

MWP



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CAHIR TOWN CENTRE PUBLIC REALM Flood Risk Assessment Report

Tipperary County Council

October 2021

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1. Introduction

This Flood Risk Assessment (FRA) report has been prepared on behalf of Tipperary County Council in support of a Part VIII planning application for the Cahir Town Centre Public Realm Plan, County Tipperary.

Cahir is located to the south of the junction of the M8 Dublin to Cork motorway and the N24 Waterford to Limerick Road. Cahir has a high concentration of heritage assets such as the River Suir and its amenity walks, Cahir Castle and Swiss Cottage.

Through public consultations and submissions carried out in 2020 it was noticeable that there is a need for public realm improvements and traffic management measures for the Cahir Square and surrounding area.

The aim of the proposed Public Realm project is to enhance access and presentation of the Square as a living, social and commercial place. An improved public realm that reinforces the streetscape character, and ensures that visitors feel welcome, would attract new business and tourism.

2. Overview of the Proposed Scheme

2.1 Introduction

The proposed development includes for public realm refurbishment and enhancement in Cahir's town centre comprising the upgrading of existing Square and approach streets with new high quality paving, kerbing, public lighting, improved street furniture and utility diversions/works (including undergrounding of overhead ESB cables). Footpath space will be widened, traffic calming will be developed through build out, reduced road carriageway widths and improved pedestrian crossings. Existing on-street parking to be reduced from the Square to a new Town Centre Car Park with a 86 car, 2 coach and 3 mini-bus spaces just off the Square to the north east. This car park is the subject of a separate Part 8 Planning application.

The traffic flow through the Square will be changed from the current two way on both the east and west sides of the Square to two way flow on the east side only. Service and emergency vehicle access will be maintained to the west side of the Square. Pedestrian movement will be prioritised by the design.

The development also includes for public realm refurbishment and enhancement on Castle Street, Church Street, Old Church Street and the Square end of St Mary's Road. A raised table on Castle Street will link the Castle entrance with the river walkways to the north. A similar raised table will be provided on Church Street in front of the new Town Centre Car Park entrance.

2.2 Description of the Scheme

The proposed development includes for public realm refurbishment and enhancement in Cahir's Town Centre comprising the upgrading of the existing Square and approach streets with new high-quality paving, kerbing, landscaping, public lighting, improved street furniture and utility diversions/works.

The proposed development will be carried out on Castle Street, Cahir Town Square, St Mary's Road, Old Church Street and Church Street in the townland of Townparks, Cahir, Co. Tipperary.

Nature and Extent of Proposed Development:

- New raised table shared surface on Castle Street from Cahir Castle to the Castle Car Park entrance to the East and The Mall entrance to the North.
- New kerb alignment and pavement surfaces from the Castle Street Car Park entrance to The Square junction, including upgrading of pedestrian crossing, installation of new public lighting and soft landscaping.
- New streetscape layout for Cahir Square with new alignment design for footpaths, parking areas and trafficked areas incorporating a raised table shared surface from the junction with Castle Street, to the Junction with St Marys Road and to North of The Fountain, new kerb and pavement surfaces throughout The Square, new hard and soft landscaping, new street furniture, new bollards, new bicycle racks, installation of new and upgrade of existing public lighting.
- Alteration of on-street parking for Castle Street, The Square, Church Street, Old Church Street and The Square end of St Mary's Road.
- New pavement surfaces on St. Mary's Road, Old Church Street and Church Street.
- New controlled pedestrian crossings and soft landscaping on Church Street and Old Church St.
- Undergrounding of overhead electrical cables, installation of new public lighting and upgrading of existing public lighting across the entire project area.
- Development of associated drainage services and utilities across the entire project area.
- All associated site works.

