this period.

2.8 Stokeinteignhead
The proposed flood improvements at Stokeinteignhead are proving to be the biggest challenge that we have faced in terms of affordability and deliverability. As reported at the previous SWRFCC meeting the cost estimates for the works far exceed the budgets available through FDGiA, Local Levy, Devon County Council and Teignbridge District Council.

In order to help boost the available budget an increased request for Local Levy from £30k to £150k has been submitted for approval. This will be in addition to the £330k maximum level of FDGiA that we have estimated could be justified through the Partnership Funding calculator. A further £10k has been offered by Teignbridge District Council, making a total of £490k. The lowest estimate for the scheme is for £790k, however, there are a number of risks associated with this estimate, including possible service diversions, suitability of local material and road closure issues. There is therefore a high probability that this cost will increase further.

DCC have already contributed up to £200k for the site investigations, studies, modelling, design and minor works, so for the required flood improvements to achieve a 1 in 100 standard of protection a further contribution of at least £300k would be required from DCC. This may be achievable through the Flood Risk Management budget over 2 years, however the risk of starting without a backup plan to cover any additional costs over and above this would be a very high risk and one that requires a political decision. A meeting of the DCC Local Flood Risk Management Strategy Board is to be setup for the New Year to reach a decision and agree a way forward.

If the preferred option is unachievable then it may be decided that a local PLR scheme is the only option to provide an improved standard of protection.

3.0 District Council Led Schemes

3.1 Exeter City Council (Reported by Peter Stewart)

3.1.1 Property Level Protection at Old Tiverton Road / Longbrook Street
The PLR work to Old Tiverton Road – 10 properties - installation has been completed and audit surveys planned in the New Year.
Re-survey work for 4 properties in Longbrook Street has been found necessary after we failed to get Listed Building Consent to install flood doors.
Therefore, we propose to now install suitable low flood walls along the front boundaries and self-closing flood gates.

3.1.2 Topsham Coastal Flood Scheme

This scheme has not progressed due in part to the predicted rise in sea level, which effectively substantially reduces the life span of the scheme. This also seriously impacts upon the future of Bowling Green Marshes, which are intended to remain in place until 2040 under the current Exe Estuary Plan, but its defences are not expected to be breached within 5-10years. Therefore, an alternative venue is being sought. The only other option would be to adapt fields in Exminster Marshes into freshwater marshes but this would involve either leasing or purchasing land. Representatives from various Authorities, EA, NE, RSPB, EDDC, ECC, TDC are due to meet in the new year to explore this possibility and what funding may be made available for providing alternative habitat, whilst allowing the existing Marshes to change from freshwater to inter tidal habitat.

3.1.3 The Exeter Flood Defence Scheme

The EA led scheme is nearing completion and works along the Exeter Quay are expected to be substantially complete by the New Year. However, some further works to Samuel Jones Pub are to be scheduled for January to March 2019. Most of these are internal works.

The demountable defences and flood gates along the scheme are intended to be handed over to various authorities who will have operational responsibility for closing them in the event of advance of severe flood warnings. This is a 24hr all year round call out responsibility.

Test & practise dates are due in February when the handover from the EA's contractor will officially take place.

Martin Hutchings
Flood and Coastal Risk Manager - Devon County Council

SOUTH WEST REGIONAL FLOOD AND COASTAL COMMITTEE – 10 January 2019

COUNCIL OF THE ISLES OF SCILLY LLFA – Update

1.0 Works Update

No physical construction works are in progress at the moment.

Work continues on the submissions for funding the Isles of Scilly Sea Defence and Dune Management project and on completing asset condition surveys on the full list of flood defence assets around the inhabited islands.

The final drafts of the flood risk maps for the islands have been received and it is hoped that the final versions will be available early in 2019. These maps are long awaited for the islands and not only will they be crucial along with the shoreline management plan review to develop ongoing flood risk management on the islands but will be a significant aid for engaging with the wider community and in addressing local planning issues.

2.0 Flood Response Activity

Weather warnings, all yellow, were received for 12th October, 9th November and 28-29th November

Of these, it was only the event on 28-29th November where any action was needed with storms boards being deployed around the islands and sand bags used to form a flood barrier at old Town where there was minor overtopping.

No flood events were recorded except for a single property in Hugh Town, on 8 November, due to the simultaneous occurrence of the high spring tide and a blockage in a section of the main sewer.

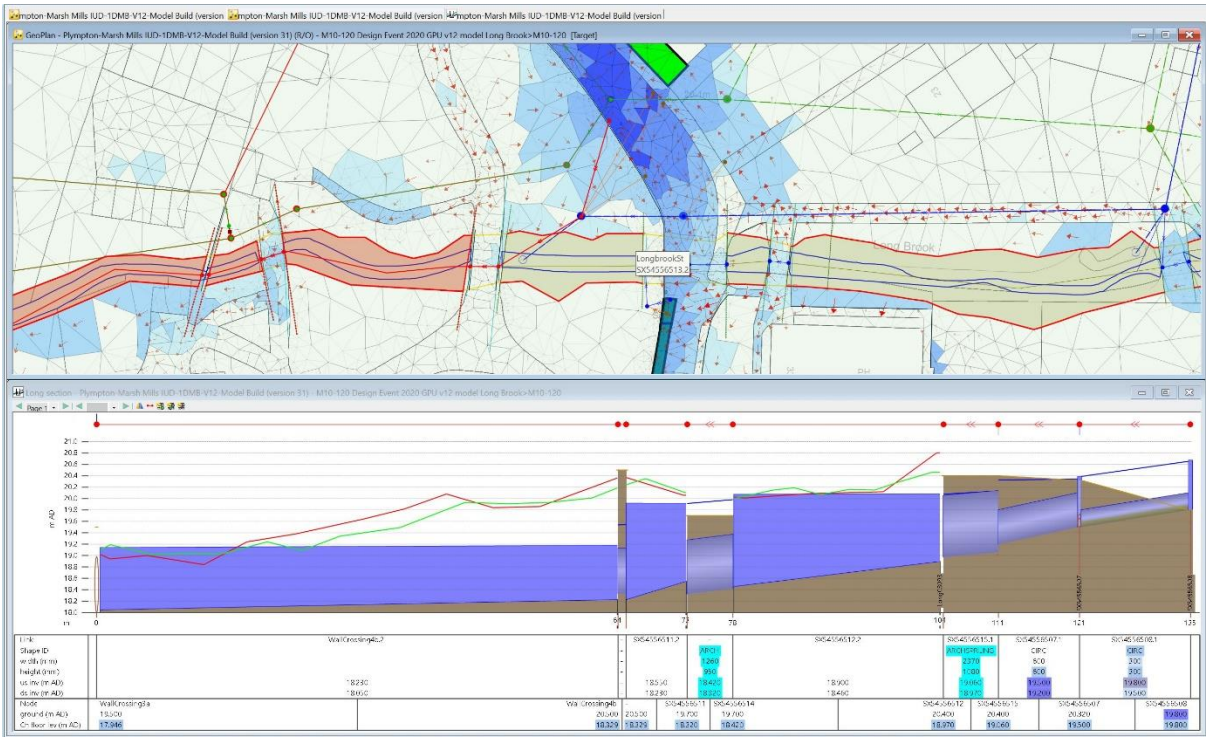
Julian Pearce
Senior Officer – Physical Assets and Natural Resources
Council of the Isles of Scilly

Plymouth Local Flood Risk Management Strategy

South West Regional Flood and Coastal Committee Meeting
Plymouth City Council LLFA Flood Scheme Update January 2019

1. Plymouth Integrated Urban Drainage Model Update

SWW is required under the National Environment Programme (NEP) to complete an Integrated Urban Drainage (IUD) Study for Plymouth to reduce the impact of CSO's on Bathing Water Quality.
A SWW/PCC/EA partnership steering group has been set up to identify opportunities for delivering multiple benefits associated with the IUDM works.
SWW have completed Phase 1 preliminary site investigations (Impermeable Area/Manhole/Flow/Cross Section Surveys) in the SWW Central, Marsh Mills and Radford catchments and have started to produce Drainage Model outputs for joint assessment.
Preliminary scheme proposals have been identified in the key flood risk areas in Plymouth, including the Lipson/Laira and Plympton areas and option evaluation including the assessment of storing surface water in green spaces and assessing the capacity of receiving watercourses as shown below, has been completed and initial cost benefit assessments for identified preferred options is underway with the first IUDM project at Pomphlett Road/Ronsdale Close programmed for delivery in Spring 2019.



2. Plymouth Wave Model

JBA consulting was commissioned by the Environment Agency to assess the coastal flood risk in Plymouth Sound. Coastal flooding consists of tidal flooding and waves overtopping sea defences. A coastal flood model was created to assess coastal flood risk in Plymouth Sound by inputting a range of meteorological and oceanographic parameters such as tidal level, wave height and wind data.

The document outlines the key coastal flood risk headlines for Plymouth taken from the coastal flood model results which are summarised in the 'Plymouth Coastal Modelling Final Report'.

A range of scenarios were applied to the model including lowering and removing Plymouth and Mount Batten Breakwaters, simulating the failure of Sutton Harbour radial gate, altering Sutton Harbour's sea defence and removing all walls and sea defences along Plymouth's coastline. Present day and climate change extreme events were then applied to the model and their impact on Plymouth's flood risk was assessed.

Plymouth has a large exposed coastline stretching from Ernesettle to Embankment Road. 'Plymouth Coastal Modelling Final Report' concluded wave overtopping increased the risk of flooding within these areas. However, the dominant coastal flood risk to sheltered areas upstream of the River Plym was tidal flooding.

The findings of the report are currently being reviewed and assessed and conclusions will be reported in the 2019 revision of the LFRMS.

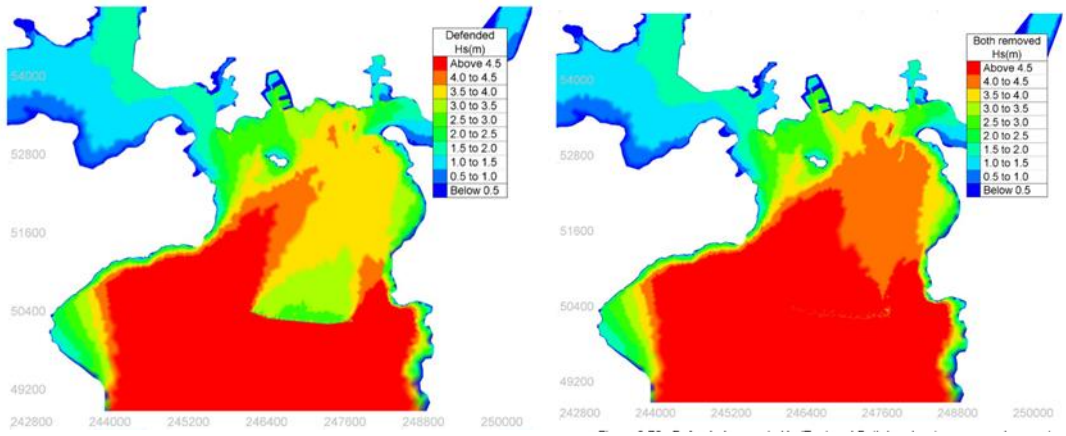


Figure 1: Defended scenario wave height (left) and both breakwaters removed scenario (right) for the Plymouth Sound. 0.5% AEP event (epoch 2015).

3. Flood Incident Reporting and Investigation

Report into recent flooding on the 8th November 2018.

