Strategic Flood Risk Assessment Screening of Variation No. 6 of the Meath CDP 2021-2030

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Meath County Council

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Abbreviations

1D	One Dimensional (modelling)
2D	Two Dimensional (modelling)
AEP	Annual Exceedance Probability
AFA	Area for Further Assessment
AONB	Area of Outstanding Natural Beauty
CFRAM	Catchment Flood Risk Assessment and Management
DHLGH	Department of Housing, Local Government and Heritage
FFL	Finished Floor Level
FRA	Flood Risk Assessment
FRR	Flood Risk Review
GSI	Geological Survey of Ireland
HEFS	High End Future Scenario
HPW	High Priority Watercourse
JLAP	Joint Local Area Plan
LA	Local Authority
LAP	Local Area Plan
MCC	Meath County Council
LiDAR	Light Detection And Ranging
MRFS	Mid-Range Future Scenario
NCFHM	National Coastal Flood Hazard Mapping
NIFM	National Indicative Fluvial Mapping
OPW	Office of Public Works
PFRA	Preliminary Flood Risk Assessment
SAR	Synthetic Aperture Radar
SFRA	Strategic Flood Risk Assessment
SPR	Standard percentage runoff
SuDS	Sustainable Urban Drainage Systems
Tp	Time to Peak
WFD	Water Framework Directive

1 Introduction

Meath County Council has commissioned JBA Consulting to prepare a Strategic Flood Risk Assessment (SFRA) Addendum to the existing County Development Plan SFRA to incorporate Proposed Variation No. 6 to the Meath County Development Plan (MCDP) 2021–2030.

The purpose of Variation No. 6 is to provide a plan-led policy framework for the protection of existing energy infrastructure assets within the County, and to facilitate the co-location of large energy users with grid infrastructure in support of the transition to a low-carbon economy. The Variation is guided by the National Planning Framework First Revision (April 2025), the Climate Action Plan 2025, the Regional Spatial and Economic Strategy for the Eastern and Midland Region and the Large Energy-User Action Plan 2026, among other national and regional policy.

The Variation comprises text amendments to Chapter 6 (Infrastructure Strategy) and Chapter 11 (Development Management Standards and Land Use Zoning Objectives) of the MCDP 2021–2030, together with the zoning of approximately 136.66 ha of land at Woodland as TU Transport, Utility and Energy Infrastructure, including the existing 400kV Woodland substation and East West Interconnector station, to facilitate a Green Energy Park.
The Variation process will proceed under Section 58 of the Planning and Development Act 2024 (as amended), with public display of Draft Variation No. 6 from 6 November to 4 December 2026.

The purpose of this Addendum is to assess the proposed land use zoning and policy amendments and to inform zoning decisions in accordance with the Planning System and Flood Risk Management Guidelines (2009). This Addendum should be read in conjunction with the MCDP 2021–2030 SFRA (the parent SFRA), which remains the primary reference for flood risk methodology, policy context and countywide mapping.

1.1 Scope of Variation No. 6 Relevant to Flood Risk

Variation No. 6 comprises a number of amendments to the Meath County Development Plan 2021–2030.

The proposed amendments and the flood risk screening outcome for each are summarised in Table 1-1. Objectives relevant to flood risk are screened individually in Table 1-2.

