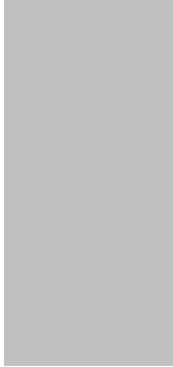


Annex 2 Future floods

ANNEX 2: Records of future floods and their consequences (preliminary assessment report spreadsheet)											
Field:	Flood ID	Description of assessment method	Name of Location	National Grid Reference	Location Description	Name	Flood modelled	Probability	Main source of flooding	Additional source(s) of flooding	Confidence in main source of flooding
Mandatory / optional:	<b>Mandatory</b>	<b>Mandatory</b>	<b>Mandatory</b>	<b>Mandatory</b>	Optional	Optional	Optional	<b>Mandatory</b>	<b>Mandatory</b>	Optional	Optional
Format:	Unique number between 1-9999	Max 1,000 characters	Max 250 characters	12 characters: 2 letters, 10 numbers	Max 250 characters	Max 250 characters	Max 250 characters	Max 25 characters	Pick from drop-down	Max 250 characters, same source terms	Pick from drop-down
Notes:	A sequential number starting at 1 and incrementing by 1 for each record.	Description of the future flood information and how it has been produced. Cover Regulation 12(6) requirements of (a) topography, (b) the location of watercourses, (c) the location of flood plains that retain flood water, (d) the characteristics of watercourses, and (e) the effectiveness of any works constructed for the purpose of flood risk management. Information from other relevant fields ( <u>Probability</u> , <u>Main source</u> , <u>Name</u> ) should be repeated here.	Name of the locality associated with the flood, using recognised postal address names such as streets, towns, counties. If the flood affects the whole LLFA, then record the name of the LLFA.	Reference of the centroid (centre point, falls within polygon) of the flood extent, or of the area affected if there is no extent information. If the flood affects the whole LLFA, then record the centroid of the LLFA.	A description of the general location that could be flooded.	Name of the model or map product or project which produced the future flood information	Background, or additional information on the probability of the flood modelled - such as whether <u>Probability</u> refers to probability of rainfall or water on the ground.	The chance of the flood occurring in any given year - record X from "a 1 in X chance of occurring in any given year".	Pick the source which generates the majority of flooding. Refer to the PFRA guidance for definitions of sources.	If the flood is generated by, or interacts with, any other sources (other than the <u>Main source of flooding</u> ), report the source(s) here, using the same source terms.	Pick a broad level of confidence in the <u>Main source of flooding</u> (compelling evidence of source - about 80% confident that source is correct), 'Medium' (some evidence of source but not compelling - about 50% confident that source is correct) 'Low' (source assumed - about 20% confident that source is correct) or 'Unknown'.
Example:	1	See records below for examples of description of assessment method.	Essex	SX1234512345		Flood Map for Surface Water - 1 in 200 deep	Probability refers to the probability of the rainfall event, in this case producing flooding of greater than 0.2m depth	200	Surface runoff		High