Flood Investigation Preliminary Report Honicknowle Lane			
Date and time	8th November 2018 ~ 7am	Unique Identifying Number:	HON-08112018-001
Location:	Honicknowle Lane, Plymouth, PL5 3JS		
Grid Ref	SX 46885 58853		
Rainfall depth	11.3mm (estimated from Plymouth Highway data)		
Duration	<1 hour		
Flood depth	No data		
Flood extent	As shown on plan below.		
Brief Description	Four properties in Honicknowle Lane were reported as internally flooded and one property with a flooded driveway following two short, intense periods of rain between 6am and 7.45am on the 8th November 2018. The source of the flooding was identified as surface water run off from the public highway, Honicknowle Lane, which is maintained by Plymouth City Council. The residents reported that the highway gullies were blocked with fallen leaves, and clearing the gullies reduced the flood level in Honicknowle Lane. Property flooding		

Plymouth Local Flood Risk Management Strategy

Plymouth Local Flood Risk Management Strategy

SWRFCC – Torbay Council Update January 2019

Since October 2018 Torbay Council has been working on the following flooding and coastal issues:

Torbay Coastal Defence Study

The final report for the Torbay Coastal Defence Study has now been received and the outputs from this study have included the identification of improvement works that will be required over the next fifty years in order to maintain the current level of protection provided by each defence.

Following the completion of the study Royal Haskoning were commissioned by Torbay Council to investigate the possible options available for carrying out an adaptive approach to improving the coastal defences for the next twenty and fifty years. A number of options for each coastal defence have been modelled in order to identify the preferred option at each location. Further works have been undertaken using a risk based assessment of the acceptable overtopping rates for a number of alternative options at Paignton and Preston. This work looked at the options to increase the existing sea defence wall, provide a set back wall at the rear of the esplanade and provide a set back wall at the rear of Paignton and Preston Greens. The preferred option identified through these works is to provide a new set back wall at the rear of the esplanade (see following photographs of proposed option).

Preston Secondary Defence

Paignton Secondary Defence

We are currently working on the business case report for this scheme and it is anticipated that the business case will be submitted for approval by the end of January 2019. As part of the work on the business case we are carrying out a detailed survey of all property types in the flood risk areas and comparing these to the information contained within the National Receptor Database. Following approval of the business case detailed design works will commence and a planning application will be submitted for the set back wall at the rear of the esplanade.

Cockington Flood Alleviation Scheme

Following the approval of the business case for the Cockington Flood Alleviation Scheme in late March 2018 we have been working on the detailed design for the scheme. Discussions have been held with the affected land owners and approval has been received for works to be undertaken in their land. The detailed design works are nearing completion and it is proposed that the scheme is currently being tendered. Due to the Cockington being a popular tourist area during the summer and early autumn it is proposed that works will now commence on site in early January 2019.

Monksbridge, Brixham Flood Alleviation Scheme

Following the approval of the business case for Monksbridge in March 2018 we have been undertaking the detailed design works for the scheme. The works required on the culverted section of the watercourse at the Cudhill Road/New Road junction of Brixham have been designed and are currently being tendered. Works should commence on site in January 2019.

Collaton St Mary Flood Alleviation Scheme

Following regular incidents of flooding to properties, gardens and highways in Collaton St Mary from the Yalberton watercourse and surface water run-off, Torbay Council are investigating a flood alleviation scheme. Following detailed survey works and discussions with the residents the flooding mechanisms have been identified and a number of options are being considered including upstream storage, improved channel and culvert conveyance, overland exceedance routes, surface water infiltration and a bypass channel.

This scheme is included within the six year programme and therefore the business case for this scheme has recently been produced and submitted for approval.




Photographs of flooding incidents at Collaton St Mary

Coastal Overtopping Events Winter 2018

Following a reasonably quiet period during the summer and autumn we have experienced a number of coastal overtopping events within Torbay which have resulted in the closure of coastal roads around the bay. Details of these events are identified below:

7th November 2018: Closure of coast road between Torquay and Paignton, 4.9m tide level with 2.7m max wave height, max wind gust of 44mph from southerly direction.

9th November 2018: Closure of coast road between Torquay and Paignton, 5.0m tide level with 2.6m max wave height, max wind gust of 60mph from south south easterly direction.

19th November 2018: Closure of coast road between Torquay and Paignton and overtopping of sea defences in Paignton and Preston, 4.0m tide level, 3.8m max wave height, max wind gust of 54mph from an easterly direction.

29th November 2018: Closure of coast road at Meadfoot, 4.5m tide level, 2.8m max wave height, max wind gust of 63mph from a south south westerly direction.

13th December 2018: Closure of coast road between Torquay and Paignton and overtopping of sea defences in Paignton and Preston, 4.4m tide level, 4.0m max wave height, max wind gust of 65mph from an east south easterly direction.

Victoria Breakwater, Brixham

Following the significant damage that occurred to the Victoria Breakwater in Brixham during Storm Emma in March 2018 Torbay Council have been successful in securing EU Fisheries Funding to undertake repair and strengthening works to the breakwater. In addition the crest level of the breakwater will be increased to provide additional flood protection to coastal properties surrounding Brixham harbour. The overall cost of this scheme is £3.75 million and following the issuing of an MMO licence, works commenced on site in early December 2018, with the supply and laying of new rock armour on the outer face of the breakwater commencing early in 2019.

David Stewart

Service Manager Engineering - Torbay Council
January 2019

Report of South West Water as Water and Utility Companies Representative to the SWRFCC and Risk Management Authority under the FWMA – January 2019

1.0 Introduction

Under the Flood and Water Management Act, 2010 (FWMA), SWW is a Risk Management Authority (RMA). Water and Sewerage Companies are responsible for managing the risks of flooding from water and foul or combined sewer systems providing drainage from buildings and yards.

2.0 Downstream Thinking

Downstream Thinking (DST) is SWW's catchment-based approach to alleviating sewer flooding from our wastewater networks and reducing pollution of watercourses through softer engineering and partnership collaboration.

It is an ambitious long-term approach, to achieve both the best outcomes for customers in the short term and support our longer term goals by applying the principles of holistic catchment management.

Our sewer network is in most places a 'combined system', taking both surface water and foul flows. This network is increasingly being inundated by stormwater from the catchment. Downstream Thinking incorporates a range of activities and innovative pilots to provide system Resilience.

What are the advantages of the Downstream Thinking approach?
Through continued liaison with internal and external partners to develop collaborative scopes, we can design holistic long-term solutions to address the cause or source of the problem rather than just treat the symptom.

SuDS work with nature to hold back water and prevent flooding. Very quickly after they are constructed they just look like part of the landscape. But they bring many additional advantages: they can be a haven for wildlife and boost biodiversity, or they can be an addition to a play area. Research shows that they boost the green appeal of urban neighbourhoods which enhances wellbeing and health.

3.0 Drainage and Wastewater Management Plans

- SWW is currently establishing a team to deliver the DWMPs – and this is likely to consist of a combination of in-house and consultant resources. We are also developing a paper on the preferred delivery model option, following the paper presented at the October Meeting
- The work will build on the success of the current Downstream Thinking and Sewerage programmes and, in collaboration with stakeholders and consultees, the first iteration of studies will be completed by the end of 2022.
- This will be a key source of information for our 2025-2030 investment plans for drainage and wastewater investment plans and for ensuring we are on target to meet our longer term goals for 2050.

4.0 Progress of some Key Collaborative Flood Improvement Projects by SWW

Exmouth DST - Update

Using the IUDM developed by SWW in AMP5, SWW and DCC have collaboratively been exploring opportunities to resolve Surface Water Flooding, Sewer Flooding and Pollution in the catchment. There has also been close liaison with EDDC and the EA around the Tidal Defence Improvements work to ensure that works are considered holistically and any synergies and overlaps are identified.

Around 30 houses in Phillipps Avenue, Orchard Close, Green Close and Bassetts Gardens have had special water butts or underground tanks installed at their homes. We have also now installed a 15,000 litre tank at the St Joseph's School, Regents Gate to store rainwater collected from the roof. The water is then treated and pumped into the toilet block where it is used to flush the toilets, reducing the school's use of tap water.

Children at the school took part in the project by designing their own rainwater re-use features during special water-themed workshops. The downpipe features now installed outside their classrooms (pictured) were based on pupils' drawings for rainwater re-use.

The school could use 50% less tap water through the project, while the tank will hold back rainwater during storms, which will free up much-needed capacity in the sewerage network.

The aim is to reduce the operation of stormwater overflows into the sensitive River Exe estuary and flooding and pollution further down the catchment.

The rainwater management system is also 'smart', enabling SWW to monitor rainwater volumes and control the tank so that it will always provide storm storage capacity. The tank is equipped with an automatic mains refill system, so the toilets will always function even if there's a prolonged dry spell.

			
The Cloud – "rains" when it rains	**Water turbine**	**Self-watering green wall**	**Tipping bucket drooling dinosaur**

Kingsbridge IUDM - Update

Kingsbridge is a complicated catchment with a long history of Flooding. There are a lot of cross connections, unknowns and issues which is why no Risk Management Authority (RMA) has been able to resolve the issues in isolation. In Partnership with DCC and the EA, SWW is leading on an Integrated Urban Drainage Modelling (IUDM) Study.

There has been a slight delay to the Phase 3 Options Analysis as the EA want further review of the Hydrology before using the Phase 2 model outputs to update the Flood Map. This is inherently connected to their aspiration for a functional baseline model. Outputs that have been scrutinised, reviewed and agreed is important to enable the selection and analysis of the right options for solutions.

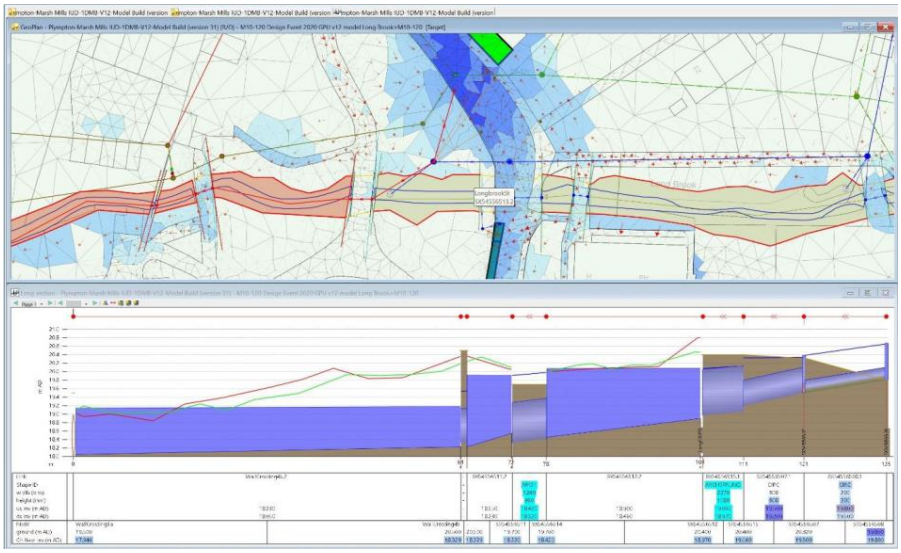
A site visit was undertaken on 13th December, with representatives from SWW, the EA and JBA, from that JBA will be able to complete their hydrology review and feed this into the modelling. We will circulate the results from JBA to all partners and hold a partner meeting to sign-off the findings before we instruct the modelling. Post modelling there will then be a subsequent meeting to agree the outputs collectively and develop the Phase 3 Options to pricing.

Plymouth IUMD – Flooding and Pollution

SWW have been working with the EA and PCC to develop the IUDM Options linked to Flooding and Pollutions in Plymouth. Those outside of the BW Solutions are being developed into collaborative solutions with the other RMAs under DST and have been identified on the EA's MTP. These include locations such as Pomphlett Road, Laira and Fellows Place, the Millbay Strategic Pipe and Longbrook Street, which have suffered from chronic flooding.

The IUDM Phase 3 optioneering works for the key locations across Plymouth is progressing and the latest IUDM Stakeholder Meeting was held on 5th December 2018. We are continuing to work towards detailed costed options completion. This has allowed some schemes to be progressed in AMP6 and others to be included in the PR19 Business Plan (for AMP7 2020-2025).

