

Location: Castleconnell, Co. Limerick		Unique ID: 252889 (from PFRA database)	
Initial OPW Designation	APSR <input checked="" type="checkbox"/>	AFRR <input type="checkbox"/>	IRR <input type="checkbox"/>
Co-ordinates	Easting: 166,390	Northing: 162,679	
River / Catchment / Sub-catchment	River Shannon / Shannon		
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)	<p>River Flow Path The River Shannon flows along the western edge of Castleconnell. Tributaries to the river are located within the town boundary.</p> <p>The River Shannon tributaries located within the town's boundary are crossed by Chapel Hill, Cedarwood Grove and a railway line.</p> <p>Flood Event Records There are records of 13 flood events recorded on floodmaps.ie in the vicinity of Castleconnell, including events in 1954, 1990, 2006 and 2009. The majority of events relate to flooding from the River Shannon.</p>
1.2 Relevant information on flooding issues from OPW and LA staff	<p>PFRA database comments (<i>in italics</i>):</p> <p>OPW comments <i>Designated APSR on the basis of predictive analysis and historical extents. WTW for Limerick - Property flooding - 4 Dated floods</i></p> <p>LA comments <i>(am)Shannon flooded house in Nov 09- 9 Houses, new development and old park got hit. Sewerage plant floods. (pm)Pump station and waterworks for Limerick City in vulnerable area Limerick Co Co to do submission LA Submission " 70 houses affected by flooding.</i></p> <p>Meeting / discussion summary comments:</p> <p>OPW comments</p> <ul style="list-style-type: none"> Flooded in November 2009. A housing estate south-west of the post office, adjacent to a stream was badly flooded in this event. It is believed that these houses were built at a height exceeding the 1 in 100 year event. <p>LA comments</p> <ul style="list-style-type: none"> The approximate November 2009 flood locations identified by the OPW were confirmed to be accurate. Limerick CoCo has GIS maps of the November 2009 flood extents in this area and can make these available. The housing estate south-west of the post office was the worst hit in the November 2009 floods. Limerick CoCo have approval to appoint a consultant to assess flood alleviation measures for this area, including restricting flood waters from backing up into the stream at Island House.

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	FRI score (if available)	
	Receptors not considered as part of the PFRA process. FRI score not calculated in PFRA.		
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: 08/06/11			
		Time: 10:00			
Names of inspection team (including OPW/LA staff if present)		Alan Dew			
		Peter Smyth			
		Clare Butler			
		Conor Galvin			
		Michael Conroy			
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"/> PFRA hazard mapping generally accepted, however the flood extents in some sections do not extend sufficiently to cover the flood outline experienced during the November 2009 event.			
2.2 Spot check ground-truthing of selected receptor vulnerability (also note any key receptors noted during visit that are not identified by PFRA)		Receptor Type	Location description (if not obvious)	Exists?	Overall Vulnerability / Risk (L / M / H)
		Residential properties	South of Island House / east, south-east and south of castle ruins.	Yes	H
		Commercial properties	East, south-east and south of castle ruins.	Yes	H
		Healthcare centre	South-east of castle ruins	Yes	H
		Pumping station	Left bank, upstream of Cloon Island (Island House).	Yes	H
2.3 Local knowledge - on-site comments (OPW, LA and any info volunteered by local residents during visit)		Resident in cul-de-sac downstream of Island House stated that the 2009 floods inundated his garage extension with 9 inches of water. The whole cul-de-sac was flooded. Flood waters came from the back of the house opposite his property (upstream) and also through gaps in the adjacent wall. He has subsequently raised his driveway and floor levels and installed sumps to allow him to pump water back into river during flooding. The power supply (part-way up cul-de-sac) was sandbagged off during the 2009 flooding but is at risk.			
2.4 Comments on hydraulic constrictions (bridges, etc.) and conveyance routes		The same resident stated that flood gates were installed in the last 2 months on upstream entrances to 3 no. culverts beneath access roadway to Island House; the runners were observed during the inspection, however the gates have been removed, possibly by the County Council. These gates would block off a historic channel of the Shannon, which could lead to flood waters backing up within the Shannon channel and possibly lead to bypassing of the Island House culvert either on the right bank of this channel (would re-enter channel downstream of track) or over/through gaps in wall on left bank along roadside.			

