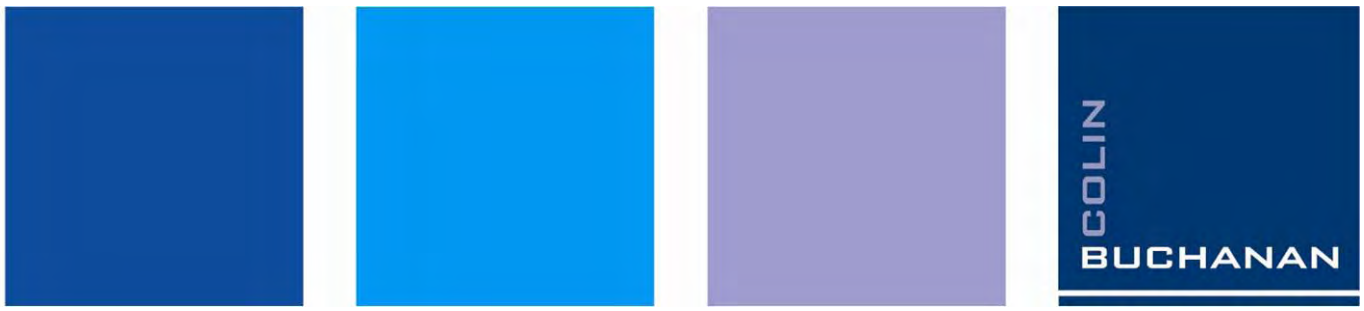

Callan Local Area Plan

Callan Local Area Plan - Environmental Report

Kilkenny County Council

July 2008

Callan Local Area Plan

Callan Local Area Plan - Environmental Report

Project No: 137941
July 2008

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1. Non-technical Summary

1.1.1 This is the non technical summary of the SEA Environmental Report associated with the Draft Callan Local Area Plan (the Plan). The purpose of the summary is to ensure that key issues and findings of the Environmental Report are readily understood by decision makers and the general public.

1.1.2 The purpose of the Strategic Environmental Assessment (SEA) is to provide a qualitative appraisal of the environmental effects of the Draft plan, add to the transparency of the process involved in selecting the preferred plan strategy as well as improving the sustainability of decisions taken.

SEA Process so far

1.1.3 This Environmental Report is the second output from the SEA process which is running in parallel with the preparation of the Plan. The previous stage of the SEA, included the preparation of a **Scoping Report** which, identified key environmental issues in the town, and, as required by the Directive, was subject to consultation with statutory consultees.

1.1.4 The **Environmental Report** sets out the likely significant effects of the plan with a view to influencing the choice of strategy and setting out any mitigation measures needed to offset potential adverse effects. It is central to the SEA process and should be read along side the Draft Plan as it forms part of the plan documentation. As well as inviting members of the public to comment on the draft Plan, comments are also welcome on the Environmental Report.

Next Steps

1.1.5 Should the Kilkenny County Council decide to further amend the Draft Plan, the Environmental Report will be amended to reflect these changes and set out the likely significant effects on the environment of implementing the proposed amendment. The proposed amendment and associated Environmental Report will then be made available for further inspection for a period of 4 weeks.

1.1.6 Following the making or amendment of the Plan, a **SEA Statement** will be prepared which summarises how the environmental considerations have been integrated into the plan.

How the plan is assessed

1.1.7 The Directive requires the consideration of reasonable alternatives taking into account the objectives and geographical scope of the plan and the significant environmental effects of the alternatives selected.

1.1.8 In order to assess the effects of alternatives and the selected strategy an appraisal framework, which is a set of environmental objectives against which the plan options can be systematically assessed, was developed with reference to environmental issues facing the town and due consideration of comments submitted by the statutory consultees.

Environmental Issues

1.1.9 Callan is currently facing a number of environmental issues. These include:

- Poor river water quality - rivers water bodies can be described as being at significant risk of failing to meet good status by 2015.

- The presence of regionally important aquifer and the prevalence of high groundwater vulnerability
- The replacement of natural and semi-natural habitats and loss of soil resulting from development on Greenfield sites
- A higher reliance on private transport with subsequent impacts on air quality and emissions
- The presence of areas liable to flooding
- Limited waste water treatment capacity
- Lack of additional capacity exists in terms of water supplies,
- Possible impacts on areas of archaeological potential, structures on the record of protected structures and national inventory of architectural heritage
- Relatively high levels of social deprivation
- The presence of designated biodiversity sites which may be sensitive to impacts of future development

The Plan Alternatives

1.1.10 The SEA considered three alternative options for the development of Callan for the next six year period. The three options considered are:

- **Alternative 1:** Development within the existing town boundary and continuation of existing policies with no new strategies or measures. Consideration of this option (do nothing) satisfies the SEA Directive (Annex I (b) of the Directive);
- **Alternative 2:** Development outside the town boundary to the west of the town representing a high level of growth for the town with no demand restraint as to the level or location of new zoning.
- **Alternative 3:** Changes to some zoning designations within the town centre and expansion of the town boundary to the south of the town.

Comparison of Alternatives

1.1.11 The environmental effects associated with Alternative 1 would reinforce the existing trends with environment issues facing the environment likely to worsen. Without consideration of more detailed policies and controls that would potentially be associated with all development scenarios, the significance of the environmental effects concerning these issues is more likely as quantum of development increases. Alternative 2 which proposes the highest quantity of new development is least favourable. Alternative 1 which providing for the least amount of additional zoning is the least damaging outcome however does not provide for the needs with respect to the growing population. Alternative 3 proposes some additional zoning that reflects the reasonable development requirements of the town during the Plan period.

Emergence of a Preferred Plan Strategy

1.1.12 Alternative 3 would be the most appropriate alternative for the plan and is the preferred strategy. Whilst this strategy proposes some additional zoning, it is based on the needs generated by population growth within the town over the next six years.

Appraisal of the Preferred Plan Strategy

1.1.13 The preferred Strategy was assessed in more detail against the environmental objectives. A cumulative effect[1] assessment was also undertaken and mitigation measures suggested as to how the plan might be improved.

1.1.14 The significant effects of the preferred strategy and policies include:

- Reduction in water quality (this will depend on the provision of additional waste water treatment facilities);
- Inadequate capacity of drinking water capacity which may constrain new development;
- Development on Greenfield sites may result in the loss of soil and the replacement of natural and semi-natural habitats with artificial surfaces;
- Where development is in close proximity to the Kings River or within areas known to be prone to flooding, it may result in increased flood risk, subsequent damage to material assets and impact on designated biodiversity sites;
- Potential to impact on the quality of groundwater due high levels of groundwater vulnerability
- A higher reliance on private transport with subsequent impacts on air quality and emissions;
- Impacts on cultural heritage with reference to the area of archaeological potential, structures recorded on the record of protected structures, national inventory of architectural development and national monuments;
- Continued dereliction in areas of the town centre contributing to underuse of historic buildings.
- Depending on the height and form of new buildings, a negative impact on townscape quality and cultural heritage.

Recommendations / Proposed Mitigation Measures

1.1.15 The appraisal resulted in a number of proposed mitigation measures with respect to the above effects. It is considered that the performance of the preferred plan strategy and policies will be enhanced through the implementation of a range of mitigation measures.

Biodiversity, Fauna and Flora

- Incorporate a riverside buffer zone that limits development in close proximity to the Kings River
- Require the preservation of hedgerows within new development
- Avoid development on and establish a buffer around designated ecological sites, the size of which will be dependent on local ecological and drainage conditions established through appropriate assessment.

Material Assets

- Applications for development within or adjacent to a Site on the Sites and Monument Register or the zone of archaeological potential should submit an archaeological assessment detailing the impacts which the relevant development would have on archaeology in the area.
- Development on the floodplain should be restricted

[1] Cumulative effects have been defined as 'the net result of environmental impact from a number of projects and activities' Sadler (1996)

Cultural Heritage

- Include policies to ensure that new development has a minimal impact on protected structures, important archaeological features, and structures on the national inventory of architectural heritage
- Development in or close to the high street and particularly for buildings that may be visually prominent should require visual impact assessments
- Secure preservation of any sites and features of historical and archaeological interest through necessary measures to preserve items in situ or by record

Landscape

- Appropriate screening and planting should be incorporated on visually prominent sites
- Reduce or minimise light pollution through appropriate design solutions e.g. full cut off lighting
- Development to be restricted on the floodplain
- New pedestrian/cycle bridge infrastructure should consider the need for project level Appropriate Assessment in order to avoid impacts on designated biodiversity sites.

Water and Soil

- Ensure that adequate capacity in the waste water treatment plant is available to serve all new development
- Ensure that adequate capacity in water supply is available to serve new development
- Focus development where possible initially on brownfield land
- To encourage the reuse soils generated from housing and other development
- Attenuation measures to reduce level of surface water discharge into the main watercourses.

Population and Human Health

- The Plan identify measures to support sustainable forms of transport;
- The Plan should actively encourage the take up of Travel Plans for new educational and employment sites
- The Plan should seek to improve accessibility to employment, education, healthcare, food retailing and to a range of housing types and community and recreation facilities

Air

- Speed restrictions in the town centre could have beneficial effects in certain locations as slower speeds conserve fuel and increase fuel efficiency, thereby minimising emissions

Climatic Factors

- Promoting sustainable modes of travel
- Encourage use of sustainable design and construction methods

Monitoring

1.1.16 Monitoring is a fundamental part of the SEA process and the Environmental Report contains a set of performance indicators and targets that will be used by the Council to monitor the progress in delivering environmental objectives.

2. Introduction

2.1 Background

2.1.1 In October 2007, Colin Buchanan (CB) was appointed to prepare the Local Area Plan (LAP) for the town of Callan which will replace the existing LAP prepared as part of the Kilkenny County Development Plan in 2002. The Local Area Plan has been developed to reflect the emerging County Development Plan, due for adoption in June 2008. The purpose of the LAP will be to manage growth and development of the town over a six year plan period to 2014 and will comprise the statutory land use plan for the town providing for the proper planning and sustainable development of the area in accordance with the Planning and Development Act 2000.

2.1.2 CB, on behalf on the Kilkenny County Council was also requested to produce an Environmental Report in compliance with the SEA Directive (2001/42/EC) and related government guidelines to accompany the Draft LAP. This document is Environmental Report associated with the Draft Callan Local Area Plan.

2.2 Strategic Environmental Assessment

2.2.1 The purpose of Strategic Environmental Assessment (SEA) is to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes with a view to promoting sustainable development, by ensuring that, in accordance with this Directive, an environmental assessment is carried out for certain plans and programmes which are likely to have significant effect on the environment.

2.3 Purpose of the Environmental Report

2.3.1 The primary purpose of the SEA is to set out the likely significant effects of the plan with a view to influencing the choice of strategy and setting out any mitigation measures needed to offset potential adverse effects. The Environmental Report is central to the SEA process, forms part of the plan documentation and should be read along side the Draft Callan Local Area Plan which is currently on display. As well as inviting members of the public to comment on the draft LAP, comments are also welcome on the environmental report.

Next Stages

2.3.2 Should the planning authority decide to further amend the draft local area plan, the environmental report will be amended to reflect these changes and set out the likely significant effects on the environment of implementing the proposed variation or modification. The proposed amendment and associated environmental report will then be made available for further inspection for a period of 4 weeks.

2.3.3 Following the making or amendment of the local area plan, a statement will be prepared which summarises

- how the environmental considerations have been integrated into the plan
- how the environmental report and the outcome of consultations were taken into account

- the reasons for choosing the plan or amendment as adopted in light of other reasonable alternatives dealt with
- The measures decided upon to monitor, in accordance with Art 14J, the significant environmental effects of the implementation of the plan or amended plan.

2.4 Habitats Regulations Assessment / Appropriate Assessment

2.4.1 The main aim of the Habitats Directive is to promote biodiversity by defining a common framework for the conservation of wild plants and animals and habitats of community interest. Member States are obliged to take measures to maintain or restore natural habitats and wild species at a favourable conservation status, introducing robust protection for those habitats and species of European importance.

2.4.2 A recent European Court of Justice Ruling against Ireland (Case 418/04 EC Commission v Ireland) relates to Ireland's transposition and implementation of the Birds Directive 79/409/EEC, as well as its implementation of relevant articles of the Habitats Directive 92/43/EEC.

2.4.3 A DOEHLG circular letter, SEA 1/08 & NPWS 1/08 (dated 15/02/08), refers to the implications of this ruling and sets out the requirement for any draft land use plan (or amendment/variation) to be screened for any potential impacts on areas designated as Natura 2000 sites[2]. If as a result of this screening significant effects are deemed likely, an appropriate assessment of the ecological implications of any plan or project, whether within or outside a designated site, will also be required.

2.5 Relationship with Strategic Environmental Assessment

2.5.1 There are clear parallels between Appropriate Assessment and SEA since both are processes for assessing and minimising the environmental and sustainability impacts of plans. The SEA Directive and the corresponding guidance *'Implementation of the SEA Directive (2001/42/EC): Assessment of the effects of certain plans and programmes on the environment' Guidelines for Regional Authorities and Planning Authorities (DoEHLG, 2004)* make explicit links between SEA and AA. For example, the Environmental Report prepared for the assessment under the SEA Directive must discuss 'any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Council Directive 79/409/EEC on the conservation of wild birds [the 'Birds Directive'] and the Habitats Directive'.

2.5.2 Despite similarities there are also significant differences between AA and SEA in terms of emphasis, level of detail, and skills required. In particular, the Habitats Directive applies the precautionary principle[3] to protected areas; plans

[2] "Natura 2000" sites comprises special areas of conservation (SAC) designated by Member States in accordance with the provisions of the Directive, and special protection areas (SPA) classified pursuant to Directive 79/409/EEC on the conservation of wild birds (the 'Birds Directive').

[3] The precautionary principle means that authorities should act prudently to avoid the possibility of irreversible environmental damage in situations where the scientific evidence is inconclusive but the potential damage could be significant.

and projects can only be permitted having ascertained that there will be no adverse effect on the integrity of the site(s) in question. This is in stark contrast to the SEA Directive which does not prescribe how plan or programme proponents should respond to the findings of an environmental assessment; it simply says that the assessment findings (as documented in the 'environmental report') should be 'taken into account' during the preparation of the plan or programme.

2.6 The LAP Preparation Process

2.6.1 The emphasis of the SEA is on complete integration between the preparation of the environmental report and the draft plan. Article 1 of the SEA Directive states

'the objective of this directive is to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans and programmes'

2.6.2 The Local Area Plan is a statutory process and comprise the following stages:

- **The pre draft stage** comprised of collating background information, the preparation and publication of an Issues Paper, stakeholder consultation, a public consultation event and pre draft submissions were invited from 17th December 2007 – 7th February 2008.
- **The preparation of the draft LAP** including policies and objectives resulted from extensive research, site survey work and consideration of issues arising from the public and stakeholder consultation. The Draft LAP was then presented to Elected Members prior to public display.

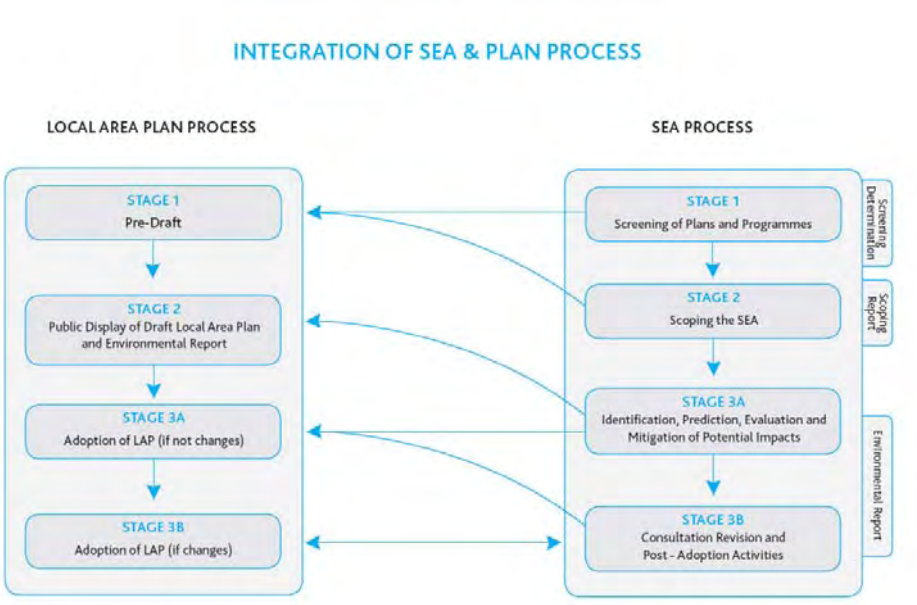

Figure 2.1: Integration with the plan making process

- The **Public Display of Draft LAP** and this **Environmental Report** is now underway for a period of 6 weeks from July 2008 during which submissions or observations will be invited from the public. No later that 12 weeks after the Draft plan has been put on public display a Managers Report on the submissions or observations received will be produced. This report will list the persons who made submissions or observations, summarise the issues raised and will be presented to elected members. Elected Members will then vote to make or amend the plan according to the recommendations within the Managers report.

- If required, amendments will be made to the content of the Local Area Plan and it will be presented as an **amended Draft** to the Elected Members for their approval and put on public display along with the

Environmental Report of the significant effects of the amendments for a period of 4 weeks during which time submissions or observations will be invited from the public on the amendments to Draft LAP.

- **Adoption of the Local Area Plan** is the final stage of the plan process and will include the preparation and presentation of a Manager's report on observations so that they may vote to make or amend the Plan and completion of an SEA Statement.

2.7 Interaction of LAP with higher level plans

2.7.1 The Local Area Plan is being prepared under the provisions of the Planning and Development Act 2000-2006 and will form part of the statutory planning framework. The LAP is situated at the lowest level of the planning hierarchy and does not influence subsequent plans, with the exception of non statutory masterplanning exercises that may be required during the plan period.

2.7.2 The hierarchy of land-use plans, central to plan making process, means that certain strategic issues in the Plan may already have been determined at national, regional and County level. It is therefore appropriate for the level of detail to vary according to the scale of the plan and the position of Local Area Plans within the hierarchy means that a greater level of detail is normally required.

2.7.3 Once adopted, the Kilkenny Draft County Development Plan 2008 -2014 will be the overarching policy document for all areas within the county's administrative boundary and sets out the objectives and policies of Kilkenny County Council. The LAP is required to be consistent with the objectives of this plan.

3. SEA Methodology

3.1 Introduction

3.1.1 The SEA methodology reflects the requirements of the SEA Directive and Irish SEA Regulations and follows a set process.

3.2 SEA Process

3.2.1 The SEA process comprises the following stages:

- Stage 1: Screening of Plans and Programmes
- Stage 2: Scoping the SEA
- Stage 3: Identification, Prediction, Evaluation and Mitigation of Potential Impacts
- Stage 4: Consultation, Revision and Post-Adoption Activities.

Stage 1 - Screening of Plans and Programmes

3.2.2 A screening exercise was completed in March 2008, which determined that the completion of a Strategic Environmental Assessment was appropriate. This exercise was undertaken using the Schedule 2A - 'Environmental Significance Screening Criteria' and highlighted a number of existing environmental issues relevant to the Callan Local Area Plan. It also triggered a number of the environmental significance criteria, particularly in relation to its close proximity to a Special Area of Conservation.

3.2.3 A copy of this decision was made available for public inspection at Kilkenny County Council, County Hall, John Street, Co Kilkenny and the relevant environmental authorities (EPA and DoEHLG) were notified.

3.2.4 In accordance with the regulations, where significant effect on the environment are likely, prior to giving notice under section 20(3) of the Act, an environmental report of the likely significant effects on the environment of implementing the Local Area Plan should be prepared.

Stage 2 – Scoping the SEA

3.2.5 Prior to producing this Environmental Report, a scoping report was completed and consultation with statutory consultees undertaken. The purpose of scoping stage is to develop an understanding of the environmental media that may be affected provide information on sensitivities, constraints and threats in relation to the receiving environment to and to set a framework for identifying and evaluating the impact of the LAP. It determines the key elements of the Local Area Plan to be assessed and pinpoints the key issues that the Environmental Report should focus on.

3.2.6 The production of a scoping report is not a formal requirement of SEA Directive but is recommended as good practice. It was issued prior to the production of the Draft LAP and informs stakeholders about the key environmental issues, the key elements of the LAP and alternatives within the LAP. However, the central purpose of the report is to provide a basis for consultation with statutory and non statutory consultees. Scoping consultation took place over a four week period between 16th May – 16th June. Responses were received from

3.2.7 CB / Kilkenny County Council consulted with the following statutory consultees during the screening and scoping stages of the SEA process:

- Tadhg O'Mahony, Environmental Protection Agency, Regional Inspectorate, Inniscarra, Co. Cork.
- The Manager, Development Applications Unit, Department of the Environment, Heritage & Local Government, Dun Sceine, Harcourt Lane, Dublin 2.
- Dearbhala Ledwidge, Heritage Officer, Kilkenny County Council

Stage 3 - Environmental Report

3.2.8 The Scoping Report has now been followed by the production of an Environmental Report which is on public display with the Draft Plan. For a period of six weeks. The Environmental Report includes the identification, prediction, evaluation and mitigation of potential impacts of the proposed strategy.

Assessment Methods (Including Difficulties)

3.2.9 The preferred plan strategy sets out specific development objectives, which are subject to assessment in the context of each of the environmental protection objectives. An assessment has also been carried out on the detailed policies which flow from the strategic objectives. This has been completed through the use of matrices which assesses LAP Policies against SEA Objectives. Potential effects have been categorised as

- Significant beneficial impact
- Uncertain impact
- Significant adverse impact
- No relationship, or insignificant impact

3.2.10 These matrices are set out in Chapter **Error! Reference source not found.** and also include a column headed comments which indicate

- Mitigation measures, change to the wording of the development objective is required
- Assumptions used in making judgements on the significance of effects

3.2.11 The assessment has been informed by the baseline information and associated GIS mapping which has highlighted areas of vulnerability. GIS has also been useful in identifying where cumulative impacts may occur as the result of a plan. Conclusion resulting from these matrices have been set out in the Non Technical Summary.

Significant Effects

3.2.12 Significance have been assessed in terms of the type (secondary, cumulative, synergistic, short, medium and long-term, permanent and temporary, positive and negative effects) and scale (local / regional national) of development envisaged by the plan and the sensitivity of the receiving environment. Detailed information on the type and scale of the effect have informed conclusions as to whether the effect envisaged is considered to be ‘significant’ or ‘insignificant’.

Cumulative Effects

3.2.13 Cumulative effects arise where several developments each have insignificant effects but together have a significant effect; or where several individual effects of a Local Area Plan (e.g. noise, dust and visual) have a combined effect. Examples of cumulative, secondary and synergistic effects include loss of

tranquility, changes in the landscape, economic decline and climate change. These effects are very hard to deal with on a project-by-project basis through EIA. It is at the SEA level that they are most effectively identified and addressed.

3.2.14 Assessment of cumulative effects should

- Focus on identifying the total effect of both direct and indirect effects on receptors. Receptors may include natural resources (e.g. air, water, soil), sections of the population (e.g. people living in particular areas or vulnerable members of the community) or ecosystems and species (e.g. heathland);
- be considered in relation to the nature and extent of the receptors, such as ecosystems and communities, rather than administrative boundaries;
- to be considered in relation to effects of policies within a plan and those which may result from interaction with the effects of other plans and programmes; and
- To take account of how close the plan, in association with other past, present and likely future actions, will bring the receptors to their capacity/threshold to remain productive or sustainable.

Difficulties encountered

3.2.15 The SEA Directive also requires that difficulties in assessment should be acknowledged so that decision-makers, the environmental authorities and the general public are made aware of such difficulties.

3.2.16 Difficulties identified during the collection of baseline data and the subsequent assessment of environmental effects includes:

- Gaps in information
- Lack of availability of information

3.2.17 Chapter **Error! Reference source not found.** further outlines specific difficulties encountered with data collection in relation to each environmental receptor.

Stage 4 Consultation, Revision and Post-Adoption Activities.

3.2.18 Should the planning authority decide to further amend the draft local area plan, the environmental report will be amended to reflect these changes and set out the likely significant effects on the environment of implementing the proposed variation or modification. The proposed amendment and associated environmental report will then be made available for further inspection for a period of 4 weeks.

3.2.19 Following the making or amendment of the local area plan, a **SEA statement** will be prepared which summarises

- how the environmental considerations have been integrated into the plan
- how the environmental report how submissions and observations made to the planning authority have been taken account during the preparation of the amended plan,
- the reasons for choosing the plan or amendment as adopted in light of other reasonable alternatives dealt with
- The measures decided upon to monitor, in accordance with Art 14J, the significant environmental effects of the of implementation of the plan or amended plan.

4. Contents and Objectives of the Local Area Plan

4.1 Introduction

4.1.1 Callan is district town located in County Kilkenny of approximately 2,303 (2008 estimate) people and is located 10 miles south-west of Kilkenny City, 15 miles from Carrick on Suir, 17 miles from Clonmel and 35 miles from Waterford City.

4.1.2 In the most recent Census in 2006, Callan's population was recorded as 1,771 representing 33% growth in the town since 2002. The town has a rich historical environment and acts as an attractive market and service centre for the surrounding area.

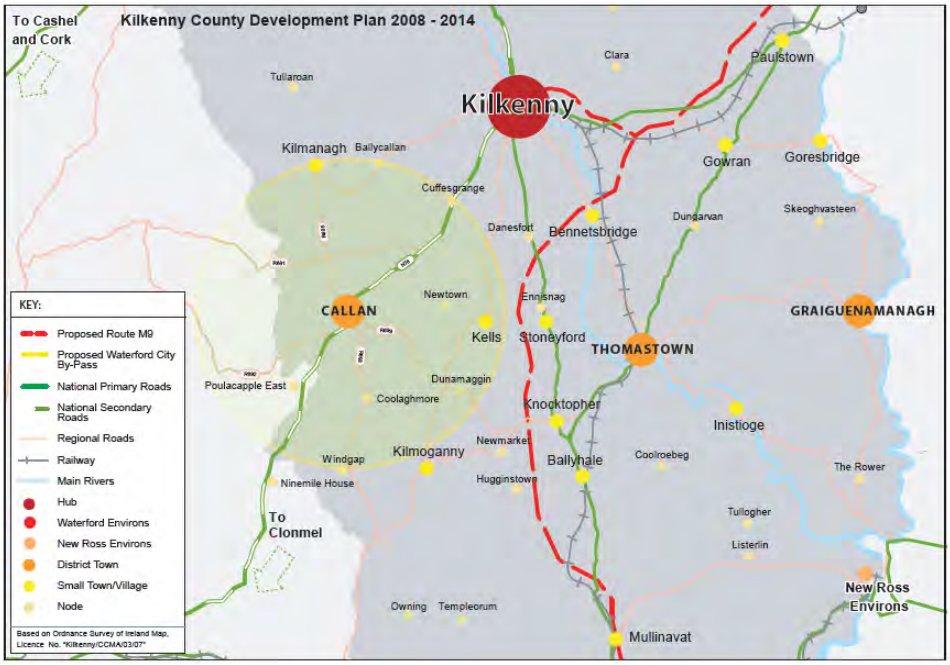

Figure 4.1: Kilkenny County Development Plan, Development Strategy

4.2 The purpose of the Callan Local Area Plan

4.2.1 The Callan Plan provides a written statement of development policy and objectives to manage the development and growth of Callan over a six year plan period. The Plan will replace the existing LAP which was adopted in 2002 and will manage the growth and development of the town for six years from the date of its adoption by the Council, or until the plan is varied or a new plan is made.

4.2.2 The Plan has been prepared in accordance with the requirements of the Planning and Development Act 2000 (as Amended 2002 and 2006) to set out an overall strategy for the proper planning and sustainable development of the Callan town. The purpose of the Plan is to set out the overall strategy for the proper planning and sustainable development of Callan town and to comprise the statutory land use plan for the town in the promotion and regulation of development. In doing so it provides a clear vision for Callan, providing for the needs of the existing and future population.

4.2.3 Local area plans also have a key role in translating overarching County development plan policies and objectives at the local level.

Content of the Draft Plan

4.2.4 The development of a vision, plan objectives and development strategy for future of Callan have been developed to reflects the unique characteristics and issues facing the town in addition to the policy context set at national, regional and county level. **Figure 4.2** sets out the development boundary for the 2008 – 2014 Plan. This has led to a subsequent review of existing zoning and policies

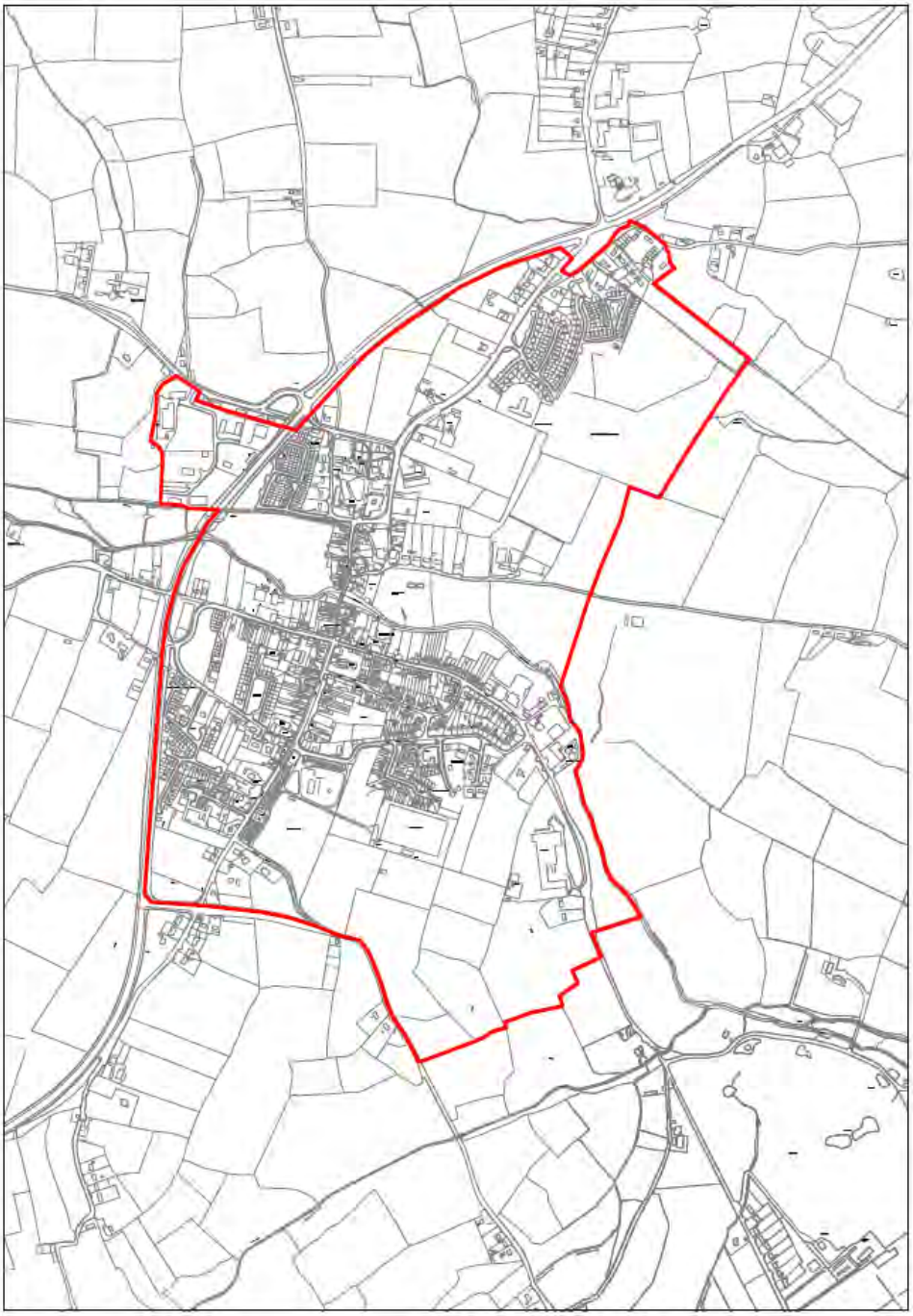

Figure 4.2: Callan Development Boundary

Plan Objectives

4.2.5 The following Plan objectives have been generated through analysis and reflection of the general and strategic context of the study area. The plan objectives provide the framework for the future development of Callan:

1. To support town centre vitality and viability by highlighting a number of opportunity sites for retail development in the town centre;
2. To provide high quality new residential areas with good quality connections to open spaces and community and retail facilities;

3. To address deficits with respect to retail facilities;
4. To protect and enhance the character and integrity of existing natural and historic built environments;
5. To facilitate sustainable economic development;
6. To improve linkages within the town; and
7. Support the re use of land and buildings, particularly though backland development Vision

4.2.6 The Draft Callan Local Area Plan includes the following vision for the town in 2020:

> "By 2020, Callan will be a vibrant town of between 3,000 and 5,000 persons supported by a growth in retail services, jobs, tourism and community facilities. Connections within the town will be improved though the additional road infrastructure to the south east and improvements to pedestrian and cycle links. Additional retail development and associated town centre improvements have improved vitality of the town and helped to regenerate a number of properties on Bridge Street. A phased and masterplanned approach to newly developed areas at Cannafahy and Bolton has helped to match demand for new housing and employment development with supply and create sustainable areas of high quality urban design which reflects and respects the existing character of the built and natural environment."

