
Appendix 4.1
Outline Construction Environmental
Management Plan

West Clare Railway Greenway Section 1: Kilrush to Kilkee

Preliminary Construction Environmental Management Plan

Table of Contents

1. INTRODUCTION	1
1.1 Purpose of the CEMP	1
1.2 Environmental Construction Guidelines	1
1.3 CEMP Appendices.....	2
2. DESCRIPTION OF THE PROPOSED DEVELOPMENT.....	3
2.1 Project Description.....	3
2.2 Construction Programme Sequence	5
2.2.1 Construction Sequence and Methodology	5
2.2.2 Working Hours.....	7
2.2.3 Sourcing of Materials.....	7
2.2.4 Temporary Construction Compounds	7
2.2.5 Construction Traffic Management.....	8
3. CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP)	10
3.1 Environmental Policy	10
3.2 Environmental Aspect Register.....	10
3.3 Project Organisation and Responsibilities	11
3.3.1 Employer.....	11
3.3.2 Employer's Representative.....	11
3.3.3 Contractor's Supervisor / Project Manager	11
3.3.4 Site Manager / Site Agent.....	11
3.3.5 Site Environmental Manager	12
3.3.6 Design Manager	14
3.3.7 Forepersons	14
3.3.8 Project Supervisor Construction Stage	14
3.3.9 Ecological Clerk of Works (ECoW)	14
3.3.10 Project Archaeologist.....	15
3.4 Training and Induction	15
3.4.1 Site Induction.....	15
3.4.2 Specific Training and Awareness.....	16
3.5 Project Communication and Co-ordination.....	16
3.6 Operational Control.....	17
3.7 Checking and Corrective Action.....	17
3.8 Implementing Licensing and Environmental Control Measures	17
3.9 Complaints Procedure	17

3.10	Details of Construction Environmental Management Plan.....	17
3.10.1	Construction Traffic	19
3.10.2	Description of Typical Construction Details.....	19
4.	ENVIRONMENTAL MANAGEMENT PROGRAMME.....	21
4.1	Control Measures	21
4.1.1	Pollution Prevention.....	21
4.1.2	Traffic Management.....	21
4.1.3	Biodiversity	22
4.1.4	Surface Water Quality	22
4.1.5	Ground Water Quality	23
4.1.6	Soil Quality	23
4.1.7	Air Quality.....	24
4.1.8	Noise and Vibration	25
4.1.9	Climate	25
4.1.10	Landscape & Visual.....	26
4.1.11	Cultural Heritage	26
4.1.12	Material Assets and Land (Agricultural Properties)	26
4.1.13	Material Assets and Land (Non-Agricultural Properties)	27
4.1.14	Major Accidents and Disasters	27
4.1.15	Hydrocarbons and Hazardous Materials.....	28
4.1.16	Cement Product Control Measures.....	28
4.2	Invasive Species Management and Biosecurity Measures.....	29
4.3	Schedule of Environmental Commitments	29
5.	RESOURCE AND WASTE MANAGEMENT PLAN	30
6.	INCIDENT RESPONSE PLAN	31
APPENDIX A	Environmental Operating Plan	
APPENDIX B	Resource Waste Management Plan	
APPENDIX C	Incident Response Plan	
APPENDIX D	Summary of Mitigation and Monitoring Measures	
APPENDIX E	Natura Impact Statement – Mitigation Measures	
APPENDIX F	An Coimisiún Pleanála Approval Including any Conditions / Modifications	

1. INTRODUCTION

This preliminary Construction Environmental Management Plan (CEMP) is prepared for the proposed West Clare Railway Greenway Section 1 Kilrush to Kilkee (hereafter referred to as “the proposed development”) on behalf of Clare County Council.

1.1 Purpose of the CEMP

This preliminary CEMP applies to all works associated with the proposed development including enabling works such as fencing, site clearance, etc. as well as main construction works.

As a contractor has not yet been appointed, this CEMP has not been formally adopted and further development and commitment to the CEMP will be undertaken following selection of Contractors and before commencement of site works.

It presents the approach and application of environmental management and mitigation for the construction of the proposed development. It aims to ensure that adverse effects from the construction phase of the proposed development on the environment and the local communities are avoided or minimised. It does not describe mitigation measures relating to the operation and decommissioning of the proposed development. These are provided in the Environmental Operating Plan (EOP) and Environmental Impact Assessment Report (EIAR) respectively.

The CEMP provides the environmental management framework for the appointed Contractors and sub-contractors as they incorporate the mitigating principles to ensure that the work is carried out to reduce adverse effects on the environment. The construction management staff as well as contractors and sub-contractors' staff must comply with the requirements and constraints set forth in the CEMP in developing the finalised CEMPs. The key environmental aspects associated with the construction of the West Clare Railway Greenway and the appropriate mitigation and monitoring controls, are identified in this CEMP and its supporting documentation.

The implementation of the requirements of the CEMP will ensure that the construction phase of the project is carried out in accordance with the commitments made by Clare County Council for the proposed development, and as required under the planning application. Once commenced, the CEMP is considered a live document that will be updated according to changing circumstances on the project and to reflect current construction activities. The CEMP will be reviewed on an ongoing basis during the construction process and will include information on the review procedures.

1.2 Environmental Construction Guidelines

The TII/NRA Environmental and Construction Guidelines provide guidance with regard to environmental best practice methods to be employed in construction on National Road Schemes. The following construction guidelines will be adhered to by the contractor:

- TII (2005c) *Guidelines for the Treatment of Badgers prior to the Construction of a National Road Schemes. CC-ENV-01103*
- TII (2005b) *Guidelines for the Treatment of Bats during the Construction of National Road Schemes. CC-ENV-01102*
- TII (2005d) *Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes. CC-ENV-01101*

- TII (2006a) *Guidelines for the Protection and Preservation of Trees, Hedgerows and Scrub Prior to, During and Post-Construction of National Road Schemes*. GE-ENV-01110
- TII (2025) *Air Quality Assessment of Proposed National Roads – Standard*. PE-ENV-01107
- TII (2020a) *The Management of Invasive Alien Plant Species on National Roads – Standard*. GE-ENV-01104
- TII (2020b) *The Management of Invasive Alien Plant Species on National Roads – Technical Guidance*. GE-ENV-01105
- TII (2025) *Guidelines for the Treatment of Noise and Vibration in National Road Schemes*. PE-ENV-01110
- TII (2014) *Good Practice Guidance for the Treatment of Noise during Planning of National Road Schemes*. PE-ENV-01111
- TII (2006b) *Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes*. CC-ENV-001104
- TII (2017) *Guidelines for the Management of Waste from National Road Construction Projects*. GE-ENV-01101
- TII (2007) *Guidelines for the Creation, Implementation and Maintenance of an Environmental Operating Plan*. GE-ENV-01109

This is a non-exhaustive list and relevant guidance current at the time of construction will be followed. It is proposed to employ these guidelines, as and where relevant, on this project.

1.3 CEMP Appendices

The CEMP contains the following supporting environmental documents:

Appendix A	Environmental Operating Plan
Appendix B	Resource Waste Management Plan
Appendix C	Incident Response Plan
Appendix D	Summary of Mitigation and Monitoring Measures
Appendix E	Natura Impact Statement – Mitigation Measures
Appendix F	An Coimisiún Pleanála approval including any conditions / modifications

2. DESCRIPTION OF THE PROPOSED DEVELOPMENT

2.1 Project Description

The proposed development is an active travel facility located in West Clare, linking the towns of Kilkee and Kilrush via the village of Moyasta. The proposed route of the greenway is approximately 15.2km in length and will be a bi-directional shared walking, wheeling and cycling route. The greenway is proposed to follow the disused West Clare Railway Corridor where practicable. This route, described from east to west, departs from the trailhead at Kilrush Marina and travels 6.9km predominantly along agricultural boundaries towards the village of Moyasta, where a second smaller trailhead is located. The route continues a further 8.3km to the eastern edge of Kilkee town, terminating at the Percy French estate. The proposed development will offer a safe, segregated alternative route for non-motorised users who may otherwise rely upon travel along the N67, a busy national road with a sign-posted speed limit of 100km/hr.

Throughout the route, users will experience a range of landscapes and natural beauty. The inherently flat topography of the region will allow users to enjoy near-panoramic views, including views of Poulnasherry Bay and the Shannon estuary. The historic and cultural value of the West Clare Railway will be preserved through the proposed development, allowing public access to much of the rail corridor, a first since the closure of the railway in 1961. A number of the original railway structures are to be repaired and implemented as part of the greenway route.

The location of the proposed development is shown in Figure 2-1 below.

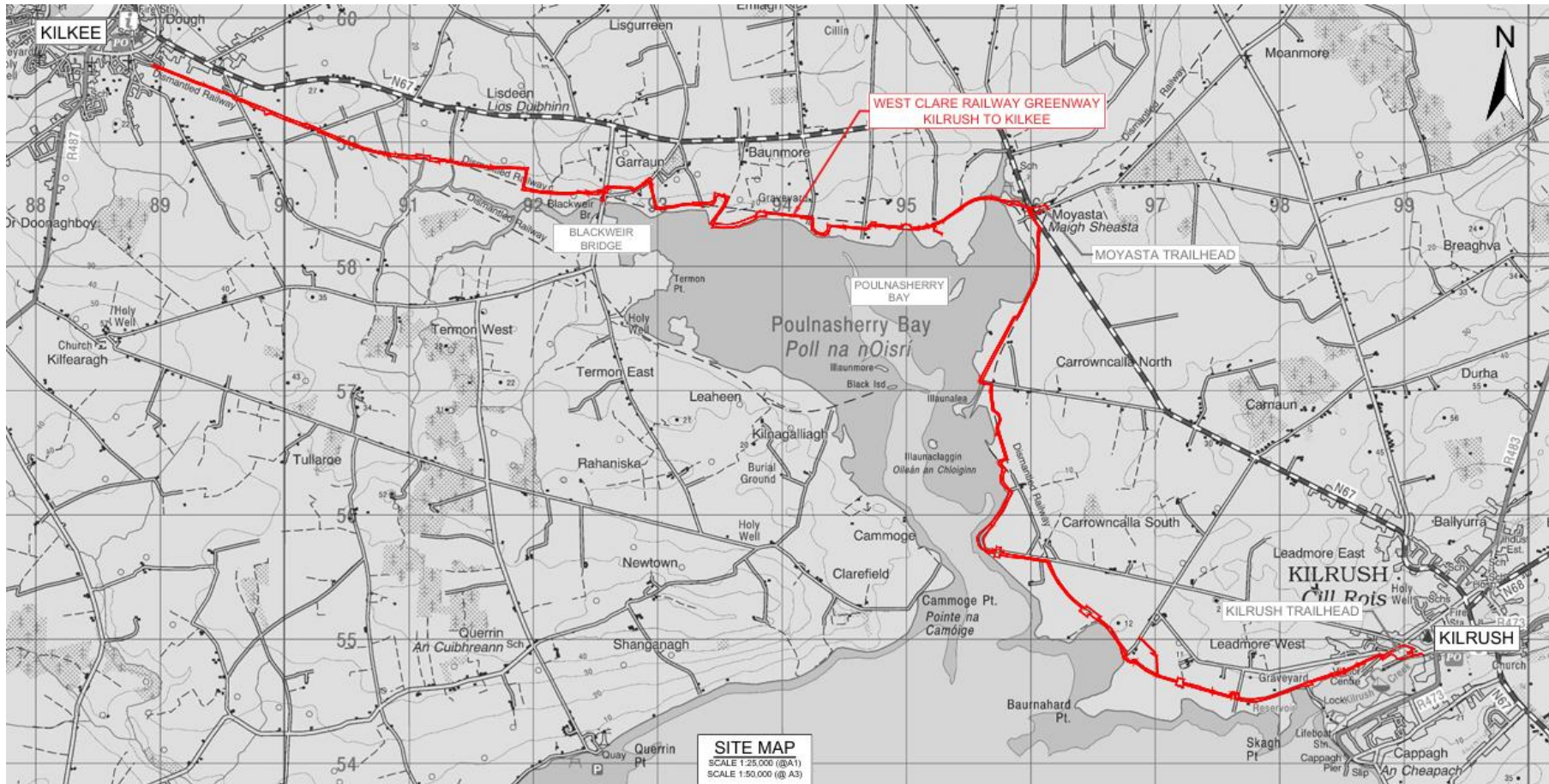


Figure 2-1 Location of the proposed development

2.2 Construction Programme Sequence

The construction programme for the proposed development is anticipated to last 16 to 24 months. Construction is expected to commence in 2027.

The construction of the proposed development is expected to be undertaken in two sections. The proposed Kilrush trailhead will predominantly be used as a construction compound for the Kilrush to Moyasta section. The proposed Moyasta trailhead will predominantly be used as a construction compound for the Moyasta to Kilkee section.

2.2.1 Construction Sequence and Methodology

The main activities expected to take place during the construction phase are outlined below. Works will largely be undertaken in the following sequence, however it is expected that the detailed construction programme will involve works at multiple areas being undertaken concurrently.

2.2.1.1 Construction Compounds

The anticipated works staging for site compound construction are as follows:

1. Mobilisation to Site;
2. Erection of temporary signage;
3. Site clearance works;
4. Landscaping planting and fencing on the bay side at sensitive bird areas as identified in Chapter 8 of the EIAR, Biodiversity;
5. Erection of temporary stock-proof fencing / screening;
6. Earthworks and excavation, including works to field drains and minor culverts;
7. Any services and drainage features installation as necessary;
8. Capping and deposition of fill;
9. Sub-base construction and compaction;
10. Regrading and deposition of verges;
11. Remaining Landscaping and planting;
12. Permanent stockproof fence installation;
13. Surface course laying;
14. Signage and road markings.

2.2.1.2 General Roadworks

The anticipated works staging for general greenway construction are as follows:

1. Erection of temporary signage;
2. Site clearance works;
3. Landscaping planting and fencing on the bay side at sensitive bird areas as identified in Chapter 8 of the EIAR, Biodiversity;
4. Erection of temporary stock-proof fencing;
5. Earthworks and excavation, including works to field drains and minor culverts;
6. Temporary retaining structures installed as required;
7. Any services and drainage features installation as necessary;
8. Construction of Bridges and Retaining structures (see below);
9. Removal of temporary retaining structures;
10. Capping and deposition of fill;

11. Sub-base construction and compaction;
12. Regrading and deposition of verges;
13. Remaining Landscaping and planting;
14. Permanent stockproof fence installation;
15. Surface course laying;
16. Signage and road markings.

