

# *Overview of Environmental Standards*

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TII Standards Training 2022  
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Article 3(1) of the Amended EIA Directive states:

*“The environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case the direct and indirect significant effects of a project on the following factors:*

- (a) population and human health;*
- (b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;*
- (c) land, soil, water, air and climate;*
- (d) material assets, cultural heritage and the landscape;*
- (e) the interaction between the factors referred to in points (a) to (d).”*

Article 3(1) of the Amended EIA Directive states:

*“The environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case the direct and indirect significant effects of a project on the following factors:*

- (a) **population and human health;***
- (b) **biodiversity**, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;*
- (c) land, soil, **water, air and climate;***
- (d) material assets, cultural heritage and **the landscape;***
- (e) the interaction between the factors referred to in points (a) to (d).”*

General (GE)	GE
Planning and Evaluation (PE)	PE
Design (DN)	DN
Construction and Commissioning (CC)	CC
Operations (OP)	OP
Asset Management and Maintenance (AM)	AM
Research (RE)	RE

'Activities' as per GE-INT-01029 *Introduction to the TII Publications System* (TII, June 2016).

# Biodiversity

## Technical Document

### General (GE)

### Environment (ENV)

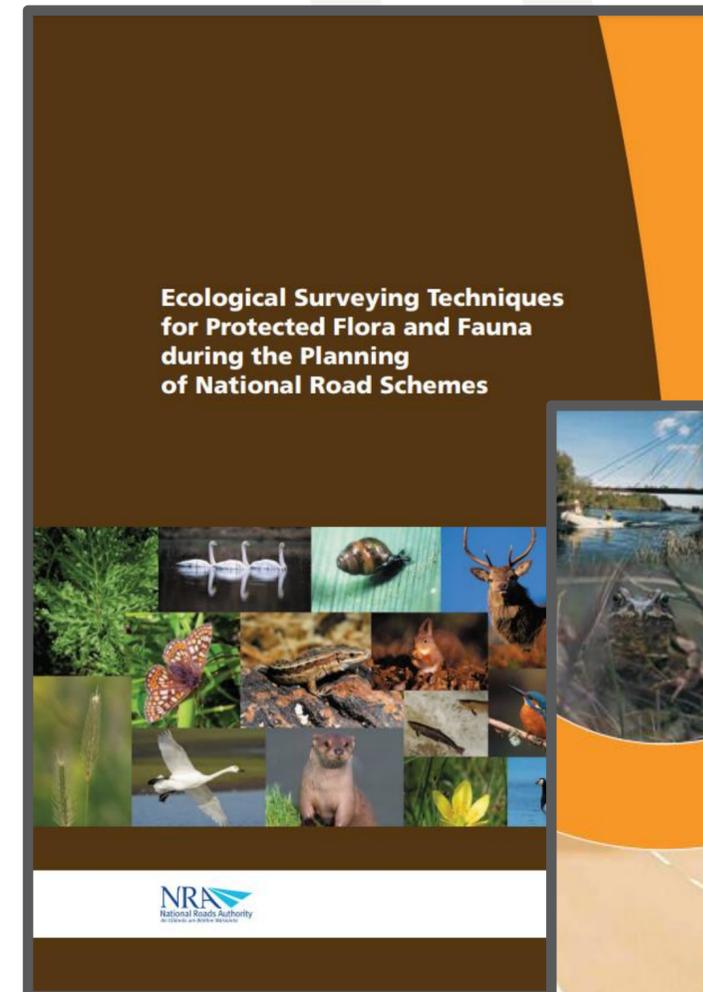
- ***Vincent O'Malley*** (TII), ***Christian Nea*** (TII), ***Sarah-Jane Phelan*** (TII), ***Robbie Watt*** (seconded from WSP).
- ***Biodiversity Policy Document.***
- Informed by existing national, European and international policy and legislation.
- Setting of objectives, which may include short, medium and long-term goals/actions.
- Objectives may include commitments to:
  - develop and utilise a biodiversity metric to demonstrate no net loss or net gain of biodiversity;
  - increase focus on the existing national road network; and,
  - publish biodiversity-related standard and technical documents.