Zoning Objectives

4.2.7 The Plan has considered the requirements for a range of land uses in the town including residential, industrial, open space, community facilities and general business that reflects the projected population growth in the town. **Table 4.1** shows the proposed zonings in the 2008 – 2014 against the previous plan.

Table 4.1: Current and Proposed Zonings

	Current	Proposed	Remaining Capacity (proposed zoning)
Residential	103.19	101.21	34.29 (ex. capacity in mixed use areas)
Industrial	30.22	24.20	12.55
Open Space	14.68	12.60	-
General Business	11.23	13.03	3.79
Community	12.94	14.31	-
Agricultural	1.38	16.8	
Mixed Use	0	7.69	7.69
Total	**176.33**	**187.85**	

5. Relationship of the Local Area Plan with other relevant plans and programmes

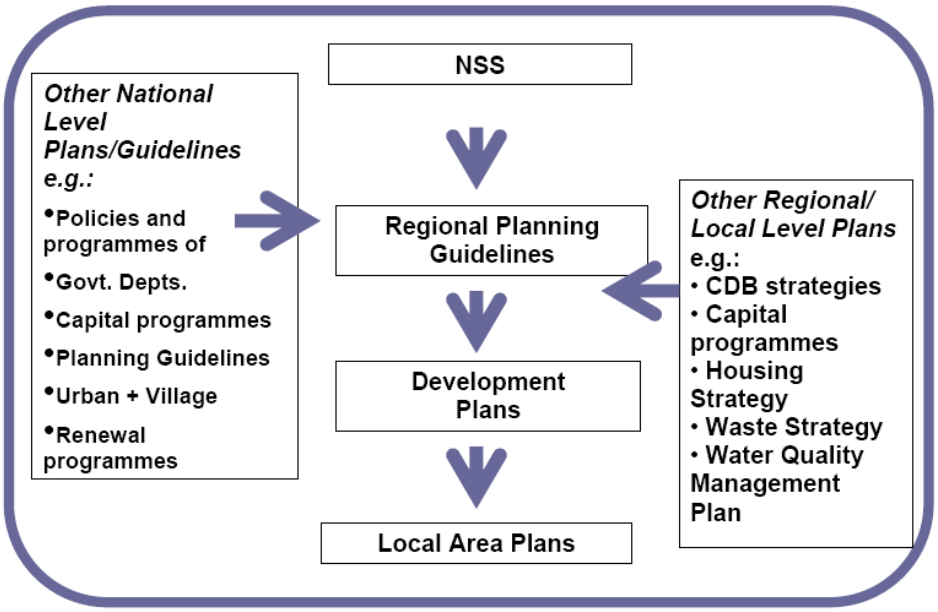

Figure 5.1: Links with other plans in the hierarchy

5.1 International

5.1.1 **Agenda 21 (1992)** was the main product of the UN Conference on Environment and Development held in Rio de Janeiro in 1992, which endorsed the concept of sustainable development. This required, inter alia, that environmental protection should constitute an integral part of the development process; the precautionary approach should be applied; that public access to environmental information and participation in decision-making should be facilitated; and that EIA should be undertaken for activities likely to have a significant environmental impact.

5.1.2 **Kyoto Protocol (1997)** commits the developed world to begin taking real action to combat climate change. Industrialised countries have agreed legally binding targets to reduce their combined greenhouse gas emissions by at least 5% (compared to 1990 levels) by 2012.

5.1.3 **UN Convention on Biological Diversity (1992)** ratified in Ireland in 1996 and resulted in the preparation of the National Biodiversity Plan to reflect its requirements.

5.2 European

5.2.1 **EU Habitats Directive (92/43/EEC)** transposed into Irish law by the EU (Natural Habitats) Regulations 1997 (S.I. No. 94 of 1997). The Directive lists certain habitats and species that must be given protection in Special Areas of Conservation (SACs). Irish habitats include raised bogs, active blanket bogs, turloughs, sand dunes, machair (flat sandy plains on the north and west coasts), heaths, lakes, rivers, woodlands, estuaries and sea inlets.

5.2.2 **EU Birds Directive (79/409/EEC)** transposed into Irish law through the EU (Natural Habitats) Regulations 1997 (S.I. No. 94 of 1997), requires the designation of Special Protection Areas (SPAs) for: (a) listed rare and vulnerable species (b) regularly occurring migratory species (such as ducks and geese) (c) wetlands, especially those of international importance, which attract large numbers of migratory birds each year.

5.2.3 SACs and SPAs collectively form part of "Natura 2000," a network of protected areas throughout the EU.

5.2.4 **EU Water Framework Directive (2000/60/EC)** aims to prevent any deterioration in the status of any waters and to achieve at least "good status" in all waters by 2015. The Directive as transposed into Irish law requires the production of River Basin Management Plans, including environmental objectives and a programme of measures to meet those objectives, with respect to each River Basin District.

5.2.5 **EU Urban Waste Water Treatment Directive (91/271/EEC)** sets target dates for the provision of specified levels of waste water collection and treatment facilities to specified sizes of agglomeration.

5.2.6 **EU Nitrates Directive (91/676/EEC)** requires an action programme with binding measures to protect waters against pollution by nitrates.

5.2.7 **European Convention on the Protection of the Archaeological Heritage (1992)** establishes standards for the protection of the archaeological heritage. The Convention, which was ratified by Ireland in 1997, requires that appropriate consideration be given to archaeological issues at all stages of the planning and development process.

5.2.8 **Granada Convention for the protection of the Architectural Heritage of Europe (1985):** was ratified by Ireland in 1997, established common principles and obligations regarding identification of properties and the implementation of statutory protection procedures (such as those in Part IV of the 2000 Planning Act).

5.2.9 **European Landscape Convention (2000)** ratified by Ireland in 2002, encourages public authorities to adopt policies at local, national and international level to protect and manage landscapes throughout Europe.

5.2.10 **Directive 2007/60/EC on the assessment and management of flood risks** requires the management and reduction of the risk of floods, particularly along rivers and in coastal areas. It provides for assessment of the risk of flooding in river basins, the mapping of flood risks in all regions where there is a serious risk of flooding and the drawing up of flood risk management plans based on close cooperation between and the broad participation of Member States.

5.2.11 The Directive aims to establish a common framework for assessing and reducing the risk that floods within the European Union pose to human health, the environment, property and economic activity. The proposed prevention and management measures are organised by river basin districts (which may cover several river basins), as established by the Water Framework Directive . The measures include the preliminary assessment of risks and the establishment of maps of areas at risk and flood management plans.

5.2.12 Member States are required to carry a preliminary assessment of risks for each river basin district or part of a district located in their territory by 22 December 2011 at the latest. This includes gathering information on the boundaries of river

basins in the district concerned, floods that have occurred in the past, the likelihood of future floods and the estimated consequences.

5.2.13 Member States must draw up maps identifying all areas posing a risk of flooding and indicating the probability (high, medium or low) of flooding for each of those areas and the potential damage for local populations, property and the environment by 2013. Flood risk management plans will be prepared for each river basin district by 2015 and will focus on reducing the probability of flooding and the potential consequences of flooding.

5.3 National

5.3.1 **The National Spatial Strategy (2002)** is based on the principles of sustainable development, and includes policies on environmental quality.

5.3.2 **Sustainable Development: A Strategy for Ireland (1997)** compiles of sectoral objectives, many of which are of potential relevance to land-use planning.

5.3.3 **Making Ireland's Development Sustainable: A review** of Ireland's 1997 Strategy for Sustainable Development and was published in advance of the World Summit on Sustainable Development in Johannesburg in 2002.

5.3.4 **National Climate Change Strategy (2007-2012) -** Some of the principal measures outlined in this Strategy relate to:

- 15% of electricity to be generated from renewable sources by 2010 and 33% by 2020
- Support for Combined Heat and Power projects
- Bioheat and CHP programmes
- Biomass heating in schools
- Adaptation to climate change including flood risk

5.3.5 Adaptation as well as mitigation reducing green house gas emissions is a key element of the policy response to climate change with the objective of reducing vulnerability to climate change, thereby reducing its negative impacts.

5.3.6 Climate change-associated trends as evident in the meteorological and ecological records include

- increasing average temperature;
- Changes in rainfall patterns and a lengthening of the growing season.

5.3.7 The strategy highlights Local Authorities power to consider adaptation initiatives in relation to their development plans. The Planning and Development Act 2000, empowers planning authorities to provide, in their development plans, that development in areas at risk of flooding may be regulated, restricted or controlled. If development is proposed in a flood-risk area, the risk of flooding can be carefully evaluated and planning permission refused, if necessary. As part of a comprehensive policy position on climate change, the Government is committed to developing a national adaptation strategy over the next two years.

5.3.8 More recently, in Jan 2008, a 20 per cent emissions' reduction target has been set by the European Commission.

5.3.9 **National Biodiversity Plan (2002)** was prepared in response to the UN Convention on Biological Diversity, covers the three levels at which biodiversity may be considered, namely ecosystem diversity, species diversity and genetic diversity. The overall objective is to secure the conservation, including where possible the enhancement, and sustainable use of biological diversity in Ireland and to contribute to conservation and sustainable use of biodiversity globally.

5.3.10 **National Heritage Plan (2002):** Relates to heritage generally and forms the basis of a coordinated strategic approach to the protection and management of heritage up to 2007.

5.3.11 **Framework and Principles for the Protection of the Archaeological Heritage (1999)** seeks to ensure compliance with the 1992 European Convention on the Protection of the Archaeological Heritage by setting out the archaeological policies and principles which all public bodies should apply when undertaking or authorising development.

5.3.12 **National Development Plan 2007 – 2013 Transforming Ireland: A Better Quality of Life for All** focuses investment over the life of the plan's strategy on the following strategic policy goals. Specifically:

- Regional Development;
- Rural Economy;
- All-Island Co-operation;
- Environmental Sustainability; and
- Social Inclusion.

5.3.13 For the purposes of Regional Development, the NDP seeks to assist and enhance physical and spatial planning and ensure that future spatial development is structured in a manner that is internationally competitive, socially cohesive and environmentally sustainable. To achieve this investment will support five key areas:

- More efficient Greater Dublin Area
- Strong Gateways in other Regions
- Hubs
- County and other town structure
- Vibrant and diversified rural areas

5.3.14 **Managing Ireland's Rivers and Lakes: A Catchment-Based Strategy Against Pollution (1997):** This document sets out a strategy to protect water quality against pollution by phosphorus from all sources.

5.3.15 **Report of the Flood Policy Review Group (OPW, 2007)** includes a number of key recommendations with respect to national flood policy and compliance with Directive 2007/60/EC on the assessment and management of flood risks (see above). The recommendations of the review groups include:

- Future policy should seek to minimise the national level of exposure to flood damages through the identification and management of existing, and particularly potential future, flood risks in an integrated, proactive and river basin based manner;
- The Office of Public Works is to be the lead agency in delivering this policy;
- The production of River Basin Flood Risk Management Plans (RBFRMPs);
- The production of ill play an advisory role in the area of general planning and development control through the development of standards and guidelines in conjunction with DoEHLG and local authorities for inclusion in Development Plans.
- Comprehensive Flood Hazard Maps be developed and made available.

5.4 Department of Environment, Heritage and Local Government: Guidelines for Planning Authorities

5.4.1 **Development Plans Guidelines for Planning Authorities (2007)** have a number of key messages to have regard to the preparation of Development Plans. These include the requirement for development plans to:

- Anticipate future needs on an objective basis:
- Protect the environment and heritage:
- Provide a framework within which sustainable development can be
- achieved:
- Be consistent between plans and strategies at different levels:
- Address diverse community needs
- Engage the community and engender ownership from key stakeholders in order to secure effective implementation.

5.4.2 **Residential Density (1999)** encourages increased densities particularly in town and city centres, "brownfield" sites, inner suburban/infill sites, outer suburban/ "Greenfield" sites, institutional lands, and in towns and villages, subject to appropriate design criteria.

5.4.3 **Retail Planning (2000):** Policy objectives include:

- promoting forms of development which are easily accessible, particularly by public transport
- Supporting the continuing role of town and district centres.

5.4.4 **Sustainable Residential Development in Urban Areas (Feb, 2008)** sets out the key planning principles which should be reflected in development plans and local area plans in order to guide sustainable residential development in urban areas. Local planning authorities should have regard to these guidelines and recommended standards for new residential development when preparing Local Area Plans.

5.4.5 In pursuit of successful and sustainable residential development in urban areas, the guidelines outline specific qualities that places should seek to incorporate. New residential development should:

- Prioritise walking, cycling and public transport, and minimise the need to use cars;
- Deliver a quality of life in terms of amenity, safety and experience;
- Provide a good range of community and support facilities, where and when they are needed;
- Present an attractive and well maintained appearance, with a distinct sense of place and a quality public realm;
- Are easy to access and to find one's way around;
- Promote a mix of land uses to minimise transport demand;
- Promote social integration and provide accommodation for a diverse range of household types and age groups; and
- Enhance and protect the built and natural heritage.

5.4.6 The guidelines provide specific recommendations for the role of the Plan with the need to address the following issues at the beginning of the plan making process:

- The amount and type of new housing required to meet the needs of the area;
- The need to adopt a sequential approach to the zoning of residential lands extending outwards from the centre of an urban area

- The relationship and linkages between the areas to be redeveloped and the new areas including the availability of community facilities – social infrastructure
- The need to create an overall urban design framework for redevelopment areas
- The setting of appropriate density levels
- Adapting to the impacts of climate change
- The avoidance of flood risk

5.4.7 More specifically residential development small towns with a population ranging from 400 – 5,000 should be plan led and should contribute to the creation of compact urban structures with a view to increasing the levels of accessibility and making efficient use of infrastructure and services. Central to this approach will be the reuse of town centre sites and underused backland areas.

5.4.8 Scale of development is also important for smaller settlements of this size. New development should be in proportion to the size of the existing settlement with a preference for a number of smaller sites integrated within and throughout the urban centre rather than focusing on one very large site. In terms of quantum, it is generally preferable that individual residential proposals should only increase the housing stock of such urban areas by a maximum of 10% - 15% during the plan period.

6. Callan's Baseline Environment

6.1 Introduction

6.1.1 In order to assess the environmental effects of the LAP it is necessary to understand the present state of the environment (the baseline environment) of Callan. In particular, aspects of the environment that are currently experiencing plan-related problems or are likely to be significantly affected by the implementation of the LAP should be highlighted at this stage so that potential future impacts can be more accurately assessed.

6.2 Do-Nothing Scenario

6.2.1 It is important to understand how the baseline environment of Callan would change over time without the implementation of the LAP. The do-nothing scenario represents a continuation of present trends, without any policy changes or infrastructural improvements. The description of Callan's baseline environment detailed in this Chapter gives an indication of how current environmental issues may be exacerbated over time if the do-nothing scenario were implemented.

6.3 Biodiversity, Flora and Fauna

Existing Environmental Information

6.3.2 The Convention of Biological Diversity affirms the importance of conserving biological diversity or biodiversity, which refers to the variety of life within an area or as defined by the convention the '*variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems*.'

6.3.3 The terms 'Flora' and 'Fauna', respectively, refer to all aquatic and terrestrial plants that occur in the wild including lichens mosses, liverworts, fungi, algae and vascular plants and all aquatic and terrestrial wild birds and animals, in particular wild mammals, reptiles, non-aquatic invertebrate animals and amphibians, fish species and aquatic invertebrate animals that are specified in regulations under Section 23 of the Wildlife Act (1976).

6.3.4 The reduction in biodiversity is important in its own right but can also generate secondary impacts. For example, vegetation damage or removal can lead to:

- Loss of visual and noise barriers, decline in landscape character and the context of amenity areas, heritage sites and buildings
- Loss of slope and soil stability and enhanced runoff with consequent impacts such as flood hazard and riverine sedimentation

Natura 2000 Sites

6.3.5 SACs, together with Special Protection Areas (SPAs), form a Natura 2000 network of protected areas throughout the EU. There are 8 sites in County Kilkenny designated and protected under the under the Habitats Directive 1992 (92/43/EEC). They have been designated as Special Areas of Conservation (SACs) due to their conservation value for habitats and species of importance in the European Union. Part of the River Barrow & River Nore SAC is located within the town boundary (**Figure 6.1**).

Figure 6.1: River Barrow & River Nore SAC (NPWS, 2008)

Non designated biodiversity and flora and fauna

6.3.6 Undeveloped areas of Callan are mainly characterised by agricultural grasslands and pastures bordered by hedgerows and backland areas. These areas contribute to the overall levels of biodiversity in the town. Large mature trees are also found on pasture lands adjacent to the river and are integral the setting of the Motte and Augustinian Friary, both National monuments in the town.

Aquatic Flora and Fauna

6.3.7 The Nore flowing through the central part of the County is one of its main rivers. The town is located within its river catchment on the banks of the Kings River, one of the Nore's main tributaries. The Kings River flows from west to east adjoined by a tributary which joins the river near the centre of the town in the form of a Mill Race.

6.3.8 The River Nore forms an important part of the County's Ecological network and functions as a corridor flowing from the uplands to the lowlands. They are of particular conservation interest due to the presence of a number of animals that are protected under Annex II of the Habitats Directive. These are Sea Lamprey, River Lamprey, Brook Lamprey, Freshwater Pearl Mussel, Nore Freshwater Pearl Mussel, Crayfish, Twaite Shad, Atlantic Salmon, Otter, *Vertigo moulinsiana* and the plant Killarney Fern.

6.3.9 The freshwater stretches of the River Nore main channel is a designated salmonid river, however it is possible that there are other salmonid waters throughout the County supporting varying amounts of these species.

6.3.10 The Nore River corridor includes the Kings River which forms part of the River Barrow and River Nore SAC. This SAC forms a large part of Kilkenny's designated ecological areas.

Ecological Networks

6.3.11 Article 10 of the Habitats Directive requires planning and land use development policies to encourage the management landscape features which are of major importance for wild flora and fauna. These features such as rivers with their banks or the traditional systems for marking field boundaries which have a continuous/ linear structure or ponds or small woods which function as stepping stones are essential for the migration, dispersal and genetic exchange of wild species.

6.3.12 In Callan, these networks include the Kings River and hedgerows which in some part of the town provide a continuous linkage of this kind.

Hedgerows

6.3.13 Hedges also have particular conservation value as they often contain a richer variety of plant. Hedgerows provide food and shelter for insects, birds and other animals, forming corridors that permit wildlife to move between habitats. As many birds and small mammals never venture more than a few meters from cover, populations would become isolated and vulnerable without hedges. Nearly two thirds of Ireland's bird species nest in hedges. In general, wide and high hedges with a broad diversity of plant species are the most beneficial to wildlife.

6.3.14 The way in which they were planted makes for a great diversity of hedges that reflect land types and farming practices in partcular areas. They are an integral part of the landscapes, giving a more wooded appearance, regulating the movement of water through the landscape, minimising soil erosion, and protecting waterways. Hedges also shelter farm animals and crops, prevent the movement of diseases from herd to herd, and are important habitats and ecological corridors to a multitude of wild plants and animals.

6.3.15 The trees, shrubs, and smaller plants that are also found in hedges provide food, shelter, roosting, and nesting sites for many species of bird and they are also home to many insects, which provide the food for birds and mammals such as owls and bats.

6.3.16 The aerial photograph of the town (See **Figure 6.2**) illustrates these landscape features including field boundaries, hedgerows, rivers and mature trees.

Figure 6.2: Aerial view of Callan showing key landscape features

Existing Environmental Problems

6.3.17 New development in the town, in particular Greenfield development is likely to impact on flora and fauna and overall biodiversity due to the replacement of natural and semi natural habitats with artificial surfaces. The significance of these impacts relates to whether these developments result in the loss of habitats or species of importance together with the cumulative impacts of other losses in addition to habitat fragmentation. The location of new development is also important where these are adjacent to ecological networks such as hedgerows or inland surface waters. The loss of natural and semi natural habitats in close proximity can impact cumulatively on the overall coherence of these networks.

6.3.18 The Screening assessment undertaken in accordance with article 6(3) of the Habitats Directive will assess whether development in the town is likely to significantly impact upon the designated ecological sites. Specifically, this will investigate in more detail the vulnerability and potential impacts such as soil erosion, industrial and municipal effluents and water quality which is integral to supporting the sites conservation objectives.

6.3.19 Future development along the edges of designated ecological sites could result in the reduction of habitat and could reduce ecological connectivity on the edges of these sites. Development along or adjacent to the banks of rivers could result in a reduction in ecological connectivity within and between these and other habitats.

6.3.20 Pollution of water bodies as a result of any future development along or adjacent to its edges would be likely to adversely impact aquatic biodiversity and flora and fauna including salmonid species and other species protected under Annex II of the Habitats Directive.

Information Gaps

6.3.21 There is no survey information available that provides faunal list for the area in its current state and determines whether any of the fauna on site are dependent on the continued availability of some aspect of the existing environment. A floral list for the town in its current state is also unavailable.

6.4 Population and Human Health

Demographics

6.4.2 The 2006 Census records Callan's population as 1,771. This shows population growth of 33.8% in the town since 2002. Growth has been extensive in comparison to other towns in the County.

Table 6.1: Callan Population 1996 -2006

Town	Population		
	1996	2002	2006
Callan	**1,224**	**1,325**	**1,771**

Deprivation

6.4.3 The Deprivation Index (SAHRU Technical Report, 2007) shows relatively high levels of deprivation in Callan when compared to other areas in the Country See **Figure 6.3**). The index, a measure of relative material deprivation rather than poverty, can be defined as a state of *"observable and demonstrable disadvantage relative to the local community to which an individual belongs"*. The concept is applied to conditions rather than resources or income and can therefore be distinguished from the concept of poverty, although the two are closely related.

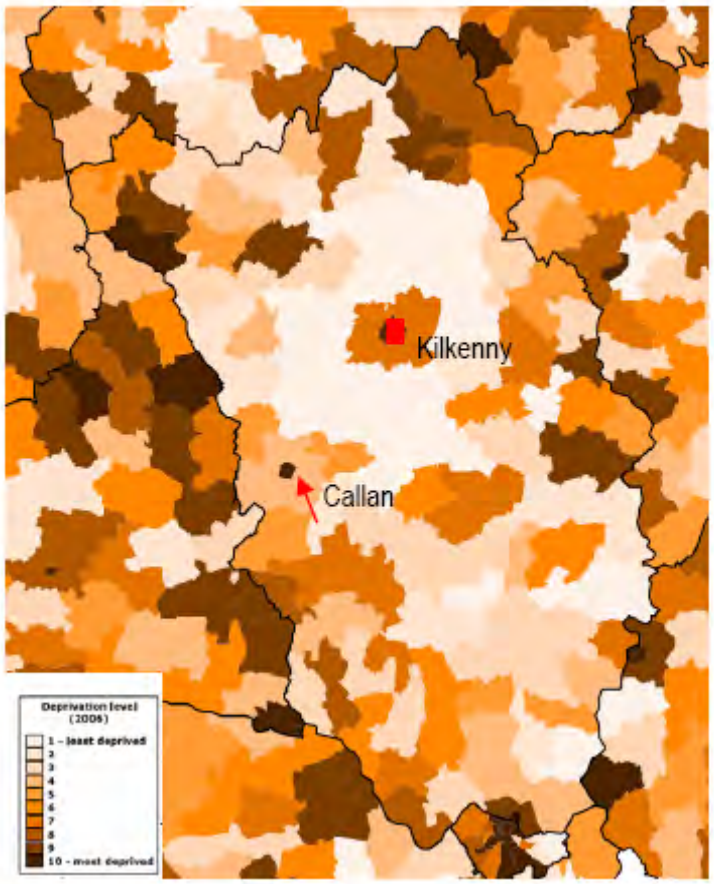

Figure 6.3: Deprivation Index 2006

6.4.4 The index is compiled from five census based indicators which represent or determinants of material disadvantage:

- Unemployment
- Low social class
- No car
- Rented accommodation
- Overcrowding

6.4.5 It is generally acknowledged that less well off groups of the population are more likely to suffer poorer health[4]. A population's socio economic profile (described here in terms of the Deprivation Index) is a key determinant of health and wellbeing. Those suffering from high levels of deprivation are also likely to live in a poor quality built environmental which exacerbates health inequalities. The links between planning and public health is well documented and elements of the built environment such as buildings, places, streets and routes play important roles in determining health and wellbeing and reducing health inequalities.

Public Spaces and Networks

6.4.6 Public spaces and their networks are elements of the environment that influence physical, mental and social health. Access to good quality, well

[4] For more information on the links between Planning and Public Health please refer to 'Health Impacts of the built environment, a review' (The Institute of Public Health in Ireland, 2006)

maintained public spaces can encourage physical activity reducing the risk of obesity, cardiovascular disease, diabetes and stress and can help to improve overall wellbeing.

6.4.7 At present, Callan has approximately 14.7 hectares of land zoned as open space which represents over 7.8% of land uses in the town. In terms of levels of use, factors such as availability, accessibility, attractiveness and safety, rather than quantity influence the use of this space. There are currently four areas designated as open space in the current Local Area Plan. These include the Motte, Augustinian Friary to the North of the Kings River and the Fairgreen and John Lockes GAA pitch to the south. The Motte and the Augustinian Friary provide an almost continuous path along the river. Current open space provision is illustrated in **Figure 6.4** and **Figure 6.5**.

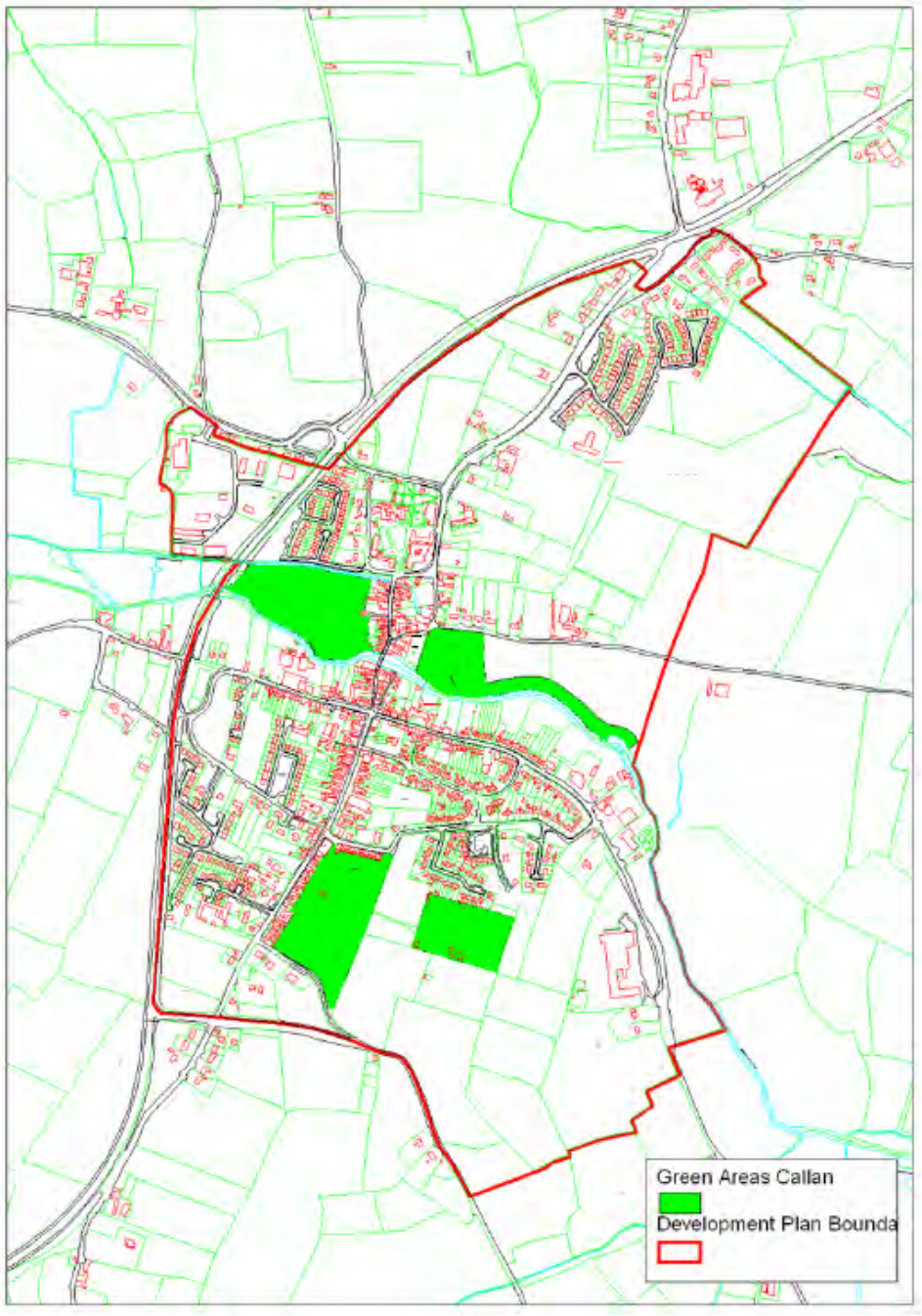

Figure 6.4: Open Spaces in Callan

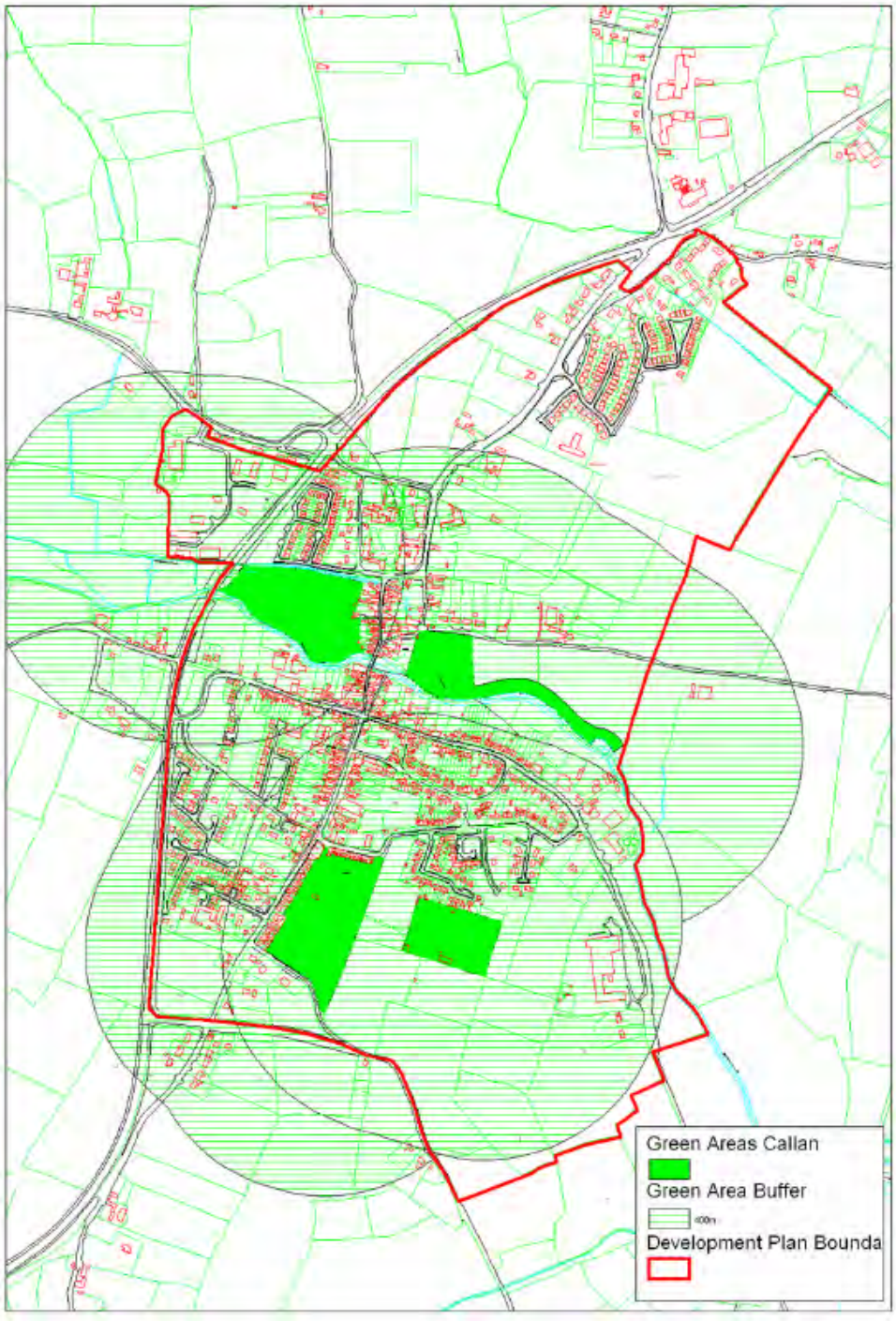

Figure 6.5: Areas within walking distance of public open space

Children's Play Facilities

6.4.8 Children's play is important and provides key benefits to health such as:

- Promoting children's development, learning, creativity and independence;
- Keeping children healthy and active;
- Allowing children to find out about themselves,
- their abilities and their interests;
- Giving children the chance to let off steam and have fun;

- Having a therapeutic effect by helping children to deal with difficult or painful circumstances, such as emotional stress or medical treatment.

