

Variation
No.1



Clare County Development Plan 2017–2023

Variation No. 1

11th March 2019

To give effect to the Government Policy Statement on the Development of Data Centres in Ireland by identifying in a plan led manner the preferred location of a Data Centre in County Clare.

Flood Risk Assessment



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1 Introduction

Clare County Council commissioned JBA Consulting to prepare a Strategic Flood Risk Assessment as part of its consideration of a proposed Variation to the Clare County Development Plan 2017-2023.

The proposed variation provides for the following changes to:

(1) Volume 1 - Written Statement of the Clare County Development Plan 2017-2023:

To incorporate the use and development of data centres and power generating infrastructure into the enterprise zoning definition, the following additional text is proposed to be added into the zoning objective for enterprise as set out in Chapter 19, “data centres,” and “power generating infrastructure as well “

(2) Volume 3(a) Ennis Municipal District – Written Statement and Settlement Plans of the Clare County Development Plan 2017-2023:

- Amend the zoning objective for the lands currently identified as Industrial IND1 to Enterprise ENT3 at Toureen and extend the Enterprise ENT3 zoning objective to 45ha, onto lands currently identified as being in the open countryside;
- Zone an area of approximately 10 hectares as Buffer Space at Toureen;
- Replace text in Section 1.5.2 associated with lands currently identified in the Ennis Settlement Plan as Industrial Zoning (IND1) with text associated with the extended site identified as Enterprise (ENT3) to read as follows:

Project Ireland 2040 - National Planning Framework sets out the strategic importance of data centres in Irelands’ Enterprise Strategy. Having regard to the Government Statement on ‘The Role of Data Centres in Ireland’, which in particular recommends having a plan-led approach to data centres, this 55ha site has been identified and zoned as Enterprise (45ha) and for Buffer Space (10ha) with a specific use for a Data Centre Campus due to its proximity to the electricity sub-station, its proximity to the M18 motorway and adjoining regional road network, the location of the site relative to the Gas Pipeline, the availability of Dark Fibre and the proximity of the site to Shannon International Airport and Ennis Town.

This site is zoned to accommodate a Data Centre campus which consists of one or more structures, used primarily for the storage, management and dissemination of data and the provision of associated power electricity connections and energy generating infrastructure.

- Replace text currently in Section 2.13.5 relating to lands at Toureen with new additional text and in addition to that set out above, include mitigation arising from the Strategic Environmental Assessment, Habitat Directive Assessment and Strategic Flood Risk Assessment.

Site ENT3 Toureen

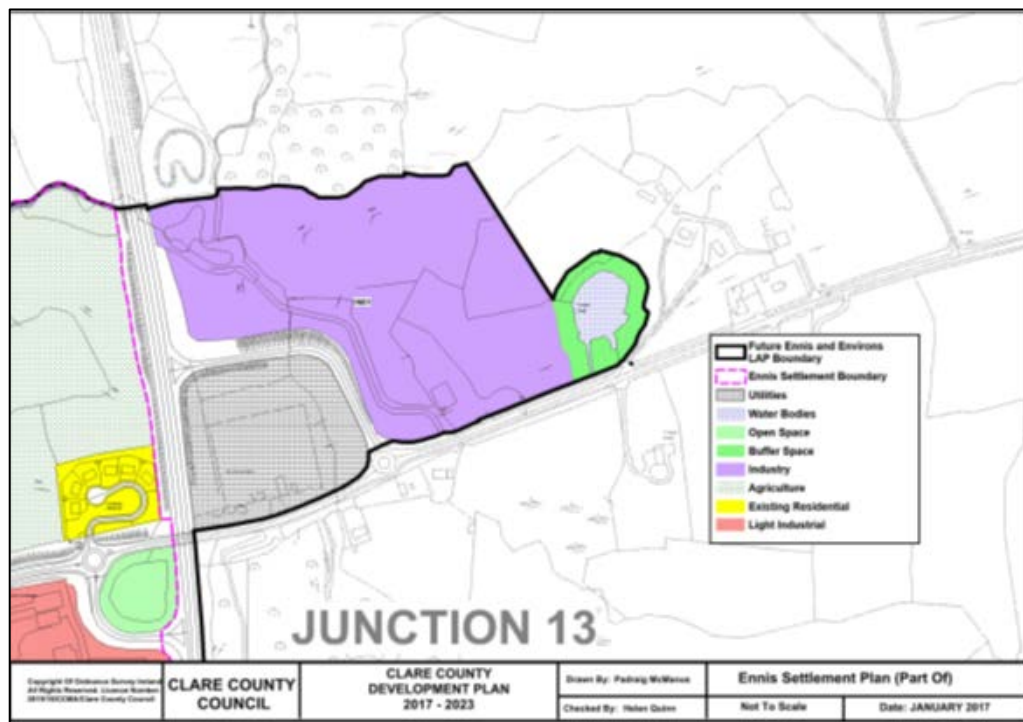
Project Ireland 2040 - National Planning Framework sets out the strategic importance of data centres in Ireland's Enterprise Strategy. Having regard to the Government Statement on The Role of Data Centres in Ireland, which in particular recommends having a plan-led approach to data centres, this 55ha site has been identified and zoned as Enterprise (45ha) and Buffer (10ha) with a specific use for a Data Centre Campus due to; its proximity to the electricity sub-station; its proximity to the M18 motorway and adjoining regional road network; the location of the site relative to the Gas Pipeline; the availability of Dark Fibre and the proximity of the site to Shannon International Airport and Ennis Town.