Table 1-1 Proposed Amendments and Flood Risk Screening Summary

Location / Plan Section	Relevant Proposed Amendment	Flood Risk Screening Summary
Woodland Energy Park, Drumree	New TU Transport, Utility and Energy Infrastructure zoning (approximately 136.66 ha) to facilitate a Green Energy Park co-located with large energy users, including the existing 400kV Woodland substation and East West Interconnector station.	Lands include Flood Zones A and B associated with the Moyleggan and Kilcooly Streams, defined by site-specific hydraulic modelling. The Woodland Stream, which crosses the lands, is not covered by any flood mapping. The sequential approach is applied by grading uses according to their vulnerability, with highly vulnerable development located in Flood Zone C and outside the HEFS extent, and a 30 m riparian setback (INF OBJ 38) maintained along all watercourses. These requirements are secured through EP OBJ 6. Zoning is appropriate on flood risk grounds.
Chapter 6, Sections 6.15.4.1 (b) and 6.15.4.2	List of substations in the County (38kV to 400kV); update on the North-South Interconnector.	Factual updates. No direct flood risk implications.
Chapter 6, Section 6.15.4.3 Green Energy Parks	New text and objectives EP OBJ 1 to 6 supporting a Green Energy Park at Woodland.	Objectives relate to the Woodland lands. EP OBJ 6 secures the flood risk requirements set out in this Addendum. See Table 1-2.
Chapter 11, Section 11.8.7 Large Energy Users	New section with LEU OBJ 1 and LEU OBJ 2.	LEU OBJ 1 requires a site-specific Flood Risk Assessment and surface water management strategy for large energy user applications. See Table 1-2.
Chapter 11, Section 11.14.6 Land Use Zoning Categories	Amended TU objective and guidance to include energy generation, storage, digital infrastructure and large energy user industry.	Countywide policy introducing highly vulnerable uses on TU zoned lands. This Addendum screens the Woodland lands only. See Section 2.1.5 and Table 1-2.

Table 1-2 Variation No. 6 Objectives Relevant to Flood Risk

Objective	Summary	Flood Risk Relevance
EP OBJ 1	Protect and expand the energy infrastructure assets listed in Section 6.15.4.1 (b)	Substations are highly vulnerable development. Any expansion shall be informed by a site-specific FRA. No zoning change.
EP OBJ 2	Support a low carbon Green Energy Park at Woodland	Facilitates highly vulnerable development at Woodland. Addressed through EP OBJ 6.
EP OBJ 3	Supporting statement demonstrating large energy user status and suitability of the location	No direct flood risk implications.
EP OBJ 4	Dedicated direct access from the Green Energy Park to the R154	The R154 is in Flood Zone C. The access route should avoid Flood Zones A and B and the riparian setback.
EP OBJ 5	Complementary agricultural uses, such as vertical farms	Less vulnerable development. Subject to the sequential approach under EP OBJ 6.
EP OBJ 6	Site-specific FRA, sequential approach, 30 m riparian setback and SuDS for the Woodland lands	Secures the flood risk management approach set out in this Addendum.
LEU OBJ 1	Development Statement requirements for large energy users, including a site-specific FRA and surface water management strategy	Requires a site-specific FRA for large energy user applications countywide.
LEU OBJ 2	Supporting statement covering energy, water use, design mitigation and decommissioning	No direct flood risk implications.
Section 11.14.6, TU objective and guidance	Extends TU zoning to energy generation, storage, digital infrastructure and large energy users	Introduces highly vulnerable uses on TU zoned lands countywide. A site-specific FRA is required under LEU OBJ 1.
INF OBJ 38 (existing)	30 m riparian setback outside urban areas	Applied at Woodland through EP OBJ 6.

1.2 Policy and Guidance Update

There have been no substantive changes to national flood risk planning guidance since publication of the parent SFRA. Flood risk assessment continues to be undertaken in accordance with The Planning System and Flood Risk Management Guidelines (2009) and Circular PL2/2014. The parent SFRA anticipated that updates would be required as changes are made to the Plan, and this Addendum should be read as an extension of that approach rather than a replacement of the adopted SFRA methodology or policy framework.

The key development at national planning policy level since the adoption of the parent SFRA is the NPF First Revision (April 2025), which is now the operative national planning framework. From a flood risk perspective, the revised NPF introduced a strengthened suite of flood risk National Policy Objectives. NPO 78 is the primary flood risk objective, requiring planning authorities to apply the Sequential Approach in accordance with the 2009 Guidelines, avoid inappropriate development in flood risk areas that cannot satisfy the Justification Test, and take account of climate change impacts on flooding. NPOs 79, 80 and 81 require that all new development incorporates Sustainable Drainage Systems (SuDS) and nature-based solutions to manage surface water runoff to at least the greenfield rate. These NPOs are consistent with and reinforce the approach set out in the parent SFRA. In particular, it is noted that the Woodland lands offer opportunities to integrate nature-based solutions to reduce runoff and deliver benefits for both water quality and biodiversity. At development management stage applicants should implement the Best Practice Interim Guidance Document 'Nature-based Solutions to the Management of Rainwater and Surface Water Runoff in Urban Areas', as well as the Guidance Document for Planners, Developers and Developer Agents 'Implementation of Urban Nature-based Solutions' wherever possible.