6.4.9 There is currently one play facility in Callan located on the Fairgreen. **Figure 6.6** illustrates the location of this facility. **Figure 6.7** shows the areas within walking distance of play space and conversely those areas which could be described as deficient or benefit from additional provision.

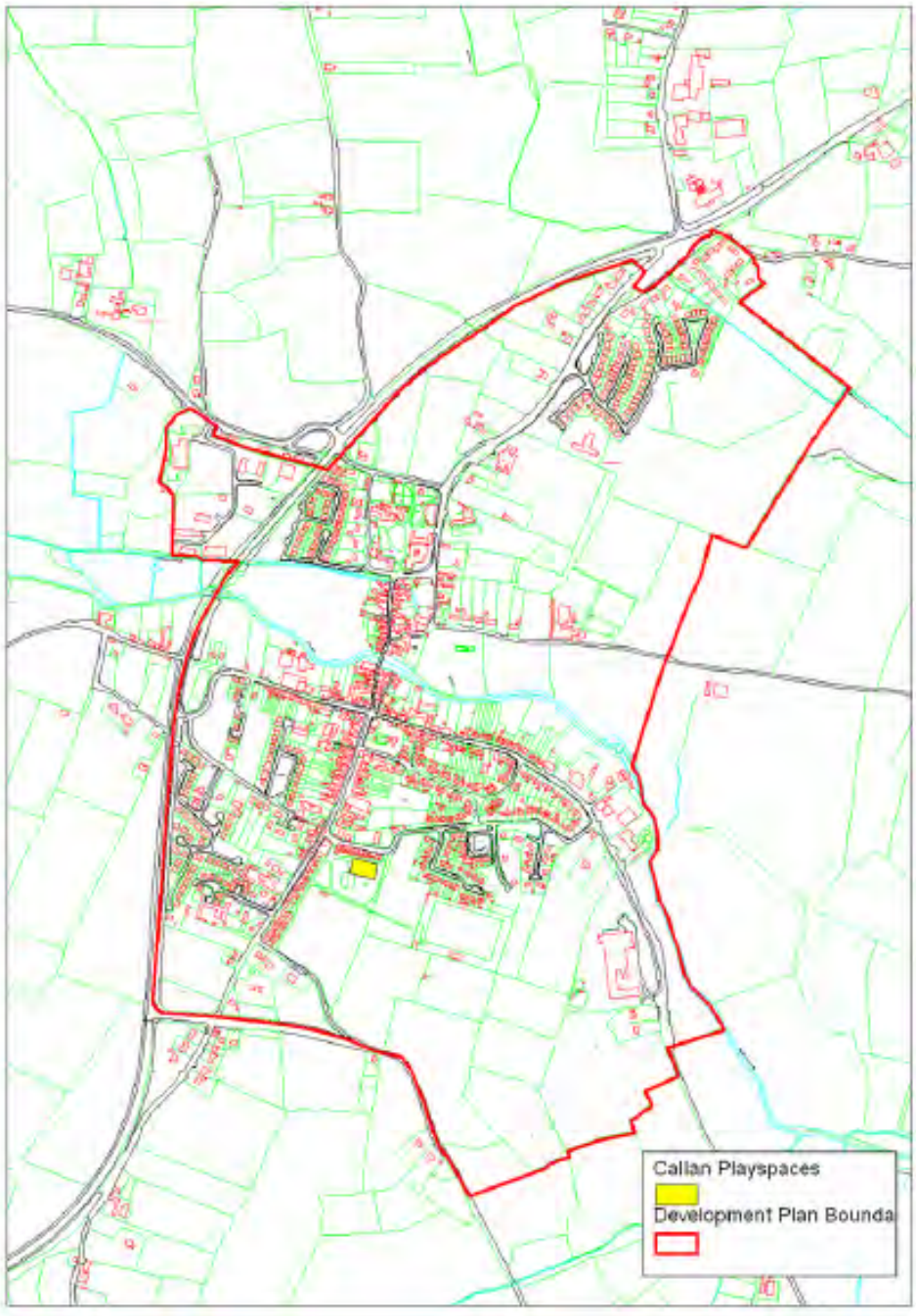

Figure 6.6: Existing provision of Children's Play space

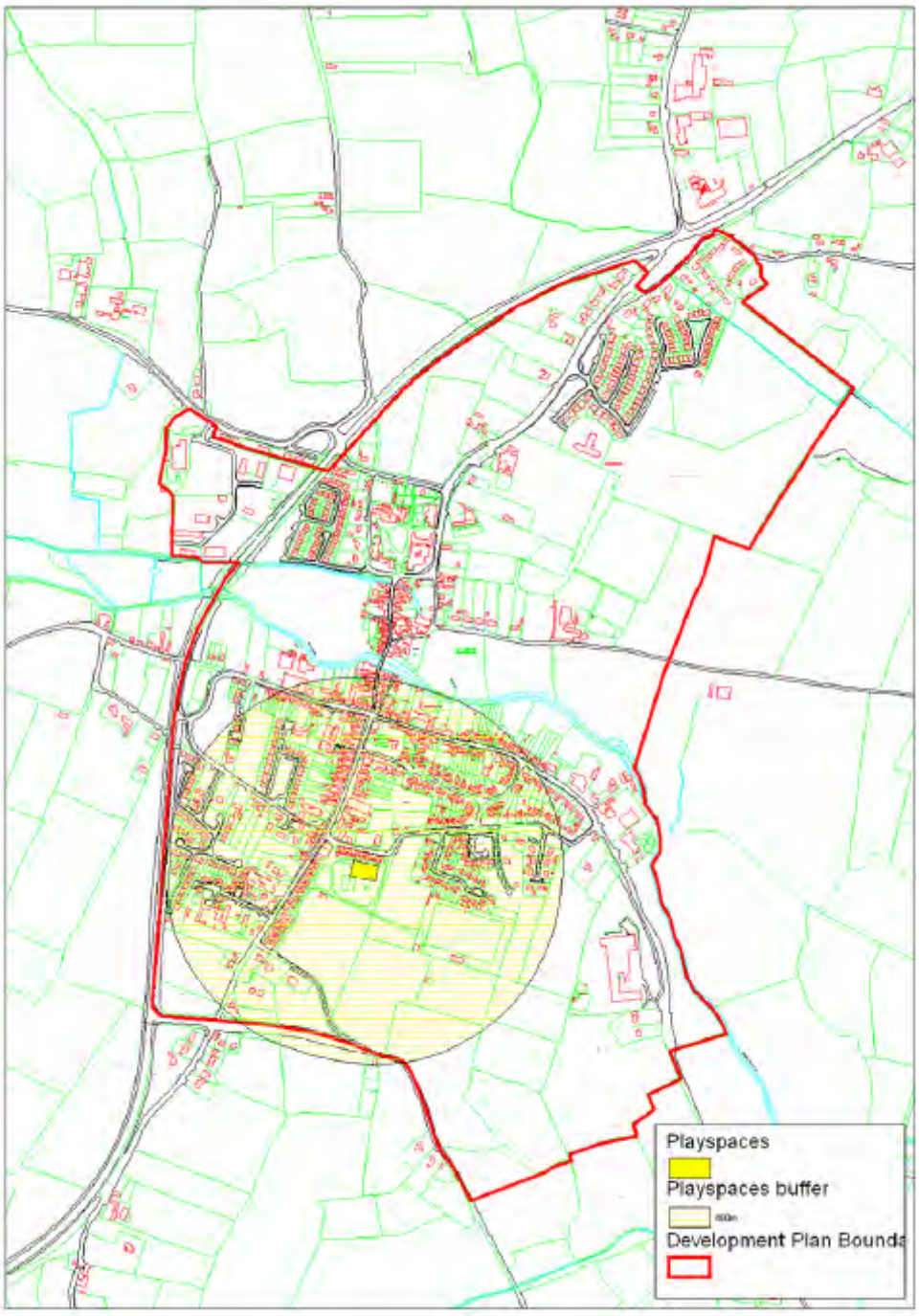

Figure 6.7: Areas within walking distance of Play space

Information Gaps

6.4.10 Information on health inequalities in the town in addition, to information on noise levels, air quality and usage of open space is currently unavailable.

6.5 Geodiversity & Soil

Soil

6.5.2 Soil is described as the top layer of the land surface within the biosphere and is a component of terrestrial ecosystems by providing a growth medium for flora and a habitat for fauna. Soil is also the basis for agricultural and forestry production for food, wood, and textiles.

6.5.3 There are main soil types mineral and organic which include mineral particles, organic matter, water and air. The nature of the organic matter in topsoil's varies according to the vegetation cover and environmental conditions. The proportion of the inorganic component in soil, for example, sand, clay, silt and gravel help to define its texture. The texture of the soil influences the capacity of the soil to retain moisture and its hydraulic conductivity and the ease with which water can percolate through it.

6.5.4 The soils in Callan are predominantly brown Podzolics, with alluvial soils adjacent to the Kings River with Gleys towards the South East of the town. Brown Podzolics are relatively fertile and suitable for agricultural production and gley soils which are characterised by saturation with water for at least part of the time.

Corine Land Cover

6.5.5 The Corine Land Cover (CLC) is a map of the European environmental landscape based on interpretation of satellite images. It provides comparable digital maps of land cover for each country for much of Europe. The EU established Corine in 1985 to create pan-European databases on land cover, biotopes (habitats), soil maps and acid rain.

6.5.6 Ireland's Corine Land Cover 2000 was part of the update of Europe's land cover maps. The Irish inventory provides a quantitative dataset of land-use changes during a period of unprecedented economic growth. It is a valuable benchmark which over time it will help to monitor overall changes in our environment.

6.5.7 The study distinguishes between and cover and land use whereby land cover the observed physical cover including natural or planted vegetation and human constructions (buildings, roads, etc.) which cover the earth's surface and land use is defined as a series of activities undertaken to produce one or more goods or services.

6.5.8 In Callan is made up of continuous, discontinuous urban fabric in addition to pastures located in pockets in the North, East and South east of the town.

Geology

6.5.9 The basic rock formation of County Kilkenny consists almost completely of limestone with sedimentary rocks of various types and ages commonly found mantling the limestone. The bedrock geology consists of sedimentary rocks including sandstones, slate and conglomerates of different types and ages.

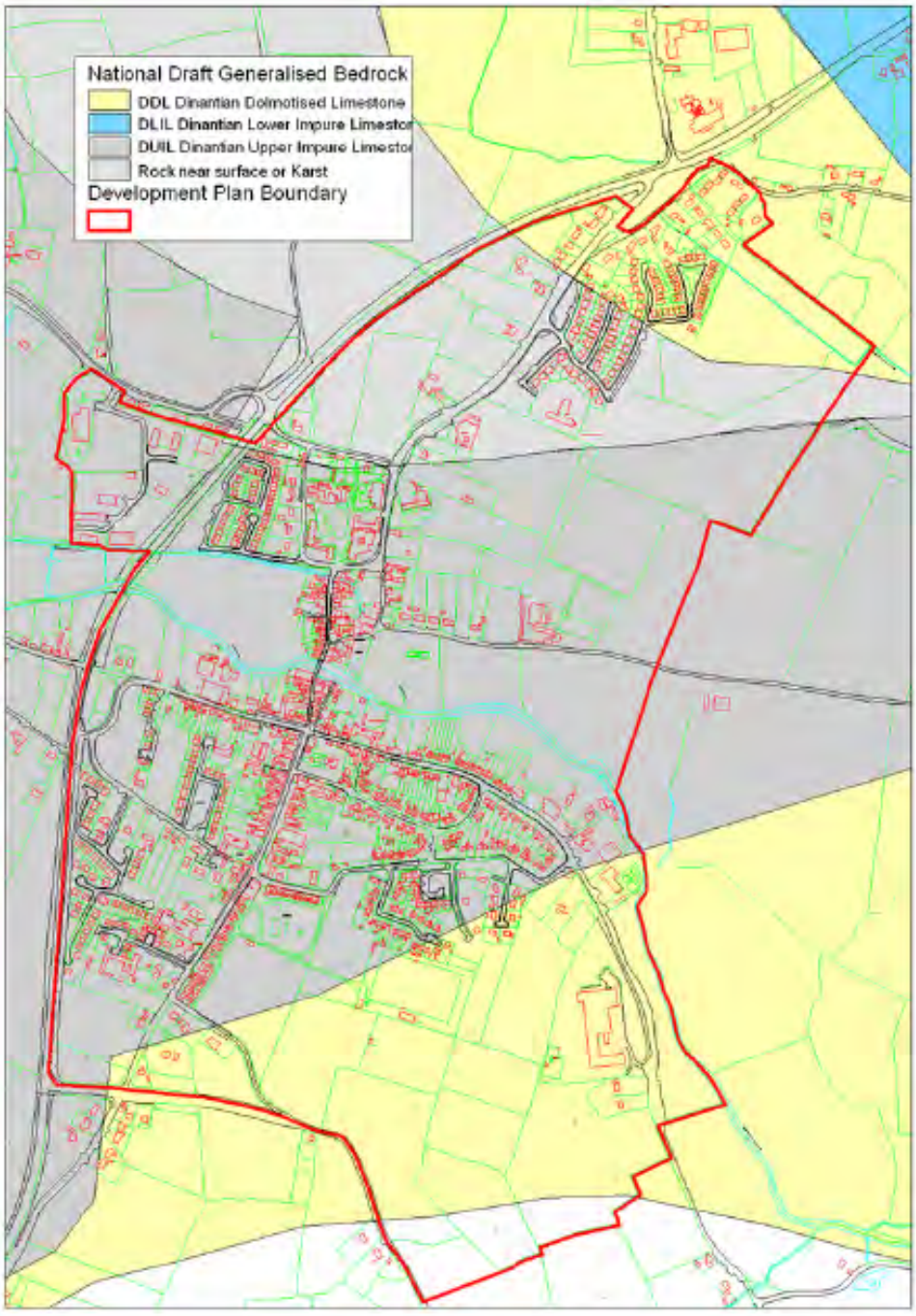

Figure 6.8: Callan National Draft Generalised Bedrock (Source GSI)

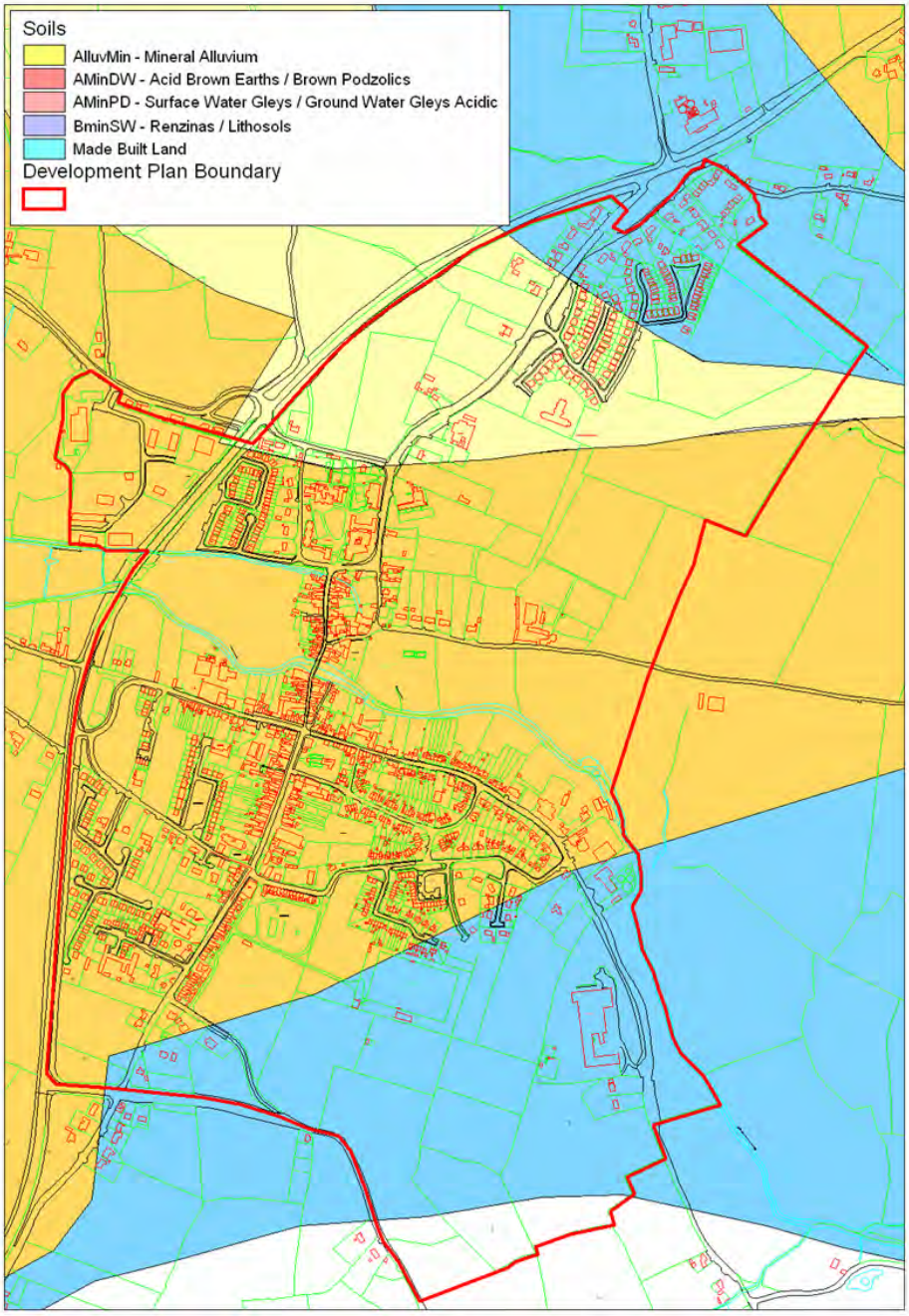

Figure 6.9: Callan National Draft Bedrock Aquifer map (Source GSI)

6.6 Water Infrastructure and Quality

6.6.1 Waste water treatment in Callan is provided for by secondary treatment which currently has capacity for 2,600 population equivalent and discharge is made to a freshwater (river) which is defined as a sensitive area[5]. The waste water treatment works are located towards the southeast of the town in close proximity to the Kings River. There are opportunities to increase the capacity to

[5] "sensitive areas" are those areas specified in the third schedule of the Urban Waste Water Treatment Regulations, 2001 (S.I. 254 of 2001), Urban Waste Water Treatment (Amendment) Regulations, 2004 (S.I. 440 of 2004) and such other areas as may be identified pursuant to article 5 of the Urban Waste Water Treatment Directive.

4,000 P.E. and 6,000 P.E.; however any subsequent increases will require additional lands.

6.6.2 Water supplies are limited with no additional capacity available, however new sources are currently being investigated and will be progressed through the main services development capital programme.

Drinking Water Quality

6.6.3 In January 2008, the EPA reported on the **'***Provision and Quality of Drinking Water in Ireland: A Report for the Years 2006 – 2007'*. This was the first report in response to the EC Drinking Water Regulations, which provides for a greater level of consumer protection by requiring public water suppliers to notify the EPA and the Health Service Executive where drinking water fails to meet the standards.

6.6.4 There are currently no issues with drinking water quality in Callan.

Quality of Urban Waste Water Discharges

6.6.5 The report 'Urban Waste Water Discharges in Ireland' 2004 to 2005 provides an analysis of the treatment of waste water for all agglomerations with a population equivalent over 500 during 2004 and 2005. In evaluation discharges from waste water treatment plants, it identified recurring problems at waste water treatment plants. For those that are in need of corrective action it identified the following issues:

- Inadequate collection systems for waste water (e.g. combined sewer overflows);
- Inadequate screening of influent waste water and storm water overflows;
- Insufficient treatment capacity;
- Poor assimilative capacity for discharged effluent in some receiving waters; and,
- Poor sludge management on site and incomplete sludge records.

6.6.6 In evaluating the causes of the non-compliance with the regulations the EPA has concluded that many waste water treatment plants are under increasing pressure due to the unprecedented levels of development that has taken place throughout the country over the last number of years.

6.6.7 The regulations require that in respect of the provision of treatment plants with capacity of less than 2,000 population equivalent, appropriate treatment is provided whereby "treatment of urban waste water by any process and/or disposal system which after discharge allows the receiving waters to meet the relevant quality objectives and the relevant provisions of the Directive and of other Community Directives".

6.6.8 The level of treatment therefore depends on local circumstances, with more stringent treatment required for agglomerations discharging to sensitive waters. Where discharges to sensitive water bodies occur, the regulations specify emission limit values for total phosphorus and/or total nitrogen in addition to values for BOD (Biochemical Oxygen Demand), COD (Chemical Oxygen Demand) and TSS (Total Suspended Solids), which apply to discharges generally.

6.6.9 In terms of the limit values which apply generally, the report assesses the performance of secondary waste water treatment plants with respect to Biochemical oxygen demand (BOD), Total Suspended Solids (TSS) and Chemical Oxygen Demand (COD). Results show that effluent quality from the

waste water treatment works in the town is not complying with these standards. See **Appendix 2** for more detailed information.

Water Framework Directive

6.6.10 The Water Framework Directive (WFD) 2000/60/EC is a significant piece of water-related legislation and applies to all waters including:

- Rivers
- Lakes
- Transitional Waters (Estuaries)
- Coastal Waters
- Groundwater's
- Dependant Wetlands

6.6.11 The WFD manages these waters in natural, geographical units called River Basins. To make management practical, neighbouring river basins have been grouped into River Basin Districts (RBDs). Ireland has about 400 river basins which have been grouped into 8 RBDs. The WFD target is that waters should have achieved at least 'good status' by 2015 with no deterioration in existing water quality status. The main aims of the WFD are to:

- Protect/enhance all surface and ground waters
- Achieve "good status" for all waters by December 2015
- Manage water bodies based on river basins (catchments)
- Use a "combined approach" of emission limit values and quality standards
- Involve the public
- Streamline legislation

SERBD Characterisation Report (Nov 2005)

6.6.12 The South Eastern River Basin District (SERBD) Project facilitates implementation of the Water Framework Directive (WFD). Callan is located within this area which is one of the largest River Basin Districts in Ireland, covering approximately one fifth of the country and including the Barrow, Nore, Suir and Slaney River Basins along with smaller basins in the coastal areas of Wexford and Waterford.

6.6.13 For the purposes of assessment, reporting and management, water in the SERBD has been divided into groundwater, rivers, lakes, estuarine waters and coastal waters which are in turn divided into specific, clearly defined water bodies. Water bodies have been assessed and given a score based on the likelihood of them achieving the objectives of the WFD.

- 1a - water body is at risk of failing to meet good status in 2015;
- 1b - water body is thought to be at risk of failing to meet the objective pending further investigation;
- 2a - water body is expected to meet good status in 2015, pending further investigation; and
- 2b - the water body is expected to meet good status in 2015.

6.6.14 This report presents an analysis of the characteristics of the SERBD, reviews the impact of human activity on waters and provides an economic baseline of water use in accordance with the requirements of Article 5 of the Directive. The report is supplementary to a national characterisation summary report submitted to the European Commission in March 2005.

6.6.15 Callan is principally located on the Kings River and **Figure 6.10** shows the location of the principal rivers and streams in the town. The SERBD

Characterisation Report included the rivers and streams at this location which help to drain the Nore catchment. The overall risk result for the Kings River joining is 1a; that is at significant risk of failing to meet good status by 2015. Water bodies placed in this 'At Significant Risk' category will need improvement to achieve the required status.

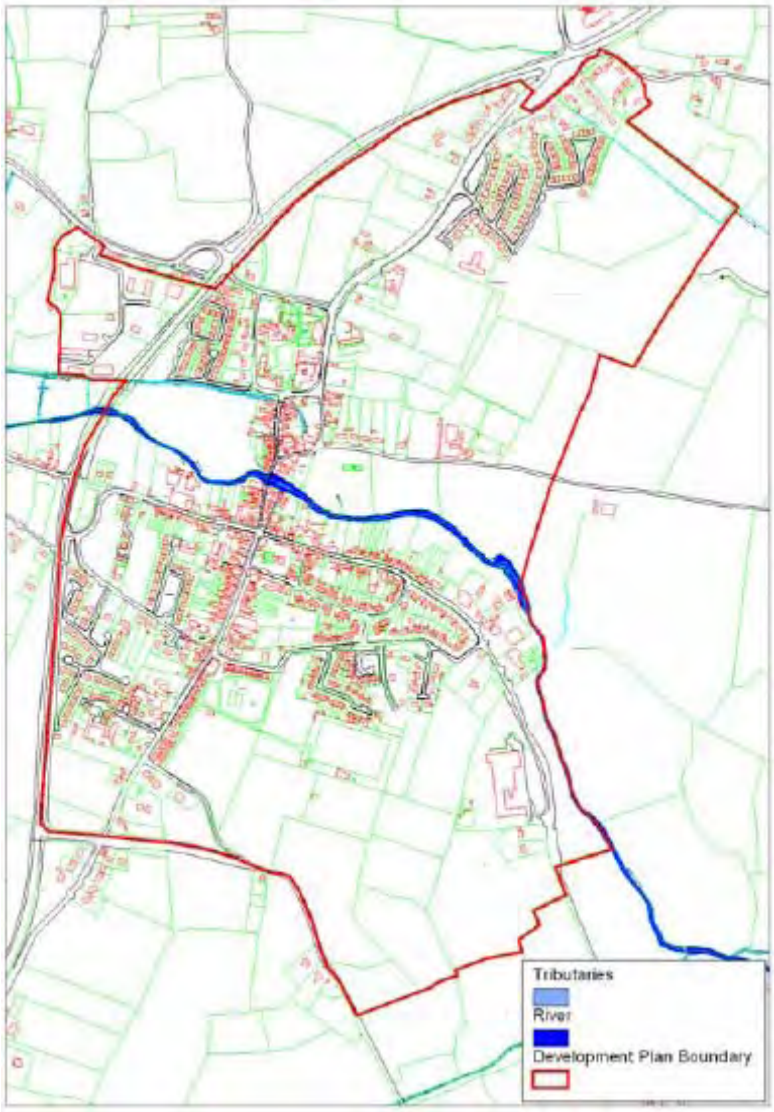

Figure 6.10: Surface Water Bodies in Callan

EPA Monitoring

6.6.16 The Environmental Protection Agency (EPA) monitors river and stream water quality through the Q Value system which describes the relationship between water quality and the macro invertebrate community in numerical terms. The presence of pollution causes changes in flora and fauna of rivers. Well documented changes occur in the macro invertebrate community in the presence of organic pollution as sensitive species are progressively replaced by more tolerant forms as pollution increases. Q5 waters have high diversity of macro invertebrates and good water quality, while Q1 have little or no macro invertebrate diversity and bad water quality. Intermediate values, Q1-2, 2-3, 3-4

etc denote transitional conditions. River Quality in Callan is described as having poor status with a Q value of 3.

Groundwater

6.6.17 Groundwater is an important source of drinking water but also makes an important contribution to river flows. It is water located beneath the ground surface in pore spaces and fractures of geologic formations. If the geologic formation can yield enough water for a significant water supply then the term aquifer is often used. It is estimated that groundwater contributes about 40% of all the water flowing in the River Nore.

6.6.18 The Water Framework Directive and the forthcoming EU Directive on "the Protection of Groundwater Against Pollution and Deterioration" adopt a holistic view of water resources, establishing links between groundwater and associated surface water and ecological receptors. A characterisation and risk assessment report was prepared for the purposes of the Directive and identified groundwater bodies that potentially have groundwater quality or over-abstraction problems. The SERBD Groundwater risk assessment (See **Figure 6.11**) highlights that that a large area of Callan is possibly at risk of not achieving good status.

6.6.19 The Geological Survey of Ireland rates aquifers according to their vulnerability to pollution (See **Figure 6.12**). Aquifer vulnerability refers to the ease with which pollutants of various kinds can enter underground water. Aquifers of extreme vulnerability (which can be found through much of the southern, northern and eastern parts of the County) and aquifers of high vulnerability (which predominate in the low lying central areas) are the two classifications of aquifers which are most sensitive to an imposed contaminant load - the majority of the County's ground waters are classified as being either of extreme or high vulnerability.

