| Location: Castleconnell, Co. Limerick | | Unique ID: 252889 (from PFRA database) | |
|---|---|---|---|
| **Initial OPW Designation** | **APSR** ☒ | **AFRR** ☐ | **IRR** ☐ |
| **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** ☒ **Fluvial tidal** ☐ **Coastal** ☐ | | |

## Stage 1: Desktop Review

### 1.1 Flood History (include review of Floodmaps.ie)

**River Flow Path**
The River Shannon flows along the western edge of Castleconnell. Tributaries to the river are located within the town boundary.

The River Shannon tributaries located within the town's boundary are crossed by Chapel Hill, Cedarwood Grove and a railway line.

**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.

### 1.2 Relevant information on flooding issues from OPW and LA staff

**PFRA database comments *(in italics)*:**

***OPW comments***
*Designated APSR on the basis of predictive analysis and historical extents. WTW for Limerick - Property flooding - 4 Dated floods*

***LA comments***
*(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.*

**Meeting / discussion summary comments:**

**OPW comments**

- 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.

**LA comments**

- 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.

<table>
<tr><td colspan="4">1.4 PFRA Data</td></tr>
<tr><td>1.4.1 PFRA hazard mapping</td><td colspan="3">PFRA mapping available in GIS layer: Yes ☒ No ☐<br>PFRA mapping included on FRR map: Yes ☒ No ☐</td></tr>
<tr><td rowspan="2">1.4.2 Summary of Principal Receptors</td><td colspan="2">Type</td><td>FRI score (if available)</td></tr>
<tr><td colspan="2">Receptors not considered as part of the PFRA process.<br><br>FRI score not calculated in PFRA.</td><td></td></tr>
<tr><td rowspan="5">1.7 Stage 1 Evaluation</td><td>Aspect</td><td>Clearly APSR</td><td>Uncertain</td></tr>
<tr><td>Flood History (1.1)</td><td>X</td><td></td></tr>
<tr><td>OPW / LA Information (1.2)</td><td>X</td><td></td></tr>
<tr><td>PFRA Evaluation (1.4)</td><td></td><td>X</td></tr>
<tr><td>Overall Desktop Evaluation<br>(if any above aspect is uncertain then overall designation is uncertain)</td><td></td><td>X</td></tr>
<tr><td rowspan="2">1.8 Proposed level of assessment for Stage 2 site visits</td><td colspan="2">Level A Site Visit</td><td>X</td></tr>
<tr><td colspan="2">Level B Site Visit</td><td></td></tr>
</table>

| Stage 2: Site Inspection | Level A Assessment |
|---|---|
| **Date and Time of Inspection** | **Date: 08/06/11**<br>**Time: 10:00** |
| **Names of inspection team (including OPW/LA staff if present)** | **Alan Dew**<br>**Peter Smyth**<br>**Clare Butler**<br>**Conor Galvin**<br>**Michael Conroy** |

| | |
|---|---|
| **2.1 Ground-truthing of Hazard Mapping** | **Fluvial non-tidal** ☒ **Fluvial tidal** ☐ **Coastal** ☐ **Not available** ☐<br>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**<br>**(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**<br>Pumping Station ☒ Erosion Protection ☐ Sand Dunes ☐<br>**Additional notes (if required):**<br>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 ☒<br>Sustainable Urban Drainage Systems ☐<br>Flood forecasting / warning ☒<br>Change in Operating Procedures for water level control: ☐<br>Public awareness campaign ☐<br>Individual property protection ☒<br>Land use management ☒ |
| **Structural measures** | **Strategic development management for floodplain development:** ☐<br>*(integration of measures into strategic development proposals)*<br>**Storage:** On-line ☒ Off-line ☐<br>**Flow diversion:** Flood relief channel ☒ Flood relief culvert ☐<br>**Increase conveyance:** Bridge works ☐ Channel works ☐ Floodplain ☐<br>**Flood defences:** Walls ☒ Embankments ☒<br>**Localised works:** Defence raising ☐ In-fill gaps ☒ Trash screen ☐<br>**Maintenance works:** Culvert / channel clearance ☐ Asset maintenance ☐<br>**Relocation of properties:** ☐<br>**Improve existing defences:** ☐ **(describe)**<br><br>**Other (describe):** |

| **Outcomes** | | | | |
|---|---|---|---|---|
| **PFRA Designation** | **APSR** ☒ **not an APSR** ☐ **IRR** ☐ | | **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** ☒ **not an APSR** ☐ **IRR** ☐ | | | |
| **Summary Comments (if required)** | The reasons for the recommendation of Castleconnell as an APSR are as follows:<br>• History of flooding dating back at least 50 years.<br>• Known to have significantly flooded in 2009.<br>• 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.