This site is zoned to accommodate a Data Centre campus which consists of one or more than one structure, used primarily for the storage, management and dissemination of data and the provision of associated power electricity connections and energy generating infrastructure.

Development proposals for this site shall include the following;

- A Traffic Management Plan for the construction and operation phase of development.
- Any proposed development shall adopt sustainable practice in terms of building design, materials, construction and operation.
- A Hydrological Assessment to determine the effects of the development on groundwaters and groundwater quality shall be submitted with development proposals for the site.
- At the southern boundary of the site is a mesotrophic lake, which will require protection through the provision of a buffer incorporating the dense clump of trees to the west of the lake and shall be included in an overall Landscape Management Plan for the site.
- A Construction and Environmental Management Plan shall be submitted as part of development proposals on site. This shall include a Flood Risk Assessment, a Surface Water Management Plan for the construction and operation phase of the development, a Pollution Prevention Plan and shall incorporate principles of Sustainable Urban Drainage Systems. During the construction phase of developments on site where applicable all relevant best practice guidelines shall be adhered to.
- An Air Quality Impact Assessment with reference to potential impacts on European Sites and the surrounding area within the zone of influence of the proposed development shall be submitted, this shall inform an Appropriate Assessment Screening report and/or Natura Impact Report.
- The hedgerows and scrub area on this site provide a potential foraging and commuting area for wildlife including Lesser Horseshoe bats. Future development proposals must be informed by a series of bat surveys to record the known usage of the site by in particular Lesser Horseshoe bats and ensure that there is no net loss of supporting habitat. The surveys must include a full light spill modelling study. Any habitat loss must be offset by additional landscape planting to ensure connectivity across the landscape.
- Impacts of development of the site on conservation interest bird species of surrounding SPAs and breeding birds should be avoided, through protection and retention of breeding bird habitat in accordance with the Wildlife Acts. Development proposals for the site shall be accompanied by bird surveys (to include a winter bird survey) to assess the use of the site by bird species and where disturbance and/or displacement are predicted appropriate mitigation measures shall be identified. Hedgerow and treeline pruning or removal shall be conducted outside the breeding bird season (March 01st through August 31st).

- An Ecological Impact Assessment (designed by an appropriately qualified landscape architect and ecologist) and a Habitat Survey shall form part of development proposals for the site.
- A Landscape and Biodiversity Management plan shall be submitted to provide landscape, visual and environmental screening and enhancement measures through planting and design.
- An Invasive Species Survey and Management plan (if required) shall accompany development proposals for the site.
- Development proposals shall also include an Otter Use Survey of the site, and where disturbance and/or displacement are predicted appropriate mitigation measures shall be identified.
- A buffer will be required to be provided with regard to the location of a National Monument (CL-034-007) on site.
- Adequate wastewater treatment and disposal measures shall accompany development proposals for this site to ensure that there is no impact to water quality in the area.
- Please see the SEA Environmental Report and Appropriate Assessment - Natura Impact Report that accompanies this proposed Variation No.1 for further details on the above.