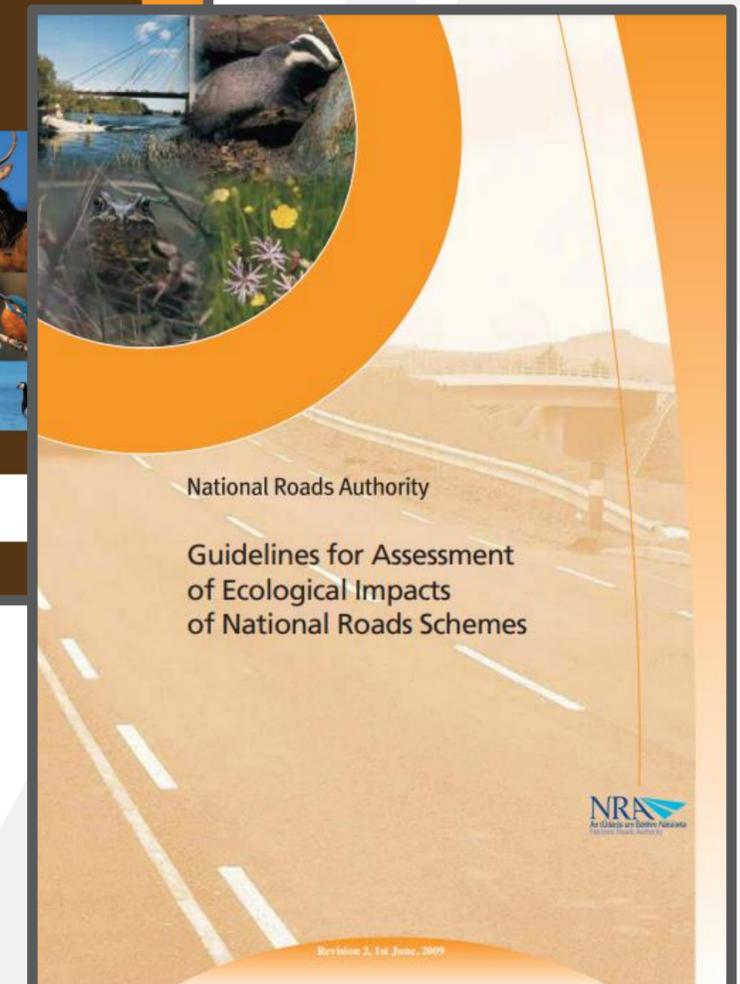
# Biodiversity Standard

## Planning and Evaluation (PE) Environment (ENV)

- **Vincent O'Malley** (TII), **Christian Nea** (TII), **Sarah-Jane Phelan** (TII), **Robbie Watt** (seconded from WSP).
- **Biodiversity Impact Assessment.**
- Revision of NRA ecological guidelines.
- Update to incorporate current best practice (e.g. *Guidelines for Ecological Impact Assessment in the UK and Ireland* (Rev. 1.2, CIEEM, 2022)).
- Develop approach (including metric) *vis-à-vis* no net loss of biodiversity or biodiversity net gain.
- Initial development of tender documents.



*Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes* (NRA, 2008).

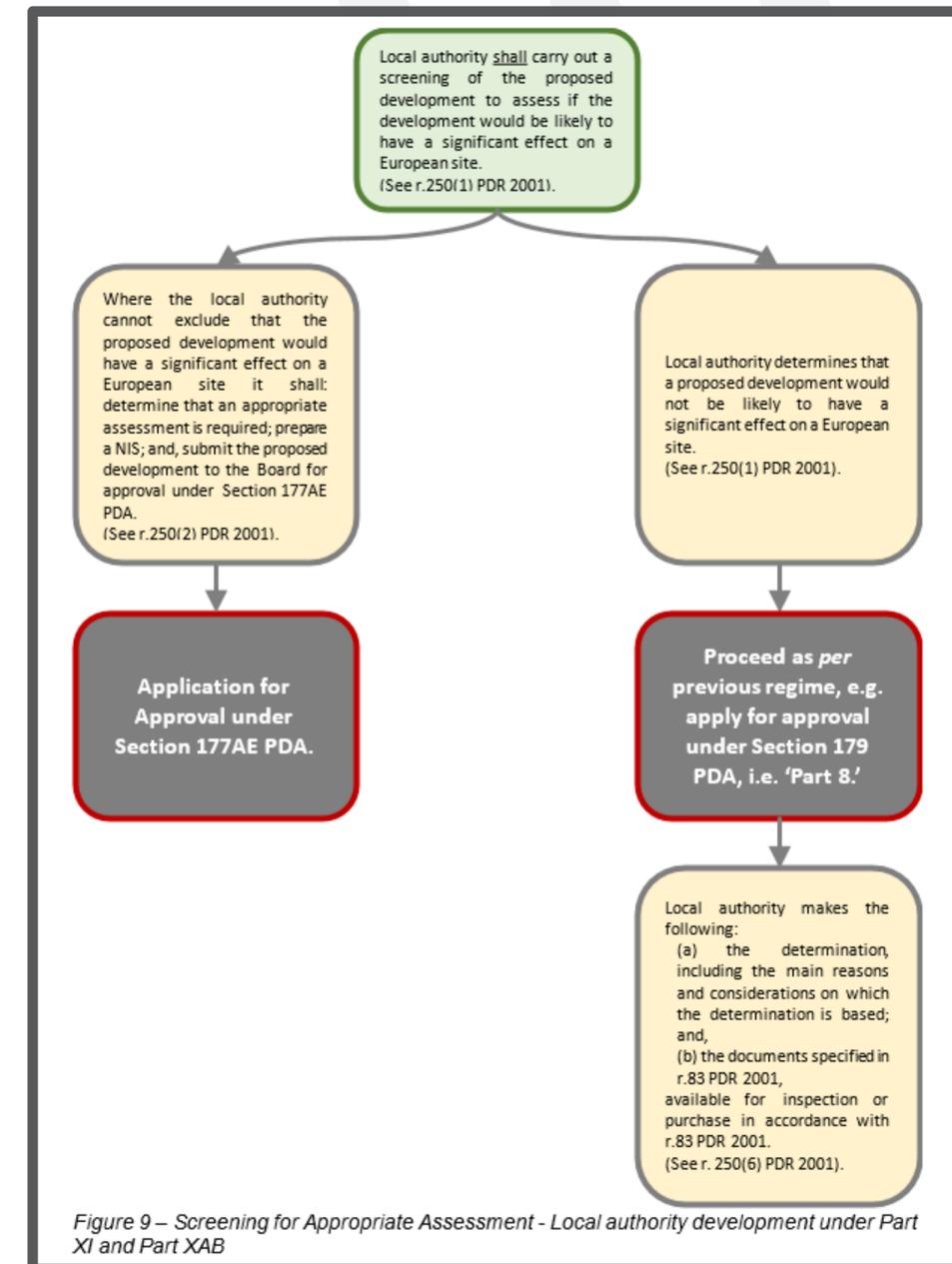


*Guidelines for Assessment of Ecological Impacts of National Road Schemes* (Rev. 2, NRA, 2009).

# Environment (General) Technical Document

## Planning and Evaluation (PE) Environment (ENV)

- Project Manager/Author: **Christian Nea** (TII)
- **Environmental Planning of National Road Projects.**
- Advice on navigating environmental and planning law during Phases 0-4 in the development of national road and other relevant projects.
- In preparation.



Extract from *Environmental Planning of National Road Projects* (In Prep., TII, 2022).

