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| <b>Location: Longford, Co. Longford</b>                           |  | <b>Unique ID: 260464</b><br>(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: 213,853</b>                                      | <b>Northing: 274,765</b>                         |   |
| <b>River / Catchment / Sub-catchment</b>                          | <b>Camlin River / River Shannon</b>                          |  |   |
| <b>Type of Flooding / Flood Risk</b><br>(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"/> |

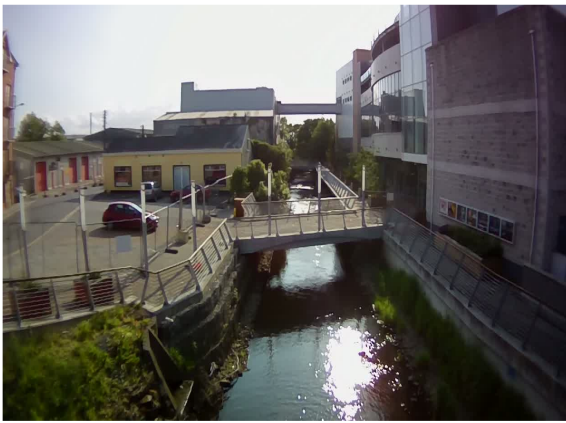
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| <b>Stage 1: Desktop Review</b>  |   |
| <p><b>1.1 Flood History (include review of Floodmaps.ie)</b></p>                | <p><b>River Flow Path</b><br/>The River Camlin flows through Longford Town and meanders in a westerly direction to the river's confluence with the River Shannon, approximately 6km to the north-west of Longford.</p> <p>The River Camlin is crossed by the R198 (Main Street bridge), north of Longford town centre with minor tributaries being located within the town boundary, which are crossed at several locations (e.g. N5 near Ardnacassa Avenue). There is a weir on the River Camlin, located upstream of the Main Street bridge.</p> <p><b>Flood Event Records</b><br/>There are records of 12 flood events on floodmaps.ie for Longford including events in 1954 and 2005.</p> <p>Low level areas in the grounds of St. Mel's College are susceptible to flooding at times of peak flow in the River Camlin. Flooding also occurs periodically upstream of the 600mm drain through the Ardnacassagh Estate.</p> <p>Immediately downstream of Longford Town a considerable area of floodplain exists and in recent years development has taken place of the higher parts of the floodplain.</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><br/><i>Designated APSR on the basis of predictive analysis and LA comments.</i></p> <p><b>LA comments</b><br/><i>Upstream of Mullagh Bridge. Two year return period. Fifty year return period flood 2009. Draft report available - @ draft stage on the Camlin 2002 updated 2008. Railway line impacted National Primary route N5, N63 Industrial, Business, Residential Station at Mullagh.</i></p> <p><b>Meeting / discussion summary comments:</b></p> <p><b>OPW comments</b></p> <ul style="list-style-type: none"> <li>• The River Camlin flows through Longford.</li> <li>• There is a new Longford bypass planned (under construction).</li> <li>• There is a study by Longford CoCo in existence and they are carrying out drainage works at present.</li> <li>• A lot of the town has been built on Benefiting Lands.</li> </ul>  |

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|   | <p><b>LA comments</b></p> <ul style="list-style-type: none"> <li>• The River Camlin should be modelled fully, picking up all tributaries.</li> <li>• The River Shannon influence extends up to around Ballykenny, upstream of Longford.</li> <li>• The River Camlin can flood upstream of the Main St bridge.</li> <li>• During the 2009 flood event, peak level on the River Camlin occurred around the 22nd-23rd November.</li> <li>• The Fire Station didn't flood in 2009, but the leisure centre was partly flooded.</li> <li>• For the railway to flood, flood would need to be ~1:60 return period.</li> <li>• For the River Camlin to overtop its banks downstream of the town centre, the flood event needs to be of ~1:2 return period.</li> <li>• There are 2 tributaries to the River Camlin of concern, namely within the town centre near Great Water Street / leisure centre (A), and within the industrial area south-west of town centre (B)</li> <li>• Tributary A has only a 1:5 year capacity due to a culvert constraint beneath Great Water Street.</li> <li>• Tributary B – culvert constraints are the primary concern</li> </ul> |  |                         |
| <b>1.4 PFRA Data</b>  |   |  |                         |
| <b>1.4.1 PFRA hazard mapping</b>                                | <p><b>PFRA mapping available in GIS layer:</b>      Yes <input checked="" type="checkbox"/>      No <input type="checkbox"/></p> <p><b>PFRA mapping included on FRR map:</b>      Yes <input checked="" type="checkbox"/>      No <input type="checkbox"/></p>  |  |                         |
| <b>1.4.2 Summary of Principal Receptors</b>                     | <p><b>Type</b></p> <p>Arch_Local</p> <p>Arch_Regional</p> <p>Monument_LV</p> <p><b>TOTAL</b></p>  | <p><b>FRI score (if available)</b></p> <p>10</p> <p>37.4</p> <p>1</p> <p><b>1743.3</b></p> |                         |
| <b>1.7 Stage 1 Evaluation</b>                                   | <p><b>Aspect</b></p> <p><b>Flood History (1.1)</b></p> <p><b>OPW / LA Information (1.2)</b></p> <p><b>PFRA Evaluation (1.4)</b></p> <p><b>Overall Desktop Evaluation</b><br/>(if any above aspect is uncertain then overall designation is uncertain)</p>   | <p><b>Clearly APSR</b></p> <p><b>X</b></p> <p><b>X</b></p> <p><b>X</b></p> <p><b>X</b></p> | <p><b>Uncertain</b></p> |
| <b>1.8 Proposed level of assessment for Stage 2 site visits</b> | <p><b>Level A Site Visit</b></p>  |  | <p><b>X</b></p>         |

