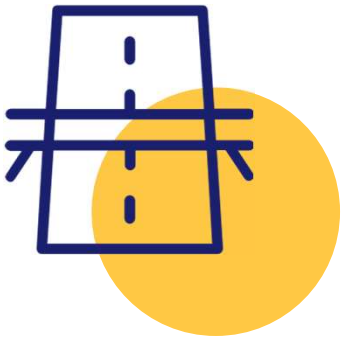
Transport Infrastructure Ireland

Water Impact Assessment of Proposed National Roads – Standard & OTD

PE-ENV-01201/ PE-ENV-01202



Oonagh Duffy
4 March 2026

- Content

1. Production and Publication
2. Overview of the **NEW** Standard & Overarching Technical Guidance
3. Run through of the Standard by the TII Project Phases
4. Summary & Next Steps

Standards **Technical**

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Production and Publication

- Production

Why;

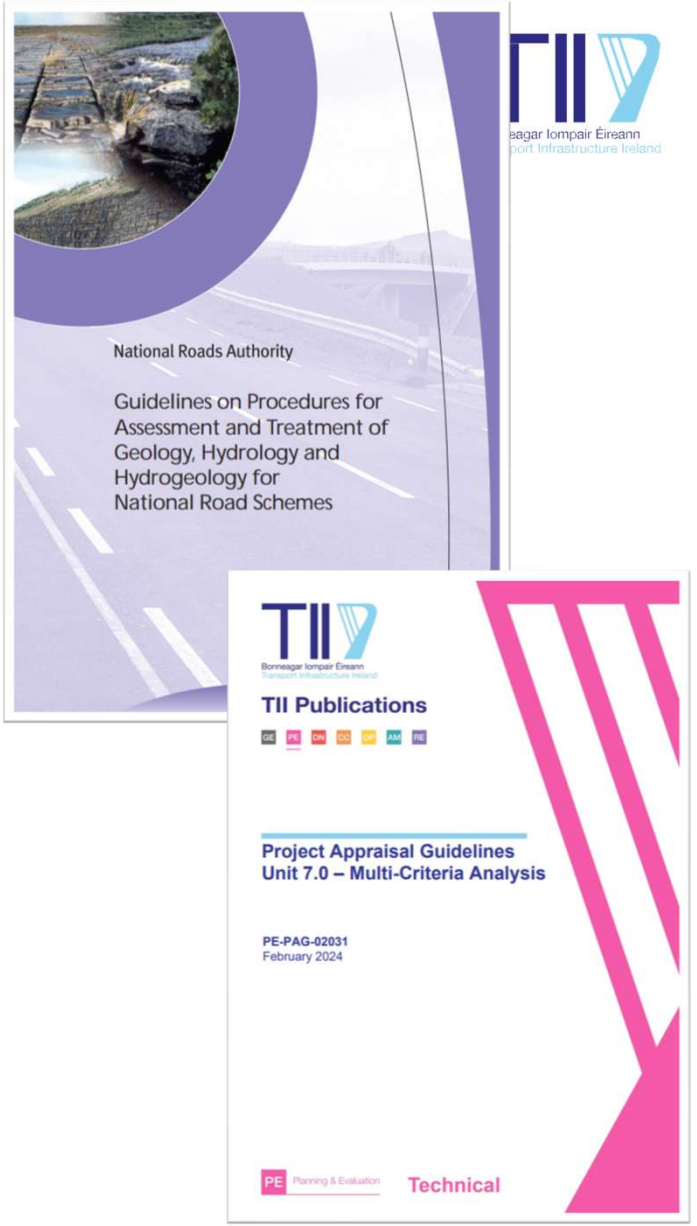
- To **replace the hydrology and hydrogeology** elements of the previous NRA guide – 2009.
- To **reflect** - TII PMGs, TII PAGs, EIA Directive, current best practice and other relevant legislation, policies, guidelines and standards.
- Provide better **consistency** across ALL TII projects.