There have also been updates to the national flood mapping datasets available since preparation of the parent SFRA. The National Indicative Fluvial Mapping (NIFM) dataset, produced by the OPW, provides second-generation indicative fluvial flood maps for catchments not covered by the CFRAM Programme and supersedes the first-cycle PFRA indicative mapping for this area. CFRAM data remains the primary dataset where available, with NIFM applied as the best available alternative for fluvial assessments. Both datasets are available on floodinfo.ie.

1.3 Terms of Reference

Under the Planning System and Flood Risk Management Guidelines (2009), the purpose of an SFRA is to provide a broad assessment of all types of flood risk to inform strategic land use planning decisions. SFRAs enable the planning authority to undertake the Sequential Approach, including the Justification Test, allocate appropriate sites for development, and identify how flood risk can be reduced as part of the development plan process.

It is important that the Variation continues to fulfil the requirements of the Guidelines, which require flood risk management to be integrated into spatial planning policies at all levels of the planning process.

The scope of this SFRA Addendum is to:

- Undertake flood risk screening of the proposed TU zoning at Woodland and the associated text amendments to Chapters 6 and 11 of the MCDP 2021–2030;
- Review and interpret Flood Zone A and B extents using the most up-to-date available datasets, including site-specific hydraulic modelling, NIFM and EPA watercourse mapping;
- Set out a precautionary approach for watercourses within the zoned lands that are not covered by any flood mapping;
- Apply the Sequential Approach and, where required, the Justification Test at Development Plan stage; and
- Provide flood risk management guidance to inform zoning decisions and development management, including finished floor levels, riparian setbacks, residual risk, and Sustainable Drainage Systems.

1.4 Methodology

This report should be read in conjunction with the SFRA prepared for the MCDP 2021–2030 (the parent SFRA). The parent SFRA sets out the planning context and general methodology for strategic flood risk assessment, and describes the study area and flood risk data available for County Meath.

Assessment of flood risk is based on Flood Zones derived from the best available dataset. For the Woodland lands, Flood Zones A and B are derived from the site-specific hydraulic modelling undertaken for the Woodland Energy Park (DIV Consulting, 2026), provided by Meath County Council in GIS format. Climate change is represented by the 0.1% AEP HEFS (+30% flow) extent from the same modelling. Where watercourses within the zoned lands are not covered by any flood mapping, a precautionary riparian setback approach has been applied, as set out in Section 2.1.4.

Flood risk management continues to be informed by flood levels, application of freeboard, and assessment of residual risk through site-specific Flood Risk Assessment.

2 Flood Risk Assessment

2.1 Study Area

The lands proposed for TU zoning are located at Woodland, in the townlands of Creemore, Hayestown, Pelletstown and Belshamstown near Drumree, in the south of County Meath. The lands lie to the south of the R154 (Trim Road) and include the existing 400kV Woodland substation and East West Interconnector station at their southern end. Other than the substation infrastructure, the lands are greenfield and in agricultural use. Ground levels fall from approximately 100 mOD in the west to approximately 89 mOD in the east, based on drone survey data reported in the site-specific FRA (DIV Consulting, 2026).

The lands are within the River Tolka catchment, in the Liffey and Dublin Bay River Basin (UoM09). All watercourses flow from west to east. The Moyleggan Stream crosses the northern part of the lands and is joined by the Kilcooly Stream at the north-western boundary. The Woodland Stream flows through the centre of the lands, immediately north of the substation, and joins the Moyleggan Stream near the eastern boundary. The Moyleggan Stream discharges to the River Tolka approximately 6.5 km downstream, upstream of Dunboyne/Clonee/Pace. The lands covered by Proposed Variation No. 6 are set out in Table 2-1.

Table 2-1 Lands Covered by Proposed Variation No. 6

Location	Proposed Change
Woodland, Drumree (outside the settlement hierarchy)	New TU Transport, Utility and Energy Infrastructure zoning (approximately 136.66 ha)
All TU zoned lands (countywide)	Amended TU zoning objective and guidance

2.1.1 Review of Flood Zone Data

This section reviews the sources of Flood Zone mapping used in this SFRA Addendum. The Woodland lands are not covered by the CFRAM Programme. Flood Zones A and B have been derived from the site-specific hydraulic modelling undertaken for the Woodland Energy Park, with NIFM used for comparison, as described in Table 2-2. All sources of available flood mapping were reviewed and professional judgement applied in determining the most appropriate dataset.