Records begin here:	1	<ul style="list-style-type: none"> <li>Topography is derived from 64.5% LIDAR (on 0.25m-2m grids; original accuracy ± 0.15m) and 35.5% NEXTMap SAR (on 5m grid; original accuracy ± 1.0m), processed to remove buildings &amp; vegetation, then combined on a 2m grid; buildings added with an arbitrary height of 5m based on OS MasterMap 2009 building footprints, then resampled to a 5m grid DTM. Manual edits applied where flow paths clearly omitted e.g. below bridges.</li> <li>Flow routes dictated by topography; a uniform allowance of 12mm/hr has been made for manmade drainage in urban areas. Infiltration allowance reduces runoff to 39% in rural areas and 70% in urban areas.</li> <li>Areas that may flood are defined by dynamically routing a 1.1 hour duration storm with 1 in 200 chance of occurring in any year over the DTM using JBA's JFLOW-GPU model.</li> <li>Manning's n of 0.1 in rural areas; 0.03 in urban areas, to reflect explicit modelling of buildings in urban areas.</li> <li>No allowance made for local variations in drainage, pumping or other works constructed for the purpose of flood risk management.</li> <li>The '&gt;0.1m' layer shows where modelled flooding is greater than 0.1m deep</li> </ul>	Heighington	NZ248223	unknown	Flood Map for Surface Water (FMFSW) - 1 in 200	Unknown	200	Surface runoff	unknown	High
	2	<ul style="list-style-type: none"> <li>Topography is derived from 64.5% LIDAR (on 0.25m-2m grids; original accuracy ± 0.15m) and 35.5% NEXTMap SAR (on 5m grid; original accuracy ± 1.0m), processed to remove buildings &amp; vegetation, then combined on a 2m grid; buildings added with an arbitrary height of 5m based on OS MasterMap 2009 building footprints, then resampled to a 5m grid DTM. Manual edits applied where flow paths clearly omitted e.g. below bridges.</li> <li>Flow routes dictated by topography; a uniform allowance of 12mm/hr has been made for manmade drainage in urban areas. Infiltration allowance reduces runoff to 39% in rural areas and 70% in urban areas.</li> <li>Areas that may flood are defined by dynamically routing a 1.1 hour duration storm with 1 in 200 chance of occurring in any year over the DTM using JBA's JFLOW-GPU model.</li> <li>Manning's n of 0.1 in rural areas; 0.03 in urban areas, to reflect explicit modelling of buildings in urban areas.</li> <li>No allowance made for local variations in drainage, pumping or other works constructed for the purpose of flood risk management.</li> <li>The '&gt;0.1m' layer shows where modelled flooding is greater than 0.1m deep</li> </ul>	Middleton St George	NZ345131	unknown	Flood Map for Surface Water (FMFSW) - 1 in 200	Unknown	200	Surface runoff	unknown	High
	3	<ul style="list-style-type: none"> <li>Topography is derived from 64.5% LIDAR (on 0.25m-2m grids; original accuracy ± 0.15m) and 35.5% NEXTMap SAR (on 5m grid; original accuracy ± 1.0m), processed to remove buildings &amp; vegetation, then combined on a 2m grid; buildings added with an arbitrary height of 5m based on OS MasterMap 2009 building footprints, then resampled to a 5m grid DTM. Manual edits applied where flow paths clearly omitted e.g. below bridges.</li> <li>Flow routes dictated by topography; a uniform allowance of 12mm/hr has been made for manmade drainage in urban areas. Infiltration allowance reduces runoff to 39% in rural areas and 70% in urban areas.</li> <li>Areas that may flood are defined by dynamically routing a 1.1 hour duration storm with 1 in 200 chance of occurring in any year over the DTM using JBA's JFLOW-GPU model.</li> <li>Manning's n of 0.1 in rural areas; 0.03 in urban areas, to reflect explicit modelling of buildings in urban areas.</li> <li>No allowance made for local variations in drainage, pumping or other works constructed for the purpose of flood risk management.</li> <li>The '&gt;0.1m' layer shows where modelled flooding is greater than 0.1m deep</li> </ul>	Hurworth on Tees	NZ314098	unknown	Flood Map for Surface Water (FMFSW) - 1 in 200	Unknown	200	Surface runoff	unknown	High