2.2.1.3 Bridges and Retaining Structures

The anticipated works staging for bridge construction (following initial site clearance) are as follows:

1. Installation of protective measures for watercourses, where required;
2. Earthworks and excavation, including works to field drains and minor culverts;
3. Temporary retaining structures installed as required;
4. Any services and drainage features installation as necessary;
5. Preparation and levelling of ground;
6. Capping and deposition of fill for installation of temporary working platforms, if required;
7. Piling, where necessary;
8. Installation of pile caps where necessary;
9. Installation of pad / strip foundations;
10. Installation of retaining walls / wingwalls:
 - a. Formwork;
 - b. Steelwork;
 - c. Concrete pouring;
 - d. Concrete curing.
11. Installation of abutments;
12. Installation of bridge beams;
13. Installation of bridge deck;
 - a. Formwork;
 - b. Steelwork;
 - c. Concrete pouring;
 - d. Concrete curing.
14. Installation of bridge parapets;
15. Surfacing and finishes;
16. Removal of temporary working platforms, if required;
17. Removal of temporary retaining structures;
18. Remaining Landscaping and planting;
19. Signage and road markings.

2.2.1.4 General Restrictions for All Construction

In accordance with Chapter 8 of the EIAR, Biodiversity, timing restrictions will apply to certain construction activities and locations to avoid risks to nesting and wintering birds as summarised below:

- Vegetation clearance works will be programmed to take place outside the nesting bird season (March to August inclusive) – therefore can be undertaken in September and

October. Vegetation clearance within sensitive bird areas (as identified in Chapter 8 Biodiversity) will be programmed to take place in September only to avoid the wintering bird season (October to March inclusive) and the nesting bird season (March to August inclusive).

- Construction works (subject to the above restrictions for vegetation clearance) across sensitive bird areas will be programmed to take place during the summer months (April to September inclusive), except for landscape planting which will be required to take place during winter months. If appropriate screening measures are in place, some works may be permitted within the winter period only under explicit approval by the ECoW.

The detailed sequencing of the works will be outlined in the detailed programme developed prior to construction, and will take into account the following items:

- Traffic management;
- Seasonality with respect to site clearance and works near waterbodies and European sites;
- Minimising disruption to residents, commercial businesses and tourist attractions;
- Reducing as far as possible the cut/fill imbalance and mass haul requirements.
- Health, Safety and Welfare requirements;
- All mitigation measures identified in the EIAR and in any conditions of statutory Approval.

2.2.2 Working Hours

Normal working hours will be employed during the construction phase as follows:

Monday to Friday 07:00 to 19:00hrs

Saturday 08:00 to 16:30hrs

Sunday and Bank Holidays: no permitted.

Special works, such as for the erection of bridge beams or emergency works outside of the normal working hours will only be permitted with the approval of the local authority and of the Ecological Clerk of Works (ECoW). All works carried out are subject to the mitigation measures outlined in Volume 2 of this EIAR and the NIS, Appendix D: Summary of Mitigation and Monitoring Measures & Appendix E: NIS Mitigation Measures.

2.2.3 Sourcing of Materials

Where possible, re-use of clean, non-hazardous excavated material as fill will be prioritised along the route of the proposed development.

2.2.4 Temporary Construction Compounds

Two construction compounds will be established, one at the proposed Kilrush trailhead, and one at the proposed Moyasta trailhead. The locations of the construction compounds are shown in Figure 2-2 and Figure 2-3 below.

The temporary construction compounds will be set up and maintained by the successful Contractor as described above. The compounds will likely include welfare facilities, stores, offices, material storage areas, plant storage and parking for site and staff vehicles. They may remain in place for the duration of the construction programme or may be scaled up or down over the course of the construction period.

Other short term temporary working areas may be established within the Site Area, such as for the bridgeworks, but these will be limited in size and duration. Details of temporary working

areas will be included in the CEMP to be developed by the contractor. Portaloos, bins and temporary cabins for shelter / lunch may be temporarily placed along working areas of the site to accommodate site workers and to minimise risk to the environment.



Figure 2-2 Location of Kilrush trailhead marked in blue



Figure 2-3 Location of Moyasta trailhead marked in blue

2.2.5 Construction Traffic Management

The anticipated number of HGV journeys have been estimated against pavement, earthworks and drainage activities, and the peak volume of HGV movements identified. As long sections of the route are offline, traffic management requirements will be minimised.

The successful Contractor shall prepare a comprehensive Construction Traffic Management Plan (CTMP) in consultation with Clare County Council, TII, and An Garda Síochána before the commencement of the construction phase. The CTMP will include all the mitigation measures pertaining to Traffic and Transportation as set out in Appendix D Summary of Mitigation and Monitoring Measures & Appendix E NIS Mitigation Measures, to minimise the

effect of construction traffic on the surrounding network, local community and the environment. The CTMP will be a separate document to the CEMP.

The detailed Construction Traffic Management Plan (CTMP) will include the following:

- Traffic Management Coordinator – A dedicated competent Traffic Management Coordinator will be appointed for the duration of the project and this person will be the main point of contact for all matters relating to traffic management on the project.
- Roads to Be Used and Not Used – The CTMP will clearly identify those roads that will be used to access this project and those roads that are not to be used. In some cases, An Garda Síochána and the roads authority may direct/agree that certain roads cannot be used for laden HGVs but can be used for LGVs or unladen HGVs. The N67 and N68 will be used for deliveries to and from the site, save for essential local circulation for deliveries to the individual works fronts or deliveries to / from local quarries / waste disposal facilities.
- HGV restrictions – HGV movements to facilitate construction of the proposed development will be restricted during school hours. The exact timings will be determined in consultation with Clare County Council based on the proposed HGV routes.
- Road Pre-and Post-Construction Condition Survey – A pre-condition survey will be carried out on all public roads that will be used in connection with the works to record the condition of the road before the works commence. A post construction survey will also be carried out after the works are completed.
- Road Reinstatement – Upon completion of the construction works, all roads will be expeditiously reinstated to their pre-works condition or better and to the satisfaction of the Local / Roads Authority. If, during the construction works, some of the roads used in connection with the development are damaged, then these roads will be made good to the satisfaction of the Roads Authority.
- Site Inductions – All workers will receive a comprehensive site induction which will include, as appropriate, a section on traffic management and clear guidance on the routes to be used/not used.
- 24 Hour Emergency Phone Number – A 24-hour emergency phone number will be maintained for the duration of the construction works and the number will be noted on temporary signage at each site compound.
- Orderly Traffic Management – All necessary temporary traffic management will be planned and executed in accordance with best practice, including Chapter 8 of the Traffic Signs Manual as published by the TII/Department of Transport.
- Letter Drops – Subject to agreement with the planning authority, a letter drop will be carried out to notify members of the public living near the proposed site / route / roadworks where necessary, to advise them of any particularly significant upcoming traffic related matters.
- Clear Signage – A system of clear signage relating to the construction works will be agreed with the planning authority. These signs will also identify those roads to be used (and not to be used) for accessing the site in line with the objectives of the CTMP.

3. CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP)

This preliminary CEMP will be used to prepare the fully developed CEMP by the Contractor to meet the requirements of ISO 14001, and all site works will be undertaken in compliance with the CEMP.

The CEMP will detail all the environmental aspects and impacts associated with this contract such as waste management, pollution prevention and protection of flora and fauna with particular emphasis on the Special Areas of Conservation (SACs), Special Protection Areas (SPAs), proposed Natural Heritage Areas (pNHAs) and Natural Heritage Areas (NHAs) and water quality in the watercourses.

3.1 Environmental Policy

The Contractor will develop an Environmental Policy with consideration for impacts on the natural and built environment. All project personnel will be accountable for the environmental performance of the Project and will be made aware of the Environmental Policy at induction. The Environmental Policy will consider and make commitments with regard to the protection of Natura 2000 sites, and any pNHA and/or NHA sites, emissions to the atmosphere, maintenance of water quality, resource usage, energy consumption and waste management.

3.2 Environmental Aspect Register

Once appointed, the Contractor will prepare a register of all sensitive environmental features which have the potential to be affected by the construction works, together with details of commitments and agreements made during the preparation of the EIAR and Natura Impact Statement (i.e., any conditions that may be imposed by An Coimisiún Pleanála) and the contract documentation, with regards to mitigation of potential environmental impacts. The Environmental Aspects Register provides the relevant information for the preparation of construction method statements and will be regularly updated during the works.

A non-exhaustive list of sensitive environmental features/receptors is listed below:

- Identification of all waterways and drainage outlets for the protection against ingress of suspended solids or any pollutant.
- Air emissions.
- Noise emissions.
- Vibration emissions.
- Light emissions.
- Waste generation.
- Treatment of contaminated materials.
- Treatment of invasive species.
- Use of hazardous materials.
- Energy usage.
- Water usage.
- Discharge of wastewater.
- Traffic generation.
- Biodiversity (terrestrial and aquatic ecology)

- Landscape and Visual impacts.
- Soils, Geology and Hydrogeology.
- Hydrology.
- Cultural Heritage.

3.3 Project Organisation and Responsibilities

The Contractor's CEMP will define the roles and responsibilities of the project team. The Contractor is responsible to ensure that all members of the Project Team, including sub-contractors, comply with the procedures set out in the CEMP. The Contractor will ensure that all persons working on site are provided with sufficient training, supervision and instruction to fulfil this requirement.

Key staff will be notified of their appointment and confirm that their responsibilities are clearly understood. The principal environmental responsibilities for key staff can be identified in the following sections.

3.3.1 Employer

Clare County Council will be the Employer responsible for ensuring that the competent parties are appointed to undertake construction and that sufficient resources are made available to facilitate the appropriate management of risk to the environment.

3.3.2 Employer's Representative

The Employer's Representative (ER) appointed by Clare County Council will be responsible for monitoring compliance with the CEMP. The ER may be required to appoint a temporary or permanent specialist(s) with appropriate experience as required to implement on site procedures and monitoring construction on behalf of Clare County Council i.e. competent experts in biodiversity, contamination and/or water.

3.3.3 Contractor's Supervisor / Project Manager

The Project Manager's main duties and responsibilities in relation to the CEMP include liaising with the Project Team in assigning duties and responsibilities in relation to the CEMP to individual members of the main contractor's project staff.

It is the responsibility of the Project Manager to approve key personnel required for employment on the project and will liaise with the site Environmental Manager.

The Project Manager will lead the works on site and will be responsible for the management and control of the activities and will have overall responsibility for the implementation of the CEMP. The Project Manager will be assisted by the site Environmental Manager who will act as his/her deputy.

3.3.4 Site Manager / Site Agent

The Site Manager's environmental management responsibilities include, but are not limited to:

- Liaising with the site Environmental Manager and the Project Team in assigning duties and responsibilities in relation to the CEMP, to individual members of the main contractor's project staff;
- Preparing, reviewing and updating all site-specific method statements for activities where there is a risk of pollution or adverse effects on the environment;

- Liaising with the site Environmental Manager in agreeing site specific Method Statements with Third Parties;
- Ensuring that all relevant information on project programming, timing, construction methodology, etc., is communicated from the contractor's Project Team, including the Project Manager, to the site Environmental Manager in a timely and efficient manner in order to allow pre-emptive actions relating to the environment to be taken where required;
- Ensuring that the risk assessments for control of noise and environmental risk are prepared and effectively monitored, reviewed and communicated on site;
- Close liaison with the site Environmental Manager to ensure adequate resources are made available for implementation of the CEMP; and
- Ensuring that the site Environmental Manager reviews all method statements, performs regular and frequent environmental site inspections and that relevant environmental protocols are incorporated and appended.
- Ensuring Forepersons under his/her control adhere to the relevant Environmental Control measures and relevant site-specific Method Statements, etc.
- Ensuring that the procedures agreed during third party consultations are followed.
- Reporting immediately to the Site Environmental Manager any incidents where there has been a breach of agreed environmental management procedures, where there has been a spillage of a potentially environmentally harmful substance, where there has been an unauthorised discharge to ground, water or air, damage to habitat, etc.
- Attending environmental review meetings and preparing any relevant documentation as required by Management.

3.3.5 Site Environmental Manager

To ensure the successful development, implementation and maintenance of the Environmental Operating Plan (EOP), the Contractor will appoint an independent Site Environmental Manager (SEM). He/she must possess training, experience and knowledge appropriate to the role, including a National Framework of Qualifications (NFQ) Level 8 qualification (or equivalent) or other acceptable qualification in environmental science, environmental management, hydrology or engineering.

The principal functions of the SEM will be to ensure that the mitigation prescribed in the EIAR, the EOP and the CEMP, is fully and properly implemented and to monitor the construction stage from an environmental perspective. The SEM will also provide independently verifiable audit reports. Separate from the on-going and detailed monitoring carried out by the Contractor as part of the EOP, the SEM will carry out the inspection and monitoring described below on behalf of Clare County Council (CCC). The results will be stored in the SEM's monitoring file and will be available for inspection or audit by CCC, the NPWS or IFI. The responsibilities of the Site Environmental Manager include, but are not limited to:

- Ensuring that the CEMP is finalised, implemented and maintained;
- Liaising with Site Manager in agreeing site specific Method Statements with Third Parties, preparing, reviewing and updating all site-specific method statements for activities where there is a risk of pollution or adverse effects on the environment;
- Being familiar with the information in the pre-construction surveys, construction requirements, An Coimisiún Pleanála and Planning Service decisions and all relevant Method Statements;
- Being familiar with the contents, environmental commitments and requirements contained within the reference documentation listed in the CEMP;

- Being familiar with the baseline data collated during the compilation of the EIAR and the NIS;
- Assisting Management in liaising with the Engineers and Clare County Council and the provision of information on environmental management during the construction of the project;
- Liaising with the Site Manager and the Project Team in assigning duties and responsibilities in relation to the EOP, to individual members of the main Contractor's project staff;
- Overseeing, ensuring coordination and playing a lead role in third party consultations required statutorily, contractually and in order to fulfil best practice requirements;
- Ensuring that all relevant works are undertaken in accordance with the relevant legislation in the Republic of Ireland;
- Liaising with the designated licence holders and specific agent defined in the licence with respect to licences granted pursuant to the Wildlife Acts 1976 (as amended) and the European Communities (Birds and Natural Habitats) Regulations 2011;
- Bring any legal constraints that may occur during certain tasks to the attention of management;
- Hold copies of all permits and licenses provided by waste contractors;
- Ensuring that any operations or activities that require certificates of registration, waste collection permits, waste permits, waste licences, etc have appropriate authorisation;
- Gathering and holding documentation with respect to waste disposal;
- Keeping up to date with changes in environmental practices and legislation and advising staff of such changes and incorporating them into the CEMP;
- Liaising with contactors and consultants prior to works;
- Procuring the services of specialist environmental contactors when required;
- Ensuring that all specialist environmental contactors are legally accredited and proven to be competent;
- Coordinating all the activities of the specialist environmental contractors;
- Ensuring that environmental induction training is carried out on all personnel on site and ensuring that toolbox talks include aspects of environmental awareness and training;
- Respond to all environmental incidents in accordance with legislation, the CEMP and company policy/procedures;
- Responsible for notifying the relevant statutory authority when environmental incidents occur and producing the relevant reports as required;
- Ensuring that all relevant works have (and are being carried out in accordance with) the required permits, licenses, certificates and planning permissions;
- Carrying out regular documented inspections of the site to ensure that work is being carried out in accordance with the Environmental Control Measures and relevant site-specific Method Statements;
- Preparing and being ready to implement at all times the Emergency Incident Response Plan;
- Responsible for reviewing all environmental monitoring data and ensuring that they all comply with stated guidelines and requirements;
- Daily reporting on weather and flood forecasting.
- Weekly inspections of the principal control measures described in the CEMP and reporting of findings to the Contractor.

