Stage 1: Desktop Review

1.1 Flood History
(include review of Floodmaps.ie)

River Flow Path
The River Feorish flows through Ballyfarnon and meanders southward towards Lough Skean, approximately 1.5 kilometres downstream.
The River Feorish is crossed by the R284 which is the main trunk road through Ballyfarnon.

Flood Event Records
Two flood records are listed on floodmaps.ie, one is from November 2009 while the other is un-dated.

1.2 Relevant information on flooding issues from OPW and LA staff

PFRA database comments (in italics):

**OPW comments**
STW at risk
OPW Regional Office
But history, and 2009. STW at risk at all times. 5-6 houses at risk. 1-2 flood regularly.
OPW have carried out drainage – River Feorish. Refer to John C. Murphy Decision should be based on OPW Regional Office confidence in works.

**LA comments**
Not designated APSR as failed to reach predictive analysis threshold.
Additional info provided by LA as requested - upgrade from RR to APSR?

Meeting / discussion summary comments:

**OPW comments**
- Flood risk, flooded pre-2009, possibly due to blockage in bridge following a landslip upstream.
- Channel cleaned out downstream to the sharp meander.
- 3-4 properties are considered at risk
- Bridge has been refurbished, banks upstream maintained in 2010.
- Tree cutting was completed in 2009.
- Works not considered sufficient to remove flood risk.
- Very flashy and did not get full rainfall intensity in Nov 2009.

**LA comments**
- The river is flashy and has a history of flooding.
### 1.4 PFRA Data

#### 1.4.1 PFRA hazard mapping
- PFRA mapping available in GIS layer: **Yes**
- PFRA mapping included on FRR map: **Yes**

#### 1.4.2 Summary of Principal Receptors
<table>
<thead>
<tr>
<th>Type</th>
<th>FRI score (if available)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receptors not considered as part of the PFRA process.</td>
<td></td>
</tr>
<tr>
<td>FRI score not calculated in PFRA.</td>
<td></td>
</tr>
</tbody>
</table>

### 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
<p>| Level A Site Visit | X |
| Level B Site Visit | |</p>
<table>
<thead>
<tr>
<th>Stage 2: Site Inspection</th>
<th>Level A Assessment</th>
</tr>
</thead>
</table>
| Date and Time of Inspection | Date: 27/04/11  
Time: 15:00 |
| Names of inspection team (including OPW/LA staff if present) | Mathieu Valois  
James Murray |
| 2.1 Ground-truthing of Hazard Mapping | Fluvial non-tidal ☒  
Fluvial tidal ☐  
Coastal ☐  
Not available ☐ |
| PFRA hazard mapping seems reasonably accurate. |
| 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) |
| Garda Station, 4 properties and a car repair garage | upstream of town on right bank | Yes | High |
| WWTW | downstream of town on left bank | Yes | Medium |
| 2.3 Local knowledge - on-site comments (OPW, LA and any info volunteered by local residents during visit) | No on-site comments. |
| 2.4 Comments on hydraulic constrictions (bridges, etc.) and conveyance routes | One main bridge in the town consisting of stone arch (downstream) and box culvert (upstream) probably widened in the recent past with the box sections. Area has been cleared and drainage works carried out. However, due to the flashy nature of the catchment this bridge could still cause a constriction to flow.  
There are two further bridges downstream and well outside Ballyfaron. These bridges seem to have reasonable capacity; however there is a lot of overgrowth on the banks of the river which increases the possibility of blockages. If these bridges were blocked it would likely only affect floodplain downstream of the village. |
### 2.5 SVRS Assessment Matrix

**Weightings:**
- **A** - x1 - reasonable expectation of flooding
- **B** - x2 - high expectation of flooding
- **C** - x5 - risk to life

