

Comhairle Bhaile Chill Dara
Kildare County Council



DRAFT STRATEGIC FLOOD RISK ASSESSMENT

MAYNOOTH LOCAL AREA PLAN 2013 ~ 2019

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1.0 INTRODUCTION

1.1 Requirement for Flood Risk Assessment

Kildare County Council is in the process of making the Maynooth Local Area Development Plan 2013 ~ 2019 (LAP) which is being prepared in accordance with the Core Strategy and the requirements and provisions of the Planning and Development Act 2000 (as amended).

In accordance with Section 28 of the Planning and Development Act 2000 as amended, the planning authority shall have regard to any guidelines issued by the Minister of the Environment, Heritage and Local Government to planning authorities in the performance of their functions including the preparation of Development Plans.

In response to the recommendations of the National Flood Policy Review Group the Minister published statutory planning guidelines entitled "*The Planning System and Flood Risk Management – Guidelines for Planning Authorities*" on 30 November 2009 [the Guidelines] which incorporate flood risk assessment and management into the planning system. The Guidelines focus on providing for comprehensive consideration of flood risk in preparing Regional Plans, Development Plans and Local Area Plans, and in determining applications for planning permission.

The Guidelines were issued under Section 28 of the Planning and Development Act 2000 as amended, and require Planning Authorities to introduce flood risk assessment as an integral and leading element of their development planning functions. This is achieved by ensuring that the various steps in the process of making or varying a development plan, together with the associated Strategic Environmental Assessment (SEA), are supported by an appropriate Strategic Flood Risk Assessment (SFRA).

Kilgallen and Partners Consulting Engineers have been appointed by Kildare County Council to undertake a Strategic Flood Risk Assessment (SFRA) for the Maynooth Local Area Plan in accordance with the Core Strategy and in accordance with the Guidelines referenced above.

It is recommended that the SFRA is adopted as a 'Living Document' and reviewed regularly and updated with any new relevant information that may become available during the lifetime of the Maynooth Local Area Development Plan 2013 ~ 2019.

It is the responsibility of each applicant for planning permission to determine the flood risk pertaining to the lands on which development is proposed and to include appropriate mitigation works as part of the proposed development for which permission is sought.

1.2 The Planning Guidelines and Flood Risk Management

The assessment of flood risk requires an understanding of the source of the floodwaters, the process and direction of flow and the people and assets affected by flooding. The Guidelines introduce the mechanism of Flood Risk Assessment (FRA) into the planning process by the incorporation of flood risk identification, assessment and management.

The core objectives of the Guidelines are to:

- Avoid inappropriate development in areas at risk of flooding;
- Avoid new developments increasing flood risk elsewhere, including that which may arise from surface water run-off;
- Ensure effective management of residual risks for development permitted in floodplains;
- Avoid unnecessary restriction of national, regional or local economic growth;
- Improve the understanding of flood risk among relevant stakeholders;
- Ensure that the requirements of the EU and national law in relation to the natural environment and nature conservation are complied with at all stages of flood risk management.

These core objectives are achieved through the process of Flood Risk Assessments. The level of detail required for a Flood Risk Assessment depends on the purpose of the FRA. In the subject case of the varying of the Maynooth Town LAP, a Strategic Flood Risk Assessment (SFRA) is required to inform that plan making process.

To achieve the objectives of the Guidelines, the following principles are applied:

- Avoid the risk, where possible
- Substitute less vulnerable uses where avoidance is not possible, and
- Mitigate and manage the risk, where avoidance and substitution is not possible.

1.3 Structure of a Flood Risk Assessment (FRA)

The Guidelines recommend that a staged approach is adopted when undertaking a Flood Risk Assessment (FRA). The recommended stages are briefly described below:

- **Stage 1** ~ Flood Risk Identification
To identify whether there may be any flooding or surface water management issues that will require further investigation. This stage mainly comprises a comprehensive desk study of available information to establish whether a flood risk issue exists or whether one may exist in the future.
- **Stage 2** ~ Initial Flood Risk Assessment
If a flood risk issue is deemed to exist arising from the Stage 1 Flood Risk Identification process, the assessment proceeds to Stage 2 which confirms the sources of flooding, appraises the adequacy of existing information and determines the extent of additional surveys and the degree of modelling that will be required. Stage 2 must be sufficiently detailed to allow the application of the sequential approach (as described in Section 1.4.2 herein) within the flood risk zone.
- **Stage 3** ~ Detailed Flood Risk Assessment
Where Stages 1 and 2 indicate that a proposed area of possible zoning or development may be subject to a significant flood risk, a Stage 3 Detailed Flood Risk Assessment must be undertaken.

1.4 The Flood Risk Assessment Process for the Planning Authority

1.4.1 Scales of Flood Risk Assessments

Flood Risk Assessments are undertaken at different scales by different organisations for many different purposes. The scales are as follows:

- Regional Flood Risk Appraisal (RFRA): A Regional Flood Risk Appraisal provides a broad overview of the source and significance of all types of flood risk across a region and highlights areas where more detailed study will be required. These appraisals are undertaken by regional authorities.
- Strategic Flood Risk Assessment (SFRA): A Strategic Flood Risk Assessment provides a broad (area-wide or county-wide) assessment of all types of flood risk to inform strategic land use planning decisions. The SFRA allows the Planning Authority to undertake the sequential approach (described below) and identify how flood risk can be reduced as part of the development plan process.
- Site Flood Risk Assessment (Site FRA): A Site FRA is undertaken to assess all types of flood risk for a new development. This requires identification of the

sources of flood risk, the effects of climate change on the flood risk, the impact of the proposed development, the effectiveness of flood mitigation and management measures and the residual risks that then remain.

1.4.2 The Sequential Approach

The sequential approach in terms of flood risk management is based on the following principles: **AVOID - SUBSTITUTE - JUSTIFY - MITIGATE – PROCEED.**

The primary objective of the sequential approach is that development is primarily directed towards land that is at low risk of flooding (AVOID).

The next stage is to ensure that the type of development proposed is not especially vulnerable to the adverse impacts of flooding (SUBSTITUTION).

The Justification Test is designed to rigorously assess the appropriateness, or otherwise, of particular developments that, for various reasons, are being considered in areas of moderate or high flood risk (JUSTIFICATION). The test is comprised of two processes, namely The Plan-Making Justification Test and The Development Management Justification Test. Only the former (Plan-Making Justification Test) is relevant to a Strategic Flood Risk Assessment for a Development Plan, and this is described as follows.

The Plan-Making Justification Test

Where, as part of the preparation and adoption of a development / local area plan, a planning authority is considering the future development of areas in an urban settlement that are at moderate or high risk of flooding, for uses or development vulnerable to flooding that would generally be inappropriate as set out in the Guidelines, all of the criteria listed below, as stated in the Guidelines, must be satisfied. This is referred to as the "*Justification Test For Development Plans*":

- (I) *The urban settlement is targeted for growth under the National Spatial Strategy, regional planning guidelines, statutory plans as defined above or under the Planning Guidelines or Planning Directives provisions of the Planning and Development Act 2000, as amended.*
- (II) *The zoning or designation of the lands for the particular use or development type is required to achieve the proper and sustainable planning of the urban settlement and in particular:*
 - (i) *Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement;*
 - (ii) *Comprises significant previously developed and/or under-utilised lands;*
 - (iii) *Is within or adjoining the core of an established or designated urban settlement;*
 - (iv) *Will be essential in achieving compact or sustainable urban growth;*

- (v) *There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.*
- (III) *A flood risk assessment to an appropriate level of detail has been carried out as part of the Strategic Environmental Assessment as part of the development plan preparation process, which demonstrates that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere.*
- N.B. *The acceptability or otherwise of levels of any residual risk should be made with consideration for the proposed development and the local context and should be described in the relevant flood risk assessment."*

MITIGATION is the process where the flood risk is reduced to acceptable levels by means of land use strategies or by means of detailed proposals for the management of flood risk and surface water, all as addressed in the Flood Risk Assessment.

The decision to PROCEED should only be taken after the Justification Test has been passed.

1.5 Key Outputs from the SFRA

The key outputs are:

- To provide for an improved understanding of flood risk issues within the Development Plan and development management process, and to communicate this to a wide range of stakeholders;
- To produce an assessment of existing flood defence infrastructure and the consequences of failure of that infrastructure and to identify areas of natural floodplain to be safeguarded;
- To produce a suitably detailed flood risk assessment that supports the application of the sequential approach in key areas where there may be tension between development pressures and avoidance of flood risk;
- To inform, where necessary, the application of the Justification Test;
- To conclude whether measures to deal with flood risks to the area proposed for development can satisfactorily reduce the risks to an acceptable level while not increasing flood risk elsewhere;
- To produce guidance on mitigation measures, how surface water should be managed and appropriate criteria.

2.0 FLOOD RISK

2.1 Components of Flood Risk

Flood Risk is defined as a combination of the likelihood of flooding occurring and the potential consequences arising from that flooding.

The likelihood of flooding is defined in the Guidelines as follows:

"Likelihood of flooding is normally defined as the percentage probability of a flood of a given magnitude or severity occurring or being exceeded in any given year."

The consequences of flooding depend on the following:

"Consequences of flooding depend on the hazards associated with the flooding (e.g. depth of water, speed of flow, rate of onset, duration, wave action effects, water quality), and the vulnerability of people, property and the environment potentially affected by a flood (e.g. the age profile of the population, the type of development, presence and reliability of mitigation measures etc)."

2.2 Source-Pathway-Receptor Model

The Source – Pathway – Receptor Model (SPR Model) is a widely applied model which is used to assess and inform the management of environmental risk.