- Daily inspections of surface water treatment measures.
- Daily inspections of all outfalls to watercourses.
- Daily visual inspections of watercourse to which there are discharges from the works and those in the vicinity of construction works.
- Weekly inspections of wheel-wash facilities.
- Daily monitoring of any stockpiles.
- Auditing at least six times per quarter of the Contractor's EOP monitoring results.

3.3.6 Design Manager

The main duties and responsibilities of the Design Manager include:

- Be familiar with the CEMP and relevant documentation referred to within;
- Be familiar with the contents, commitments and requirements contained within the reference documents; and
- Participate in Third Party Consultations and liaising with third Parties through the site Environmental Manager.

3.3.7 Forepersons

The Forepersons on site are responsible for the following:

- Ensuring personnel under his/her control adhere to the relevant environmental control measures and relevant site-specific Method Statements;
- Reporting immediately to the site agents and site Environmental Manager any incidents where there has been a breach of agreed procedures e.g. spillages and discharges.

3.3.8 Project Supervisor Construction Stage

The role of the Project Supervisor Construction Stage (PSCS) is to manage and co-ordinate health and safety matters during the construction stage. The PSCS will be appointed before the construction work begins and will remain in that position until all construction work on the project is completed. It is the responsibility of the PSCS to ensure that the project:

- is designed and is capable of being constructed to be safe and without risk to health.
- is constructed to be safe and without risk to health.
- can be maintained safely and without risk to health during subsequent use.
- complies in all respects, as appropriate, with the relevant statutory provisions.

The PSCS will maintain contact with the Project Supervisor Design Process (PSDP) throughout the construction phase to communicate any health and safety related issues. The PSDP will prepare a written safety file appropriate to the characteristics of the project, containing relevant health and safety information, to be taken into account during any subsequent construction work following completion of the project.

3.3.9 Ecological Clerk of Works (ECoW)

In order to ensure the successful development and implementation of the CEMP and the EOP, the Contractor will appoint an independent Ecological Clerk of Works (ECoW). The ECoW must possess training, experience and knowledge appropriate to the role, including:

- An NFQ Level 8 qualification or equivalent or other acceptable qualification in an ecological discipline; and,
- Demonstrable appropriate practical experience as an ECoW in the protection of European sites.

The principal functions of the ECoW are:

- To ensure that the mitigation prescribed in this NIS, the EIAR, the EOP and the CEMP, is fully and properly implemented and to monitor the construction stage from an ecological perspective.
- The ECoW will also provide independently verifiable audit reports.
- Any mitigation measures required for the protection of species and habitats will be inspected and approved by the ECoW before commencement of works in each area. The ECoW will have power to stop the works if further mitigation measures are required.

During the preparation of the Contractor's CEMP, the Site Environmental Manager may, as appropriate, assign other duties and responsibilities to the ECoW.

In exercising his/her functions, the ECoW will be required to keep a monitoring file, and this will be made available for inspection or audit by Clare County Council, the NPWS or IFI at any time.

3.3.10 Project Archaeologist

The Project Archaeologist on site is responsible for the following:

- Relevant licences to the Department of Housing, Local Government and Heritage required for the project in advance of any construction work taking place and throughout the project as required.
- To supervise works in vicinity of known archaeological sites.
- To supervise any pre-construction archaeological survey works.

Section 26 of the National Monuments Act 1930 (as amended) requires that excavations for archaeological purposes must be carried out by suitably qualified and experienced archaeologists acting under an excavation licence. Inappropriate excavation of a heritage site could result in damage to, or destruction of, the integrity, setting or historical context of the site, contrary to the public interest.

3.4 Training and Induction

3.4.1 Site Induction

All employees and subcontractors involved on site will be given a comprehensive induction prior to commencement of the works. The environmental training and awareness procedure will ensure that staff are familiar with the principles of the CEMP, the environmental aspects and impacts associated with their activities, the procedures in place to control these impacts and the consequences of departure from these procedures.

This environmental training can be run concurrently with safety awareness training. Training will include:

- Overview of the Environmental Policy and Construction Environmental Management Plan, goals and objectives;
- Awareness in relation to risk, consequence and methods of avoiding environmental risks as identified within the Register of Aspects and with the planning conditions;
- Awareness of roles and individual environmental responsibilities and environmental constraints to specific jobs;
- Location of and sensitivity of Special Area of Conservations, Special Protection Areas, protected monuments, structures etc.

- Location of habitats and species to be protected during construction, how activities may affect them and methods necessary to avoid impacts.
- A record will be kept of a signed register on the project files of all attendees of the environmental induction.
- Toolbox talks based on specific activities being carried out will be given to personnel by the nominated project representative. These will be based on specific activities being carried out and will include environmental issues particular to the project, including the impact on bird populations and water quality namely:
 - Oil/Diesel spill prevention and safe refuelling practice;
 - Storage of materials including oil/diesels and cement;
 - Emergency response processes used to deal with spills;
 - Minimising disturbance to wildlife;
- Emergency response to include water pollution hotline to the EPA for regulator response. Identification of registered / accredited spill cleanup company for oil etc.; and
- Consideration of importance of containment of vehicle washing, containments of concrete / cement / grout washout etc, bank protection using hessian to prevent excessive scour and mobilisation of suspended solids, maintenance of vegetation corridors etc.

3.4.2 Specific Training and Awareness

A project specific training plan that identifies the competency requirements for all personnel allocated with environmental responsibilities will be produced by the Contractor. Training will be provided by the Contractor to ensure that all persons working on site have a practical understanding of environmental issues and management requirements prior to commencing activities. A register of completed training is to be kept by the SEM. The Site Manager will ensure that environmental emergency plans are drawn up, and the SEM will conduct the necessary training/inductions.

3.5 Project Communication and Co-ordination

Communication with the local community, Clare County Council and other relevant stakeholders shall be undertaken at an appropriate level and frequency throughout construction.

Where communications are related to environmental issues the Site Environmental Manager would be informed and engaged with as appropriate. Details of the available communication channels/points of contact for members of the public to contact the project team during construction will be established in advance of the commencement of construction and displayed around working areas.

The Contractor will ensure that local residents, businesses, occupants, general users of the area and stakeholders are informed in advance of construction activities that may affect them. Relevant obligations and procedures in relation to advance notice of works will be identified in the detailed CEMP.

Environmental issues and performance aspects will be communicated to the workforce on a regular basis. Weekly project meetings, which follow a set agenda incorporating the environment, will be held alongside overall management meetings.

All staff and sub-contractors involved in all phases of the project will be encouraged to report environmental issues.

3.6 Operational Control

Site works will be checked against the CEMP requirements. Any mitigation measures that have been agreed with the Statutory Authorities, or are part of planning conditions, will be put into place prior to the undertaking of the works for which they are required, and all relevant staff will be briefed accordingly.

Method statements that are prepared for the works will be reviewed / approved by the Client Project Manager and where necessary, the relevant Environmental Specialist. The contractor will be required to engage with NPWS and IFI on method statements for works in, near or liable to impact on a waterway.

A Quality Management System (QMS) will also be put into operation for the project. Document control will be in accordance with this QMS and copies of all audits, consents, licences, etc will be finalised by the Site Environmental Manager and their team and kept on site for review at any time.

3.7 Checking and Corrective Action

Daily inspections of the site and the works will be undertaken to minimise the risk of environmental damage and to ensure compliance with the CEMP. The Site Environmental Manager will undertake periodic inspections and complete an assessment of the project's environmental performance with regard to the relevant standards/legislation and the contents of the CEMP. Following these inspections, the Site Environmental Manager will produce a report detailing the findings which will be provided to the Client Project Manager and reviewed at the monthly project meeting.

3.8 Implementing Licensing and Environmental Control Measures

The Contractor will be responsible for ensuring that licensing requirements will be in place and specific procedures to manage the key environmental aspects of the project will be developed and in place prior to work commencing.

3.9 Complaints Procedure

The Contractor shall establish a process for handling all enquires including complaints. All enquires will be recorded and a log would be maintained to include details of the response and actions taken. This will be available upon request for inspection to Clare County Council. All enquiries, whether a query or a complaint, will be dealt with in a timely manner. The Site Environmental Manager will be immediately informed of any environmental related issues that have been raised. Where appropriate, the Site Environmental Manager will be responsible for informing Clare County Council, relevant stakeholders and statutory bodies.

3.10 Details of Construction Environmental Management Plan

The Contractor will be required to include details under the following headings in the CEMP:

- Details of working hours and days.
- Details of emergency plan - in the event of fire, chemical spillage, cement spillage, collapse of structures or failure of equipment or road traffic incident within an area of traffic management. The plan must include contact names and telephone numbers for: Local Authority (all sections/departments); Ambulance; Gardaí and Fire Services.

- Details of chemical/fuel storage areas (including location and bunding to contain runoff of spillages and leakages).
- Details and locations of construction plant storage, temporary offices and WC facilities.
- Traffic management plan (to be developed in conjunction with the Local Authority – Roads Section) including details of routing of network traffic; temporary road closures; temporary signal strategy; routing of construction traffic; programme of vehicular arrivals; on-site parking for vehicles and workers; road cleaning; other traffic management requirements.
- Truck wheel wash details (including measures to reduce and treat runoff).
- Dust management to prevent nuisance (demolition & construction).
- Site run-off management.
- Noise and vibration management to prevent nuisance (demolition & construction).
- Management of environmental screening and monitoring.
- Measures for complying with the direction of the Ecological Clerk of Works.
- Measures for securing the site from animal ingress.
- Landscape management.
- Management of contaminated land and assessment of risk for same by suitably qualified, trained and licenced personnel.
- Management of stockpiles.
- Minimisation of artificial lighting and shading.
- Management of risk from invasive alien species.
- Management of waste arising from construction and demolition.
- Project procedures & method statements for:
 - Site clearance, site investigations, excavations;
 - Diversion of services;
 - Excavation and/or blasting (through peat, soils & bedrock);
 - Piling;
 - Temporary hoarding & lighting;
 - Storage and Treatment of peat and soft soils;
 - Disposal of surplus geological material (peat, soils, rock etc.);
 - Earthworks material improvement; and
 - Protection of watercourses from contamination and silting during construction.
- Site Compounds.
- Temporary construction zones.
- Environmental constraints and commitments.
- Monitoring, inspection and auditing of the Contractor's compliance with environmental commitments.
- Training for site staff regarding environmental constraints.

The production of the CEMP will also detail areas of concern with regard to Health and Safety and any environmental issues that require attention during the construction phase. Adoption of good management practices on site during the construction and operation phases will also contribute to reducing environmental impacts.

3.10.1 Construction Traffic

Assuming a 24-month construction programme, a total of 600 two-way truck movements have been estimated for the purpose of importing approximately 12,000 tonnes of material, predominantly crushed stone, in 20 tonne loads. An estimated 210 two-way truck movements will be associated with the redistribution of 4,200 tonnes of topsoil, either elsewhere on site or to a suitable facility. In addition, there is a requirement for approximately 1600m³ of surfacing for the greenway and car parks, which will generate a further 80 truck movements.

If the heavy works construction duration is assumed to be 24 months, that gives 480 working days with 2 truck deliveries per day on average. The peak is likely to occur during the earthworks period, and this may involve up to 10 times the number of trucks, or a maximum of 20 two-way movements per day. Due to the long linear nature of the site, the works are likely to be more spread out, and the peak will be short duration while long sections have the sub-surfacing course installed.

It is assumed that up to 30 construction workers will be on-site per day on average, with additional supervisors, environmental specialists and engineers leading to a maximum of 50 personnel on site per day. Up to 100 one-way light vehicle trips (assuming only 1 person per vehicle) a day can be expected during peak construction due to workers travelling to site. In reality, the numbers are likely to be lower, allowing for car-pooling of workers.

3.10.2 Description of Typical Construction Details

The proposed development consists of the following key elements:

- Greenway
 - Approximately 15.2km of surfaced greenway mainline, 3.0m wide plus verges, although in certain locations the width may be reduced to fit between existing constraints (e.g. over railway bridge at Moyasta).
 - Earthworks (cut, fill, capping) and pavement associated with the above.
 - Drainage, including ditches, pipes, outfalls and attenuation.
 - Road crossings and associated traffic calming and signage.
- Ancillary Infrastructure
 - 2No. trailheads including provision of car parking, bike parking and toilet facilities.
 - Rest areas along the route including signage, seating, and bicycle parking.
 - Bins at trailheads and interface with the local road.
- Accommodation Works
 - Post and stockproof mesh fencing (CC-SCD-0320) where the development runs alongside or through private farmland.
 - The design of the proposed development includes 64 at-grade crossings along the route, including access to local roads and/or private access for agricultural or private use.
 - Provision of holding pens to manage livestock crossing the greenway, where required.
 - New structures to accommodate landowner access requirements as included below.
- New Structures

New structures are to be constructed as outlined below.

