

Location: Athea, Co. Limerick		Unique ID: 232630 (from PFRA database)	
Initial OPW Designation	APSR <input checked="" type="checkbox"/>	AFRR <input type="checkbox"/>	IRR <input type="checkbox"/>
Co-ordinates	Easting: 112411		Northing: 134873
River / Catchment / Sub-catchment	River Galey / Feale Catchment		
Type of Flooding / Flood Risk (identify all that apply)	Fluvial non-tidal <input checked="" type="checkbox"/> Fluvial tidal <input type="checkbox"/> Coastal <input type="checkbox"/>		

Stage 1: Desktop Review

1.1 Flood History (include review of Floodmaps.ie)

River Flow Path

Athea lies in the upper reaches of the steep River Galey valley, which is a tributary of the River Feale. The Galey is fed by a large number of short tributaries which flow predominantly south to north. The catchment is relatively small (38km²) and extremely steep in the upper reaches. The Main channel of the river meanders a number of times in the vicinity of Athea. The River Galey forms part of the Lower River Shannon SAC. Athea Bridge and footbridge crosses this river at the eastern end of the Main Street.

The river Galey is situated at the crossroads of the R523 (Reens - Listowel) and R524 (Glin - Abbeyfeale) regional roads.

Flood Records

Four flood records are listed – 2 of which are singular events and the other 2 are recurring flood events.

- A very detailed report in relation to flood event 2008 is available. A key point recorded is: Flooding is not always caused by rain which falls on the location affected directly. It can be caused by rain falling on the upstream catchment which then reaches the town via the drains, rivers and overland flow.

1.2 Relevant information on flooding issues from OPW and LA staff

PFRA database comments (*in italics*):

OPW comments

Houses flooded twice in 2008

LA comments

River floods every five years 2008, 2009. Risk seems to be increasing. OPW have carried out works. Development in the flood plain and national school floods.

Limerick Co Co to do submission LA Submission " Flooding July 31 2008 • 15 premises

Meeting / discussion summary comments:

OPW comments

- Flooding from the Galey River, tributary of the Feale.
- Info on floodmaps.ie.
- Small drainage ditch just west of the main river where there is flow over the road due to limited culvert capacity.
- Flooding recorded 2 Sep 09.
- Big floods on River Galey: 31 Jul 08 to 1 Aug 08 and 6 Aug 08.

	LA comments <ul style="list-style-type: none"> Torrential rain in July 2008 caused flooding Properties on the left bank d/s of the main street bridge were worst hit; some requiring refurbishment. The school on the right bank, u/s of the bridge also flooded (a school extension was in progress at the time). 		
1.4 PFRA Data			
1.4.1 PFRA hazard mapping	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"/>		
1.4.2 Summary of Principal Receptors	Type Receptors not considered as part of the PFRA process. FRI score not calculated in PFRA	FRI score (if available)	
1.7 Stage 1 Evaluation	Aspect	Clearly APSR	Uncertain
	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
1.8 Proposed level of assessment for Stage 2 site visits	Level A Site Visit	X	
	Level B Site Visit		

Stage 2: Site Inspection		Level A Assessment		
Date and Time of Inspection		Date: 12/05/11		
		Time: 12:30		
Names of inspection team (including OPW/LA staff if present)		Mathieu Valois		
		Kelly Kasperczyk		
2.1 Ground-truthing of Hazard Mapping	Fluvial non-tidal <input checked="" type="checkbox"/> Fluvial tidal <input type="checkbox"/> Coastal <input type="checkbox"/> Not available <input type="checkbox"/>			
	<p>PFRA mapping u/s of Athea Health Centre (south of town) seems to be over-estimated. The river at this point has very high banks and the road bridge does not seem to present a hydraulic restriction.</p>			
2.2 Spot check ground-truthing of selected receptor vulnerability	Receptor Type	Location description (if not obvious)	Exists?	Overall Vulnerability / Risk (L / M / H)
(also note any key receptors noted during visit that are not identified by PFRA)	School		Y	M
	Community Dance Hall		Y	M
	Garage		Y	M
	Residential properties		Y	L-H
2.3 Local knowledge - on-site comments (OPW, LA and any info volunteered by local residents during visit)	<p>Resident of Marklevicz Park housing estate (house on left bank of Galey River and on right bank of tributary):</p> <ul style="list-style-type: none"> The side and rear garden used to flood regularly, but since the Newcastle West flood, the OPW maintain the Galey River at the rear of his property and the residents have not experienced problems since. This stretch of river contained a large mound of earth and gravel which was cleared by the OPW and this is now maintained. <p>The tributary which is culverted under the main street runs to the west of this property. This culvert recently blocked under the main street. The Council accessed the culvert by breaking through the footpath next to JP Collins shop on the Main St to clear debris (new concrete and manhole visible at this location).</p>			
2.4 Comments on hydraulic constrictions (bridges, etc.) and conveyance routes	<p>Build up of gravel in the Galey particularly at the main street bridge (could be up to 1.5m). Also refer to point above regarding material removed from the Galey River.</p> <p>Tributary of the Galey west of Athea is diverted to the rear (west) of new properties through a constructed channel which has a severe right angle bend d/s of these properties. This tributary is then culverted (~800mm) at a derelict house north of these new properties at which point its thought to join a second tributary, then flow through a culvert north down the laneway and under the main street (refer to comment on recent blockage above). The second tributary</p>			