# Environment (General)

## Technical Document

### Planning and Evaluation (PE)

### Environment (ENV)

- **Environmental Planning of National Road Projects.**

TII Publications  
Environmental Planning of National Road Projects  
September 2019

Error! Reference source not found.-ENV-01106  
September 2019

1. Introduction	2
1.1 National Road Projects	2
1.2 Greenways	2
1.3 Busways	3
1.4 European environmental law	3
1.5 Irish environmental law	4
1.6 Environmental Impact Assessment Directive – The Fundamentals	5
1.7 Environmental Impact Assessment Directive – Guidance Documents	5
1.8 Birds and Habitats Directives – The Fundamentals	1
1.9 Birds and Habitats Directives – Guidance Documents	1
2. Phase 0 – Scope and Pre-Appraisal	2
2.1 Project Objectives	2
2.2 Project Splitting	2
2.2.1 Analysis	2
2.2.2 Recommendations and conclusion	3
2.3 Lifespan of screening decisions and EIA consents	3
3. Phase 1 – Concept and Feasibility	4
4. Phase 2 – Option Selection	5
4.1 Article 5(1)(d) of the amended EIA Directive	5
4.1.1.1 Public Consultation	6
4.1.2 A description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics	6
4.1.2.1 Description	6
4.1.2.2 Reasonable alternatives	7
4.1.2.3 Studied by the developer	12
4.1.2.4 Relevant to the project and its specific characteristics	12
4.1.3 Indication of the main reasons for the option chosen, taking into account the environmental effects	13
4.2 Article 6(4) of the Habitats Directive	14
4.2.1 Imperative Reasons of Overriding Public Interest	15
4.2.2 Absence of Alternative Solutions	15
4.3 Other potentially relevant environmental law	16
4.3.1 Article 4(7) of the Water Framework Directive	16
4.3.2 Article 16(1) of the Habitats Directive	17
4.3.3 Section 12(2)(b) of the Wildlife Act 1976	17
5. Phase 3 – Design and Environmental Evaluation	18
5.1 Screening and determining the appropriate consent procedure	18

Page 1

TII Publications  
Environmental Planning of National Road Projects  
September 2019

Error! Reference source not found.-ENV-01106  
September 2019

5.1.1 Screening – General Principles	20
5.1.2 Screening for Environmental Impact Assessment	20
5.1.2.1 Road development mandatorily subject to EIA	20
5.1.2.2 'Sub-threshold' Screening for EIA	23
5.1.3 Screening for Appropriate Assessment	30
5.1.3.1 Screening for Appropriate Assessment in respect of 'Proposed Road Development'	31
5.1.4 Is the development 'Part 8' development?	36
5.2 Preparation of the Environmental Impact Assessment Report	36
5.2.1 Scoping	36
5.3 Preparation of the Natura Impact Statement	37
5.3.1 Preparation of documents associated with a Section 177AE Application	37
5.3.1.1 Plans	38
5.3.1.2 Particulars	38
5.4 Preparation of the 'Part 8' documents	40
5.4.1 Plans and Particulars	40
5.4.1.1 Description document	40
5.4.1.2 Location map	40
5.4.1.3 Descriptive plans and drawings	40
5.4.1.4 Screening for EIA documentation	41
5.4.2 Chief Executive's Report	41
6. Phase 4 – Statutory Processes	43
6.1 Application under Section 51(2) of the Roads Act, 1993, as amended	43
6.1.1 Procedure under Section 51(3) of the Roads Act, 1993	43
6.1.1.1 Publication of notice in newspapers	43
6.1.1.2 Send ABP electronic version of documents	43
6.1.1.3 Send EIA and notice to prescribed persons and bodies	43
6.1.1.4 Send EIA and notice to and enter into consultations with the prescribed authority in Northern Ireland	43
6.1.2 Additional information	45
6.1.3 Approval with or without modification or Refusal to approve	45
6.1.4 Implementation, Monitoring and Penalties	45
6.1.4.1 General supervision of monitoring activities of local authorities by the EPA	46
6.1.4.2 TII as a planning enforcement authority	46
6.1.5 Appropriate Assessment	50
6.1.6 Article 6(4) of the Habitats Directive	53
6.2 Application under Section 177AE of the Planning and Development Act, 2000, as amended	58

Page 2

TII Publications  
Environmental Planning of National Road Projects  
September 2019