 - Bridges

- 10m long clear span river bridge at Ch 2100 near Lisdeen to accommodate the greenway.
- 10m long clear span river bridge at Ch 2100 for agricultural use by adjacent landowner.
- 16m long clear span river bridge at Ch 2265 at Lisdeen West to accommodate the greenway.
- 10m long clear span river bridge at Ch 2265 at Lisdeen West for agricultural use by adjacent landowner.
- 8m long pedestrian overpass at Ch 7480 at Moyasta to mitigate severance for the adjacent landowner.
- 17m long bridge crossing the former turf canal at Ch 9175 at Carrowncalla North to accommodate the greenway.
- 3m long box culvert cattle underpass at Ch 11575 at Carrowncalla South to avoid causing severance on a dairy farm. The greenway alignment will be raised above ground level at this location and the agricultural crossing will run beneath at existing ground level.
- 10m long agricultural overpass at Ch 12400 at Carrowncalla South to minimise severance.
- Culverts
 - Several new culverts scheme-wide.
 - 1 No. existing culvert which will be lengthened to accommodate the greenway.
- Retaining Walls and structures
 - Retaining walls at Garraun (Ch 3900 to Ch 4000).
 - Earth retaining measures at Moyasta (Ch 7300 to Ch 7400).
 - Retaining walls at Kilrush (Ch 14950 to Ch 15125).
- Existing Structures
 - Vegetation removal on Moyasta Bridge (Ch 7890). All works will take place from the bridge itself and will be carried out using handheld tools. Repointing and repainting of bridge, as necessary, to be undertaken from scaffolding or suspended structures constructed from the existing bridge and approach embankments without incursion into the foreshore. New bridge parapets to be installed over Moyasta Bridge.
 - Any remaining railway infrastructure present on structures will be removed and parapets and fencing will be constructed.
 - Maintenance works such as additional vegetation clearance and repointing on existing structures.
- Lighting provision
 - Within the trailhead carparks. Lighting will comprise 8m high lighting columns with LED lanterns orientated to focus light within the trailhead area only, and will comply with the lighting requirements for biodiversity outlined in EIAR Chapter 8.
 - Where a zebra crossing of the N67 to the proposed Moyasta Trailhead is proposed and crossing Merchant's Quay to the proposed trailhead at Kilrush, lighting of the crossing will be provided to TII Standard DN-LHT-03038

4. ENVIRONMENTAL MANAGEMENT PROGRAMME

4.1 Control Measures

A number of measures are to be implemented to reduce, prevent or avoid impacts as a result of the construction of the proposed development, as identified above and within Volume 2 of this EIAR. All mitigation and monitoring measures associated with the proposed development are provided in EIAR Chapter 21 Summary of Mitigation and Monitoring Measures included in Appendix D of this CEMP and in the NIS mitigation measures included in Appendix E of this CEMP. The key measures are summarised below.

4.1.1 Pollution Prevention

The following measures will safeguard against the release of pollutants to the surrounding environment:

- Siting of earthworks and materials storage within construction compounds will be planned to minimise the potential for surface water runoff or contaminants entering watercourses, particularly during extreme weather events;
- Silt fencing shall be installed continuously along the downslope perimeter of all disturbed areas adjacent to a watercourse, extending for the full length where soil disturbance occurs. Silt fences shall be inspected daily and after storms. Runs of sagging fence shall be tensioned and the silt fence re-anchored as required. Silt fences which are damaged shall be replaced immediately;
- Stockpiling of construction material or topsoil will be prohibited within 10m of the watercourse, in order to minimise sources of sediment runoff.
- Water bowsers will be deployed within the sites during periods of hot weather to damp down potential dust generation from unbound surfaces;
- Pesticides and herbicides will only be applied in suitable weather conditions by trained personnel to limit contamination risk, to be carried out in accordance with EIAR Appendix 8.5 Invasive Species Management Plan;
- Cover, seed or fence stockpiles to prevent wind whipping;
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site;
- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
- Storage tanks, bunding, and machinery will be maintained and checked regularly for leakage.
- Spill kits shall be available on-site. Spill kits shall be provided at all refuelling points and fuel/chemical storage areas. Staff shall be trained in the use of spill kits.

4.1.2 Traffic Management

Local traffic disruptions during the construction phase of the proposed development will be mitigated using industry standard traffic management measures. The CTMP will detail the measures to be implemented to safely manage additional traffic generated by the construction phase and to minimise disruption. Refer to Section 2.2.5 of this CEMP for details of information to be included in the CTMP.

4.1.3 Biodiversity

The proposed development area is of high ecological value, with several EU-designated sites. The below measures shall be taken to preserve the current ecological baseline and to minimise disturbance to wildlife going forward.

- An Ecological Clerk of Works (ECoW) shall be appointed by Clare County Council prior to the commencement of works. It shall be their responsibility to supervise and provide recommendations on the execution of all works which have the potential to give rise to negative or positive effects on biodiversity. The ECoW will have at least five years' experience as an Ecologist on linear infrastructure projects;
- If previously unidentified resting or breeding places of Otter, Badger, or any other protected mammal species are found in the vicinity of the proposed development prior to or during construction, the works at this location will cease immediately. In the case of European protected species which includes Otter and bats, a licence will be required should any works be required that could disturb these species. In the case of species protected under the Wildlife Acts only, any works that could disturb these species will be carried out in accordance with the relevant TII guidance and under the supervision of the ECoW;
- Construction phase lighting will only illuminate work areas when necessary and will avoid illuminating any areas outside of the works area. There will be no lighting outside of working hours. Construction works during hours of darkness will only occur during the winter months when works are restricted to outside of sensitive bird areas. The ECoW will ensure that lights are directed into the construction area and that there is minimal light spill into the surrounding habitat;
- Construction works (other than vegetation clearance works mentioned above) across Moyasta Bridge embankments and other sensitive bird areas will only take place over the summer months (April – September inclusive) – to avoid impacting on wintering birds;
- The construction envelopes for the compounds will be temporarily fenced off at the outset of the construction to avoid unnecessary loss of habitat outside of the construction footprint.
- Vegetation clearance will be minimised along the length of the greenway itself, and will only be undertaken within the footprint of the greenway, 1m verges and earthworks zones. The only work that will take place outside the fence line is the proposed landscape planting.
- Any excavations deeper than 1m will be either covered or have ramps fitted outside of working hours, which will allow Badgers and other wildlife to escape. Similarly, any temporarily exposed open pipe system will be capped to prevent species such as Otter from gaining access when contractors are off site.

4.1.4 Surface Water Quality

The proposed development lies in the western end of the Shannon Estuary North catchment. This catchment drains a total area of 1,658km². The following procedures will ensure due diligence is taken in terms of sediment control, appropriate scheduling of works in line with weather conditions and prevention of materials entering surface waterbodies:

- The plan must outline how the Contractor will respond to forecasted flood events, including but not limited to, details of removal of site materials, fuels, tools, vehicles and persons from flood zones;
- The plan will incorporate protective measures including the installation of sediment traps, swales and ditches before any significant site earthworks take place;

- During bridge repairs, appropriate debris netting shall be provided beneath the deck and along the banks abutments as required to prevent masonry, removed vegetation or other materials falling into the channel;
- Engagement of an Ecological Clerk of Works (ECoW) to supervise the proposed works and implement the recommended mitigations, toolbox talks, surveys of the bankside and all areas where bank side work is proposed as well as other duties;
- Spill kits shall be available on-site. Spill kits shall be provided at all refuelling points and fuel/chemical storage areas. Staff shall be trained in the use of spill kits.
- Designated machinery refuelling areas shall be located far enough from watercourses to prevent hydrocarbon contamination;
- Fuel and chemical storage areas shall have a bunded impermeable base.
- Fuelling of machinery, maintenance and repairs shall take place on a bunded impermeable base located away from drains, watercourses or other sensitive areas.

4.1.5 Ground Water Quality

The bedrock aquifer beneath the site is the Kilrush Groundwater Body (EPA 2025). This bedrock aquifer beneath the site is classified by the GSI (GSI, 2025) as a Locally Important Aquifer (LI) which is moderately productive only in local zones. Due to the low permeability and poor storage capacity, the aquifer has a low 'recharge acceptance'. The vulnerability of this aquifer ranges from 'Low' to 'Extreme'. The construction phase poses a risk to ground water quality by introducing pollutants such as hydrocarbon fuels and construction materials. The measures outlined below will prevent pollutants from entering the hydrogeological environment:

- There will be no authorised discharge of water to ground during the construction phase. Where dewatering of shallow groundwater is required or where surface water runoff must be pumped from the excavations, water will be managed in accordance with best practice standards (i.e., CIRIA C750);
- Foul drainage from temporary welfare facilities during the construction phase of the proposed development will be discharged to temporary holding tank(s), the contents of which will periodically be tankered off site to a licensed facility or discharged to public sewer in accordance with the necessary temporary discharge licences issued by UÉ.

4.1.6 Soil Quality

The site is located across productive agricultural land, with predominantly till derived from Namurian sandstones and shales and is interspersed by blanket and cut over raised peat. Due to the existing abandoned railway line, there is a high likelihood of encountering contaminated soils over the course of the proposed development. The trailhead at Kilrush is also located upon a site which, based on anecdotal evidence, was previously used for landfill. The following procedures will be adhered to, ensuring the safe management of soils:

- A soil testing program should be implemented prior to excavation in areas of known or suspected contamination, particularly along the abandoned railway corridor or where former buildings were previously located, and at the Kilrush trailhead where there is anecdotal accounts of historic landfill activities;
- The removal of any residual contamination in soil will be undertaken and validated in accordance with relevant guidelines including EPA 'Guidance on the Management of Contaminated Land and Groundwater at EPA Licensed Sites' (EPA, 2013a) and guidance and standards current at the time of construction works to ensure that a 'clean edge' is reached in the area of excavation.
- The removal of localised hotspots shall be undertaken prior to the bulk excavation works for structures or trailheads, utility infrastructure and other works to reduce the potential

risks associated with exposure of soils to rainfall or surface runoff and leaching to groundwater.

- Storage of stockpiled materials pending reuse onsite, where required, will be located away from the location of any sensitive receptors (watercourses and drains).
- Reuse of excavated topsoil will be implemented wherever possible. Surplus topsoil will be stored temporarily at a construction compound before being transported to an authorised waste facility;
- To prevent soil erosion, excavations will be completed and promptly backfilled. Work will not continue during heavy rainfall to avoid soil erosion risks;
- Where peat excavation is unavoidable, the material will be reused on-site for habitat restoration where possible, with any surplus being transported to licensed disposal facilities in accordance with EPA guidelines;
- Landscaping of the proposed development shall use native species of plants of national provenance only and, insofar as possible, soil reused from on-site excavations. If soil/substrate needs to be imported to the site for the purposes of the proposed development, the Contractor shall ensure that the imported soil/substrate is free from invasive species;
- Where riparian vegetation within 10m of a rivers edge must be impacted adequate protection of soils shall be provided (e.g., using a biodegradable geotextile staked into the ground using wooden pegs) until vegetation re-establishes;
- All plant and construction vehicles shall be inspected daily for leaks, and a full-service record shall be kept for all plant and machinery.

4.1.7 Air Quality

Dust generation is the largest risk to air quality which may arise as a result of the construction phase of the proposed development. Dust generation is dependent upon a number of factors including rainfall, wind speed and wind direction. Hydrocarbon fuel emissions may also impact air quality during the construction phase due to machinery use and vehicle movements associated with the construction phase. The following measures outlined below will be incorporated into construction to reduce potential impact upon air quality:

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible;
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site;
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below;
- Ensure all vehicles switch off engines when stationary – no idling vehicles;
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate;
- Use enclosed chutes and conveyors and covered skips;
- Bonfires and burning of waste materials are legally prohibited;
- Ensure sand and other aggregates are stored in banded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place;
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).

4.1.8 Noise and Vibration

The potential noise impact of the proposed development upon the surrounding environment will predominantly occur during the construction phase due to the use of construction plant and machinery. Clare County Council will limit noise and vibration impacts by assigning limits to construction work hours. All construction taking place outside of this time will require prior approval by Clare County Council. Best practice control measures for noise and vibration from construction sites are found within *BS 5228 (2009 +A1 2014) Code of Practice for Noise and Vibration Control on Construction and Open Sites Parts 1 and 2*.

- Selection of quiet plant is recommended in relation to static plant such as compressors and generators. It is recommended that these units be supplied with manufacturers' proprietary acoustic enclosures;
- If replacing a noisy item of plant is not a viable or practical option, consideration will be given to noise control "at source". This refers to the modification of an item of plant or the application of improved sound reduction methods in consultation with the supplier;
- Temporary hoarding or mobile/demountable acoustic screens will be installed around high-noise activities such as breaking or bridge works in the vicinity of sensitive receptors to reduce noise at nearby dwellings and high-amenity areas;
- Piling at areas where bridges will be constructed will be done using augured piling methods;
- A designated environmental liaison officer will be appointed to site during construction works. The liaison officer will inform the nearest noise sensitive locations of the time and expected duration of the noisy works;
- The phasing of construction works will be programmed so as to control the amount of disturbance in noise and vibration sensitive areas at times that are considered of greatest sensitivity.

4.1.9 Climate

Ireland is already experiencing increased annual rainfall in the north and west, with more variable patterns in the south and east including the area of the proposed development (EPA, 2021). Key climate risks identified by the EPA relevant to the proposed development include increased likelihood of more frequent and intense North Atlantic low-pressure systems bringing high rainfall and high winds, more intense rainfall periods which may lead to pluvial flooding and elevated fluvial levels, and longer dry spells with increased temperatures. The current estimates of National greenhouse gas emissions (including LULUCF) in 2024 are 12.0% below 2018, well off the National Climate ambition of a 51% reduction by 2030. The below measures will ensure the construction phase of the proposed development will contribute as little as reasonably practicable to Ireland's greenhouse gas (GHG) emissions.

- Where possible, existing structures associated with the old railway (bridges, culverts, etc.) will be retained and demolition avoided to negate additional GHG emissions being released;
- The alignment design endeavours to follow the natural topography and utilise existing embankments and ballast associated with the old railway where possible, to minimise waste and reduce imported materials;
- Site-won material will be re-used on site, specifically in relation to earthworks, where feasible, excavated materials will be re-used as fill;
- Materials will be sourced locally where possible to reduce transport related GHG emissions. Additionally, the use of efficient haul routes will reduce transport-related GHG emissions.

4.1.10 Landscape & Visual

The Landscape Strategy outlined in Chapter 15 of the EIAR and summarised in the mitigation measures in Appendix D shall be implemented in conjunction with the Biodiversity mitigation measures, and the Greenway Layout Drawings included in Volume 3 of this EIAR (Figures 4.1 – 4.46). This will include:

- Existing fencing and hedgerows shall be retained where possible in accordance with the design of the proposed development, and supplemented as required to maintain a suitable boundary and visual screen.
- Landscape planting and fencing on the bay-side of the sensitive bird areas will be the first works undertaken following site clearance. This will ensure that the planted screening for wintering birds has as much time as possible to become established prior to opening of the greenway.

4.1.11 Cultural Heritage

The route of the proposed development comprises parts of the former West Clare Railway from Kilkee to Kilrush, crossing twelve townlands in County Clare. A number of points of interest in terms of Cultural Heritage were identified throughout the study area, such as areas of archaeological potential, designated landscapes, recorded monuments and built heritage sites. Previously unrecorded sites of Cultural Heritage merit have also been identified during the course of appraisal through historic mapping, aerial photography and field inspection. The technical procedures listed below will ensure the protection of Cultural Heritage in the construction phase:

- A programme of archaeological test trenching will be carried out at the locations identified below, prior to the commencement of construction. This will be carried out in consultation with the TII Project Archaeologist and under licence from the National Monuments Service of the DoHGLH.
 - to the south of AH2 ringfort at Lisdeen.
 - at the site of Kilrush Trail head.
 - within all greenfield areas.
 - Within the designated AAPs.
- Substantial excavations within the existing railway will be subject to monitoring by an archaeologist under licence to the National Monuments Service of the DoHGLH;
- Prior to the commencement of construction, a written and photographic record will be made of the sites listed below. This will be carried out by a suitably qualified heritage specialist, in consultation with the TII Project Archaeologist :
 - The section of the Kilrush ACA to be developed at the proposed trailhead;
 - CH1.3, CH1.4, CH1.6, CH1.10, CH1.15 and CH1.18 (following the removal of any vegetation that may be present).
- Prior to the removal of the section of TB3, the section of townland boundary to be affected will be subject to a townland boundary survey. Subject to access, this may include the excavation of a test trench in order to record the construction of the boundary. The works will be carried out in consultation with the TII Project Archaeologist and under licence from the National Monuments Service of the Dolph.