<table>
<thead>
<tr>
<th>Approx. Number</th>
<th>1 to 4</th>
<th>5 to 20</th>
<th>&gt;20</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Property (domestic)</strong></td>
<td>10 A</td>
<td>X B</td>
<td>100 C</td>
</tr>
<tr>
<td><strong>Property (small retail or business)</strong></td>
<td>20 A</td>
<td>X B</td>
<td>200 C</td>
</tr>
<tr>
<td><strong>Property (large retail or business)</strong></td>
<td>50 A</td>
<td>500 B</td>
<td>1000 C</td>
</tr>
<tr>
<td><strong>Road or Rail Infrastructure</strong></td>
<td>30 A</td>
<td>300 B</td>
<td>600 C</td>
</tr>
<tr>
<td><strong>Critical Infrastructure (local)</strong> [hospital, school, police/fire/ambulance station, substation, WTW/WWTW, gov bldg, other (specify)]</td>
<td>50 A</td>
<td>X B</td>
<td>500 C</td>
</tr>
<tr>
<td><strong>Critical Infrastructure (national importance)</strong></td>
<td>250 A</td>
<td>1000 B</td>
<td>2000 C</td>
</tr>
<tr>
<td><strong>Cultural Heritage Site</strong></td>
<td>20 A</td>
<td>200 B</td>
<td>400 C</td>
</tr>
<tr>
<td><strong>Environmental Designated Site</strong></td>
<td>20 A</td>
<td>200 B</td>
<td>400 C</td>
</tr>
<tr>
<td><strong>Hazardous Substances Site</strong></td>
<td>50 A</td>
<td>500 B</td>
<td>1000 C</td>
</tr>
</tbody>
</table>

**Total SVRS** = 160

### 2.6 Defence Assets

**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
<table>
<thead>
<tr>
<th>Other</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pumping Station</td>
<td>☐</td>
<td>Erosion Protection</td>
<td>☐</td>
<td>Sand Dunes</td>
</tr>
</tbody>
</table>

**Additional notes (if required):**

Banks near the bridge in Ballyfarnon have been maintained by the OPW and provide additional protection, however the ability of these banks to withstand severe flood events is questionable.

### 2.8 Initial Potential Mitigation Measures

#### Non-structural measures

- Planning and Development control
- Sustainable Urban Drainage Systems
- Flood forecasting / warning
- Change in Operating Procedures for water level control
- Public awareness campaign
- Individual property protection
- Land use management

#### Structural measures

- Strategic development management for floodplain development:
- *(integration of measures into strategic development proposals)*
- Storage: On-line ☒ Off-line ☐
- Flow diversion: Flood relief channel ☐ Flood relief culvert ☐
- Increase conveyance: Bridge works ☒ Channel works ☒ Floodplain ☒
- Flood defences: Walls ☒ Embankments ☒
- Localised works: Defence raising ☒ In-fill gaps ☐ Trash screen ☐
- Maintenance works: Culvert / channel clearance ☒ Asset maintenance ☒
- Relocation of properties:
- Improve existing defences: ☒ (describe)

**Other (describe):**

The current maintenance works could be improved and the addition of engineered embankments and walls could reduce the risk of flooding.
<table>
<thead>
<tr>
<th>Outcomes</th>
<th>APSR</th>
<th>not an APSR</th>
<th>IRR</th>
<th>FRI Score: None</th>
</tr>
</thead>
<tbody>
<tr>
<td>PFRA Designation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Site Ground-truthing of PFRA Assessment (hazard mapping and receptors)</td>
<td>High Confidence (good)</td>
<td>Uncertain</td>
<td>Low Confidence (poor)</td>
<td>Not available</td>
</tr>
<tr>
<td>Site Visit Review Score</td>
<td>160</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recommended Designation</td>
<td>APSR</td>
<td></td>
<td>not an APSR</td>
<td>IRR</td>
</tr>
<tr>
<td>Summary Comments (if required)</td>
<td>The reasons for the recommendation of Ballyfarnon as an APSR are;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- The recent flood history which indicates that receptors are at a high expectation of flooding.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- OPW has carried out minor works but there is concern over their suitability during significant flood events.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- The flashy nature of the flooding at Ballyfarnon.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- While the APSR boundary has not yet been defined the on-site visual inspection indicates that the WWTP would fall within the APSR boundary and is considered as a receptor at Ballyfarnon.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Photo 1:** View from bridge where flooding has occurred in Ballyfarnon, looking downstream

**Photo 2:** Upstream face of bridge where flooding on the right bank has occurred in the past

**Photo 3:** View from bridge where flooding has occurred in Ballyfarnon, looking upstream

**Photo 4:** Watercourse downstream of Ballyfarnon
The PFRA Flood Extents shown are indicative. They have been developed using simple and cost-effective methods that are suitable for the PFRA. They should not be used for local decision-making or any other purpose without verification.

* Data Source – Service Régional de Traitement d’Image et de Télédétection (SERTIT) (acquired on the 5th of December 2009).

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