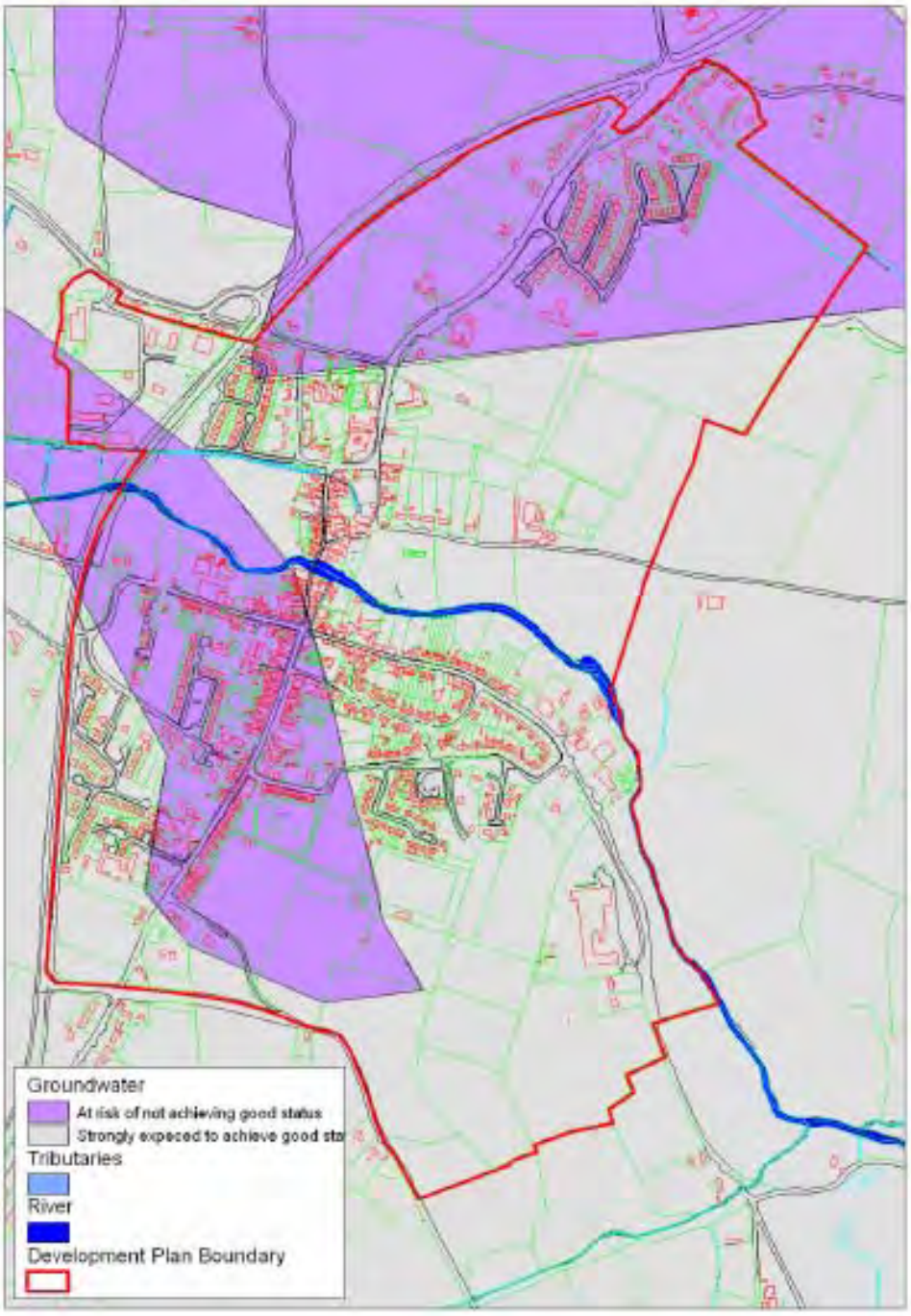

Figure 6.11: Groundwater Risk Assessment

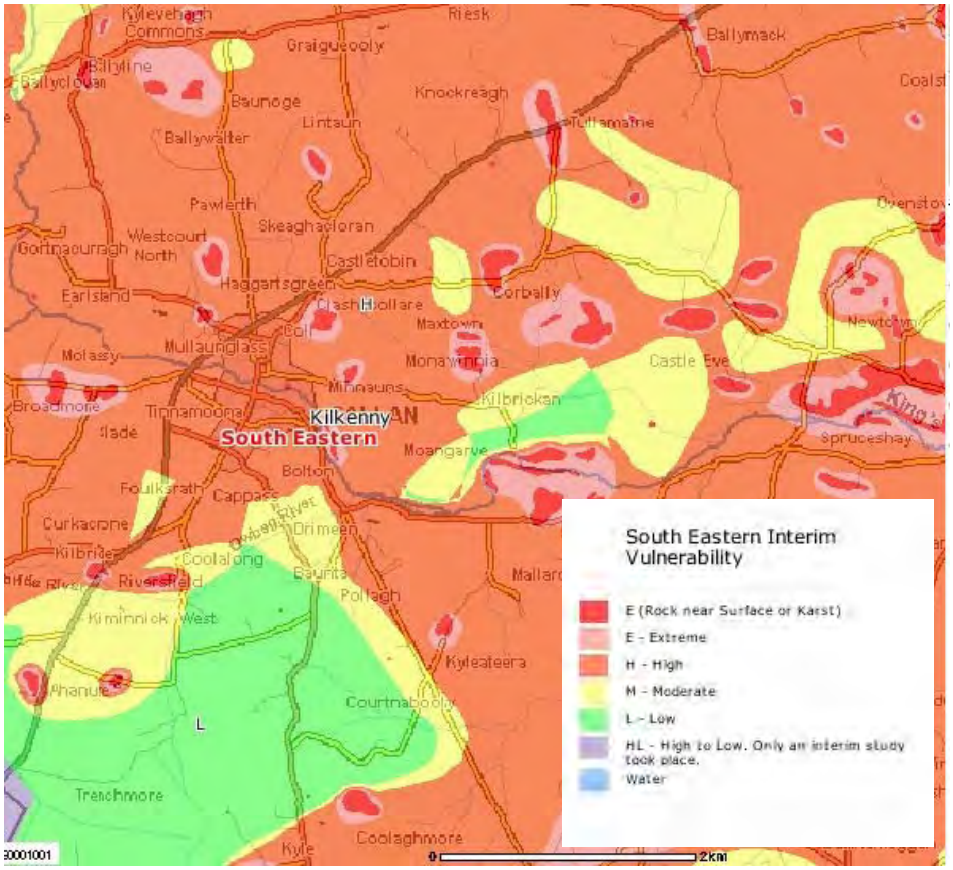

Figure 6.12: Callan Groundwater Interim Vulnerability (Source GSI)

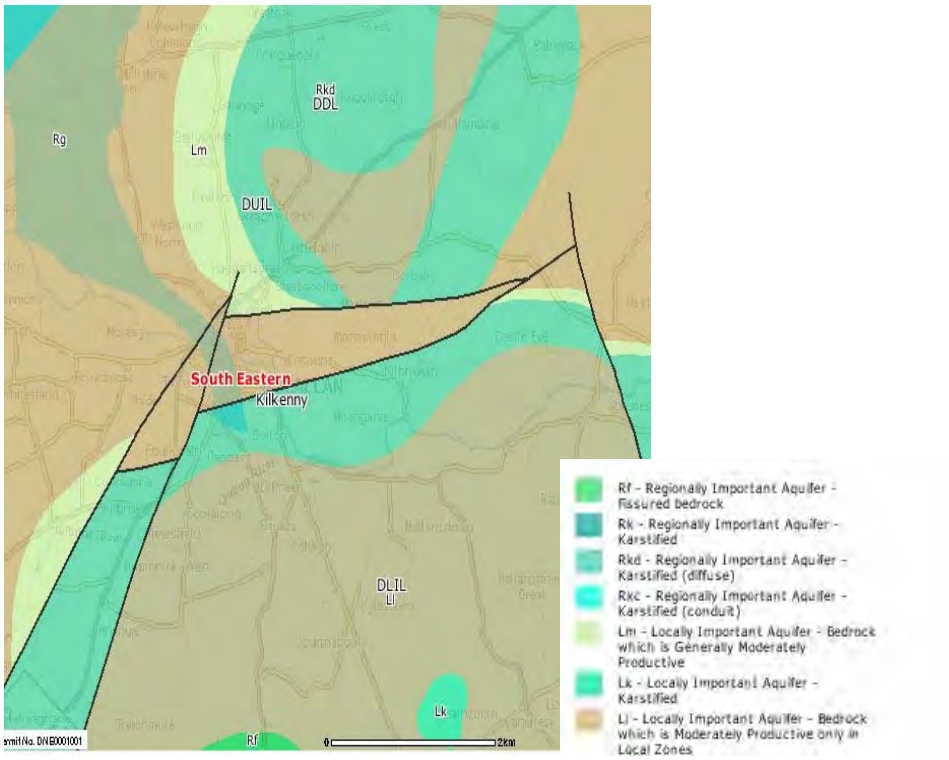

Figure 6.13: Callan National Draft Bedrock Aquifer map (Source GSI)

6.7 Flood Protection

Background

6.7.2 Flooding is a natural phenomenon and where there is no risk to human life and property it is beneficial, as it provides fertile sediments to farmland, maintains valuable wildlife habitats and reduces flood risk elsewhere in the catchment. The floodplain plays a key role in this process and can be described as the flat or nearly flat land adjacent to a stream or river that experiences occasional or periodic flooding and acts as a temporary store for flood waters and facilitates their conveyance and flood levels downstream. A number of human activities tend to restrict the capacity of rivers to accommodate large storm flows. These include:

- **Greenfield development**: paving over previously permeable areas for roads, housing, car parks, etc. can significantly restrict the potential infiltration rate of the area covered. This activity might have a minor or negligible impact in large river basins (due to flood peak timing and proportion of area developed), but could substantially increase runoff in small river basins (i.e., by more than 100%).
- **Changes in land use or land use practices**: changes in the vegetation cover, the way in which land is used, or measures which impact negatively on natural flood retention areas (wetlands), can have impacts on both interception and infiltration.

6.7.3 The type of damage that may occur for a given flood level include:

- Flooding of development such as property or infrastructure generally results in some damage. Development within a flood risk area therefore increases the potential damage when the flooding occurs. Such development can occur inadvertently due to lack of awareness of flood risk which can be a result of long intervals between flood events.
- It is recognised that development in a flood risk area is sometimes necessary for economic reasons, but the type of development permitted should be compatible with the existence of the risk. Inappropriate development involves property or contents that have a high potential for flood damage being located in a flood risk area. Inappropriate development might include:
  - high-density residential property (economic, social and personal welfare risk), or any residential property in areas subject to flash or deep flooding (risk to life)
  - manufacturing or storage property where the cost of flood damage to contents (machinery/products) would be high (economic risk)
  - industry or services where flooding could cause leakage of pollutants, such as chemical or sewage plants (risk to personal health and environment)
  - property or infrastructure with particular structural vulnerability to flooding (economic risk and risk to life)

6.7.4 **Figure 6.14** illustrates the surface water bodies in Callan, including the main river traversing the town, the Kings River, which is joined by a tributary joining from the North of the town. OPW information records four areas where flood events have occurred. These include:

- Kings River near Callan Bypass Oct 2004
- King's River Callan Oct 2004
- King's River Callan Town (recurring incident)
- Kings River Callan March 1947

6.7.5 **Figure 6.15** illustrates the location of these events and **Figure 6.16** shows the extent of benefitting lands. Benefitting land maps were prepared as part of the design of the OPW Arterial Drainage Schemes and indicate lands that were poorly drained and would benefit from drainage. While not developed as floodplain or flood extent maps, a good correlation has been observed between the 'Benefitting Lands' and those areas that may be prone to flooding.

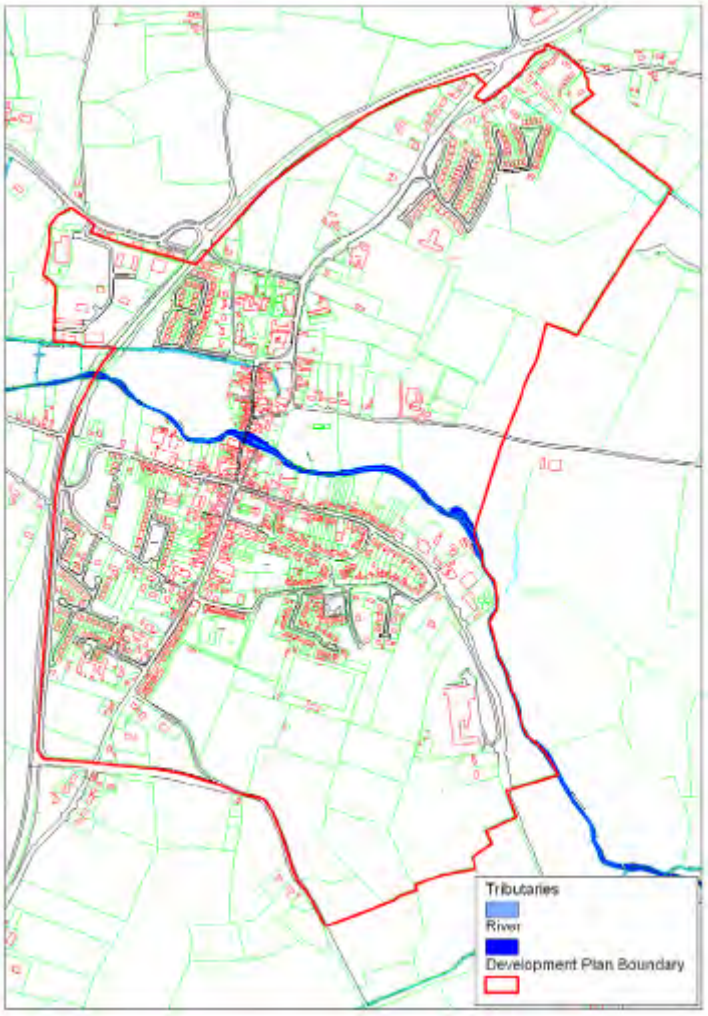

Figure 6.14: Surface Water Bodies

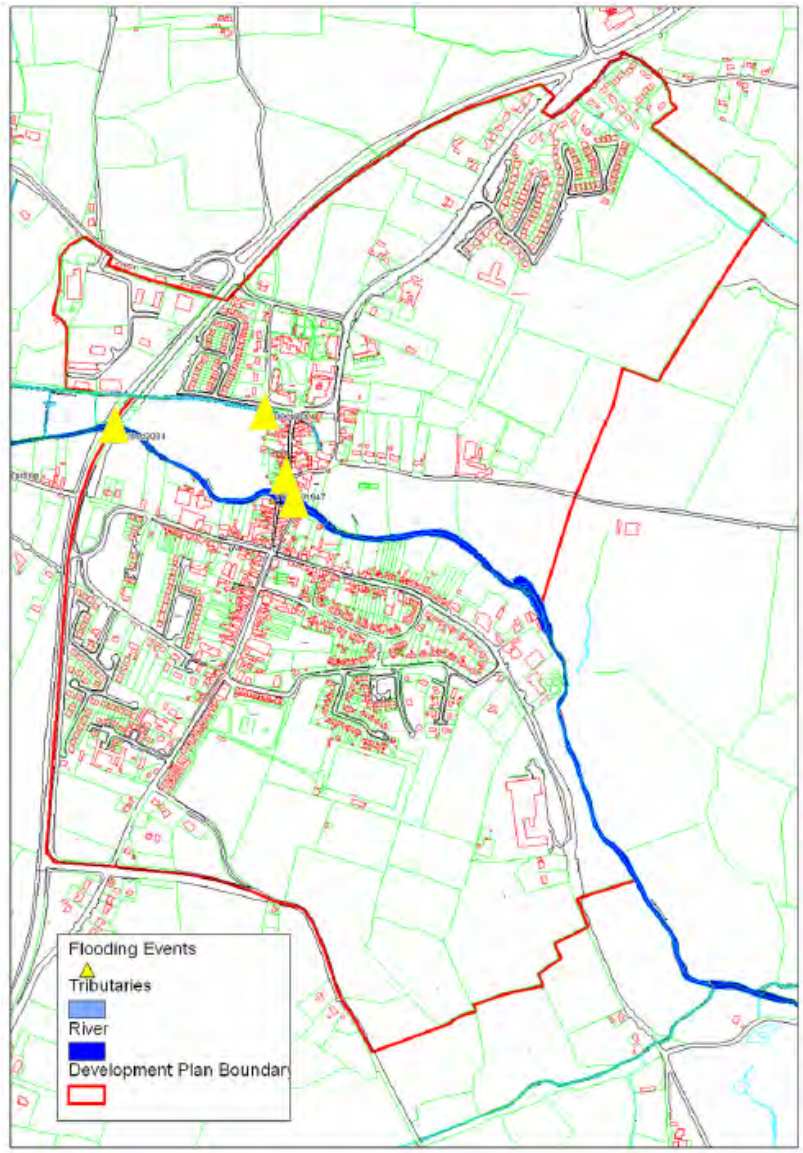

Figure 6.15: Callan Flooding Events (OPW)

Information Gaps

6.7.6 A review of national flood policy has established the need for an effective policy for the future management of flood risk in Ireland. A key recommendation outlined in the Final report of the Flood Policy Review Group (Sept, 2004) was the completion of a National Flood Hazard Mapping Programme with the results to be published on the Flood Hazard Mapping website.

6.7.7 Flood hazard maps can indicate the areas of land or property that have historically been flooded or that are considered to be at risk from flooding, and can be described as Historic or Predictive accordingly. Historic flood mapping is currently available through information provided by the Office of Public Works. This provides information on areas of existing flood risk and highlights the need to avoid creating additional risk that could arise through inappropriate development in the floodplain. However, as the extent of flooding is not mapped in every case most historical flooding incidents can only be shown using the point symbol as is the case in Callan. As a result, although this information

allows some consideration of flood risk issues when preparing spatial plans, the database is not a comprehensive catalogue of all past flood events. In addition, the absence of a flood indicator (point or area symbol) for a past flood event in any particular location does not mean that flooding has never occurred in that area nor does it mean that that area may not be liable to flooding in future.

6.7.8 Predictive flood mapping is the mapping of flood levels and extents that are predicted to occur for a given single or range of selected frequencies (such as, a 1% or 1-in-100 year return period). Predictive flood maps are more complex to produce and completed using techniques, such as hydraulic and hydrological modelling, detailed channel and floodplain surveying. The OPW are in the process of producing predictive flood maps for the country on a catchment-by-catchment basis however this information is currently unavailable as the study for the River Nore catchment has yet to commence.

6.7.9 In the absence of predictive flood maps showing the vulnerability of areas to flooding of different intensities, OPW flood event records and bennefitting lands maps, historic OS maps and local knowledge will be used to inform the preparation of the Local Area Plan and provide for a precautionary approach that is advisable particularly in the context of climate change.

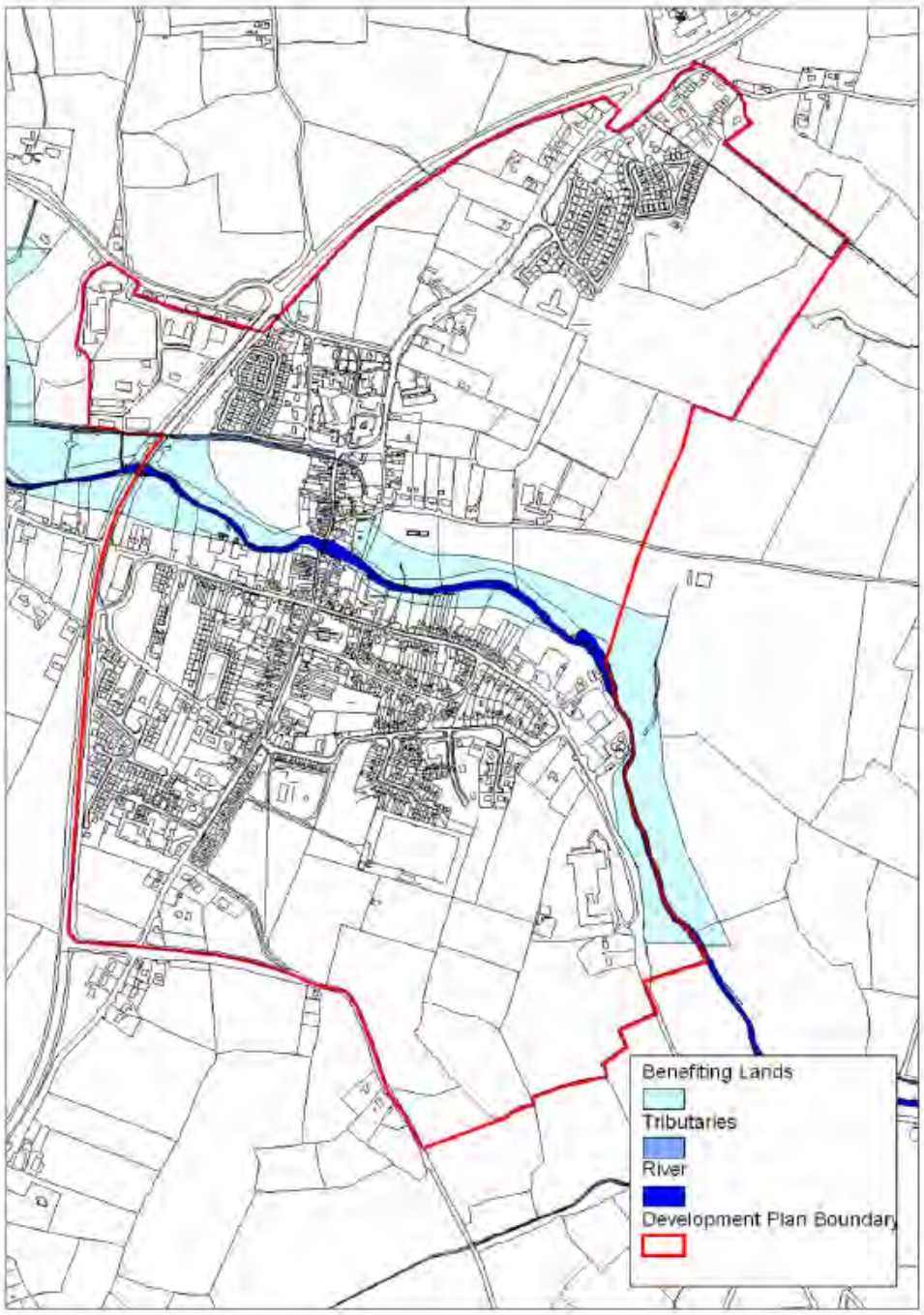

Figure 6.16: Callan Benefiting Lands

6.8 Air and Climatic Factors

6.8.1 Air quality is assessed by monitoring the levels of various pollutants and checks whether air quality meets standards that are considered adequate for the protection of human health and the environment. These pollutants include particulate matter (PM_{10}), sulphur dioxide, nitrogen oxides, ground-level ozone and black smoke.

6.8.2 Emissions of pollutants from vehicles, power stations, industry, domestic fuel burning and agriculture can have effects that stretch beyond the local

environment. The Framework Directive on Air Quality introduced by the EU in 1996 provides for each member state to:

- Divide the country into zones
- Conduct ambient air quality in these zones
- Report on air quality within these zones

6.8.3 In Ireland, four zones are identified in the Air Quality Regulations (2002). The main areas defined in each zone are:

- Zone A: Dublin Conurbation
- Zone B: Cork Conurbation
- Zone C: Other cities and large towns comprising Galway, Limerick, Waterford, Clonmel, Kilkenny, Sligo, Drogheda, Wexford, Athlone, Ennis, Bray, Naas, Carlow, Tralee and Dundalk
- Zone D: Rural Ireland

6.8.4 The air quality analysis is based on concentration measurements of the following pollutants: particulate matter, ozone, NOx, SO2, lead, CO and benzene. The pollutants of most concern are fine particulate matter, expressed as PM10, nitrogen dioxide and, to a lesser extent, ozone. Callan is located within Zone D and the annual air quality reports give summary results showing typical concentrations of pollutants in this zone. The 'Air Quality in Ireland 2006 Report concludes that these pollutants are below thresholds in these areas with the exception of PM10.

Climate

6.8.5 Climate is quite uniform throughout the County. The continental climate type of the County is rather mild and moist with an average annual rainfall of 800-1000mm. Mean daily temperatures range from 5.2oC to 13.4oC8 and the climate is generally fairly stable as it is the area of the country least affected by the sea. Kilkenny experiences an average of 4 days per year with snow lying, 9 days per year with hail, and 5 days per year with thunderstorms. (CASS, 2003).

6.8.6 Due to historic and current emissions of greenhouse gases, climate change is now inevitable. Adaptation as well as mitigation, reducing green house gas emissions, is a key element of the policy response. The purpose of adaptation is to reduce vulnerability to climate change, thereby reducing its negative impacts such as increasing average temperature and changes in rainfall patterns and a lengthening of the growing season.

6.8.7 The 2003 report, Climate Change: Scenarios and Impacts for Ireland, is a major assessment of the possible impacts of climate change on Ireland. It examines the possible magnitude and likely impacts over the course of the 21st century by establishing scenarios for the future. The report highlights possible impacts of these scenarios in which may include pressures on the water supply infrastructure, the likelihood of increased frequency of flooding, general effects to the marine environment as a result of higher water temperatures, threats to the coastline due to higher sea levels, and general threats to ecosystems and biodiversity.

6.8.8 For Callan, climate change may exacerbate any existing issues in relation to water supply and flooding.

6.8.9 Greenhouse gases and their associated impact on climate change are recognised as a major environmental threat both globally and nationally. Avoided emissions by minimizing where possible the use of car will help to

reduce the effects of climate change and minimize the impact on air quality. Latest estimates of greenhouse gases up to 2006 from the EPA reveals that the overall figure in 2006 were 69.77 million tonnes carbon dioxide equivalent, 0.8 percent lower than the level of emissions in 2005. Transport continues be the dominant growth sector with road transport accounting for 97% of transport sector emissions. Rural areas and towns, such as Callan, that have limited access to public transport are likely to rely heavily on the use of private vehicles with usage rates likely to be consistent with these trends.

6.9 Transport

Background

6.9.2 Callan Town is located 10 miles south-west of Kilkenny City, 15 miles from Carrick on Suir, 17 miles from Clonmel and 35 miles from Waterford City. The town has a rich historical environment and acts as an attractive market and service centre for the surrounding area. It enjoys good road connections to employment bases such as Clonmel and Waterford. Traffic congestion levels in the town centre have been significantly reduced since the opening of the by-pass. Connectivity is likely to be further improved on the completion of the nearby Knocktopher to Waterford section of the N9 by 2009.

6.9.3 Within the town, the principal street, Bridge Street/Green Street, runs north to south with West Street/Mill Street as a secondary axis. The two streets intersect at a cross roads to the south of the bridge. Properties within the historic core are located along narrow streets thus constraining this area of the town in terms of access and physical permeability. Underused backlands coupled with the location of the Kings River also create barriers to movement across the town.

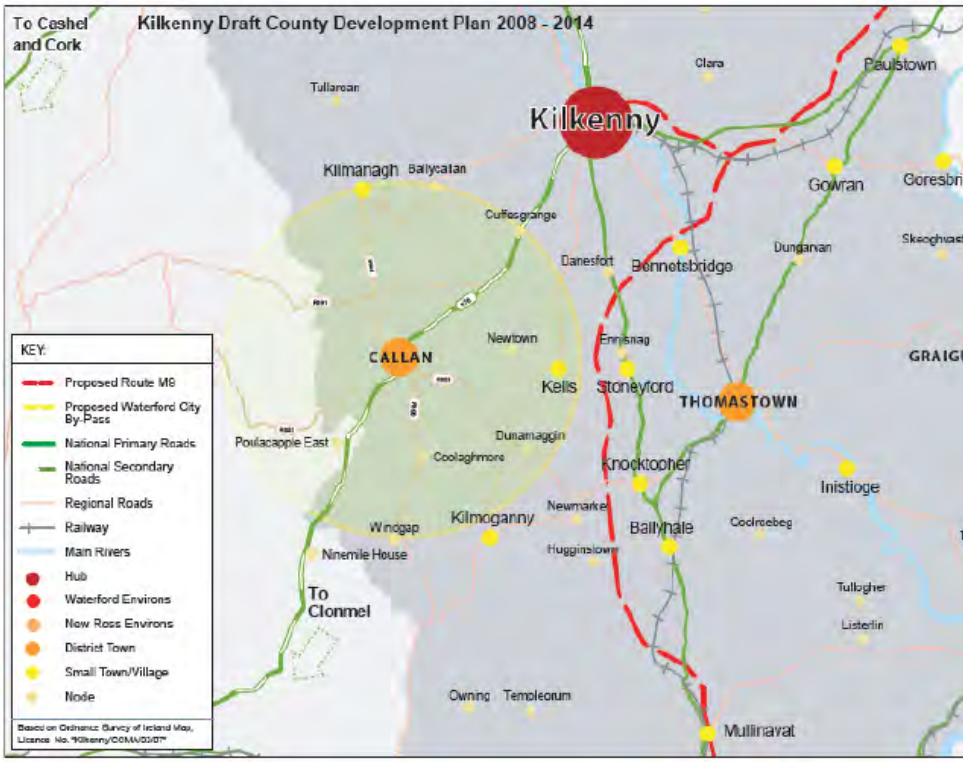

Figure 6.17: CDP Development Strategy and Transport Accessibility

Bus Services

6.9.4 Callan is served by the JJ Kavanagh service which operates services from Monday to Saturday leaving from Clonmel and finishing in Dublin Airport. All buses stop in Kilkenny and Dublin city centre. Callan is also served by Bus Eireann Expressway 007, Dublin-Kilkenny-Clonmel-Cork. There are nine services heading to Cork Monday to Saturday that pick up at Glennons.

School Bus Service

The Department of Education and Science runs a school bus service for Primary and Secondary School children. The scheme is administered by Bus Eireann with help from Kilkenny VEC.

Rural Transport Initiative

6.9.5 Callan is among the areas served by the Ring a Link scheme that is funded by the Rural Transport Initiative under Transport 21. There is also funding from Kilkenny County Council and the Department of Social, Community and Family Affairs. The service is available from 9.00 till 18.00 on a Thursday. The service consists of a minibus that will take customers from door to door for a fee of €3 single and €5 return.

Trains

6.9.6 Callan is approximately 45 minutes by bus from Clonmel and 20 minutes from Kilkenny, both of which are served by train from Dublin.

Roads

6.9.7 The N76 is the National Road that bypasses the centre of Callan. It connects to the ring road at Kilkenny to the North-East and to Clonmel to the South-West. The main road off the West of the N76 heads out to Mullinahone. The South road heads through Courtnabooly West in the direction of Carrick-on-Suir.

Means Of Travel

6.9.8 According to the 2006 Census for 'means of travel to work, school or college' in Callan, approximately 24% of people travel by foot, 1.25% by bicycle with over 55% using the car to travel to work, school or college.

6.10 Cultural Heritage

6.10.1 Callan is a medieval town and its earliest surviving developments include an Anglo-Norman motte and the Augustine Abbey which are located to the north of the King's River. The majority of the town's physical fabric is evidence of its early development and this is recognised by its designation as a zone of potential archaeological interest. Historic map sequences for the years 1848, 1903 and 1948 (see **Figure 6.18 - Figure** 6.20) shows how Callan has changed over a period of 100 years. Of particular significance is the continuity of the built fabric over this period with the exception of change to the Westcourt Demesne.