4.1.12 Material Assets and Land (Agricultural Properties)

The following measures will ensure the protection of agricultural material assets and land during the construction phase:

- Where new access is proposed affecting existing property boundaries these will be reinstated on a like for like basis. This may require storage of stone wall material during construction or replanting of hedgerow / trees, as required;
- Where farm division has occurred, temporary access across the proposed construction works corridor will need to be maintained on farms until such time as permanent alternative access is provided. Access will be restored, as soon as possible, to lands where it is removed or restricted by the proposed project. The location of such access will be at a suitable location and, where possible, with the agreement of the landowner as part of the statutory process;
- In cases where drainage is impeded during construction and causes obvious difficulty to a particular landowner, temporary measures will be considered on a site-specific basis. This may include allowing waters to drain to less critical areas, so as to minimise the impact;
- Where required, an alternative source of water / electricity will be provided to ensure that disruption to farming is minimised during the construction phase.

4.1.13 Material Assets and Land (Non-Agricultural Properties)

The following measures will ensure the protection of non-agricultural material assets and land during the construction phase:

- Lands temporarily acquired for construction will be reinstated as soon as is practicable;
- Access will be maintained to all affected property as much as possible and if interrupted will be restored without unreasonable delay. Traffic management measures will be put in place during construction where temporary or minor diversions are required;
- Any services that are disturbed during construction of the proposed development will be subject to temporary measures as required to minimise impacts and repaired / replaced without unreasonable delay;
- Ducting for the restoration of water and power supply services will be provided, as necessary, at a suitable location with the agreement of the landowner as part of the statutory process;
- Where 24-hour access is required for the continuation of commercial activities, such as the access to the marina mechanical gates, construction of alternative access routes shall be constructed in the first instance prior to any access restriction on current access routes;
- Where land is severed with no means of alternative access, the proposed access gates shall be installed in the first instance to facilitate continual access to all lands.

4.1.14 Major Accidents and Disasters

The below measures will reduce the likelihood of major accidents or disasters, such as extreme weather events, impacting upon the construction phase of the proposed development:

- Monitoring of weather forecasts and tidal forecasts to ensure that necessary actions will be implemented in time at construction sites prior to prolonged / extreme weather events;
- Monitoring of water levels in watercourses;
- Siting of construction compounds, earthworks and materials will be planned to minimise the potential for surface water runoff or contaminants entering watercourses, particularly during extreme weather events. A CEMP will be prepared detailing the procedures to be undertaken in the event of extreme weather (flooding) events.

4.1.15 Hydrocarbons and Hazardous Materials

Hydrocarbon fuels and other hazardous materials will be present onsite during the construction phase. To avoid accidental release of these materials to the surrounding environment, a number of measures shall be put in place:

- All fuelling of machinery shall be undertaken on an impermeable base in bunded areas away from a waterbody, drain or ditch in a designated area of the site (where not possible to carry out such activities offsite).;
- Fuel will not be stored onsite for the duration of the construction phase. Fuel will only be brought to site via mobile fuel bowser. Any other lubricants, chemicals or hydraulic oils stored onsite will be stored in designated areas. These areas will be bunded on flat ground at the contractor's compound. All tank and drum storage areas will, as a minimum, be bunded to a volume not less than the greater of the following:
 - 110% of the capacity of the largest tank or drum within the bunded area; or
 - 25% of the total volume of substance that could be stored within the bunded area;
- Spill kits, including oil absorbent material, shall be provided at all refuelling points and fuel/chemical storage area;
- Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable.

4.1.16 Cement Product Control Measures

The following measures relate to the prevention of cementitious materials interacting with the receiving environment:

- All ready-mixed concrete will be delivered to the construction site by truck. Concrete batching will take place offsite, wash down and wash out of concrete trucks will take place into a container located within a controlled bunded area which will then be emptied into a skip for appropriate compliant removal offsite in accordance with all relevant waste management legislation. Any excess concrete is not to be disposed of onsite;
- Care will be exercised when slewing concrete skips or mobile concrete pumps over or near the watercourses;
- Washout from concrete lorries, with the exception of the chute, will not be permitted on site and will only take place at the construction compound (or other appropriate facility designated by the supplier);
- Chute washout will be carried out at designated locations only. These locations will be signposted. The concrete plant and all delivery drivers will be informed of their location with the order information and on arrival on site; and,
- Chute washout locations will be provided with appropriate designated, contained impermeable area and treatment facilities including adequately sized settlement tanks. The clear water from the settlement tanks shall be pH corrected prior to discharge (which shall be by means of one of the construction stage settlement facilities) or alternatively disposed of as waste in accordance with the Contractor's Waste Management Plan.
- Washing of tools or machinery with wet concrete will take place offsite at an appropriate dedicated wash facility that will pose no threat to receiving groundwaters;
- Repointing and concrete repairs will be undertaken on foot, from a ladder, using scaffolding or using a bridge inspection unit.
- A catch net will be placed flush with the bridge to catch any spilled mortar or concrete. The catch net will be made of Visqueen heavy duty plastic sheeting or similar and will cover the entire area underneath the works.

- Repointing and concrete repairs will take place in dry weather and will not take place if rain is forecast in the following 12 hours. The commencement of the works will be approved by the Employer's Representative.
- Mortar and concrete will be mixed in a watertight container at least 20m from the watercourse.

4.2 Invasive Species Management and Biosecurity Measures

Invasive alien species (IAS) surveys were carried along the route of the proposed development to identify the presence and location of any invasive species as defined under the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011).

Japanese knotweed (*Reynoutria japonica*) was recorded at several locations surrounding the proposed development during the field surveys.

An Invasive Species Management Plan (ISMP) has been developed outlining advanced treatment, biosecurity and best practice measures during construction of the proposed development. At the time of writing a process called 'Eraginate' is the best method available for the management of Japanese Knotweed. The ISMP incorporating the Eraginate process is presented in Appendix 8.5 of the EIAR. The final plan will be developed by the contractor.

4.3 Schedule of Environmental Commitments

Project environmental mitigation has been set out in the planning application documentation, in the EIAR and NIS, and will be detailed in the Contractor's CEMP, in accordance with this CEMP. The Contractor's CEMP will provide a framework for compliance auditing and inspection to ensure that these construction practices and mitigation measures, as set out in the EIAR and NIS and the conditions in the planning approval, are adhered to. Appendix D includes the Summary of Mitigation and Monitoring Measures & Appendix E Summary of NIS Mitigation Measures. Any modifications or conditions imposed by An Coimisiún Pleanála are contained in Appendix F.

5. RESOURCE AND WASTE MANAGEMENT PLAN

In keeping with the Southern Regional Assembly (SRA) Regional Spatial and Economic Strategy (RSES) 2020-2032 and the National Waste Management Plan for a Circular Economy 2024-2030, the construction phase of the proposed development aims to efficiently use, reuse and conserve natural resources by managing waste and optimising technologies that promote a circular economy. The Contractor will be required to prepare a Resource and Waste Management Plan (RWMP), which will be underpinned by:

- TII's Circular Economy Policy, Strategy and Greenways and Rural Cycleways Guide, including principles such as material re-use, establishing digital material logs and minimising construction plant
- Legislation including Waste Management Act 1996, Environmental Protection Agency Act 1992 and Litter Pollution Act 1997
- EPA guidance (Best Practice Guidelines for the preparation of resource & waste management plans for construction & demolition projects, EPA 2021
- The Waste Hierarchy, with waste prevention and minimisation being the first priority, followed by reuse and recycling.

An outline RWMP is contained within Appendix B to this CEMP.

6. INCIDENT RESPONSE PLAN

The Incident Response Plan (IRP) describes the procedures, lines of authority and processes that will be followed to ensure that incident response efforts are prompt, efficient, and appropriate to particular circumstances. The IRP is contained within Appendix C to this CEMP.

APPENDIX A

Environmental Operating Plan

West Clare Railway Greenway Section 1: Kilrush to Kilkee

Sample Contractor's Environmental Operating Plan

Table of Contents

1. INTRODUCTION	1
1.1 Scope	1
1.2 Contractor's Environmental Policy Statement	2
2. GENERAL PROJECT DETAILS	3
2.1 Project Description.....	3
2.2 Key Elements of the Project.....	3
2.3 Location of all Work Sites, Offices, Compounds.....	5
2.4 Construction Duration of the Scheme	5
3. CONTACT SHEETS.....	6
4. REFERENCE DOCUMENTS.....	7
4.1 Scheme Specific Documentation	7
4.2 General Reference and Guidance Documentation	7
5. ORGANISATIONAL STRUCTURE / DUTIES AND RESPONSIBILITIES	8
5.1 Organisational Structure	8
5.2 Duties and Responsibilities.....	8
5.2.1 Project Manager	8
5.2.2 Site Manager	8
5.2.3 Site Environmental Manager	9
5.2.4 Design Manager	11
5.2.5 Site Agents.....	11
5.2.6 Forepersons	12
5.2.7 Employer's Representative.....	12
5.2.8 Project Supervisor Construction Stage	12
5.2.9 All Project Personnel	13
5.2.10 Ecological Clerk of Works (ECoW)	13
5.2.11 Project Archaeologist.....	13
5.2.12 Other	14
6. ENVIRONMENTAL COMMITMENTS.....	15
7. ENVIRONMENTAL CONTROL MEASURES.....	18
8. SITE SPECIFIC METHOD STATEMENTS.....	19
9. ENVIRONMENTAL AWARENESS TRAINING	20
9.1 EOP, EIAR, NIS and Contractual Requirement Briefing.....	20
9.2 Environmental Induction Training.....	20

9.3	Specific Training	21
10.	COMMUNICATION.....	22
10.1	Internal Communication	22
10.2	External Communication	22
11.	INSPECTIONS, AUDITING AND MONITORING COMPLIANCE	23
11.1	Inspections	23
11.2	Monitoring.....	23
11.3	Audits	23
12.	HANDOVER OF THE FINAL EOP	24

1. INTRODUCTION

This document comprises project-specific Environmental Operating Plan (EOP) for the proposed West Clare Railway Greenway Section 1 (hereafter referred to as “the proposed development”) and has been developed in accordance with the National Roads Authority (NRA)/TII Guidelines for the Creation, Implementation and Maintenance of an Environmental Operating Plan (NRA, 2007) *Guidelines for the Creation and Maintenance of an Environmental Operating Plan*.

The EOP outlines the procedures for the delivery of environmental mitigation measures and for addressing general day-to-day environmental issues that can arise during the construction phase of the proposed development. This document serves to assist the Contractor in preventing, managing, and/or minimising significant environmental impacts.

It will be a condition of the Construction Contract for the construction of the proposed development that the successful Contractor shall fully implement the EOP throughout the works. The EOP is a live document and will be updated by the Contractor as needed throughout the construction of the proposed development. It will be the duty of the successful Contractor to ensure that all sub-contractors fully adhere and implement the procedures and measures of the EOP.

1.1 Scope

The finalised EOP will contain all Environmental Commitments and Requirements set out in:

- The Contract documents (in particular, the Works Requirements (WR));
- The Environmental Impact Assessment Report (EIAR);
- The Natura Impact Statement (NIS);
- Any conditions and/or modifications imposed by An Coimisiún Pleanála (ACP);
- The Schedule of Commitments, and provide a method of documenting compliance with these Environmental Commitments and conditions / modifications; (refer to the CEMP)
- List all relevant environmental legislative requirements and provide a method of documenting compliance with these requirements, and
- Outline methods by which construction work will be managed to prevent, reduce or compensate for potential adverse impacts on the environment.

The EOP provided by the Contractor will address the following key requirements:

- Roles and Responsibilities of the main Contractor’s staff having regard to the main Contractor’s organisational structure;
- Procedures for communicating with the public;
- Procedures for communicating with relevant site-personnel;
- Procedures for Environmental Awareness Training for the main contractor’s staff;
- Monitoring procedures and responses to monitoring results, as contractually required, and;
- Provide for a system of audit with regard to the effectiveness of the EOP during the construction life cycle of the project.

This EOP should be read in conjunction with the appendices associated with the Construction Environmental Management Plan (CEMP) and serves as an indicative template for the successful Contractor to ensure that they are fully aware and plan for all Environmental Commitments and Requirements relevant to the proposed the development.

1.2 Contractor's Environmental Policy Statement

Environmental management is fundamental to the successful operation of construction activities. Therefore, the Environmental Policy must, as a priority, be understood by all parties involved in the contract and adhered to throughout the course of the works to allow for legal compliance and environmental management.

The preliminary EOP shall be prepared having regard to the West Clare Railway Greenway EIAR.

[*Successful Contractor Name*] Environmental Policy Statement is detailed below.

[*Insert policy statement*]

2. GENERAL PROJECT DETAILS

This section will be updated by the successful Contractor once appointed, to include further details on contact sheets, the legal register, organisational chart and duties and responsibilities.

Project details which have been identified prior to appointment of the Contractor are described in the subsequent subsection.

2.1 Project Description

The proposed development is an active travel facility located in West Clare, linking the towns of Kilkee and Kilrush via the village of Moyasta. The proposed route of the greenway is approximately 15.2km in length and will be a bi-directional shared walking, wheeling and cycling route.

The greenway is proposed to follow the disused West Clare Railway Corridor where practicable. This route, described from east to west, departs from the trailhead at Kilrush Marina and travels 6.9km predominantly along agricultural boundaries towards the village of Moyasta, where a second trailhead is located. The route continues a further 8.3km to the western edge of Kilkee town, terminating at the Percy French estate.

Throughout the route, users will experience a range of landscapes and natural beauty. The inherently flat topography of the region will allow users to enjoy near-panoramic views, including views of Poulnasherry Bay and the Shannon estuary. The historic and cultural value of the West Clare Railway will be preserved through the proposed development, allowing public access to much of the rail corridor, a first since the closure of the railway in 1961. A number of the original railway structures are to be repaired and implemented as part of the greenway route.

The proposed development will offer a safe, segregated alternative route for non-motorised users who may otherwise rely upon travel along the N67, a busy national road with a sign-posted speed limit of 100km/hr.