TII Project Manager: Dr. Billy O'Keeffe /Oonagh Duffy

Project Partners: Mott MacDonald

Preparation of the Standard/OTD included:

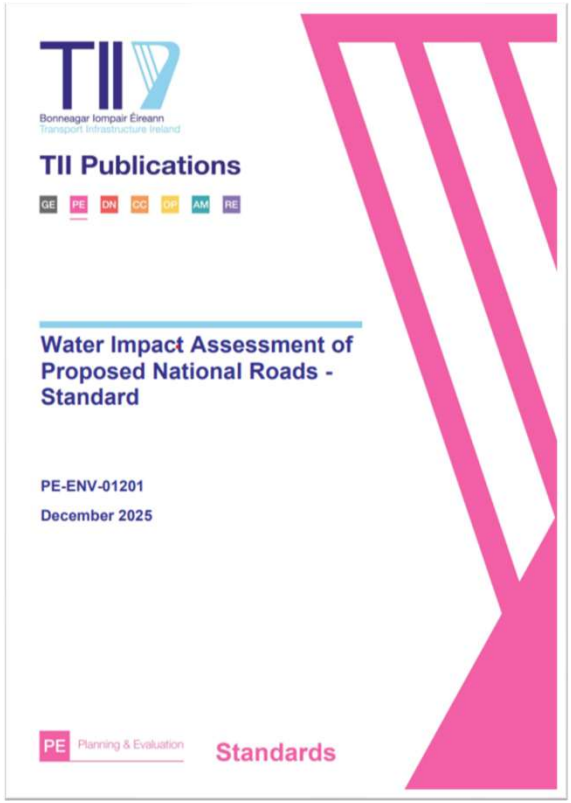
- **Peer review** by experienced water industry specialists.
- **External consultation** including with:
  - OPW
  - IFI
  - GSI
  - EPA
  - LAWPRO
  - Uisce Eireann

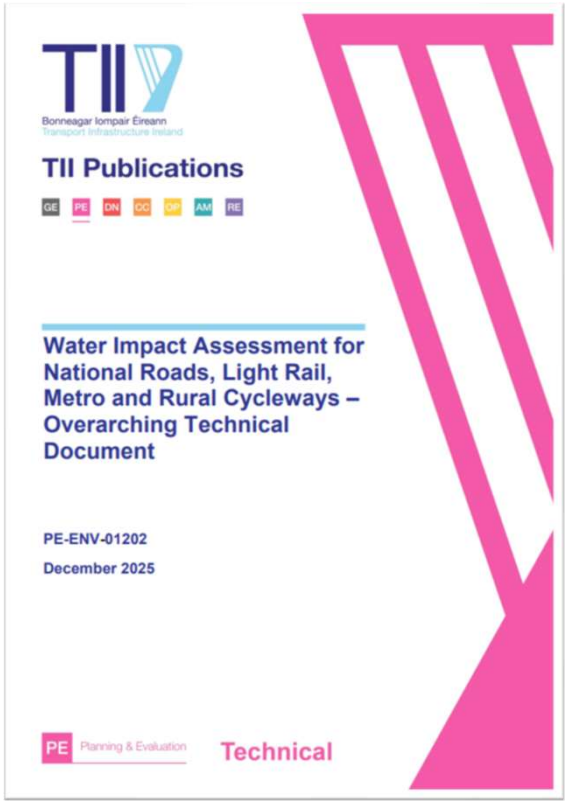


- Publication

The Water Impact Assessment Standard (PE-ENV-01201) & Overarching Technical Document (PE-ENV-01202) were published in **December 2025.**

ACTIVITY - Planning and Evaluation (PE)
STREAM - Environment (ENV)





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Overview of the Standard

- **Purpose of the standard** (as set out Section 1.1 of PE-ENV-01201)

- To outline the approach to the assessment of water (hydrological and hydroge… …s during the planning and design of national road projects, motorway service areas, to… associated infrastructure, hereafter referred to as national road projects…
- To apply the water assessment in a manner that is proportionate to t… significance of water environment effects of a national road project.
- To deliver consistency in approach to the consideration and descrip… hydrogeological) environment and to the assessment and mitigation … from all phases of national road projects.
- To encourage production of documents and deliverables which meet th… PMGs/PAGs, EIA Directive and other relevant legislation, policies, guidelin…
- To promote a context-sensitive approach to the design of appropriate mitigation and monitoring measures for likely significant effects of national road projects.