Ronsdale Close and Pomphlett Road scheme is to be delivered using tri-partite funding. The full scheme will provide sewer network improvements to remove 13 properties from the DG5 at risk register and to provide increased resilience to the combined sewer network through the generation of increased headroom. The scheme will also deliver the benefits realised by the project partners (the EA and PCC) of reduced localised surface water flooding, highway flooding and environmental enhancements to the intertidal mud flats.



The work is progressing in close liaison with the EU Interreg Water Resilient Cities (WRC) Project and the Better Places Plymouth Project to identify any synergies and overlaps.

Falmouth IUDM - Update

The integrated 1D/2D model developed as part of Phase 2 indicates that the frequent and severe flooding in the Market Strand / POWP is a result of overland flow from upstream areas caused by a lack of hydraulic capacity in both the public and highway drainage systems. Model sensitivity tests as part of the Phase 2 work indicated that flood risk here is significantly increased at high tide and any options developed to reduce this risk will need to consider the joint probability of high tides and rainfall.

Phase 3 Options Appraisal - Develop 3 high level concept options to reduce the risk of flooding on 1 in 30, 50, 75 & 100 year return periods within the study area. Strategies to safely convey above ground flood flows may need to be assessed especially for flooding on higher return period events where runoff is less likely to enter the below ground drainage system due to limitations in gully capacity and gully location / spacing.

An update to the EA's Flood Risk Mapping for Penryn is also being undertaken as part of this study and we are working closely with them to ensure the EA Modelling Specification is followed. River Cross-Sectional Survey is underway.

5.0 Resilience in Extreme Conditions and contributions to Flood Defence

Resilience is a duty and we need to provide a resilient service to our customers at times of extreme weather conditions such as drought and flooding and other disruptive events which can challenge our ability to provide a 24/7 resilient service. Having an extensive and robust resilience business plan is essential not only for AMP7 but beyond.

Our AMP6 programme has emphasis on investigations and planning, collaborative work in accordance with Flood and Water Management Act 2010, and flood protection for one of our largest sites; Countess Wear wastewater treatment works. We have also developed for PR19; the Wastewater Resilience Strategy which is aligned with Ofwat's Resilience Duty. We have also implemented the new methodology for the Shadow Reporting ODI – Risk of Sewer Flooding. This measure is the percentage of the population served at risk of experiencing sewer flooding in a 1:50 storm event.

Throughout AMP7 we propose to fulfil the primary resilience duty. Ofwat has listed Resilience as one of their four key objectives for companies in PR19 and expressed its importance within the PR19 Methodology. This investment targets our highest flooding risks and improved protection of our wastewater systems from disruptive events to best manage our services to customers in a changing environment.

In preparation for AMP7, baseline assessments have been undertaken to identify hazards and threats to service delivery. These will inform our Response Recovery Plans, to be developed throughout AMP7 and beyond, which will improve preparedness to recovery from extreme events.

Richard Behan
Flood Risk Manager - South West Water

Environment agency Devon Cornwall and Isles of Scily Area

South west Regoinal Flood and Coastal committee – 10 January 2019

Action list

Item 9
SWRFCC/19/16

Min number	subject	action	Update
45/18	Chairman's Repoet	Circulate papr to elbborat further on the information provide by the Chairman abd nckyde a time line fo rmmebrs to feedback comments to Ben Johnstone	Action to be completed
52/18		Circulate links to the hi water common ground films to members	Action to be completed
39/18	25 year environment plan	Obtain a selective vie from the grup	Actin to be completed.
Actions from October 2018			

Minutes of the South West Regional Flood and Coastal Committee held on Thursday 11 October 2018 at Cullompton Community Centre, Pye Corner Cullompton, Devon, EX14 IJX

Attendees:	Representing:
Philip Rees	Defra
Stuart Hughes	Devon County Council
Richard Behan	Deputising for Mark Worsfold (SWW)
Paul Cottington	Land Management
Laurence Couldrick	Environment
Peter Downs	Environment
Ray Hill	Torbay Council
Sue Dann	Plymouth City Council
John Cocker	Coastal Processes

Also Present:	
Martyn Hutchings	Devon County Council
Dave Stewart	Torbay Council

Environment Agency Officers present:	
Emma Baker	Area Director Devon Cornwall and Isles of Scilly Area
Ben Johnstone	Area Flood Risk Manager, Devon Cornwall and Isles
Andrew Woodhead	Programme Manager Devon Cornwall and Isles of Scilly
Sarah Harding	Committee Secretariat

Observers:	
Councillor (Susie) Bond	for East Devon
Councillor Pam Buchan	for Plymouth City Council

51/18 Apologies:

Apologies for absence were received from Martyn Alvey, Roger Croad (Devon County Council) Dominic Fairman Steve Sims, Luci Isaacson, Sue James, Ron Peart, Carolyn Rule, Leigh Rix, Mark Worsfold, Andy Cottam, Julien Pearce and Dave Watkins

52/18 Chairman's report: the Chairman advised that he had attended:

- The Finance sub-group meeting in Roadford
- The RFCC National Chairs meeting in London
- A meeting in Manley House regarding modelling and forecasting with Keith Nursey
- The North Devon and Somerset SMP meeting
- The coastal Monitoring Programme AGM
- A meeting with John Cocker and John Buttivant from the Wessex Region.
- A meeting with Jim Barlow and David Jenkins (chairman of the Wessex committee)regarding asset management

53/18 Finance update: Andrew Woodhead provided the following update highlighting:

- The local levy programme for 2018/19 and the schemes included.

- The indicative allocation totals for 2019-2021 and funding available, approximately £30m
- The local levy balances proposal and use of reserves and reallocation of underspend e.g. pump prime locally important.
- The flood defence Grant in Aid over-programme proposal included up to 7.5% over programme to use to support option 3 of the over programme
- 3 options were presented to the RFCC:
- Option 1, i.e. Accept the indicative allocation:
- Options 2, 27 projects with Gia funding (of which 6 are LLFA schemes) does not maximise the use of contribution and does not reflect llfa priorities.
- Option 3 – Increase the number of LLFA projects to reflect the local priorities better and increase om2/3 by206 against option 1. The RFCC agreed to purse option 3 as their local choices
- The RFCC approved the updated local levy programme submission and endorsed the 5 year revenue maintenance allocation.

54/18 update from Laurence Couldrick (environment Sub-group) and John Cocker (Coastal Group)

Laurence Couldrick referred to the following items.

1 – Monitoring the current OM4 delivery and the complexity of the different measures and the types of projects that deliver OM4's (migratory/compensatory projects, environmental flood management schemes and supporting schemes). We are trying to improve the reporting of these and it would be good to present this at a future full board meeting

2 – Enabling events such as the soils conference and the working with natural process event. Would be good to set up 2019 events that engage with the wider committee more over the different partnerships that help deliver flood risk management alongside other benefits.

3 – Challenging future pipeline schemes to understand which of the three project types they fall into and is there more join up with other schemes that can be made by early stakeholder engagement.

John Cocker provided the following update:

John Cocker gave an update on coastal issues as recently discussed at the Regional Coastal Monitoring Strategic Board and the South West Coastal Group.

South West Regional Coastal Monitoring Programme
A copy of the SWRCMP progress report is appended to this coastal issues report.

Beach and Coastal Defence Management
We have enjoyed a relatively quiet period over the summer with opportunities for maintenance and repairs being undertaken during this period. There are however many locations on the south east facing coastline (Sid mouth, Dawlish. Torbay) where the beaches have been significantly depleted due to the unusually high incidence of easterly weather patterns and those beaches, whilst showing some signs of recovery over the summer, are likely to be tested again this winter. We are just about to enter the 2018-2019 storm season for which we should prepare ourselves to receive some significant Atlantic cyclonic wind storms and a continuance of those Easterly and Southerly events.

Coastal Communities Fund opportunities
The coastal partners are aware of the Coastal Communities Fund round 5 which covers the period 2019-20 to 2020-21 with £40 million to help coastal communities promote regeneration and economic growth through strong partnership projects. If the Coastal Group partners can identify regeneration schemes with strong flood and erosion benefit synergies we can hopefully secure bids in next months or so. An organisation can lead on only one application in each country but there is no limit on how many applications an organisation can be a partner in; the EA can therefore be a potential partner in many bids led by different RMAs or other Coastal group partners. See the link:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/683603/CCF_Guidance_Notes.pdf

Coastal Management and Planning
The RMA officers noted problems in Cornwall where residents wish to defend valuable properties by providing their own ad-hoc defences which were not consistent with the SMP policy of 'no active intervention' and therefore not consistent with the emerging CCMAs. It is possible that officer and member time will be increasingly taken up by defending coastal planning policies.

Related to this topic, we have situations where insufficient funds are available for schemes desired by the local coastal community. We envisage an increasing incidence where we will have to engage with communities as we face up to the situation of public finance affordability and sustainability in the face of climate change and rising sea levels. This is an emotive subject and if there are vulnerable areas that cannot be protected, it is important to keep the public informed as it is vital to take the public with us when reaching those decisions.

DCIoS SMP Refresh
The proposed SMP refresh for the three SMP groups (South Devon & Dorset, Cornwall (incl. IOS) and North Devon & Somerset) is a standing item for discussion. The Coastal Group propose the provision of a clear unbiased and factual advice note 'SMP for Planners' as part of a concerted effort to embed the advice from the SMPs into development planning. It is necessary to raise awareness of the SMP across the full spectrum of local authority business, economic and community planning.

Concern was raised regarding the possible cost of the reviews compared to the advised available funding of less than £50k per SMP within the South West Coastal Group; it was recognised that local differences and challenges might need RFCC Local Levy input to 'add local value' to their SMP refreshes.

The Coastal group members considered that the refresh process, and in particular the subsequent community engagement to agree and manage the changes, should be a prompt for discussion about affordability, sustainability and an honest 'reset' of what the local communities expectations should be regarding flood and coastal erosion management. There seemed to be an inherent expectation that national and local government and the EA would or should to come up with the answers to protect everyone everywhere. We need to inform communities so that people are aware what the issues are and what they will lead to so that they can be included in the political debate.

Richard Behan for South West Water suggested that the refresh and climate change discussions and engagement needed to be as robust as possible to identify the issues and challenges so that the businesses and communities are aware and can plan for what needs to be done.

GiA and Local Levy Programme of Work

The current reduction in GiA funding is a concern for the RMAs. Notwithstanding the reduction in available funding, it would be most unfortunate if the funding allocated during this 6 year programme should not be spent and the objectives identified have not been met. We all would lose credibility and find it difficult to justify funding from Treasury and Defra for future programmes. The RMA officers were very clear that the continuance of GiA funding for the programme of flood and erosion management projects, and associated coastal community regeneration, was significantly helped by the partnership funding achieved through Local Levy contributions with a resulting seven to one leverage.

Communication with the RFCCs it is vital that the Regional Flood and Coastal Committees are aware of the concerns and needs arising from the RMAs and the Coastal Groups so it is important that the communication between those groups is maintained.

North Sea Coastal Managers Group

The North Sea Coastal Managers Group (NSCMG) meeting took place 3rd – 5th October, based at Dawlish Warren to facilitate discussions about the justification of schemes required to protect assets other than urbanised dwellings. The NSCMG were particularly interested in our experience of high energy wave events and the effects on regional/national important infrastructure. It was interesting to hear from that group how they justify schemes in rural areas and how they value natural capital. We took the opportunity to compare how the member country governments and departments are incorporating the recent IPCC advice on climate change and rising sea level into their design standards. The officers from the Netherlands were interested in what we do to repair a failing or failed coastal defence asset as they do not allow their defences to deteriorate to the point of failure on the North Sea coast.