- **Source** - The origin of a hazard (for example, heavy rainfall, strong winds, surge etc).
- **Pathway** - Route that a hazard takes to reach Receptors. A pathway must exist for a Hazard to be realised.
- **Receptor** - Receptor refers to the entity that may be harmed (a person, property, habitat etc.).

For example, in the event of heavy rainfall (*the source*) flood water may propagate across the flood plain (*the pathway*) and inundate housing (*the receptor*). The vulnerability of a receptor can be modified by increasing its resilience to flooding.

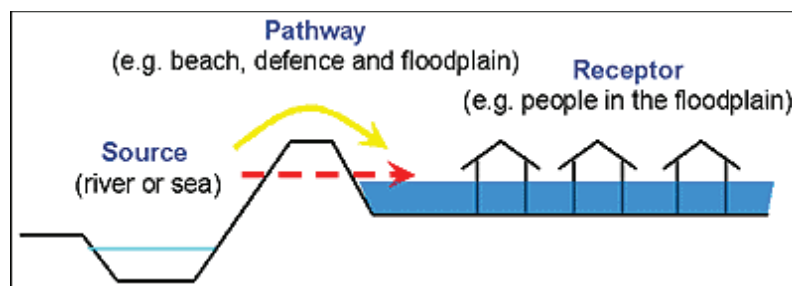


Figure 1: Source-Pathway-Receptor Model (adapted from www.floodsite.net)

3.0 EUROPEAN, NATIONAL AND REGIONAL POLICY

3.1 European Policy

3.1.1 EU Floods Directive

http://ec.europa.eu/environment/water/flood_risk/index.htm

Directive 2007/60/EC on the assessment and management of flood risks became operative on 26th November 2007. This Directive requires Member States to assess the risks of flooding along all watercourses and coast lines. It also requires Member States to map the extent of potential flooding in each case, determine the assets and humans at risk in the areas and to take adequate and coordinated measures to reduce this flood risk. The aim of the Directive is to reduce and manage the risks posed by flooding to human health, the environment, cultural heritage and economic activity.

Member States are required by 2011 to carry out a preliminary assessment identifying the river basins and the coastal areas at risk of flooding. For such zones, flood risk maps are required to be drawn up by 2013 and Member States are required to establish flood risk management plans focused on prevention, protection and preparedness by 2015. The Directive applies to inland waters and to all coastal waters across the whole territory of the EU.

3.1.2 EU Water Framework Directive

www.wfdireland.ie

The Water Framework Directive, which came into force on December 22nd 2000, established a new and integrated approach to the protection, improvement and sustainable use of Europe's rivers, lakes, estuaries, coastal waters and groundwater. It impacts on the management of water quality and water resources and affects conservation, fisheries, flood defence, planning and environmental monitoring.

The primary focus of the Directive is to achieve 'good' ecological status for all waters by 2015.

3.2 National Policy

3.2.1 Planning Guidelines "The Planning System and Flood Risk Management"

The *Planning System and Flood Risk Management* Guidelines were prepared in response to the recommendations of the National Flood Policy Review Group and focused on providing for comprehensive consideration of flood risk in preparing Regional Plans, Development Plans and Local Area Plans, and in determining applications for planning permission.

The Guidelines generally require that development should not be permitted in flood risk areas, particularly floodplains, except where there are no alternative and appropriate sites available in lower risk areas that are consistent with the objectives of proper planning and sustainable development.

3.2.2 Transposition and Implementation of the EU Floods Directive

On 19th March 2010, the Statutory Instrument transposing the EU 'Floods' Directive was signed into Irish law. The Statutory Instrument appointed the Commissioners of Public Works in Ireland as the Competent Authority under the Directive. The Statutory Instrument also identified roles for other organisations, such as the Local Authorities, Waterways Ireland and ESB, to undertake certain duties with respect to flood risk within their existing areas of responsibility.

3.2.3 Office of Public Works

The Office of Public Works is the lead agency for flood risk management in Ireland and is responsible for the coordination and implementation of Government policy on this issue. It is the primary agency responsible for ensuring Ireland's compliance with the EU Floods Directive and particularly for the preparation of a preliminary assessment by 2011, preparation of flood risk mapping by 2013 and preparation of flood risk management plans by 2015. It is the principal agency involved in the preparation of Catchment Flood Risk Assessment and Management Studies.

3.3 Regional Policy

3.3.1 Introduction

For the purposes of regional planning, the Mid-East Regional Authority and the Dublin Regional Authority have partnered to produce Regional Planning Guidelines for the Greater Dublin Area (www.rpg.ie).

On the 15th of June 2010, Regional Planning Guidelines for the Greater Dublin Area 2010~2022 were made. The guidelines give regional effect to the National Spatial Strategy and guide the development plans in each Local Authority area. The guidelines have effect for six years.

The guidelines contain a Regional Flood Risk Appraisal (RFRA), which is a high-level broad-brush appraisal of flood risk across an entire regional authority area, based on existing readily available information.

Paragraphs 3.3.2 to 3.3.5 herein present a summary of the Regional Flood Risk Appraisal together with an outline of the main outputs of relevance to the Maynooth Town LAP.

3.3.2 Regional Flood Risk Appraisal Process

The RFRA process examines the issue of major flood risk from river, estuarine and coastal flooding and does not examine groundwater or artificial drainage flood events. The process of preparing the RFRA involved the mapping of historical flood events in the Greater Dublin Area (GDA) to provide a general indication at a regional scale of where flood vulnerable locations are located in the GDA.

The mapping of alluvial soils indicating flood plain locations in the GDA was also examined at a regional level.

The studies indicate that significant sections of the built up area of Dublin together with key towns in the GDA are vulnerable to flooding, particularly along the coast, near estuaries and lands proximate to the rivers flowing through the region.

3.3.3 Strategic Policies and Recommendations for Regional Flood Risk Management

- **Strategic Policy FP1:** That flood risk be managed pro-actively at all stages in the planning process by avoiding development in flood risk areas where possible and by reducing the risks of flooding to and from existing and future development.
- **Strategic Recommendation FR1:** New development should be avoided in areas at risk of flooding. Alongside this, the Regional Flood Risk Appraisal recognises the need for continuing investment and development within the urban centres of flood vulnerable designated growth towns and the City and

for this to take place in tandem with the completion of Catchment Flood Risk Assessment and Management (CFRAM) Studies and investment in comprehensive flood protection and management.

- **Strategic Recommendation FR2:** Development and Local Area Plans should include a Strategic Flood Risk Assessment and all future zoning of land for development in areas at risk of flooding should follow the sequential approach set out in the Departmental Guidance on Flood Risk Management. All Flood Risk Assessments and CFRAM studies should take place in coordination and consultation with adjoining local authorities and regions and in coordination with the relevant River Basin Management Plans.
- **Strategic Recommendation FR3:** Local authorities should take the opportunities presented to optimise improvements in biodiversity and amenity when including policies and actions in development plans/local area plans (such as flood plain protection and SuDS) for existing and future developments.
- **Strategic Recommendation FR4:** Plans and projects associated with flood risk management that have the potential to negatively impact on Natura 2000 sites will be subject to a Habitats Directive Assessment (HDA) according to Article 6 of the habitats directive and in accordance with best practice and guidance.

3.3.4 Role of Local Authorities (from RFRA)

Local Authorities must take account of the issues raised in this Regional Flood Risk Appraisal and undertake Strategic Flood Risk Assessment for future Development and Local Area Plans in line with the Department's Guidance on the Planning System and Flood Risk Management Guidelines. Local Authorities should ensure that they adhere to the principles of avoiding risk where possible in preparing such future Plans.

The Regional Planning Guidelines seek to emphasise the need to protect across the Greater Dublin Area the natural flood plains and riparian corridors of all rivers that have not already been built on, and seek that this is explicitly stated and spatially designated in all future Development and Local Area plans following the completion of CFRAM studies for the area in question. In the absence of the CFRAM studies, Planning Authorities should identify the areas at risk using other data such as data that is available from the OPW, available historical information (mapped or otherwise), and if necessary, through additional studies or investigations.

Land required for current and future flood management should be safeguarded from development.

Allocation of future areas for development as extensions to existing built up areas, villages or towns should follow a sequential approach; be within the lowest risk sites appropriate for the development; and should include adequate provision for adaptation to, or protection against, the projected impacts of climate change.

3.3.5 Recommendations from Regional Flood Risk Appraisals

In the preparation of future Development and Local Area Plans, Local Authorities are advised to:

- Identify and consider at the earliest stage in the planning process flood hazard and potential risk.
- Identify flood risk areas on the Development Plan and Local Area Plan maps.
- Review existing Development Plans and Local Area Plans to ensure that the issue of Flood Risk has been addressed in a manner consistent with the Flood Risk Management Guidelines.
- Where lands are already zoned for housing or other vulnerable development in flood risk areas, the Planning Authority should undertake a re-examination of the zoning in accordance with the sequential approach. Regional Planning Guidelines may need to identify Plans which will require a variation to take account of flood risk assessments.
- Include policies which ensure that flood risk areas targeted for development following the sequential approach should be planned, designed and constructed to reduce and manage flood risk and be adaptable to changes in climate.
- Include policies to ensure that flood risk and impact is considered as a key element in the assessment of future waste and mineral planning strategies and developments.
- Include policies that ensure that the location of key infrastructure will be subject to flood risk assessment.
- Include policies on the importance of the inclusion of Sustainable Drainage Systems (SuDS) in future developments, in accordance with the recommendations of the Greater Dublin Strategic Drainage Study Guidelines and Appendix B of the Planning System and Flood Risk Management Guidelines.