2.5 SVRS Assessment Matrix

Weightings:

A - x1 - reasonable expectation of flooding

B - x2 - high expectation of flooding

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				200	X		
Property (small retail or business)	20				200	X			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	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									450			

2.6 Defence Assets

Formal and Informal Flood Defence Assets
(include effective and ineffective assets to inform asset survey and potential mitigation measures)

Open Channel Watercourses

Man-made river channel ☐ Flood relief channel ☐ Canal ☐
Mill leat ☐ Drainage channels / back drains ☐

Bridges and Culvert crossings

Single Arch bridge ☐ Multi-Arch bridge ☐
Single Span bridge ☐ Multi-Span bridge ☐
Box culvert(s) ☐ Pipe culvert(s) ☐ Arch Culvert(s) ☒

Culverted Watercourses (culvert length is greater than just a crossing)

Box culvert(s) ☐ Pipe culvert(s) ☐ Arch Culvert(s) ☐ Irregular Culvert(s) ☐

Walls and Embankments

Embankment(s) ☐ Raised wall(s) ☒ Retaining wall(s) ☐

Control Structures – weirs, gates, dams

Fixed crest weir ☐ Adjustable weir ☐ Dam / Barrage ☐
Sluice gates ☐ Lock gates ☐ Radial gates ☐

Storage

On-line storage (natural) ☐ On-line storage (artificial) ☐ Off-line storage ☐

Outfalls

Flapped outfall(s) into watercourse ☐ Unflapped outfall(s) into watercourse ☐
i.e. from smaller watercourses, drains etc. into river / estuary / sea
Tidal flap(s) ☐ Tidal sluice(s) ☐
i.e. from main watercourse into estuary / sea

	Other Pumping Station <input checked="" type="checkbox"/> Erosion Protection <input type="checkbox"/> Sand Dunes <input type="checkbox"/> Additional notes (if required): Removable flood gates on arch culverts beneath access road to Island House.
2.8 Initial Potential Mitigation Measures	
Non-structural measures	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 type="checkbox"/> Public awareness campaign <input type="checkbox"/> Individual property protection <input checked="" type="checkbox"/> Land use management <input checked="" type="checkbox"/>
Structural measures	Strategic development management for floodplain development: <input type="checkbox"/> <i>(integration of measures into strategic development proposals)</i> Storage: On-line <input checked="" type="checkbox"/> Off-line <input type="checkbox"/> Flow diversion: Flood relief channel <input checked="" type="checkbox"/> Flood relief culvert <input type="checkbox"/> Increase conveyance: Bridge works <input type="checkbox"/> Channel works <input type="checkbox"/> Floodplain <input type="checkbox"/> Flood defences: Walls <input checked="" type="checkbox"/> Embankments <input checked="" type="checkbox"/> Localised works: Defence raising <input type="checkbox"/> In-fill gaps <input checked="" type="checkbox"/> Trash screen <input type="checkbox"/> Maintenance works: Culvert / channel clearance <input type="checkbox"/> Asset maintenance <input type="checkbox"/> Relocation of properties: <input type="checkbox"/> Improve existing defences: <input type="checkbox"/> (describe) Other (describe):

Outcomes				
PFRA Designation	APSR <input checked="" type="checkbox"/> not an APSR <input type="checkbox"/> IRR <input type="checkbox"/>		FRI Score: Not scored	
Site Ground-truthing of PFRA Assessment (hazard mapping and receptors)	High Confidence (good)	Uncertain	Low Confidence (poor)	Not available
		X		
Site Visit Review Score	450			
Recommended Designation	APSR <input checked="" type="checkbox"/> not an APSR <input type="checkbox"/> IRR <input type="checkbox"/>			
Summary Comments (if required)	The reasons for the recommendation of Castleconnell as an APSR are as follows: <ul style="list-style-type: none"> History of flooding dating back at least 50 years. Known to have significantly flooded in 2009. Large number of critical receptors at significant risk of fluvial flooding. 			



Photo1: River Shannon looking downstream from the left bank, upstream of the town centre.