Defra Fair Funding Review

Whilst some of the RMA coastal managers would prefer that the Local Authority annual financial settlement should identify and ring fence a specific element of coastal protection funding, the Coastal Group consultation reply to Defra included the view that we did not agree that elements of local authority allocated funds should be ring-fenced for coastal work. The Coastal Group has all South West local authorities as members and the majority, if not all, of those authorities senior management teams and elected members would not want their discretion on local need spend to be harmed by ring fenced funding. The Coastal Group partners were advised that, if they have a contrary view, they are encouraged to make their own representations to the Defra consultation, preferably after consulting with their chief finance officer.

Topo Contracts (Beach Surveying)

- All summer repeat baseline surveys are complete and have been sent for upload to the website.
- Autumn interim surveys are currently underway.

Hydrodynamic Contracts (Wave Buoys and Tide Gauges)

- The Start Bay wave buoy came adrift at the beginning of August. The buoy was swiftly retrieved and towed into Dartmouth Harbour. The buoy was undamaged has been redeployed.
- An insurance claim in progress for the Mine head Buoy, clarifications on the cause of the loss has been provided. We are grateful for assistance from Thomas Dhoop at CCO.

Aerial Photography Contracts

- ASW02 (South Devon and South Cornwall): All data has been captured with the exception of ~11 flight lines. IIC Technologies Ltd have been given an extension to cover the next spring tidal window at the beginning of October. The latest report is that we have not been able to complete a re-fly of this element of work.
- ASW03 (North Cornwall and Isles of Scilly): The outstanding area between Land's End and Portreath is now complete. Apem Ltd have submitted the preliminary deliverables which have been accepted.
- ASW04 (North Devon and Somerset): Data between Hartland Point and the Parrett Estuary has been captured. Bluesky have been given an extension to cover the next spring tidal window and the option to reduce the ground sampling level, due to the large area outstanding.
- Should attempts at capture be unsuccessful the next suitable tidal window is in May 2019. Discussions are underway regarding contractual implications and the knock on effects of the capture failure to the habitat mapping contracts.

LiDAR Contracts

- LiDAR is scheduled to be flown for the entire SW coast between September and April 2019.
- The survey window was extended to cover the August spring tides in the upper Severn Estuary, with successful capture of the area north of Sharpness Dock taking place.
- Data capture is ongoing, however data for several polygons around Teignmouth, Torquay and Dartmouth has already been flown.

Habitat Mapping

- Habitat mapping contracts are in the process of being let. Data will be based on open source mapping rather than the previous OS Master Map framework and will therefore be freely available from the website following the ground truth window which will run from May to September 2019. Potential issues with the supply of aerial photography will be addressed with contractors, however mapping for EMSW01, EMSW03, EMSW05 and half of EMSW04 will definitely be possible. It is now likely that we will miss a small area of good quality aerial photography for EMSW02 on the Cornwall coast; we await information on the outstanding part of EMSW04 on the Severn Estuary.

Annual Reports

- 2018 annual reporting is under way. Reports will be available from the website once complete.
- Charts from the latest topographic surveys can be viewed at SWRCMP's website at the map viewer (http://southwest.coastalmonitoring.org/map-viewer/)

Annual Partners' Meeting 2018

- SWRCMP's Annual Partners' Meeting 2018 will be **17th October 2018** at Exeter Phoenix. The agenda has been circulated and we welcome your attendance.

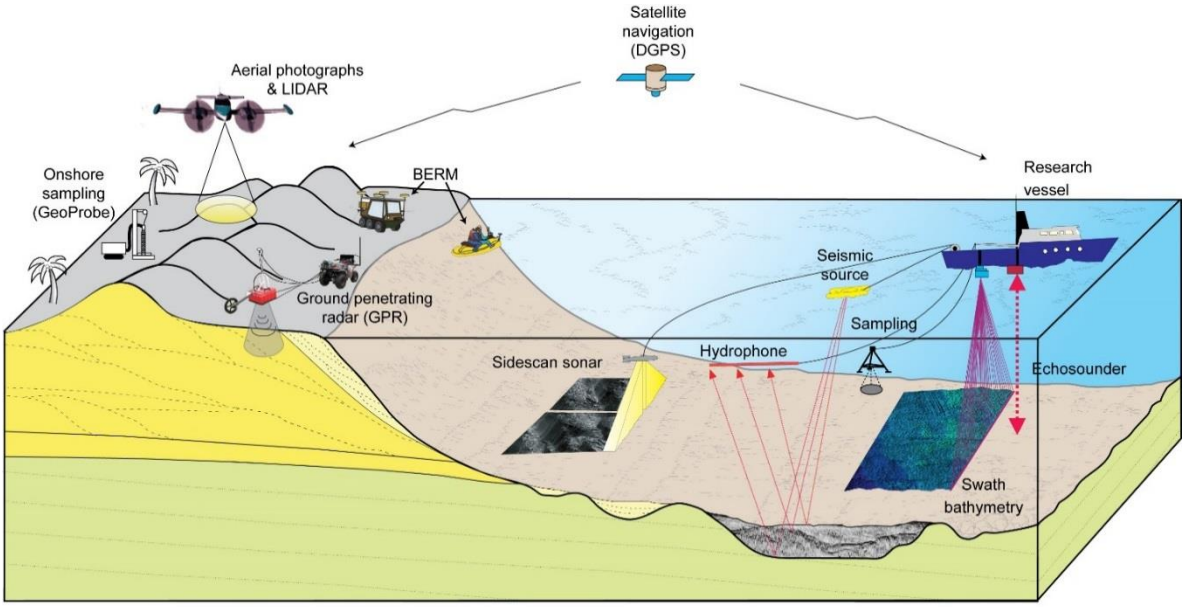
Devon, Cornwall and the IoS Asset Review

- We are making slow but steady progress with the task of identifying and recording 3rd Party and RMA coastal defence assets.
- Still a few issues to sort out regarding AIMS data access, particularly on accessing the free text data. This is not helpful for LLFA compliance with the FandWM Act 2010.

- A recent asset data recording/sharing/mapping meeting was held involving the South West and Coastal Partnership East (CPE) (Suffolk) project teams and the Agency's asset data specialists; the ArcGIS On-Line data mapping facility is proving to be a very accessible and flexible management tool. We will continue to work with CPE on this.
- We hope to have identified, recorded and mapped all coastal assets by or soon after the end of this financial year to allow us to move towards an inspection regime if funded by the Agency at some future date.

Finance

- Reasonably on target but no spare budget available in the SW programme
- Habit mapping budget £60k actual £66k with a need to consider the effects of delays in aerial photography.
- All programme costs being reviewed to ensure confidence in budget for remaining two years of this phase.
- The MCA swath bathymetry programme is being considered for our South West coastline. We have previously collected swath bathymetry between Gribbin Head and Dodman Point. While a repeat survey would be good, given budgetary constraints and the quality of the data we already have, a repeat survey is not necessary. The single beam bathymetry we have for the north coast of Devon and Somerset is aged and low resolution so it would be useful to capitalise on the opportunity and have a swath survey for the Ilfracombe to Gower survey area. We would need a compelling business case as the area isn't high on the agenda at present being low risk and falling largely outside out topographic survey area. Discussions with the EA and RMA partners will take place to identify whether they have any areas of real concern or any schemes in the pipeline which would benefit.
- It is now likely that the combined pressures of post storm surveys, unforeseen recruitment costs, habitat mapping delays and hydrodynamic (wave buoy) replacement/repair costs will result in an application for contingency funding within the proportion of contingency previously identified for the South West. This contingency funding request would not include the possible MCA multi-beam extension for the Ilfracombe to Gower survey area.
- A run of easterly weather in February and March 2018 has resulted in a significant loss of beach material on the east facing beaches in Lyme Bay. A very slow summer recovery is leading us to advise the EA that a comprehensive repeatable bathy survey out beyond the 10 metre depth is required in Lyme Bay. This is not included in our programme or contingency budget but, if needed to support EA/Network Rail/Torbay/South Hams projects, by combining the survey needs we could show a significant efficiency.
- Early discussions are recommended to ensure, as best we can, that a reasonable budget is planned for the next phase.



54 /18 South West Water Drainage proposals

On behalf of lf Mark Worsfold Richard Behan explained the drainage proposals of South West Water Providing a presentation to support the tabled document.

At the end of the discussions the following actions were agreed:

1. A visit to the Northumbrian Committee should be arranged to meet the Chairman of the RFCC to discuss Northumbria integrated Partnership this would include
2. The Chairman Ben Johnstone and Mark Worsfold and Richard Behan
3. A Report would be produced for the January or April meeting with a view to arranging something in place for mid/end of next year.

Action : Ben Johnstone.

55/18 Minutes – July 2018

The minute of the meeting on 5 July 2018 were approved as a correct record and signed by the chairman.

56/18 Matters arising

The update was noted by the Committee

57/18 The calendar of meetings dates for 2019 were noted as follows:

Thursday 11 April, Thursday 11 July Thursday 10 October and 2020. Thursday 9 January.

Swrfcc/mins oct 2018

As at 8.1.19

Informtion paper 2FCERM update paper
December 2018

Welcome to the Flood and Coastal Erosion Risk Management (FCERM) Stakeholder Forum update paper, covering the latest news and developments from the Environment Agency and Defra.

In this paper:

Planning for the future
- FCERM Strategy
- Long-Term Investment Scenarios
- Adapting to a changing climate
- Strategic Flood Planning Framework
- Modernising asset management milestone
- National Flood Risk Assessment 2

Working with others
- Rationalising the main river network
- Online reverse auction tool
- Climate Just #2
- Drainage and Wastewater Management Plans
- Working collaboratively with our Flood risk management suppliers
- Women in FCERM
- Shoreline Management Plan Refresh
- Asset data improvements
- Flood and Coast Conference 2019

Incident management and resilience
- Multi-Agency Flood Plan Review
- Flood Action Campaign
- Warning people about flood and coastal risk
- Surface Water data now Open Data

Legislation
- Surface Water Management Action Plan
- Environmental Permitting Regulations
- Advice to Risk Management Authorities

Useful links
- Environment Agency Organogram

But first…

New Environment Agency FCRM Director

We are pleased to announce that Julie Foley becomes Director of Flood Risk Strategy and National Adaptation in January 2019. Julie has been Area Director for the Environment Agency's Kent and South London Area since October 2016, where she leads over 500 staff. The Area's operational responsibilities include the Thames Barrier Tidal Defences and the Medway navigations.

Before joining Kent, South London & East Sussex Area, Julie was Area Director for the Environment Agency's Cambridgeshire & Bedfordshire Area which encompasses the River Great Ouse Catchment.

Julie has worked at the Environment Agency for twelve years. Her background prior to that was in Defra where she worked on a range of strategic policy issues including climate change, flooding and water management. Julie has also held roles working for public policy think tanks.

Julie is educated to Master's Degree level in environmental technology and management and is one of the Environment Agency's diversity leads for race and ethnicity.

Planning for the future

Flood and Coastal Erosion Risk Management Strategy
The government committed in its 25 Year Environment Plan that the Environment Agency will revise the national flood and coastal erosion risk management (FCERM) strategy in 2019. The Environment Agency is doing that through collaboration with the very people who will be affected by it or play a part in its delivery, be that flood risk or coastal change.

In 2018 we have been working with a wide range of stakeholders to develop the strategy. We widened our initial engagement and set up five working groups – four focusing on core questions identified at the scoping phase and a fifth group focusing on the ambition for FCERM in 2050.

We received a wealth of information from the working groups and from others, so thank you to all those who have contributed. We are now using this information to prepare for the formal public consultation.

We plan to launch the consultation in January 2019 for a period of eight weeks. We will notify you when the consultation goes live.