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| <b>Stage 2: Site Inspection</b>  |   | <b>Level B Assessment</b> |  |
| <b>Date and Time of Inspection</b>   |   | <b>Date: 18/05/11</b>     |  |
|  |   | <b>Time: 13:00</b>        |  |
| <b>Names of inspection team (including OPW/LA staff if present)</b>  |   | <b>Alan Dew</b>           |  |
|  |   | <b>James Murray</b>       |  |
|  |   |                           |  |
|  |   |                           |  |
| <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>                             | <ul style="list-style-type: none"> <li>▪ R198 culvert at APSR boundary has good capacity and good floodplain storage capacity which is likely to be adequate.</li> <li>▪ The culvert under the R194 may constrain high flows. There is good floodplain capacity downstream but the channel is constrained upstream. There is a wall around the perimeter of a property on the right bank, upstream of the culvert, which may form an informal flood defence for the property. The culvert may be bypassed on the left bank, possibly impacting on a property downstream on the left bank.</li> <li>▪ A possible constraint was observed, resulting from the build up of debris on a trash screen at the entrance to a culvert under the roadway downstream of the sports fields. The culvert comprises 2 no. 1200mm diameter pipes. There is good flood storage capacity on the floodplain to the east of the school. A possible informal flood defence was noted on the western perimeter of properties to the east of these tributaries. The culvert cannot be bypassed as the road is at a higher level and a wall runs alongside the boundary of the sports fields.</li> <li>▪ The box culvert (~1.50m width x 1.00m height) under the N63 highway is not considered to present a constraint to high flows. There is significant floodplain capacity downstream of the railway on the left bank. Properties and the sports pitch on the right bank are slightly elevated in comparison to the floodplain.</li> <li>▪ The majority of the tributary to the west of the Townparks area of Longford is culverted but is not considered to be of concern.</li> <li>▪ There is good floodplain capacity upstream of the N5 for the tributary near to the new N5 extension (under construction). No receptors were noted. There is a good capacity culvert under the N5, which cannot be bypassed. Floodplain is also available downstream of the N5.</li> <li>▪ The River Camlin has floodplain storage capacity at the park / leisure centre upstream of the town centre. There is also significant flood storage downstream of town centre. The road bridge and former mill races upstream of Main Street (R198) do not constrain flow; however there are 2 low capacity footbridges providing access to the cinema development on the right bank downstream of R198. The cinema development has a low threshold and is considered at risk.</li> </ul> |                           |  |