NOTE:
This is not a Drainage Design Standard

- Standard Length & Table of Contents

Approx. 50 pages of main content

Summary by phase

Detailed by phase

- **Implementation** (outlined in Section 1.4 of PE-ENV-01201)

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Full details of the **implementation** is set out in **PE-ENV-01201.**

The Standard is to be used in the planning, design and construction of **national road projects** that:

- Require approval under **Section 51** of the Roads Act, 1993, as amended (proposed national road development subject to EIA Environmental Impact Assessment).
- Require approval under **Section 177AE** of the Planning and Development Act, 2000, as amended (certain local authority development subject to Appropriate Assessment).
- Are subject to **Part 8** of the Planning and Development Regulations, 2001, as amended (known as the 'Part 8' procedure).

1.4 Implementation of this Standard

This Standard shall be used in the planning, design and construction of national road projects that:

a) Require approval under Section 51 of the Roads Act, 1993, as amended (proposed national road development subject to EIA).

b) Require approval under Section 177AE of the Planning and Development Act, 2000, as amended (certain Local Authority development subject to Appropriate Assessment).

c) Are subject to the procedure established under Section 179 of the Planning and Development Act, 2000, as amended, and Part 8 of the Planning and Development Regulations, 2001, as amended (known as the 'Part 8' procedure).

In relation to the:

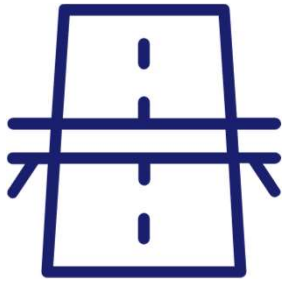
- the planning, design and construction of national road projects; and,
- the maintenance of national roads

not subject to the above approvals (a, b) and procedure (c), the contents of this Standard shall be:

- treated as advice and guidance.
- employed to the greatest extent reasonably practicable; and,
- applied in a proportionate manner, having regard to the characteristics and location of the project/maintenance works and the type and characteristics of potential impacts.

It is appropriate and necessary that this Standard is applied in a transitional manner. Where projects requiring approval under Section 51, Section 177AE or Part 8 have at the date of publication of this Standard, commenced planning and design and in particular where technical advisor contracts have been executed, this Standard shall also be:

- treated as advice and guidance.
- employed to the greatest extent reasonably practicable.
- applied in a proportionate manner, having regard to the characteristics and location of the project/maintenance works and the type and characteristics of potential impacts.



- Competent Water Practitioner(s)

- Some **requirements and examples** of competency for Water are provided in Section 2.4 of PE-ENV-01201.
- EIA Directive states 'the developer shall ensure that the EIAR is prepared by **competent experts**'
- It is the **responsibility of the developer** to ensure, to the satisfaction of the consenting authority, that the practitioners who undertake assessments are **expert, qualified and competent**.

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2.4 Requirements of the Competent Water Practitioner(s)

Where required for national road projects, the Water assessment will be carried out for project Phase 2 and Phase 3 (and any inputs in earlier or later phases) by a suitably qualified and competent hydrogeology or hydrology (Water) practitioner(s). The assessments for hydrogeology, hydrology and flood risk can be complex and tasks may include the use of statistics, mathematical modelling, hydraulics, hydrometrics, meteorology, hydrogeology, geology and hydrology. Qualifications and experience should be relevant to discipline and tasks undertaken. The Water Practitioner(s) will have appropriate qualifications and previous experience in this field, as detailed below.

2.4.1 Lead Water Practitioner

It is recommended that the Lead Water Practitioner involved in the preparation and/or coordination of environmental impact assessment reports and / or the carrying out of Water Environment Assessments in respect of TII projects have the following qualifications:

- Honours degree (National Framework of Qualifications (NFQ) Level 8 (or equivalent level)) in a relevant subject e.g., environmental science, engineering, hydrology, hydrogeology (or equivalent discipline); and / or, a

2.4.2 Other Water Practitioners

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For the water assessment, the input from additional specialist practitioners in particular areas can be sought, as a specialist in one area of the water environment may not be conversant in another. Qualifications and experience should be relevant to discipline and tasks to be undertaken. Additional Water Practitioners can provide specialist experience in:

- Hydrology
- Hydrogeology
- Hydromorphology
- Flood risk - modelling and assessment
- WFD
- EIA process

In addition to relevant academic qualifications, these Water Practitioners can hold membership or chartership of a relevant / appropriate professional body.

In general, it is recommended that the Water Practitioners have five years' relevant post-graduate experience in assessing the Water environment. The minimum number of years' relevant post-graduate experience may change (upwards or downwards) depending on the size, nature or complexity, of the project in question.