Contact: FCERMStrategy@environment-agency.gov.uk

Long-Term Investment Scenarios – Additional Analysis
The Long-Term Investment Scenarios (LTIS) published in 2014 is an economic assessment of future flood and coastal erosion risk management (FCERM) from now until 2065 in England. It identifies an approach to investing in FCERM over the long-term that would achieve the greatest reduction in flood damage for any given amount invested. We are now completing an LTIS 'additional analysis' project which has built on and enhanced the study published in 2014. We plan to publish this in early 2019 as part of the evidence pack supporting the FCERM Strategy consultation. This new document will bring together our best understanding of long-term investment scenarios for FCERM. Together, the 2014 study and the new analysis expand the scope and understanding of future investment choices for FCERM.

The project has built on the work of the National Flood Resilience Review (NFRR) and considers issues raised by the National Infrastructure Commission's (NIC) work on a National Infrastructure Assessment of infrastructure needs over the next 10-30 years, published in July 2018. It has been developed collaboratively with many FCERM partners and undergone a comprehensive review process. LTIS is evidence for government and others considering future investment, policy and funding choices, and is already being used to inform investment plans and to support the National FCERM Strategy.

Contact: mike.steel@environment-agency.gov.uk

Strategic Overview Team's Strategic Flood Planning Framework
The Flood Risk Regulations 2009 (FRR) set out a statutory process for flood risk planning over a 6 year cycle. The FRR require the Environment Agency and lead local flood authorities (LLFAs) to:

- assess risk from flooding for human health, the economy and environment including cultural heritage
- decide where we consider risk to be significant, and identify these areas as flood risk areas (FRAs)
- prepare maps that show the flood hazard and flood risk in FRAs
- prepare Flood Risk Management Plans (FRMPs) that set objectives and measures to reduce the risk in FRAs

We worked with LLFAs in the first cycle to publish the first FRMPs in 2016. These drew together objectives and measures already established in Catchment Flood Management Plans, Shoreline Management Plans and elsewhere, and included LLFAs' objectives and measures for local sources of flood risk in identified FRAs.

In the second cycle, we are aiming to improve our planning so that our updated FRMPs (due December 2021) will be the outcome of a more strategic planning process. We will work with LLFAs to produce second cycle FRMPs that focus on managing risk in all the identified FRAs.

How will we achieve this?
We are working on three linked work packages to:
- develop a common vision and framework for strategic, place-based flood risk management planning
- agree a process for preparing second cycle FRMPs, drawing on lessons learned from the first cycle
- implement new digital tools to present FRMPs in a flexible and accessible format.

Contact: lynsay.mclean@environment-agency.gov.uk

Environment Agency modernising asset management milestone
The Environment Agency manages around £26 billion of flood and coastal risk management assets. We also have an oversight role on a further £17 billion of assets managed by others. Modernising Asset Management (AM) is one of our top priorities in developing our vision to be at the forefront of international best practice and to be recognised as a leading AM organisation.

Gaining ISO55000 certification in 2018/19 is an important step towards achieving this vision and delivering our AM Strategy 2017-22. ISO certification will provide independent assurance of our competence as a modern AM organisation and help justify future investment needs. We also committed to achieving ISO certification as part of our response to the HM Treasury sponsored 'Worsfold' Review of our performance.

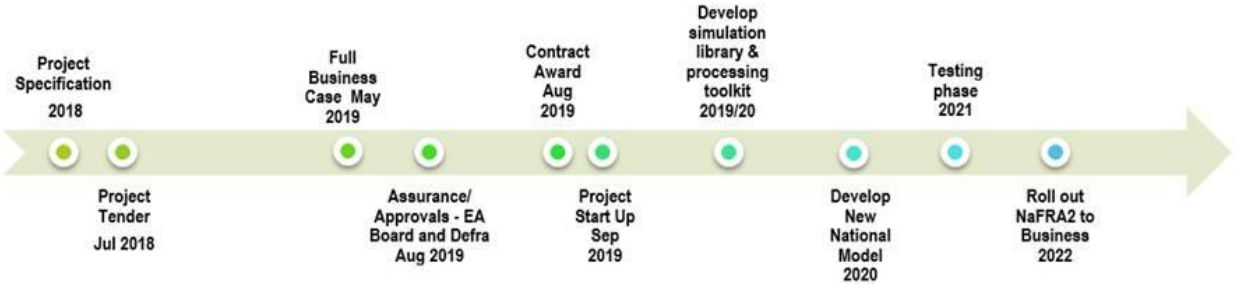
We successfully completed stage 1 in June. In stage 2 we will demonstrate our compliance with our AM system and the ISO55001 standard.

Contact: richard.jones@environment-agency.gov.uk

National Flood Risk Assessment 2: Revolution not evolution
The original NaFRA was first produced between 2002 and 2004 to illustrate the residual risk of flooding at a national scale, and the likely cost of damages to properties as a result. Over the years it has grown and been improved.

Our new assessment, NaFRA2, is about providing a holistic and consistent picture of flood risk across England to make better planning, investment and incident response decisions. It will be a step change in our approach, effective at all scales from local to national, and giving us a much better understanding of risk arising from all sources of flooding. We will be building it from local models and creating a library of flooding scenarios to answer a broad range of questions from 'What is the depth of flooding in this location?' to 'what is the impact of this flood defence asset?' It will deliver or support many of the recommendations of the National Flood Resilience Review, including resilient infrastructure, improved response, recovery and information, and work towards more integrated weather-hydrology-flood modelling.

NaFRA2 will revolutionise the way we assess flood risk. We started the year-long Official Journal of the European Union (OJEU) procurement process in July.



If you are interested in receiving updates about NAFRA2 and wish to be added to our NaFRA2 distribution list, please get in touch.

Contact: hannah.mitchell@environment-agency.gov.uk or celia.Jonquet-Burns@environment-agency.gov.uk

Working with others

Rationalising the main river network – de-maining pilots
We have completed the consultation on the pilots in South Forty Foot (Lincolnshire), Stour Marshes (Kent), Suffolk (East Anglia) and Isle of Axholme (North Lincolnshire). The consultation response documents have now all been published on GOV.UK here - https://www.gov.uk/government/consultations/norfolk-de-maining-proposals-rationalising-the-main-river-network.

We have taken the decision to de-main South Forty Foot, and assuming there are no appeals, de-maining will take place in late November and the watercourses will be removed from the statutory main river map. We plan to consult on the 3 watercourses remaining in the pilot in Norfolk during November and December.

We are currently finalising formal agreements with partners in the Isle of Axholme, Stour Marshes and Suffolk, prior to taking the formal decision to de-main.

We will produce an interim evaluation report setting on lessons learned so far, successes and challenges. This will fulfil our commitment to the Minister and will inform decisions on next steps. The final evaluation report by the end of March 2019.

Contact: lucy.roberts@environment-agency.gov.uk

Future Funding - 'NaturEtrade NFM' online reverse auction tool
We have developed and trialled a new 'reverse auction' online tool called NaturEtrade NFM, to pay for Natural Flood Management (NFM) measures. The innovative tool allows farmers and land managers to bid for funding to implement NFM measures on their land and can be found here: https://nfmea.sylva.org.uk/

Somerset Rivers Authority provided £30,000 funding which was awarded to the most cost-effective (lowest price per m^2) bids. The auction ran for three weeks over July and August 2018 in the Tone and Parrett catchments in Somerset, and resulted in 64 bids from 15 separate farms. These bids totalled over £37,000 and the successful bids translate into approximately 300ha of NFM interventions funded, that will slow and store surface water runoff, reducing flood risk, filtering pollution and increasing habitats.

Figure 1: Sam, who was successful in a bid for maize management funding

The trial was successful: compared to Countryside Stewardship (CS) payment rates, the most popular measure (post maize management) was bid at around 66% of the CS payment rate, which suggests it delivers value for money. We hope that this would increase with a more competitive auction.

A further benefit investigated was whether the tool could encourage greater – than currently under CS - uptake of NFM measures by providing a less bureaucratic approach. Post-auction survey feedback showed that 100% of farmers agreed that they would be likely to participate in such an auction again; a positive indicator of potential future uptake levels.

We plan to run further trials to test a range of measures and environmental outcomes. If you would like us to use the tool on your project, please let us know.

Contact: claire.johnstone@environment-agency.gov.uk or emma.claydon@environment-agency.gov.uk

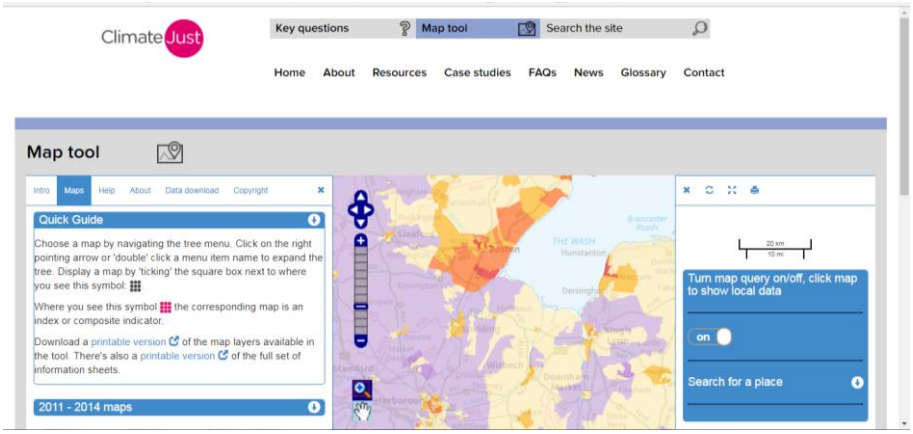
Climate Just #2
The Climate Just project team are pleased to announce that a new version of the Climate Just website is now live at www.climatejust.org.uk. This is the first time that information on flood risk and social vulnerability have been combined together. The materials are the product of a large set of contributors

including a research team University of Manchester, with support from the Joseph Rowntree Foundation, the Environment Agency, JBA Consulting, Centre for Sustainable Energy and Climate UK.

Climate Just is a freely available online resource that enables public service providers to identify:

- who is most socially vulnerable to climate change and why,
- where socially vulnerable neighbourhoods are located, and
- what can be done.

The resource consists of a map tool which helps visualise which places are most disadvantaged, together with extensive written materials that explain the maps and provide evidence on the links between climate change, justice and vulnerability in the UK.



The Environment Agency was initially involved in this project to evidence the work around adapting to climate change. Since then we have continued to support it by providing up to date data as well as user engagement and training.

The tool provides an innovative and interactive way at looking at flood risk from a social as well as environmental perspective whilst also:

- providing evidence on why we should continue to work on flood risk
- identifying who is vulnerable to climate change and fuel poverty
- highlighting neighbourhoods where climate disadvantage is highest
- explaining the factors involved and help you decide what actions to take

Contact: rachel.walters@environment-agency.gov.uk

Working with water and sewerage companies – Drainage and Wastewater Management Plans
Improving drainage planning has been a theme since the 2007 floods. With climate change and more growth we can expect pollution and flooding to increase, unless it is managed more strategically. The Government's 25 Year Environment Plan and Defra's Surface Water Management Action Plan have recently called for greater transparency and engagement on drainage planning.

Water UK's 21st Century Drainage Programme has developed a framework for the long term planning of drainage and wastewater services: Drainage and Wastewater Management Plans (DWMPs). The framework was commissioned by Water UK in collaboration with partners including, Defra, Ofwat, Environment Agency, Consumer Council for Water, ADEPT and Blueprint for Water.

Water and wastewater companies in England and Wales will produce DWMPs using the framework by the end of 2022, to support their business plans for Ofwat's Price Review in 2024. DWMPs will:

- provide a consistent basis for drainage and wastewater planning
- help water and sewerage companies manage their assets over the long term and ensure that they are resilient to climate change
- improve engagement with other Risk Management Authorities.

The framework is available here: https://www.water.org.uk/policy/improving-resilience/21st-century-drainage/long-term-planning.