Advice on climate change allowances for flood risk management in Ireland is set out in the OPW Flood Risk Management Climate Change Sectoral Adaptation Plan. Two scenarios are considered: the Mid-Range Future Scenario (MRFS) and the High-End Future Scenario (HEFS). Climate change is presented using the HEFS in this Addendum, as defined in Table 2-4, consistent with the approach set out in the parent SFRA and the requirement under NPO 78 of the NPF First Revision to take account of the potential impacts of climate change on flood risk.

Table 2-2 Available Flood Data for Flood Zone Development

Description	Coverage	Robustness	Comment on Usefulness
CFRAM Study	Areas for Further Assessment (AFAs) along modelled river reaches	High	Best available dataset where it exists. The Woodland lands are within UoM09 but are not within an AFA, and CFRAM mapping is not available for the Moyleggan, Kilcooly or Woodland Streams.
Site-specific FRA, Woodland Energy Park (DIV Consulting, 2026)	Moyleggan and Kilcooly Streams within the lands	High	Site-specific FRA prepared on behalf of the applicant, including 1D/2D hydraulic modelling of the Moyleggan and Kilcooly Streams for the 1% and 0.1% AEP and HEFS events, informed by topographic survey. Flood Zone A and B outlines provided by Meath County Council in GIS format. Primary Flood Zone dataset for the Woodland lands. The Woodland Stream is not included in the model.
EPA watercourse mapping	County-wide	Moderate	Identifies the location of watercourses, including those with catchments below the 5 km² NIFM threshold. Used to identify unmapped watercourses within the zoned lands, to which the riparian setback approach in Section 2.1.4 applies.
National Indicative Fluvial Mapping (NIFM, OPW)	Watercourses not covered by CFRAM, catchments ≥5 km²	Moderate	Second-generation indicative fluvial flood maps produced by the OPW (2019–2020). Higher quality than first-cycle PFRA indicative mapping. Used to define Flood Zones where CFRAM is not available. No modelled water levels or depths, extents only. NIFM should be validated through site visits and professional judgement before informing zoning decisions. NIFM may overestimate flood extents in

			some locations; site-specific FRA required to confirm risk. At Woodland, NIFM is retained for comparison with the site-specific modelling.
Historical Flood Event Data	Various: OPW floodinfo.ie records and Local Authority sources	Indicative	Can be used to validate flood zones and identify non-fluvial flooding. Useful background information for site-specific FRAs. Note: the database is not exhaustive; absence of a record does not indicate absence of flood risk.
Other datasets for the wider county are set out under the Parent SFRA Section 3.			

Table 2-3 Other Available Data

Description	Coverage	Robustness	Comment on Usefulness
GSI Groundwater and Surface Water Flood Information	Full Study Area	Moderate	Provides historic and predictive flood extents for groundwater and surface water flooding. Useful for areas with groundwater or pluvial flood risk.
Alluvial Soils Maps	Full Study Area	Low	Indicative of potential flood risk in areas with no other mapping. Not used as a primary flood zone dataset.
Groundwater Vulnerability Maps	County-wide	Moderate	Initial assessment of groundwater vulnerability. Provides a screening tool for use in FRA.

2.1.2 Climate Change Allowances

The OPW Flood Risk Management Climate Change Sectoral Adaptation Plan sets out the framework for applying climate change allowances in flood risk assessments in Ireland. Two scenarios are applied in this Addendum: the MRFS and the HEFS. The HEFS is used as the primary planning scenario, consistent with the approach in the parent SFRA and with NPO 78 of the NPF First Revision. Allowances are set out in Table 2-4 below.

Table 2-4 Allowances for Future Climate Change Scenarios

Criteria	MRFS	HEFS
Extreme Rainfall Depths	+20%	+30%
Flood Flows	+20%	+30%
Mean Sea Level Rise	+500mm	+1000mm
Land Movement	-0.5mm / year*	-0.5mm / year*
Urbanisation	No General Allowance - Review on Case by Case Basis	No General Allowance - Review on Case by Case Basis
Forestation	-1/6 Tp**	-1/3 Tp**+10% SPR***
Notes: * Applicable to the southern part of the country only (Dublin - Galway and south of this). ** Reduction in the time to peak (Tp) to allow for potential accelerated runoff that may arise as a result of drainage of afforested land. *** Add 10% to the Standard Percentage Runoff (SPR) rate; this allows for increased runoff rates that may arise following felling of forestry.		