In addition, it is essential that the Local Authority lay down any further criteria defining what post-graduate experience is considered relevant in the context of the project at hand.

Overview of the OTD

- **Purpose of the Water OTD** (as set out in Section 1.2 of PE-ENV-01202)

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Box 1: Purpose of these Guidelines

- To set out the principles and processes underlying the water (hydrological and hydrogeological) assessments.
- To provide guidance on the methodology for undertaking water (hydrological and hydrogeological) assessments to ensure consistent and appropriate description and evaluation of the receiving environment.
- To promote an assessment approach that is proportionate to the complexity, scale, and likely significance of water environment effects.
- To provide guidance on the methodology for assessing hydrology and hydrogeology for the planning and for the design and assessment phases of delivering TII projects.
- To promote a context-sensitive approach to the design of appropriate mitigation and monitoring measures for likely significant effects.

- OTD Length & Table of Contents

Approx. 100 pages of main content + appendices

Assessment Process

Mitigation

Further broken down by discipline

- Water OTD (all the below are taken from PE-ENV-01202)

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Provides **guidance** & **best practice methodology** for Water assessment on TII Projects.

Table 3.2 - Categories for describing effects (EPA, 2022)

Magnitude of Impact	Category						
	Extent	Intensity	Complexity	Probability	Duration	Frequency	Reversibility
Very High							
High							
Medium							
Low							
Negligible	Localised	Mild	Simple	Unlikely	Momentary	Rare	Temporary

Table 3.3 - Criteria for the assessment of magnitude of hydrological and hydrogeological effects

Magnitude of Impact	Positive or negative effect	Hydrological example of effect	Hydrogeological example of effect	Flood risk example of effect[9]
irreversible.		• Contribution to failure to achieve water body WFD status of good.	WFD status.	
High **Notable permanent or longer-term change to a receptor.**	Negative Effect	• Extensive loss of fishery. • Extensive reduction in amenity value. • Notable change of a surface water dependent ecosystem. • In relation to Road projects specifically: ○ Failure of both soluble and sediment-bound pollutants in HEWRAT (Method A, Annex I) and compliance failure with relevant standard (Method B). ○ Calculated risk of serious pollution incident >2% annually[10].	• Removal of large proportion of aquifer. • Changes to aquifer or zone of contribution resulting in extensive change to existing water supply springs and wells, water quality, river baseflow or GWDTEs. • Potential high risk of pollution to groundwater from routine run-off. • In relation to Road projects specifically: ○ Calculated risk of serious pollution incident >2% annually[10].	• Increase in predicted peak flood level >100mm.