2.2 Key Elements of the Project

The proposed development consists of the following key elements:

- Greenway
 - Approximately 15.2km of surfaced greenway mainline, 3.0m wide plus verges, although in certain locations the width may be reduced to fit between existing constraints (e.g. over railway bridge at Moyasta).
 - Earthworks (cut, fill, capping) and pavement associated with the above.
 - Drainage, including ditches, pipes, outfalls and attenuation.
 - Road crossings and associated traffic calming and signage.
- Ancillary Infrastructure
 - 2No. trailheads including provision of car parking, bike parking and toilet facilities.
 - Rest areas along the route including signage, seating, and bicycle parking.
 - Bins at trailheads and interface with the local road.

- Accommodation Works
 - Post and stockproof mesh fencing (CC-SCD-0320) where the development runs alongside or through private farmland.
 - The design of the proposed development includes 64 at-grade crossings along the route, including access to local roads and/or private access for agricultural or private use.
 - Provision of holding pens to manage livestock crossing the greenway, where required.
 - New structures to accommodate landowner access requirements as included below.
- New Structures

New structures are to be constructed as outlined below.

 - Bridges
 - 10m long clear span river bridge at Ch 2100 near Lisdeen to accommodate the greenway.
 - 10m long clear span river bridge at Ch 2100 for agricultural use by adjacent landowner.
 - 16m long clear span river bridge at Ch 2265 at Lisdeen West to accommodate the greenway.
 - 10m long clear span river bridge at Ch 2265 at Lisdeen West for agricultural use by adjacent landowner.
 - 8m long pedestrian overpass at Ch 7480 at Moyasta to mitigate severance for the adjacent landowner.
 - 17m long bridge crossing the former turf canal at Ch 9175 at Carrowncalla North to accommodate the greenway.
 - 3m long box culvert cattle underpass at Ch 11575 at Carrowncalla South to avoid causing severance on a dairy farm. The greenway alignment will be raised above ground level at this location and the agricultural crossing will run beneath at existing ground level.
 - 10m long agricultural overpass at Ch 12400 at Carrowncalla South to minimise severance.
 - Culverts
 - Several new culverts scheme-wide.
 - 1 No. existing culvert which will be lengthened to accommodate the greenway.
 - Retaining Walls and structures
 - Retaining walls at Garraun (Ch 3900 to Ch 4000).
 - Earth retaining measures at Moyasta (Ch 7300 to Ch 7400).
 - Retaining walls at Kilrush (Ch 14950 to Ch 15125).
- Existing Structures
 - Vegetation removal on Moyasta Bridge (Ch 7890). All works will take place from the bridge itself and will be carried out using handheld tools. Repointing and repainting of bridge, as necessary, to be undertaken from scaffolding or suspended structures constructed from the existing bridge and approach embankments without incursion into the foreshore. New bridge parapets to be installed over Moyasta Bridge.

- Any remaining railway infrastructure present on structures will be removed and parapets and fencing will be constructed.
- Maintenance works such as additional vegetation clearance and repointing on existing structures.
- Lighting provision
 - Within the trailhead carparks. Lighting will comprise 8m high lighting columns with LED lanterns orientated to focus light within the trailhead area only, and will comply with the lighting requirements for biodiversity outlined in EIAR Chapter 8.
 - Where a zebra crossing of the N67 to the proposed Moyasta Trailhead is proposed and crossing Merchant's Quay to the proposed trailhead at Kilrush, lighting of the crossing will be provided to TII Standard DN-LHT-03038
- Landscaping and environmental mitigation measures, including planting.
- All associated site works.

2.3 Location of all Work Sites, Offices, Compounds

The construction of the proposed development is expected to be undertaken in two sections. The proposed Kilrush Trailhead will be used as a construction compound for the Kilrush to Moyasta section. The proposed Moyasta Trailhead will be used as a construction compound for the Moyasta to Kilkee section. Temporary offices and welfare facilities for personnel onsite will be located both construction compounds.

2.4 Construction Duration of the Scheme

The construction programme for the proposed development is anticipated to be between 16 and 24 months. Construction is expected to commence in 2027 as per the programme and reach completion by 2029. A detailed construction programme will be developed by the appointed Contractor, taking into account seasonal surveys and / or seasonal constraints required by the EIAR or NIS and will be appended here.

3. CONTACT SHEETS

Contact details of relevant personnel employed during the construction phase of the proposed development are required to ensure that environmental incidents are competently reported. The contact details should be frequently reviewed to ensure that they are up to date.

Table 3-1, Table 3-2 and Table 3-3 provide examples of how to document the contact details of all relevant main contractor, employer, and third-party consultation personnel respectively.

Table 3-1 Main Contractor Contacts (Example)

Position Title	Name	Phone Number	Email Address
Project Manager			
Site Manager*			
Environmental Manager*			
Site Agents			
Forepersons			
Safety Officers*			
Site Emergency Number*			
Other, as appropriate			

* 24hr contact details are required for persons with this position.

Table 3-2 Employer Contacts (Example)

Organisation	Position Title	Name	Phone Number	Email Address

Table 3-3 Third-Party Contacts (Example)

Organisation	Position Title	Name	Phone Number	Email Address

4. REFERENCE DOCUMENTS

4.1 Scheme Specific Documentation

Scheme specific documentation to be referred to when determining the Environmental Commitments and Requirements for the proposed development include:

- The Contract Documents;
- The Environmental Impact Assessment Report (EIAR);
- The Natura Impact Statement (NIS);
- Schedule of Commitments (Refer to the CEMP);
- Statutory Planning Consent including any additional Environmental commitments (Refer to the CEMP);
- Contractor's Construction Phase Safety and Health Plan.

The Contractor shall describe their Environmental Management System (EMS) to be implemented for the construction phase of the proposed development. This management system will be in accordance with the criteria of ISO 14001:2015 and updated into this EOP.

4.2 General Reference and Guidance Documentation

The Contractor will refer to TII's "Guidelines for the Creation, Implementation and Maintenance of an Environmental Operating Plan" when developing the EOP. The Contractor shall have regard to guidance and standards set out in the relevant TII/NRA guidelines, including, but not limited to the following:

- *Guidelines for the Treatment of Badgers prior to the Construction of a National Road Schemes;*
- *Guidelines for the Treatment of Bats during the Construction of National Road Schemes;*
- *Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes;*
- *Guidelines for the Testing and Mitigation of the Wetland Archaeological Heritage for National Road Schemes;*
- *Guidelines for the Protection and Preservation of Trees, Hedgerows and Scrub Prior to, During and Post-Construction of National Road Schemes;*
- *Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes;*
- *Guidelines on the Management of Noxious Weeds on National Roads;*
- *Guidelines for the Treatment of Noise and Vibration in National Road Schemes;*
- *Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes;*
- *Guidelines for the Management of Waste from National Road Construction Projects; and*
- *Guidelines for the Creation, Implementation and Maintenance of an Environmental Operating Plan.*

5. ORGANISATIONAL STRUCTURE / DUTIES AND RESPONSIBILITIES

5.1 Organisational Structure

The successful Contractor will provide an organogram in the EOP to assign the roles and responsibilities of their personnel under the EOP.

5.2 Duties and Responsibilities

5.2.1 Project Manager

Name: [To be inserted by successful contractor]

Duties and Responsibilities

The Project Managers main duties and responsibilities in relation to the EOP include liaising with the Project Team in assigning duties and responsibilities in relation to the EOP to individual members of the main contractor's project staff.

It is the responsibility of the Project Manager to approve key personnel required for employment on the project. He/She will liaise with the site Environmental Manager.

The Project Manager will lead the works on site. He/She will be responsible for the management and control of the activities and will have overall responsibility for the implementation of the EOP. He/She will be assisted by the site Environmental Manager who will act as his/her deputy.

5.2.2 Site Manager

Name: [To be inserted by successful contractor]

Duties and Responsibilities

The Site Manager's environmental management responsibilities include, but are not limited to:

- Liaise with the site Environmental Manager and the Project Team in assigning duties and responsibilities in relation to the EOP, to individual members of the main contractor's project staff;
- Liaising with Site Manager in preparing, reviewing and updating all site-specific method statements for activities where there is a risk of pollution or adverse effects on the environment;
- Liaising with the site Environmental Manager in agreeing site specific Method Statements with Third Parties;
- Ensuring that all relevant information on project programming, timing, construction methodology, etc., is communicated from the contractor's Project Team, including the Project Manager, to the site Environmental Manager in a timely and efficient manner in order to allow pre-emptive actions relating to the environment to be taken where required;
- Ensuring that the risk assessments for control of noise and environmental risk are prepared and effectively monitored, reviewed and communicated on site;
- Close liaison with the site Environmental Manager to ensure adequate resources are made available for implementation of the EOP; and

- Ensuring that the site Environmental Manager reviews all method statements, performs regular and frequent environmental site inspections and that relevant environmental protocols are incorporated and appended.

5.2.3 Site Environmental Manager

Name: [To be inserted by successful contractor]

Duties and Responsibilities

In order to ensure the successful development, implementation and maintenance of the EOP, the Contractor will be required to appoint an independent site Environmental Manager to provide independently verifiable audit reports.

The Site Environmental Manager must possess sufficient training, experience and knowledge appropriate to the nature of the task to be undertaken, a Level Eight qualification recognised by the Higher Education and Training Awards Council (HETAC), or a university equivalent, or other qualification acceptable to the Employer, in Environmental Science or Environmental Management, Environmental Hydrology, Engineering or other relevant qualification acceptable to the Employer.

Separate from the on-going and detailed monitoring carried out by the contractor as part of the EOP, the EM shall carry out the inspection/ monitoring regime described below, and report to the Contractor. The results will be stored in the site Environmental Manager's monitoring file and will be available for inspection/ audit by the Client, National Parks and Wildlife Service (NPWS) or Inland Fisheries Ireland (IFI) staff. All inspections/ monitoring/ results will be recorded on standard forms.

The responsibilities of the site Environmental Manager include:

Site-Specific Method Statements

- Liaising with the Construction Manager in preparing site-specific Method Statements for all Works activities where there is a risk of environmental damage. These site-specific Method Statements should incorporate relevant Environmental Control Measures and take account of relevant Environmental Control Measure Sheets;
- Liaising with the Construction Manager in reviewing and updating site-specific Method Statements for all Works activities where Environmental Control Measures and Environmental Control Measure Sheets have been altered, and
- Liaising with the Construction Manager where third party agreement is required in relation to site-specific Method Statements, Environmental Control Measures and/or Environmental Control Measure Sheets.

General

- Being familiar with the contents, environmental commitments and requirements contained within the Reference Documents;
- Being familiar with baseline data gathered during Environmental Impact Assessment and NIS and during pre-construction surveys;
- Listing all Environmental Commitments and Requirements in an Environmental Commitments Summary Table;
- Assisting the Construction Manager in liaising with the PSDP/Engineer and the provision of information on environmental management to the Engineer during the course of the construction phase, and

- Liaising with the Project Team in assigning duties and responsibilities in relation to the EOP to individual members of the main contractor's project staff.

Third Party Consultations

- Overseeing, ensuring coordination and playing a lead role in third party consultations required statutorily, contractually and in order to fulfil best practice requirements;
- Ensuring that the minutes of meetings, action lists, formal communications, etc., are well documented and that consultation certificates are issued to the Engineer as required;
- Liaising with all prescribed bodies during site visits, inspections and consultations;
- Where new Environmental Control Measures are agreed as a result of third-party consultation, ensuring that the EOP is amended accordingly;
- Where new Environmental Control Measures are agreed as a result of third-party consultation, the Environmental Manager should liaise with the Construction Manager in updating relevant site-specific Method Statements, and
- Where required, liaising with the Construction Manager in agreeing site-specific Method Statements with third parties.

Licensing

- Ensuring that all relevant works have (and are being carried out in accordance with) the required permits, licences, certificates, planning permissions, etc.;
- Liaising with the designated licence holders with respect to licences granted pursuant to the Wildlife Act, 1976, as amended;
- Liaising with the designated licence holders and "scientific agent" (generally defined in the licence as "the contractor engaged to carry out the scientific direction and monitoring of mitigation measures") with respect to licences granted pursuant to the European Communities (Natural Habitats) Regulations 1997, as amended, and;
- Bringing to the attention of the Project, Design and Construction Team any timing and legal constraints that may be imposed on the carrying out of certain tasks.

Waste Management Documentation

- Holding copies of all permits and licences provided by waste contractors;
- Ensuring that any operations or activities that require certificates of registration, waste collection permits, waste permits, waste licences, etc., have appropriate authorisation, and
- Gathering and holding documentation with respect to waste disposal.

Legislation

- Keeping up to date with changes in environmental legislation that may affect environmental management during the construction phase;
- Advising the Construction Manager of these changes, and
- Reviewing and amending the EOP in light of these changes and bringing the changes to the attention of the main contractor's senior management and subcontractors.

Site environmental inspections

- Carrying out regular documented inspections of the site to ensure that work is being carried out in accordance with the Environmental Control Measures and relevant site-specific Method Statements, etc, and
- Appending copies of the inspection reports to the EOP.

Specialist environmental contractors

- Identifying requirements for specialist environmental contractors (including ecologists, waste contractors and spill clean-up specialists) before commencement of the project;
- Procuring the services of specialist environmental contractors and liaising with them with respect to site access and report production;
- Ensuring that specialist environmental contractors are competent and have sufficient expertise to co-ordinate and manage environmental issues, and
- Co-ordinating the activities of all specialist environmental contractors on environmental matters arising out of the contract.

Environmental Induction Training and Environmental Toolbox Talks

- Ensuring that Environmental Induction Training is carried out for all the main contractor's site personnel. The induction training may be carried out in conjunction with Safety Induction Training, and
- Providing toolbox talks on Environmental Control Measures associated with site specific Method Statements to those who will undertake the work.

Environmental Incidents/Spillages

- The Environmental Manager should be notified of all incidents where there has been a breach of agreed environmental management procedures: where there has been a spillage of a potentially environmentally harmful substance; where there has been an unauthorised discharge to ground, water or air; where there has been damage to a protected habitat, etc.;
- The Environmental Manager should prepare and be in readiness to implement at all times an Emergency Response Plan;
- The Environmental Manager is responsible for notifying the relevant statutory authority of environmental incidents, and
- Carrying out an investigation and producing a report regarding environmental incidents. The report of the incident and details of remedial actions taken should be made available to the relevant authority, the Engineer and the Construction Manager.

5.2.4 Design Manager

Name: [To be inserted by successful contractor]

Duties and Responsibilities

The main duties and responsibilities of the Design Manger include:

- Be familiar with the EOP and relevant documentation referred to within;
- Be familiar with the contents, commitments and requirements contained within the reference documents; and
- Participate in Third Party Consultations and liaising with third Parties through the Site Environmental Manager.