2.1.3 Implications for finished floor levels and development management

There are no flood relief schemes or flood defences at Woodland, and the lands are treated as undefended for the purposes of flood risk assessment and development management.

Electricity substations and generating stations are defined as essential infrastructure and classified as highly vulnerable development under Table 3.1 of the Planning Guidelines. Large energy users, whether data centres, advanced manufacturing or other energy-intensive uses, function as critical utility and ICT infrastructure. Flooding of such facilities would cause severe socio-economic disruption and could affect the stability of the electricity grid. They are therefore treated as highly vulnerable development in this Addendum, rather than as less vulnerable commercial or industrial uses, and shall be located in Flood Zone C and outside the HEFS extent. Less vulnerable elements, may be located in Flood Zone B, including the HEFS extent where there is no loss of floodplain storage or conveyance, in accordance with EP OBJ 6. Water compatible elements, such as solar panel arrays, may be located in Flood Zone A or B, including the HEFS extent only where the bottom of the solar panel is above the 1% AEP flood level including the HEFS allowance, plus a minimum freeboard of 300 mm, as set out in Table 2-5. In addition there should be no loss of floodplain storage or conveyance, in accordance with EP OBJ 6.

Given the criticality and long design life of this infrastructure, finished floor levels for highly vulnerable elements shall be set no lower than the 1% AEP flood level including the HEFS allowance, plus a minimum freeboard of 300 mm, as set out in Table 2-5. Where flood levels are not available, they shall be derived through site-specific hydraulic modelling.

Critical electrical equipment shall be located above the design flood level, and flood-resilient construction shall be considered as part of the site-specific Flood Risk Assessment.

Table 2-5 Recommended Design Flood Level

Scenario	Design Flood Level to be Based On
Fluvial (undefended)	1% AEP flood level + HEFS allowance + 300 mm freeboard

2.1.4 Unmapped Watercourses and Riparian setbacks

NIFM is produced for watercourses with catchments of 5 km² or greater, and the site-specific modelling for the Woodland Energy Park does not extend to the Woodland Stream. The Woodland Stream, which crosses the proposed TU lands, is therefore not covered by any flood mapping. The absence of mapping does not indicate an absence of flood risk.

GSI subsoil mapping records a band of alluvium along the Woodland Stream, indicative of historical fluvial deposition and potential floodplain, although it is possible this could be representative of a period closer in time to the last glacial period. The alluvium extends up to approximately 70 m from the channel at its widest point, which extends beyond the 30 m riparian setback. A site-specific FRA shall therefore define the flood extent of the Woodland Stream before any development is proposed within the alluvial corridor. There is no GSI historic surface water mapping that shows this area flooded.

INF OBJ 38 of the MCDP 2021–2030 seeks to establish riparian corridors free from new development along significant watercourses and streams, with a minimum 30 m riparian buffer measured from the top of bank on either side of watercourses outside urban areas. EP OBJ 6 reflects this requirement for Woodland. Within the setback, development shall be limited to open space and essential watercourse crossings (solar panel arrays should observe the setback). Along the unmapped Woodland Stream, the setback is an interim precautionary constraint, not a modelled flood boundary or evidence that land beyond 30 m is in Flood Zone C. The flood extent remains to be defined through site-specific hydraulic modelling.

2.1.5 Vulnerability of TU Zoned Lands

The amended TU objective broadens the range of uses permitted on TU zoned lands to include energy generation, storage, digital infrastructure and large energy user industry. As set out in Section 2.1.3, substations and generating stations are highly vulnerable development under Table 3.1 of the Planning Guidelines, and large energy users are treated as highly vulnerable in this Addendum given their function as critical utility and ICT infrastructure. The amended objective therefore introduces highly vulnerable uses as permissible development on TU zoned lands.