Annex 2 Future floods



- 4 • Topography is derived from 64.5% LIDAR (on 0.25m-2m grids; original accuracy  $\pm 0.15\text{m}$ ) Town Centre and 35.5% NEXTMap SAR (on 5m grid; original accuracy  $\pm 1.0\text{m}$ ), processed to remove buildings & vegetation, then combined on a 2m grid; buildings added with an arbitrary height of 5m based on OS MasterMap 2009 building footprints, then resampled to a 5m grid DTM. Manual edits applied where flow paths clearly omitted e.g. below bridges.
- Flow routes dictated by topography; a uniform allowance of 12mm/hr has been made for manmade drainage in urban areas. Infiltration allowance reduces runoff to 39% in rural areas and 70% in urban areas.
  - Areas that may flood are defined by dynamically routing a 1.1 hour duration storm with 1 in 200 chance of occurring in any year over the DTM using JBA's JFLOW-GPU model.
  - Manning's n of 0.1 in rural areas; 0.03 in urban areas, to reflect explicit modelling of buildings in urban areas.
  - No allowance made for local variations in drainage, pumping or other works constructed for the purpose of flood risk management.
  - The '>0.1m' layer shows where modelled flooding is greater than 0.1m deep.

NZ289147

unknown

Flood Map for Surface Water (FMfSW) - 1 in 200

200 Surface runoff

unknown

High

Annex 2 Future floods

Main mechanism of flooding	Main characteristic of flooding	Significant consequences to human health	Human health consequences - residential properties	Property count method	Other human health consequences	Significant economic consequences	Number of non-residential properties flooded	Property count method	Other economic consequences	Significant consequences to the environment	Environment consequences	Significant consequences to cultural heritage	Cultural heritage consequences
<b>Mandatory</b> Pick from drop-down	<b>Mandatory</b> Pick from drop-down	<b>Mandatory</b> Pick from drop-down	Optional Number between 1-10,000,000	Optional Pick from drop-down	Optional Max 250 characters	<b>Mandatory</b> Pick from drop-down	Optional Number between 1-10,000,000	Optional Pick from drop-down	Optional Max 250 characters	<b>Mandatory</b> Pick from drop-down	Optional Max 250 characters	<b>Mandatory</b> Pick from drop-down	Optional Max 250 characters
Pick a mechanism from; 'Natural exceedance' (of capacity), 'Defence exceedance' (floodwater overtopping defences), 'Failure' (of natural or artificial defences or infrastructure, or of pumping), 'Blockage or restriction' (natural or artificial blockage or restriction of a conveyance channel or system), or 'No data'.	Pick a characteristic from; 'Flash flood' (rises and falls quite rapidly with little or no advance warning), 'Natural flood' (due to precipitation, at a slower rate than a flash flood), 'Snow melt flood' (due to rapid snow melt), 'Debris flow' (conveying a high degree of debris), or 'No data'. Most UK floods are 'Natural floods'.	Would there be any significant consequences to human health if the future flood were to occur?	Record the number of residential properties where the building structure would be affected either internally or externally if the flood were to occur.	Where residential or non-residential properties have been counted, it is important to record the method of counting, to aid comparisons between counts. Choose from; 'Detailed GIS' (using property outlines, as per Environment Agency guidance), 'Simple GIS' (using property points), 'Estimate from map', or 'Observed number'.	If there would be other <u>Significant consequences to human health</u> , describe them including information such as the number of critical services flooded.	Would there be any significant economic consequences if the future flood were to occur?	Record the number of non-residential properties where the building structure would be affected either internally or externally if the flood were to occur.	Where residential or non-residential properties have been counted, it is important to record the method of counting, to aid comparisons between counts. Choose from; 'Detailed GIS' (using property outlines, as per Environment Agency guidance), 'Simple GIS' (using property points), 'Estimate from map', or 'Observed number'.	If there would be other <u>Significant economic consequences</u> , describe them including information such as the area of agricultural land flooded, length of roads and rail flooded.	Would there be any significant consequences to the environment if the future flood were to occur?	If there would be <u>Significant consequences to the environment</u> , describe them including information such as national and international designated sites flooded, and pollution sources flooded.	Would there be any significant consequences to cultural heritage if the future flood were to occur?	If there would be <u>Significant consequences to cultural heritage</u> , describe them including information such as the number and type of heritage assets flooded.
Natural exceedance	Natural flood	Yes	12000	Detailed GIS		No				No		No	
Natural exceedance	Natural flood	No		16 Simple GIS	unknown	No		unknown	unknown	No	unknown	No	unknown
Natural exceedance	Natural flood	No		42 Simple GIS	unknown	No		unknown	unknown	No	unknown	No	unknown
Natural exceedance	Natural flood	No		35 Simple GIS	unknown	No		unknown	unknown	No	unknown	No	unknown