The development masterplan is indicated on Figure 2.1 below and further details are provided in the design drawings. The areas included in the Cahir Town Centee Public Realm plan are:

- Castle Street
- Cahir Town Square
- St. Mary's Road
- Church Street
- Old Church Street

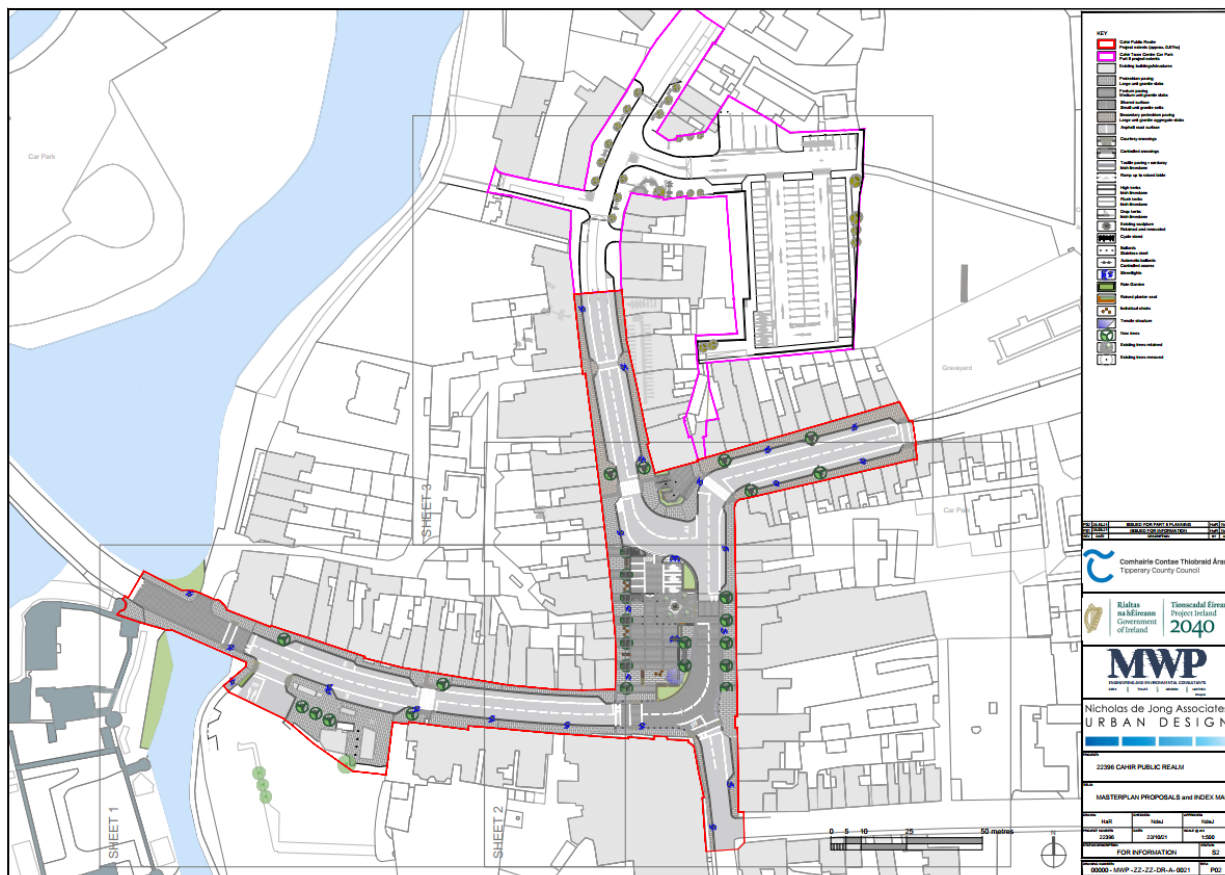


Figure 2.1: Proposed Regeneration Scheme Masterplan

2.3 Scheme Objectives

The objective of the Cahir Town Centre Public Realm Plan is to:

- Provide a focal point for activity/footfall;
- Reduce pedestrian/vehicle conflict and improving pedestrian safety;
- Reduce vehicle dominance on the Square and the main streets and improve junction capacity;
- Design the Cahir Square as a pleasant and safe place to be;
- Enhance the appearance of the town centre through careful design and selection of appropriate surfacing and street furniture;
- Safeguard the structure and appearance of heritage buildings by reducing the impact of vehicles;
- Development of enhanced pedestrian cyclist linkages throughout the town;
- Consider opportunities to enhance public realm at night;

2.4 Flood Risk Assessment Objectives

The purpose of this report is to establish the flood risk associated with the proposed development and, if appropriate, to recommend mitigation measures to prevent an increase in flood risk within or outside the site.