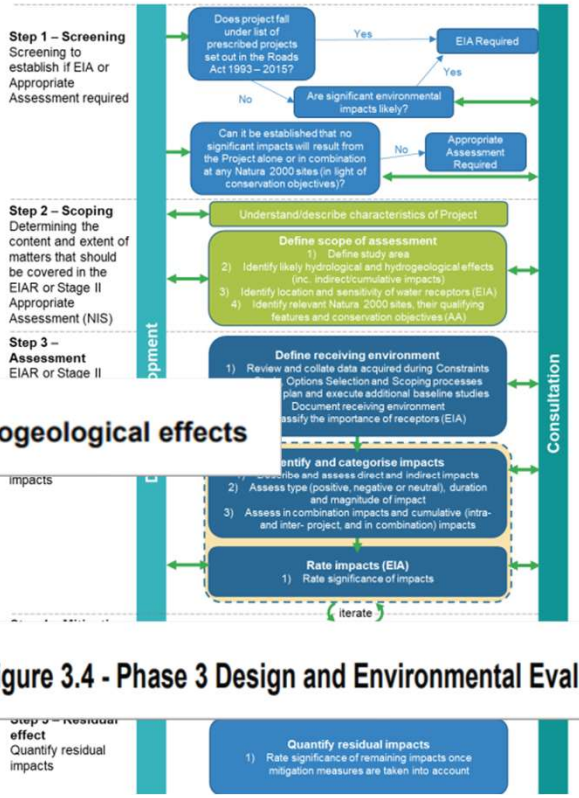

Figure 3.4 - Phase 3 Design and Environmental Evaluation Process

Table 1.2 - Summary of interconnected disciplines requiring liaison

Discipline / Specialism	Examples of areas of cross-over
Ecology / biodiversity	• Water quality (physio-chemical and biotic) of streams, rivers, lakes and other surface water bodies; • Fishery value / classification of streams / rivers and other surface water bodies; • Impacts to European sites / Appropriate Assessment; • Inputs to wetlands and groundwater dependent ecosystems (quantity and quality); and • Hydromorphological changes and impacts to ecology / biodiversity.
Agriculture / Landscape	• Re-usability of excavated topsoil and subsoil within the proposed project to support proposed landscape treatments (and hydrogeological / hydrological effects arising from these); • Effects of landscape design on hydrological cycle / flood risk; and • Impact on landscape design if flood risk is exacerbated from project design.
Soils / Land use / geology	• Geological controls on the hydrogeological regime; • Changes to soil / subsoil / bedrock geology which may alter the hydrological / groundwater recharge and flow cycle; • Identification and / or investigation of contaminated land; • Identification and protection of Karst features; • Peat hydrogeology effects arising from changes to groundwater flow/quality; • Hydrogeological / hydrological effects from re-use of excavated topsoil, subsoil and rock as construction materials; • Compatibility of excavated material such as soils and the location they are deposited in; and • Flooding may mobilise existing contamination.
Cultural Heritage	• Identification and / or investigation of water features valued by or altered by man (e.g. historic springs and 'holy wells' which may have cultural significance); • Wetland archaeological heritage (NRA, 2005b); and • Channel beds (rivers and streams) which may contain archaeological features, including remnant watercourses.
Noise and Vibration	• Restrictions on vibration in sensitive Karst areas from blasting in rock cuttings; and • Pile driving (e.g. at bridge structures).
Economics / Social / Assessment of Capitals (Natural Capital etc.)	• Social and economic cost of any increased flood risk at existing properties or infrastructure arising from construction of the proposed project;

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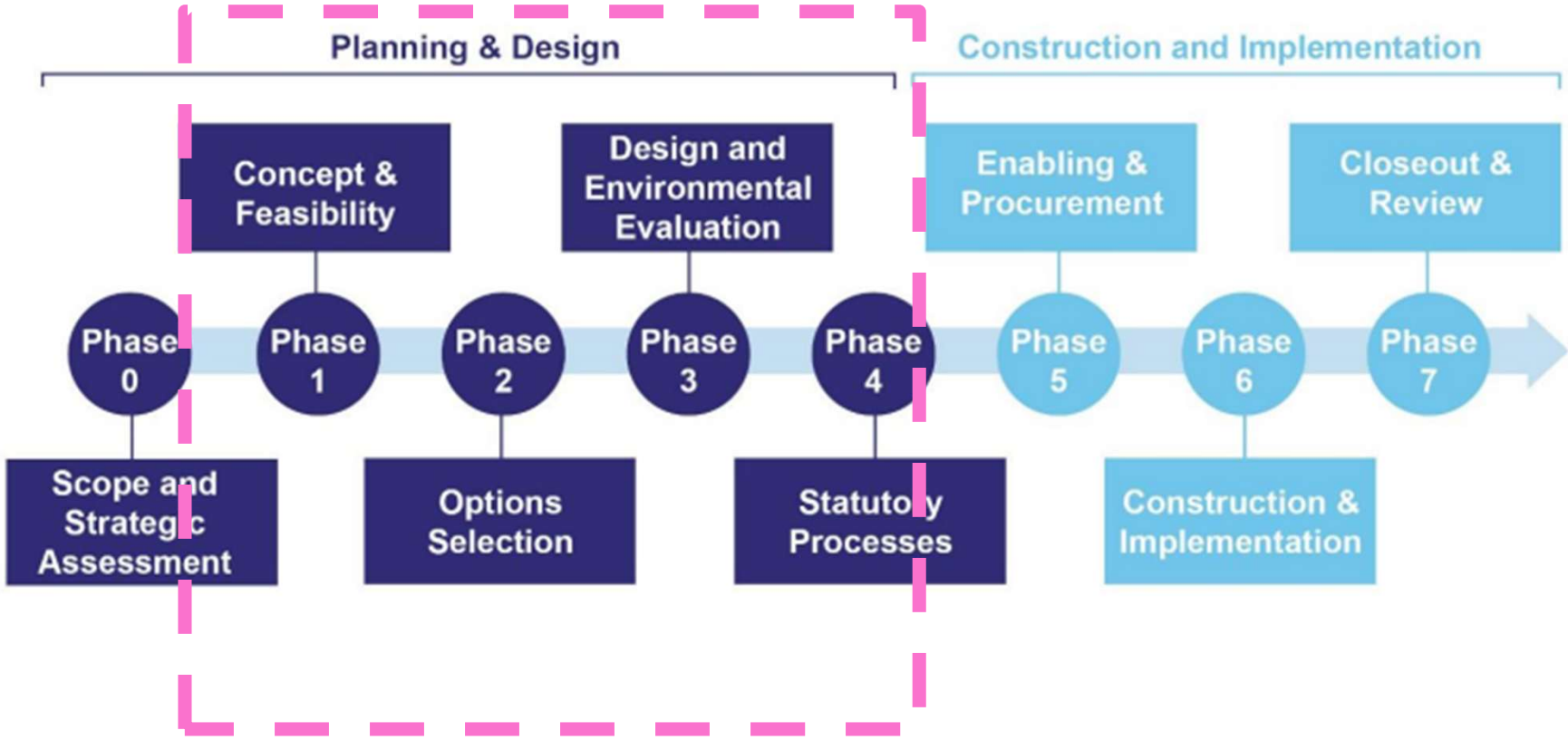
Standard through the TII Project Phases