Flooding events, whether widespread or localised, can cause serious damage to key infrastructure (e.g. power stations, sub-stations, communication hubs, wastewater treatment plants etc.). The cost of such disruption is significant to business, causes hardship to residents and also can place people in "at risk" situations. For this reason, it is recommended that on completion of Catchment Flood Risk Assessment and Management Studies and upon identification of areas of high flood risk in each Planning Authority area, that key infrastructure suppliers are advised of the risk to such installations and encouraged to assess current infrastructure for risk and stress test future projects against flood risk, where this has not been previously undertaken.

4.0 STRATEGIC FLOOD RISK ASSESSMENT—MAYNOOTH LAP 2013~2019

4.1 Introduction

The Strategic Flood Risk Assessment provides an appraisal and assessment of available flood risk data for the land-use proposals within the boundaries of the Maynooth LAP 2013 ~ 2019. This process identifies flood risk indicators in each area and, where it is demonstrated that lands may be at risk of flooding, recommends modifications to land-use proposals or the carrying out of more detailed flood risk assessment as appropriate.

4.2 Available Flood Risk Data

Most of the data utilised is historically derived, not prescriptive in relation to flood return periods and not yet predictive or inclusive for climate change analysis.

4.2.1 Office of Public Works


The OPW is currently undertaking flood risk assessment mapping showing Areas of Potential Significant Flood Risk in collaboration with local authorities and other key agencies. Upon completion, it will become an important and primary source of input into future flood risk assessment studies.

A public consultation period for the Preliminary Flood Risk Assessment (PFRA) which identifies areas of Potential Significant Risk has just concluded. A list designating a number of Areas for Further Assessment (AFA's) arising from the PFRA has recently been published by the OPW. These areas will now be the focus of the CFRAM (Catchment Flood Risk Assessment and Management) studies. Further information on the PFRA process is available on www.cfram.ie.

As part of the National Flood Risk Management Policy, the OPW developed the www.floodmaps.ie web based data set, which contains information concerning historical flood data and displays related mapped information and provides tools to search for and display information about selected flood events.

Additional mapped information, such as the Ordnance Survey of Ireland background maps, rivers, hydrometric gauge stations, drainage districts and land benefiting from drainage schemes is included as additional contextual information.

The locations of recorded flood events for the Maynooth and its immediate environs were investigated on www.floodmaps.ie. A number of flood events have been mapped and these are described in the table below.



Flood No.	Location and Date	Flood Quality Code
1	Lyreen Maynooth November 2002	2
2	Ryewater Carton Maynooth November 2000	2
3	Lawrence's Avenue, Maynooth November 2002	3
4	Meadowbrook Estate Parson St. Maynooth November 2000	2
5	Lyreen Maynooth College November 2000	2
6	Lyreen Maynooth University June 1993	2
7	Lyreen Maynooth Canal Culvert November 2000	2
8	Lyreen Maynooth Jackson's Bridge Area June 1993	2
9	Meadowbrook Greenfield M4 November 2000	2
10	Lyreen River 24 October 2011 Maynooth	2

Table 1: Summary of information for Maynooth from www.floodmaps.ie

4.2.2 6" (1:10560) Ordnance Survey Maps

6" Ordnance Survey maps include areas which are marked as being "Liable to Floods". The exact areas are not delineated but give an indicative location of areas which have undergone flooding in the past. In addition, the maps indicate areas of wet or hummocky ground, bog, marsh, springs, rises and wells as well as surface water features including rivers, streams, bridges, weirs and dams.

4.2.3 Local Authority Personnel

Detailed consultations were held with Local Authority personnel regarding historical flooding and flood relief works in Maynooth.

4.2.4 Flood Studies, Reports and Flood Relief Schemes

Flood reports have been completed for a number of areas within County Kildare and many areas with a history of flooding have undergone flood relief works in the recent past. A number of surface water / flood alleviation schemes are listed in the Capital Programme 2010 ~ 2012.

4.3 Flood Risk Indicators

The Town of Maynooth (as designated in the Maynooth LAP 2013 ~ 2019) has been assessed for the presence of flood risk indicators by reference to the datasets described in Section 4.2. Table 2 provides a matrix showing these indicators at various locations throughout the Town.

		LOCATION			
		Lands south of the Rye Water, north of Kilcock Road and west of Moyglare Road within the town boundary	Lands east of Moyglare Road and north of Main Street and Dublin Road (R148) within the town boundary	Lands south of Kilcock Road and west of Straffan Road within the town boundary	Lands south of Dublin Road (R148) and east of Straffan Road within the town boundary (including Maynooth Business Campus)
Information Source	OS 6" Mapping	<p>A small ponded area of the millrace mapped immediately north of the Lyreen River near the town centre is mapped within this area.</p> <p>Some small field drains are mapped within Laraghbryan East and Laraghbryan West.</p>	<p>The Lyreen River is shown as flowing behind the buildings of Main Street and between the houses of Maria Villa and Pebble Hill before merging with the Rye Water upstream of Kildare Bridge.</p> <p>The Rye Water Flows along the northern and north eastern boundary of these lands.</p>	<p>Lands within the town boundary in this area are generally drained by the Meadowbrook Stream which rises near the townland of Rook south of Maynooth. A large number of drainage ditches and watercourses flow into the Meadowbrook River which passes beneath the canal at an aqueduct near Pond Bridge and along through the Royal College of St. Patrick before entering the Lyreen River near William Bridge.</p> <p>The Lyreen River passes through the westerly portion of these lands before passing beneath the canal at an aqueduct and then flowing through Maynooth South to College lands. A mill race splits off from the Lyreen at this point and flows parallel to the Lyreen until their confluence near Manor Mills (Corn) at Mill Street.</p> <p>A Spa Well is also mapped near William Street.</p>	<p>The OS 6" Historical Mapping does not show many flood risk indicators for these lands. One watercourse is mapped flowing towards Mullen Bridge from the south east. The Royal Canal passes through the lands being examined.</p>
	OS 25" Mapping	<p>A network of open drains and a small stream is mapped flowing in southerly and easterly direction within Laraghbryan West.</p> <p>A large number of open drains are mapped surrounding Crew Hill. One larger stream flows towards Moyglare Road and the Lyreen River.</p>	<p>A well is mapped immediately south of the R.C. Church. A small quarried area appears to have been developed behind the church. A small watercourse is mapped as draining lands south and immediately north of the Dublin Road flowing towards the Maynooth Gate of Carton House and on to the Rye Water near Crane Island.</p> <p>Numerous streams and drainage ditches are mapped around Maria Villa draining large areas of land. Lands adjacent of Moyglare Road and immediately south of Rye Water are also mapped as traversed by numerous drainage ditches.</p>	<p>Lands near the westerly boundary of this area are drained by watercourses and small streams into the Lyreen River. The remainder of the lands are drained into the Meadowbrook River. There are a number of areas mapped as 'including water' within Newtown, Collegeland and Greenfield. Rises are also mapped near Newtown House and the Rectory near the college.</p>	<p>Numerous wells and pumps are mapped at the rear of properties within this area near the town. In addition, a spring is mapped within Railpark townland and areas mapped as 'including water' recorded within Railpark and Greenfield townlands as well as within the town of Maynooth. 'Rises' are mapped within Maynooth town as well as Railpark townland.</p> <p>The southern portion of these lands appears to drain via a series of open drains and watercourses towards the town of Maynooth near Mullen Bridge. It appears that this watercourse passes beneath the Canal and eventually drains via small watercourses into the Rye Water near Carton house. The north eastern portion of these lands appears to drain in a northerly direction towards the Rye Water.</p>

Table 2: Flood Risk Indicators for Maynooth

		LOCATION			
		Lands south of the Rye Water, north of Kilcock Road and west of Moyglare Road within the town boundary	Lands east of Moyglare Road and north of Main Street and Dublin Road (R148) within the town boundary	Lands south of Kilcock Road and west of Straffan Road within the town boundary	Lands south of Dublin Road (R148) and east of Straffan Road within the town boundary (including Maynooth Business Campus)
	OPW	Some areas immediately adjacent to the Rye Water are mapped as Benefiting lands in www.floodmaps.ie	www.floodmaps.ie shows two locations within these lands where flooding has occurred. The flood dates are November 2002 and 24 October 2011 on the Lyreen River north of Lyreen Park.	www.floodmaps.ie shows six flood events at various locations along the Meadowbrook Stream and the Lyreen River within these lands. Four of the events relate to the Lyreen River including flooding within the grounds of Maynooth College, at the canal culvert and around the Jackson's Bridge area. Two of the events relate to the Meadowbrook Stream including events at the M4 near Greenfield in November 2000 and the Meadowbrook Estate and Parson Street in November 2000. In addition benefiting lands are mapped along the Lyreen River north and south of the canal crossing.	www.floodmaps.ie only shows one area with recorded flooding within these lands. The flood event referred to occurred in November 2002 at Lawrence's Avenue. Tree roots were considered to be the cause of the flooding at this location.
	Soil and Subsoil Mapping	Lands within this area are generally mapped as underlain by Carboniferous Limestone Tills (TLs) with the topsoil classified as Deep Poorly Drained Mineral derived from mainly basic parent materials (BminPD).	Subsoils within this area can be generally described as Carboniferous Limestone Tills (TLs) with Alluvium along the Rye Water and Lyreen Rivers. Another stretch of alluvium is mapped along a watercourse crossing the Moyglare Road south of Anne's Bridge. The following topsoils have also been mapped: BminDW (deep well drained mineral), BminPD (deep poorly drained mineral) and AlluvMin (mineral alluvium).	Soils in this area can generally be described as BminPD (deep poorly drained mineral) with areas of mineral alluvium along the Lyreen (AlluvMin). There is a large area within Newtown mapped as Lacustrine soils (which indicate an area which was historically a lake bed) and a small area near the M4 mapped as BminSP (shallow poorly drained mineral). Subsoils are mapped as mainly Carboniferous Limestone Till (TLs) with some alluvium (A) near the Lyreen, Lacustrine within Newtown and Rock near the surface near the M4.	The majority of these lands have been developed and their soils and subsoils are therefore mapped as 'made' for made ground. However, the subsoils mapped within this area are described as Carboniferous Limestone Tills (TLs). The soils are mapped as predominantly BminDW (deep well drained mineral) with an area of poorly drained soil and alluvium near the Dublin Road.
	PFRA Mapping	Small areas of land near the Rye Water are mapped as lying within the 1 in 100 year Flood Zone. Lands near the stream which flows in a south easterly direction south of Moyglare Village are mapped as being at risk of flooding.	PFRA mapping indicates areas of land adjacent to the Rye Water at risk of flooding. In addition some lands along the Lyreen River within this area are also mapped as being at risk particularly those lands near the confluence of the Rye Water and the Lyreen River.	PFRA mapping indicates areas of land adjacent to the Lyreen River and the Meadowbrook River at risk of flooding particularly near the confluence of both rivers, through the Greenfield estates and within College lands. Extensive lands near Jackson's bridge are also mapped as being at risk.	Some small dispersed areas of pluvial flood risk are mapped within this area but not extensively. No fluvial flood risk areas are mapped.