Error! Reference source not found.-ENV-01106  
September 2019

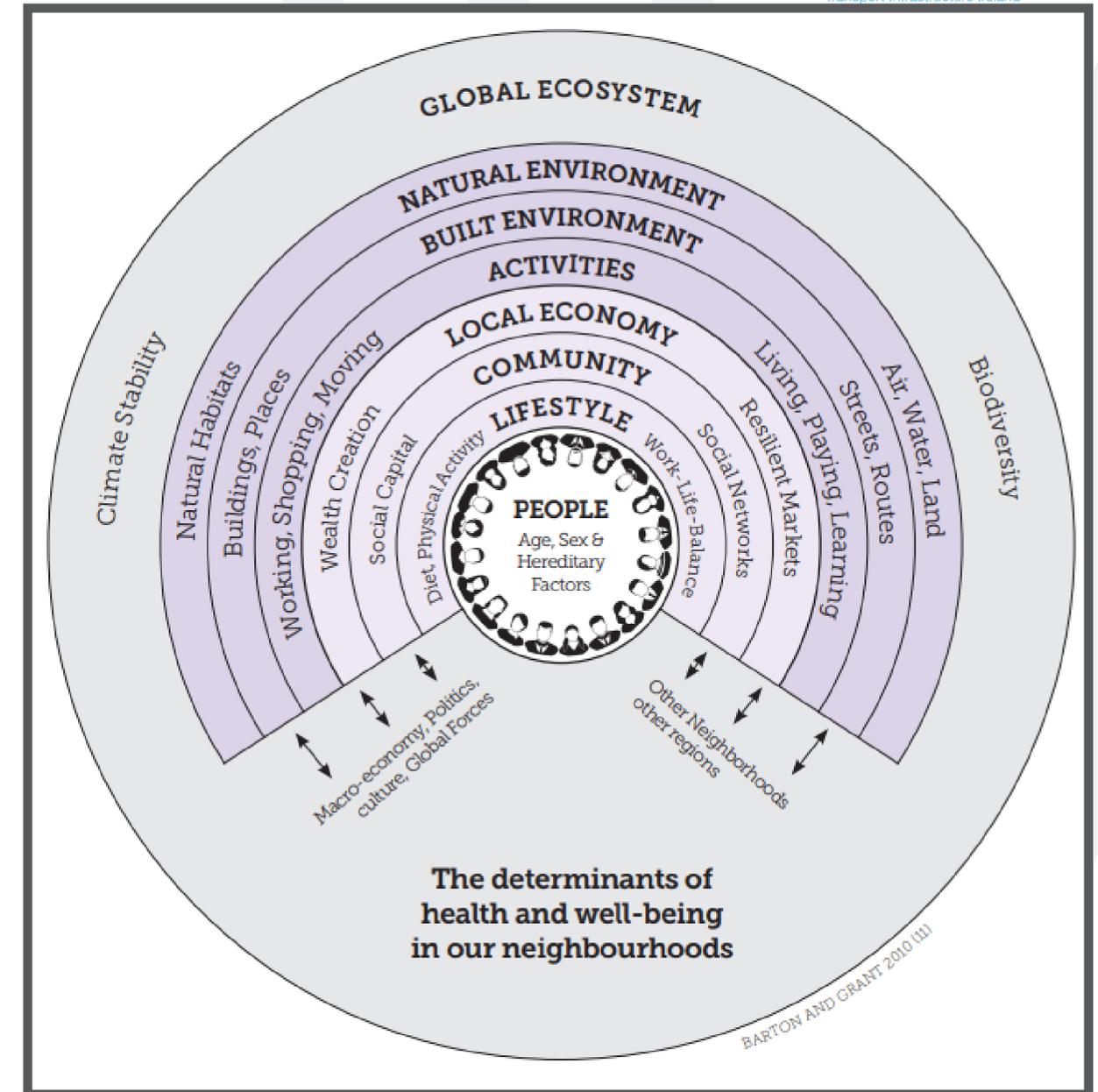
6.3 Project subject to Section 179 of the Planning and Development Act, 2000, as amended	64
6.3.1 Legacy 'Part 8' projects	64
6.3.2 The Part 8 Procedure	64
6.4 Other relevant statutory processes	71
6.4.1 Section 38 of the Road Traffic Act 1994	71
6.4.2 Section 95 of the Road Traffic Act 1961	73
6.4.3 Section 138 of the Local Government Act 2001	73
6.4.4 Local Authority (Works) Act 1949	74
7. References	76
8. Acronyms	77
9. Glossary	78
10. Consolidated Legislation	79
10.1 Environmental Impact Assessment Directive	79
10.2 Section 68 of the Environmental Protection Agency Act, 1992	80
10.3 Section 51 of the Roads Act, 1993	81
10.4 Statutory Consultees	82
10.4.1 the Commissioners of Public Works in Ireland	84
10.4.1.1 Commissioners of Public Works to Minister for Arts, Culture and the Gaeltacht	84
10.4.1.2 Minister for Arts, Culture and the Gaeltacht to Minister for Arts, Heritage, Gaeltacht and the Islands	84
10.4.1.3 Minister for Arts, Heritage, Gaeltacht and the Islands to Minister for Community, Rural and Gaeltacht Affairs	84
10.4.1.4 Minister for Community, Rural and Gaeltacht Affairs to Minister for the Environment and Local Government	85
10.4.1.5 Minister for the Environment and Local Government to Minister for the Environment, Heritage and Local Government	85
10.4.1.6 Minister for the Environment, Heritage and Local Government to the Minister for Tourism, Culture and Sport	85
10.4.1.7 Minister for Tourism, Culture and Sport to Minister for Arts, Heritage and the Gaeltacht	86
10.4.1.8 Minister for Arts, Heritage and the Gaeltacht to Minister for Arts, Heritage, Regional, Rural and Gaeltacht Affairs	86
10.4.1.9 Minister for Arts, Heritage, Regional, Rural and Gaeltacht Affairs to Minister for Culture, Heritage and the Gaeltacht	86
10.4.2 Bord Fáilte Éireann	86
10.4.3 Department of the Environment for Northern Ireland	87
10.4.4 Minister for Communications, Energy and Natural Resources	88
10.4.5 Local Authority	90
10.4.5.1 The Heritage Council and An Chomhairle Ealaíon	90

Page 3

# Population and Human Health Standard

## Planning and Evaluation (PE) Environment (ENV)

- TII Project Manager: **Stephen Byrne** (TII).
- Work Package 3.6e.
- **Population and Human Health Impact Assessment.**
- Guidance on assessing the effects of national road and related projects on population and human health.
- Alignment with *Project Appraisal Guidelines* and *Project Management Guidelines*.
- Literature review commenced. Summary and key findings expected Q2, 2022.
- Standard due ~ Q1, 2023.



The determinants of health and well-being in our neighbourhoods (Barton and Grant 2010).

# Noise Standard

## Planning and Evaluation (PE) Environment (ENV)

- TII Team Leader: **Stephen Byrne** (TII)
- **Noise Impact Assessment.**
- Two TII Open Research Call projects:
  1. Irish-specific correction factors (pavement and meteorological) for noise mapping . (Q3, 2021 to ~ Q3, 2022).
  2. Noise Impact Assessment Standard. (Tender evaluations ongoing. 24-month programme.)
- Noise Action Plans will be informed by more accurate strategic noise maps.
- Both research projects will be relevant to the assessment of noise impacts in relation to national road projects.