The report has been prepared in the context of *The Planning System and Flood Risk Management – Guidelines for Planning Authorities, November 2009 (PSFRM)*, published by the Office of Public Works and the Department of Environment, Heritage and Local Government. Flood Risk Assessments are carried out at different scales by different organisations. The hierarchy of assessment types are Regional (RFRA), Strategic (SFRA) and Site-specific (FRA). This report is site-specific.

2.5 Methodology

The Flood Risk Management Guidelines document outlines three stages in the assessment of flood risk as follows:

- *Stage 1 Flood Risk Identification – to identify whether there may be any flooding or surface water management issues related to a plan area or proposed development site that may warrant further investigation;*
- *Stage 2 Initial Flood Risk Assessment – to confirm sources of flooding that may affect a plan area or proposed development site, to appraise the adequacy of existing information and to determine what surveys and modelling approach is appropriate to match the spatial resolution required and complexity of the flood risk issues. The extent of the risk of flooding should be assessed which may involve preparing indicative flood zone maps. Where existing river or coastal models exist, these should be used broadly to assess the extent of the risk of flooding and potential impact of a development on flooding elsewhere and of the scope of possible mitigation measures; and*
- *Stage 3 Detailed Risk Assessment – to assess flood risk issues in sufficient detail and to provide a quantitative appraisal of potential flood risk to a proposed or existing development, of its potential impact on flood risk elsewhere and of the effectiveness of any proposed mitigation measures. This will typically involve use of an existing or construction of a hydraulic model or a river or coastal cell across a wide enough area to appreciate the catchment wide impacts and hydrological processes involved.*

2.6 Flood Risk in the Context of Minor Proposals

The Flood Risk Management Guidelines acknowledge that minor developments are unlikely to raise significant flooding issues unless they obstruct important flow paths or introduce a significant number of people to an area. The sequential approach cannot be used and a justification test does not apply. In such circumstances the Guidelines indicate that a Flood Risk Assessment should demonstrate that “the development would not have adverse impacts or impede access to a watercourse, floodplain or flood protection and management facilities”.

3. Flood Risk Identification (Stage 1)

Possible sources of flood risk were identified by;

- Walkover Survey of the Site
- Topographical Survey Information
- Flood History

3.1 Walkover Survey & Topography Review

The site and surrounding lands were inspected by MWP on a number of occasions throughout the design development.

Parts of the regeneration scheme extend eastwards to the bridge crossing the River Suir which is a possible source of flooding. Castle Street slope upwards moderately from this point to the town square where the street elevations are approximately 6m above the bridge surface level. The remaining areas included in the regeneration scheme are at a similar elevation indicating that the flood risk from the River Suir is unlikely to be significant.

3.2 Flood History - OPW Local Area Reports

The Past Flood Event Local Area Summary Report which was obtained from the Office of Public Works (OPW) floodinfo.ie website is included on Figure 3.1 below. This report summarises all recorded past flood events within 2.5km of the town centre. There are two records of flooding in the area.

The first relates to recurring flooding downstream of the town however this is not relevant to flood risk within the town. The second record includes a map for the extents of flooding from the River Suir in January 2008 and it is notable that the areas included in the regeneration scheme do not appear to have been flooded in this event.

Therefore, there is no history of flooding in the areas of the regeneration scheme.

3.3 Summary of Stage 1 FRA

There is no record of flooding within the proposed regeneration scheme boundary. However, certain areas of the scheme are in close proximity to the River Suir therefore a Stage 2 FRA has been undertaken as a precautionary approach.