Table 2: Flood Risk Indicators for Maynooth (*continued*)

		LOCATION			
		Lands south of the Rye Water, north of Kilcock Road and west of Moyglare Road within the town boundary	Lands east of Moyglare Road and north of Main Street and Dublin Road (R148) within the town boundary	Lands south of Kilcock Road and west of Straffan Road within the town boundary	Lands south of Dublin Road (R148) and east of Straffan Road within the town boundary (including Maynooth Business Campus)
	Other	A review of the PFRA has been undertaken as part of the Flood Risk Reviews under the Eastern CFRAM Study. Nothing specific was noted for this area of the town.	Aerial Photography between 1995 and 2005 shows that a number of large ponds were created as part of the Lyreen Angling Centre Development near the confluence of the Lyreen and the Rye Water	A review of the PFRA has been undertaken as part of the Flood Risk Reviews under the Eastern CFRAM Study. The following was noted for lands within this area of the town: The Meadowbrook Stream has been canalised and the channel lowered slightly. The channel is trapezoidal and approximately 6m wide by 3m deep. It passes through 6 bridges and 2 culverts between the M4 and the canal. After the canal and railway the watercourse flows in an open channel parallel to Parson Street. Potential locations for flooding and blockages were noted.	A review of the PFRA has been undertaken as part of the Flood Risk Reviews under the Eastern CFRAM Study. Nothing specific was noted for this area of the town.

Table 2: Flood Risk Indicators for Maynooth (*continued*)

4.4 Recommendations for modification to or additional assessment of land-use proposals

The SFRA assessed the flood risk indicators listed in Table 1 in relation to the land-use proposals contained in the Maynooth LAP 2013 ~ 2019. Various areas were identified which may be at risk of flooding but which are being considered for types of development which are not generally compatible with flood risk areas (*i.e. developments which are classed as vulnerable in accordance with the criteria set out in the Planning System and Flood Risk Management Guidelines*).

For some areas, the extent of such flooding is not likely to be of such significance as to undermine the strategic land-use decision for the lands in question. In these cases, the SFRA recommends that development proposals for these areas be subject to site-specific flood risk assessment appropriate to the nature and scale of the development being proposed. The maps included in Appendix 1 show the areas for which this site specific flood risk assessment is recommended.

For other areas, flood risk indicators suggested that the extent of flooding might be such as to undermine the strategic land-use decision for the lands in question. The SFRA recommended that detailed FRA be carried out in these areas to establish the 1 in 100year and 1 in 1000year flood events (Flood Zones A and B respectively). The maps included in Appendix 1 show the Flood Zones established by detailed FRA.

Land parcels being considered for types of development which are not generally compatible with flood risk were found to be located within Flood Zones A and B. In accordance with the Guidelines, the Justification Test was carried out for each land parcel where the encroachment of Flood Zones A and B is significant. The recommendations of the SFRA in regard to each Justification Test are reproduced in Table 3. A full record of the Justification Tests is reproduced in Appendix 2.

Land-use proposal	Recommendation of SFRA
<p>Site No 1 A Town Centre lands (to the rear of the Roman Catholic Church)</p>	<p>Planning Permission has been granted for residential development of these lands. Pursuant to this permission, the ground level in these lands has been significantly reduced and as a result the lands are almost completely located within Flood Zones A & B. No other works relevant to this SFRA have been carried out pursuant to the grant of planning permission.</p> <p>If constructed, elements of the approved development, particularly the basements, would be below the 100year flood level. It is recommended that prior to commencement, the approved development be the subject of a site specific flood risk assessment to identify mitigation measures to ensure that water-vulnerable elements would not be flooded during the 1000year flood.</p> <p>Should alternative proposals for development of these lands be submitted to the Planning Authority, it is recommended that such proposals be accompanied by a Site Specific Flood Risk Assessment appropriate to the nature and scale of development being proposed. Such Development Proposals shall also:</p> <ol style="list-style-type: none"> 1) Indicate and quantify loss of floodplain storage arising from the development proposal relative to original ground level; 2) Provide compensatory storage located within or adjacent to the proposed development; 3) Indicate measures to ensure that water-vulnerable elements of the Development would not be flooded during the 1000year flood (in this regard, a freeboard of 500mm shall be provided).
<p>Site No 2 C New Residential lands (to the rear of the Nursing Home on the Moyglare Road)</p>	<p>The river channel through these lands is well defined and lands rise steeply away from the flood zones. The extent to which these lands are located within Flood Zones A & B is not of such significance as to undermine strategically the land-use proposed in the Local Area Plan.</p> <p>It is recommended that development of these lands be accompanied by a Site Specific Flood Risk Assessment appropriate to the nature and scale of development being proposed. Such Development Proposals shall also:</p> <ol style="list-style-type: none"> 1) Indicate and quantify loss of floodplain storage arising from the development proposal; 2) Provide compensatory storage located within or adjacent to the proposed development; 3) Indicate measures to ensure that water-vulnerable elements of the Development would not be flooded during the 1000year flood (in this regard, a freeboard of 500mm shall be provided); 4) Ensure that existing flow paths for flood waters will not be compromised.

TABLE 3
RECOMMENDATIONS OF SFRA IN REGARD TO JUSTIFICATION TESTS

Land-use proposal	Recommendation of SFRA
<p>Site No 3 C New Residential lands (off the Dunboyne road near the Lyreen)</p>	<p>The river channel through these lands is well defined and lands rise steeply away from the flood zones. The extent to which these lands are located within Flood Zones A & B is not of such significance as to undermine strategically the land-use proposed in the Local Area Plan.</p> <p>It is recommended that development of these lands be accompanied by a Site Specific Flood Risk Assessment appropriate to the nature and scale of development being proposed. Such Development Proposals shall also:</p> <ol style="list-style-type: none"> 1) Indicate and quantify loss of floodplain storage arising from the development proposal; 2) Provide compensatory storage located within or adjacent to the proposed development; 3) Indicate measures to ensure that water-vulnerable elements of the Development would not be flooded during the 1000year flood (in this regard, a freeboard of 500mm shall be provided); 4) Ensure that existing flow paths for flood waters will not be compromised.
<p>Site No 4 C New Residential lands (off the Dunboyne road near the Lyreen)</p>	<p>The encroachment of Flood Zones A & B on these lands is marginal, being confined to the southwestern boundary. The extent to which these lands are located within Flood Zones A & B is not of such significance as to undermine strategically the land-use proposed in the Local Area Plan.</p> <p>It is recommended that development of these lands be accompanied by a Site Specific Flood Risk Assessment appropriate to the nature and scale of development being proposed. Such Development Proposals shall also:</p> <ol style="list-style-type: none"> 1) Indicate and quantify loss of floodplain storage arising from the development proposal; 2) Provide compensatory storage located within or adjacent to the proposed development; 3) Indicate measures to ensure that water-vulnerable elements of the Development would not be flooded during the 1000year flood (in this regard, a freeboard of 500mm shall be provided).; 4) Ensure that existing flow paths for flood waters will not be compromised.