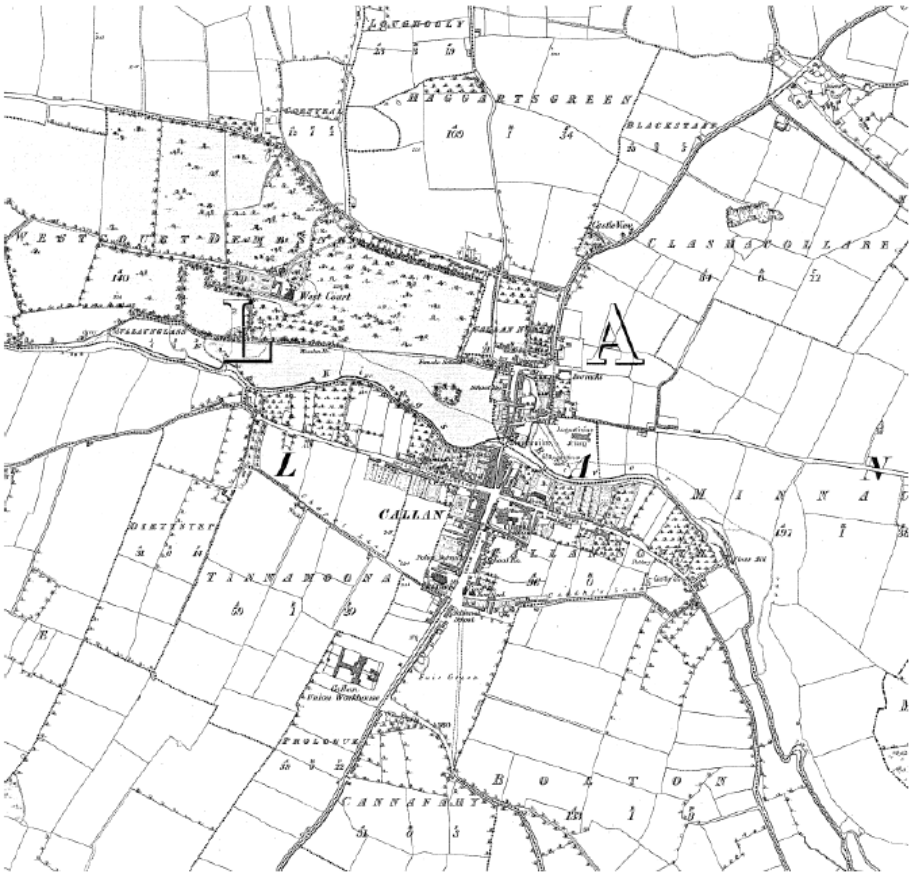

Figure 6.18: Callan OSI Map1842 (Source: Trinity Historic Maps Archive)

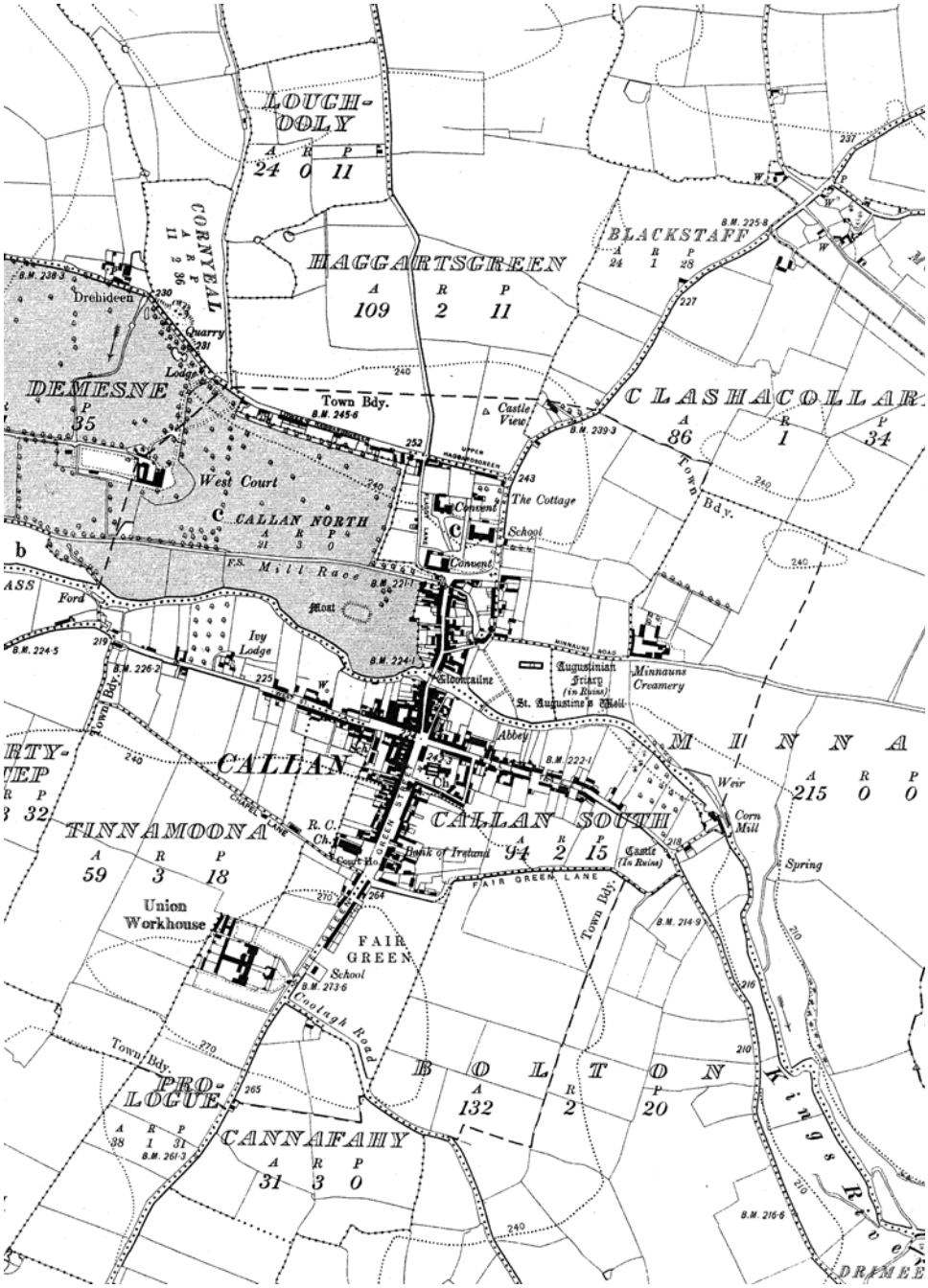

Figure 6.19: Callan OSI Map 1903 (Source: Trinity Historic Maps Archive)

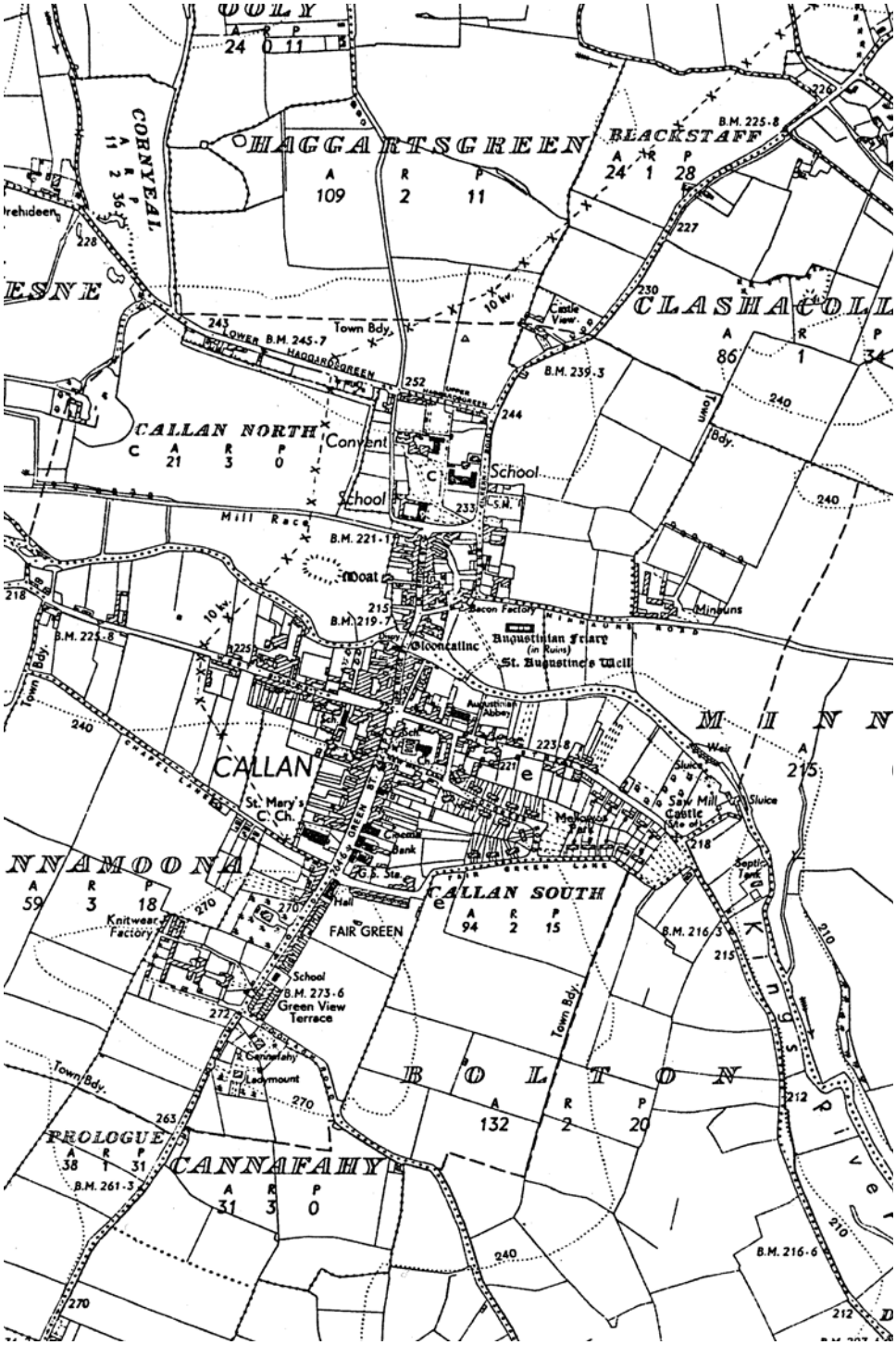

Figure 6.20: Callan OSI Map 1948 (Source: Trinity Historic Maps Archive)

National Monuments And Record Of Monuments And Places

6.10.2 The continuity in the built fabric has meant that some elements of the town's early history have survived. Monuments, specifically structures pre-dating 1700 AD, are protected under the National Monuments Acts 1930 – 2004 and are protected in a number of ways:

- national monuments in the ownership or guardianship of the Minister or a local authority;
- national monuments which are subject to a preservation order;
- historic monuments or archaeological areas recorded in the Register of Historic Monuments;
- Monuments recorded in the Record of Monuments and Places.

6.10.3 The town has three national monuments:

- St. Mary's Church
- Augustinian Friary
- Motte

6.10.4 The Archaeological Survey of Ireland holds the inventory of archaeological monuments which contains records of all known or possible monuments pre-dating 1700 AD that have been brought to its attention and also includes a selection of monuments from the post-1700 AD period. These are referred to as Sites and Monuments Records (SMRs) which formed the basis for the establishment of the statutory Record of Monuments and Places pursuant to Section 12 of the National Monuments (Amendment) Act 1994. The Record of Monuments and Places, consisting of lists of monuments and places for each county in the State.

6.10.5 The survey also produced reports on all historic towns dating to before 1700 AD with a view to delineating zones of archaeological potential within which archaeological deposits may exist. Callan town was subject to this survey and is considered a zone of archaeological potential. The extent of the zone of potential in addition to the register of historic monuments is illustrated in **Figure 6.21**.

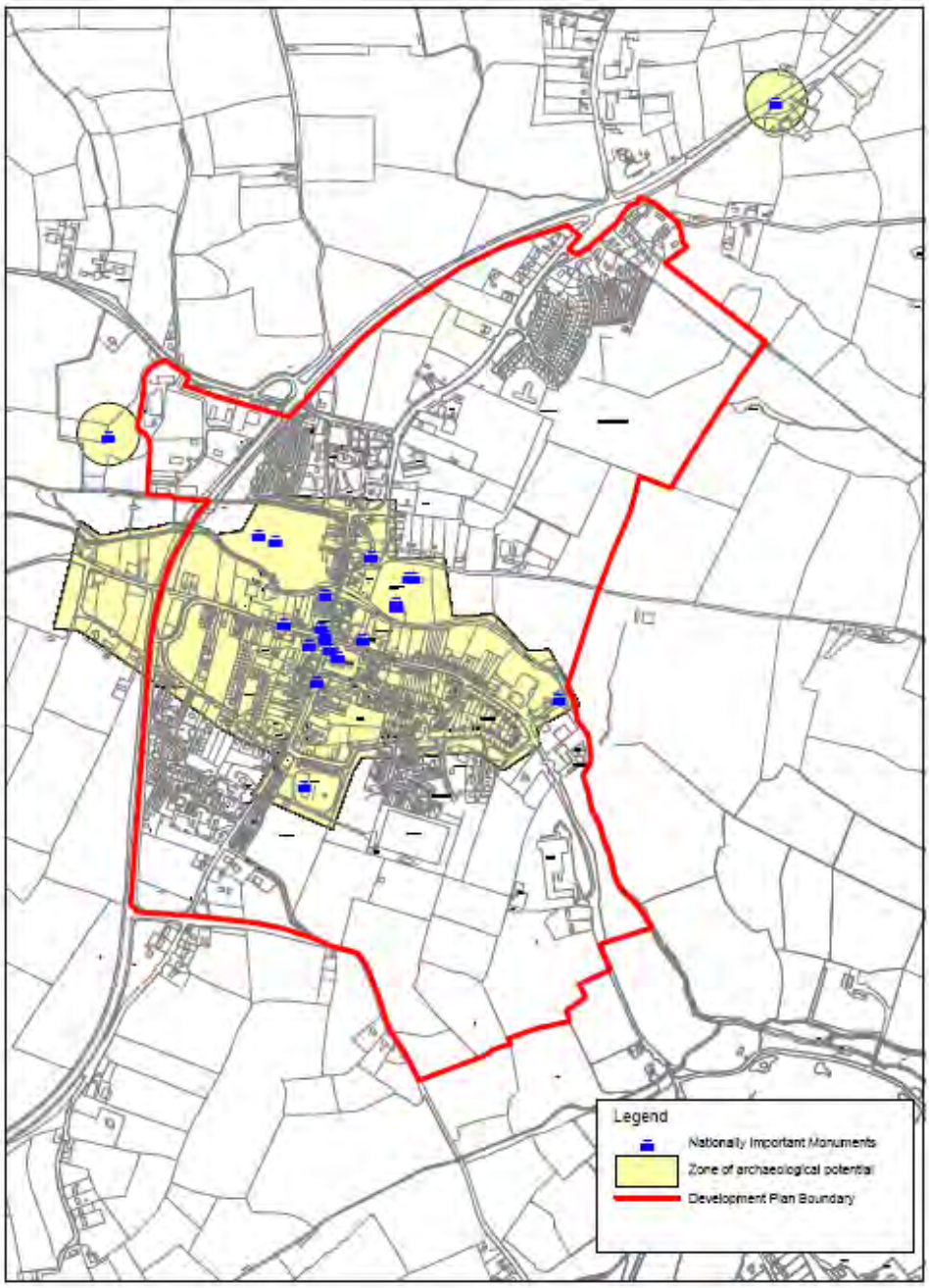

Figure 6.21: Callan Nationally Important Monuments and Sites (Source Duchas)

The Record of Protected Structures

6.10.6 The Record of Protected Structures lists the structures that are given statutory protection through the current development plan. These are shown in **Figure 6.22**.

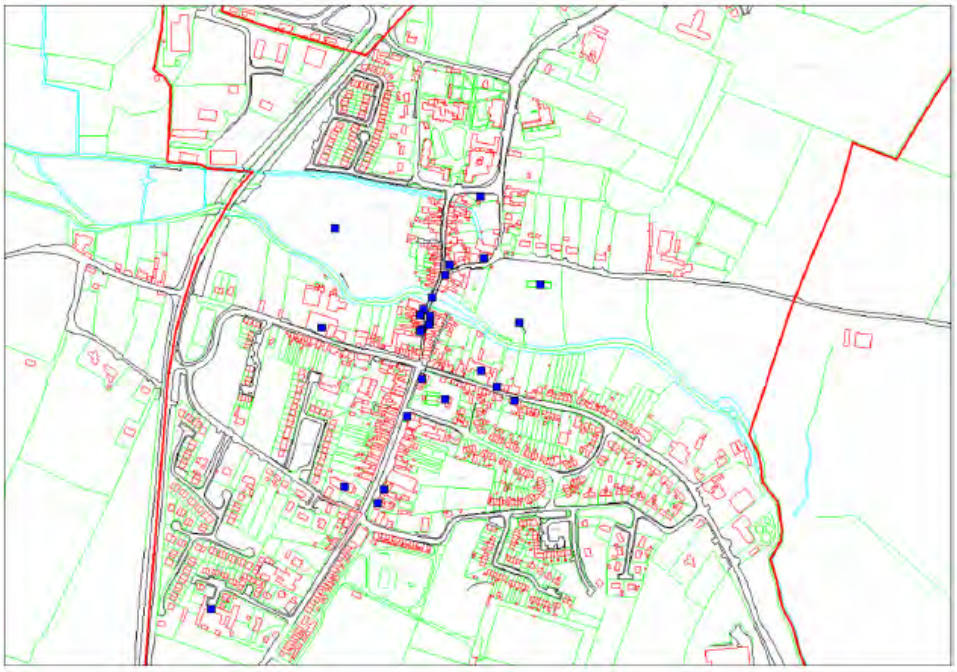

Figure 6.22: Callan Record of Protected Structures

The National Inventory of Architectural Heritage

6.10.7 The National Inventory of Architectural Heritage has also recorded a number of structures within Callan. The purpose of the inventory is to identify, record, and evaluate the post-1700 architectural heritage of Ireland, uniformly and consistently as an aid in the protection and conservation of the built heritage. NIAH surveys provide the basis for the recommendations of the Minister for the Environment, Heritage and Local Government to the planning authorities for the inclusion of particular structures in their Record of Protected Structures. The NIAH is mapped in **Figure 6.23**.

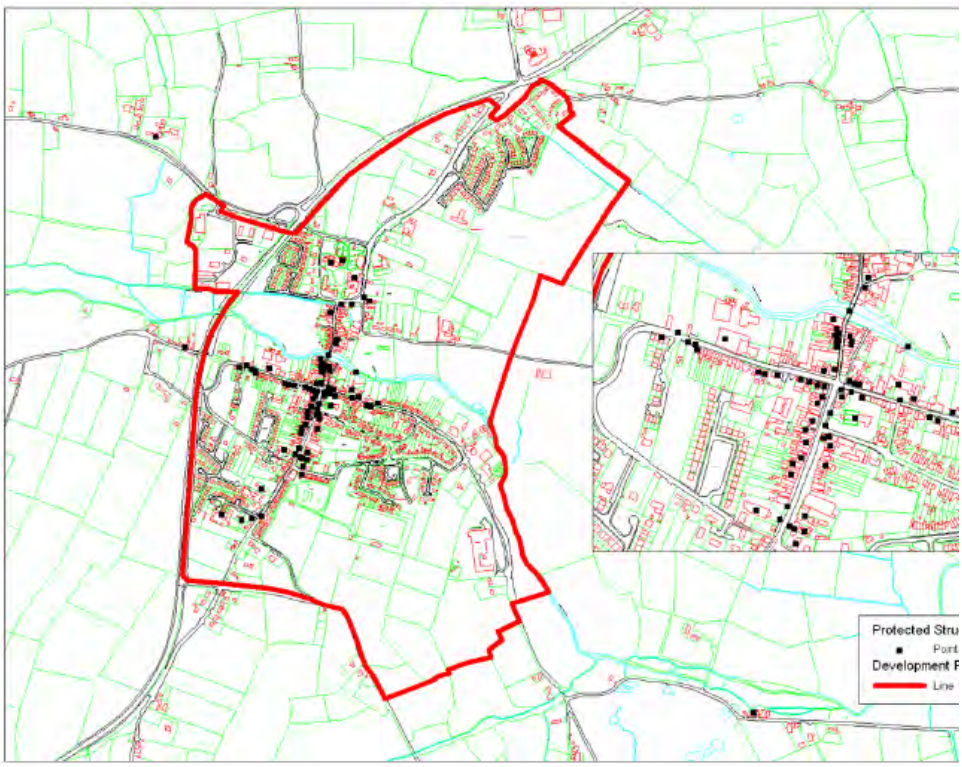

Figure 6.23: Structures recorded on the National Inventory of Architectural Heritage

Hedgerows

6.10.8 Much of Ireland's hedgerow landscape was established between 1750 and 1850 as landlord's enclosed former commonage to form fields. For hedges that are older they were likely be used to delineate townland boundaries which can be seen on the old Ordinance Survey maps as dotted lines. They are usually made up of species such as hawthorn and may have trees of ash, elm, sycamore, beech or willow and can incorporate features such as cut stone piers or forged wrought iron gates. As both field and townland boundaries they are standing records of the area's history of land ownership and local farming practice. As well as their significance for natural heritage, hedges are therefore important in terms of cultural heritage and give character to the local landscape.

6.11 Landscape

Background

6.11.2 A landscape character appraisal was undertaken by CASS Associates on behalf of Kilkenny County Council in 2003. The Landscape assessment has identified a number of Landscape Character Units within County Kilkenny.

6.11.3 Callan is located with the lowland character unit which contains predominantly fertile lands with intensive land management. The slope and topography of such units is in a shallow/gradual transition. As a result there is a high range of use-potential in these areas. Concentrations of tillage lands in this lowland area tend to be characterised by extensive views across large fields with low and highly maintained hedges.

6.11.4 The lowlands are comprised of:

- Kilkenny Northern Basin
- Kilkenny Western Basin
- Kilkenny Eastern Basin

6.11.5 Callan is situation in the Kilkenny Western Basin which is an area characterised by tillage and pastureland uses. Key features such as the gentle topography and low hedging allows for clear open and extensive landscape views. Land parcels within this area are also regular in form and pattern. These landscape factors allow vistas over long distances with the possibility for development to have a disproportionate visual impact. Where shelter vegetation is present, it can have a natural visual barrier and reduce the visual impact of new development.

Figure 6.6.24: Callan Contours

6.12 Summary of Environmental Constraints and Issues

Table 6.2: Summary of environmental constraints and issues

SEA Topic	Environmental Trends / Issues
Biodiversity	The presence of designated biodiversity sites which may be sensitive to impacts of future development
Population and Human Health	Increasingly older population: Relatively high levels of social deprivation
Fauna and Flora	Difficulties in obtaining information due to a lack of information with respect to non designated flora and fauna in the town
Soil	Gleys towards the South East of the town are characterised by saturation with water for at least part of the time.
Water	Limited waste water treatment capacity Inadequate water supplies Areas in the town that are possibly at risk of not achieving good status in river water quality by 2015. Rivers water bodies can be described as being at significant risk of failing to meet good status by 2015.

	Lack of additional capacity exists in terms of water supplies
Air	Difficulties in obtaining information at this spatial scale
Climatic Factors	Existing areas of flood risk and future implications of climate change
Material Assets	Existing areas of flood risk and future implications of climate change Reliance on private transport
Cultural Heritage including architectural and archaeological heritage and Landscape	Widespread cultural heritage and areas of potential archaeological / architectural interest Townscape

7. Strategic Environmental Objectives and Indicators

7.1 Background

7.1.1 SEA uses a combination of objectives, targets and indicators to describe and monitor change and predict impacts of proposed plans and programmes on the environment (Therivel, 2004). Objectives and targets set aims and thresholds that should be taken into account when assessing the impact of proposed plans on the environment. Indicators are used to illustrate and communicate impact in a simple and effective manner.

7.1.2 Indicators can also be used to form the basis of a monitoring programme for the Plan, the results of which will inform the next review. The way in which monitoring will be undertaken and by whom will be outlined in more detail in the Environmental Report.

7.1.3 It should be noted that there are in effect three types of objectives of relevance to the SEA process:

- Objectives of the Plan, which may overlap with some of the SEA objectives
- External Objectives for which Responsible Authorities need to have regard independently from the Plan objectives
- SEA Objectives, devised to test the environmental effects of the plan or to compare the effects of alternatives.

7.1.4 As part of this SEA exercise two assessments will be carried out:

- Examine the internal compatibility of the *SEA objectives* to identify potential areas of conflict in relation to each objective in order to highlight conflicts so that subsequent decisions can be well based.
- Examine the compatibility of the *SEA objectives* and the *Plan objectives* to identify potential areas of conflict between the Plan and the SEA

7.2 Development of SEA environmental objectives

7.2.1 SEA environmental objectives have been developed having regard to the SEA Planning Guidelines, the SEA Directive and the Environmental Report for the Draft Kilkenny County Development Plan 2008 – 2014.

7.2.2 The objectives are based on the environmental topics set out in Annex 1 (f) of the SEA Directive, which might be significantly impacted upon by the CDP. These include but are not confined to: biodiversity (flora &fauna), population, human health, geology / soil, water, air / climatic factors, material assets, cultural heritage / landscape and the interrelationship between n these factors.

7.2.3 The effects on these topics should address positive and negative, short, medium and long-term, permanent and temporary, cumulative and synergistic impacts. As part of this scoping exercise an indicative list of environmental protection objectives is based on Table 4B of the DOEHLG Guidelines (2004). As the SEA Directive only requires the identification of objectives that are relevant to the Plan this element of the scoping process will focus on winnowing down this indicative list to the more pressing environmental objectives.

7.2.4 SEA environmental objectives have therefore been developed by applying the above documents / policy to the environmental constraints in the scoping report.

These environmental constraints were identified through a review of the baseline information for Callan:

- Limited waste water treatment capacity
- Areas in the town that are possibly at risk of not achieving good status.
- Rivers water bodies can be described as being at significant risk of failing to meet good status by 2015.
- Lack of additional capacity exists in terms of water supplies,
- Relatively high levels of deprivation
- Widespread cultural heritage and areas of potential archaeological interest
- The presence of designated biodiversity sites which may be sensitive to impacts of future development
- Existing areas of flood risk and future implications of climate change

7.3 SEA Objectives

7.3.1 Following on from the identified environmental constraints, SEA Objectives have been formulated as follows:

1. Conserve and enhance the diversity of habitats and species, including designated sites which may be sensitive to development
2. Improve the socio-economic profile of Callan
3. Prevent pollution and contamination of groundwater
4. Protect and improve river water quality in Callan
5. Protect and improve water quality and supply
6. Reduce vulnerability to effects of climate change, including flood risk
7. Protect and conserve Callan's cultural heritage, including areas of archaeological interest, protected structures, important monuments and sites and hedgerows
8. Protect and enhance valued natural and historic landscapes and features within them
9. Protect and enhance soil and/or air quality

7.4 Development of SEA Indicators

7.4.1 The purpose of indicators is to monitor the effectiveness of the Plan in meeting the SEA environmental objectives and targets. The development and selection of the SEA indicators will be based on:

- Ensuring consistency, where appropriate, with the indicators proposed within the Environmental Report of the Draft Kilkenny County Development Plan
- Identifying existing environmental problems, which will inform the development of SEA objectives and indicators
- The selection process will be guided by the methodology proposed by Donnelly et al (2006)
- A limited number of objectives and indicators will be used, which will keep the assessment and monitoring manageable and strategic

7.4.2 Ultimately they will also be determined by the availability of data and monitoring of this data that takes place.

7.5 SEA Objectives and Indicators

7.5.1 **Table 7.1** matches SEA objectives to suitable indicators for the measurement and monitoring of the effectiveness of the plan. Where appropriate, indicators have been taken from the Environmental Report for the Draft Kilkenny County Development Plan 2008 – 2014 in order to avoid duplication.

Table 7.1: Environmental Objectives, Indicators and Topic Areas

Environmental Objective	Indicator	SEA Topic Areas
Conserve and enhance the diversity of habitats and species, including designated sites which may be sensitive to development	Loss of habitats and species (CDP)	Biodiversity, flora and fauna
Improve the socio-economic profile of Callan	Deprivation index	Population and Human Health
Prevent pollution and contamination of groundwater	Faecal Coliform counts per 100ml of groundwater (CDP) New developments granted permission which cannot be adequately served by the current wastewater treatment plant	Water
Protect and improve river water quality in Callan	Biotic Quality Rating (Q value) (CDP)	Water
Protect and improve water supply	Levels of E-Coli present in drinking water Developments granted permission which cannot be adequately service by current water supply	Water and Human Health
Reduce vulnerability to effects of climate change, including flood risk	Developments granted permission on flood plain / unauthorised development on floodplain Recorded flooding episodes	Climatic factors / Material Assets
Protect and conserve Callan's cultural heritage, including areas of archaeological interest, protected structures, important monuments and sites and hedgerows	Number of unauthorised developments resulting in full or partial loss of cultural heritage (CDP)	Cultural Heritage
Protect and enhance valued natural and historic landscapes and features within them	Number of developments granted / unauthorised conspicuous developments located within sensitive landscapes (CDP)	Landscape
Protect and enhance soil and/or air quality.	Area of brownfield land available	Soil, Air, Human Health

8. Assessment of Plan Alternatives

8.1 Introduction

8.1.1 The assessment of development options and alternatives is a legal requirement under the SEA Directive. Under Article 5 of the SEA Directive, the Environmental Report should consider reasonable alternatives taking into account the objectives and the geographical scope of the plan or programme and the significant environmental effects of the alternatives selected.

8.1.2 Alternatives must be reasonable, realistic and capable of implementation, and should represent a range of different approaches within the statutory and operational requirements of a plan. However, the position of the plan within the decision making hierarchy predetermines the scope of strategic alternatives available. The Callan Local Area Plan is framed by the policy context set by the higher more strategic levels of plan making, such as the South East Regional Planning Guidelines and the Kilkenny County Development Plan. Despite this, rational choices need to be made and demonstrated at the level of each plan.

8.1.3 This chapter provides a brief description of each scenario, compares each scenario against the environmental objectives and outline the reasons for selecting the preferred alternative. Zoning maps are presented to illustrate the potential extent of development for each plan scenario and the planning and environmental impacts of each are described.

8.2 Plan Scenarios

8.2.1 Taking in account the higher level policy constraints, the following strategic options for the future development of Callan will be considered:

- **Alternative 1:** 'Business as usual'; sets out a scenario where the existing plan is allowed to continue without review.
- **Alternative 2:** 'Unlimited development' sets out a scenario where the future growth in Callan reflects requests for additional zoning.
- **Alternative 3:** 'Consolidate the town' sets out a scenario where additional zoning requirements reflect the needs of the town and support the vitality and viability of the town centre.

Alternative One – 'Business as Usual'

8.2.2 The baseline chapter sets out the key environmental characteristics of Callan providing an indication of environmental issues that the area faces. The collection of baseline information also provides an indication of trends and enables an understanding of how the environment would change over time without the implementation of the LAP. The 'Business as Usual' scenario represents a continuation of present trends, without any policy changes or infrastructural improvements.

8.2.3 The 'Business as Usual' alternative represents a continuation of the existing zoning and policy objectives within the Callan Local Area Plan 2002 – 2008. This approach would constrain type and quantum of growth to the capacity

available within existing zonings and would constrain development of underused or opportunity sites where this would require zoning amendments.

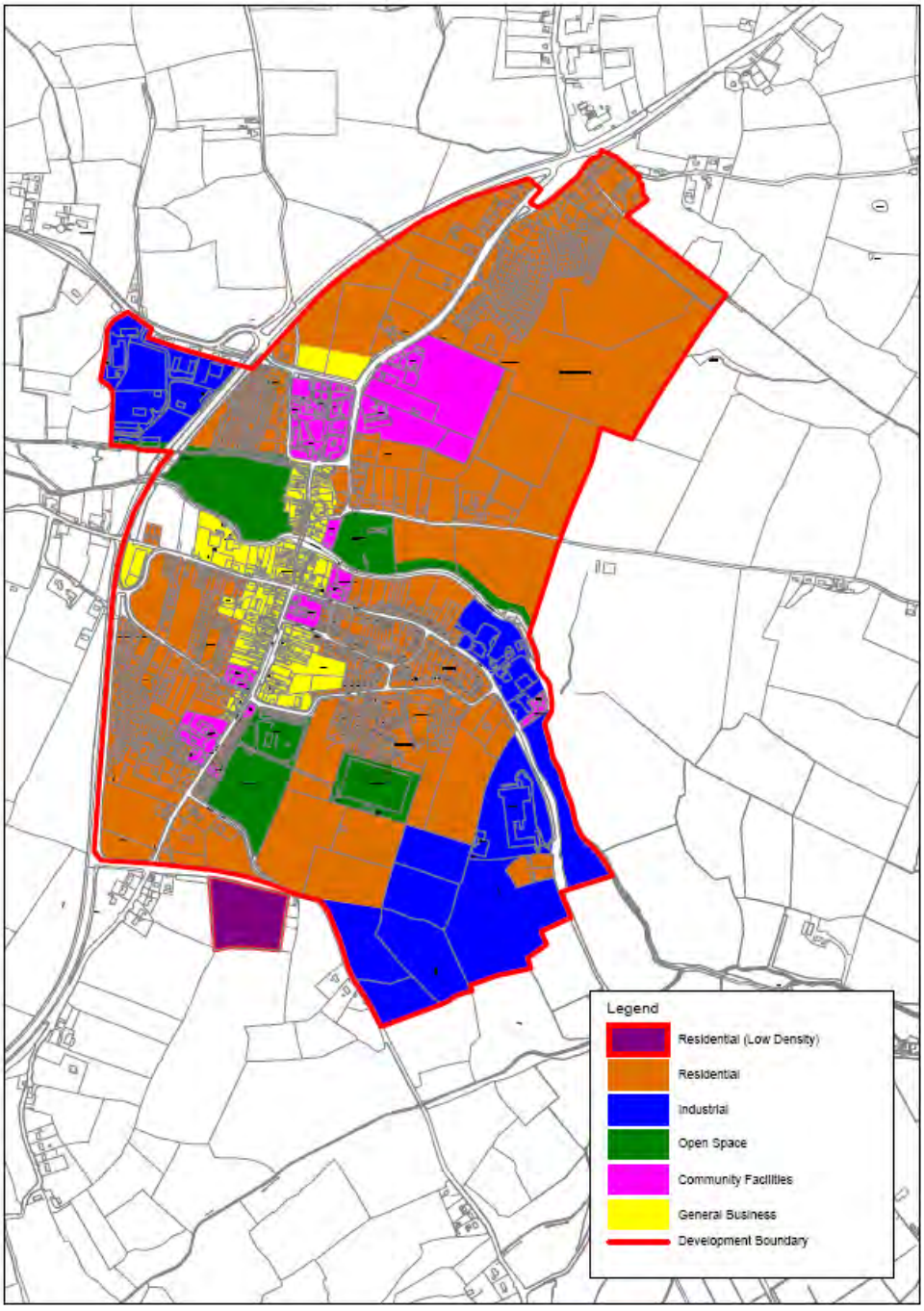

Figure 8.1: Alternative One

Alternative 1: Summary of effects

8.2.4 Alternative 1 is a continuation of the current Plan and associated zoning allocations. This approach would have a number of potential effects on the various environmental receptors which will mainly result from the impacts of new development and the associated resources this requires. Given the nature of the town and existing zoned capacity on both greenfield and brownfield

locations, new development including housing, employment, retail, community may result in the removal and loss of soil, would require additional wastewater treatment infrastructure and possibly additional freshwater supply. The impact of new development on water quality will depend on the provision of additional waste water treatment facilities, the location of new development and mitigation measures such as the incorporation of attenuation ponds.

8.2.5 Where this development is located on greenfield sites this will result in the replacement of natural and semi-natural habitats with artificial surfaces and the loss of trees and hedgerows. Where this is located close to the Kings River it may result in increased flood risk, impacts on designated biodiversity sites and poor water quality due to run off.