The amended TU objective applies to all TU zoned lands in the County, although it does not change the extent of existing TU zoning outside Woodland. This Addendum assesses the proposed Woodland zoning only; it therefore does not establish the flood risk acceptability of the additional uses on existing TU zoned lands elsewhere. A site-specific Flood Risk

Assessment is required for applications for energy or large energy user development, as stated under LEU OBJ 1, with assessment against the parent SFRA and the Planning Guidelines. That development management requirement does not itself demonstrate that the countywide policy amendment has been assessed at plan-making stage.

2.2 Site Review

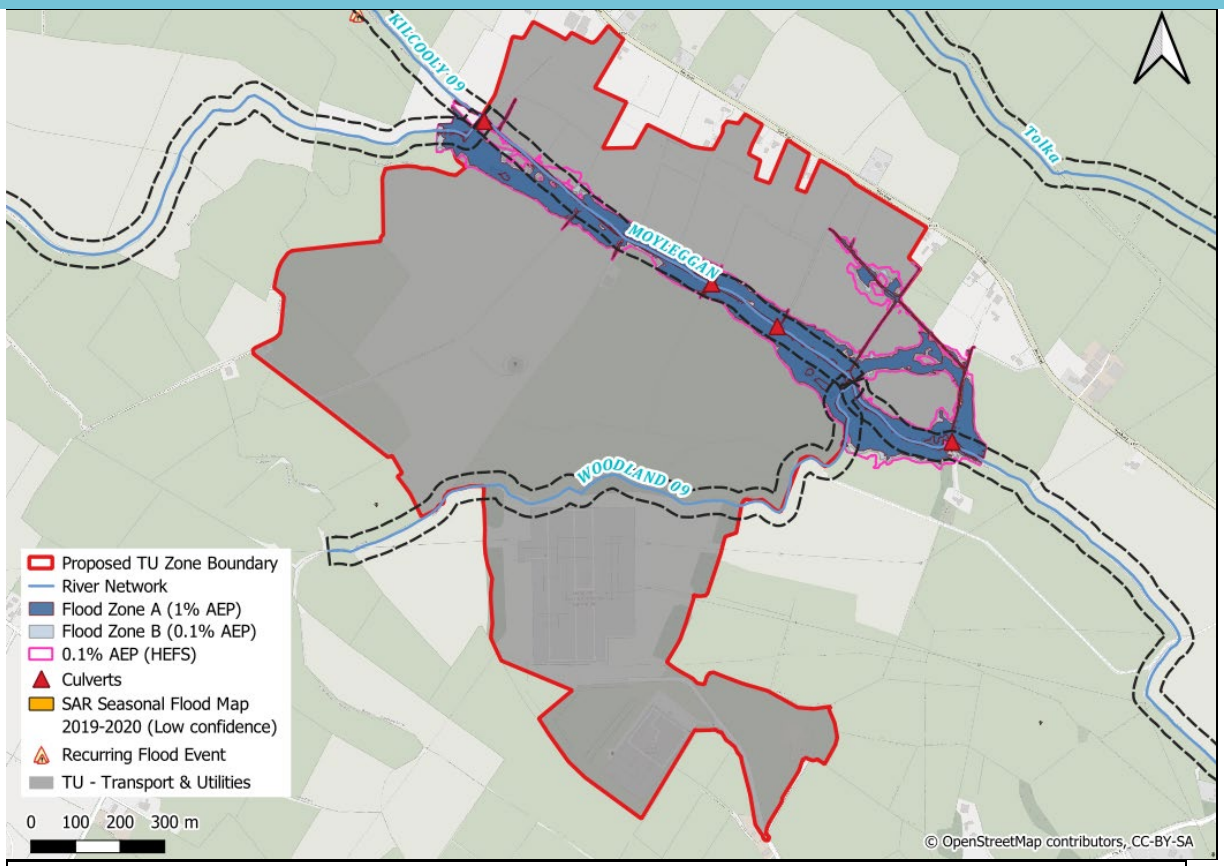
A strategic approach to flood risk management is important in County Meath given the varied nature of flood risk across the county, with scales of risk and vulnerability differing between inland fluvial settlements and coastal locations. Following the Planning Guidelines, development should always be located in areas of lowest flood risk first, and only when it has been established that there are no suitable alternative options should development (of the lowest vulnerability) proceed. Consideration may then be given to factors which moderate risks, such as flood defences, followed by suitable flood risk mitigation and site management measures.