TABLE 3 (continued)

RECOMMENDATIONS OF SFRA IN REGARD TO JUSTIFICATION TESTS

<p>Site No 5 A Town Centre zoned lands (Canal Harbour)</p>	<p>A significant proportion of these lands is located within Flood Zones A & B.</p> <p>Development proposals shall be the subject of a site specific flood risk assessment.</p> <p>Development proposals shall be designed to ensure that buildings, parking areas and other elements of the development not compatible with water will not be at risk of flooding during the 1000year flood event (in this regard, a freeboard of 500mm shall be provided). Accesses to basements shall be located outside flood zone B.</p> <p>The layout of developments shall be such as to ensure that:</p> <ul style="list-style-type: none"> • at least one of the access roads serving the development is outside flood zone B; • flow paths for flood waters are not obstructed. <p>Development proposals shall quantify the loss of floodplain storage arising from the development and provide compensatory storage located within or adjacent to the proposed development.</p>
<p>Site No 6 C (College lands south of the Kilcock Road)</p>	<p>These lands are located entirely within Flood Zones A & B.</p> <p>Water levels during both the 100year and 1000year floods would be significantly above the existing ground level, particularly through the centre of the site.</p> <p>At a minimum, significant flood defence measures would be required to ensure that vulnerable elements of development on these lands would not be at risk of flooding, that access to the site could be maintained at all times and that existing drainage patterns would not be obstructed. Given the predicted flood levels, it is probable that such measures would not be feasible.</p> <p>Development proposals would also be required to provide compensatory storage to offset the loss of flood-plain storage that would result from development of these lands.</p>

TABLE 3 (continued)

RECOMMENDATIONS OF SFRA IN REGARD TO JUSTIFICATION TESTS

<p>Site No 7 E Community and Educational lands (on the Moyglare road)</p>	<p>An area at the northern boundary of these lands is located within Flood Zones A & B. However, the extent to which these lands are located within Flood Zones A & B is not of such significance as to undermine strategically the land-use proposed in the Local Area Plan.</p> <p>It is recommended that development of these lands be accompanied by a Site Specific Flood Risk Assessment appropriate to the nature and scale of development being proposed. Such Development Proposals shall also:</p> <ol style="list-style-type: none"> 1) Indicate and quantify loss of floodplain storage arising from the development proposal; 2) Provide compensatory storage located within or adjacent to the proposed development; 3) Indicate measures to ensure that water-vulnerable elements of the Development would not be flooded during the 1000year flood (in this regard, a freeboard of 500mm shall be provided); 4) Ensure that existing flow paths for flood waters will not be compromised.
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TABLE 3 (continued)
RECOMMENDATIONS OF SFRA IN REGARD TO JUSTIFICATION TESTS

4.5 Forthcoming Information to Inform Future Flood Risk Consideration

Ireland is required under the EU Floods Directive to carry out Preliminary Flood Risk Assessments of their river basins and associated coastal zones by 2011. By 2013 flood hazard maps and flood risk maps must be produced for areas where real risks of flood damage exist. By 2015 Flood Risk Management Plans must be drawn up for each of these zones.

The OPW has developed a Catchment Flood Risk Assessment and Management (CFRAM) Programme, which lies at the core of the assessment of flood risk and the long-term planning of the flood risk management measures throughout the country, including capital structural and non-structural measures. The CFRAM Programme will, as well as delivering on national policy, meet the requirements of the EU 'Floods' Directive that came into force in November 2007. This Directive requires the production of flood maps for the Areas of Potentially Significant Risk by the end of 2013, and the development of Flood Risk Management Plans to manage risk within the Areas of Potentially Significant Risk by the end of 2015.

This SFRA is based on currently available data and in accordance with its status as a "living document" it will be subject to modification by these emerging datasets of maps and plans as they become available.

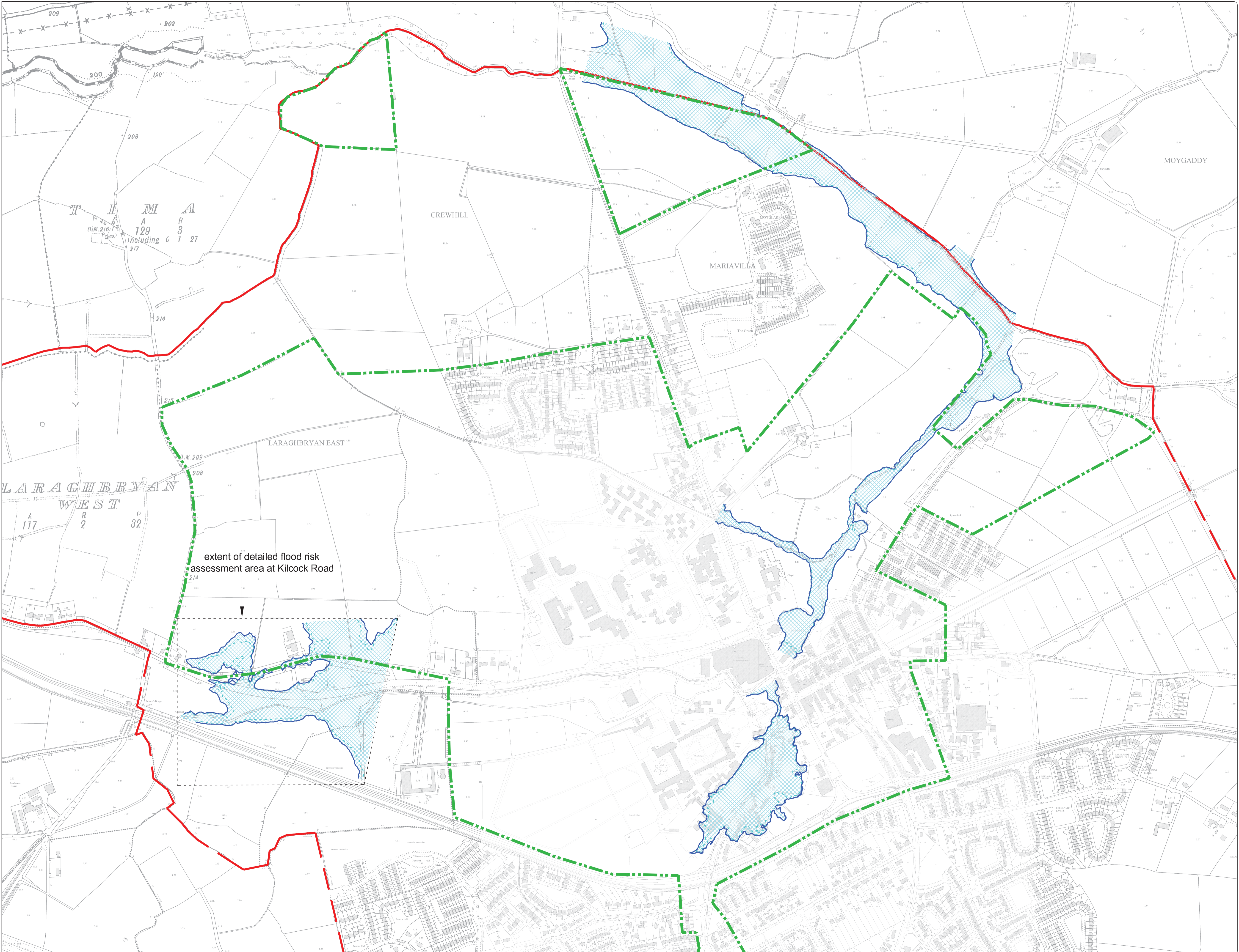
5.0 MONITORING AND REVIEW

It is anticipated based on information available from the OPW that catchment-based Flood Planning Groups should be operational soon after adoption of the Maynooth LAP 2013~2019.

The catchment-based Flood Planning Groups will monitor and review progress in addressing flood risk in the County with reference to the "The Planning System and Flood Risk Management Guidelines", the EU Floods Directive and this Strategic Flood Risk Assessment together with other data sources as they become available.

It is recommended that the relevant statutory bodies and the catchment based Flood Planning Groups are consulted, and that their progress in implementation of the requirements of the EU Flood Directive is reviewed prior to the preparation of any new Maynooth LAP 2013 ~ 2019.

APPENDIX 1
**SITE SPECIFIC RECOMMENDATIONS OF SFRA & FLOOD
RISK ZONES AS DETERMINED BY DETAILED FRA**



LEGEND
 Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed. Such Development Proposals shall also:

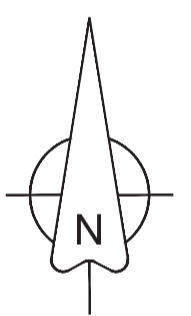
- Indicate and quantify loss of floodplain storage arising from the development proposal;
- Provide compensatory storage located within or adjacent to the proposed development;
- Indicate measures to ensure that water-vulnerable elements of the Development would not be flooded during the 1000year flood;
- Ensure that existing flow paths for flood waters will not be compromised;
- access roads serving the development is outside flood zone B;

Development Plan boundary —

1000year flood zones as established by detailed FRA ▨

100year flood line as established by detailed FRA - - -

(NOTE: DETAILED FRA HAS BEEN CARRIED OUT AT SELECTED AREAS ONLY AND NOT FOR ENTIRE AREA OF PLAN)