**Figure 1-1: The current zoned boundary for the site in Toureen, Ennis,
(source: Clare County Council Development Plan 2017 – 2023**

2 Site Information

2.1 Site description

The site is located in Toureen on the Tulla Road beside junction 13 off the M18 and the new proposed zoned boundary encompasses 55ha. It is predominantly greenfield, but several small residential and farm buildings are located near or within the proposed zone boundaries. Figure 2-1 shows the proposed zone boundary and surrounding area.

The site topography is highly variable but overall slopes from a higher elevation in the east to a lower elevation to the west of the site. The western section of the site is extremely uneven (see Figure 2-2).

The Ballymacahill River flows along the western boundary and flows west under the M18. A small surface water stream flows into the Ballymacahill River from the site and is fed by run off from the land. A groundwater fed lake is also situated at the southern site boundary.

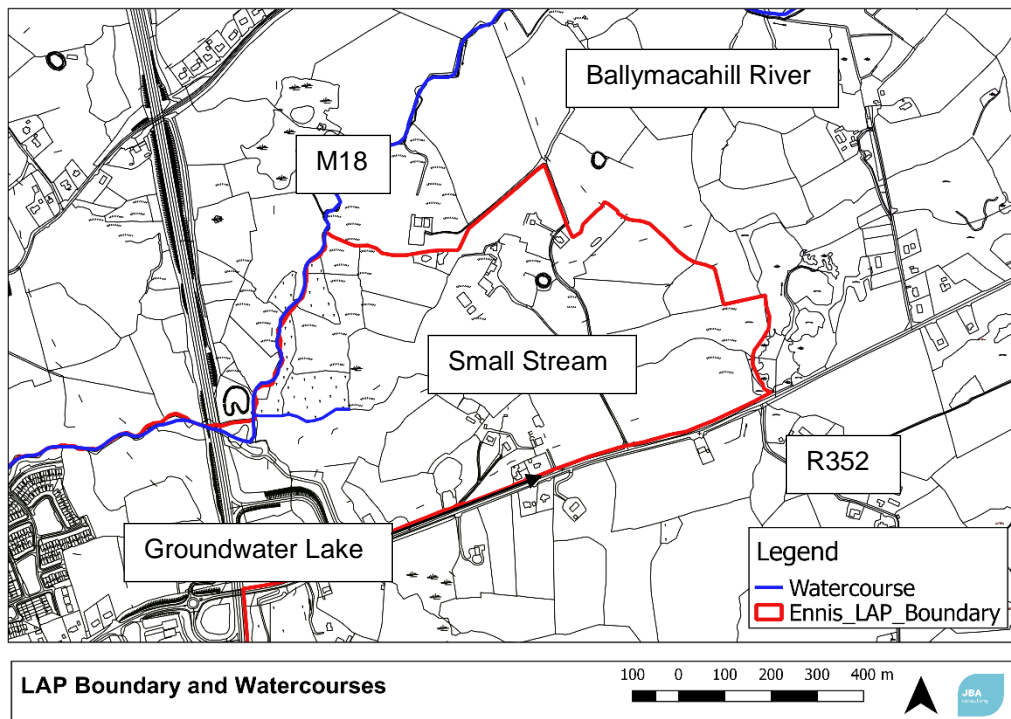


Figure 2-1: The proposed zone boundary for the site and local watercourses.



Figure 2-2: An image of the site taken facing east along the western zone boundary highlighting the topographic variability in this section of the site.

2.2 Flood defences

The site does not currently benefit from flood defence and there are no plans for any defences that would benefit the area.

2.3 Sensitivity to climate change

Low to moderate, with unknown impacts relating to groundwater recharge.

2.4 Residual risk

There is a culvert present under the M18 motorway at the western boundary of the site that has a potential risk of blockage. We understand the culvert was constructed at the same time as the motorway and therefore assume compliance with Section 50 of the Arterial Drainage Act 1945. The design considerations for Section 50 ensure generous culvert sizing and help to ensure reduced blockage risk. Regardless of the specific culvert design the M18 is at a lower elevation to the majority of the zoned land (approximately 9mOD) which indicates that if blockage were to occur it would not cause significant flooding to the lands outside of the existing floodplain, as such no further assessment is required.

3 Flood Risk

3.1 Historical flooding

An internet search, analysis of historic flood maps from floodmaps.ie and discussion with the landowners revealed no records of any fluvial, pluvial or groundwater flood events at the site location.