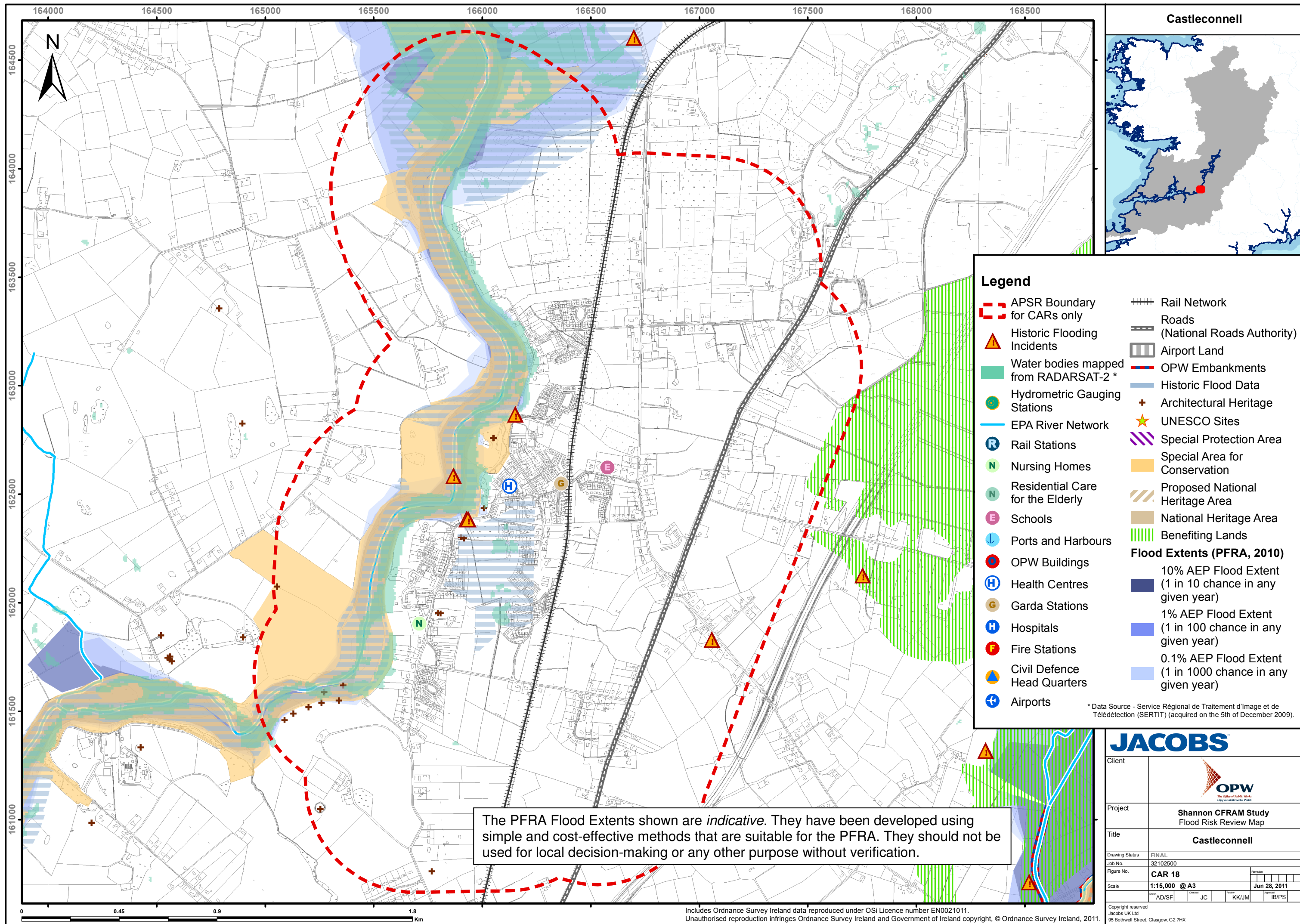
Photo 2: Flood gates installed at culverts beneath access roadway to Island House.




Photo 3: Cul-de-sac flooded during the November 2009 flood event.



Photo 4: Upstream entrance to tributary culvert beneath minor road.



JACOBS

Client			
Project	Shannon CFRAM Study Flood Risk Review Map		
Title	Castleconnell		
Drawing Status	FINAL		
Job No.	32102500		
Figure No.	CAR 18		
Scale	1:15,000 @ A3		
Drawn	AD/SF	Checked	JC
Drawn	KK/JM	Checked	IB/PS
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