8.2.6 Town centre development may have potential negative impacts on cultural heritage with reference to the area of archaeological potential, structures recorded on the record of protected structures, national inventory of architectural development and nationally important monuments. Those structures recorded on the NIAH but not listed on the RPS are particularly vulnerable to the impacts of new development. Continued dereliction in areas of the town centre is also a threat to features of the historic environment.

8.2.7 Zoning on lands that are liable to flooding and this is likely to result in damage to material assets, pose a risk to human health and wellbeing and, depending on the adjacent land uses, may result in an adverse impact on water quality.

8.2.8 Although there is currently no information on air quality in the town a high reliance on private transport with no prospect for improvements to public transport provision in the future is likely to maintain and or increase trends in relation to private car use.

8.2.9 This trend is likely to worsen as a result of a business as usual strategy.

Alternative Two – 'Unlimited Development'

8.2.10 The 'Unlimited Development' alternative is based on the assumption that zoning and policy objectives would reflect all submission zoning requests that were made to the plan during the pre-draft consultation stage.

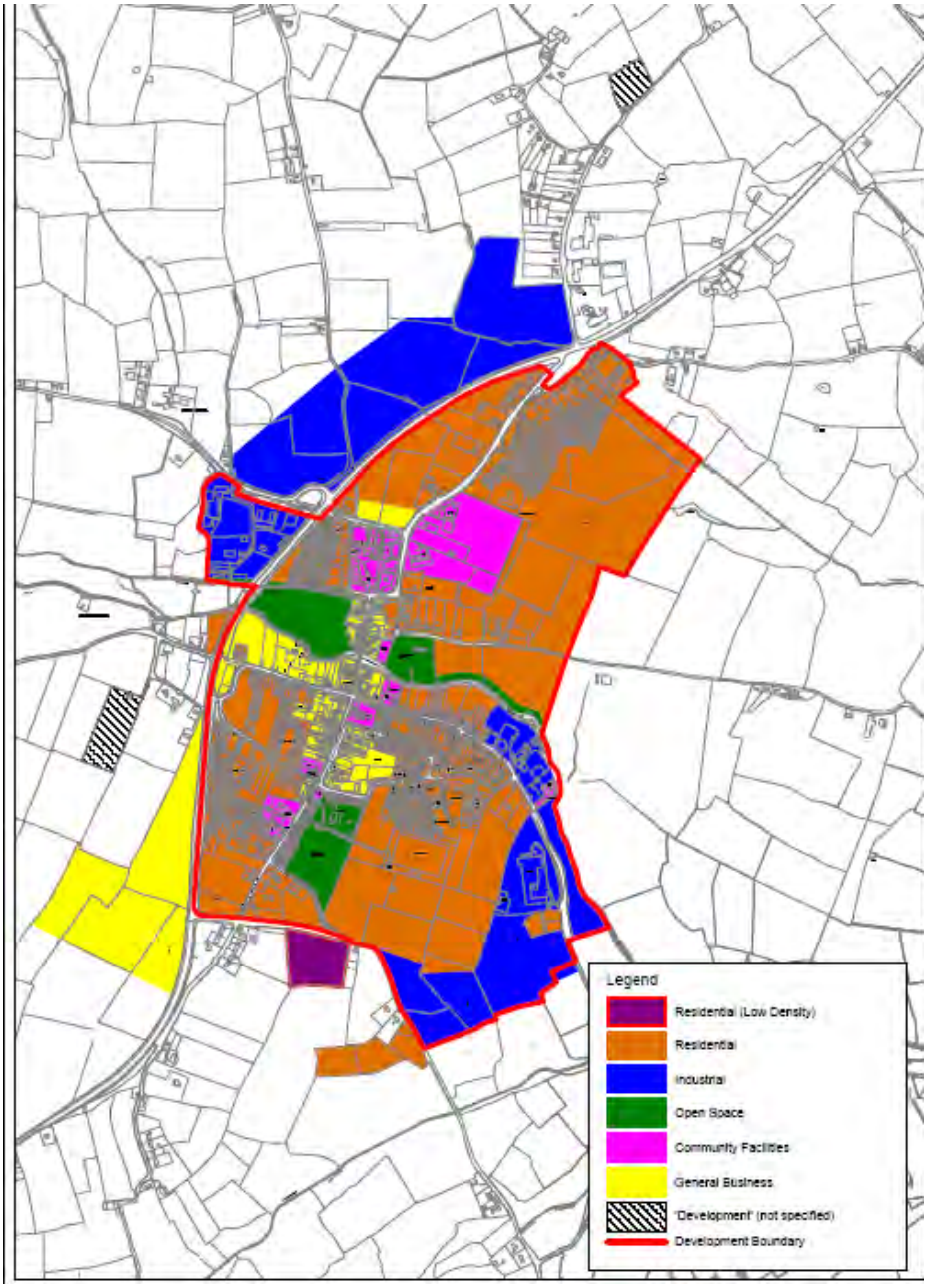

Figure 8.2: Alternative Two

Alternative 2: Summary of effects

8.2.11 This option proposes limited change to the existing zoning designations within the town boundary which is outlined in the 'business as usual' alternative. A distinction between the two can be made with respect to the quantum and location of additional lands zoned. The majority of the additional zoning requests would require realignment of the town boundary in a number of areas.

8.2.12 This approach would have a number of potential effects on the various environmental receptors. These effects are largely consistent with those set out in Alternative 1 and include:

- Reduction in water quality (this will depend on the provision of additional waste water treatment facilities);
- Inadequate supplies of drinking water capacity;
- Development on greenfield sites will result in the replacement of natural and semi-natural habitats with artificial surfaces and the loss of trees and hedgerows;
- Where development is in close proximity to the Kings River or within areas known to be prone to flooding, it may result in increased flood risk, subsequent damage to material assets and impact on designated biodiversity sites;
- Potential impact on quality of groundwater and river quality;
- A higher reliance on private transport with subsequent impacts on air quality and green house gas emissions;
- Loss of soil as a result of new development;
- Impacts on cultural heritage with reference to the area of archaeological potential, structures recorded on the record of protected structures, national inventory of architectural development and national monuments;
- Continued dereliction in areas of the town centre contributing to underuse of historic buildings. In comparison with Alternative 1 this impact is likely to be significant due to high levels of development located outside the town boundary;
- Depending on the height and form of new buildings, a negative impact on townscape quality and cultural heritage;
- Significant impact on the strategic function of the N76 bypass

8.2.13 However, the additional quantum of development, in comparison with Alternative 1, is likely to exacerbate the significance of a number of these effects. The location of boundary realignment will increase the likelihood of negative impacts on water quality, car use and other cumulative negative impacts resulting from urban sprawl.

Alternative Three – 'Consolidate the Town'

8.2.14 'Consolidate the Town' sets out a scenario where additional zoning requirements reflects the population growth needs of the town and support the vitality and viability of the town centre. It provides for an element of dezoning and additional zoning in support of sustainable economic activity and seeks to bring about the reuse of land and buildings through backland development. This approach is consistent with national, regional and county policy requirements.

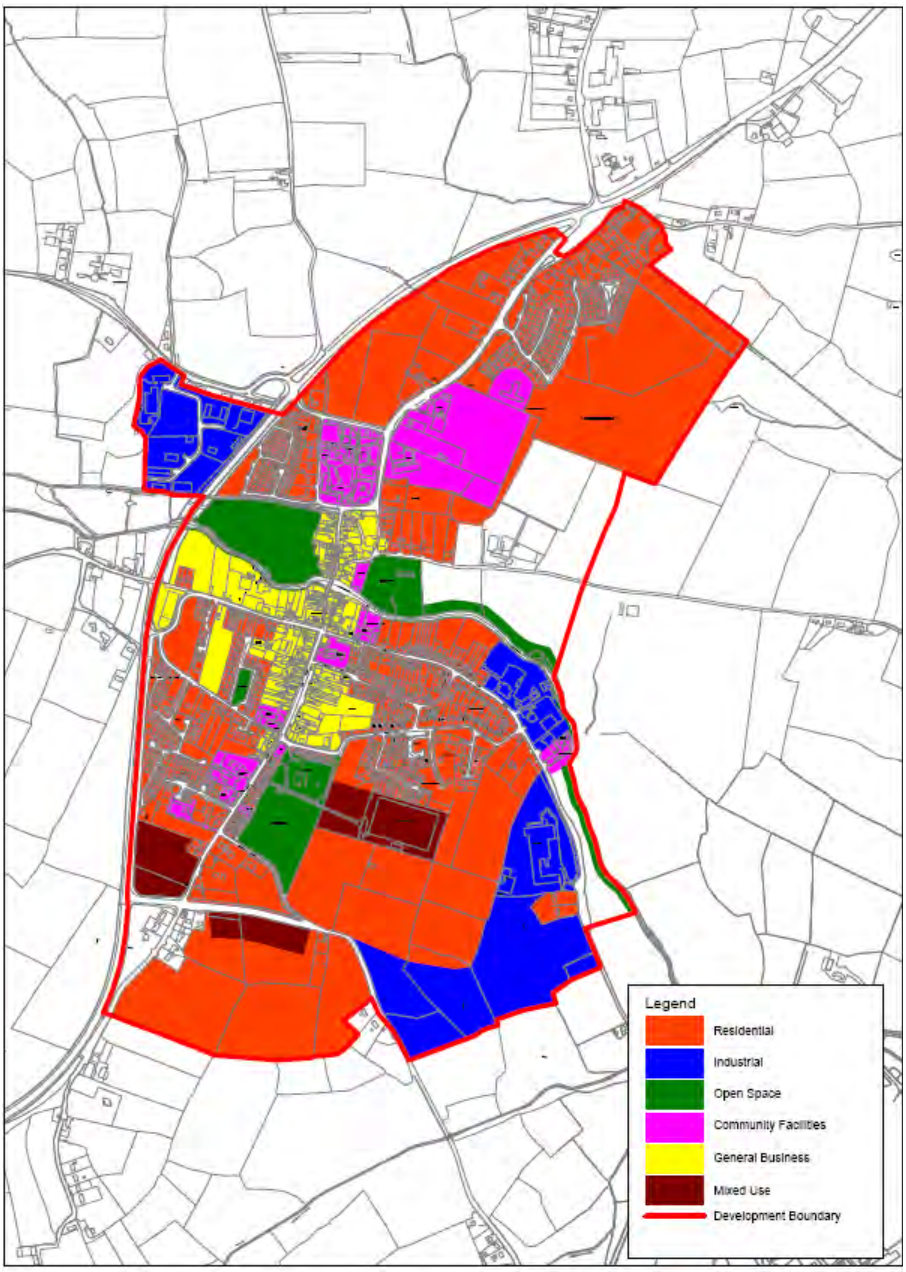

Figure 8.3: Alternative Three

Alternative 3: Summary of effects

8.2.15 In comparison with the business as usual scenario, the development strategy for Alternative 3 proposes changes to existing zoning designations within the town boundary in order to support increased development activity in the town centre and also provides for some additional zoning to the south of the current town boundary and the realignment of the town boundary. In addition, Alternative 3 will include the dezoning of residential lands to the east of the town.

8.2.16 This approach would have a number of potential effects on the various environmental receptors. These effects are consistent with those set out in Alternative 1 and include:

- Reduction in water quality (this will depend on the provision of additional waste water treatment facilities);
- Potential lack of drinking water capacity may constrain new development and indirectly impact on the health and wellbeing of the population in the town;
- Development on greenfield sites will result in the replacement of natural and semi-natural habitats with artificial surfaces and the loss of trees and hedgerows;
- The removal of industrial zoning and the addition of general business zoning in areas prone to flooding, or development in close proximity to the Kings River it may result in increased flood risk, subsequent damage to material assets and impact on designated biodiversity sites;
- Reduced quality of groundwater and river quality;
- A higher reliance on private transport with subsequent impacts on air quality and emissions;
- Changes in employment patterns in the town resulting from a decrease in industrial zoned land and increased to general business and mixed use zonings. This may impact on the socio-economic profile of the town.
- New development resulting in the loss of soil;
- Cultural heritage with reference to the area of archaeological potential, structures recorded on the record of protected structures, national inventory of architectural development and national monuments;
- Continued dereliction in areas of the town centre contributing to underuse of historic buildings. To a lesser degree in comparison with Alternative 1 and 2; and
- Depending on the height and form of new buildings, a potentially negative impact on townscape quality and cultural heritage.

8.2.17 The amount of new development proposed is greater than Alternative 1 and less than Alternative 2. Additional zoning outside the town boundary is made on the basis of providing additional residential land to the south of the town. Despite this, the location of additional zoning proposed under this scenario may result in greenfield development and negative impacts on landscape quality. The additional quantum of development is likely to exacerbate the significance of a number of these effects.

8.3 Comparison of Alternatives

8.3.1 The current Plan includes provision for employment lands, e.g. industrial , general business, and residential zoning however the 'business as usual' scenario does not provide for the review of this zoning in line with changing trends and requirements for the town. This approach may not serve to make adequate provisions for future inward investment and thus hinder the town's prospects of improving its socio-economic profile.

8.3.2 The location of new development according to plan options set out in **Figure 8.4** is likely to have a range of effects which have been evaluated and compared with respect to the environmental objectives (See **Appendix 3**). This assessment has primarily focused the general location of new development rather than any detailed policy objectives which may be reasonably be expected to be included within a Local Area Plan.

8.3.3 The evaluation concludes that there are a number of potential effects associated with all development alternatives which are summarised below:

- Reduction in water quality (this will depend on the provision of additional waste water treatment facilities);

- Potential lack of drinking water capacity may constrain new development and indirectly impact on the health and wellbeing of the population in the town;
- Development on greenfield sites will result in the replacement of natural and semi-natural habitats with artificial surfaces and the loss of trees and hedgerows;
- Where development in close proximity to the Kings River it may result in increased flood risk, subsequent damage to material assets and impact on designated biodiversity sites;
- Reduced quality of groundwater and river quality;
- A higher reliance on private transport with subsequent impacts on air quality and emissions;
- New development resulting in the loss of soil;
- Cultural heritage with reference to the area of archaeological potential, structures recorded on the record of protected structures, national inventory of architectural development and national monuments; and
- Continued dereliction in areas of the town centre contributing to underuse of historic buildings.

8.3.4 It is possible to make a number of distinctions between each strategy with respect to the location of new development.

Alternative 1: Development within the existing town boundary

- Continuation of existing trends and impacts highlighted in **Section 8.3.3.**

Alternative 2: Development outside the town boundary to the east and south of the town

- Continuation of existing trends and impacts highlighted in **Section 8.3.3** in addition to site specific impacts associated with development within the SAC and flood plains as well as outside of the town boundary (water quality, designated biodiversity sites, flood risk). Town expansion is likely to increase levels of unused sites and dereliction in the town centre and increase levels of unsustainable forms of transport and other adverse effects associated with urban sprawl.

Alternative 3: Changes to some zoning designations within the town centre and expansion of the town boundary to the south of the town

- Continuation of existing trends and impacts highlighted in **Section 8.3.3** in addition to site specific impacts associated with the redevelopment of town centre sites and development to the south of the town (designated biodiversity sites, flood risk). Review and the consolidation of employment land zoning (i.e. industrial, general business and mixed use land) should serve to improve the town's socio-economic profile as well as preventing development to the north west of the town, on the far side of the bypass.

Proposed Plan Strategy

8.3.5 The significance of a number of the effects outlined above is more likely as quantum of development increases. As alternative 1 does not reflect population trends and projections and alternative 2 proposes the highest quantity of new development, **Alternative 3** provides for the least damaging outcome and is the preferred strategy for the town.

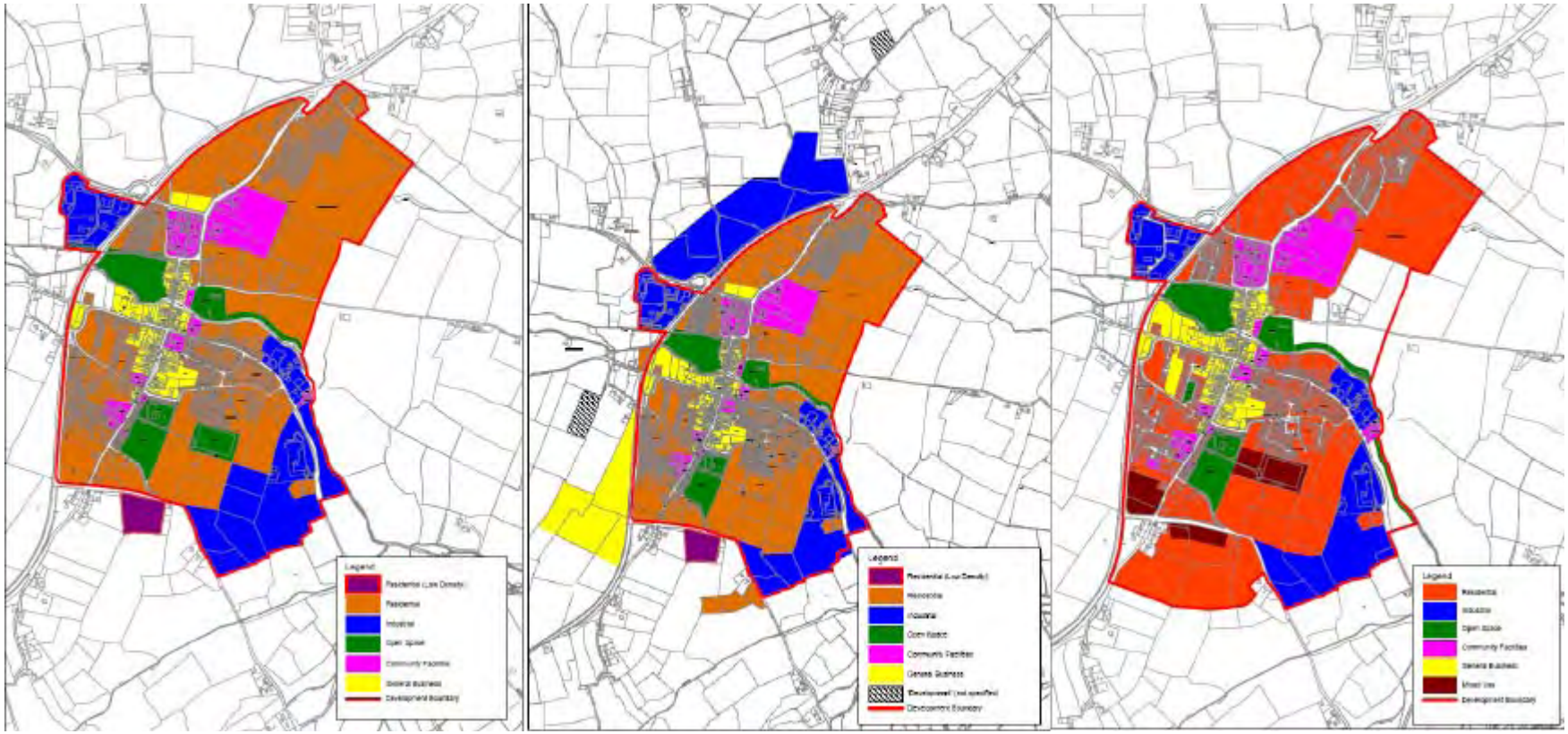

Figure 8.4: Alternative Development Strategies

9. Evaluation of the Likely Significant Effects of the Draft LAP

9.1 Introduction

Reasons For Selecting The Preferred Strategy

9.1.2 The evaluation of draft LAP policies involves identifying potential changes to the baseline environment as a result of the implementation of the LAP, and describing these changes in terms of their magnitude, geographic scale, timing, duration, permanence and positive or negative effect.

9.1.3 The assessment has been informed by the baseline information and associated GIS mapping which has highlighted areas of vulnerability. GIS has also been useful in identifying where cumulative impacts may occur as a result of the plan. Conclusions resulting from these matrices have been set out in the Non Technical Summary.

9.1.4 The preferred plan strategy sets out specific development objectives, which are subject to assessment in the context of each of the environmental protection objectives. An assessment has also been carried out on the detailed policies which flow from the strategic objectives. This has been completed through the use of matrices set out in **Table 9.3**.

9.1.5 The include a column headed comments which indicate the mitigation measures, any changes to the wording of the development objective which may be required and any assumptions used in making judgements on the significance of effects.

Significance of the Effects

9.1.6 Significance have been assessed in terms of the type (secondary, cumulative, synergistic, short, medium and long-term, permanent and temporary, positive and negative effects) and scale (local / regional national) of development envisaged by the plan and the sensitivity of the receiving environment. Detailed information on the type and scale of the effect have informed conclusions as to whether the effect envisaged is considered to be ‘significant’ or ‘insignificant’.

9.2 Development Strategy

9.2.1 The Draft Callan Local Area Plan includes the following vision for the town in 2020:

"By 2020, Callan will be a vibrant town of approximately 5,000 persons supported by a growth in retail services, jobs, tourism and community facilities. Connections within the town will be improved though the additional road infrastructure to the south east and improvements to pedestrian and cycle links. Additional retail development and associated town centre improvements have improved vitality of the town and helped to regenerate a number of properties on Bridge Street. A phased and masterplanned approach to newly developed areas at Cannafahy and Bolton has helped to match demand for new housing and employment development with supply and create sustainable areas of high quality urban design which reflects and respects the existing character of the built and natural environment."

Proposed Zoning

Table 9.1: Current and Proposed Zonings

	Current	Proposed	Remaining Capacity
Residential	103.19	101.21	34.29 (excluding capacity in mixed use areas)
Industrial	30.22	24.20	12.55
Open Space	14.68	12.60	-
General Business	11.23	13.03	3.79
Community	12.94	14.31	-
Agricultural	1.38	16.8	
Mixed Use	0	7.69	7.69
Total	176.33	187.85	

Population Projections

Table 9.2: Population Projections – Callan

	Population Projection	Additional Population	Housing Capacity / Units
2014	2,562	259	90
2020	5,000	2,439	846

Table 9.3: LAP Objectives and Policy Appraisal

LAP Objective	SEA Objective									Comments
	1	2	3	4	5	6	7	8	9	
To support town centre vitality and viability by highlighting a number of opportunity sites for retail development in the town centre	O	O	✓	O	O	O	O	O	O	(3) Improving the town centre should have a positive impact on the local economy.
To provide high quality and linked new residential areas with locally accessible open spaces and community facilities	O	O	✓	?	O	?	✓	O	O	(3) Provision of open spaces and permeable neighbourhoods should have a positive impact on the overall health of the population. (4) (6) Residential development depends on wastewater treatment and water supply capacity being provided for. (7) Flood risk should be reduced where residential development is planned to avoid flood plains as well as increasing local walking opportunities and thus reducing car-borne traffic.
To address deficits with respect to retail facilities	?	?	✓	?	O	?	?	?	?	(1) (2) (7) (8) (9) Objective should include reference to location of retail facilities, i.e. in the town centre, edge of centre etc. (3) Provision of retail facilities to meet the local needs of the population should contribute towards improved socio-economic profile of the town. (4) (6) Retail development depends on wastewater treatment and water supply capacity being provided for.
To protect and enhance the character and integrity of existing natural and historic built environments	✓	✓	✓	✓	✓	O	?	✓	✓	(1) (2) (4) (8) (9) Objective should have positive effects on SEA objectives related to preserving Callan's natural and built environment and cultural heritage. (3) Protection and improvement of Callan's natural environment should help improve human health.
To facilitate sustainable economic development	?	?	✓	?	?	?	?	?	?	(1) (2) The impact of this objective depends on the location of new development and its importance in terms of natural habitats and species. (3) Objective should have a positive impact on local economy of Callan in terms of employment opportunities created.

										(4) (5) Impact on groundwater and river water quality depends on location of development and proximity to river and measures taken to prevent industrial run-off. (4) (6) New development depends on wastewater treatment and water supply capacity being provided for. (7) Flood risk dependent on location of new development. (8) Tourism development should include the protection and conservation of the town's cultural heritage. (9) Impact on landscape depends on location of new development.
To improve linkages within the town	O	O	✓	O	O	O	?	O	O	(3) Objective should have positive socio-economic impacts through improving accessibility and permeability within the town. (7) Objective could be amended to refer to pedestrians and cycling linkages, thus reducing car-borne traffic within the town.
Support the re use of land and buildings, particularly though backland development	✓	✓	?	?	?	O	✓	O	✓	(1) (2) (9) Objective should have positive impacts generally in that it will reduce to a certain extent, greenfield development elsewhere in the town, thus protecting habitats and species from development. (7) Avoiding development on flood plain

Table 9.4: LAP Policy Assessment Matrix

LAP Policy	SEA Objective									Comments
	1 BIO	2 HEA	3 WAT	4 WAT	5 WAT	6 CLI	7 HER	8 LAN	9 SOIL	**Including reference to secondary, cumulative, synergistic, short, medium, long-term, permanent, temporary, positive and negative effects and scale (local / regional / national)**
R1: It is the specific objective of the County Retail Strategy and the Local Area Plan to ensure that the vitality and viability of district towns is maintained and enhanced. To do this, the Local Area Plan will support: ▪ Callan town centre as the focus of all major new retail development ▪ development that encourages the appropriate re-use, regeneration of derelict, vacant and underutilised sites and in particular vacancies and underused sites on Green Street, Bridge Street and Mill street; ▪ a new convenience store in or around Bridge Street to address the need generated by the development of new communities North of the Kings River; and ▪ The development of a number of opportunity sites in the town centre.	✓	✓	?	O	?	✓	✓	✓	O	(1) (6) Re-use of buildings reduces requirements for development on greenfield sites including sites which may impact on biodiversity and create urban sprawl (2) Policy will enhance vitality of Callan thus increasing potential to improve socio-economic profile. (3) (5) New retail development depends on wastewater treatment and water supply capacity being provided for. (7) (8) Policy will lead to protection and restoration of historic environment. **Mitigation:** Ensure that adequate capacity in water supply is available to serve new development. Ensure that adequate capacity in the waste water treatment plant is available to serve all new development.
R2: Subject to other policies set out in the Local Area Plan and County Development Plan, proposals for new retail will normally be permitted where the development: ▪ Contributes to the improvement of pedestrian links and movement in the town and is accessible to all; ▪ Is well integrated with the existing centre by	O	O	O	O	O	O	✓	✓	O	(7) (8) Policy seeks to enhance the town's historic fabric and townscape value.

LAP Policy	SEA Objective									Comments
	1 BIO	2 HEA	3 WAT	4 WAT	5 WAT	6 CLI	7 HER	8 LAN	9 SOIL	**Including reference to secondary, cumulative, synergistic, short, medium, long-term, permanent, temporary, positive and negative effects and scale (local / regional / national)**
respecting the building line of the existing urban environment and, where appropriate, building up to the edge of the curtilage, providing for linked trips to the remainder of the centre and contributing towards improving the environmental quality of the centre. ▪ Positively reflects the town's historic fabric and significant townscape value; ▪ Provides suitable car parking capacity, in accordance with the Kilkenny Draft Development Plan car parking standards, which caters for the immediate and anticipated future demands of the development.										
R3: The County Retail Strategy sets out the role and function of Callan within the retail hierarchy providing guidance on the distribution of new floorspace. The Retail Strategy defines Callan as a Tier 1 Level 2 Sub County Town. The distribution of new floorspace should be linked to Callan's role in the retail hierarchy for the County and should be appropriate in scale and character to the hierarchical role of the centre.	O	✓	O	O	O	O	O	O	O	(2) Policy seeks to improve retail offer of the town.
TC1: Traffic calming and car parking provision will be sought in town centre locations particularly, West St. / Green St / Bridge St / Mill Street. A reconfiguration of existing car parking provision will be sought on Green Street where there is an identified benefit for road safety and reduction in visual impact on surrounding townscape.	O	✓	O	O	O	O	O	✓	O	(2) Traffic calming and improved car parking in the town should improve the traffic situation and lead to increased road safety and image of the town.
RES1: In line with the Development and settlement strategy, it is a	✓/X	O	?	O	?	?	?	O	?	(1) (9) Policy restricts development to that

LAP Policy	SEA Objective									Comments
	1 BIO	2 HEA	3 WAT	4 WAT	5 WAT	6 CLI	7 HER	8 LAN	9 SOIL	**Including reference to secondary, cumulative, synergistic, short, medium, long-term, permanent, temporary, positive and negative effects and scale (local / regional / national)**
specific objective of the Local Area Plan to consolidate settlement within the town boundary and apply the sequential approach to the development of housing land.										within the development boundary, thus preventing sprawl outside the town and resultant negative impacts on natural habitats and species. However, cumulative loss of greenfield sites is also likely to occur. (3) (5) New development will be dependent on the improvement of the current water supply and wastewater treatment. (6) Impact dependent on location of new residential development and whether this is within floodplain. (7) (9) Dependent on location of development. **Mitigation:** Require the preservation of hedgerows within new development Establish a buffer around designated ecological sites, the size of which will be dependent on local ecological and drainage conditions and other factors as appropriate. Ensure that adequate capacity in the waste water treatment plan is available to serve all new development. Ensure that adequate capacity in water supply is available to serve new

LAP Policy	SEA Objective									Comments
	1 BIO	2 HEA	3 WAT	4 WAT	5 WAT	6 CLI	7 HER	8 LAN	9 SOIL	**Including reference to secondary, cumulative, synergistic, short, medium, long-term, permanent, temporary, positive and negative effects and scale (local / regional / national)**
										development. Encourage the reuse of soils generated from housing and other development.
RES2: New residential development should demonstrate good housing design and provide for successful and sustainable communities by: ▪ Showing consistency with urban design objectives and principles outlined in the County Development Plan; ▪ Providing open space and community facilities according to the standards set out in this plan; ▪ Providing energy efficient and adaptable residential environments that can accommodate changing needs easily; ▪ Creating places of distinctive character and legibility; ▪ Integrate roads, parking, pedestrian and cycling routes that enhance linkages to the existing urban area and minimise the need to use cars; ▪ Support mixed communities by promoting a diverse range of household types; and ▪ Enhance and protect the built and natural heritage.	✓	✓	O	O	O	✓	O	✓	?	(1) (7) (8) Policy includes aim to enhance and protect built and natural heritage through the construction of residential developments. (2) Provision of open space and community facilities should help to improve the town's socio-economic profile. (2) (6) Sustainable and energy efficient residential developments should lead to a healthier and more cost efficient environment in the long term and an improved socio-economic profile, in particular with regard to human health. (6) Creation of pedestrian and cycle linkages should help to minimise use of the car. (8) Enhancing and protecting the built and natural environment should also help to protect natural and historic landscapes.
RES3: Proposals for residential development should have regard to	O	O	O	O	O	O	O	✓	O	(8) Promoting housing development that

LAP Policy	SEA Objective									Comments
	1 BIO	2 HEA	3 WAT	4 WAT	5 WAT	6 CLI	7 HER	8 LAN	9 SOIL	**Including reference to secondary, cumulative, synergistic, short, medium, long-term, permanent, temporary, positive and negative effects and scale (local / regional / national)**
the Draft Guidelines on Sustainable Residential Development in Urban Areas, and in particular, the objective of limiting the size of individual proposals to 10% - 15% of the existing housing stock. In Callan, the existing housing stock is approximately 894 units, which provides a basis for an indicative maximum range of 89 – 134 units, for development proposals.										reflects the existing housing stock is likely to reduce potential impacts on landscape and character of the town.
RES4: In terms of design and layout, new residential development that are considered significant should submit design statements in conjunction with applications for permission, explaining the principles and concept behind the design, demonstrating how the proposal relates to its wider context, meets the following urban design objectives and principles: ▪ Consider and reflect the physical, social and environmental context of the town; ▪ Protect the Town's historic fabric and positively contribute towards its identity and character; ▪ Creating places of distinctive character and legibility; ▪ Improve the public realm and provide for public and private spaces that are clearly distinct and contribute to continuity and enclosure; ▪ Contribute to improvements in safety by enhancing natural surveillance, providing active street frontages, and ensuring appropriate enclosure and overlooking of public spaces; ▪ Supporting increased permeability,	✓	✓	O	O	O	✓	✓	✓	✓	(1) Policy aims to support biodiversity through consideration of environmental context (2) Improvements to the public realm and improved safety through natural surveillance should enhance the town's socio-economic profile. (6) Increased permeability should encourage walking and cycling and thus reduce car use. (7) Policy seeks to protect the town's historic fabric. (8) Policy seeks to contribute positively towards the town's identity and character as well as protecting the town's historic fabric. (9) Policy aims to support improvements in air quality.