Past Flood Event Local Area Summary Report

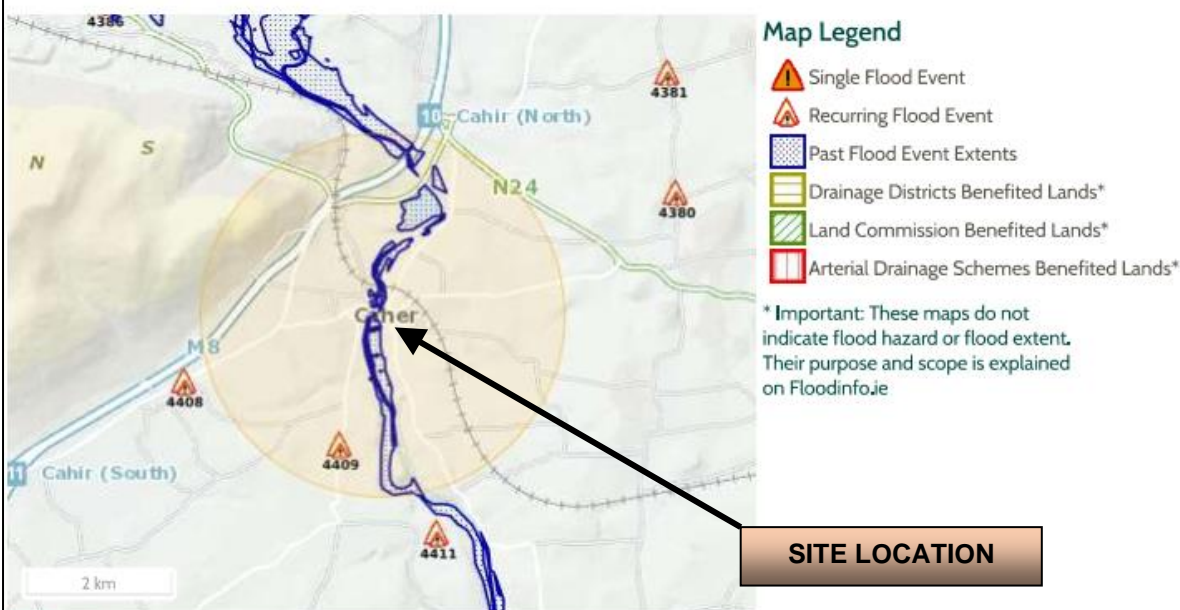


OPW Óifige na nOibreacha Poiblí
Office of Public Works

Report Produced: 22/10/2021 14:46

This Past Flood Event Summary Report summarises all past flood events within 2.5 kilometres of the map centre.

This report has been downloaded from www.floodinfo.ie (the "Website"). The users should take account of the restrictions and limitations relating to the content and use of the Website that are explained in the Terms and Conditions. It is a condition of use of the Website that you agree to be bound by the disclaimer and other terms and conditions set out on the Website and to the privacy policy on the Website.



2 Results

	Name (Flood_ID)	Start Date	Event Location
1.	Cahir (near GC) Recurring (ID-4409) Additional Information: Reports (3) , Press Archive (14)	n/a	Approximate Point
2.	Suir Flood Jan 2008 (ID-10571) Additional Information: Reports (1) , Press Archive (0)	10/01/2008	Area

Figure 3.1: Local Area Summary Report (www.floodinfo.ie)

4. Initial Flood Risk Assessment (Stage 2)

The purpose of the Initial Flood Risk Assessment is primarily to ensure that the relevant flood risk sources are identified so that they can be addressed appropriately in any necessary Detailed Flood Risk Assessment.

4.1 Flooding Sources

The potential sources of flooding and their relevance to the flood risk at the site are outlined in the following sub-sections.

4.1.1 Fluvial Flooding

Fluvial flooding occurs when the capacity of a river channel is exceeded and water flows onto the adjacent land or flood plain. The nearest source of fluvial flooding to the site is the River Suir which is located to the east of the development area.

The Suir CFRAM Study flood extent maps have been examined and an extract from same is included in Figure 4.1 for the Current Scenario. This indicates that the town is predominantly in Flood Zone C corresponding to low risk. Although some localised areas of the town are within Flood Zones A and B, these are not within the scheme boundary.

This was further validated by comparing the predicted flood levels with the topographically survey. The predicted 1% and 0.1% AEP flood levels at node MSUIR093441 are 40.969mOD and 41.293mOD respectively. By comparison, the ground levels within the scheme boundary are generally in excess of 42mOD and up to 47 to 48mOD at the western end of Castle Street, in the Square, Church Street and Old Church Street. The exception to this is at the bridge on Castle Street near the eastern boundary of the scheme where flooding could be experienced if the water level exceeds around 41.2mOD. The predicted flood levels are node 2SUI2000316 are 40.232mOD and 40.432mOD for the 1% and 0.1% AEP events respectively. On this basis it would appear unlikely that any overtopping of the bridge would occur for the 0.1% AEP event however even if it were to occur it would result in a shallow depth of flooding which would not pose a significant hazard to the public. Notwithstanding this, surface levels in this area should remain unchanged to ensure that there are no changes to potential flow paths.