REV	DATE	BY	DETAILS



STATUS
DRAFT SFRA - ISSUE 01

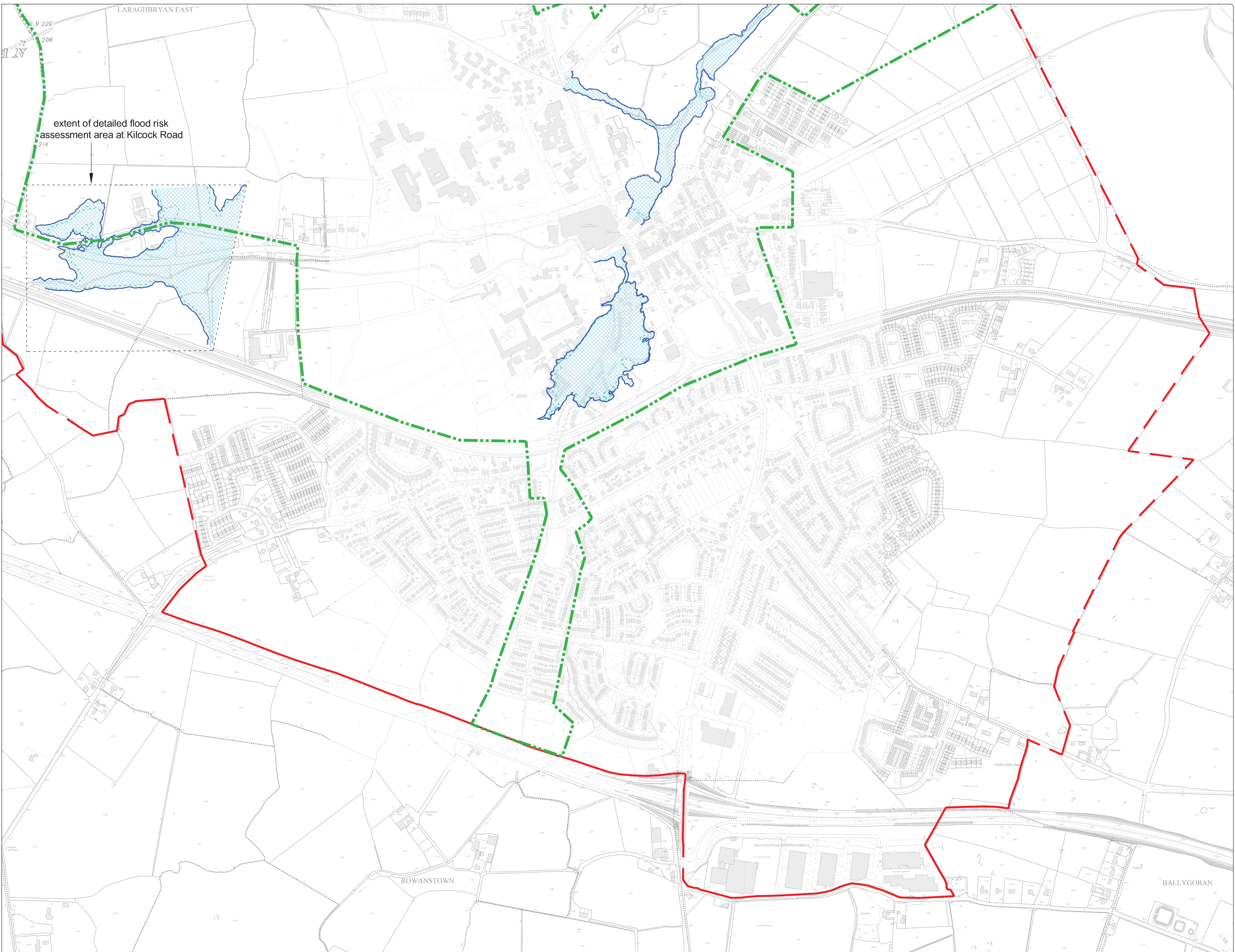
CLIENT
KILDARE COUNTY COUNCIL

PROJECT
STRATEGIC FLOOD RISK ASSESSMENT VARIATION TO KILDARE COUNTY DEVELOPMENT PLAN 2011 - 2017

TITLE
MAYNOOTH TOWN LOCAL AREA PLAN 2013 - 2019 SITE SPECIFIC RECOMMENDATIONS OF SFRA & FLOOD RISK ZONES AS DETERMINED BY DETAILED FRA (1 OF 2)



DRN: MOC	SCALE: 1:5000 @ A1	DRAWING NO.:	REV.:
CHKD: PB	DATE: 09.02.2012	11049-MAYN-02(a)	01



LEGEND
 Development proposals for lands outlined thus are to be the subject of site-specific Flood Risk Assessment appropriate to the type and scale of the development being proposed. Such Development Proposals shall also:

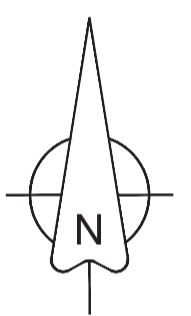
- Indicate and quantify loss of floodplain storage arising from the development proposal;
- Provide compensatory storage located within or adjacent to the proposed development;
- Indicate measures to ensure that water-vulnerable elements of the Development would not be flooded during the 1000year flood;
- Ensure that existing flow paths for flood waters will not be compromised;
- access roads serving the development is outside flood zone B;

Development Plan boundary —

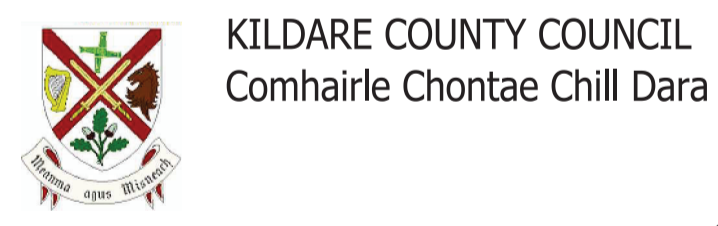
1000year flood zones as established by detailed FRA [Blue Hatched Box]

100year flood line as established by detailed FRA - - -

(NOTE: DETAILED FRA HAS BEEN CARRIED OUT AT SELECTED AREAS ONLY AND NOT FOR ENTIRE AREA OF PLAN)



REV	DATE	BY	DETAILS



STATUS
DRAFT SFRA - ISSUE 01

CLIENT
KILDARE COUNTY COUNCIL

PROJECT
STRATEGIC FLOOD RISK ASSESSMENT VARIATION TO KILDARE COUNTY DEVELOPMENT PLAN 2011 - 2017

TITLE
MAYNOOTH TOWN LOCAL AREA PLAN 2013 - 2019 SITE SPECIFIC RECOMMENDATIONS OF SFRA & FLOOD RISK ZONES AS DETERMINED BY DETAILED FRA (1 OF 2)



DRN: MOC	SCALE: 1:5000 @ A1	DRAWING NO.:	REV.:
CHKD: PB	DATE: 09.02.2012	11049-MAYN-02(b)	01

APPENDIX 2
RECORDS OF JUSTIFICATION TESTS

	Maynooth Local Area Plan 2012-2018	Site No 1 A Town Centre lands (to the rear of the Roman Catholic Church)
1	<p>The Regional Planning Guidelines for the Greater Dublin Area 2010-2022 set out the planned direction for growth within the Greater Dublin Area up to 2022 by giving regional effect to national planning policy under the National Spatial Strategy (NSS). The RPG's have designated Maynooth as a Large Growth Town II situated in the Metropolitan Area.</p>	<p>Maynooth's role as a Large Growth Town II is to act as an important self sustaining regional economic driver for the GDA, capitalising on its international connectivity and high quality connections to Dublin City Centre, whilst also supporting and servicing a wider local economy.</p> <p>Arising from the RPGs and the County Development Plan 2011-2017, a growth target of an additional 1,457 residential units is prescribed for Maynooth during the lifetime of the plan.</p> <p>Maynooth is also designated as a primary growth town to be prioritised for local and regional enterprise. Achieving critical mass is a core objective fostering competitiveness and sustainability in order to create additional job opportunities.</p>
2	<p>The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement and in particular:</p>	<p>The subject site is zoned A Town Centre. This zoning provides for a wide range of uses including commercial, retail, residential, community, amenity etc.</p> <p>This site is currently undeveloped. It appears that the level of the site has been lowered with some ground having been excavated. The site in its entirety appears to be impacted by the flood zone.</p> <p>The river Lyreen runs to the south and east of the site, the Catholic church is to the west of the site and there are undeveloped zoned lands to the north of the site This site was included for Town Centre use in the 2002 Maynooth Development Plan.</p>
	<p>(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;</p>	<p>The subject site is located in close proximity to the river Lyreen but is adjacent to the historic centre of the town. It is the next available contiguous undeveloped site.</p>
	<p>(ii) Comprises significant previously developed and / or under utilized lands;</p>	<p>Permission was granted in 2005 for 105 residential units. This application was the subject of an extension of duration of 5 years in 2010.</p>
	<p>(iii) Is within or adjoining the core of an established or designated urban settlement;</p>	<p>The site is located adjacent to the town centre and in close proximity to the Main Street, the schools and the Manor Mills shopping centre.</p>
	<p>(iv) Will be essential in achieving compact and sustainable urban growth; and</p>	<p>The site is adjoining the town centre and would be the logical extension of the town centre due to its location</p>

		in the town centre close to all the shops and services.
	(v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	These lands including other newly zoned lands are required to be zoned in order for Maynooth to reach its residential unit target and fulfil its role as a Large Growth Town II during the life of the plan. These lands will facilitate the appropriate sustainable development of Maynooth in line with the Settlement Strategy of the Kildare County Development Plan 2011-2017. Therefore it is considered appropriate to retain the zoning of this site and to provide appropriate flooding mitigation measures prior to development.
	SFRA	
3	SFRA must demonstrate that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere.	<p>Planning Permission has been granted for residential development of these lands. Pursuant to this permission, the ground level in these lands has been significantly reduced and as a result the lands are almost completely located within Flood Zones A & B. No other works relevant to this SFRA have been carried out pursuant to the grant of planning permission.</p> <p>If constructed, elements of the approved development, particularly the basements, would be below the 100year flood level. It is recommended that prior to commencement, the approved development be the subject of a site specific flood risk assessment to identify mitigation measures to ensure that water-vulnerable elements would not be flooded during the 1000year flood.</p> <p>Should alternative proposals for development of these lands be submitted to the Planning Authority, it is recommended that such proposals be accompanied by a Site Specific Flood Risk Assessment appropriate to the nature and scale of development being proposed. Such Development Proposals shall also:</p> <ol style="list-style-type: none"> 1) Indicate and quantify loss of floodplain storage arising from the development proposal relative to original ground level; 2) Provide compensatory storage located within or adjacent to the proposed development; 3) Indicate measures to ensure that water-vulnerable elements of the Development would not be flooded during the 1000year flood (in this regard, a freeboard of 500mm shall be provided).

