

Location: Milford, Co. Cork		Unique ID: 242744 (from PFRA database)	
Initial OPW Designation	APSR <input type="checkbox"/>	AFRR <input checked="" type="checkbox"/>	IRR <input type="checkbox"/>
Co-ordinates	Easting: 141753	Northing: 121257	
River / Catchment / Sub-catchment	River Deel / Deel 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)	<p>River Flow Path</p> <p>The River Deel bisects the village as it flows northwards into Co. Limerick. Two minor streams / tributaries (EPA order 1-2) join the River Deel in the vicinity of Milford, one enters north-west of the village and the other within the village centre.</p> <p>OPW Flood Records</p> <p>There are no flood records for Milford recorded on floodmaps.ie</p> <p>From the LAP</p> <p>Flood zones A and B have been depicted in the Local Area Plan Map (Kanturk Electoral Plan):</p> <p><i>“Parts of Milford have been identified as being at risk of flooding. The areas at risk follow the path of the River Deel through the village and are illustrated on the settlement map. Of particular concern is the potential impact on the village centre.”</i></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</p> <ul style="list-style-type: none"> <i>8-10 properties up stream of town (in countryside) in benefiting area for Deel Scheme.</i> <p>LA comments</p> <ul style="list-style-type: none"> <i>Some flooding from the nean in the past. Flash Flooding issue circa'96. Would like it added to Risk Review. Not Blackwater catchment</i> <i>Flash Flooding issue circa'96. Would like it added to Risk Review. Not Blackwater catchment</i> <p>Meeting / discussion summary comments:</p> <p>OPW comments</p> <ul style="list-style-type: none"> Little knowledge of the flooding problem here. Not believed to be significant. <p>LA comments</p>

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: 15/04/11		
		Time: 18:00		
Names of inspection team (including OPW/LA staff if present)		Iain Blackwell		
		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 checked="" type="checkbox"/> Hazard mapping appears reasonable in general, but likely to be some over-estimated flood hazard areas, particularly on the left bank.			
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 Small businesses	D/s of bridge on R515, left bank U/s of bridge on R515, left bank	Y Y	L-M L
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	The main hydraulic restriction is the 3-arch bridge in the centre of Milford. The main road from village centre (running east to west out of village, R515) may be a possible conveyance route once the high spot on the road is passed if the river flows out of bank on the left bank. However, this would only be in very high events.			

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				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									150			

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 <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> Other Pumping Station <input type="checkbox"/> Erosion Protection <input type="checkbox"/> Sand Dunes <input type="checkbox"/> Additional notes (if required):
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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	Strategic development management for floodplain development: <input type="checkbox"/> <i>(integration of measures into strategic development proposals)</i> Storage: On-line <input type="checkbox"/> Off-line <input type="checkbox"/> Flow diversion: Flood relief channel <input type="checkbox"/> Flood relief culvert <input type="checkbox"/> Increase conveyance: Bridge works <input checked="" 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 type="checkbox"/> Trash screen <input type="checkbox"/> Maintenance works: Culvert / channel clearance <input checked="" type="checkbox"/> Asset maintenance <input checked="" type="checkbox"/> Relocation of properties: <input type="checkbox"/> Improve existing defences: <input type="checkbox"/> (describe) Other (describe): <ul style="list-style-type: none"> Road re-profiling to raise high spot on R515 (if needed) to prevent road become the flood channel and affecting more properties. Conveyance improvements on approach to bridge and maintenance of bridge arches to keep them clear of debris. High risk of blockage at the main bridge.

Outcomes				
PFRA Designation	APSR <input type="checkbox"/> not an APSR <input type="checkbox"/> IRR <input type="checkbox"/>		FRI Score: <150	
Site Ground-truthing of PFRA Assessment (hazard mapping and receptors)	High Confidence (good)	Uncertain	Low Confidence (poor)	Not available
		X		
Site Visit Review Score	150			
Recommended Designation	APSR <input checked="" type="checkbox"/> not an APSR <input type="checkbox"/> IRR <input type="checkbox"/>			
Summary Comments (If required)	There are a small number of properties potentially at risk. Downstream is very agricultural with little at risk. Hence it is considered that an increase in conveyance through village is unlikely to cause downstream problems.			