| <b>2.6 Defence Assets</b>   |   |
|---|---|
| <b>Formal and Informal Flood Defence Assets</b><br><i>(include effective and ineffective assets to inform asset survey and potential mitigation measures)</i> | <p><b>Open Channel Watercourses</b><br/>           Man-made river channel <input type="checkbox"/> Flood relief channel <input type="checkbox"/> Canal <input type="checkbox"/><br/>           Mill leat <input checked="" type="checkbox"/> Drainage channels / back drains <input type="checkbox"/></p> <p><b>Bridges and Culvert crossings</b><br/>           Single Arch bridge <input checked="" type="checkbox"/> Multi-Arch bridge <input type="checkbox"/><br/>           Single Span bridge <input checked="" type="checkbox"/> Multi-Span bridge <input type="checkbox"/><br/>           Box culvert(s) <input type="checkbox"/> Pipe culvert(s) <input checked="" type="checkbox"/> Arch Culvert(s) <input checked="" type="checkbox"/></p> <p><b>Culverted Watercourses</b> (culvert length is greater than just a crossing)<br/>           Box culvert(s) <input checked="" type="checkbox"/> Pipe culvert(s) <input checked="" type="checkbox"/> Arch Culvert(s) <input type="checkbox"/> Irregular Culvert(s) <input type="checkbox"/></p> <p><b>Walls and Embankments</b><br/>           Embankment(s) <input type="checkbox"/> Raised wall(s) <input checked="" type="checkbox"/> Retaining wall(s) <input type="checkbox"/></p> <p><b>Control Structures – weirs, gates, dams</b><br/>           Fixed crest weir <input checked="" type="checkbox"/> Adjustable weir <input type="checkbox"/> Dam / Barrage <input type="checkbox"/><br/>           Sluice gates <input type="checkbox"/> Lock gates <input type="checkbox"/> Radial gates <input type="checkbox"/></p> <p><b>Storage</b><br/>           On-line storage (natural) <input checked="" type="checkbox"/> On-line storage (artificial) <input type="checkbox"/> Off-line storage <input type="checkbox"/></p> <p><b>Outfalls</b><br/>           Flapped outfall(s) into watercourse <input type="checkbox"/> Unflapped outfall(s) into watercourse <input type="checkbox"/><br/> <i>i.e. from smaller watercourses, drains etc. into river / estuary / sea</i><br/>           Tidal flap(s) <input type="checkbox"/> Tidal sluice(s) <input type="checkbox"/><br/> <i>i.e. from main watercourse into estuary / sea</i></p> <p><b>Other</b><br/>           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>  | Planning and Development control <input checked="" type="checkbox"/><br>Sustainable Urban Drainage Systems <input type="checkbox"/><br>Flood forecasting / warning <input type="checkbox"/><br>Change in Operating Procedures for water level control: <input type="checkbox"/><br>Public awareness campaign <input type="checkbox"/><br>Individual property protection <input checked="" type="checkbox"/><br>Land use management <input checked="" type="checkbox"/>  |
| <b>Structural measures</b>  | <p><b>Strategic development management for floodplain development:</b> <input type="checkbox"/><br/> <i>(integration of measures into strategic development proposals)</i></p> <p><b>Storage:</b> On-line <input checked="" type="checkbox"/> Off-line <input type="checkbox"/></p> <p><b>Flow diversion:</b> Flood relief channel <input type="checkbox"/> Flood relief culvert <input type="checkbox"/></p> <p><b>Increase conveyance:</b> Bridge works <input checked="" 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 checked="" type="checkbox"/> Trash screen <input checked="" 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"/> <b>(describe)</b></p> <p><b>Other (describe):</b></p>  |

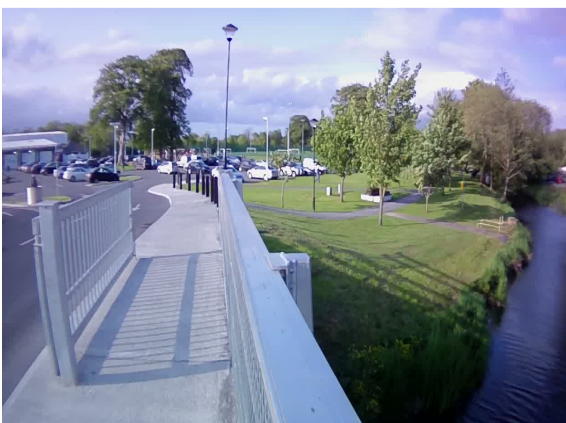
| <b>Outcomes</b>                       |  |
|---------------------------------------|--|
| <b>Recommended Designation</b>        | <b>APSR</b> <input checked="" type="checkbox"/> <b>not an APSR</b> <input type="checkbox"/> <b>IRR</b> <input type="checkbox"/>  |
| <b>Summary Comments (if required)</b> | <p>Longford has a history of flooding. The PFRA mapping predicts an ongoing significant flood risk with this conclusion being supported by both the Local Authority and the OPW. Longford was confirmed as an APSR following a desk based assessment, with no on-site verification required.</p> |



**Photo 1:** River Camlin viewed from the R198 road bridge, looking downstream, with the recent cinema development on the right bank.



**Photo 2:** R198 road bridge over the River Camlin, viewed from the upstream right bank.



**Photo 3:** Access bridge over the River Camlin for the leisure centre, looking towards the upstream right bank.



**Photo 4:** Weir on the River Camlin, viewed from the right bank, with Longford CoCo's offices at the rear on the left bank.