3.2 Pluvial sources

Surface water will flow in a predominantly westerly direction across the site due to the slope of the landscape. According to the OPW PFRA flood map there are areas that are at risk from pluvial flooding during the 1% and 0.1% AEP events in the south-west of the site. In this section of the proposed zone there are a number of depressions where surface water is predicted to gather, and the groundwater lake is suggested as another possible area where pluvial flooding may occur (see Figure 3-1).

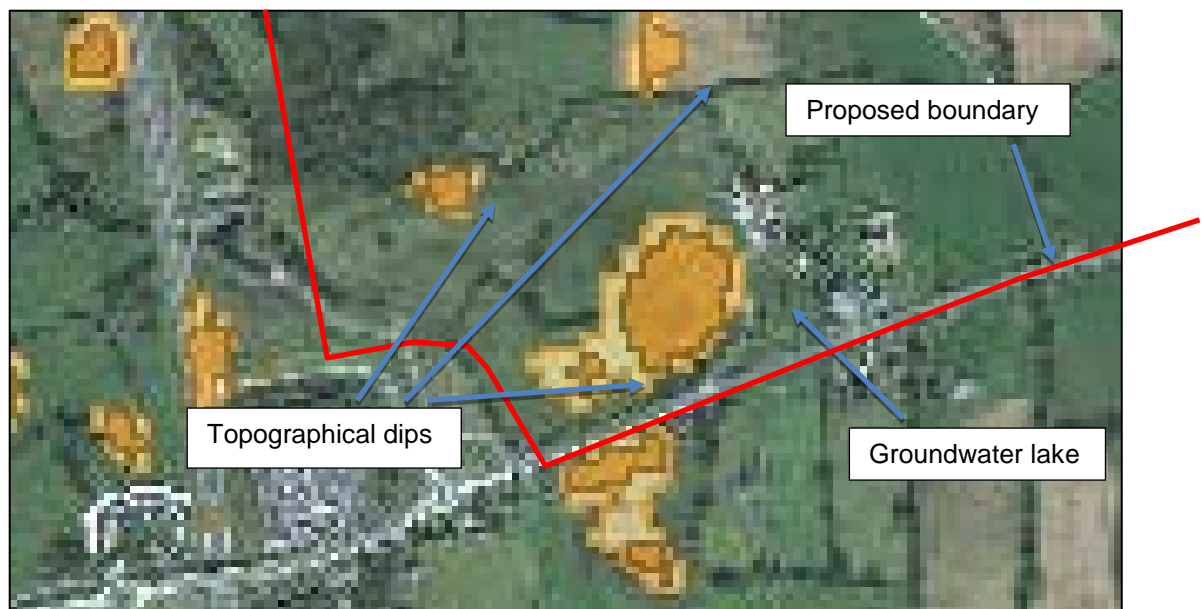


Figure 3-1: OPW PFRA map of the south western corner of the site showing areas of predicted pluvial flooding.

3.3 Fluvial sources

The Ballymacahill River flows along the western boundary and is the main watercourse affecting the site. There is a small unnamed surface water stream in the western section of the area that flows into the Ballymacahill and is principally fed by surface runoff from the land.

The Ballymacahill River is an open channel river that flows southwards along the site boundary before entering two culverts under the M18. The river and the site in question were not analysed in the Shannon CFRAM mapping programme.

Fluvial flood mapping of the area and along the river was carried out by JBA Consulting in 2010 and shows the western portion of the site to be within Flood Zone A and B (Figure 3-2). The river flows within a low elevation area with an area of hills and higher ground separating it from the central and eastern sections of the site within the land use boundary. The level of detail of the previous study is indicative, however the majority of the mapping was verified during the

site visit with minor changes made to allow for the inclusion of the unnamed surface stream in Flood Zone A.