CPX trailer in operation.

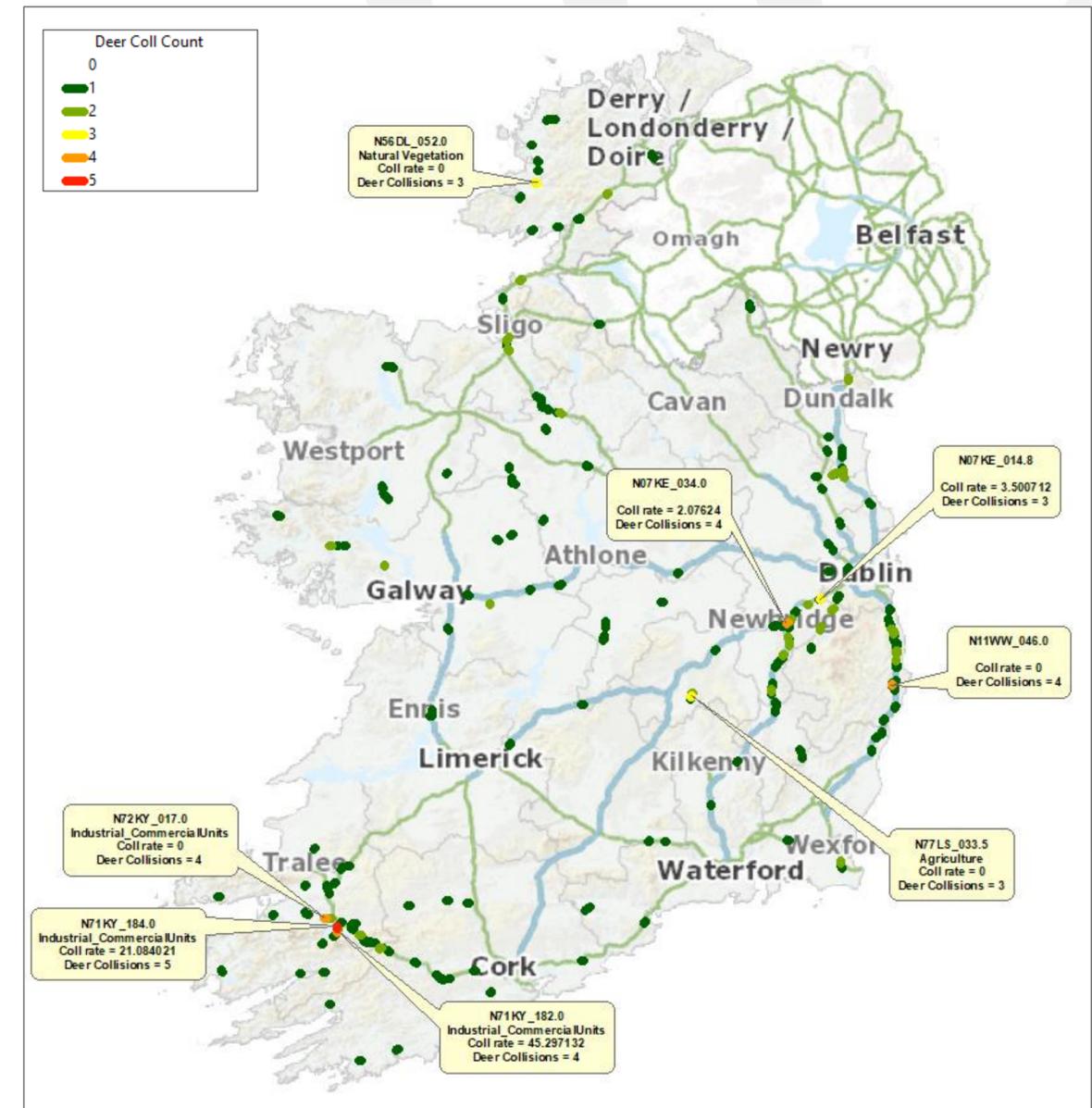
# Biodiversity (Deer) Standard

## Planning and Evaluation (PE), Design (DN) and Construction & Commissioning (CC) Environment (ENV) and Safety (STY)

- TII Team Leader: **Christian Nea** (TII)
- Work Package 3.3q.
- **Deer Standards.**
- Carry out ~ 5 case studies and develop proposed mitigation to a tender-ready state.
- Develop a suite of standard documents.
- At scoping stage.



Camera trap footage adjacent to N77 south of Abbeyleix.

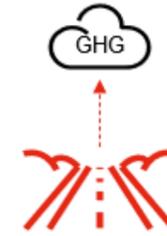


Unvalidated records of deer-vehicles collisions (2014-2020).

# Climate Technical and Standard Documents Planning and Evaluation (PE) Environment (ENV)

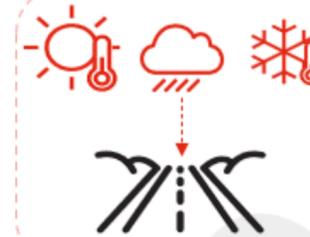
- TII Project Managers: **Vincent O'Malley** (TII) and **Billy O'Keeffe** (TII).
- **Climate Assessment.**
- Technical and Standard Documents providing advice on the:
  - assessment of climate-related impacts in the planning of national roads and other TII-relevant projects, namely:
    - Greenhouse Gas Emission Assessment;
    - Climate Change Risk Assessment; and,
    - In-Combination Climate Impacts Assessment
  - development of mitigation and adaptation measures.
- First draft of Technical Document submitted. Awaiting first draft of Standard Document.