5.2.5 Site Agents

Name: [To be inserted by successful contractor]

Duties and Responsibilities

The Site Agents are responsible for the following:

- Ensuring Forepersons under his/her control adhere to the relevant Environmental Control measures and relevant site-specific Method Statements, etc.

- Ensuring that the procedures agreed during third party consultations are followed;
- Reporting immediately to the Site Environmental Manager any incidents where there has been a breach of agreed environmental management procedures, where there has been a spillage of a potentially environmentally harmful substance, where there has been an unauthorised discharge to ground, water or air, damage to habitat, etc.
- Attending environmental review meeting and preparing any relevant documentation as required by Management.

5.2.6 Forepersons

Name: [To be inserted by successful contractor]

Duties and Responsibilities

The forepersons on site are responsible for the following:

- Ensuring personnel under his/her control adhere to the relevant environmental control measures and relevant site-specific Method Statements;
- Reporting immediately to the site agents and site Environmental Manager any incidents where there has been a breach of agreed procedures e.g. spillages and discharges.

5.2.7 Employer's Representative

Name: [To be inserted by successful contractor]

Duties and Responsibilities

The Employer's Representative (ER) acts on behalf of the Employer in the course of a construction project. The EOP will be audited by the Employer's Representative to ensure that the Contractor is compliant with the environmental provisions of the Contract Documents.

5.2.8 Project Supervisor Construction Stage

Name: [To be inserted by successful contractor]

Duties and Responsibilities

The role of the Project Supervisor Construction Stage (PSCS) is to manage and co-ordinate health and safety matters during the construction stage. The PSCS will be appointed before the construction work begins and will remain in that position until all construction work on the project is completed.

It is the responsibility of the PSCS to ensure that the project:

- Is designed and is capable of being constructed to be safe and without risk to health;
- Is constructed to be safe and without risk to health;
- Can be maintained safely and without risk to health during subsequent use; and;
- Complies in all respects, as appropriate, with the relevant statutory provisions.

The PSCS will prepare the Construction Phase Safety and Health Plan in accordance with the Safety, Health and Welfare at Work (Construction) Regulations 2013 (as amended) prior to the commencement of construction work for the project. The Plan should provide the blueprint for managing and co-ordinating safety and health during construction and should explain how the key safety and health issues will be managed.

The PSCS will maintain contact with the Project Supervisor Design Process (PSDP) throughout the construction phase to communicate any health and safety related issues. The PSDP will prepare a written safety file appropriate to the characteristics of the project,

containing relevant health and safety information, to be taken into account during any subsequent construction work following completion of the project.

5.2.9 All Project Personnel

Name: [To be inserted by successful contractor]

Duties and Responsibilities

All project personnel have the following responsibilities:

- Reporting any operations and conditions that deviate from the EOP to the Site Agent and site Environmental Manager. Depending on circumstances it may be appropriate for general operatives and machinery operators to report directly to their Foreperson who will then report to the site Environmental Manager and Site Agent;
- taking an active part in site safety and environmental meetings;
- ensuring awareness of the contents of method statements, plans, supervisors' meetings or any other meetings that concern the environmental management of the site; and
- Attend environmental training as required.

5.2.10 Ecological Clerk of Works (ECoW)

Name: [To be inserted by successful contractor]

Duties and Responsibilities

In order to ensure the successful development and implementation of the EOP, the Contractor will appoint an independent Ecological Clerk of Works (ECoW). The ECoW must possess training, experience and knowledge appropriate to the role, including:

- An NFQ Level 8 qualification or equivalent or other acceptable qualification in ecology or environmental biology; and,
- Demonstrable experience in the protection of European sites.

The principal functions of the ECoW are:

- To provide ecological supervision of the construction of the proposed development and thereby ensure the full and proper implementation of all the mitigation measures relating to biodiversity prescribed in the EIAR and NIS;
- To regularly review the outcome of the specialist hydroacoustic monitoring if being undertaken and, on that basis, make any necessary adjustments to the mitigation; and,
- To carry out weekly inspections and reporting on the implementation of the Contractor's Biosecurity Protocol.

During the preparation of the Contractor's EOP, the site Environmental Manager may, as appropriate, assign other duties and responsibilities to the ECoW.

In exercising his/her functions, the ECoW will be required to keep a monitoring file and this will be made available for inspection or audit by the NPWS or IFI at any time.

5.2.11 Project Archaeologist

Name: [To be inserted by successful contractor]

Duties and Responsibilities

A suitably qualified Project Archaeologist on site is responsible for the following:

- Relevant licences to the Department of Housing, Local Government and Heritage required for the project in advance of any construction work taking place and throughout the project as required;
- To supervise works in vicinity of known archaeological sites' and;
- To supervise any pre-construction archaeological survey works.

Section 26 of the National Monuments Act 1930 (as amended) requires that excavations for archaeological purposes must be carried out by suitably qualified and experienced archaeologists acting under an excavation licence. Inappropriate excavation of a heritage site could result in damage to, or destruction of, the integrity, setting or historical context of the site, contrary to the public interest.

5.2.12 Other

Subject to the environmental commitments / requirements, other environmental specialists will be employed as required during the construction works.

6. ENVIRONMENTAL COMMITMENTS

The Schedule of Environmental Commitments comprises the mitigation measures as outlined in the EIAR and Natura Impact Statement and any additional commitments arising up to and including the Oral Hearing and is included in the CEMP. Appendix A contains the EIAR mitigation and monitoring measures, Appendix B contains the Natura Impact Statement mitigation and monitoring measures, and Appendix C contains the Statutory Planning Consent including any additional Environmental commitments (to be inserted following grant of approval by ACP).

In addition to the Contract documents, environmental performance criteria are prescribed in the conditions imposed by An Coimisiún Pleanála, the Schedule of Commitments, and relevant environmental legislation which shall be adhered to.

A table of the complete suite of Environmental Commitments together with the relative specification and evidence of how each commitment will be met, will be developed as per the example below, and included in the EOP. An example of the layout of this table and potential entries is given below.

Table 6-1 Environmental Commitments (Example)

Environmental Commitment	Legislation / Specific Ref.	Action Owner	Evidence	Target Date	Close Date
Biodiversity (Flora and Fauna)	EIAR: Chapter 8 Biodiversity	Env Manager/ Specialist Ecologist/ Env. Designer / Site Agent / Foreman	Method Statement / Ecological Walkover / Pre-surveys / Agreement from IFI & NPWS / Site Inspections	Ongoing	End of Contract
Hydrology and Hydrogeology	EIAR: Chapter 8 Biodiversity Chapter 9 Soils and Geology Chapter 10 Hydrology Chapter 11 Hydrogeology	Env. Manager/ Specialist Ecologist/ Env. Designer / Site Agent / Foreman	Method Statement / Site Inspections / Monitoring Data	Ongoing	End of Contract
Air Quality	EIAR: Chapter 12 Air Quality	Env. Manager/ Site Agent / Foreman	Method Statement / Site Inspections / Monitoring Data	Ongoing	End of Contract
Noise and Vibration	EIAR: Chapter 14 Noise and Vibration	Env. Manager / Noise Specialist / Env. Designer / Site Agent / Foreman	Method Statement / Site Inspections / Monitoring Data / Environmental Control Measure Sheet	Ongoing	End of Contract
Landscape and Visual	EIAR: Chapter 8 Biodiversity Chapter 15 Landscape and Visual Amenity	Env. Manager/ Specialist Ecologist/ Env. Designer / Site Agent / Foreman	Method Statement / Site Inspections /	Ongoing	End of Contract
Cultural Heritage	EIAR Chapter 16 Archaeology and Cultural Heritage	Env. Manager/ Project Archaeologist/ Env. Designer /			

Environmental Commitment	Legislation / Specific Ref.	Action Owner	Evidence	Target Date	Close Date
	Chapter 16 Architectural Heritage	Site Agent / Foreman			

7. ENVIRONMENTAL CONTROL MEASURES

Environmental Control Measures to meet the Environmental Commitments / Requirements will be identified and implemented by the Contractor, refer to the CEMP for the Schedule of Environmental Commitments / Requirements.

The Contractor will follow the procedure outlined in Figure 7-1 to identify the environmental control measures.

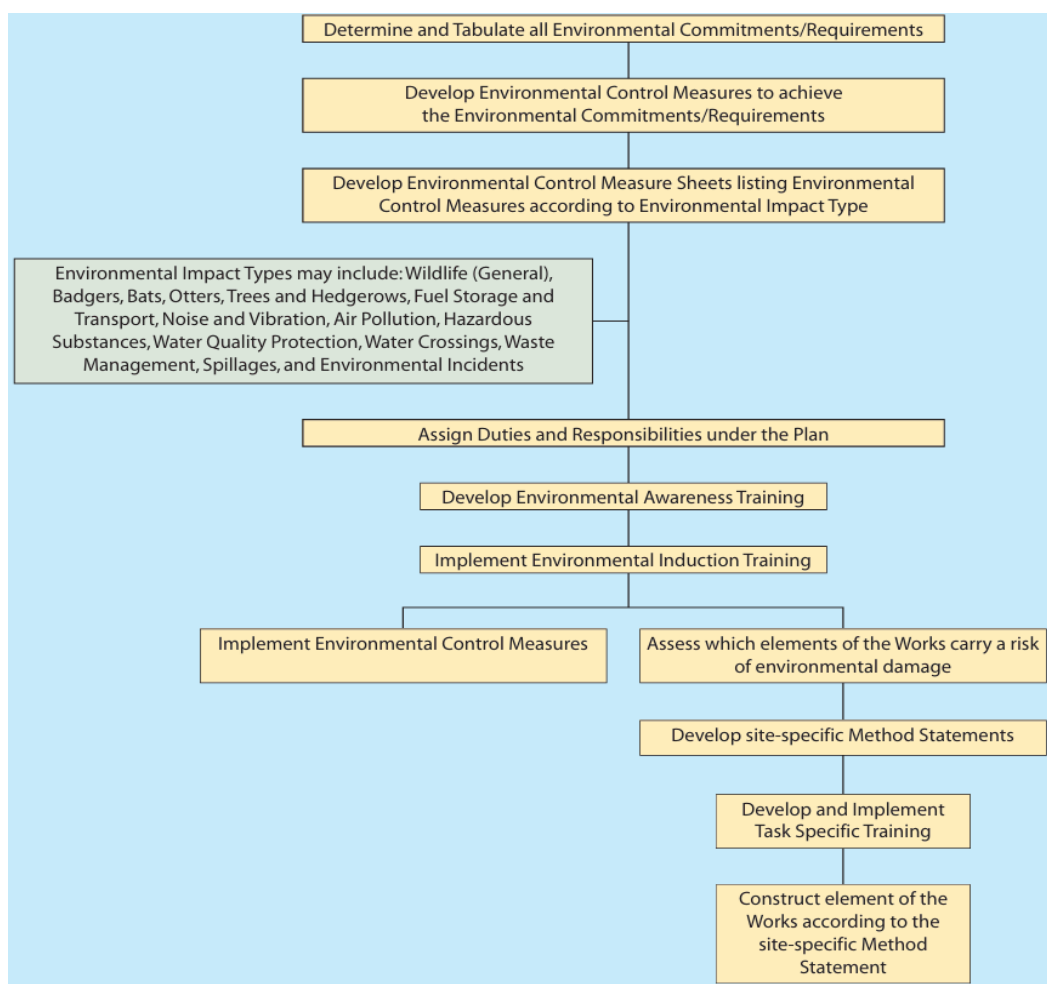


Figure 7-1 Example of Main Steps in Developing and Implementing Environmental Control Measures. Source: TII's Guidelines for the Creation, Implementation and Maintenance of an Environmental Operating Plan (GE-ENV-01109).

As outlined in Figure 7-1, some environmental control measures are generally implemented across all works. However, some construction works may present a risk of environmental damage for which, relevant environmental control measures are required to be incorporated into site-specific method statements.

Environmental Control Sheets will be prepared by the Contractor which will contain the prescribed environmental control measures according to the environmental impact (e.g., impacts on watercourses, bats, badger etc.). It will be the responsibility of the Site Environmental Manager to ensure that the identified environmental control measures are sufficient to meet the environmental commitments and that they are brought to the attention of the relevant key personnel.

8. SITE SPECIFIC METHOD STATEMENTS

A Method Statement may be defined as a statement of the construction methods and resources to be employed in executing construction work. Method Statements can cover numerous works activities, however where there is a risk of environmental damage, site-specific method statements must be prepared for the construction works. The Method Statement should be prepared by the Contractor with assistance from the site Environmental Manager who will identify which elements of the works have the potential to significantly impact the environment.

The Method Statement should refer to relevant Environmental Control Measure Sheets and incorporate relevant Environmental Control Measures. The Method Statement should include:

- The proposed method of construction and how the mitigation from the EIAR and NIS shall be implemented.
- Contingency plans and emergency plans to limit damage caused by accidents, spills or other unforeseen events: and
- Notification procedures to the relevant Authorities, Utilities and Service Providers.

There may be a requirement for method statements to be reviewed and / or approved by third party consultees (where applicable) prior to their finalisation. Once finalised, the Contractor is required to provide the details of the method statements to Clare County Council prior to the commencement of the construction works.

9. ENVIRONMENTAL AWARENESS TRAINING

9.1 EOP, EIAR, NIS and Contractual Requirement Briefing

The Site Environmental Manager will brief the Contractor's senior personnel, namely the Project Manager, Site Manager, Design Engineers, Site Agents, PSCS and any other key personnel on the EOP and the Environmental Commitments/ Requirements that must be met during the construction phase.

9.2 Environmental Induction Training

All employees and subcontractors involved on site will be given a comprehensive induction prior to commencement of the works. The environmental training and awareness procedure will ensure that staff are familiar with the principles of the CEMP, the environmental aspects and impacts associated with their activities, the procedures in place to control these impacts and the consequences of departure from these procedures.

This environmental training can be run concurrently with safety awareness training. Training will include:

- Overview of the Environmental Policy and Construction Environmental Management Plan, goals and objectives;
- Awareness in relation to risk, consequence and methods of avoiding environmental risks as identified within the Register of Aspects and with the planning conditions;
- Awareness of roles and individual environmental responsibilities and environmental constraints to specific jobs;
- Location of and sensitivity of Special Area of Conservations, Special Protection Areas, protected monuments, structures etc.
- Location of habitats and species to be protected during construction, how activities may affect them and methods necessary to avoid impacts.
- A record will be kept of a signed register on the project files of all attendees of the environmental induction.

