

<b>Location: Killaloe, Co. Clare / Ballina, Co. Tipperary</b>		<b>Unique ID: 253055</b> (from PFRA database)	
<b>Initial OPW Designation</b>	<b>APSR</b> <input checked="" type="checkbox"/>	<b>AFRR</b> <input type="checkbox"/>	<b>IRR</b> <input type="checkbox"/>
<b>Co-ordinates</b>	<b>Easting: 170180</b>	<b>Northing: 172822</b>	
<b>River / Catchment / Sub-catchment</b>	<b>River Shannon and tributaries / 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 Shannon flows in a southerly direction through Killaloe (right bank) and Ballina (left bank).</p> <p><b>Flood Event Records</b></p> <p>Four flood records are listed in floodmaps.ie. The main flood event recorded was the 1954 event on the Shannon. Other events include the 1999 and 1994/1995 flooding. Flooding was predominantly from the Shannon, however flooding from tributaries has also been recorded.</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>Designated APSR on the basis of predictive analysis and historical extents. Also affects Co. Clare side Approved – APSR</i></p> <p><b>LA comments</b> <i>Critical road infrastructure – Bridge over Shannon with regional road R463, Head difference of 1 metre between upstream and downstream faces during last winter's flooding. Most of town on high ground, some commercial properties (marina and Hotel) close. Bridge is a critical road infrastructure with high water difference during some flood events. (Ballina in Tipperary)</i></p> <p><b>Meeting / discussion summary comments:</b></p> <p><b>LA comments</b></p> <ul style="list-style-type: none"> <li>• Ballina is situated in a basin.</li> <li>• There may also be some surface water issues here.</li> <li>• The WWTW just south of Ballina may be at risk.</li> <li>• Main Street Bridge linking Killaloe and Ballina is a critical crossing of the Shannon. There is no other crossing nearby.</li> <li>• There is a history of flooding at this location.</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>	
	UWWTP	2.5	
	Arch_Local	10.1	
	Arch_Regional	20	
	Monument_LV	101	
	<b>Total</b>	<b>2166.7</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>Level B Site Visit</b>	<b>X</b>	

<b>Stage 2: Site Inspection</b>		<b>Level B Assessment</b>	
<b>Date and Time of Inspection</b>		<b>Date: 02/06/11</b>	
		<b>Time: 09:00</b>	
<b>Names of inspection team (including OPW/LA staff if present)</b>		<b>Mathieu Valois</b>	
		<b>James Miurray</b>	
<b>2.3 Local knowledge - on-site comments (OPW, LA and any info volunteered by local residents during visit)</b>	No on-site comments.		
<b>2.4 Comments on hydraulic constrictions (bridges, etc.) and conveyance routes</b>	The Main Street bridge crossing the river Shannon would be a constriction to flow during floods.		
<b>2.6 Defence Assets</b>			
<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 checked="" 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 type="checkbox"/>	Raised wall(s) <input type="checkbox"/>	Retaining wall(s) <input checked="" 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 checked="" 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>			
<b>Other</b>			
Pumping Station <input type="checkbox"/>	Erosion Protection <input type="checkbox"/>	Sand Dunes <input type="checkbox"/>	

	<b>Additional notes (if required):</b>
<b>2.8 Initial Potential Mitigation Measures</b>	
<b>Non-structural measures</b>	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 checked="" type="checkbox"/> Individual property protection <input checked="" type="checkbox"/> Land use management <input checked="" type="checkbox"/>
<b>Structural measures</b>	<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 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 checked="" type="checkbox"/> Channel works <input type="checkbox"/> Floodplain <input checked="" type="checkbox"/> <b>Flood defences:</b> Walls <input checked="" type="checkbox"/> Embankments <input 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 checked="" type="checkbox"/> <b>Relocation of properties:</b> <input checked="" type="checkbox"/> <b>Improve existing defences:</b> <input type="checkbox"/> (describe)  <b>Other (describe):</b>

<b>Outcomes</b>	
<b>Recommended Designation</b>	<b>APSR</b> <input checked="" type="checkbox"/> <b>not an APSR</b> <input type="checkbox"/> <b>IRR</b> <input type="checkbox"/>
<b>Summary Comments (if required)</b>	Killaloe and Ballina have a long history of flooding. The PFRA mapping predicts an ongoing significant flood risk with this conclusion supported by both Local Authorities and the OPW. Killaloe / Ballina was confirmed as an APSR following a desk based assessment, with no on-site verification required.



**Photo 1:** River Shannon at Killaloe / Ballina.



**Photo 2:** Structure on upstream face of bridge at Killaloe / Ballina.



**Photo 3:** View of right bank (Killaloe), downstream of bridge.



**Photo 4:** Right bank upstream of Bridge.