LAP Policy	SEA Objective									Comments
	1 BIO	2 HEA	3 WAT	4 WAT	5 WAT	6 CLI	7 HER	8 LAN	9 SOIL	**Including reference to secondary, cumulative, synergistic, short, medium, long-term, permanent, temporary, positive and negative effects and scale (local / regional / national)**
strengthening the linkages between places and contributing to a well defined movement network particularly in relation to walking, cycling and access by public transport; ▪ Ensuring that buildings and spaces can adapt to changing environmental, social and economic circumstances, particularly climate change; ▪ Creating variety and choice to support mixed communities, develop the identity of a place and ensure that all new developments are accessible to all; and ▪ Supporting improvements to air and water quality through good quality landscaping which can support biodiversity.										
PH1: It is the policy of the Local Area Plan to set out a phasing mechanism for the release of land for development over the period of the plan so as to take account the need for co-ordinated provision of the necessary infrastructure.	O	✓	✓	O	O	O	O	O	O	(3) Development in tandem with the provision of necessary physical infrastructure should lead to improved human health and water quality as a result of properly planned and phased residential developments.
T1: Based on a general assessment of connectivity and permeability with respect to new and existing zoning designations, it is the objective of the Callan Local Area Plan to support and facilitate sustainable transport within the town through measures to improve connectivity, reduce traffic congestion, reconfigure car parking and providing for sustainable forms of transport such as walking and	O	✓	O	O	O	✓	O	O	O	(2) The increased use of sustainable transport, including walking and cycling, will help improve the socio-economic profile of the town, primarily through improved human health and reduced traffic congestion in the town (cumulative positive effects).

LAP Policy	SEA Objective									Comments
	1 BIO	2 HEA	3 WAT	4 WAT	5 WAT	6 CLI	7 HER	8 LAN	9 SOIL	**Including reference to secondary, cumulative, synergistic, short, medium, long-term, permanent, temporary, positive and negative effects and scale (local / regional / national)**
cycling.										(6) Encouragement of walking and cycling should have positive cumulative effects by decreasing the carbon footprint of the town by reducing car travel in the town.
T2: All development and in particular education facilities, retail and residential development, will be required to facilitate walking and cycling in Callan by: ▪ Providing safe and direct new routes where this would improve permeability; ▪ Improving the quality of existing routes in terms of overlooking, improved pavements and crossings, lighting, signage, appropriate traffic calming and speed reduction measures; and ▪ Where appropriate, providing covered cycle parking stands.	O	✓	O	O	O	✓	O	O	O	(2) The increased use of sustainable transport, including walking and cycling, will help improve human health and reduced traffic congestion in the town. (6) Encouragement of walking and cycling should reduce carbon emissions by reducing car travel between the town and its demesne.
E1: Employment and industrial land is important to securing Callan's economic future and requires the timely and adequate provision of land for employment needs, including sites at suitable locations for employment related uses. Based on existing opportunities in the town, it is the objective of the Local Area Plan to promote a diverse and sustainable local economy through the designation of sufficient lands for the promotion of employment related uses including facilities to support SME growth, tourism related facilities such as hotels and associated leisure facilities.	X	✓	X	X	?	?	O	?	?	(1) Increase in employment / industrial land may have a negative impact on existing greenfield sites which accommodate natural habitats and species. (2) Increase in employment / industrial land should increase local employment opportunities. (3) (4) (5) Increased industrial activity may contribute to groundwater and river water pollution. Development may also be dependent on improvements in wastewater treatment plant. (6) Development may be

LAP Policy	SEA Objective									Comments
	1 BIO	2 HEA	3 WAT	4 WAT	5 WAT	6 CLI	7 HER	8 LAN	9 SOIL	**Including reference to secondary, cumulative, synergistic, short, medium, long-term, permanent, temporary, positive and negative effects and scale (local / regional / national)**
										dependent on improvement in water supply. (8) Possible negative impact of increased industrial development on natural landscapes / views however this will dependent on location of sites. (9) Potential loss of soil due to development on greenfield land. **Mitigation:** Focus development where possible initially on brownfield land and subsequently on land which does not accommodate habitats and species which may be sensitive to industrial development. Ensure that adequate capacity in the waste water treatment plant is available to serve all new development. Ensure measures are put in place at the time of development to minimise pollution stemming from surface water run-off. Ensure that adequate capacity in water supply is available to serve new development. Applications for development within or adjacent to a Site on the Sites and Monument Register or the zone of

LAP Policy	SEA Objective									Comments
	1 BIO	2 HEA	3 WAT	4 WAT	5 WAT	6 CLI	7 HER	8 LAN	9 SOIL	**Including reference to secondary, cumulative, synergistic, short, medium, long-term, permanent, temporary, positive and negative effects and scale (local / regional / national)**
										archaeological potential should submit an archaeological assessment detailing the impacts which the relevant development would have on archaeology in the area. Industrial development in areas with sensitive landscapes to be subject to an assessment of the potential landscape and visual impacts of the proposed development. Encourage the reuse of soils generated from housing and other development.
E2: New development within the designated employment areas will be supported where the proposal meets general masterplan objectives in terms of urban design and road linkages in addition to: ▪ Providing high value employment and SME business development in key sectors such as agricultural related employment (e.g. timber, creameries, food processing and distribution, fishing) services and manufacturing ▪ Supporting the relocation and expansion of existing industries that support the local employment base; and ▪ Reflect urban design objective and principles, where appropriate, particularly with respect to landscaping and the visual impacts.	O	O	O	O	O	O	O	✓	O	(8) Policy states intention to mitigate visual impacts.

LAP Policy	SEA Objective									Comments Including reference to secondary, cumulative, synergistic, short, medium, long-term, permanent, temporary, positive and negative effects and scale (local / regional / national)
	1 BIO	2 HEA	3 WAT	4 WAT	5 WAT	6 CLI	7 HER	8 LAN	9 SOIL	
F1: In areas at risk from flooding, principally at riverside locations, a precautionary approach will apply and a setback of 10 metres will be required whereby development will not generally be permitted and uses will be constrained. Examples of appropriate uses include recreational facilities, certain types of industry, with the exception of those that require fertiliser storage, and warehousing designed to be flood resistant and / or insensitive. In all cases, for applications on or adjacent to these areas, a flood impact analysis and appropriate design measures will be required.	✓/X	✓	?	?	?	✓	O	?	O	(1) Many of the areas liable to flooding are also close to designated biodiversity sites. Whilst the policy aims to ensure that new development is setback by at least 10 metres there may be cases whereby development occurs at locations which are also potentially impact on designated sites. (2) Reducing and managing the risk of flooding can prevent damage to property and impacts on human health and well-being. (3) (4) (5) In cases whereby development occurs at locations which are also vulnerable to flooding this may impact on groundwater and river water quality, however this policy also seeks to restrict uses that store potentially polluting substances such as fertiliser. (6) Policy will reduce the risk and impact of flooding incidences in the town. (6) Policy may exacerbate risk of flooding for development built on the floodplain. (8) Possible negative impact of increased development on natural landscapes / views however this will dependent on location of sites. **Mitigation:** Incorporate a riverside buffer zone that limits development in close proximity to the

LAP Policy	SEA Objective									Comments
	1 BIO	2 HEA	3 WAT	4 WAT	5 WAT	6 CLI	7 HER	8 LAN	9 SOIL	**Including reference to secondary, cumulative, synergistic, short, medium, long-term, permanent, temporary, positive and negative effects and scale (local / regional / national)**
										Kings River. Restrict development on the floodplain.
F2: Appropriately designed development, which is not sensitive to the effects of flooding, may be permissible in areas at risk of flooding provided it does not reduce the flood plain area or otherwise restrict flow across floodplains.	?/X	✓	X	X	?	?/X	O	O	O	(1) Many of the areas liable to flooding are also close to designated biodiversity sites. Development in these areas may impacts on designated sites. (2) Appropriately designed development will reduce the risk of damage to property and impacts on human health and well-being. (3) (4) (5) Development in floodplain may impact on groundwater and river water quality. This policy could be improved by restricting uses that are potentially polluting to groundwater or nearby surface water. (6) Implications of climate change may increase levels of flood risk over time. In the long term, this policy may have an increasingly negative impact by allowing development. **Mitigation:** Avoid development on designated biodiversity sites. Restrict development on the floodplain.
IN1: The Council will endeavour to maintain an adequate water	O	✓	X/✓	O	O	O	O	O	O	(2) Provision of an adequate water supply will help improve human health in the short

LAP Policy	SEA Objective									Comments
	1 BIO	2 HEA	3 WAT	4 WAT	5 WAT	6 CLI	7 HER	8 LAN	9 SOIL	**Including reference to secondary, cumulative, synergistic, short, medium, long-term, permanent, temporary, positive and negative effects and scale (local / regional / national)**
supply sufficient for the development needs of the plan.										and long term. (3) Policy should improve quality and supply of water but may impact on groundwater levels. **Mitigation:** Ensure that adequate capacity in water supply is available to serve new development. Ensure that adequate capacity in the waste water treatment plant is available to serve all new development.
IN2: The Council will endeavour to upgrade the existing Waste Water Treatment facility to accommodate development as proposed in the Draft LAP.	✓	✓	✓	✓	✓	O	O	O	O	(1) Direct and indirect impacts – may reduce risk of groundwater pollution and subsequent impacts on designated sites. (2) The upgrade should lead to improved health of the population by reducing risk of groundwater pollution. (3) (4) (5) Policy will reduce risk of pollution and contamination of groundwater and river water. **Mitigation:** Ensure that adequate capacity in the waste water treatment plant is available to serve all new development.

LAP Policy	SEA Objective									Comments Including reference to secondary, cumulative, synergistic, short, medium, long-term, permanent, temporary, positive and negative effects and scale (local / regional / national)
	1 BIO	2 HEA	3 WAT	4 WAT	5 WAT	6 CLI	7 HER	8 LAN	9 SOIL	
OS1: Providing that the resulting uses have no adverse impact on the River Nore and River Barrow SAC, it is a key objective for the Local Area Plan to improve the quality of these Strategic Open spaces through improved linkages and support for active uses surrounding these sites.	O	✓	O	O	O	O	O	O	O	(2) Improving quality of open space should contribute in the long terms to increased activity levels and improvements in human health.
OS2: This Plan is proposing the redesignation of John Lockes GAA pitch of approximately 2.41 hectares to facilitate the expansion of the club and its relocation at a larger site outside the town.	?	X	?	O	?	?	?	?	?	(1) Nature of impact dependent on location of new pitch although development likely on greenfield site resulting in potential loss of soil non designated habitats and species. (3) Loss of sporting facilities within walking and cycling distance of residential areas may have a negative effects on health. (3) (5) Impact dependent on upgrading of water supply and wastewater treatment system. (6) (7) (8) (9) Impact dependent on the location of the new pitch. **Mitigation:** Applications for development within or adjacent to a Site on the Sites and Monument Register or the zone of archaeological potential should submit an archaeological assessment detailing the impacts which the relevant development would have on archaeology in the area.

LAP Policy	SEA Objective									Comments
	1 BIO	2 HEA	3 WAT	4 WAT	5 WAT	6 CLI	7 HER	8 LAN	9 SOIL	**Including reference to secondary, cumulative, synergistic, short, medium, long-term, permanent, temporary, positive and negative effects and scale (local / regional / national)**
										Ensure that adequate capacity in the waste water treatment plant is available to serve all new development. Ensure that adequate capacity in water supply is available to serve new development. Encourage the reuse of soil generated from housing and other development.
OS3: New development should enhance the quality of and access to existing open space and where necessary create areas of new open space. This approach is based on quantitative standards as set out in **Table 5.1** and the provision of access to local parks within 400m or 5 /10 minute walk of residential areas. This will be achieved by ▪ Protecting and enhancing the strategic role of areas likely to flood, through the identification of a flood risk buffer and linear park, where appropriate, alongside the River Barrow and River Nore SAC; ▪ Extending the hierarchy of public open spaces within the plan and at a minimum require the provision of Class II / neighbourhood park within to the north of the town and other areas of open space deficiency, and ▪ Where for smaller developments, financial	X/?	✓	O	O	O	✓	O	✓	✓	(1) Policy aims to provide recreational space adjacent to the Kings River, which forms part of a designated European site. In some cases recreational activity or associated development may have negative impacts on features of the site. Please refer to Callan Habitats Regulations Screening Statement for further information. (2) Improvement of existing and provision of new open space will help contribute towards improved human health. (6) Policy will support the management of flood risk through the provision of a riverside buffer. (8) (9) This policy will protect landscape and soil quality.

LAP Policy	SEA Objective									Comments
	1 BIO	2 HEA	3 WAT	4 WAT	5 WAT	6 CLI	7 HER	8 LAN	9 SOIL	**Including reference to secondary, cumulative, synergistic, short, medium, long-term, permanent, temporary, positive and negative effects and scale (local / regional / national)**
contributions are deemed appropriate, these will be sought for improvements to the quality of existing Class II spaces; ▪ Providing landscaped Class III Informal / Casual open space within the majority of areas; ▪ Address the quantitative deficiency in open space that is likely to result in the long term; and ▪ Meeting design principles set out in the County Development plan and specifically designing for active frontages and natural surveillance.										**Mitigation:** Establish a buffer around designated ecological sites, the size of which will be dependent on local ecological and drainage conditions and other factors as appropriate.
OS4: As a consequence of amending the zoning objective with respect to the John Lockes GAA pitch and in line with draft government guidelines 'Sustainable Residential Development in Urban Areas' it is the policy of the plan to seek qualitative enhancements to open space at the Fairgreen. These qualitative enhancements may include: ▪ Improvements to and provision of lighting and seating; ▪ Improvements to the relationship between development and open spaces particularly where this provides for active ground floor uses, overlooking and natural surveillance; and ▪ Improved landscaping that creates spaces for formal and informal recreational activity.	O	O	✓	O	O	O	O	O	O	(3) Qualitative enhancements to existing open space should improve opportunities for active recreation, thus enhancing human health.

LAP Policy	SEA Objective									Comments
	1 BIO	2 HEA	3 WAT	4 WAT	5 WAT	6 CLI	7 HER	8 LAN	9 SOIL	**Including reference to secondary, cumulative, synergistic, short, medium, long-term, permanent, temporary, positive and negative effects and scale (local / regional / national)**
NH1: In seeking to protect and enhance the natural environment, the Council will seek to; ▪ Protect natural heritage sites designated in National and European legislation, specifically the Rivers Nore and River Barrow SAC (See NH2); ▪ Designate an appropriate riverside buffer that protects the integrity of the SAC and assists in the management of flood risk; ▪ Protect and conserve non-designated habitats and species; and ▪ Protect and incorporate existing biodiversity features such as hedgerows and surface water features into the design and construction of new development and public realm and enhancing the biodiversity value of existing open spaces.	✓	✓	✓	✓	✓	✓	✓	✓	✓	(1) Policy seeks to protect designated habitats and species. (2) Protection and improvement of Callan's natural environment should help improve human health. (3) (4) (5) Protection and enhancement of the natural environment should protect and improve the quality of groundwater and river water. (6) Policy seeks to manage risk of flood with the provision of a riverside buffer. (7) Policy seeks to protect hedgerows. (8) Policy should see the protection of historical and natural landscapes. (9) This policy is likely to have positive indirect benefits to soil quality.
NH2: The Kings River which forms part of the Rivers Nore and River Barrow SAC has considerable potential for both waterside and landside to be used as recreational asset for the town and the Local Area Plan will seek to promote the natural amenity potential of this site subject to: ▪ To protection of this site in accordance with National and European legislation ensuring that any development in or near the SAC will avoid any significant adverse impact on the features for which the site has been	✓	✓	✓	✓	O	✓	O	✓	✓	(1) Policy aims to protect natural habitats and species. (2) Policy encourages recreational uses, thus contributing towards improved human health in the long term. (3) (4) Policy aims to protect the natural environment of the river, which should include protection of groundwater and river water quality. (6) Policy looks to promote recreational uses waterside, thus providing a buffer from

LAP Policy	SEA Objective									Comments
	1 BIO	2 HEA	3 WAT	4 WAT	5 WAT	6 CLI	7 HER	8 LAN	9 SOIL	**Including reference to secondary, cumulative, synergistic, short, medium, long-term, permanent, temporary, positive and negative effects and scale (local / regional / national)**
designated; ▪ Consultation with the prescribed bodies and relevant government agencies when assessing developments which are likely to impact on designated natural heritage sites or those sites proposed to be designated; and ▪ The requirement for an appropriate assessment in respect of any proposed development likely to have an impact on a designated natural heritage site, or those sites proposed to be designated.										development in the flood plain. (8) Policy seeks to avoid any adverse impacts on the natural environment / landscape of the River Nore. (9) Protection of sites should include protection of air and soil quality.
ER2: New development should ensure, including where necessary through appropriate developer contributions, the efficient and effective use of environmental resources by: ▪ Providing high levels of energy and water efficiency and a sustainable approach to the use of materials ▪ Having regard to sustainable energy considerations set out in Department Guidelines on Quality Housing for Sustainable Communities (2007) and Chapter 10 of the County Development Guidelines; and ▪ Providing, supporting or providing continuing management as necessary for sustainable drainage methods.	?	O	✓	✓	✓	✓	O	O	O	(1) Impact dependent on location of new development. (3) (4) (5) Implementation of SuDS should curtail the pollution and contamination of groundwater, surface water and subsequently river water. SuDS can also enhance ground water quality. (5) Policy seeks to preserve / protect the water supply. (6) Policy seeks to preserve energy supplies thus providing a positive cumulative effect with regard to climate change.

LAP Policy	SEA Objective									Comments
	1 BIO	2 HEA	3 WAT	4 WAT	5 WAT	6 CLI	7 HER	8 LAN	9 SOIL	**Including reference to secondary, cumulative, synergistic, short, medium, long-term, permanent, temporary, positive and negative effects and scale (local / regional / national)**
AC1: Kilkenny County Council considers that the historic core of Callan town comprises an area of special architectural, archaeological, historic interest, presents an attractive townscape and is worthy of protection. It is therefore proposed to designate the area indicated in **Figure 5.3**, as an Architectural Conservation Area.	O	✓	O	O	O	O	✓	✓	O	(2) Policy should enhance the image of the town centre thus making it a more attractive destination both commercially and from a tourism perspective. (7) Policy aims to enhance and protect cultural heritage. (8) Policy should preserve the historic streetscape of the town centre.
AC2: The purpose of designating the Architectural Conservation Area is to encourage the retention and restoration of the existing buildings and streetscape in a manner which respects its special character and consolidates that character with appropriate new developments when opportunities arise. In order to preserve the special interest the Council will require: ▪ the retention, repair and maintenance of the buildings which make a positive contribution to the character, appearance, quality and visual coherence of the streetscape of the Conservation Area; ▪ appropriate form of new development to reflect the existing building line and height; ▪ materials and finishes, massing, height, alignment, orientation and window proportions that reflect the existing character of the area; ▪ the protection of the existing landscaping and features within the public realm that contribute to the character of the town, and ▪ The control of shopfronts and advertising.	O	✓	O	O	O	O	✓	✓	O	(2) Policy should enhance the image of the town centre thus making it a more attractive destination both commercially and from a tourism perspective. (7) Policy aims to enhance and protect cultural heritage. (8) Policy should preserve the historic streetscape of the town centre.

LAP Policy	SEA Objective									Comments
	1 BIO	2 HEA	3 WAT	4 WAT	5 WAT	6 CLI	7 HER	8 LAN	9 SOIL	**Including reference to secondary, cumulative, synergistic, short, medium, long-term, permanent, temporary, positive and negative effects and scale (local / regional / national)**
ARC1: It is the policy of the Council to support the protection of in archaeological heritage through preservation in situ of, or preservation by record of recorded Monuments and any other archaeological features in Callan. Developers will be required to submit an archaeological assessment of the proposed development, where the site includes a monument or site included in the Record of Monuments and Places. The purpose of the archaeological assessment will be to establish the extent of archaeological material associated with the monument or site and define a buffer area which will result in the preservation of the setting and visual amenity of the site.	O	✓	O	O	O	O	✓	✓	O	(2) The protection of archaeological heritage in the town should enhance the town's image, thus helping to improve the socio-economic profile of the town. (7) Policy seeks to protect cultural heritage of the town (8) Policy should protect the town's historic landscape
PS1: New residential development is required to be consistent with standards set out in the County Development Plan where a minimum of 10 sq. m. of dedicated playable space per residential unit is to be provided as an integral part of each new development. This playable space can form part of the overall open space provision of a development but must be dedicated to play.	O	✓	O	O	O	O	O	O	O	(2) Provision of play space can contribute towards improved levels of children's health.
PS2: A significant proportion of the town as indicated in **Figure 5.4** could be described as deficient in Play space. As these primarily correlate to areas for future development, it is a specific objective of the Local Area Plan to ensure that new play facilities are provided at this these locations.	O	✓	O	O	O	O	O	O	O	(2) Provision of play space can contribute towards improved levels of children's health.

LAP Policy	SEA Objective									Comments
	1 BIO	2 HEA	3 WAT	4 WAT	5 WAT	6 CLI	7 HER	8 LAN	9 SOIL	**Including reference to secondary, cumulative, synergistic, short, medium, long-term, permanent, temporary, positive and negative effects and scale (local / regional / national)**
CF1: Community facilities comprise health clinics, hospitals, schools, churches, shopping facilities, libraries, community halls, burial grounds. The Local Area Plan will ensure that sites are reserved for community facilities as appropriate and to seek to remedy the deficiency in existing developed areas. The provision of community facilities will be linked to the increases in the residential population through phasing arrangements in the plan to ensure timely provision.	O	✓	?	O	?	O	O	O	?	(3) Provision of community facilities to meet the needs of the population should contribute towards improved health of the population. (3) (5) Development depends on wastewater treatment and water supply capacity being provided for. (9) Additional development may have impacts on soil quality. **Mitigation:** Ensure that adequate capacity in the waste water treatment plant is available to serve all new development. Ensure that adequate capacity in water supply is available to serve new development. Encourage the reuse of soils generated from housing and other development.
CF2: It is a specific objective of the Local Area Plan to allow for the development of a new primary Health Care facility at the Callan workhouse. The development of this primary care facility should seek to a deliver high quality environment by providing: ▪ A quality internal environment and public realm; ▪ Adaptability of layout, structure and lighting	O	✓	?	O	?	O	O	O	✓	(2) The provision of a primary health care facility should contribute towards improved access to health care in the town. (3) (5) Development depends on wastewater treatment and water supply capacity being provided for. (9) Policy promotes the reuse of a brownfield sites.

LAP Policy	SEA Objective									Comments
	1 BIO	2 HEA	3 WAT	4 WAT	5 WAT	6 CLI	7 HER	8 LAN	9 SOIL	**Including reference to secondary, cumulative, synergistic, short, medium, long-term, permanent, temporary, positive and negative effects and scale (local / regional / national)**
whereby new operational practices can be accommodated; ▪ Inclusive design and access for all, creating a facility and place that everyone can use; and ▪ Where appropriate, landscape features and quality of adjacent open space.										**Mitigation:** Ensure that adequate capacity in the waste water treatment plant is available to serve all new development. Ensure that adequate capacity in water supply is available to serve new development.
ER1: Given the current school capacity and number of available places outlined in **Table 3.3**, there is unlikely to be any requirement for primary or secondary schools during the 2008 – 2014 plan period. However, this will continue to be monitored during the lifetime of the Plan.	O	O	O	O	O	O	O	O	O	-
ER2: Scoil Mhuire and Scoil Iognaid Rís are likely to be amalgamated to form Bunscoil McAuley Ris which will be accommodated on the existing Scoil Mhuire Kilkenny Road site. The Draft Local Area Plan will seek to support the delivery of enhanced education facilities and require consideration of design objectives set out in the County Development Plan in addition to the following design criteria: ▪ A sustainable approach to design, construction and environmental servicing; ▪ Good use of the site, balancing the needs of pedestrians, cyclists and cars; ▪ Good organisation of spaces ensuring that	O	✓	O	O	O	O	O	O	O	(2) Improvements in education facilities in Callan are likely to indirectly improve the socio-economic profile of the town.

LAP Policy	SEA Objective									Comments
	1 BIO	2 HEA	3 WAT	4 WAT	5 WAT	6 CLI	7 HER	8 LAN	9 SOIL	**Including reference to secondary, cumulative, synergistic, short, medium, long-term, permanent, temporary, positive and negative effects and scale (local / regional / national)**
they are easily legible and fully accessible; ▪ Flexible design to allow for short-term changes of layout and use, and for long-term expansion or contraction; ▪ Good environmental conditions throughout including optimum levels of natural light and ventilation for different activities and ▪ Well-designed external spaces offering a variety of different settings for leisure, learning and sport.										
CHF1: Having regard to the existing distribution of childcare facilities in the area, new residential development will be required to contribute to the provision of childcare facilities in accordance with the standards set out in the 2001 'Guidelines for planning authorities relating to childcare facilities', where an average of one childcare facility (minimum 20 childcare places) for each 75 dwellings will be appropriate. Consultation should be carried out with the County Childcare Committee in this regard.	O	✓	?	O	?	O	O	O	O	(2) Policy should improve socio-economic status of the town by increasing labour force and employment opportunities. (3) (5) Development depends on wastewater treatment and water supply capacity being provided for. (6) Promoting locally accessible community facilities should reduce the need to travel (9) Additional development may have impacts on soil quality. **Mitigation:** Ensure that adequate capacity in the waste water treatment plant is available to serve all new development. Ensure that adequate capacity in water supply is available to serve new

LAP Policy	SEA Objective									Comments
	1 BIO	2 HEA	3 WAT	4 WAT	5 WAT	6 CLI	7 HER	8 LAN	9 SOIL	**Including reference to secondary, cumulative, synergistic, short, medium, long-term, permanent, temporary, positive and negative effects and scale (local / regional / national)**
										development. Encourage the reuse of soils generated from housing and other development.

Summary of Impacts

- Reduction in water quality (this will depend on the provision of additional waste water treatment facilities);
- Inadequate capacity of drinking water capacity which may constrain new development;
- Development on greenfield sites may result in the loss of soil and the replacement of natural and semi-natural habitats with artificial surfaces;
- Where development is in close proximity to the Kings River or within areas known to be prone to flooding, it may result in increased flood risk, subsequent damage to material assets and impact on designated biodiversity sites;
- Potential to impact on the quality of groundwater due high levels of groundwater vulnerability
- A higher reliance on private transport with subsequent impacts on air quality and emissions;
- Impacts on cultural heritage with reference to the area of archaeological potential, structures recorded on the record of protected structures, national inventory of architectural development and national monuments;
- Continued dereliction in areas of the town centre contributing to underuse of historic buildings.
- Depending on the height and form of new buildings, a negative impact on townscape quality and cultural heritage.

9.3 Cumulative Effects

9.3.1 Cumulative effects arise, for instance, where several developments each have insignificant effects but together have a significant effect; or where several individual effects of the LAP (e.g. noise, dust and visual) have a combined effect.

9.3.2 Examples of cumulative, secondary and synergistic effects include loss of tranquility, changes in the landscape, economic decline and climate change. These effects are very hard to deal with on a project-by-project basis through Environmental Impact Assessment. It is therefore at the SEA level that they are most effectively identified and addressed.

9.3.3 Assessment of cumulative effects should:

- Focus on identifying the total effect of both direct and indirect effects on receptors. Receptors may include natural resources (e.g. air, water, soil), sections of the population (e.g. people living in particular areas or vulnerable members of the community) or ecosystems and species (e.g. heathland);
- be considered in relation to the nature and extent of the receptors, such as ecosystems and communities, rather than administrative boundaries;
- be considered in relation to effects of policies within a plan and those which may result from interaction with the effects of other plans and programmes; and
- Take account of how close the plan, in association with other past, present and likely future actions, will bring the receptors to their capacity/threshold to remain productive or sustainable.

9.3.4 **Table 9.6** sets out an assessment of cumulative impacts by using a shading system to provide a visual representation of where cumulative impacts may occur. By using such an approach, it is possible to see where impacts which alone may appear to be insignificant, have a cumulatively significant impact.

9.3.5 **Table 9.5** indicates levels of impacts and associated shading used to assess cumulative impacts in **Table 9.6.**

Table 9.5: Significant of Impacts

	Impact
	No impact
	Possible negative impact
	Possible significant negative impact

Table 9.6: Assessment of Cumulative Impacts

	1 BIODIVERSITY	2 POPULATION & HUMAN HEALTH	3 GROUNDWATER	4 RIVER WATER QUALITY	5 WATER QUALITY AND SUPPLY	6 CLIMATIC FACTORS	7 CULTURAL HERITAGE	8 LANDSCAPE	9 SOIL & AIR
R1 Major New Retail Development									
R2 New Retail Development									
R3 Retail Hierarchy									
TC1 Town Centre Car Parking									
RES1 Settlement Strategy									
RES2 New Residential Development									
RES3 Individual Proposals									
RES4 Design and Layout of new residential development									
PH1 Phasing for Development									
T1 N76 Bypass									
T2 Sustainable Transport									
T3 Improvement to walking and cycling facilities									
E1 Employment and Industrial Land									
E2 Designation of Employment Areas									
F1 Areas at risk of flooding									
F2 Flood Plain Development									
IN1 Water Supply									
IN2 Upgrade existing waste water treatment									
OS1 Strategic Open Spaces									
OS2 GAA Pitch									
OS3 Quality of Open Space									
OS4 Open Space Standards									
NH1 Natural Environment									

NH2 Kings River									
ER2 Efficient use of resources									
AC1 Architectural Conservation Area									
AC2 New developments in Architectural Conservation Area									
ARC1 Protection of Archaeological Heritage									
PS1 Play Space Standards									
PS2 New Play Facilities									
CF1 Community Facilities									
CF2 Primary Health Care Facility									
ER1 School Provision									
ER2 Delivery of Education Facilities									
CHF1 Childcare Facilities									

9.4 Summary of Cumulative Impacts

9.4.1 **Table 9.6** illustrates where cumulative impacts of the LAP may arise through the use of shading, the darker the shading indicates the more significant the individual impact may be.

9.4.2 It is evident from the table that significant negative cumulative impacts may occur on the following environmental receptors:

Biodiversity

9.4.3 **Table 9.6** demonstrates that negative cumulative impacts may occur with regard to the biodiversity objective:

Conserve and enhance the diversity of habitats and species, including designated sites which may be sensitive to development.

9.4.4 These impacts result primarily from the loss of greenfield land as a result of various types of development, including for residential and industrial uses. In addition, proposed development on the floodplain may further impact designated habitats and species.

9.4.5 In order to minimise cumulative impacts on biodiversity, the following mitigation measures are proposed:

- Establish a buffer around designated ecological sites, the size of which will be dependent on local ecological and drainage conditions and other factors as appropriate.
- Focus development where possible initially on brownfield land and subsequently on land which does not accommodate habitats and species which may be sensitive to industrial development.
- Incorporate a riverside buffer zone that limits development in close proximity to the Kings River.
- Restrict development on the floodplain.

Groundwater

9.4.6 The assessment of cumulative impacts at **Table 9.6** also shows potential cumulative impacts with regard to the groundwater objective:

Prevent pollution and contamination of groundwater.

9.4.7 Impacts on groundwater are identified primarily as a result of additional development which will place a strain on the current waste water treatment plant. It has been recognised in the Local Area Plan that the current waste water treatment plant is at capacity and needs upgrading in order to cope with additional development. Should development go ahead where there is no waste water treatment capacity, policies proposing additional development of various types, including residential, industrial and retail have therefore been assessed as having negative cumulative impacts on groundwater and water quality.

9.4.8 In order to prevent pollution and contamination of groundwater, the following mitigation measure is proposed:

- Ensure that adequate capacity in the waste water treatment plant is available to serve all new development.

Water Quality And Supply

9.4.9 **Table 9.6** has also identified potential cumulative impacts on water quality and supply, the environmental objective for which is:

Protect and improve water supply.

9.4.10 The cumulative impacts assessment has identified that a number of developments which are addressed through policies in the Plan will place additional demand on the water supply, for example, residential development, community facilities etc. The following mitigation measure is therefore proposed:

- Ensure that adequate capacity in water supply is available to serve new development.

Climatic Factors

9.4.11 Climate change is one of the most significant cumulative effects that can result from development. **Table 9.6** has identified a number of policies which individually may have minor negative impacts on climatic factors but add up to have potentially significant negative impacts. The environmental objective for climatic factors is:

Reduce vulnerability to effects of climate change, including flood risk.