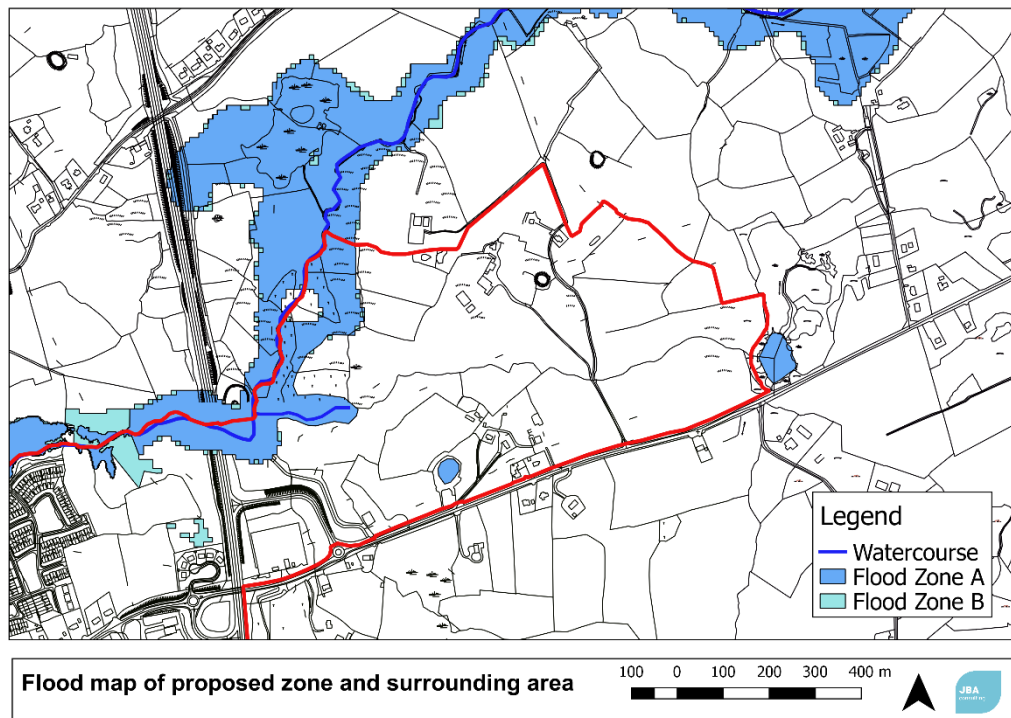


Figure 3-2: The flood map for the proposed zone highlighting the location of Flood Zone A and B.

3.4 Groundwater sources

The zone and local area are in a karstified area on a regionally important limestone aquifer body. The local area is also denoted as a recharge zone. The groundwater vulnerability for the site is defined as extreme due to the presence of rock outcrop and the lake within the site that is a direct link to groundwater.

Although fed by groundwater the lake does not fluctuate in size dramatically as is the case with Turloughs (seasonal groundwater lakes) but remains at a reasonably constant level all year (Figure 3-3). The lake spans approximately 0.243ha and is also surrounded by a marshy area (area of groundwater interaction surrounding the lake) shown in Figure 3-4 which covers an area of approximately 2.73ha.

There are no records of groundwater flooding occurring at the site but from the 2016 JBA flood mapping the lake has been placed in Flood Zone A (Figure 3-2), technically as fluvial source - consistent with all permanent waterbodies within County Clare. The extent of the flood zone is however similar to the extent of the lake itself which has a buffer zone surrounding it following input from the SEA and HDA process of the proposed Variation. The lake is situated in a low point within the site with higher elevation hills are situated north and west. The topography of the area restricts any possible flood waters from the lake entering the Ballymacahill River during a storm event.



Figure 3-3: An image of the groundwater fed lake within the site.



Figure 3-4: An image of the marshy ground proximal to the lake facing south towards the R352 (note marsh vegetation).

3.5 Summary of Flood Risk Sources

Based on the available data the flood risk to the site from both pluvial and groundwater sources is low however there is high fluvial flood risk in the western area of the proposed land use zoning with a significant area within Flood Zone A and B. Note that all lakes are indicated as Flood Zone A. Having reviewed the topography within the extent of Flood Zone A/B during a site visit it was determined that the majority of the flood map was appropriate for the site. The flood map was altered as part of this overall iterative flood risk assessment process so that Flood Zone A encompasses the unnamed surface stream to ensure the flood risk from this watercourse is accounted for. A portion of high ground protects the lands to the east of the site from possible inundation and therefore these lands are at low risk from fluvial flooding.