Annex 2 Future floods

Natural exceedance    Natural flood    No



Simple GIS    unknown    No

unknown    unknown    No    unknown    No    unknown

Annex 2 Future floods

Comments	Data owner	Area flooded	Confidence in modelled outline	Model date	Model Type	Hydrology Type	Lineage	Sensitive data	Protective marking descriptor	European Flood Event Code
Optional Max 1,000 characters  Any additional comments about the future flood record.	Optional Max 250 characters	Optional Number with two decimal places The total area of the land flooded, in km <sup>2</sup>	Optional Pick from drop-down  Pick a broad level of confidence in the modelled flood outline from: 'High' (good match to past flood extents - about 80% confident that outline is correct), 'Medium' (reasonable match - about 50% confident that outline is correct), 'Low' (poor match, sparse data - about 20% confident that outline is correct) or 'Unknown'.	Optional 'yyyy' or 'yyyy-mm' or 'yyyy-mm-dd'	Optional Max 250 characters  Type of software used to create future flood information.	Optional Max 250 characters  Type of hydrology method used to create future flood information.	Optional Max 250 characters  Lineage is how and what the data is made from. Has this data been created by using data owned or derived from data owned by 3rd party (external) organisations? If yes please give details.	Optional Pick from drop-down  Has the information been classified under the Government's Protective Marking Scheme? Include protective marking time limit where known. Note: If "Approved for Access" then report "Unmarked".	Optional Max 50 characters  For use where organisations apply the Government's Protective Marking Scheme.	Auto-populated Max 42 characters  This field will autopopulate using the LLFA name provided on the "Instructions" tab, and the <a href="#">Flood ID</a> . It is an EU-wide unique identifier and will be used to report the flood information.  Format: UK<ONS Code><P or F><LLFA Flood ID>. "ONS Code" is a unique reference for each LLFA. "P or F" indicates if the event is past or future. "LLFA Flood ID" is a sequential number beginning with 0001.
	Epping Forest District Council		Medium-Low	2008-08	2D-TuFlow	FEH (Revised Rainfall Runoff)	Ordnance Survey AddressPoint; CEH 1:50k River Centreline; NextMap DTM.	Unmarked	Private	UKE1000012F0001
unknown	JBA Consulting (distributed by Environment Agency under licence)		unknown	2009-07	JFLOW-GPU	Depth-duration-frequency curves derived from FEH CD-ROM, from centre of each 5km model, with areal reduction factor applied to convert point rainfall estimate to more representative figure. Curve then used to derive 6.5 hr, 1:200 chance rainfall depth; this is converted to hyetograph, using summer rainfall profile.	unknown	Unmarked	Commercial	UKE0600005F0001
unknown	JBA Consulting (distributed by Environment Agency under licence)		unknown	2009-07	JFLOW-GPU	Depth-duration-frequency curves derived from FEH CD-ROM, from centre of each 5km model, with areal reduction factor applied to convert point rainfall estimate to more representative figure. Curve then used to derive 6.5 hr, 1:200 chance rainfall depth; this is converted to hyetograph, using summer rainfall profile.	unknown	Unmarked	Commercial	UKE0600005F0002
unknown	JBA Consulting (distributed by Environment Agency under licence)		unknown	2009-07	JFLOW-GPU	Depth-duration-frequency curves derived from FEH CD-ROM, from centre of each 5km model, with areal reduction factor applied to convert point rainfall estimate to more representative figure. Curve then used to derive 6.5 hr, 1:200 chance rainfall depth; this is converted to hyetograph, using summer rainfall profile.	unknown	Unmarked	Commercial	UKE0600005F0003