	Maynooth Local Area Plan 2012-2018	Site No 2 C New Residential lands (to the rear of the Nursing Home on the Moyglare Road)
1	The Regional Planning Guidelines for the Greater Dublin Area 2010-2022 set out the planned direction for growth within the Greater Dublin Area up to 2022 by giving regional effect to national planning policy under the National Spatial Strategy (NSS). The RPG's have designated Maynooth as a Large Growth Town II situated in the Metropolitan Area.	<p>Maynooth's role as a Large Growth Town II is to act as an important self sustaining regional economic driver for the GDA, capitalising on its international connectivity and high quality connections to Dublin City Centre, whilst also supporting and servicing a wider local economy.</p> <p>Arising from the RPGs and the County Development Plan 2011-2017, a growth target of an additional 1,457 residential units is prescribed for Maynooth during the lifetime of the plan.</p> <p>Maynooth is also designated as a primary growth town to be prioritised for local and regional enterprise. Achieving critical mass is a core objective fostering competitiveness and sustainability in order to create additional job opportunities.</p>
2	The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement and in particular:	<p>The subject site is zoned C New Residential. This zoning provides new residential development with acceptable ancillary uses.</p> <p>These lands are largely undeveloped.</p> <p>The river Lyreen runs to the east of the site, the nursing home and the Moyglare road border the west of the site, there are undeveloped agricultural lands to the north of the site and town centre lands to the south of the site. This site was included for New Residential use in the 2002 Maynooth Development Plan.</p>
	(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;	The subject site is located in close proximity to the river Lyreen but is adjacent to the historic centre of the town. It is the next available contiguous undeveloped site. Permission was granted in 2009 for 100 residential units.
	(ii) Comprises significant previously developed and / or under utilized lands;	The site is undeveloped but there is permission for 100 residential units.
	(iii) Is within or adjoining the core of an established or designated urban settlement;	The site is located adjacent to the town centre and in close proximity to the Main Street, the schools and the Manor Mills shopping centre.

	(iv) Will be essential in achieving compact and sustainable urban growth; and	The site provides for a logical extension of the town due to its location in close proximity to the town close to all the shops and services.
	(v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	These lands including other newly zoned lands are required to be zoned in order for Maynooth to reach its residential unit target and fulfil its role as a Large Growth Town II during the life of the plan. These lands will facilitate the appropriate sustainable development of Maynooth in line with the Settlement Strategy of the Kildare County Development Plan 2011-2017. Therefore it is considered appropriate to retain the zoning of this site and to provide appropriate flooding mitigation measures prior to development.
	SFRA	
3	SFRA must demonstrate that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere.	<p>The river channel through these lands is well defined and lands rise steeply away from the flood zones. The extent to which these lands are located within Flood Zones A & B is not of such significance as to undermine strategically the land-use proposed in the Local Area Plan.</p> <p>It is recommended that development of these lands be accompanied by a Site Specific Flood Risk Assessment appropriate to the nature and scale of development being proposed. Such Development Proposals shall also:</p> <ol style="list-style-type: none"> 1) Indicate and quantify loss of floodplain storage arising from the development proposal; 2) Provide compensatory storage located within or adjacent to the proposed development; 3) Indicate measures to ensure that water-vulnerable elements of the Development would not be flooded during the 1000year flood (in this regard, a freeboard of 500mm shall be provided); 4) Ensure that existing flow paths for flood waters will not be compromised.

	Maynooth Local Area Plan 2012-2018	Site No 3 C New Residential lands (off the Dunboyne road near the Lyreen)
1	The Regional Planning Guidelines for the Greater Dublin Area 2010-2022 set out the planned direction for growth within the Greater Dublin Area up to 2022 by giving regional effect to national planning policy under the National Spatial Strategy (NSS). The RPG's have designated Maynooth as a Large Growth Town II situated in the Metropolitan Area.	<p>Maynooth's role as a Large Growth Town II is to act as an important self sustaining regional economic driver for the GDA, capitalising on its international connectivity and high quality connections to Dublin City Centre, whilst also supporting and servicing a wider local economy.</p> <p>Arising from the RPGs and the County Development Plan 2011-2017, a growth target of an additional 1,457 residential units is prescribed for Maynooth during the lifetime of the plan.</p> <p>Maynooth is also designated as a primary growth town to be prioritised for local and regional enterprise. Achieving critical mass is a core objective fostering competitiveness and sustainability in order to create additional job opportunities.</p>
2	The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement and in particular:	<p>The subject site is zoned C New Residential. This zoning provides new residential development with acceptable ancillary uses.</p> <p>These lands are largely undeveloped.</p> <p>The river Lyreen runs to the north west of the site, with residential properties and the Dunboyne road to the south east of the site, there is a residential property and a KCC water services facility to the northeast of the site. This site was included for New Residential use in the 2002 Maynooth Development Plan.</p>
	(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;	The subject site is located in close proximity to the river Lyreen but is adjacent to the historic centre of the town. It is the next available contiguous undeveloped site. Permission was granted in 2007 for 94 residential units.
	(ii) Comprises significant previously developed and / or under utilized lands;	The site is undeveloped but there is permission for 94 residential units.
	(iii) Is within or adjoining the core of an established or designated urban settlement;	The site is located adjacent to the Dunboyne road, the town centre and in close proximity to the Main Street, the schools and the Manor Mills

		shopping centre.
	(iv) Will be essential in achieving compact and sustainable urban growth; and	The site provides for the logical extension of the town due to its location in close proximity to the town centre close to all the shops and services.
	(v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	These lands including other newly zoned lands are required to be zoned in order for Maynooth to reach its residential unit target and fulfil its role as a Large Growth Town II during the life of the plan. These lands will facilitate the appropriate sustainable development of Maynooth in line with the Settlement Strategy of the Kildare County Development Plan 2011-2017. Therefore it is considered appropriate to retain the zoning of this site and to provide appropriate flooding mitigation measures prior to development.
	SFRA	
3	SFRA must demonstrate that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere.	<p>The river channel through these lands is well defined and lands rise steeply away from the flood zones. The extent to which these lands are located within Flood Zones A & B is not of such significance as to undermine strategically the land-use proposed in the Local Area Plan.</p> <p>It is recommended that development of these lands be accompanied by a Site Specific Flood Risk Assessment appropriate to the nature and scale of development being proposed. Such Development Proposals shall also:</p> <ol style="list-style-type: none"> 1) Indicate and quantify loss of floodplain storage arising from the development proposal; 2) Provide compensatory storage located within or adjacent to the proposed development; 3) Indicate measures to ensure that water-vulnerable elements of the Development would not be flooded during the 1000year flood (in this regard, a freeboard of 500mm shall be provided); 4) Ensure that existing flow paths for flood waters will not be compromised.

	Maynooth Local Area Plan 2012-2018	Site No 4 C New Residential lands (off the Dunboyne road near the Lyreen)
1	<p>The Regional Planning Guidelines for the Greater Dublin Area 2010-2022 set out the planned direction for growth within the Greater Dublin Area up to 2022 by giving regional effect to national planning policy under the National Spatial Strategy (NSS). The RPG's have designated Maynooth as a Large Growth Town II situated in the Metropolitan Area.</p>	<p>Maynooth's role as a Large Growth Town II is to act as an important self sustaining regional economic driver for the GDA, capitalising on its international connectivity and high quality connections to Dublin City Centre, whilst also supporting and servicing a wider local economy.</p> <p>Arising from the RPGs and the County Development Plan 2011-2017, a growth target of an additional 1,457 residential units is prescribed for Maynooth during the lifetime of the plan.</p> <p>Maynooth is also designated as a primary growth town to be prioritised for local and regional enterprise. Achieving critical mass is a core objective fostering competitiveness and sustainability in order to create additional job opportunities.</p>
2	<p>The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement and in particular:</p>	<p>The subject site is proposed to be zoned C New Residential. This zoning provides new residential development with acceptable ancillary uses.</p> <p>These lands are largely undeveloped. However they are currently in use as allotments</p> <p>The river Lyreen runs to the north west of the site, with the Dunboyne road to the south east of the site, there is a residential property and a KCC water services facility to the south west of the site. There is a fishing pond to the north east of the site. This site was previously zoned agricultural in the 2002 Maynooth Development Plan.</p>
	<p>(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;</p>	<p>The subject site is located in close proximity to the river Lyreen but is contiguous to the built up area and within easy walking distance of the Main Street. There is a housing development currently under construction across the road from this site.</p>
	<p>(ii) Comprises significant previously developed and / or under utilized lands;</p>	<p>The site is undeveloped apart from the allotments.</p>
	<p>(iii) Is within or adjoining the core of an established or designated urban settlement;</p>	<p>The site is located adjacent to the Dunboyne road in close proximity to the town centre and Main Street.</p>
	<p>(iv) Will be essential in achieving</p>	<p>The site is appropriate for the logical extension of the</p>

	compact and sustainable urban growth; and	town due to its location in the town centre close to all the shops and services.
	(v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	These lands including other newly zoned lands are required to be zoned in order for Maynooth to reach its residential unit target and fulfil its role as a Large Growth Town II during the life of the plan. These lands will facilitate the appropriate sustainable development of Maynooth in line with the Settlement Strategy of the Kildare County Development Plan 2011-2017. Therefore it is considered appropriate to retain the zoning of this site and to provide appropriate flooding mitigation measures prior to development.
	SFRA	
3	SFRA must demonstrate that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere.	<p>The encroachment of Flood Zones A & B on these lands is marginal, being confined to the southwestern boundary. The extent to which these lands are located within Flood Zones A & B is not of such significance as to undermine strategically the land-use proposed in the Local Area Plan.</p> <p>It is recommended that development of these lands be accompanied by a Site Specific Flood Risk Assessment appropriate to the nature and scale of development being proposed. Such Development Proposals shall also:</p> <ol style="list-style-type: none"> 1) Indicate and quantify loss of floodplain storage arising from the development proposal; 2) Provide compensatory storage located within or adjacent to the proposed development; 3) Indicate measures to ensure that water-vulnerable elements of the Development would not be flooded during the 1000year flood (in this regard, a freeboard of 500mm shall be provided).; 4) Ensure that existing flow paths for flood waters will not be compromised.