- **The Water Standard/OTD applies primarily to PMG Phases 1- 4**
(Figure 3.1)



- PMG Phases 0-1

Phase 0: Scope & Pre Appraisal

- No specialist water input.
- Some guidance provided for the **Project Manager** in terms of water.

Phase 1: Concept and Feasibility

- Specialist water input maybe required.
- Define preliminary **Zone of Influence**.
- Collate and analyse **baseline data**.
- Identify (and map) key **constraints**.
- Identify **risks and opportunities**.
- As required input to the identification of **Strategic Options**.
- Prepare inputs to the **Feasibility Report**.

Contents

- PMG Phase 2

Phase 2: Options Selection

- Specialist water input is required.
- Ensure **water effects are considered** in the options appraisal process.
- Undertake a **proportionate** assessment in line with available information.
- Consideration of Transport Appraisal Framework **(TAF),** Project Appraisal Guidelines **(PAG),** the **EIA Directive** (see RE-ENV-07008) & **Flood Risk**.
- Consider the need for **survey(s).**
- Prepare water inputs to the **Options Report.**

Contents

- PMG Phase 3

Phase 3: Design and Environmental Evaluation

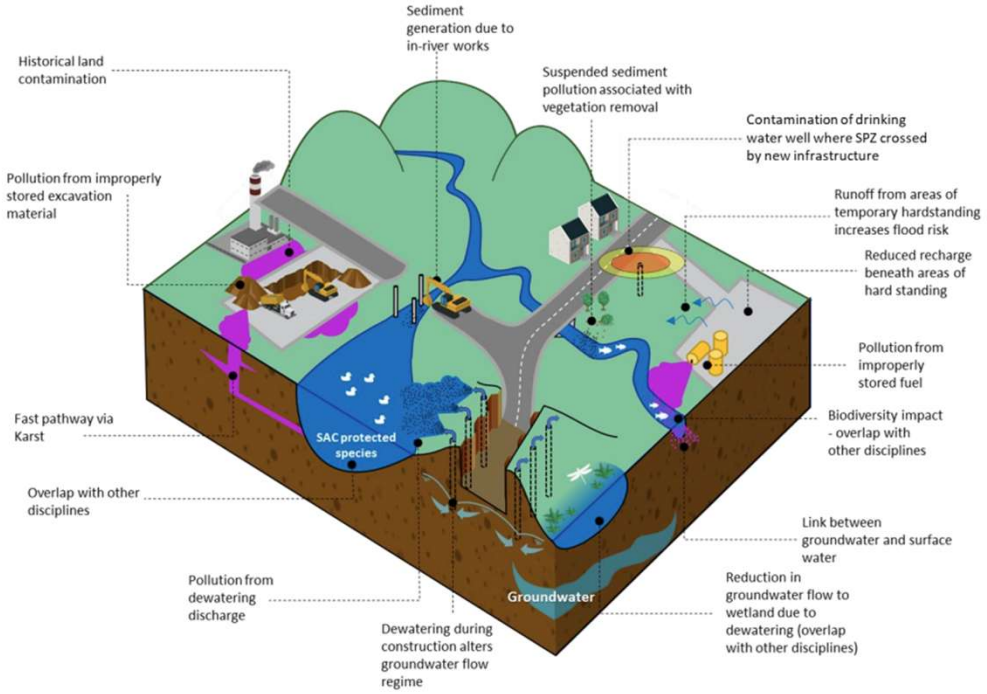
- Specialist water input is required.
- A number of steps are involved in the **assessment process;** EIA/AA screening, scoping and assessment.
- Guidance on **stakeholder engagement** & **interactions** with other disciplines.
- **Other assessments**; Flood Risk & Water Framework Directive Compliance Assessment.
- Prepare water inputs to the **Phase 3. deliverables/reporting** e.g. EIAR, NIS, CEMP, Schedule of Environmental Commitments.