It is important to note that whilst it may be technically feasible to mitigate or manage flood risk at site level, strategically it may not be a sustainable approach.

A summary of flood risk associated with the proposed TU zoning at Woodland is provided below. The flood risk commentary indicates whether the zoning, insofar as it includes Flood Zone A or B, requires the Plan-Making Justification Test to be applied and passed. When carrying out a site-specific FRA, or when planning applications are being assessed, it is important to note that not all uses within a zoning objective will be appropriate on flood risk grounds.

The Flood Zones shown in the figure over page are derived from the detailed site-specific hydraulic modelling undertaken for the Woodland Energy Park and define the present-day fluvial flood risk used to apply the Planning Guidelines. The climate change layer shown is the 0.1% AEP HEFS extent from the same modelling. The 30 m riparian setback required under INF OBJ 38 and EP OBJ 6 is shown along all watercourses. GSI Seasonal SAR mapping extents are observed seasonal surface water extents, are not modelled Flood Zones and do not alter the Flood Zone classification.

Woodland Energy Park



The flood mapping has been produced in accordance with the Planning Guidelines and therefore ignores the impact of flood protection structures. Areas protected by flood defences still carry a residual risk of flooding due to overtopping or breach, there may also be no guarantee of maintenance in perpetuity. Areas that benefit from defences are annotated separately.

Area Description	The lands comprise approximately 136.66 ha of predominantly greenfield agricultural land at Woodland, near Drumree, together with the existing 400kV Woodland substation and East West Interconnector station. The Moyleggan Stream crosses the northern part of the lands from north-west to south-east and is joined by the Kilcooly Stream at the north-western boundary. The Woodland Stream flows west to east through the centre of the lands, immediately north of the substation, and joins the Moyleggan Stream near the eastern boundary. The R154 (Trim Road) along the northern boundary and the access road serving the substation from the south are both outside Flood Zones A and B.
Flood Zone Data	Site-specific hydraulic modelling (DIV Consulting, 2026) for the Moyleggan and Kilcooly Streams, provided by Meath County Council in GIS format. The modelled Flood Zones are slightly narrower than the NIFM extents along the main channels, but also identify flow paths along field drains within the lands. GSI subsoil mapping records alluvium along the Moyleggan and Kilcooly Streams and along the field drain identified in the site-specific modelling, corroborating the modelled flow path. The Woodland Stream is not included in the model and is not covered by any flood mapping.
Historic Flooding	A recurring flood event (floodinfo.ie ID-858) is recorded on the Kilcooly Stream approximately 0.35 km upstream of the lands, where the watercourse is reported to overflow onto its floodplain annually

	following heavy rainfall, with a notable event in November 2000. No historical flood events are recorded within the lands. The GSI SAR Seasonal Flood mapping does not show any instances of historic flooding within the lands. A small area is recorded just outside the north-western boundary, adjacent to the Kilcooly Stream culvert.
Climate Change	Climate change is represented by the 1% AEP and 0.1% AEP HEFS (+30% flow) extents from the site-specific hydraulic modelling (DIV Consulting, 2026). The 1% AEP HEFS extent closely matches the present-day Flood Zone B extent. The 0.1% AEP HEFS extent, shown above, extends approximately 1.8 ha beyond Flood Zone B, mainly at the north-western boundary near the Kilcooly Stream confluence, along the field drain in the north-east of the lands, and along the south-eastern edge. Flood depths in these additional areas are generally less than 0.5 m. No climate change mapping is available for the Woodland Stream. Climate change shall be addressed through site-specific hydraulic modelling using the HEFS allowance (+30% flows), consistent with the highly vulnerable classification and long design life of the infrastructure.
Residual Risk	There are no flood defences at the lands. Residual risk arises primarily from blockage of the four existing culverts on the Moyleggan and Kilcooly Streams and of any new watercourse crossings. The site-specific FRA shall assess blockage scenarios for existing and proposed structures.
Surface Water	The lands drain to the River Tolka via the Moyleggan Stream. Development of an energy park and large energy user buildings would introduce significant impermeable areas upstream of Dunboyne/Clonee/Pace. Surface water shall be managed through SuDS and nature-based solutions, with runoff limited to greenfield rates, in accordance with NPOs 79 to 81 of the NPF First Revision and the drainage requirements of the MCDP 2021–2030.
Development Strategy	The proposed TU zoning includes lands within Flood Zones A and B associated with the Moyleggan and Kilcooly Streams, and the unmapped Woodland Stream crosses the lands. The sequential approach is applied within the zoning by grading uses according to their vulnerability, as required under EP OBJ 6, with highly vulnerable development directed to Flood Zone C outside the HEFS extent. No Plan-Making Justification Test is required. The detailed guidance on permitted uses is set out in the Conclusion below. Development adjacent to the Woodland Stream is considered premature until its flood extent has been defined through site-specific hydraulic modelling. Safe access and egress is available via the R154 for lands north of the Moyleggan Stream, and via the substation access road for lands to the south, both within Flood Zone C. New crossings of the Moyleggan, Kilcooly or Woodland Streams may be required. Any new or altered bridge or culvert will require Section 50 consent from the OPW and shall be assessed through the site-specific Flood Risk Assessment required under EP OBJ 6.
Conclusion	The Plan-Making Justification Test is framed around the sustainable development of urban settlements. An isolated rural infrastructure zoning, such as Woodland, does not readily fit several of its criteria and the development rationale is infrastructure led – being adjacent to the existing substation, so there is no flexibility on the location. This being the case, the test is not directly applied, rather flood risk is managed through the sequential approach, with uses graded according to their vulnerability and highly vulnerable development directed to Flood Zone C outside the climate change extent, Flood