Annex 2 Future floods

unknown	JBA Consulting (distributed by Environment Agency under licence)	unknown	2009-07	JFLOW-GPU	Depth-duration-frequency curves derived from FEH CD-ROM, from centre of each 5km model, with areal reduction factor applied to convert point rainfall estimate to more representative figure. Curve then used to derive 6.5 hr, 1:200 chance rainfall depth; this is converted to hyetograph, using summer rainfall profile.	unknown	Unmarked	Commercial	UKE06000005F0004
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Annex 3 Flood Risk Areas

ANNEX 3: Records of Flood Risk Areas and their rationale (preliminary assessment report spreadsheet)								
Field:	Flood Risk Area ID	Name of Flood Risk Area	National Grid Reference	Main source of flooding	Additional source(s) of flooding	Confidence in main source of flooding	Main mechanism of flooding	Main characteristic of flooding
Mandatory / optional:	<b>Mandatory</b>	<b>Mandatory</b>	<b>Mandatory</b>	<b>Mandatory</b>	Optional	Optional	<b>Mandatory</b>	<b>Mandatory</b>
Format:	Unique number between 1-9999	Max 250 characters	12 characters: 2 letters, 10 numbers	Pick from drop-down	Max 250 characters, same source terms	Pick from drop-down	Pick from drop-down	Pick from drop-down
Notes:	A sequential number starting at 1 and incrementing by 1 for each record.	Name of the locality associated with the Flood Risk Area; a town, city, or county.	National Grid Reference (centre point, falls within polygon) of the Flood Risk Area.	Pick the source from which there is a significant flood risk. Refer to the PFRA guidance for definitions of sources.	If there is also significant flood risk generated by another source (other than the <u>Main source of flooding</u> ), report the source(s) here, using the same source terms.	Pick a broad level of confidence in the <u>Main source of flooding</u> from: 'High' (compelling evidence of source - about 80% confident that source is correct), 'Medium' (some evidence of source but not compelling - about 50% confident that source is correct) 'Low' (source assumed - about 20% confident that source is correct) or 'Unknown'.	Pick a mechanism from: 'Natural exceedance' (of capacity), 'Defence exceedance' (floodwater overtopping defences), 'Failure' (of natural or artificial defences or infrastructure, or of pumping), 'Blockage or restriction' (natural or artificial blockage or restriction of a conveyance channel or system), or 'No data'.	Pick a characteristic from: 'Flash flood' (rises and falls quite rapidly with little or no advance warning), 'Natural flood' (due to significant precipitation, at a slower rate than a flash flood), 'Snow melt flood' (due to rapid snow melt), 'Debris flow' (conveying a high degree of debris), or 'No data'. Most UK floods are 'Natural floods'.
Example:	1	London	SX1234512345	Surface runoff	NA	High	Natural exceedance	Natural flood
Records begin here:								