Contents

- Assessment of the Proposed Project

- Assessment based on sensitivity of receptors and magnitude of impact in line with EPA Guidance.
- OTD provides **magnitude and sensitivity criteria** for Water assessment.

Figure 2.1 - Interaction between the water environment and roads projects during construction



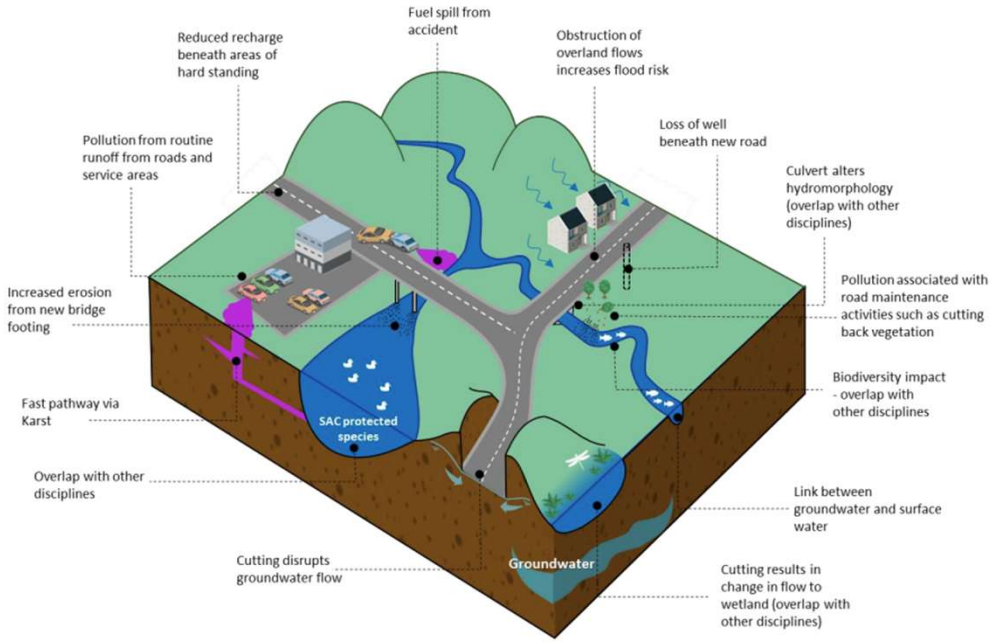


Figure 2.2 - Interaction between the water environment and roads projects during operation

- PMG Phase 4 & 5-7

Phase 4: Statutory Process

- Specialist Water input maybe required.
- Standard provides guidance in relation to Phase 4.

Phase 5-7:

- High level in nature for Phase 5-7.

Contents

Summary & Next Steps

- Summary

- **Evolution** of the previous NRA guidelines.
- Provide PMs with guidance on **competent experts**.
- Support a **consistency** in approach to water assessment through project **phases** for TII National Road projects.
- Focuses more heavily on the **interactions** with other discipline notably biodiversity.
- It is to be applied in a manner that is **proportionate** to the complexity, scale, and likely significance of water environment effects.
- No significant change to **resource** needed to complete the Water assessment (compared with the previous guidance and current best practice).

- Next Steps

- The **Soils & Geology** elements of the 2009 NRA guide will remain valid until a new Standard is developed in the future. The previous NRA guide has now been made available on TII publication website as a reference document (PE-ENV-01116).

Thank you

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