## 1. Greenhouse Gas Emissions Assessment



The greenhouse gas impact of the project on the climate. The assessment of GHG emissions identifies the impact of GHG arising from the proposed scheme during its lifetime, and how it will affect the ability of the Government to meet its planned carbon reduction targets.

## 2. Climate Change Risk Assessment



The impact of a changing climate on the project. This assessment identifies the impact of a changing climate on a project. The assessment considers a project's vulnerability to climate change and identifies adaptation measures to accommodate climate change impacts.

## 3. In Combination Climate Impacts Assessment



The extent to which climate exacerbates the effects of the project on the surrounding environment. Identifies the extent to which climate change exacerbates the effects of the project on the surrounding environment. The ICCL assessment considers the combined effects of a proposed scheme, and potential climate change impacts on the receiving environment.

Extract from draft climate technical document.

## Planning and Evaluation (PE) Environment (ENV)

- TII Project Managers: *Vincent O'Malley* (TII) and *Billy O'Keeffe* (TII).
- **Carbon Assessment Tool.**
- Calculates carbon emissions from construction and maintenance.
- Update of the Carbon Assessment Tool:
  - Moved from an Excel to a web-based platform
  - Menus have been simplified and made easier-to-use
- Update finalised. Decision pending on hosting of the tool.

# CARBON TOOL

Transport Infrastructure Ireland

The screenshot displays the 'Scoping' section of the Carbon Tool web interface. The interface features a green sidebar on the left with navigation options: Introduction, Project Details, Scoping (selected), Road Home, Road Option 1, Road Option 2, Road Option 3, Road Summary, Light Rail Home, Light Rail Option 1, Light Rail Summary, and Emission Factors. The main content area is titled 'Scoping' and includes a header with 'TII AECOM' on the left and 'Save Data' and 'Load Data' buttons on the right. Below the header, there are two dropdown menus: 'Select Number of Road Options' (set to 3) and 'Select Number of Light Rail Options' (set to 1). The main content area is divided into five stages: Pre-construction stage, Product stage, Construction process stage (highlighted), Operation and Use stage, and Decommissioning. Under the 'Construction process stage', there are four sections: 'Clearance activities' (GHG Emissions from plant use during land clearance, Scoped In), 'Excavation activities' (GHG Emissions from excavation activities, Scoped Out, with a 'Rationale' field), 'On-site construction activity' (GHG Emissions from vehicle/plant use during construction, Scoped In), and 'On-site water use' (GHG Emissions from water use on site during construction, Scoped In). A final section, 'Waste arising from construction' (GHG Emissions from waste arising during construction and the transport of waste materials arising during construction, Scoped In), is also visible.

# Air Quality Standard and Technical Document Planning and Evaluation (PE) Environment (ENV)

- TII Project Manager: *Vincent O'Malley* (TII).
- ***Air Quality Impact Assessment.***
- Phases of work being undertaken by AECOM to develop Overarching Guidance and Standard:
  - Task 1: Review of Existing Context and Guidance – Complete
  - Task 2: Evidence Base Review – Complete
  - Task 3: Development of Overarching Guidance and Emissions Tool Development - Ongoing
  - Task 4: Preparation of Air Quality Standard - Ongoing
- All Tasks to be completed by year end.



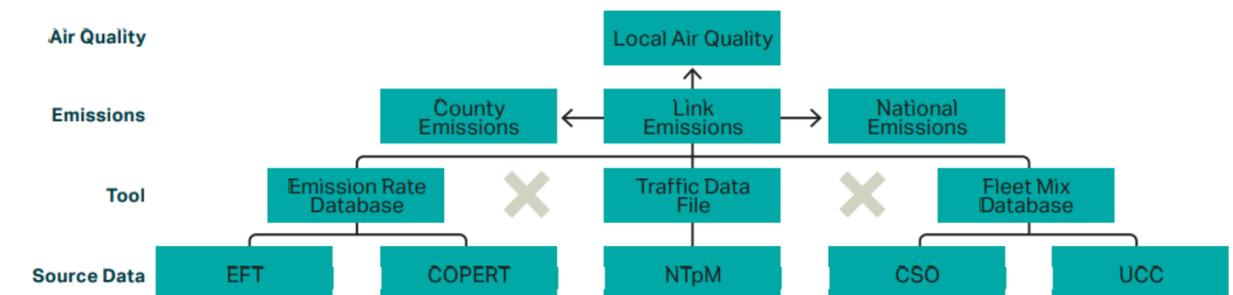
Nitrogen Dioxide diffusion tube monitoring along M50

# Air Quality Other

## Planning and Evaluation (PE) Environment (ENV)

- TII Project Manager: **Derek Brady** (TII) and **Vincent O'Malley** (TII).
- **Road Emissions Model.**
- New link-based traffic model for calculating Greenhouse Gas (and other) emissions associated with traffic on the national road network.
- The tool:
  - aligns with the National Transport Model (NTpM);
  - allows for changes in the fleet in line with government policies and projections as electric vehicles are introduced;
  - allows project-specific calculations; and,
  - enables detailed county assessments.
- Tool is complete. Decision pending on hosting of the tool.

Figure 1 Schematic of the TII Emissions and Air Quality Tool and Source Data



# Water Standard and Technical Document Planning and Evaluation (PE) Environment (ENV)

- TII Project Manager: **Billy O’Keeffe** (TII).
- **Water Impact Assessment.**
- Guidance on the assessment of impacts on water (surface and ground) during the planning process.
- Will define site investigation and reporting procedures to ensure adequacy and consistency.
- Publication anticipated in Q2, 2023.



Wetland system with sediment forebay and berms.

