Coastline at Laytown, Co. Meath

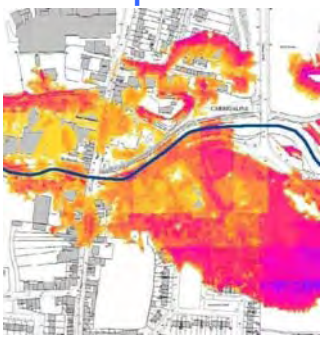
FEM-FRAMS

Newsletter – 06
December 2009

FINGAL EAST MEATH FLOOD RISK ASSESSMENT AND MANAGEMENT STUDY

Included in this issue

Flood maps



Introduction

Welcome to the Fingal East-Meath Flood Risk Assessment and Management Study (FEM FRAMS) newsletter. The newsletter provides you with information on different aspects of the project and keeps you updated on project progress. Please visit our website www.fingaleastmeathframs.ie to obtain a copy of previous newsletters and to obtain further information on the project.

The main objectives of the FEM FRAMS are to: identify and map the existing and potential future flood hazard and risk areas within the study area; build the strategic information base necessary for making informed decisions in relation to managing flood risk; identify viable structural and non-structural measures and options for managing the flood risks; prepare a Flood Risk Management Plan (FRMP) for the study area, and carry out a Strategic Environmental Assessment. The FRMP sets out the measures and policies, including guidance on appropriate future development that should be pursued by the Local Authorities, the OPW and other Stakeholders. This study will ensure compliance with the Governments national policy for flood risk, the EU Floods Directive and the Water Framework Directive.

It is important that the knowledge and views of the general public are taken into consideration during the development of the Fingal East Meath FRMP. Our website www.fingaleastmeathframs.ie has a feedback form where you can submit information and views relevant to the study.

Fingal County Council
Comhairle Contae Fhine Gall

Tús Maith le Cheile

OPW
The Office of Public Works
Oifig na nOibreacha Poiblí

HalcrowBarry

Flood maps

Flood maps are one of the main outputs of the study and are being produced for all the rivers in the study area and for the Fingal and Meath coastline. Flood maps have been prepared in different formats, each designed for various end uses, and representing both current and future flood risk.

The flood maps have been generated from the outputs of the hydraulic computer models which provide data on water levels, flows, depths and velocities.

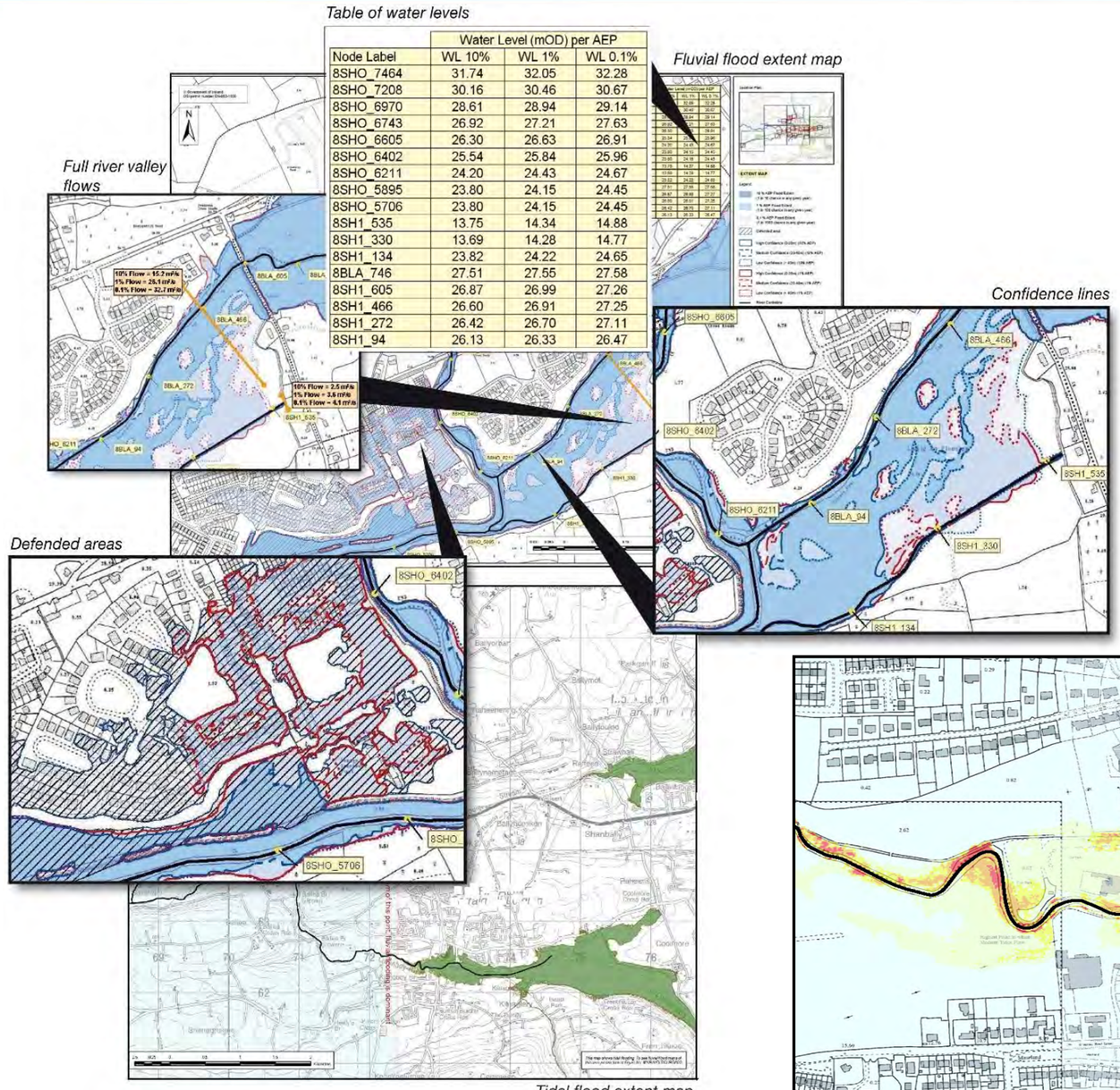
Flood maps provide valuable graphical information regarding flooding within the catchment. These maps are being used within the study to identify areas of significant flood risk and to inform the development of flood risk management options. These flood maps can also be used to:

- raise awareness of flood risks to property and life;
- increase recognition of flood risk areas;
- aid emergency response planning and action; and
- inform spatial planning and development management within the floodplain and support the implementation of the Guidelines on the Planning System and Flood Risk Management (further information is available on www.opw.ie).

Flood extent maps

Flood extent maps illustrate the estimated area inundated by a particular flood event for a given annual exceedence probability (AEP). The AEP is a statistical measurement indicating the likelihood of a flood event of a certain intensity occurring or being exceeded in any given year. Thus, a 10% AEP describes a flood event which has a 10% chance of occurring or being exceeded in a given year.

The main graphic opposite shows the format of the flood extent maps being produced for the FEM FRAMS. The shaded areas on the map show the extent of flooding for a given AEP, i.e. 10%, 1% and 0.1% AEP. For river flooding, flood extents are shown as shaded blue areas. For tidal flooding, flood extents are shown as shaded green areas. The dotted and solid lines surrounding the shaded areas show the level of confidence associated with a given flood extent. This confidence is based on a scoring and weighting system which assigns a 'high' 'medium' or 'low' degree of confidence to the flood extent. Hatching on the map shows areas defended by existing flood defences. A table on the map provides information on water levels along the river channels and around the coastline for three AEP events. Node points along on the map link to this table of water levels to allow users identify their location along the river channel or coastline. For river reaches, the full river valley flow (river channel and floodplain flow) will be shown for the 10%, 1% and 0.1% AEP events. An orange line on the map will identify the locations of the full valley flows. A text box adjacent to this line will provide details on the flow values for three AEP events, namely the 10%, 1% and 0.1% AEP events.



Node Label	Water Level (mOD) per AEP		
	WL 10%	WL 1%	WL 0.1%
8SHO_7464	31.74	32.05	32.28
8SHO_7208	30.16	30.46	30.67
8SHO_6970	28.61	28.94	29.14
8SHO_6743	26.92	27.21	27.63
8SHO_6605	26.30	26.63	26.91
8SHO_6402	25.54	25.84	25.96
8SHO_6211	24.20	24.43	24.67
8SHO_5895	23.80	24.15	24.45
8SHO_5706	23.80	24.15	24.45
8SH1_535	13.75	14.34	14.88
8SH1_330	13.69	14.28	14.77
8SH1_134	23.82	24.22	24.65
8BLA_746	27.51	27.55	27.58
8SH1_605	26.87	26.99	27.26
8SH1_466	26.60	26.91	27.25
8SH1_272	26.42	26.70	27.11
8SH1_94	26.13	26.33	26.47