	Maynooth Local Area Plan 2012-2018	Site No 5 A Town Centre zoned lands (canal Harbour)
1	<p>The Regional Planning Guidelines for the Greater Dublin Area 2010-2022 set out the planned direction for growth within the Greater Dublin Area up to 2022 by giving regional effect to national planning policy under the National Spatial Strategy (NSS). The RPG's have designated Maynooth as a Large Growth Town II situated in the Metropolitan Area.</p>	<p>Maynooth's role as a Large Growth Town II is to act as an important self sustaining regional economic driver for the GDA, capitalising on its international connectivity and high quality connections to Dublin City Centre, whilst also supporting and servicing a wider local economy.</p> <p>Arising from the RPGs and the County Development Plan 2011-2017, a growth target of an additional 1,457 residential units is prescribed for Maynooth during the lifetime of the plan.</p> <p>Maynooth is also designated as a primary growth town to be prioritised for local and regional enterprise. Achieving critical mass is a core objective fostering competitiveness and sustainability in order to create additional job opportunities.</p>
2	<p>The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement and in particular:</p>	<p>The subject site is zoned A Town Centre and F Open Space and Amenity. This zoning provides for Town Centre uses including retail, commercial, community, recreational and residential.</p> <p>The site is partially developed with uses including residential, community, commercial and amenity. However many parts of the site are under-utilised and an intensification of use could be of benefit to the offer of the town centre as a whole.</p> <p>The Royal Canal is to the south of the site with Parson Street and the Lyreen river to the west, town centre lands and Main Street to the north and the Straffan Road to the east. This site was previously zoned Town Centre and Open Space and Amenity in the 2002 Maynooth Development Plan and was the subject of an action area plan.</p>
	(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;	<p>The subject site is located in close proximity to the river Lyreen but is adjoining heart the historic town centre, within easy walking distance of the Main Street, the university and the Train Station.</p>
	(ii) Comprises significant previously developed and / or under utilized lands;	<p>The site is partially developed with low intensity uses, but the opportunity for more intense developments exists on many sections of the site.</p>
	(iii) Is within or adjoining the core of	<p>The site is located in town centre adjoining the historic</p>

	an established or designated urban settlement;	town centre and provides an opportunity to create a parallel through street from the Straffan Road to Parson Street. It also provides an opportunity for additional town centre development with better pedestrian links from the train station to the university.
	(iv) Will be essential in achieving compact and sustainable urban growth; and	The site provides a logical extension of the town centre due to its location in the town centre close to all the shops and services.
	(v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	These lands are considered to be a underutilised in relation to their strategic location in the town centre. The expansion and enhancement of town centre facilities is required for Maynooth to fulfil its role as a Large Growth Town II during the life of the plan. These lands will facilitate the appropriate sustainable development of Maynooth in line with the Settlement Strategy of the Kildare County Development Plan 2011-2017. Therefore it is considered appropriate to retain the zoning of this site and to provide appropriate flooding mitigation measures prior to development.
	SFRA	
3	SFRA must demonstrate that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere.	<p>A significant proportion of these lands is located within Flood Zones A & B.</p> <p>Development proposals shall be the subject of a site specific flood risk assessment.</p> <p>Development proposals shall be designed to ensure that buildings, parking areas and other elements of the development not compatible with water will not be at risk of flooding during the 1000year flood event (in this regard, a freeboard of 500mm shall be provided). Accesses to basements shall be located outside flood zone B.</p> <p>The layout of developments shall be such as to ensure that:</p> <ul style="list-style-type: none"> • at least one of the access roads serving the development is outside flood zone B; • flow paths for flood waters are not obstructed. <p>Development proposals shall quantify the loss of floodplain storage arising from the development and provide compensatory storage located within or adjacent to the proposed development.</p>

	Maynooth Local Area Plan 2012-2018	Site No 6 C (College lands south of the Kilcock Road)
1	The Regional Planning Guidelines for the Greater Dublin Area 2010-2022 set out the planned direction for growth within the Greater Dublin Area up to 2022 by giving regional effect to national planning policy under the National Spatial Strategy (NSS). The RPG's have designated Maynooth as a Large Growth Town II situated in the Metropolitan Area.	<p>Maynooth's role as a Large Growth Town II is to act as an important self sustaining regional economic driver for the GDA, capitalising on its international connectivity and high quality connections to Dublin City Centre, whilst also supporting and servicing a wider local economy.</p> <p>Arising from the RPGs and the County Development Plan 2011-2017, a growth target of an additional 1,457 residential units is prescribed for Maynooth during the lifetime of the plan.</p> <p>Maynooth is also designated as a primary growth town to be prioritised for local and regional enterprise. Achieving critical mass is a core objective fostering competitiveness and sustainability in order to create additional job opportunities.</p>
2	The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement and in particular:	<p>The subject site is under consideration for Science and Technology land-use (possible Draft Proposal). This zoning provides for educational and employment consisting of high skilled office related opportunities benefiting from the spin offs from the adjacent Universities..</p> <p>These lands are largely undeveloped.</p> <p>The river Lyreen runs through the site with the Kilcock Road to the north and the Royal Canal to the south of the site. St Patrick's College is to the east of the site.</p>
	(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;	The river Lyreen runs through the subject site but the site is located to the established educational uses of St Patrick's College and NUI Maynooth and is also adjacent to the historic centre of the town.
	(ii) Comprises significant previously developed and / or under utilized lands;	The site is largely undeveloped apart from a building adjacent to the Royal Canal
	(iii) Is within or adjoining the core of an established or designated urban settlement;	The site is located adjacent to the kilcock road, the town centre and in close proximity to the Main Street, the universities and the schools and the

		Manor Mills shopping centre.
	(iv) Will be essential in achieving compact and sustainable urban growth; and	The site could facilitate the expansion of education and employment related uses in the area.
	(v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	The option to zone these lands for Science and Technology uses would facilitate a need for such land in Maynooth, however this may be difficult due to the possible vulnerability of the site to flooding. It may in the interest of Sustainable Development to locate additional Educational and Employments zoning on lands that are not as susceptible to flooding. Therefore it is considered appropriate to retain the agricultural zoning of this site.
	SFRA	
3	SFRA must demonstrate that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere.	<p>These lands are located entirely within Flood Zones A & B.</p> <p>Water levels during both the 100year and 1000year floods would be significantly above the existing ground level, particularly through the centre of the site.</p> <p>At a minimum, significant flood defence measures would be required to ensure that vulnerable elements of development on these lands would not be at risk of flooding, that access to the site could be maintained at all times and that existing drainage patterns would not be obstructed. Given the predicted flood levels, it is probable that such measures would not be feasible.</p> <p>Development proposals would also be required to provide compensatory storage to offset the loss of flood-plain storage that would result from development of these lands.</p>

	Maynooth Local Area Plan 2012-2018	Site No 7 E Community and Educational lands (on the Moyglare road)
1	The Regional Planning Guidelines for the Greater Dublin Area 2010-2022 set out the planned direction for growth within the Greater Dublin Area up to 2022 by giving regional effect to national planning policy under the National Spatial Strategy (NSS). The RPG's have designated Maynooth as a Large Growth Town II situated in the Metropolitan Area.	<p>Maynooth's role as a Large Growth Town II is to act as an important self sustaining regional economic driver for the GDA, capitalising on its international connectivity and high quality connections to Dublin City Centre, whilst also supporting and servicing a wider local economy.</p> <p>Arising from the RPGs and the County Development Plan 2011-2017, a growth target of an additional 828 residential units is prescribed for Maynooth during the lifetime of the plan.</p> <p>Maynooth is also designated as a primary growth town to be prioritised for local and regional enterprise. Achieving critical mass is a core objective fostering competitiveness and sustainability in order to create additional job opportunities.</p>
2	The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement and in particular:	<p>The subject site is zoned E Community and Educational. The site is Greenfield and the zoning provides for a primary and secondary educational campus with associated buildings and recreational facilities etc.</p> <p>This site is currently in agricultural use.</p> <p>The river Lyreen runs to the north and east of the site, the Moyglare Hall residential development is to the south of the site. The zoning is newly proposed as part of this plan.</p>
	(i) Is essential to facilitate regeneration and / or expansion of the centre of the urban settlement;	The subject site is located in close proximity to the river Lyreen but all of the site may not be affected by possible flooding.
	(ii) Comprises significant previously developed and / or under utilized lands;	The site is undeveloped and in agricultural use.
	(iii) Is within or adjoining the core of an established or designated urban settlement;	The site is located on the outskirts of the town and is large enough to accommodate a number of educational facilities.
	(iv) Will be essential in achieving compact and sustainable urban growth; and	The site will provide for educational facilities in the town required to sustain a growing population.

	(v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.	These lands including other educational zoned lands are required to facilitate the provision of educational facilities in the town. Therefore it is considered appropriate to retain the zoning of this site and to provide appropriate flooding mitigation measures prior to development.
	SFRA	
3	SFRA must demonstrate that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere.	<p>An area at the northern boundary of these lands is located within Flood Zones A & B. However, the extent to which these lands are located within Flood Zones A & B is not of such significance as to undermine strategically the land-use proposed in the Local Area Plan.</p> <p>It is recommended that development of these lands be accompanied by a Site Specific Flood Risk Assessment appropriate to the nature and scale of development being proposed. Such Development Proposals shall also:</p> <ol style="list-style-type: none"> 1) Indicate and quantify loss of floodplain storage arising from the development proposal; 2) Provide compensatory storage located within or adjacent to the proposed development; 3) Indicate measures to ensure that water-vulnerable elements of the Development would not be flooded during the 1000year flood (in this regard, a freeboard of 500mm shall be provided); 4) Ensure that existing flow paths for flood waters will not be compromised.