# Water (Drainage) Standard

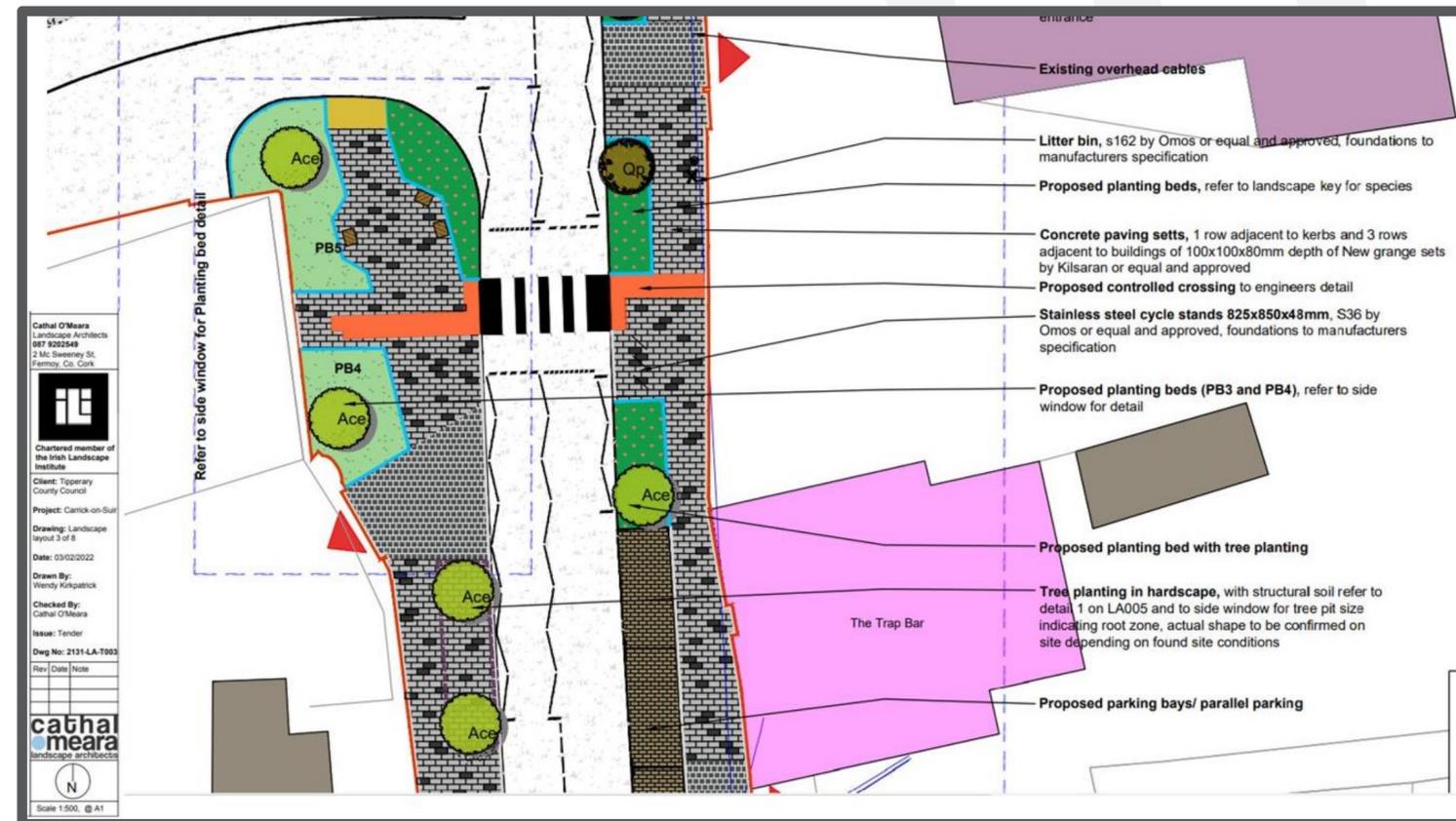
## Planning and Evaluation (PE), Design (DN) and Construction & Commissioning (CC) Drainage (DNG)

- TII Team Leader: **Christian Nea** (TII) and **Esther Madden** (TII).
- Work Package 3.5d.
- **Drainage in Towns and Villages**
- Review of TII's drainage standards in the context of towns and villages.
- At the scoping stage.

# Landscape Standard

## Design (DN) and Construction and Commissioning (CC) Environment (ENV) and Safety (STY)

- TII Team Leaders: *Eimear Fox* (TII) and *Fiona Bohane* (Cork NRO).
- Work Package 3.3p.
- **Soft landscape treatments in and around settlements.**
- Design and detailing of landscape and planting in and around settlements on national roads.
- 3 pilot projects commenced.
- Publication anticipated in Q4, 2022.



Landscape and planting proposals in Grangemockler pilot project.

# Water (Drainage) Standard

## Design (DN) and Construction and Commissioning (CC) Drainage (DNG)

- TII Team Leader: **Christian Nea** (TII).
- Work Package 3.5a.
- **Linear Slot Drains.**
- Investigate the performance of linear slot drains in central medians.
- At the scoping stage.



Near-side linear slot drains (no longer permitted under TII's standards).

# Water (Drainage) Standard

## Design (DN) and Construction and Commissioning (CC) Drainage (DNG)

- TII Team Leader: **Christian Nea** (TII).
- Work Package 3.5b.
- **Catchpits and other chambers.**
- Review of where catchpits are required.
- Review and revision of specifications/standard construction details for all access chambers.
- In progress.



Access chamber.

# Water (Drainage) Standard

## Design (DN) and Construction and Commissioning (CC) Drainage (DNG)

- TII Team Leader: **Christian Nea** (TII).
- Work Package 3.5c.
- **Pre-earthworks Drains.**
- Review of standards relating to pre-earthworks drains.
- At the scoping stage.



Pre-earthworks drain/interceptor ditch.