Zone B may contain less vulnerable use.

Woodland is a rural location outside the settlement hierarchy of the MCDP 2021–2030. The proposed TU zoning includes Flood Zones A and B along the Moyleggan and Kilcooly Streams and is crossed by the unmapped Woodland Stream. Sufficient land in Flood Zone C is available to accommodate highly vulnerable development, with access via Flood Zone C.

Development within the lands shall be guided by the following, in accordance with EP OBJ 6:

Flood Zone C (outside the HEFS extent)

- All uses permitted under the TU zoning, including highly vulnerable development such as substations, generation plant, energy storage and large energy user buildings.
- Finished floor levels no lower than the 1% AEP HEFS flood level plus 300 mm freeboard.

Flood Zones A and B and the HEFS extent (outside the riparian setback)

- No highly vulnerable development.
- Less vulnerable elements, may be located in Flood Zone B, including the HEFS extent where there is no loss of floodplain storage or conveyance, in accordance with EP OBJ 6.
- Water compatible elements, such as solar panel arrays, may be located in Flood Zone A or B, including the HEFS extent only where the bottom of the solar panel is above the 1% AEP flood level including the HEFS allowance, plus a minimum freeboard of 300 mm, as set out in Table 2-5. In addition there should be no loss of floodplain storage or conveyance, in accordance with EP OBJ 6.
- Other water-compatible uses, such as amenity open space and biodiversity areas.
- No land raising without level-for-level compensatory storage.
- The HEFS extent is the 0.1% AEP HEFS (+30% flow) extent from the site-specific hydraulic modelling.

30 m riparian setback (all watercourses)

- Water-compatible uses only (excluding solar panel arrays), such as landscaping, biodiversity enhancement and drainage outfalls.
- No buildings, hardstanding, solar arrays or land raising.
- Essential watercourse crossings only, designed as clear-span structures that maintain conveyance, and subject to Section 50 consent from the OPW.
- Existing substation infrastructure within the setback is acknowledged. Any extension shall not encroach further towards the watercourse.

Woodland Stream

Flood Zone A/B and climate change to be defined through site-specific hydraulic modelling. Development adjacent to the 30m setback is premature until that modelling is complete.

Access

	Access and egress via the R154 and the substation access road, both in Flood Zone C. Internal watercourse crossings shall not be relied upon for emergency access. The proposed TU zoning is appropriate on flood risk grounds. A site-specific Flood Risk Assessment shall accompany any planning application, and surface water shall be managed through SuDS to greenfield runoff rates as set out within the Meath County Development Plan SFRA 2021-2030 and incorporating the Best Practice Interim Guidance Document 'Nature-based Solutions to the Management of Rainwater and Surface Water Runoff in Urban Areas', as well as the Guidance Document for Planners, Developers and Developer Agents 'Implementation of Urban Nature-based Solutions'.



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