

<b>Location: Banagher, Co. Offaly, includes townland in Co. Galway</b>		<b>Unique ID: 252835</b> (from PFRA database)	
<b>Initial OPW Designation</b>	<b>APSR</b> <input type="checkbox"/>	<b>AFRR</b> <input checked="" type="checkbox"/>	<b>IRR</b> <input type="checkbox"/>
<b>Co-ordinates</b>	<b>Easting: 200915</b>	<b>Northing: 215334</b>	
<b>River / Catchment / Sub-catchment</b>	<b>River Shannon / Shannon</b>		
<b>Type of Flooding / Flood Risk</b> (identify all that apply)	<b>Fluvial non-tidal</b> <input checked="" type="checkbox"/> <b>Fluvial tidal</b> <input type="checkbox"/> <b>Coastal</b> <input type="checkbox"/>		

<b>Stage 1: Desktop Review</b>	
<b>1.1 Flood History (include review of Floodmaps.ie)</b>	<p><b>River Flow Path</b></p> <p>The River Shannon flows south through Banagher. A large marina is located at Banagher on the left bank of the River Shannon.</p> <p><b>Flood Event Records</b></p> <p>Six flood records are listed in floodmaps.ie. Significant events include the 2009, 1999/2000 and 1954 events which relate to flooding from the Shannon.</p>
<b>1.2 Relevant information on flooding issues from OPW and LA staff</b>	<p><b>PFRA database comments (<i>in italics</i>):</b></p> <p><b>OPW comments</b> <i>Not designated as APSR, no strong LA support. Partly in Galway too</i></p> <p><b>LA comments</b> <i>2009 Land in Banagher Pumping Stations, not many properties LA want Risk review. Included in Shannon doc as risk review. (Fire Station comments need to be removed) (in Galway list instead of Offaly) (250409)</i></p> <p><b>Meeting / discussion summary comments:</b></p> <p><b>OPW comments</b></p> <ul style="list-style-type: none"> <li>This is on the Shannon, however, not considered a significant flood risk.</li> </ul> <p><b>LA comments</b></p> <ul style="list-style-type: none"> <li>The area Lusma near Banagher is potentially at risk of flooding.</li> <li>Offaly CC would have expected Banagher to be an APSR.</li> <li>There is a flood risk from the River Shannon.</li> <li>The bridge over the Shannon was investigated after the 2009 event and was considered to be in good condition, reports of the bridge close to failure during the flood were unsubstantiated.</li> </ul>

<b>1.4 PFRA Data</b>			
<b>1.4.1 PFRA hazard mapping</b>	<b>PFRA mapping available in GIS layer:</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	<b>PFRA mapping included on FRR map:</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
<b>1.4.2 Summary of Principal Receptors</b>	<b>Type</b>	<b>FRI score (if available)</b>	
	Arch_Regional	42.3	
	Arch_National	25	
	Monument_LV	22.1	
	<b>Total</b>	<b>408.25</b>	
<b>1.7 Stage 1 Evaluation</b>	<b>Aspect</b>	<b>Clearly APSR</b>	<b>Uncertain</b>
	<b>Flood History (1.1)</b>	<b>X</b>	
	<b>OPW / LA Information (1.2)</b>		<b>X</b>
	<b>PFRA Evaluation (1.4)</b>	<b>X</b>	
	<b>Overall Desktop Evaluation</b> (if any above aspect is uncertain then overall designation is uncertain)		<b>X</b>
<b>1.8 Proposed level of assessment for Stage 2 site visits</b>	<b>Level A Site Visit</b>	<b>X</b>	
	<b>Level B Site Visit</b>		