Photo 1: Multi-arch bridge at u/s end of Milford town



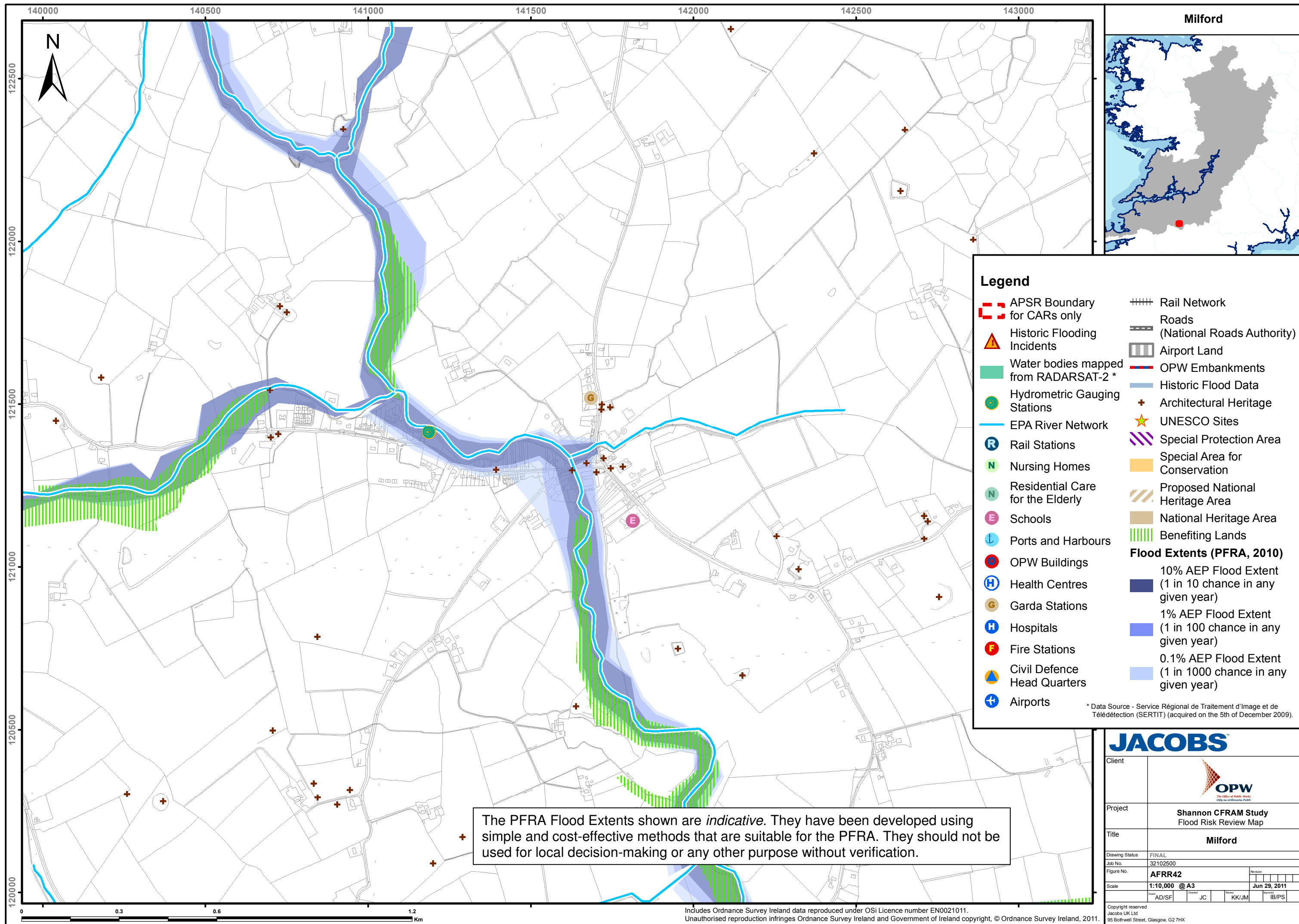
Photo 2: Tributary entrance at u/s end of Milford town



Photo 3: Properties at risk towards d/s end of Milford town
(River level 2-3m below FFL of housing)



Photo 4: Properties at risk next to multi-arch bridge at u/s end of Milford town



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.

JACOBS	
Client	OPW The Office of Public Works OPW na hOifige for the Public
Project	Shannon CFRAM Study Flood Risk Review Map
Title	Milford
Drawing Status	FINAL
Job No.	32102500
Figure No.	AFRR42
Scale	1:10,000 @ A3
Date	Jun 29, 2011
Drawn	AD/SF
Checked	JC
Reviewed	KK/JM
Approved	IB/PS
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