9.4.12 A number of potential impacts have been identified in **Table 9.6**, primarily through possible development on or close to flood plains. The following mitigation measures are therefore proposed:

- Incorporate a riverside buffer zone that limits development in close proximity to the Kings River.
- Restrict residential development on the floodplain.
- Restrict development on the floodplain.

Soil

9.4.13 The cumulative effects assessment has identified possible cumulative impacts with regard to soil, the environmental objective for which is:

Protect and enhance soil and / or air quality

9.4.14 Cumulative effects with regard to this objective have primarily been identified as a result of loss of soil due to greenfield development of a number of types, including residential, industrial and community facilities. With regard to soil, the following mitigation measure is therefore proposed:

- Encourage the reuse of soils generated from housing and other development.

10. Mitigation Measures

10.1 Introduction

10.1.1 Mitigation measures can be described as measures to avoid, reduce or offset significant adverse effects on the environment.

10.1.2 The Environmental Report is required to describe any measures envisaged to prevent reduce and as fully as possible offset any significant adverse environmental effects of implementing the plan.

Summary of Mitigation Measures Proposed

10.1.3 **Table 9.4** which appraises the policies in the LAP also sets out a number of suggested mitigation measures. Where practicable, similar mitigation measures have been used for a number of policies in order to provide for ease of application. Mitigation measures proposed include:

Biodiversity, Fauna and Flora

- Incorporate a riverside buffer zone that limits development in close proximity to the Kings River
- Require the preservation of hedgerows within new development
- Avoid development on and establish a buffer around designated ecological sites, the size of which will be dependent on local ecological and drainage conditions established through appropriate assessment.

Material Assets

- Applications for development within or adjacent to a Site on the Sites and Monument Register or the zone of archaeological potential should submit an archaeological assessment detailing the impacts which the relevant development would have on archaeology in the area.
- Development on the floodplain should be restricted

Cultural Heritage

- Include policies to ensure that new development has a minimal impact on protected structures, important archaeological features, and structure on the national inventory of architectural heritage
- Development in or close to the high street and particularly for buildings that may be visually prominent should require visual impact assessments.

Landscape

- Appropriate screening and planting should be incorporated on visually prominent sites
- Reduce or minimise light pollution through appropriate design solutions e.g. full cut off lighting
- Development to be restricted on the floodplain
- New pedestrian/cycle bridge infrastructure should consider the need for project level Appropriate Assessment in order to avoid impacts on designated biodiversity sites.

Water and Soil

- Ensure that adequate capacity in the waste water treatment plant is available to serve all new development
- Ensure that adequate capacity in water supply is available to serve new development
- Focus development where possible initially on brownfield land
- To encouarge the reuse soils generated from housing and other development
- Attenuation measures to reduce level of surface water discharge into the main watercourses.

Population and Human Health

- The Plan identify measures to support sustainable forms of transport;
- The Plan should actively encourage the take up of Travel Plans for new educational and employment sites
- The Plan should seek to improve accessibility to employment, education, healthcare, food retailing and to a range of housing types and community and recreation facilities

Air

- Speed restrictions in the town centre could have a beneficial effects in certain locations as slower speeds conserve fuel and increase fuel efficiency, thereby minimising emissions

Climatic Factors

- Promoting sustainable modes of travel
- Encourage use of sustainable design and construction methods

11. Monitoring Proposals

11.1 Introduction

11.1.1 Article 10 of the SEA Directive requires significant environmental effects of the implementation of plans to be monitored in order to identify at an early stage unforeseen adverse effects and to be able to undertake appropriate remedial action.

11.1.2 In order to avoid additional and continued work where unnecessary, it is recommended that monitoring proposals mirror, where possible, those outlined in the SEA for the Kilkenny County Development Plan 2008 – 2014.

11.1.3 Proposed monitoring measures have been based on indicators which measure changes in the environment. A number of monitoring measures have been identified in **Table 9.4** and are set out below:

- Loss of habitats and species (CDP)
- Deprivation Index
- Faecal Coliform counts per 100ml of groundwater (CDP)
- New developments granted permission which cannot be adequately served by the current wastewater treatment plant (CDP)
- Biotic Quality Rating (Q value) (CDP)
- Levels of E-Coli present in drinking water
- Developments granted permission which cannot be adequately service by current water supply
- Developments granted permission on flood plain / unauthorised development on floodplain
- Recorded flooding episodes
- Number of unauthorised developments resulting in full or partial loss of cultural heritage (CDP)
- Number of developments granted / unauthorised conspicuous developments located within sensitive landscapes (CDP)
- Area of brownfield land available (CDP)

Environmental Objective	Indicator	SEA Topic Areas
Conserve and enhance the diversity of habitats and species, including designated sites which may be sensitive to development	Loss of habitats and species (CDP)	Biodiversity, flora and fauna
Improve the socio-economic profile of Callan	Deprivation index – improvement in current status	Population and Human Health
Prevent pollution and contamination of groundwater	Faecal Coliform counts per 100ml of groundwater (CDP) New developments granted permission which cannot be adequately served by the current wastewater treatment plant Estimated levels of water supply and wastewater infrastructure required to serve new development	Water
Protect and improve river water quality in Callan	Biotic Quality Rating (Q value) (CDP)	Water
Protect and improve water supply	Levels of E-Coli present in drinking water Developments granted permission which cannot be adequately service by current water supply	Water and Human Health
Reduce vulnerability to effects of climate change, including flood risk	Developments granted permission on flood plain / unauthorised development on floodplain Recorded flooding episodes	Climatic factors / Material Assets
Protect and conserve Callan's cultural heritage, including areas of archaeological interest, protected structures, important monuments and sites and hedgerows	Number of unauthorised developments resulting in full or partial loss of cultural heritage (CDP) Known loss of such sites or structures	Cultural Heritage
Protect and enhance valued natural and historic landscapes and features within them.	Loss of landscape Number of developments granted / unauthorised conspicuous developments located within sensitive landscapes (CDP)	Landscape
Protect and enhance soil and/or air quality.	Area of brownfield land available	Soil, Air, Human Health

Appendix 1:

Site Synopsis RIVER BARROW AND RIVER NORE (SITE CODE: 002162)

This site consists of the freshwater stretches of the Barrow/Nore River catchments as far upstream as the Slieve Bloom Mountains and it also includes the tidal elements and estuary as far downstream as Creadun Head in Waterford. The site passes through eight counties – Offaly, Kildare, Laois, Carlow, Kilkenny, Tipperary, Wexford and Waterford.

Major towns along the edge of the site include Mountmellick, Portarlington, Monasterevin, Stradbally, Athy, Carlow, Leighlinbridge, Graiguenamanagh, New Ross, Inistioge, Thomastown, Callan, Bennettsbridge, Kilkenny and Durrow. The larger of the many tributaries include the Lerr, Fushoge, Mountain, Aughavaud, Owenass, Boherbaun and Stradbally Rivers of the Barrow and the Delour, Dinin, Erkina, Owveg, Munster, Arrigle and King's Rivers on the Nore. Both rivers rise in the Old Red Sandstone of the Slieve Bloom Mountains before passing through a band of Carboniferous shales and sandstones. The Nore, for a large part of its course, traverses limestone plains and then Old Red Sandstone for a short stretch below Thomastown. Before joining the Barrow it runs over intrusive rocks poor in silica. The upper reaches of the Barrow also runs through limestone. The middle reaches and many of the eastern tributaries, sourced in the Blackstairs Mountains, run through Leinster Granite. The southern end, like the Nore runs over intrusive rocks poor in silica. Waterford Harbour is a deep valley excavated by glacial floodwaters when the sea level was lower than today. The coast shelves quite rapidly along much of the shore. The site is a candidate SAC selected for alluvial wet woodlands and petrifying springs, priority habitats on Annex I of the E.U. Habitats Directive. The site is also selected as a candidate SAC for old oak woodlands, floating river vegetation, estuary, tidal mudflats, *Salicornia* mudflats, Atlantic salt meadows, Mediterranean salt meadows, dry heath and eutrophic tall herbs, all habitats listed on Annex I of the E.U. Habitats Directive. The site is also selected for the following species listed on Annex II of the same directive – Sea Lamprey, River Lamprey, Brook Lamprey, Freshwater Pearl Mussel, Nore Freshwater Pearl Mussel, Crayfish, Twaite Shad, Atlantic Salmon, Otter, *Vertigo moulinsiana* and the plant Killarney Fern.

Good examples of Alluvial Forest are seen at Rathsnagadan, Murphy's of the River, in Abbeyleix estate and along other shorter stretches of both the tidal and freshwater elements of the site. Typical species seen include Almond Willow (*Salix triandra*), White Willow (*S. alba*), Grey Willow (*S. cinerea*), Crack Willow (*S. fragilis*), Osier (*S.viminalis*), with Iris (*Iris pseudacorus*), Hemlock Water-dropwort (*Oenanthe crocata*), Angelica (*Angelica sylvestris*), Thin-spiked Wood-sedge (*Carex strigosa*), Pendulous Sedge (*C. pendula*), Meadowsweet (*Filipendula ulmaria*), Valerian (*Valeriana officinalis*) and the Red Data Book species Nettle-leaved Bellflower (*Campanula trachelium*). Three rare invertebrates have been recorded in this habitat at Murphy's of the River. These are: *Neoascia obliqua* (Diptera: Syrphidae), *Tetanocera freyi* (Diptera: Sciomyzidae) and *Dictya umbrarum* (Diptera: Sciomyzidae). A good example of petrifying springs with tufa formations occurs at Dysart Wood along the Nore. This is a rare habitat in Ireland and one listed with priority status on Annex I of the EU Habitats Directive. These hard water springs are characterised by lime encrustations, often associated with small waterfalls. A rich bryophyte flora is typical of the habitat and two diagnostic species, *Cratoneuron commutatum* var. *commutatum* and *Eucladium verticillatum*, have been recorded. The best examples of old Oak woodlands are seen in the ancient Park Hill woodland in the estate at Abbeyleix; at Kyleadohir, on the Delour, Forest Wood House, Kylecorragh and Brownstown Woods on the Nore; and at Cloghristic Wood, Drummond Wood and Borris Demesne on the Barrow, though other patches occur throughout the site. Abbeyleix Woods is a large tract of mixed deciduous woodland which is one of the only

remaining true ancient woodlands in Ireland. Historical records show that Park Hill has been continuously wooded since the sixteenth century and has the most complete written record of any woodland in the country. It supports a variety of woodland habitats and an exceptional diversity of species including 22 native trees, 44 bryophytes and 92 lichens. It also contains eight indicator species of ancient woodlands. Park Hill is also the site of two rare plants, Nettle-leaved Bellflower and the moss *Leucodon sciuroides.* It has a typical bird fauna including Jay, Long-eared Owl and Raven. A rare invertebrate, *Mitostoma chrysomelas,* occurs in Abbeyleix and only two other sites in the country. Two flies *Chrysogaster virescens* and *Hybomitra muhlfeldi* also occur. The rare Myxomycete fungus, *Licea minima* has been recorded from woodland at Abbeyleix. Oak woodland covers parts of the valley side south of Woodstock and is well developed at Brownsford where the Nore takes several sharp bends. The steep valley side is covered by Oak (*Quercus* spp.), Holly (*Ilex aquifolium*), Hazel (*Corylus avellana*) and Birch (*Betula pubescens*) with some Beech (*Fagus sylvatica*) and Ash (*Fraxinus excelsior*).

All the trees are regenerating through a cover of Bramble (*Rubus fruticosus* agg.), Foxglove (*Digitalis purpurea*) Wood Rush (*Luzula sylvatica*) and Broad Buckler-fern (*Dryopteris dilatata*) On the steeply sloping banks of the River Nore about 5 km west of New Ross, in County Kilkenny, Kylecorragh Woods form a prominent feature in the landscape. This is an excellent example of a relatively undisturbed, relict Oak woodland with a very good tree canopy. The wood is quite damp and there is a rich and varied ground flora. At Brownstown small, mature Oak-dominant woodland occurs on a steep slope. There is younger woodland to the north and east of it. Regeneration throughout is evident. The understorey is similar to the woods at Brownsford. The ground flora of this woodland is developed on acidic, brown earth type soil and comprises a thick carpet of Bilberry (*Vaccinium myrtillus*), Heather (*Calluna vulgaris*), Hard Fern (*Blechnum spicant*), Cowwheat (*Melampyrum* spp.) and Bracken (*Pteridium aquilinum*). Borris Demesne contains a very good example of semi-natural broad-leaved woodland in very good condition. There is quite a high degree of natural re-generation of Oak and Ash through the woodland. At the northern end of the estate Oak species predominate. Drummond Wood, also on the Barrow, consists of three blocks of deciduous woods situated on steep slopes above the river. The deciduous trees are mostly Oak species. The woods have a well established understorey of Holly (*Ilex aquifolium*), and the herb layer is varied, with Brambles abundant. Whitebeam (*Sorbus devoniensis*) has also been recorded.

Eutrophic tall herb vegetation occurs in association with the various areas of alluvial forest and elsewhere where the flood-plain of the river is intact. Characteristic species of the habitat include Meadowsweet (*Filipendula ulmaria*), Purple Loosestrife (*Lythrum salicaria*), Marsh Ragwort (*Senecio aquaticus*), Ground Ivy (*Glechoma hederacea*) and Hedge Bindweed (*Calystegia sepium*). Indian Balsam (*Impatiens glandulifera*), an introduced and invasive species, is abundant in places. Floating River Vegetation is well represented in the Barrow and in the many tributaries of the site. In the Barrow the species found include Water Starworts (*Callitriche* spp.), Canadian Pondweed (*Elodea canadensis*), Bulbous Rush (*Juncus bulbosus*), Milfoil (*Myriophyllum* spp.), *Potamogeton* x *nitens,* Broad-leaved Pondweed (*P. natans*), Fennel Pondweed (*P. pectinatus*), Perfoliated Pondweed (*P. perfoliatus*) and Crowfoots (*Ranunculus* spp.). The water quality of the Barrow has improved since the vegetation survey was carried out (EPA, 1996).

Dry Heath at the site occurs in pockets along the steep valley sides of the rivers especially in the Barrow Valley and along the Barrow tributaries where they occur in the foothills of the Blackstairs Mountains. The dry heath vegetation along the slopes of the river bank consists of Bracken (*Pteridium aquilinum*) and Gorse (*Ulex europaeus*) species with patches of acidic grassland vegetation. Additional typical species include Heath Bedstraw (*Galium saxatile*), Foxglove (*Digitalis purpurea*), Common Sorrel (*Rumex acetosa*) and Bent Grass (*Agrostis stolonifera*). On the steep slopes above New Ross the Red Data Book species Greater Broomrape (*Orobanche rapum-genistae*) has been recorded. Where rocky outcrops are shown on the maps Bilberry (*Vaccinium myrtillus*) and Wood Rush (*Luzula sylvatica*) are present. At Ballyhack a small area of dry heath is interspersed with patches of lowland dry

grassland. These support a number of Clover species including the legally protected Clustered Clover (*Trifolium glomeratum*) – a species known from only one other site in Ireland. This grassland community is especially well developed on the west side of the mud-capped walls by the road. On the east of the cliffs a group of rock-dwelling species occur, i.e. English Stonecrop (*Sedum anglicum*), Sheep's-bit (*Jasione montana*) and Wild Madder (*Rubia peregrina*). These rocks also support good lichen and moss assemblages with *Ramalina subfarinacea* and *Hedwigia ciliata*. Dry Heath at the site generally grades into wet woodland or wet swamp vegetation lower down the slopes on the river bank. Close to the Blackstairs Mountains, in the foothills associated with the Aughnabrisky, Aughavaud and Mountain Rivers there are small patches of wet heath dominated by Purple Moor-grass (*Molinia caerulea*) with Heather (*Calluna vulgaris*), Tormentil (*Potentilla erecta*), Carnation Sedge (*Carex panicea*) and Bell Heather (*Erica cinerea*).

Saltmeadows occur at the southern section of the site in old meadows where the embankment has been breached, along the tidal stretches of in-flowing rivers below Stokestown House, in a narrow band on the channel side of Common Reed (*Phragmites*) beds and in narrow fragmented strips along the open shoreline. In the larger areas of salt meadow, notably at Carrickcloney, Ballinlaw Ferry and Rochestown on the west bank; Fisherstown, Alderton and Great Island to Dunbrody on the east bank, the Atlantic and Mediterranean sub types are generally intermixed. At the upper edge of the salt meadow in the narrow ecotonal areas bordering the grasslands where there is significant percolation of salt water, the legally protected species Borrer's Saltmarsh-grass (*Puccinellia fasciculata*) and Meadow Barley (*Hordeum secalinum*) (Flora Protection Order, 1987) are found. The very rare Divided Sedge (*Carex divisa*) is also found. Sea Rush (*Juncus maritimus*) is also present. Other plants recorded and associated with salt meadows include Sea Aster (*Aster tripolium*), Sea Thrift (*Armeria maritima*), Sea Couch (*Elymus pycnanthus*), Spear-leaved Orache (*Atriplex prostrata*), Lesser Sea-spurrey (*Spergularia marina*), Sea Arrowgrass (*Triglochin maritima*) and Sea Plantain (*Plantago maritima*).

Salicornia and other annuals colonising mud and sand are found in the creeks of the saltmarshes and at the seaward edges of them. The habitat also occurs in small amounts on some stretches of the shore free of stones. The estuary and the other Habitats Directive Annex I habitats within it form a large component of the site. Extensive areas of intertidal flats, comprised of substrates ranging from fine, silty mud to coarse sand with pebbles/stones are present. Good quality intertidal sand and mudflats have developed on a linear shelf on the western side of Waterford Harbour, extending for over 6 km from north to south between Passage East and Creadaun Head, and in places are over 1 km wide. The sediments are mostly firm sands, though grade into muddy sands towards the upper shore. They have a typical macro-invertebrate fauna, characterised by polychaetes and bivalves. Common species include *Arenicola marina*, *Nephtys hombergii*, *Scoloplos armiger*, *Lanice conchilega* and *Cerastoderma edule*.

The western shore of the harbour is generally stony and backed by low cliffs of glacial drift. At Woodstown there is a sandy beach, now much influenced by recreation pressure and erosion. Behind it a lagoonal marsh has been impounded which runs westwards from Gaultiere Lodge along the course of a slow stream. An extensive reedbed occurs here. At the edges is a tall fen dominated by sedges (*Carex* spp.), Meadowsweet, Willowherb (*Epilobium* spp.) and rushes (*Juncus* spp.). Wet woodland also occurs. This area supports populations of typical waterbirds including Mallard, Snipe, Sedge Warbler and Water Rail.

The dunes which fringe the strand at Duncannon are dominated by Marram grass (*Ammophila arenaria*) towards the sea. Other species present include Wild Sage (*Salvia verbenaca*), a rare Red Data Book species. The rocks around Duncannon ford have a rich flora of seaweeds typical of a moderately exposed shore and the cliffs themselves support a number of coastal species on ledges, including Thrift (*Armeria maritima*), RockSamphire (*Crithmum maritimum*) and Buck's-horn Plantain (*Plantago coronopus*). Other habitats which occur throughout the site include wet grassland, marsh, reed swamp, improved grassland, arable land, quarries, coniferous plantations, deciduous woodland, scrub and ponds.

Seventeen Red Data Book plant species have been recorded within the site, most in the recent past. These are Killarney Fern (*Trichomanes speciosum*), Divided Sedge (*Carex divisa*), Clustered Clover (*Trifolium glomeratum*), Basil Thyme (*Acinos arvensis*), Hemp nettle (*Galeopsis angustifolia*), Borrer's Saltmarsh Grass (*Puccinellia fasiculata*), Meadow Barley (*Hordeum secalinum*), Opposite-leaved Pondweed (*Groenlandia densa*), Autumn Crocus (*Colchicum autumnale*), Wild Sage (*Salvia verbenaca*), Nettle-leaved Bellflower (*Campanula trachelium*), Saw-wort (*Serratula tinctoria*), Bird Cherry (*Prunus padus*), Blue Fleabane (*Erigeron acer*), Fly Orchid (*Ophrys insectifera*), Broomrape (*Orobanche hederae*) and Greater Broomrape (*Orobanche rapum-genistae*). Of these the first nine are protected under the Flora Protection Order 1999. Divided Sedge (*Carex divisa*) was thought to be extinct but has been found in a few locations in the site since 1990.

In addition plants which do not have a very wide distribution in the country are found in the site including Thin-spiked Wood-sedge (*Carex strigosa*), Field Garlic (*Allium oleraceum*) and Summer Snowflake (*Leucojum aestivum*). Six rare lichens, indicators of ancient woodland, are found including *Lobaria laetevirens* and *L. pulmonaria.* The rare moss *Leucodon sciuroides* also occurs. The site is very important for the presence of a number of EU Habitats Directive Annex II animal species including Freshwater Pearl Mussel (*Margaritifera margaritifera* and *M. m. durrovensis*), Freshwater Crayfish (*Austropotamobius pallipes*), Salmon (*Salmo salar*), Twaite Shad (*Alosa fallax fallax*), three Lamprey species - Sea (*Petromyzon marinus*), Brook (*Lampetra planeri*) and River (*Lampetra fluviatilis*), the marsh snail *Vertigo moulinsiana* and Otter (*Lutra lutra*). This is the only site in the world for the hard water form of the Pearl Mussel *M. m. durrovensis* and one of only a handful of spawning grounds in the country for Twaite Shad. The freshwater stretches of the River Nore main channel is a designated salmonid river. The Barrow/Nore is mainly a grilse fishery though spring salmon fishing is good in the vicinity of Thomastown and Inistioge on the Nore. The upper stretches of the Barrow and Nore, particularly the Owenass River, are very important for spawning.

The site supports many other important animal species. Those which are listed in the Irish Red Data Book include Daubenton's Bat (*Myotis daubentoni*), Badger (*Meles meles*), Irish Hare (*Lepus timidus hibernicus*) and Frog (*Rana temporaria*). The rare Red Data Book fish species Smelt (*Osmerus eperlanus*) occurs in estuarine stretches of the site. In addition to the Freshwater Pearl Mussel, the site also supports two other freshwater Mussel species, *Anodonta anatina* and *A. cygnea*.

The site is of ornithological importance for a number of E.U. Birds Directive Annex I species including Greenland White-fronted Goose, Whooper Swan, Bewick's Swan, Bartailed Godwit, Peregrine and Kingfisher. Nationally important numbers of Golden Plover and Bar-tailed Godwit are found during the winter. Wintering flocks of migratory birds are seen in Shanahoe Marsh and the Curragh and Goul Marsh, both in Co. Laois and also along the Barrow Estuary in Waterford Harbour. There is also an extensive autumnal roosting site in the reedbeds of the Barrow Estuary used by Swallows before they leave the country.

Landuse at the site consists mainly of agricultural activities – many intensive, principally grazing and silage production. Slurry is spread over much of this area. Arable crops are also grown. The spreading of slurry and fertiliser poses a threat to the water quality of the salmonid river and to the populations of Habitats Directive Annex II animal species within the site. Many of the woodlands along the rivers belong to old estates and support many non-native species. Little active woodland management occurs.

Fishing is a main tourist attraction along stretches of the main rivers and their tributaries and there are a number of Angler Associations, some with a number of beats. Fishing stands and styles have been erected in places. Both commercial and leisure fishing takes place on the rivers. There is net fishing in the estuary and a mussel bed also. Other recreational activities such as boating, golfing and walking, particularly along the Barrow towpath are also popular. There is a golf course on the banks of the Nore at Mount Juliet and GAA pitches on the banks at Inistioge and Thomastown. There are active and disused sand and gravel pits

throughout the site. Several industrial developments, which discharge into the river, border the site. New Ross is an important shipping port. Shipping to and from Waterford and Belview ports also passes through the estuary. The main threats to the site and current damaging activities include high inputs of nutrients into the river system from agricultural run-off and several sewage plants, overgrazing within the woodland areas, and invasion by non-native species, for example Cherry Laurel and Rhododendron (*Rhododendron ponticum*). The water quality of the site remains vulnerable. Good quality water is necessary to maintain the populations of the Annex II animal species listed above. Good quality is dependent on controlling fertilisation of the grasslands, particularly along the Nore. It also requires that sewage be properly treated before discharge. Drainage activities in the catchment can lead to flash floods which can damage the many Annex II species present.

Capital and maintenance dredging within the lower reaches of the system pose a threat to migrating fish species such as lamprey and shad. Land reclamation also poses a threat to the salt meadows and the populations of legally protected species therein. Overall, the site is of considerable conservation significance for the occurrence of good examples of habitats and of populations of plant and animal species that are listed on Annexes I and II of the E.U. Habitats Directive respectively. Furthermore it is of high conservation value for the populations of bird species that use it. The occurrence of several Red Data Book plant species including three rare plants in the salt meadows and the population of the hard water form of the Pearl Mussel which is limited to a 10 km stretch of the Nore, add further interest to this site. (16.1.2003)

Appendix 2:

Effluent Quality from Wastewater Treatment Plants

If column three for each parameter in county tables below show a value (shaded green) greater than zero, the plant has not complied with the requirements of the Regulations. In addition to the above, if a local authority fails to take the minimum number of samples specified in the Regulations then the treated discharge has failed to meet the requirements and as such is non-compliant. I n this case the relevant parameter for each plant is marked in purple.

A colour code (light green) is used to mark the number of samples failing to meet the effluent quality standards at each individual plant. If column three for each parameter in the county tables shows a value (shaded green) greater than zero, the plant has not complied with the requirements of the Regulations.

Name and Population Equivalent	BOD			COD			TSS		
	No. Of Samples	No. of samples >25 mg/l	No. of samples >50 mg/l	No. Of Samples	No. of samples >125 mg/l	No. of samples >250 mg/l	No. Of Samples	No. of samples >35 mg/l	No. of samples >87.5 mg/l
From 500 to 1,000 PE									
Gowran	4	4	4	4	3	2	4	4	1
Urlingford	2	1	1	2	1	0	2	2	1
Freshford	1	1	1	1	1	0	1	1	1
Paulstown	5	4	1	5	1	0	5	1	0
Stonyford [14]	1	1	1	1	1	0	1	1	0
From 1,001 to 1,999 PE									
Piltown	4	2	1	4	0	0	4	0	0
Ballyragget	1	1	1	1	1	1	1	1	1
From 2,000 to 10,000 PE									
Clogh-Moneenroe	4	1	0	4	0	0	4	1	1
Callan	4	3	3	4	1	1	4	2	1
Thomastown	3	0	0	3	0	0	3	0	0
Castlecomer	5	5	5	5	3	2	4	1	1
Graignamanagh	1	0	0	1	0	0	1	0	0
From 50,001 to 150,000 PE									
Kilkenny (Purcellsinch)	177	26	11	177	8	1	161	14	6

Name and Population Equivalent	BOD			COD			TSS		
	No. Of Samples	No. of samples >25 mg/l	No. of samples >50 mg/l	No. Of Samples	No. of samples >125 mg/l	No. of samples >250 mg/l	No. Of Samples	No. of samples >35 mg/l	No. of samples >87.5 mg/l
From 500 to 1,000 PE									
Gowran	3	3	3	3	2	2	3	2	1
Freshford	1	1	1	1	1	1	1	1	1
Paulstown	2	2	1	2	1	0	2	0	0
Stonyford	1	1	1	1	1	0	1	1	0
Urlingford	10	5	1	10	3	0	10	4	2
From 1,001 to 1,999 PE									
Piltown	4	2	0	4	0	0	4	1	0
Ballyragget	3	1	0	3	0	0	3	1	0
From 2,000 to 10,000 PE									
Castlecomer	4	4	3	4	2	0	4	0	0
Clogh-Moneenroe	3	0	0	3	0	0	3	1	0
Thomastown	11	6	2	9	0	0	10	3	1
Graignamanagh	6	1	1	6	0	0	5	1	0
Callan	2	2	2	2	2	1	2	2	2
From 50,001 to 150,000 PE									
Kilkenny (Purcellsinch)	6	0	0	217	7	5	223	8	6

Appendix 3:

Comparing Alternatives Matrix

Table 11.1: Comparing Alternatives Matrix

SEA Objective	Scenario			Comment
	1	2	3	
1. Conserve and enhance the diversity of habitats and species, including designated sites which may be sensitive to development	-1	-1	-1	(1) would see continued greenfield development in line with the current zoning map which would replace natural and semi-natural habitats with artificial surfaces. (2) Would see continued and additional greenfield development which would replace natural and semi-natural habitats with artificial surfaces. This development may place additional pressure on wastewater treatment and water supply in the town, thus leading to the risk of pollution of groundwater and river water. (2) Would also see residential development within the River Nore SAC. (3) Would see continued greenfield development which would replace natural and semi-natural habitats with artificial surfaces.
2. Improve the socio-economic profile of Callan	-1	1	1	(1) Would keep the same quantum of industrial and general business zoned land as is currently provided. (2) Would result in an increase in industrial and general business land from the current situation, thereby potentially increasing employment opportunities in the town. (3) Would see a decrease in industrial land and an increase in general business and mixed use land, resulting in an overall increase in employment related land.
3. Prevent pollution and contamination of groundwater	-1	-1	-1	(1) Would depend on the upgrading of the wastewater treatment plant in Callan. In addition, (1) includes zoning above vulnerable aquifers which may have negative impacts on groundwater. (2) Would allow for residential, industrial and general business development outside the current development boundary which may increase vulnerability of groundwater to pollution and contamination. In addition, Scenario 2 would see the zoning of industrial lands for use on areas with high groundwater vulnerability which would therefore pose a serious pollution risk to groundwater in the area. (3) Would see the additional zoning of land for development which may place additional pressure on the wastewater treatment system and could therefore pose a pollution risk to groundwater in the

				area. In addition, (3) includes zoning above vulnerable aquifers which may have negative impacts on groundwater.
4. Protect and improve river water quality in Callan	-1	-1	-1?	(1) (2) would see the potential for run-off from industrial and residential areas into the Kings River, which may impact significantly on river water quality. The extent of the impact of will also depend on improvements made to the water supply and wastewater treatment. Should these systems not be upgraded, the status of river water quality in Callan may be further adversely affected. (2) Will result in additional residential development within the SAC which would will lead to a rise in vulnerability of groundwater and river water quality. (3) would see the removal of industrial zoning to the south east of the town, within the SAC but the addition of general business zoned land (from agricultural) to the west of the town. The extent of the impact will depend on improvements made to the water supply and wastewater treatment. Should these systems not be upgraded, the status of river water quality in Callan may be further adversely affected.
5. Protect and improve water quality and supply	-1	-1	-1	(1) (2) (3) would be dependent on the steps taken to improve the current water supply.
6. Reduce vulnerability to effects of climate change, including flood risk	-1	-1	-1	(1) Includes industrial and residential land to the south east of the town located within the flood plain. (2) Will result in additional residential and industrial development close to and within the river and flood plains. (3) Will result in the removal of industrial zoned land from the flood plain to the south west of the town but the additional of general business land to the west of the town.
7. Protect and conserve Callan's cultural heritage, including areas of archaeological interest, protected structures, important monuments and sites and hedgerows	-1	-1	-1	(1) (2) (3) will provide for the general protection of cultural heritage. Amendments to the Record of Protected Structures cannot be completed through the Local Area Plan process. Specific objectives could be included to protect structures on the RPS and the National Inventory of Architectural Heritage and National Monuments.
8. Protect and enhance valued natural and historic landscapes and features within them	-1	-1	-1	(1) Provides for residential development close to the SAC and within floodplain impacting on landscape. (2) Additional development outside the town boundary will have negative impacts on the landscape and views. (2) (3) reduces the amount of land zoned for open space.
9. Protect and enhance soil and / or air quality	-1	-1	-1	(1) (2) (3) would involve development on a number of greenfield sites which is likely to result in soil removal and impact on soil quality through the introduction of impermeable services. The highest quantum of development is likely to result from (2). Poor air quality is most likely to result from private transport and traffic congestion. (1) (2) (3) do not propose any significant improvements to public transport although walking and cycling networks

				could be enhanced.
TOTAL	-9	-7	-6	The location of new development as per the three alternatives outlined in **Figure 8.4** is likely to have a range of effects which have been evaluated and compared with respect to the environmental objectives. This assessment has primarily focused on the general location of new development rather than any detailed policy objectives which may reasonably be expected to be included within a Local Area Plan. The evaluation suggests that there are a number of potential effects associated with all development alternatives with alternative strategy (3) providing for the least damaging outcome.

Score	Definition
-1	Significant adverse impact
?	Uncertain impact
1	Significant beneficial impact
0	No relationship, or insignificant impact