Fluvial flood risk within the scheme boundary is considered to be low and does not require further assessment.

4.1.2 Estuarial or Tidal Flooding

Estuarial or tidal flooding is caused by higher than normal sea levels which occur primarily due to extreme high tides, storm surges, wave action or due to high river flows combining with high tides. The elevations within the scheme boundary are in excess of 40mOD therefore estuarial or tidal flooding are not relevant to the area.



Figure 4.1: Suir CFRAM Study Flood Extent Map (Current Scenario)

4.1.3 Pluvial Flooding & Overland Flow

Pluvial flooding or overland flow occurs when rainfall intensity exceeds the infiltration capacity of the ground. The excess water flows overland to the nearest watercourse or piped drainage system. Intense rainfall events can result in ponding in low areas or upstream of physical obstructions. Overland flow is most likely to occur following periods of sustained and intense rainfall when the ground surface becomes saturated. Overland flow can also occur due to river flooding where the overbank flow from a point upstream runs across an area before returning to the river channel further downstream. This type of flooding is not uncommon and can occur where there is no direct risk from an adjacent or nearby river channel.

The GSI mapped surface water flooding extents from Winter 2015/2016 were examined and there is no indication of flooding. Furthermore, no other records or local knowledge were obtained which might suggest such flooding could occur.

Whilst this flood risk cannot be ruled out within an existing urban area such as Cahir, it is considered that any such risk is low and would not be exacerbated by the proposed development.

4.1.4 Groundwater flooding

Groundwater flooding occurs when the water table rises to the level of the ground surface. This typically occurs in areas with karst bedrock. The GSI Groundwater Flooding data viewer was examined and it was found that there is no record of any such flooding and the predictive maps do not include flooding in this area. Groundwater flooding also occurs relatively slowly and poses a low hazard to people. For these reasons this source of flooding is not considered to be a risk to the scheme.

4.1.5 Flooding from Artificial Drainage Systems

Surface Water Management is outside the scope of this FRA however a Surface Water Management Plan has been prepared which is provided in MWP Document Number 22393-6005. The key findings from this area:

1. There are currently no known problems with the existing storm or foul drainage in this area.
2. A full CCTV survey will be undertaken as part of the works, and this will highlight any failings/defects within the existing system, and these will also be addressed as part of the project.
3. The proposed drainage is designed to avail as much as possible of the existing system present. This is to avoid extensive excavation works. Secondly, given the constrained nature of the site, it was important to, insofar as practicable, maintain the existing surface levels. The proposed drainage mimics the existing falls present in the area, with some minor re-profiling introduced. The thresholds of the surrounding buildings have to be retained in any case, so any level changes that can be made are minimal.

It is concluded that the risk of flooding from artificial drainage systems is low and that the proposed surface water management system will ensure that surface water runoff volumes and flow rates will not exceed the existing situation.

5. Summary & Conclusions

A summary of the main findings of this FRA is as follows;

1. This report has been prepared in the context of The Planning System and Flood Risk Management – Guidelines for Planning Authorities, November 2009 (PSFRM), published by the Office of Public Works and the Department of Environment, Heritage and Local Government.
2. A Stage 1 and 2 Flood Risk Assessment was undertaken.
3. There is no record of previous flooding occurring within the proposed development area.
4. All possible sources of flooding were examined in the Stage 2 FRA, summarised as follows:
 - a. The predictive flood maps from the Suir CFRAM Study indicated that the the proposed scheme is located in Flood Zone C where the risk of fluvial flooding is low.
 - b. Coastal flooding is not relevant to this area.
 - c. The risk of pluvial, groundwater flooding and flooding from artificial drainage systems was assessed and is considered to be low.
5. The proposed development will maintain existing surface levels insofar as possible therefore any possible exceedance flow paths or residual risks will not be adversely affected by the scheme.
6. The works will not be carried out within the floodplain, the area of impermeable surfaces is similar to the existing situation and the surface water flow paths will be maintained. Therefore, the proposed scheme will not adversely impact flooding within the town or in areas upstream/downstream of the site.



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