	<p>that joins this culvert at the south end of the laneway is culverted further u/s east of the new estate.</p> <p>The culvert from the laneway opens north of the main street through a series of small step weirs, then flows adjacent to the property referred to in Section 2.3 above. Debris (thin wood board) currently partially blocks the culvert at this location. There is limited hydraulic capacity at this location.</p>
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2.5 SVRS Assessment Matrix

Weightings:

A - x1 - reasonable expectation of flooding

B - x2 - high expectation of flooding
or flooding is tidal (any risk)

C - x5 - risk to life

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		X		500				1000			
Critical Infrastructure (national importance)	250				1000				2000			
Cultural Heritage Site	20				200				400			
Environmental Designated Site	20				200				400			
Hazardous Substances Site	50				500				1000			
Total SVRS								370				

2.6 Defence Assets

Formal and Informal Flood Defence Assets <i>(include effective and ineffective assets to inform asset survey and potential mitigation measures)</i>	Open Channel Watercourses Man-made river channel <input checked="" type="checkbox"/> Flood relief channel <input type="checkbox"/> Canal <input type="checkbox"/> Mill leat <input type="checkbox"/> Drainage channels / back drains <input type="checkbox"/>											
	Bridges and Culvert crossings Single Arch bridge <input checked="" type="checkbox"/> Multi-Arch bridge <input checked="" type="checkbox"/> Single Span bridge <input checked="" 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"/>											
	Culverted Watercourses (culvert length is greater than just a crossing) Box culvert(s) <input type="checkbox"/> Pipe culvert(s) <input checked="" type="checkbox"/> Arch Culvert(s) <input type="checkbox"/> Irregular Culvert(s) <input checked="" type="checkbox"/>											
	Walls and Embankments Embankment(s) <input type="checkbox"/> Raised wall(s) <input type="checkbox"/> Retaining wall(s) <input type="checkbox"/>											
	Control Structures – weirs, gates, dams 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"/>											

	<p>Storage On-line storage (natural) <input checked="" type="checkbox"/> On-line storage (artificial) <input type="checkbox"/> Off-line storage <input type="checkbox"/></p> <p>Outfalls 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> <p>Other Pumping Station <input type="checkbox"/> Erosion Protection <input type="checkbox"/> Sand Dunes <input type="checkbox"/></p> <p>Additional notes (if required): For the River Galey, natural storage upstream may be utilised at present.</p>
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2.8 Initial Potential Mitigation Measures

Non-structural measures	Planning and Development control <input type="checkbox"/> Sustainable Urban Drainage Systems <input type="checkbox"/> Flood forecasting / warning <input type="checkbox"/> Change in Operating Procedures for water level control: <input type="checkbox"/> Public awareness campaign <input type="checkbox"/> Individual property protection <input checked="" type="checkbox"/> Land use management <input type="checkbox"/>
Structural measures	<p>Strategic development management for floodplain development: <input type="checkbox"/> <i>(integration of measures into strategic development proposals)</i></p> <p>Storage: On-line <input checked="" type="checkbox"/> Off-line <input type="checkbox"/></p> <p>Flow diversion: Flood relief channel <input type="checkbox"/> Flood relief culvert <input type="checkbox"/></p> <p>Increase conveyance: Bridge works <input type="checkbox"/> Channel works <input checked="" type="checkbox"/> Floodplain <input type="checkbox"/></p> <p>Flood defences: Walls <input type="checkbox"/> Embankments <input checked="" type="checkbox"/></p> <p>Localised works: Defence raising <input type="checkbox"/> In-fill gaps <input type="checkbox"/> Trash screen <input type="checkbox"/></p> <p>Maintenance works: Culvert / channel clearance <input checked="" type="checkbox"/> Asset maintenance <input type="checkbox"/></p> <p>Relocation of properties: <input type="checkbox"/></p> <p>Improve existing defences: <input type="checkbox"/> (describe)</p> <p>Other (describe): Culvert enhancement / re-grading (tributary) – to increase capacity. It is noted that the options for the Galey and for the smaller watercourses address separate potential flooding problems.</p>

Outcomes

PFRA Designation	APSR <input type="checkbox"/> not an APSR <input checked="" type="checkbox"/> IRR <input type="checkbox"/>		FRI Score: N/A	
Site Ground-truthing of PFRA Assessment (hazard mapping and receptors)	High Confidence (good)	Uncertain	Low Confidence (poor)	Not available
		X		
Site Visit Review Score	370			
Recommended Designation	APSR <input checked="" type="checkbox"/> not an APSR <input type="checkbox"/> IRR <input type="checkbox"/>			

<p>Summary Comments (if required)</p>	<p>Different flooding influences were observed:</p> <ul style="list-style-type: none"> ▪ Pluvial & fluvial from new housing estate southwest of town cross-roads, down laneway towards the main street. Green spaces surrounding this new estate are very waterlogged / saturated where surface water follows the natural flow path. ▪ Fluvial – from the Galey River – northeast and southeast of the town cross-roads. <p>PFRA mapping u/s of Athea Health Centre (south of town) seems over-estimated. The river at this point has very high banks and the road bridge does not seem to present a hydraulic restriction.</p>
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Photo 1: New housing estate in Athea looking North towards the realigned stream



Photo 2: 800mm culvert on the realigned stream at the new housing estate



Photo 3: Previously flooded property on tributary of the Galey River looking north



Photo 4: The 3 arch bridge over the Galey river

