

<b>Location: Rahan, Co. Offaly</b>		<b>Unique ID: 250438</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: 225221</b>	<b>Northing: 225619</b>	
<b>River / Catchment / Sub-catchment</b>	<b>Clodiagh River / Brosna / 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>	
<p><b>1.1 Flood History (include review of Floodmaps.ie)</b></p>	<p><b>River Flow Path</b></p> <p>The Clodiagh River flows through the village of Rahan meandering in a north westerly direction to the river's confluence with the River Brosna. The Grand Canal borders the southern boundary of the village.</p> <p>The Clodiagh River is crossed within the village of Rahan and the Grand Canal is crossed twice, once to the south of Rahan and again to the west.</p> <p><b>Flood Event Records</b></p> <p>Two flood records are listed in floodmaps.ie. One dated August 2008. The other event is undated. Both of these events appear to have occurred outside the village of Rahan.</p>
<p><b>1.2 Relevant information on flooding issues from OPW and LA staff</b></p>	<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 LA comments.</i> <i>Designated APSR on the basis of predictive analysis and LA comments</i></p> <p><b>LA comments</b> <i>River flooded 2009 Agree</i></p> <p><b>Meeting / discussion summary comments:</b></p> <p><b>OPW comments</b></p> <ul style="list-style-type: none"> <li>• Rahan is on the Clodiagh River.</li> <li>• There are embankments and flood defence sluices used to drain the land.</li> </ul> <p><b>LA comments</b></p> <ul style="list-style-type: none"> <li>• The river channel has good capacity at Rahan.</li> <li>• Rahan has a low risk to flooding, unsure if there was any flooding in 2009.</li> </ul>

<b>1.4 PFRA Data</b>			
<b>1.4.1 PFRA hazard mapping</b>	PFRA mapping available in GIS layer:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
	PFRA mapping included on FRR map:	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	20.1	
	Monument_LV	122	
	<b>Total</b>	<b>387</b>	
<b>1.7 Stage 1 Evaluation</b>	<b>Aspect</b>	<b>Clearly APSR</b>	<b>Uncertain</b>
	Flood History (1.1)		X
	OPW / LA Information (1.2)		X
	PFRA Evaluation (1.4)	X	
	Overall Desktop Evaluation (if any above aspect is uncertain then overall designation is uncertain)		X
<b>1.8 Proposed level of assessment for Stage 2 site visits</b>	<b>Level A Site Visit</b>	X	
	<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: 12:00</b>		
<b>Names of inspection team (including OPW/LA staff if present)</b>		<b>Peter Smyth</b>		
		<b>James Murray</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 accurate through Rahan. However, it does not take into account informal embankments on left bank downstream of bridge			
<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>
	Abbey and church	upstream of town away from left bank	Yes	Low
	Private dwellings	On the right bank just upstream of the bridge over the Clodiagh	Yes	Medium
<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 bridge over the Clodiagh in Rahan seems to have good capacity and would not act as a hydraulic constriction. There are a number of relief culverts on the left bank floodplain associated with the bridge, these have been walled shut.			

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				200	X		
Property (small retail or business)	20				200				400			
Property (large retail or business)	50				500				1000			
Road or Rail Infrastructure	30				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>220</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 checked="" type="checkbox"/> Multi-Arch bridge <input 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 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></p> <p>Pumping Station <input type="checkbox"/> Erosion Protection <input type="checkbox"/> Sand Dunes <input type="checkbox"/></p> <p><b>Additional notes (if required):</b></p>
<b>2.8 Initial Potential Mitigation Measures</b>	
<b>Non-structural measures</b>	<p>Planning and Development control <input checked="" type="checkbox"/></p> <p>Sustainable Urban Drainage Systems <input type="checkbox"/></p> <p>Flood forecasting / warning <input type="checkbox"/></p> <p>Change in Operating Procedures for water level control: <input type="checkbox"/></p> <p>Public awareness campaign <input checked="" type="checkbox"/></p> <p>Individual property protection <input type="checkbox"/></p> <p>Land use management <input type="checkbox"/></p>
<b>Structural measures</b>	<p><b>Strategic development management for floodplain development:</b> <input type="checkbox"/> <i>(integration of measures into strategic development proposals)</i></p> <p><b>Storage:</b> On-line <input type="checkbox"/> Off-line <input type="checkbox"/></p> <p><b>Flow diversion:</b> Flood relief channel <input checked="" type="checkbox"/> Flood relief culvert <input type="checkbox"/></p> <p><b>Increase conveyance:</b> Bridge works <input type="checkbox"/> Channel works <input type="checkbox"/> Floodplain <input type="checkbox"/></p> <p><b>Flood defences:</b> Walls <input checked="" type="checkbox"/> Embankments <input checked="" type="checkbox"/></p> <p><b>Localised works:</b> Defence raising <input type="checkbox"/> In-fill gaps <input type="checkbox"/> Trash screen <input type="checkbox"/></p> <p><b>Maintenance works:</b> Culvert / channel clearance <input type="checkbox"/> Asset maintenance <input type="checkbox"/></p> <p><b>Relocation of properties:</b> <input type="checkbox"/></p> <p><b>Improve existing defences:</b> <input type="checkbox"/> (describe)</p> <p><b>Other (describe):</b></p>

<b>Outcomes</b>				
<b>PFRA Designation</b>	APSR <input checked="" type="checkbox"/> not an APSR <input type="checkbox"/> IRR <input type="checkbox"/>		FRI Score: 387	
<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>	220			
<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 main area at risk of flooding is on the right bank, just upstream of the road bridge crossing of the Clodiagh where there are in excess of 20 properties at risk of flooding.</p> <p>There are sufficient receptors at significant risk of flooding to warrant Rahans designation as an APSR.</p>			



**Photo1:** Upstream face of the Bridge in Rahan over the Clodiagh River.



**Photo 2:** Overflow arches at the Clodiagh River Road Bridge in Rahan, blocked up.



**Photo 3:** Clodiagh River at Rahan, looking upstream.



**Photo 4:** Pipe culvert on tributary to the Clodiagh River at Rahan.