Contact: Rob Wesley (Water UK lead) rwesley@water.org.uk, John Spence (Water UK programme manager) jjspence@aol.com or Jonathan Hunter (Environment Agency lead) jonathan.hunter@environment-agency.gov.uk

Working with our suppliers to deliver flood risk management
Next Generation Supplier Arrangements (NGSA) is a project that will bring in new ways of working through the Collaborative Delivery Framework (CDF) and a range of supporting frameworks. It will replace the current Water and Environment Management (WEM) framework in 2019 to deliver the majority of our FCERM programme, from around £250K to £50M in scheme value. The new ways of working will bring Environment Agency staff and our suppliers together in collaborative teams to plan and deliver our capital programme. These teams are open to other Risk Management Authorities (RMAs) to work with, or to access the skills and capacity needed to help deliver their programme.

We are currently in the short list stage of the procurement process for selecting our new suppliers. The initial tender assessments of suppliers was carried out by over 70 members of our staff across the business, with a number of RMAs assessing the tenders for their Collaborative Delivery Teams to ensure local issues were assessed. The shortlisted suppliers and are now preparing for the final tender stage. The short list is commercially sensitive as the procurement process has not been completed, but we will be able to share the names of the successful suppliers in March 2019.

We are also setting up supporting framework arrangements for specialist services which include client support, marine and coastal and mapping and modelling. We will keep you updated on the progress of this specialist framework.

Contact: NGSA2019@environment-agency.gov.uk

Women in FCERM
Women in FCERM is a networking group of professionals set up to support and connect women working across the flood and coastal erosion risk management (FCERM) sector. The network is made up of Environment Agency staff and external members and is focussed on women and those who line-manage them – but membership is open to all.

The group set itself three priorities for year one:
- organise a series of networking events in four hubs across England
- provide access to cross-company mentoring
- agree the scope and how to resource this

The free networking events are to help people meet others in a similar situation, share their experiences, talk about the issues that are important to them, network and form supportive connections. Events in London, Manchester, Peterborough and Bristol have been well attended and received great feedback. You can join and find out more about what they do through their LinkedIn group or follow them on Twitter (@WomenInFCERM). If you'd like to get involved or have feedback on their ideas then you can also contact Clare Dinnis.

Contact: clare.dinnis@environment-agency.gov.uk

Shoreline Management Plan (SMP) Refresh
The Coastal Group network (the seven regional partnerships led by coastal local authorities and the Environment Agency) will be reviewing the 20 English/cross-border SMPs from 2019-2021 to update the plans to reflect the most recent developments in science, monitoring, policy and ways of working.

The Plans were developed between 2006 and 2012 to set out the direction of coastal management for the whole coast into the 22nd century, and are an international model for long-term evidence-based coastal management planning.

We want to invest to ensure they are up-to-date 'living' documents that are more easily accessible to managers, planners and the public at the coast, so we will also be looking at better ways of displaying and communicating SMP information online and elsewhere.

Contact: nick.hardiman@environment-agency.gov.uk

Coastal asset data improvements
Coastal Groups have recognised the need to improve the quality of coastal asset data. Coastal Groups are looking at making this a priority for the national network of regional Coastal Monitoring Programmes in its next six-year work phase from 2021. In preparation we are trialling an online GIS asset data capture tool with Coastal Partnership East in Norfolk and Suffolk and also in the South West area. Improving coastal asset information will enable coastal groups to take better decisions on investment in coastal assets and improve our collective understanding of coastal flood and erosion risk.

Contact: andy.shore@environment-agency.gov.uk

Get involved in Flood and Coast Conference 2019
The 2019 Flood and Coast Conference will take place from 18-20 June 2019 at the Telford International Centre. The event will draw together key partners from the flood and coastal risk management community, including local authorities, internal drainage boards, contractors and suppliers, community groups and academia.

Building on our previous success, we are currently working on an exciting programme for 2019, you can find our more on the website: http://www.floodandcoast.com/.

Contact: paul.wyse@environment-agency.gov.uk

Incident Management and resilience

Multi-Agency Flood Plan Review

Last year, Defra's Secretary of State, Michael Gove commissioned an independent review on Multi Agency Flood Plans (MAFPs), overseen by Major General (retired) Tim Cross. The review was published in May 2018, and ministers made a commitment to publish a response by the end of the calendar year. The full document can be found here: https://www.gov.uk/government/publications/multi-agency-flood-plan-mafp-review

In the review, Tim Cross made 12 recommendations addressing aspects of flood planning he'd identified for improvement. This included areas such as assurance, training and exercising, funding, legislation, technology, and the roles of various partners in the multi-agency approach.

Through a series of workshops and wider conversations with stakeholders across government, Defra has engaged with government departments to pull together a full picture of the main considerations around each recommendation.

Following a request for ministerial steer, the next steps are to draft the government response, and commission a write round to get cabinet committee clearance.

Revised guidance on writing MAFPs is also currently being developed. Local Resilience Forum representatives from across the country were invited to two workshops in October, where views and ideas were gathered on possible areas for improvement, including format, order, and content.

Alongside this, a Civil Contingencies Secretariat standard on flood response is being created which will form part of a set of resilience standards to clearly set out expectations and benchmarks for good practice.

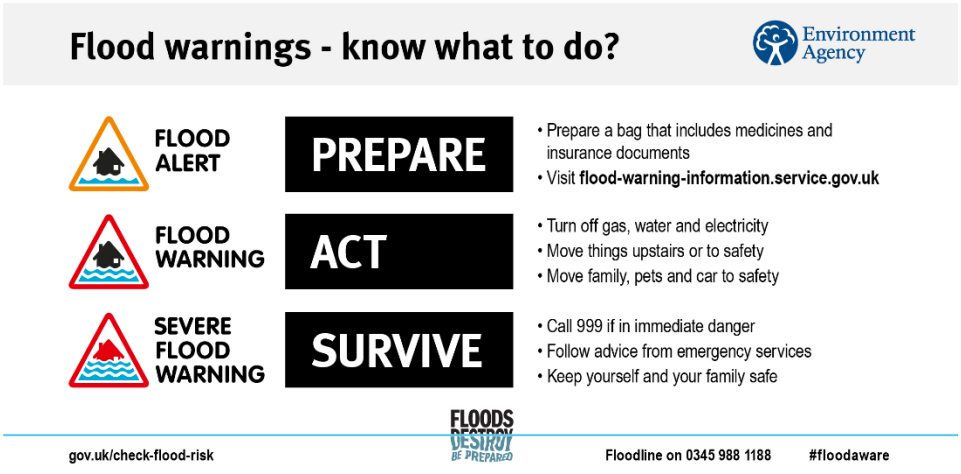
Defra and EA are working closely together on these documents, the aim is to release them in conjunction with the government response to the MAFP review.

Contact: farah.tabbakh@defra.gsi.gov.uk or helen.wilkinson1@environment-agency.gov.uk

Flood Action Campaign

We run the Flood Action Campaign each year to raise awareness of flood risk. The campaign was launched on 29 November and will be deployed again when rain/flooding are on the news agenda - as this is when people are most receptive to receiving messages about flooding and flood risk, and therefore more likely to take action. This year's campaign targeted the 18-34 age group. Research shows that they are least likely to perceive flood risk to their area, know how to protect their properties or where to go for information.

We asked people to look at and keep our flood plan – Prepare Act Survive – so that they know what to do in a flood. The campaign was predominantly be delivered through social media and traditional media. We asked partners, vloggers, and the public on social media to tell us #justonething that they would save from a flood. The campaign page has all the information about how to take part - https://floodsdestroy.campaign.gov.uk/



Contact: suzanne.hamblin-boone@environment-agency.gov.uk

Warning people about flood and coastal risk

Floodline provides a 24-hour telephone helpline for the public to access information about flooding in their area. It also provides them with practical advice about what to do before, during and after flooding. The current contract will expire on 31 March 2019 with the new service bringing some exciting innovative improvements to enhance the customer's journey.

Since 2010 the Environment Agency and Natural Resources Wales (NRW) has worked with telephone providers to access and automatically register landline phone numbers onto our flood warning system. To reflect the move towards mobile telephones, we started working with EE and O2 and in October 2018, we started registering Three mobiles. Three customers will now receive relevant flood warning and severe flood warning messages for their billing address. We are working with Vodafone to extend the service over the next few months.

Contact: manoch.kerman@environment-agency.gov.uk

Risk of Flooding from Surface Water data now Open Data
The Risk of Flooding from Surface Water data is now Open Data. Meaning that anyone can download, use, and manipulate the dataset free of charge and without restrictions under the Open Government License (OGL), including for commercial use.

The datasets can be found by searching for Risk of Flooding from Surface Water on http://data.gov.uk and include:

- Risk of Flooding from Surface Water Suitability
- Risk of Flooding from Surface Water Depth (3.3, 1 and 0.1 percent annual chance)
- Risk of Flooding from Surface Water Speed (3.3, 1 and 0.1 percent annual chance)
- Risk of Flooding from Surface Water Hazard (3.3, 1 and 0.1 percent annual chance)
- Risk of Flooding from Surface Water Direction (2m) (3.3, 1 and 0.1 percent annual chance)
- Risk of Flooding from Surface Water Direction (25m) (3.3, 1 and 0.1 percent annual chance)

Contact: sally.tulley@environment-agency.gov.uk

Legislation

Surface Water Management Action Plan

Good surface water management is about making sure that rain can drain effectively through our environment, using natural and man-made drainage networks. Surface water flooding happens when intense rainfall overwhelms local drainage capacities. These intense rainfall events are usually associated with thunderstorms, tend be local and can develop very quickly.

It is a significant national risk. 3.2 million properties in England are estimated to be at some risk from surface water flooding, more than are at flood risk from rivers and the sea. It is also a growing challenge, with climate change bringing more frequent heavy storms, new developments also increasing the need for drainage and an ageing sewerage infrastructure which is costly to maintain and upgrade.

The Surface Water Management Action Plan was published on 17 July 2018 includes 22 actions to strengthen surface water management including actions for Government, the Environment Agency, ADEPT, Water UK, Ofwat and the Met Office. The themes are:

- improving risk assessment and communication;
- making sure infrastructure is resilient;
- clarifying responsibilities for surface water management;
- joining up planning for surface water management; and
- building local authority capacity.

You can find it here: https://www.gov.uk/government/publications/surface-water-management-action-plan.

Contact: alice.baverstock@DEFRA.GSI.GOV.UK

Environmental Permitting Regulations

In April the Environment Agency introduced new permit charges for people to work in, over or near Main Rivers and sea defences. These changes mean our regulatory role is no longer subsidised through public money, so that government funding is invested directly on reducing flood risk and enhancing the environment.

A project is underway which plans to review and extend Standard Rules permits. This lowest cost permit allows customers to follow an agreed set of conditions in order to carry out an activity with minimal risk. Our next step is to begin a public consultation, this is scheduled to go live later in November.

We've also being exploring how catchment scale permits can make it easier for land owners to obtain permission for activities on reaches of river. Catchment permitting enables multiple landowners to apply for a number of flood risk activities within a single permit.

Contact: joe.march@environment-agency.gov.uk

Environment Agency Advice to Risk Management Authorities on business case preparation

The Environment Agency has revised the web page "Flood and coastal defence: develop a project business case". We have published a new business case template for low value schemes. The template contains advice and explains the level of detail needed to support applications for grant funding and which is proportionate to the scheme value.