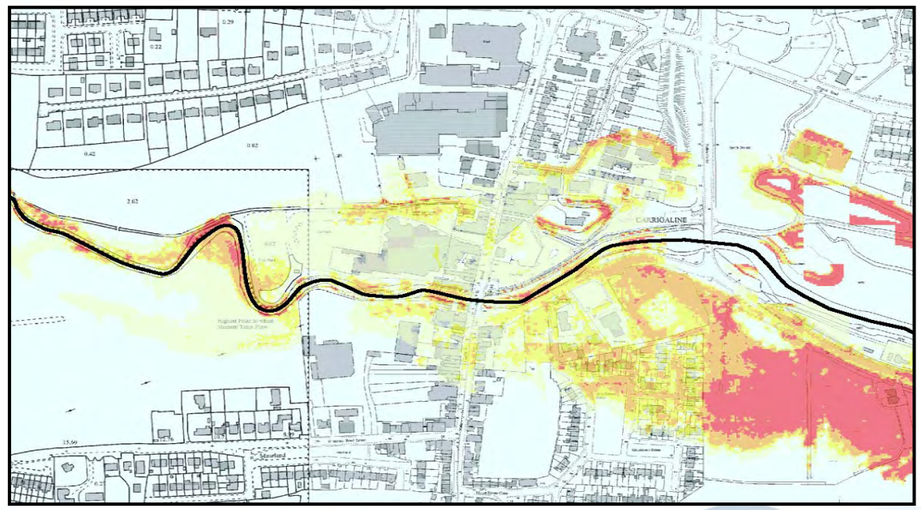
Format of the flood extent maps which will be prepared for the FEM FRAMS study area

Flood hazard maps

Flood hazard maps show the harm or danger which may be experienced by people from a flood event of a given AEP. The calculation of flood hazard is based upon a mathematical formula which takes into account the depth and velocity of flood waters to provide a flood hazard value. These values are linked with a flood hazard category and a description of the danger associated with that category. The table below is sample of flood hazard categories and descriptions of the flood hazards.

Flood hazard category	Description
Extreme	Dangerous for all. *Flood zone with deep fast flowing water.*
Significant	Dangerous for most people. *Flood zone with deep fast flowing water.*
Moderate	Dangerous for some (i.e. children). *Flood zone with deep fast flowing water.*
Low	Caution. *Flood zone with shallow flowing water or deep standing water.*

The spatial extent of the hazard is mapped to produce the flood hazard maps as shown in the map below.



Sample flood hazard map

Flood depth and velocity maps

Flood depth maps illustrate the estimated flood depths for areas inundated by a particular flood event. Flood velocity maps show the speed of the flood water for a particular flood event. The changes in depth and velocity are represented on the maps using graduated colours.

Availability of flood maps

The flood maps will be available on the OPW flood mapping website, www.floodmaps.ie once the project has been completed. Draft flood maps for consultation will be published along with the draft Flood Risk Management Plan in late 2010 to allow you to view and comment on the information in the flood maps. Further information on this consultation will be advertised in advance.

Project progress update

Throughout the project we will keep you updated on our progress through both the quarterly newsletter and the project website.

Channel and structure survey

The channel and structure survey has now been completed. The survey involved a land survey by teams of surveying specialists to gather detailed measurements of the shape of the river channel and any structures located in the river channel such as bridges or weirs. The project team would like to thank all those who have assisted the surveyors by granting them access to your land to carry out this important survey work.

Detailed hydrological assessment

The detailed hydrological assessment is nearing completion. The project team recently presented details of the hydrological assessment at the annual National Hydrology Seminar. The detailed hydrological assessment involved analysis of rainfall and river flows to define the design river flows in the catchment watercourses. A joint probability analysis has been carried out to determine the chance of high river flows and high tidal levels occurring at the same time to produce a high water levels along the coast. The effects of climate change and future land use changes on the existing flooding scenarios are also being investigated. The outputs from this detailed assessment are being used in the hydraulic computer models of the watercourses.

Hydraulic computer models

Hydraulic computer modelling involves the use of computer software to solve advanced mathematical equations to provide an estimate on water levels, flows and velocities along a river system. Work is progressing on developing computer models for the 19 river systems and river estuaries in the FEM FRAM Study area. Development of the Broadmeadow and Ward River computer models is almost complete. These are two of the larger river systems in the study area. The outputs from these computer models have been used to generate draft flood extent maps for these two watercourses.

If you have any questions or require any further information relating to this study or if you would like to be included on a distribution list for future issues of this newsletter please email fem-frams@fingalcoco.ie

If you would like to contact us by post, please send your request to Denise Treacy, Water Services Department, Fingal County Council, Grove Road, Blanchardstown, Dublin 15.

In the next issue of the newsletter we will provide information on the identification and assessment of flood risk management options. It is important that the identification and assessment of flood risk management options are evidence-based, transparent, and inclusive of stakeholder and public views.

The next issue of the newsletter will be available in May 2010.

Our project website www.fingaleastmeathframs.ie provides up to date information on the FEM-FRAM Study, including project activities, project programme, public information days and project reports.

A feedback form on the website provides you with an opportunity to provide information you feel is relevant to the study.

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