# Noise Standard

## Construction and Commissioning (CC) Environment (ENV)

- TII Team Leader: **Stephen Byrne** (TII)
- Work Package 3.6c.
- **Environmental Noise Barriers (ENB).**
- Review of 'Series 300' documents against suite of standards developed by CEN Technical Committee Working Group (CEN/TC 326/WG 6).
- Production of technical note outlining recommended changes to 'Series 300' documents.
- Final technical note due in Q3, 2022.
- Future standard documents, in addition to dealing with the requirements for CE marking, may require on-site testing and approval.
- Linkages with TII's 5-year study on acoustic performances of ENB.

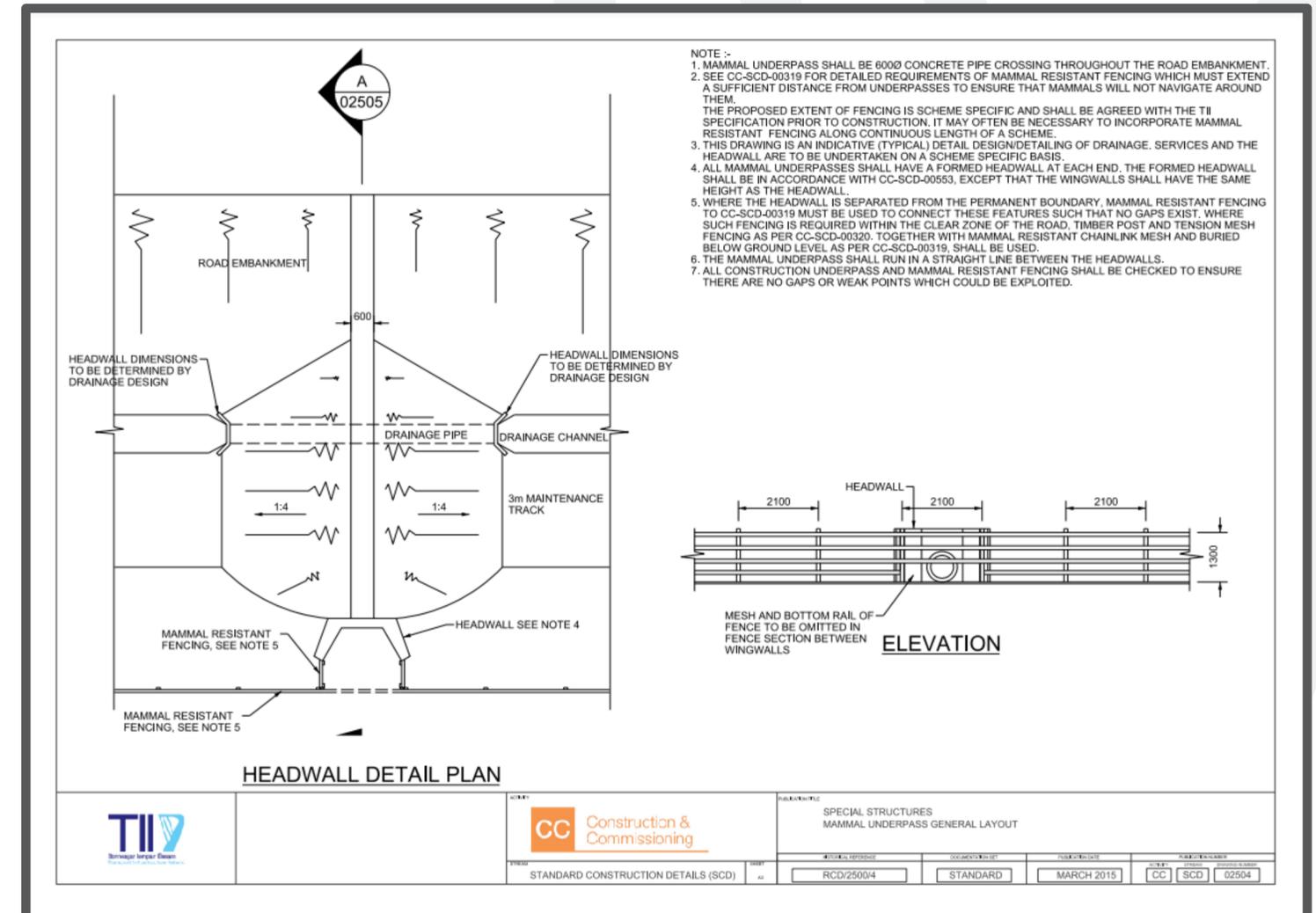


*In situ* acoustic testing of a reflective environmental noise barrier on M17/M18

# Biodiversity (Mammals) Standard

## Construction and Commissioning (CC) Environment (ENV)

- TII Team Leader: Bryan Kennedy (TII)
- Work Package 3.3e.
- **Mammal resistant fencing and underpasses.**
- Review, amongst other things:
  - fencing details at mammal underpasses; and,
  - mammal fencing, particularly in relation to timber post and tension mesh fencing.



Mammal Underpass – General Layout

# Biodiversity (Deer) Technical Document

## Construction and Commissioning (CC) Environment (ENV) and Safety (STY)

- TII Team Leader: **Christian Nea** (TII)
- Large cross-disciplinary team involved.
- Work Package 3.3o.
- **N77 Pilot Deer Management Study.**
- Commenced July, 2021.
- Literature review and ecological studies of 900 Ha study area.
- Proposals for mitigation, including advanced signage and vegetation clearance.
- Liaison with landowners *vis-à-vis* deer management.
- Monitoring.



*Mobile variable message sign on the N77 south of Abbeyleix, County Laois.*

## *Water (Drainage)* Standard

### **Construction and Commissioning (CC)** **Drainage (DNG)**

- TII Team Leader: ***Christian Nea*** (TII).
- Work Package 1.7e.
- ***Recycled Concrete Aggregate.***
- Review of the use of Recycled Concrete Aggregate in TII's road infrastructure assets.



Bonneagar Iompair Éireann  
Transport Infrastructure Ireland

# Questions and Answers