<b>Stage 2: Site Inspection</b>		<b>Level A Assessment</b>		
<b>Date and Time of Inspection</b>		<b>Date: 06/05/11</b>		
		<b>Time: 09:00</b>		
<b>Names of inspection team (including OPW/LA staff if present)</b>		<b>James Murray</b>		
		<b>Peter Smyth</b>		
<b>2.1 Ground-truthing of Hazard Mapping</b>	<b>Fluvial non-tidal <input checked="" type="checkbox"/> Fluvial tidal <input type="checkbox"/> Coastal <input type="checkbox"/> Not available <input type="checkbox"/></b>			
	PFRA hazard mapping seems to be indicating very large areas of flooding. Mapping is a bit coarse through Banagher and in areas likely to be inaccurate			
<b>2.2 Spot check ground-truthing of selected receptor vulnerability  (also note any key receptors noted during visit that are not identified by PFRA)</b>	<b>Receptor Type</b>	<b>Location description (if not obvious)</b>	<b>Exists?</b>	<b>Overall Vulnerability / Risk (L / M / H)</b>
	Castle	On right bank downstream of bridge over the Shannon	Yes	Medium
<b>2.3 Local knowledge - on-site comments  (OPW, LA and any info volunteered by local residents during visit)</b>	Local knowledge indicated that properties behind the marina flooded in 2009. There was concern that the bridge over the Shannon would wash away during the 2009 flood event. The Local Authority considered closing the bridge but decided against it.			
<b>2.4 Comments on hydraulic constrictions (bridges, etc.) and conveyance routes</b>	The bridge over the Shannon is a large multi arch bridge (six arches) raised to accommodate navigation. It could cause minimal hydraulic constriction but afflux is possible due to piers. The springing and soffit levels are very high. The bridge was built in 1843 and refurbished in 1971			

2.5 SVRS Assessment Matrix												
<b>Weightings:</b> <b>A - x1 - reasonable expectation of flooding</b> <b>B - x2 - high expectation of flooding</b> <b>C - x5 - risk to life</b>												
Approx. Number	1 to 4			5 to 20			>20					
Weighting	A	B	C	A	B	C	A	B	C			
Property (domestic)	10				100	X			200			
Property (small retail or business)	20		X		200				400			
Property (large retail or business)	50				500				1000			
Road or Rail Infrastructure	30	X			300				600			
Critical Infrastructure (local) [hospital, school, police/fire/ambulance station, substation, WTW/WWTW, gov bldg, other (specify)]	50				500				1000			
Critical Infrastructure (national importance)	250				1000				2000			
Cultural Heritage Site	20	X			200				400			
Environmental Designated Site	20				200				400			
Hazardous Substances Site	50				500				1000			
<b>Total SVRS</b>						<b>190</b>						
2.6 Defence Assets												
<b>Formal and Informal Flood Defence Assets</b> <i>(include effective and ineffective assets to inform asset survey and potential mitigation measures)</i>	<b>Open Channel Watercourses</b> Man-made river channel <input type="checkbox"/> Flood relief channel <input type="checkbox"/> Canal <input type="checkbox"/> Mill leat <input type="checkbox"/> Drainage channels / back drains <input type="checkbox"/>											
	<b>Bridges and Culvert crossings</b> Single Arch bridge <input type="checkbox"/> Multi-Arch bridge <input checked="" type="checkbox"/> Single Span bridge <input type="checkbox"/> Multi-Span bridge <input type="checkbox"/> Box culvert(s) <input type="checkbox"/> Pipe culvert(s) <input type="checkbox"/> Arch Culvert(s) <input type="checkbox"/>											
	<b>Culverted Watercourses</b> (culvert length is greater than just a crossing) Box culvert(s) <input type="checkbox"/> Pipe culvert(s) <input type="checkbox"/> Arch Culvert(s) <input type="checkbox"/> Irregular Culvert(s) <input type="checkbox"/>											
	<b>Walls and Embankments</b> Embankment(s) <input checked="" type="checkbox"/> Raised wall(s) <input checked="" type="checkbox"/> Retaining wall(s) <input type="checkbox"/>											
	<b>Control Structures – weirs, gates, dams</b> Fixed crest weir <input type="checkbox"/> Adjustable weir <input type="checkbox"/> Dam / Barrage <input type="checkbox"/> Sluice gates <input type="checkbox"/> Lock gates <input type="checkbox"/> Radial gates <input type="checkbox"/>											
	<b>Storage</b> On-line storage (natural) <input type="checkbox"/> On-line storage (artificial) <input type="checkbox"/> Off-line storage <input type="checkbox"/>											
	<b>Outfalls</b> Flapped outfall(s) into watercourse <input type="checkbox"/> Unflapped outfall(s) into watercourse <input type="checkbox"/> <i>i.e. from smaller watercourses, drains etc. into river / estuary / sea</i> Tidal flap(s) <input type="checkbox"/> Tidal sluice(s) <input type="checkbox"/> <i>i.e. from main watercourse into estuary / sea</i>											