The page also includes the latest Grant Memorandum. This document is essential reading for all seeking to apply for flood and coastal erosion risk management grant. https://www.gov.uk/guidance/flood-and-coastal-defence-appraisal-of-projects#contact

Contact: richard.williams@environment-agency.gov.uk

Useful links

Environment Agency Organogram

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/721423/EA_Organisation_Chart_July_2018.pdf

Information paper 2

SW RFCC Committee Meeting

Meeting date: 10January 2019
Item no. *[Secretariat will complete]*

Appendix A: FCRM GiA indicative capital allocation
Appendix B: FCRM GiA indicative revenue allocation
Appendix C: FCRM allocation principles

Paper by: Director of FCRM Allocation and Asset Management

Subject: 2019/20 FCRM Grant in Aid (GiA) allocation for capital and revenue funding

Recommendations:

The RFCC Committees are asked to:

1. Provide consent to the final draft indicative FCRM Grant in Aid capital programme (Appendix A).
2. Provide consent to the final draft indicative FCRM Grant in Aid revenue maintenance programme (Appendix B).
3. Note the allocation principles for the 2019/20 allocation (Appendix C), as shared previously.
4. Advise on management of key risks to the delivery of 300,000 homes target (section 5)

Headline messages:

- This paper requests the Committees to consent their final draft indicative capital and revenue programmes for 2019/20, and to note their draft indicative allocations for 2020/21 and their contribution to the 300,000 homes better protected target.
- Appendix A contains details of the capital GiA allocation
- Appendix B contains details of the revenue maintenance GiA allocation.
- All 'local choices' changes made by the Committees during the October Committee round have been incorporated into the programme.
- As we head in to the final 2 years of our programme GiA is fully allocated and targeted on schemes better protecting homes by March 2021 – managing project and programme costs will be important to ensure the programme remains affordable.
- Please refer to the April 2017 National Allocation paper for an overview of the capital and revenue allocation process.

1.0 Background

1.1 This paper is the final stage of the allocation of Flood and Coastal Risk Management (FCRM) Grant in Aid (GiA) funding for the 2019/20 financial year.

1.2 The detail of this allocation for the South West Regional Flood and Coastal Committee which will be tabled on the day at the January committee meeting.

1.3 In building the indicative allocations, the draft allocation principles and Defra's Partnership Funding Policy have been applied. These principles were approved by the Environment Agency Board on 1 February 2018.

1.4 The detail around the annual allocation process is set out in the appendix of the April 2018 National Allocation paper and should be referred to throughout the year.

2.0 Progress to date – capital and revenue programmes

2.1 So far, as at 31 October 2018, we have better protected over 147,500 homes, against our target of 300,000 by end March 2021. So far this financial year, we have better protected nearly 4,800 homes (to end October 2018). We are expecting to deliver a further 56,000 homes by end of 2018/19, raising the total delivered so far to around 200,000 homes.

2.2 In terms of asset conditions, our progress as of end of October 2018 was 96.9%. Our target by end March 2020 is for 98% of high consequence assets to be at target condition.

3.0 FCRM Grant in Aid capital allocation

3.1 This year's annual refresh of the capital programme is the most important to date, designed to ensure we achieve the 300,000 homes better protected target over the remaining two years of the programme and deliver to budget. All information relating to the capital allocation can be found in Appendix A.

3.2 As set out in the allocation process (detailed in the April 2018 paper), the January Committee meeting is when RFCCs consent their programmes.

3.3 Following the local choices meetings in October, all identified 'local choice' changes have been incorporated.

3.4 As noted in the October paper, the capital programme has been prioritised using the following approach:

- Projects in construction by 1 October 2018 and statutory and legal 'must do's'
- Projects better protecting homes by 2021; then
- Projects better protecting homes beyond 2021, prioritised by Partnership Funding score

The programme is then profiled to meet the available capital budget.

3.5 The cut-off date for when projects are in construction would have been 31 March 2019. For the 2019/20 allocation we brought this forward to 1 October 2018 to maximise homes better protected in the programme.

3.6 Table 1 in Appendix A shows the capital profile for the final 2 years of the 6 year programme, and 2018/19 for reference. It is unchanged from the October paper.

3.7 Following the refresh process, the bid for funding for the final 2 years of the programme was approximately £280m (25%) more than the available funding. This is due to increased

scheme costs, extra statutory work on reservoirs and for compensatory habitat, and slippage in the profile of the schemes delivering in the 6 year programme window. Due to this, we can no longer begin construction on as many schemes that start in the 6 year programme but complete after it as previously planned and have had to defer some projects to a later date.

3.8 Following 'local choices' we can afford a maximum of 351,000 homes better protected. Our updated 'most likely' forecast based on the refreshed programme, taking into account delivery confidence for individual schemes, is 312,000 homes better protected.

3.9 Our focus remains on achieving our 300,000 homes target by end of March 2021, and this focus on a shorter term goal means that our programme is in essence now a two year programme. Ideally we would see our programme consist of a blend of projects at different stages of development. With the current pressure on our budget we are funding less projects that will feed our programme beyond March 2021.

3.10 The total partnership funding contributions required to achieve the homes better protected target for the 6 year programme is in the range of £630-£680m, of which £150m-£210m has yet to be secured. Achievement of 60,000 of the 351,000 maximum homes depends on contributions yet to be secured. Through the 'local choices' process, RFCCs were asked to consider opportunities to use local levy balances to support the programme.

3.11 In line with our settlement condition for the 6 year programme we would also expect 10% efficiency on the £490m allocation for 2019/20. We are currently on track to meet this target.

3.12 Table 2 in Appendix A shows the draft indicative allocation for FCRM capital GiA for the final 2 years of the 6 year programme, and 2018/19 for reference.

4.0 FCRM Grant in Aid capital allocation – managing the overprogramme

4.1 To help maintain momentum in the final two years of the programme Areas and RFCCs were offered the opportunity to build an overprogramme during the local choices process. This means they will be able to keep more projects going should funding become available from slippage elsewhere and will help ensure we meet our 300,000 homes better protected target.

4.2 However, we must recognise that if funding does not become available we will need to slow or stop some projects, and manage expectations. During 'local choices', RFCCs have used this approach to bring some of the deferred projects back into the programme.

4.3 RFCCs are asked to consent their programme of schemes, including those schemes which are over their current allocation and form part of their overprogramme, as described above.

4.4 RFCCs should note their affordable allocations, and associated anticipated homes to be better protected from the affordable allocation, in Appendix A (Tables 3 and 4). The final total allocations for each RFCC for 2019/20 are set out in the final column of Table 3. The allocations contain a small national over allocation which will need to be managed during 2019/20.

4.5 The full consented programme of schemes, including overprogramme, will be published in March 2019 following RFCC consent and EA Board approval of the programme.

5.0 Key risks – capital programme

5.1 The following are key risks to achieving the 300,000 homes better protected target. These risks were noted in the October paper and will need ongoing review and management throughout the remainder of the programme. We have already put in place a number of interventions to help manage these risks. RFCC Committees are asked to advise on and continue to support the management of these risks:

- Securing Partnership Funding contributions
- Slippage and underspend on projects led by other risk management authorities
- Spike in assurance workload and contract awards
- Transition from the current Water and Environment Management Framework (WEM) to Next Generation Supplier Arrangements (NGSA)
- Reduced financial flexibility to mitigate for further slippage
- Reduced capacity to fund pipeline work which would potentially constrain the future programme
- Grant-in-Aid funding slippage from 2018/19 which adds further pressure in 2019/20

6.0 FCRM Grant in Aid revenue allocation

6.1 All information relating to the revenue allocation can be found in Appendix B.

6.2 The final draft indicative revenue allocation for 2019/20, and 2018/19 for reference, can be found in Table 1, Appendix B. Financial year 2019/20 is the final year of Spending Review 2015 (SR15).

6.3 Revenue funding split by service level for 2019/20, and 2018/19 for reference, can be found in Table 2, Appendix B.

6.4 The SR15 'policy choice' reduction for 2019/20 is £0.9m for Flood Incident Management. At their meeting on 6 November, the Executive Committee indicated that the £2.9m funding for the flood warning system should be added back to Environment Agency budget for 2019/20. The saving of £0.9m will then be made from this as running costs have been reduced through the introduction of a new IT system for flood warning.

6.5 It is anticipated we may still have to make further cuts in 2019/20 in support of funding pressures across Defra group. We have not had formal confirmation of this yet. This paper assumes we will receive our baseline funding from the original SR15 settlement.

7.0 FCRM Grant in Aid revenue allocation – 5 year asset maintenance programme

7.1 In the March Budget 2016 the government announced an extra £40m per year for asset management. This long term revenue settlement supports our previous commitments to operate a 5 year maintenance programme. Table 3, Appendix B, shows the asset management funding, excluding any cuts, for 2019/20 with 2018/19 for reference.

7.2 As part of our Spending Review 2015 (SR15) settlement HM Treasury set a condition that we achieve 10% efficiency in asset management by end of SR15 and that we should reinvest all savings into 'maintaining defences'. We are investing an additional £6m into 'direct' maintenance in 2019/20. Direct maintenance includes Operations Managers teams and Field Services, including the maintenance programme.

7.3 We are applying the same agreement as for the 2018/19 allocation, that any RFCC reduction from previous year will be limited to 10% per year. For 2019/20 all RFCCs will receive at least what we indicated their indicative allocation would be as part of the 2018/19

allocation process. Where an RFCC is above its indicative allocation for 2019/20 we have sufficient budget to fund increases up to 4% and to commit to the indicative allocation that was given for 2019/20 in the January 2018 paper. For 2020/21 onwards we have used the indicative allocations from AIMS Planning, assuming flat funding in the next spending review period.

7.4 The indicative revenue maintenance allocations for each RFCC, for 2019/20 to 2023/24, are provided in Table 4, Appendix B. These are unchanged from what was shared at the October RFCC Committee round. Table 5 shows the indicative revenue maintenance programme by type of work, and Table 6 shows the programme by funding source.

8.0 Recommendations

8.1 The RFCC Committees are asked to:

1. Provide consent to the final draft indicative FCRM Grant in Aid capital programme (Appendix A).
2. Provide consent to the final draft indicative FCRM Grant in Aid revenue maintenance programme (Appendix B).
3. Note the allocation principles for the 2019/20 allocation (Appendix C), as shared previously.
4. Advise on management of key risks to the delivery of 300,000 homes target (section 5)

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Sponsor: Ken Allison, Director, Allocation and Asset Management
Date: 14 December 2018

Appendix A – FCRM GiA indicative capital allocation

This appendix provides all information required in relation to the indicative capital allocation.

1.0 FCRM GiA capital allocation – funding profile and allocations

Table 1: FCRM GiA capital allocation – funding profile (£m)

	Year 4 2018/19	Year 5 2019/20	Year 6 2020/21	Year 5 & 6 Total
Pre-Autumn Budget 2017	470	382	438	**820**
Change to profile	-40	70[1]		**70**
Additional funding to accelerate schemes	10	18	8	**26**
Additional funding for deprived communities	10	20	10	**30**
Additional funding for Carlisle	2	11.2	10	**21.2**
Revised profile	**452**	**501.2**	**466**	**967.2**

1. Includes £30m moved from 2017/18 to 2019/20

Table 2: Indicative FCRM GiA capital allocation (£m)

Programme	Amounts (£m)			
	Year 4 2018/19	Year 5 2019/20	Year 6 2020/21	Year 5&6 Total
National once and FCRM Portfolio (including Fleet and IT invest to save)	27.0[1]	29.3	24.8	54.1
Programme to meet legal obligations associated with flood risk management works[2]	8.1	3.9	4.4	8.3
Small scale capital projects[3]	15.9	11.4	10.5	21.9
Capital salaries for staff developing and delivering schemes	20.0	21.0	21.0	42.0
Recondition schemes (<£250k) for assets below target condition	10.0	6.5	5.0	11.5
New and replacement schemes	396.8	443.5[4]	402.2[4]	845.7[4]
TOTAL	**477.8[1]**	**515.64[4]**	**467.94[4]**	**983.6[4]**

1. Over-allocated by £5.4m. FCRM Board agreed an increase in-year to fund essential IT development work. To be managed through over-programme in 2018/19
2. Includes Water Framework Directive, Sites of Special Scientific Interest, Eel Regulations
3. Small scale capital projects for coastal monitoring, flood risk mapping, repairs to Environment Agency owned bridges, flood forecasting, flood warning, carbon reduction, hydrometry and telemetry assets, orphan reservoirs and strategies. Includes NFM programme.
4. Limited over-allocation. To be managed through over-programme. Includes £1.5m additional support to Northumbria RFCC to moderate significant reduction in indicative allocation, Thames Estuary critical works and statutory habitat compensation at Skeffling, River Exe and Wareham. Includes additional funding for Carlisle £25m across final 3 years of the programme.