Annex 3 Flood Risk Areas

Significant consequences to human health	Human health consequences - residential properties	Property count method	Other human health consequences	Significant economic consequences	Number of non-residential properties flooded	Property count method	Other economic consequences	Significant consequences to the environment	Environment consequences	Significant consequences to cultural heritage	Cultural heritage consequences
<b>Mandatory</b> Pick from drop-down	Optional Number between 1-10,000,000	Optional Pick from drop-down	Optional Max 250 characters	<b>Mandatory</b> Pick from drop-down	Optional Number between 1-10,000,000	Optional Pick from drop-down	Optional Max 250 characters	<b>Mandatory</b> Pick from drop-down	Optional Max 250 characters	<b>Mandatory</b> Pick from drop-down	Optional Max 250 characters
Has the Flood Risk Area been identified as a result of significant consequences to human health?	Record the number of residential properties where the building structure would be affected either internally or externally by the flood.	Where residential or non-residential properties have been counted, it is important to record the method of counting, to aid comparisons between counts. Choose from: 'Detailed GIS' (using property outlines, as per Environment Agency guidance), 'Simple GIS' (using property points), 'Estimate from map', or 'Observed number'.	If the Flood Risk Area has been identified as a result of other <u>Significant consequences to human health</u> , describe them (such as information about the number of critical services flooded).	Has the Flood Risk Area been identified as a result of significant economic consequences?	Record the number of non-residential properties where the building structure would be affected either internally or externally by the flood.	Where residential or non-residential properties have been counted, it is important to record the method of counting, to aid comparisons between counts. Choose from: 'Detailed GIS' (using property outlines, as per Environment Agency guidance), 'Simple GIS' (using property points), 'Estimate from map', or 'Observed number'.	If the Flood Risk Area has been identified as a result of other <u>Significant economic consequences</u> , describe them (such as information about the area of agricultural land flooded, length of roads and rail flooded).	Has the Flood Risk Area been identified as a result of significant consequences to the environment?	If the Flood Risk Area has been identified as a result of <u>Significant consequences to the environment</u> , describe them (such as information about national and international designated sites flooded, and pollution sources flooded).	Has the Flood Risk Area been identified as a result of significant consequences to cultural heritage?	If the Flood Risk Area has been identified as a result of <u>Significant consequences to cultural heritage</u> , describe them (such as information about the number and type of heritage assets flooded).
Yes	50000	Detailed GIS		No				No		No	



Annex 3 Flood Risk Areas

Origin of Flood Risk Area	Amended Flood Risk Area rationale	New Flood Risk Area rationale	Rationale detail	European Flood Risk Area Code
<p><b>Mandatory</b> Pick from drop-down</p>	<p><b>Mandatory</b> Pick from drop-down</p>	<p><b>Mandatory</b> Pick from drop-down</p>	<p><b>Mandatory</b> Max 1,000 characters</p>	<p>Auto-populated Max 42 characters</p>
<p>Pick the origin from either; 'Indicative' Flood Risk Area, 'Amended' Flood Risk Area (in which case <u>Amended Flood Risk Area rationale</u> is mandatory), or 'New Flood Risk Area (in which case <u>New Flood Risk Area rationale</u> is mandatory).</p>	<p>Pick the main rationale from either; 'Geography', 'Past floods', or 'Future floods'. Then provide further detail in <u>Rationale detail</u>. This is not mandatory if the Flood Risk Area was an indicative Flood Risk Area and has not been amended, or is a new Flood Risk Area.</p>	<p>Pick the main rationale from either 'Past floods', or 'Future floods'. Then provide further detail in <u>Rationale detail</u>. This is not mandatory if the Flood Risk Area was an indicative Flood Risk Area.</p>	<p>Summarise the rationale for amending an indicative Flood Risk Area, or identifying a new Flood Risk Area. Refer to Defra &amp; WAG guidance to LLFAs on "Selecting and reviewing Flood Risk Areas for local sources of flooding". If the Flood Risk Area was an indicative Flood Risk Area and has not been amended, record "indicative Flood Risk Area".</p>	<p>This field will autopopulate using the LLFA name provided on the "Instructions" tab, and the <u>Flood Risk Area ID</u>. It is an EU-wide unique identifier and will be used to report the Flood Risk Area information.</p> <p>Format: UK&lt;ONS Code&gt;&lt;A&gt;&lt;LLFA Flood ID&gt;. "ONS Code" is a unique reference for each LLFA. "A" indicates it is a Flood Risk Area. "LLFA Flood ID" is a sequential number beginning with 0001.</p>
<p>Indicative</p>	<p>NA</p>	<p>NA</p>	<p>indicative Flood Risk Area</p>	<p>UKE10000012A0001</p>