4 Development Options

The principal risk to the proposed land use zoning objective is from fluvial flooding along the western boundary, the area around the groundwater fed lake is also at potential risk. Adopting the Sequential Approach (as promoted by the Planning System and Flood Risk Management Guidelines), the following actions are recommended;

- A water compatible land use zoning objective should be applied to all areas within Flood Zone A/B.
- Although not a significant flood risk it is also recommended that the buffer zone surrounding the groundwater lake is maintained to ensure development does not encroach on the waterbody. To provide reasonable protection to any development in the unlikely event of the lake level rising during a period of prolonged rainfall/flooding it is also recommended that the lake is specifically assessed under a wider FRA for the entire site at Development Management stage.
- All land in Flood Zone C is suitable for Enterprise (ENT3) Zoning.
- A development specific FRA is recommended for any proposed work to the site to ensure flood risk from all possible sources including pluvial are accounted for in the final development design. This must include comprehensive detail on the proposed surface water management system detailed within a Drainage Impact Assessment. Further details on these studies is provided under Section 7 of the County Development Plan 2017-2023 SFRA.

The above recommendations were incorporated as part of this variation process and the final land use zoning and Flood Zones are shown below in Figure 4-1.

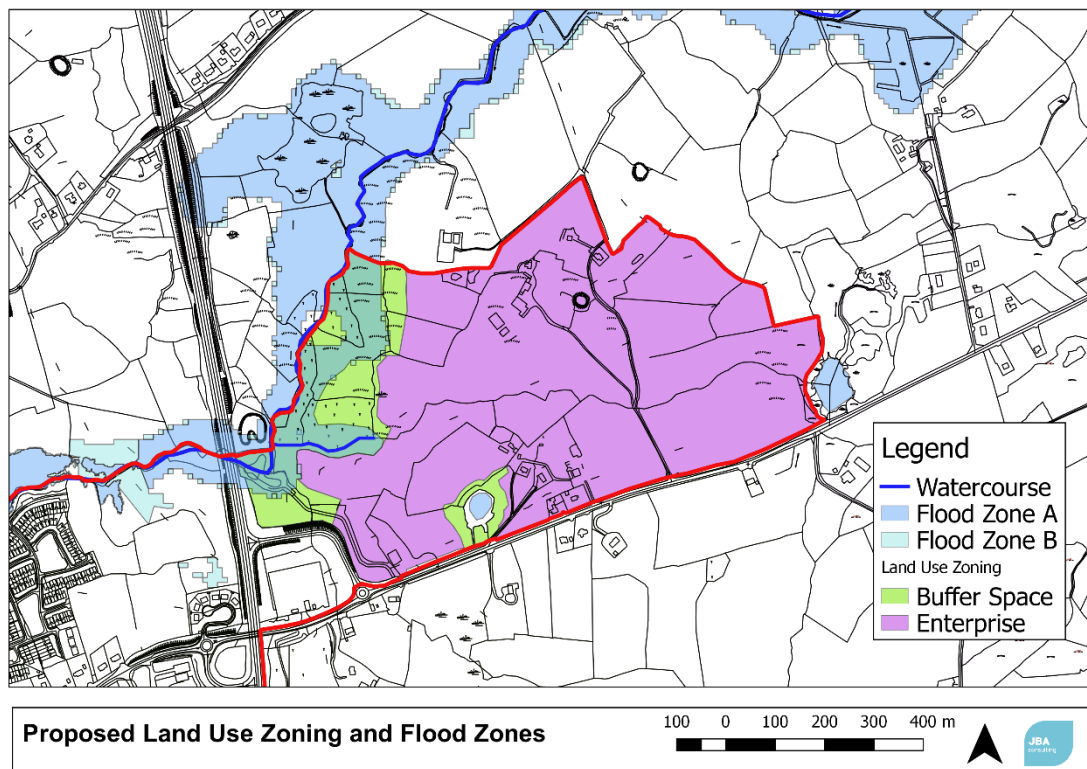


Figure 4-1: Proposed Land Use Zoning and Flood Risk.

5 Conclusion

To conclude it is our opinion that the zoning and text proposed as Variation (1) to the Clare County Development Plan 2017-2023 has taken into consideration the core objectives of the Planning System and Flood Risk Management Guidelines.

The proposed lands have been assessed at site specific level and the potential flood hazard has been used in the application of the sequential approach as part of the strategic assessment of risk. The approach preferentially avoids zoning land at high probability of flooding for any vulnerable development types. All ENT3 lands are appropriately located in Flood Zone C (low probability of flooding), buffer space is incorporated in Flood Zone A/B (high/moderate probability of flooding) to ensure risk is appropriately managed.

CLARE COUNTY
DEVELOPMENT PLAN

2017
2023



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