Table 3: Capital allocation – schemes (CM/DEF/PLP) and support schemes – 2019/20

RFCC	Current published 2018/19 programme allocation approved by EA Board		Current published programme indicative allocation for 2019/2020[1]		Refresh bid for 2019/20[2]		Final allocation for 2019/20 including national over allocation[3]		Difference refresh vs allocation for 2019/20		Refresh programme forecast 2019/20	With additional over programme post local choices		With over programme post local choices	Final allocation for support schemes for 2019/20	Total Final allocation for 19/20[4]
	£m	Max homes	£m	Max homes	£m	Max homes	£m	Max homes	£m	Max homes	'Most likely homes'	£m	Max homes	'Most likely homes'	£m	£m
Anglian Central	5.5	644	1.4	300	14.2	522	13.1	394	11.7	94	290	13.7	66	44	0.4	13.5
Anglian Eastern	17.7	1,080	22.7	3,899	45.1	4,168	35.5	4,620	12.0	721	3,321	38.2	4,872	3,592	1.7	37.2
Anglian Northern	47.1	3,617	43.0	16,841	58.5	17,117	57.6	16,871	14.6	30	14,299	59.5	17,117	14,432	5.7	63.3
English Severn & Wye	4.9	1,095	1.3	292	4.0	1,126	3.4	969	2.1	677	714	3	407	263	0.5	3.9
North West	40.4	6,066	35.5	8,559	51.6	5,771	56.9	5,624	21.4	-2,935	2,422	56.9	5,624	2,422	2.2	59.1
Northumbria	14.3	819	5.3	658	8.5	985	10.1	1,167	4.8	509	858	9.9	1,204	911	0.9	11
South West	26.9	5,194	8.9	2,374	28.5	2,525	22.5	2,088	13.6	-286	1,697	24	2,072	1,706	1.9	24.4
Southern	43.5	12,593	32.9	11,879	46.4	13,013	42.1	12,914	9.2	1,035	9,823	43	11,826	9,193	2.9	45
Thames	51.6	5,180	34.4	4,730	71.0	6,368	48.7	6,267	14.3	1,537	4,627	52.5	6,264	4,670	1.4	50.1
Trent	26.0	2,967	50.4	5,804	52.0	2,669	50.0	2,481	-0.4	-3,323	1,566	52.3	2,915	2,043	0.9	50.9
Wessex	11.9	2,332	2.6	1,142	13.2	1,212	9.1	1,125	6.5	-17	841	10.1	1,233	916	2	11.1
Yorkshire	102.1	14,653	107.6	20,260	106.2	23,830	95.3	23,572	-12.3	3,312	19,831	95.3	24,751	20,570	1.4	96.7
Total	**392.0**	**56,240**	**345.9**	**76,738**	**499.1**	**79,306**	**444.3**	**78,092**	**97.5**	**1,354**	**60,287**	**458.4**	**78,351**	**60,762**	**21.9**	**466.2**

1. Indicative allocation for 2019/20 given as part of the 2018/19 allocation process
2. Bids from Areas in July 2018 as part of the refresh for 2019/20 (excluding new unfunded projects)
3. Changes include additional funding of £25m for Carlisle schemes and inclusion of Tidal Riverbank
4. Total allocation figures do not include capital salaries

Table 4: Indicative capital allocation – schemes only (CM/DEF/PLP) – 2019/20 and 2020/21

RFCC	Current published programme indicative allocation for 2019/20 and 2020/21[1]		Refresh bid for 2019/20 and 2020/21[2]		Final allocation for 2019/20 and 2020/21[3]		Difference refresh indicative allocation for 2019/20 and 2020/21		Refresh programme forecast 2019/20 and 2020/21
	£m	Max homes	£m	Max homes	£m	Max homes	£m	Max homes	**'Most likely homes'**
Anglian Central	2.9	1,507	34.2	2,263	31.8	1,951	28.9	444	1,401
Anglian Eastern	39.1	7,074	85.1	7,219	51.6	7,478	12.5	404	5,332
Anglian Northern	67.4	21,132	80.0	22,805	76.9	22,004	9.5	872	18,385
English Severn and Wye	3.8	958	7.2	2,181	4.9	1,365	1.1	407	956
North West	80.8	12,136	140.7	15,304	130.0	11,818	49.2	-318	8,739
Northumbria	19.2	2,387	26.4	2,460	15.6	2,285	-3.6	-102	1,018
South West	30.0	4,755	57.4	4,362	43.1	3,138	13.1	-1,617	2,363
Southern	99.1	27,806	127.7	28,009	104.1	26,854	5.0	-952	20,249
Thames	84.2	15,416	139.0	13,147	78.6	12,127	-5.6	-3,289	9,137
Trent	86.0	11,388	107.2	15,261	87.2	12,799	1.2	1,411	10,211
Wessex	19.6	2,815	34.8	2,904	22.2	2,411	2.6	-404	1,798
Yorkshire	194.5	40,078	223.8	42,430	199.7	41,777	5.2	1,699	34,844
Total	**726.5**	**147,452**	**1,063.7**	**158,345**	**845.7**	**146,007**	**119.1**	**1,445**	**114,432**

1. Indicative allocation for 2019/20 given as part of the 2018/19 allocation process
2. Bids from Areas in July 2018 as part of the refresh for 2019/20 (excluding new unfunded projects)
3. Changes include additional funding of £25m for Carlisle schemes and inclusion of Tidal Riverbank

Appendix B – FCRM GiA indicative revenue allocation

This appendix provides all information required in relation to the indicative revenue allocation

1.0 FCRM GiA revenue allocation – funding profile

Table 1: FCRM GiA revenue funding profile (£m)

	2018/19	2019/20
Opening position	211.9	213.5
SR15 policy choice reductions	-1.8	-0.9
'Real terms' protection for asset management	3.4	3.8
Budget 2016 - additional for asset management	40.0	40.0
Defra group budget changes for 2018/19	-7.2	-
Defra group budget changes for 2019/20	-	TBC
Total	**246.4**	**256.4**

2.0 FCRM GiA revenue allocation – funding by service level

Table 2: FCRM GiA revenue funding by service level (£m)

Service Level	2018/19 pre-cut	2018/19 post-cut	2019/20
Asset Management	204.9	199.9	208.7
Flood Incident Management	24.7	23.8	23.8[1]
Partnership and Strategic Overview	8.6	8.3	8.6
Biodiversity	4.7	4.6	4.7
Retained Services	10.6	9.7	10.6
Total	**253.5**	**246.4**	**256.4**

[1] Does not include the potential return of the £2.9m funding for flood warning system.

3.0 FCRM GiA revenue asset management funding profile

Table 3: FCRM GiA revenue asset management funding profile (£m)

	2018/19	2019/20
SR15 baseline[1]	180	184
Budget 2016	40	40
Total asset management revenue	**220**	**224**

1. Annual increase is due to 'real terms' protection for asset management and reinvestment of asset management efficiency savings.

4.0 FCRM GiA revenue allocation – revenue maintenance indicative allocations

Table 4: Revenue maintenance indicative allocations for 2019/20 to 2023/24

RFCC	2018/19 Allocation, £k	2018/19 Allocation– In Year Cuts £k	Feb 2018 Indicative Allocation for 2019/20 £k	Sept 2018 Indicative Allocation for 2019/20 £k	Change to Feb 2018 Indicative 2019/20 £k	Indicative Allocation for 2020/21 £k	Indicative Allocation 2021/22 £k	Indicative Allocation 2022/23, £k	Indicative Allocation 2023/24 £k
Anglian Central	4,270	4,270	4,307	4,770[2]	463	4,168	4,168	4,168	4,168
Anglian Eastern	8,430	7,967	8,150	8,698[2]	548	9,596	9,596	9,596	9,596
Anglian Northern	9,636	9,636	9,393	10,287[2]	894	10,947	10,947	10,947	10,947
North West	10,826	10,633	9,760	10,645[1,2]	885	10,161	10,161	10,161	10,161
Northumbria	2,391	2,258	2,152	2,475[2]	323	2,608	2,608	2,608	2,608
Severn & Wye	4,496	4,443	4,833	4,833[3]	0	4,410	4,410	4,410	4,410
South West	4,970	4,970	5,070	5,119	49	5,267	5,267	5,267	5,267
Southern	11,989	11,324	11,223	11,276[1]	53	11,371	11,371	11,371	11,371
Thames	16,883	16,374	16,315	19,399[1,4]	3,084	18,138	18,138	18,138	18,138
Trent	11,465	11,339	12,335	12,335[3]	0	12,838	12,838	12,838	12,838
Wessex	7,252	7,252	7,729	7,729[3]	0	7,799	7,799	7,799	7,799
Yorkshire	11,092	11,092	12,434	12,434[3]	0	12,697	12,697	12,697	12,697
Total	103,700	101,558	103,701	110,000	6,299	110,000	110,000	110,000	110,000

1. Reduction capped at 10% for 2019/20
2. 2019/20 allocation pegged to commitment in February 2018 RFCC paper
3. Increase capped at 4%
4. Thames – 2019/20 Allocation includes an increase for Thames Tidal Defences

5.0 FCRM GiA revenue allocation – revenue maintenance programme type of work

Table 5. FCRM GiA – indicative revenue maintenance programme type of work

			Type of Work - Value (£k)													
RFCC	Year	System Risk	Dredging	Maintain Conveyance	Maintain Raised Defences	Maintain Structures	MEICA	Operation	Other	Survey/ Inspection	Statutory Inspection	Channel Repairs	Coastal Repairs	Raised Defence Repairs	Structure Repairs	Unscheduled
	19/20	High	63	522	573	733	713	25	40	10	-	45	-	602	69	517
		Medium	98	127	210	124	65	36	-	1	-	-	-	93	14	
		Low	-	162	81	47	22	-	1	-	-	-	-	108	18	

6.0 FCRM GiA revenue allocation – revenue maintenance programme funding source

Table 6. FCRM GiA – indicative revenue maintenance programme funding source

RFCC	Year	System Risk	FDGiA	Local Levy	IDB Precept	General Drainage Charge	Total
	19/20	High	3326				
		Medium	768				
		Low	439				

Appendix C – FCRM allocation principles

Protect people and homes

- Deliver the £2.5bn six year capital programme
- Increased protection for at least 300,000 homes between 2015/16 and 2020/21
- Protect maintenance funding in real terms through this Parliament and re-invest 10% efficiency savings by 2019/20
- Take a risk-based approach to securing the condition of existing assets including channel conveyance
- Maintain our ability to warn people and respond to incidents so as to save lives and property
- Support the provision of property scale resistance and resilience measures

Working in partnership

- Provide positive contributions to the recently announced Government-led reviews into flood risk management
- Achieve third party, including private, investment in line with the Defra partnership funding and contributions policy
- Support community-based solutions that are innovative, cost-effective and affordable
- Achieve balanced programmes in collaboration with RFCCs
- Promoting an integrating approach to managing flood risk working with other Risk Management Authorities
- We will take a catchment based approach
- Improve our understanding with partners of all flood and coastal erosion risk data and support the government's 'Open Data' commitment making our data and information easily accessible to all who want it

Way we work

- Maintain skills and a pipeline of studies for medium and long-term investment needs
- Maximise efficiency savings and value for money
- Continue to promote schemes that meet statutory environmental requirements
- Promote sustainable development that reduces flood risk
- Provide appropriate funding toward the essential support services that enable delivery of flood and coastal risk outcomes
- We will work collaboratively across the Environment Agency and with external partners to realise multiple benefits