	<p><b>Other</b>  Pumping Station <input type="checkbox"/> Erosion Protection <input type="checkbox"/> Sand Dunes <input type="checkbox"/>  <b>Additional notes (if required):</b></p>
<p><b>2.8 Initial Potential Mitigation Measures</b></p>	
<p><b>Non-structural measures</b></p>	<p>Planning and Development control <input checked="" type="checkbox"/>  Sustainable Urban Drainage Systems <input type="checkbox"/>  Flood forecasting / warning <input checked="" type="checkbox"/>  Change in Operating Procedures for water level control: <input checked="" type="checkbox"/>  Public awareness campaign <input type="checkbox"/>  Individual property protection <input checked="" type="checkbox"/>  Land use management <input checked="" type="checkbox"/></p>
<p><b>Structural measures</b></p>	<p><b>Strategic development management for floodplain development:</b> <input type="checkbox"/>  <i>(integration of measures into strategic development proposals)</i>  <b>Storage:</b> On-line <input checked="" type="checkbox"/> Off-line <input type="checkbox"/>  <b>Flow diversion:</b> Flood relief channel <input type="checkbox"/> Flood relief culvert <input type="checkbox"/>  <b>Increase conveyance:</b> Bridge works <input type="checkbox"/> Channel works <input type="checkbox"/> Floodplain <input checked="" type="checkbox"/>  <b>Flood defences:</b> Walls <input checked="" type="checkbox"/> Embankments <input checked="" type="checkbox"/>  <b>Localised works:</b> Defence raising <input type="checkbox"/> In-fill gaps <input type="checkbox"/> Trash screen <input type="checkbox"/>  <b>Maintenance works:</b> Culvert / channel clearance <input type="checkbox"/> Asset maintenance <input type="checkbox"/>  <b>Relocation of properties:</b> <input type="checkbox"/>  <b>Improve existing defences:</b> <input type="checkbox"/> <b>(describe)</b>   <b>Other (describe):</b></p>

<b>Outcomes</b>				
<b>PFRA Designation</b>	APSR <input type="checkbox"/> not an APSR <input checked="" type="checkbox"/> IRR <input type="checkbox"/>		<b>FRI Score: 408.25</b>	
<b>Site Ground-truthing of PFRA Assessment (hazard mapping and receptors)</b>	<b>High Confidence (good)</b>	<b>Uncertain</b>	<b>Low Confidence (poor)</b>	<b>Not available</b>
		X		
<b>Site Visit Review Score</b>	<b>190</b>			
<b>Recommended Designation</b>	APSR <input checked="" type="checkbox"/> not an APSR <input type="checkbox"/> IRR <input type="checkbox"/>			
<b>Summary Comments (if required)</b>	<p>The desk study indicated historical evidence of flooding at Banagher but there was a contradiction in opinions between the OPW and Local Authority regarding the flood risk. The site visit supports the Local Authorities belief that Banagher should be recommended for designation as an APSR as there are sufficient critical receptors at significant risk of flooding.</p> <p>Furthermore, the FRR team interrogated the available aerial imagery of the 2009 flood event as part of the FRR assessment and verified the conclusions by the site visit. The major area affected was the housing estate on the left bank upstream of the road crossing. The estate is lower than the natural Shannon bank levels.</p> <p>Approximately 10-15 properties affected in this housing estate as well as the Mooring Yard business (on the river's edge) which could regularly flood.</p>			



**Photo 1:** Downstream view of bridge from left bank.



**Photo 2:** Downstream view of bridge from right bank.



**Photo 3:** Castle on right bank downstream of bridge over the Shannon.



**Photo 4:** View from bridge looking upstream.