Toolbox talks based on specific activities being carried out will be given to personnel by the nominated project representative. These will be based on specific activities being carried out and will include environmental issues particular to the project, including the impact on bird populations and water quality, namely:

- Oil/Diesel spill prevention and safe refuelling practice;
- Storage of materials including oil/diesels and cement;
- Emergency response processes used to deal with spills;
- Minimising disturbance to wildlife;
- Emergency response to include water pollution hotline to the EPA for regulator response. Identification of registered/accredited spill cleanup company for oil etc.; and
- Consideration of importance of containment of vehicle washing, containments of concrete / cement / grout washout etc, bank protection using hessian to prevent excessive scour and mobilisation of suspended solids, maintenance of vegetation corridors etc.

9.3 Specific Training

A project-specific training plan that identifies the competency requirements for all personnel allocated with environmental responsibilities will be produced by the Contractor. Training will be provided by the Contractor to ensure that all persons working on site have a practical understanding of environmental issues and management requirements prior to commencing activities. A register of completed training is to be kept by the Site Environmental Manager. The Site Manager will ensure that environmental emergency plans are drawn up and the Site Environmental Manager will conduct the necessary training/inductions.

10. COMMUNICATION

10.1 Internal Communication

Environmental issues and performance aspects will be communicated to the workforce on a regular basis. Weekly project meetings, which follow a set agenda incorporating Environment, will be held alongside overall management meetings.

All staff and sub-contractors involved in all phases of the project will be encouraged to report environmental issues.

The PSCS will maintain contact with the PSDP throughout the works to communicate any health and safety related issues. The PSDP will prepare a written safety file appropriate to the characteristics of the project, containing relevant health and safety information, to be taken into account during any subsequent construction work following completion of the project.

10.2 External Communication

A Stakeholder Management and Communication Plan (SMCP) will be prepared by the Contractor. The Employer will appoint a Public Liaison Officer, or equivalent, who will be consulted in the preparation of the Plan as well as its maintenance and implementation. The SMCP will provide the means of the stakeholder and members of the public to communicate with the project team, and for the project team to communicate relevant information of the scheme.

The principal component of a Stakeholder Management and Communication Plan will include:

- Details of general construction process/phasing will be commuted to the relevant stakeholders and members of the public prior to implementation to ensure local residents and businesses are fully informed of the nature and duration of construction works.
- Details of a contact name and number of any complaints that may arise during such works.

A complaints register will be developed as part of the Plan to efficiently record any complaints made.

11. INSPECTIONS, AUDITING AND MONITORING COMPLIANCE

11.1 Inspections

The appointed Site Environmental Manager will carry out environmental inspections at appropriate intervals. The Site Environmental Manager will be accompanied by qualified and accredited environmental specialists (ecologists, landscape architects and noise specialists etc.) when appropriate and where required during inspections.

The Site Environmental Manager will append the reports from environmental inspections to this EOP.

11.2 Monitoring

The EIAR may require the execution of certain types of monitoring e.g., related to noise and vibration, water quality air quality, etc.

The appointed Site Environmental Manager will prepare a schedule of monitoring required, detailing the type of report to be prepared and to whom it should be sent to. All monitoring is to be carried out by competent experts.

11.3 Audits

Audit by the Site Environmental Manager

The EOP will be audited by the Site Environmental Manager in conjunction with the Site Manager annually or as agreed at the start of the contract to ensure that the appointed Contractor is in compliance with all environmental commitments / requirements. Should there be a need to revise the EOP, the Site Environmental Manager will make all the necessary changes to the EOP and inform the key personnel of such changes. The EOP should only be revised by the Site Environmental Manager and approved by the Site Manager.

Audit by the Employer's Representative

The EOP will be audited by the Employer's Representative to ensure that the Contractor is compliant with the environmental provisions of the Contract Documents.

12. HANDOVER OF THE FINAL EOP

Two copies of the final and complete EOP should be supplied to the Employer's Representative / PSDP immediately following the end of the defect's notification period.

APPENDIX B

Resource Waste Management Plan

West Clare Railway Greenway Section 1: Kilrush to Kilkee

Resource Waste Management Plan

Table of Contents

1.	INTRODUCTION	1
2.	DESCRIPTION OF THE PROPOSED DEVELOPMENT	3
2.1	Site Location	3
2.2	Proposed Development	3
3.	REQUIREMENTS FOR RESOURCE AND WASTE MANAGEMENT PLANS .	4
3.1	International	4
3.2	National	4
3.3	Regional / Local	6
3.4	General Requirements	6
3.5	Roles and Responsibilities	7
4.	DESIGN APPROACH.....	9
5.	KEY MATERIALS AND QUANTITIES	10
5.1	Works to be Undertaken	10
5.2	Potential Waste Streams	10
5.3	Material Volumes	11
5.4	List of Waste Codes	11
5.5	Resource Management Route Options	11
5.6	Cost of Resource Management	13
6.	MATERIAL STORAGE, COLLECTION AND MANAGEMENT ON SITE	14
6.1	Overall Resource Management on Site.....	14
6.2	Management of the implementation of the RWMP on Site	14
6.3	Training.....	14
6.4	Record Keeping	14
7.	SITE INFRASTRUCTURE.....	15

1. INTRODUCTION

This Resource and Waste Management Plan (RWMP) has been prepared to support a planning application for the construction of the West Clare Railway Greenway Section 1, hereafter referred to as the “Proposed Development”. The proposed development is located in West Clare and connects the towns of Kilrush and Kilkee, via the village of Moyasta. The proposed development will provide a safe, segregated route for non-motorised users to travel between these settlements. The proposed route is shown in Figure below.

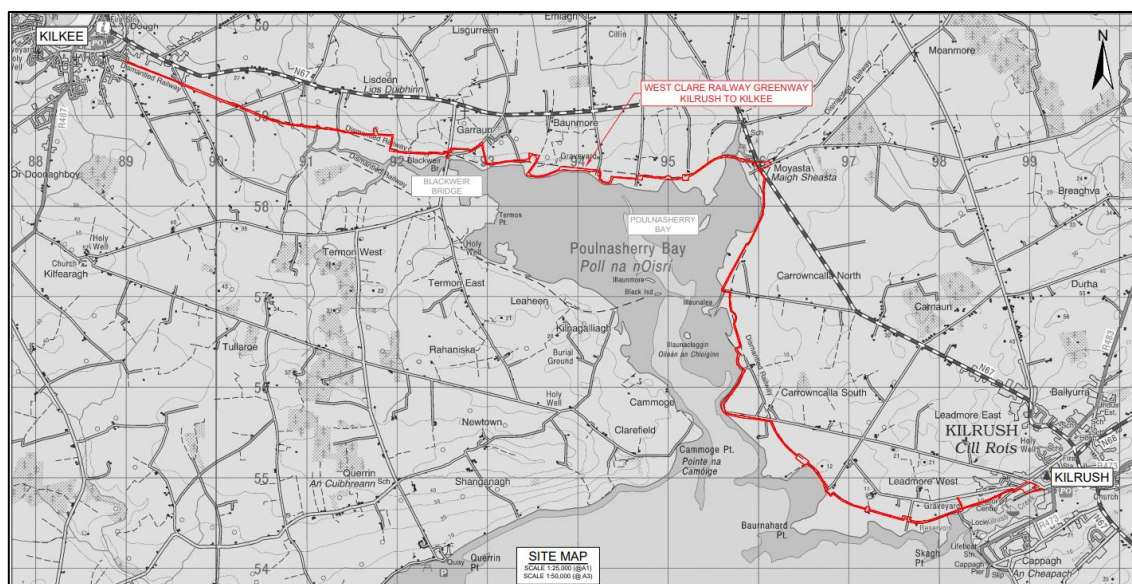


Figure 1-1 Route of the proposed development

This RWMP has been developed in accordance with EU and National legislation and the Environmental Protection Agency (EPA) Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction and Demolition Projects, 2021 (EPA, 2021) [The EPA Guidelines]. This RWMP has also considered the relevant guidance documents on the management and minimisation of waste, including:

- Provisions of the Waste Management Act, 1996, as amended, and associated Regulations, as amended;
- Protection of the Environment Act 2003, as amended;
- Litter Pollution Act 2003, as amended; and
- Connaught and Ulster Waste Plan 2015 – 2021.

More detail is included in Section 3.

The Developer, Clare County Council, is fully committed to its obligations under the EPA Guidelines. At a minimum, the Developer will require the Contractor to take all reasonable steps to ensure that:

- All waste from the Site is dealt with in accordance with all legal requirements.
- Materials are handled efficiently, and waste managed appropriately; and
- The RWMP Guidelines are fully adhered to.

This RWMP will inform the preparation of the Construction Environmental Management Plan (CEMP) by the Contractor appointed to construct the proposed development. It affirms the developer’s commitment to managing resource and waste management in accordance with

the EPA guidelines, and sets out the strategy for storing, handling, collection and transport of the wastes generated at the site during construction and operation. The purpose of the RWMP is to ensure maximum recycling, reuse and recovery of waste with a view to minimising disposal to incineration or landfill, where practicable. The RWMP also provides guidance on collection and transport of waste to prevent issues associated with litter or more serious environmental pollution such as contamination of watercourses. The plan includes estimates of the quantity and nature of waste that will be during the construction and operational phases and sets out a strategy for managing the different waste streams.

Full details of the background, site history and the proposed development are provided in the Environmental Impact Assessment Report (EIAR). This RWMP should also be read in conjunction with the accompanying outline Construction Environmental Management Plan.

2. DESCRIPTION OF THE PROPOSED DEVELOPMENT

2.1 Site Location

The proposed development is an approximately 15.2km walking, cycling and wheeling route intended for leisure and commuting use. The route, described from East to West, commences at the Kilrush Marina, passes through the village of Moyasta and terminates at the Percy French Estate, Kilkee. The proposed development is predominantly offline and will utilise the disused West Clare Railway Corridor where practicable.

The proposed development extends to approximately 20 hectares of permanent land take and is predominantly bounded by agricultural lands.

2.2 Proposed Development

The proposed development comprises a walking and cycling amenity along the general route of the abandoned West Clare Railway between Kilrush and Kilkee in County Clare, via the village of Moyasta. The route is approximately 15.2km long and will include the following elements:

1. Repair to a number of existing structures, including vegetation removal, repointing and removal of remaining railway infrastructure.
2. Construction of:
 - i. A 15.2km paved greenway, 3.0m wide plus verges;
 - ii. Drainage infrastructure including ditches, pipes, outfalls and attenuation;
 - iii. Online active travel connections and crossings;
 - iv. 2no. trailheads, located at Kilrush Marina and Moyasta;
 - v. Rest areas along the route including bicycle parking, seating and signage;
 - vi. Accommodation works, including the provision of stockproof fencing, access to local or private roads and holding pens for livestock management;
 - vii. New structures, including bridges, culverts and retaining walls and;
 - viii. Lighting columns within the trailhead and at locations where the greenway crosses the N67 national road.

Landscaping and planting will also be carried out as part of the mitigation measures associated with the proposed development.

3. REQUIREMENTS FOR RESOURCE AND WASTE MANAGEMENT PLANS

3.1 International

The European Union (EU) Waste Framework Directive (Directive 2008/98/EC), as amended by Directive (EU) 2018/851 (Waste FD 2008) [Waste Directive], sets the basic concepts and definitions related to waste management, such as definitions of waste, recycling, and recovery. It also includes definitions for when waste ceases to be waste and becomes a secondary raw material (end-of waste criteria) and how to distinguish between waste and a by-product. The Waste FD is transposed into Irish law under European Communities (Waste Directive) Regulations 2011. Waste is defined by Article 3(1) of the EU Waste Directive as “any substance or object which the holder discards or intends or is required to discard”.

The legal definition of waste also covers substances or objects that fall outside of the commercial cycle or out of the chain of utility. In particular, most items that are sold or taken off-site for recycling are wastes, as they require treatment before they can be resold or reused. In practical terms, wastes include surplus earthworks materials and soil, scrap, unwanted surplus materials, packaging, recovered spills, office waste, and damaged, worn-out, contaminated or otherwise spoiled plant, equipment, and materials.

3.2 National

In Ireland, the primary waste legislation is the Waste Management Act 1996, as amended [Waste Act]. At a construction site, the mandatory obligation to appropriately manage waste generated at a construction site lies with the Client and the Contractor. The following materials are exempted from the scope of the Waste Act:

- Land (in-situ) including unexcavated contaminated soil and buildings permanently connected with land – relates to land and buildings prior to any construction or demolition where material remains untouched. Once it has been excavated or otherwise removed, the material may enter into the control regime set down by the Waste Management Act.
- Uncontaminated soil and other naturally occurring material excavated in the course of construction activities where it is certain that the material will be used for the purposes of construction in its natural state on the site from which it was excavated.

In addition, there are two important provisions within the European Communities (Waste Directive) Regulations 2011 that are of relevance to the construction sector and the prevention of waste, and these allow for the classification of resources out of the waste regime as follows:

- Article 27 allows for the notification of a material as a by-product rather than a waste where certain criteria can be demonstrated by the legal person (i.e. further use is certain, no need for further processing, produced as part of a process and further use is lawful).
- Article 28 sets out the grounds by which a material, which is recovered or recycled from waste, can be deemed to be no longer a waste and complies with a set of end-of-waste criteria (substance / object to be used for specific purposes, a market or demand exists, fulfils technical requirements and no overall adverse impact to human health or the environment).

Other relevant legislation includes:

- Environmental Protection Act 1992, as amended;
- Litter Pollution Act 1997, as amended;

- Protection of the Environment Act 2003, as amended;
- Planning and Development Act 2000, as amended; and
- Planning Act 2024.

The National Waste Management Plan for a Circular Economy 2024-2030 was prepared in response to the “European Green Deal” and sets the direction for waste planning and management in Ireland. The policy has a greater focus on creating circular patterns of production and consumption than earlier policy documents, which focussed more on managing waste. It contains over 200 measures across various waste areas including:

- Circular economy;
- municipal waste;
- consumer protection and citizen engagement;
- plastics and packaging;
- construction;
- textiles;
- green public procurement; and
- waste enforcement.

The EPA Guidelines provide guidance on the prevention and management of waste and resources through the full lifecycle of a project, including end-of-life decommissioning. The guidance includes:

- Procedures to prevent, minimise, recycle, and reuse wastes;
- Suggestions for on-site disposal and recycling;
- Design and Management roles and consultation requirements;
- Staff training and record keeping requirements; and
- Auditing procedures.

Section 3 of the Guidelines identifies thresholds above which there is a requirement for the preparation of a RWMP for developments. Developments are classified on a two-tiered system:

Tier 1:

Developments which do not exceed any of the following thresholds may be classed as Tier 1 development:

- New residential development of less than 10 dwellings;
- Retrofit of 20 dwellings or less;
- New commercial, industrial, infrastructural, institutional, educational, health and other developments with an aggregate floor area less than 1,250m²;
- Retrofit of commercial, industrial, infrastructural, institutional, educational, health and other developments with an aggregate floor area less than 2,000m²; and
- Demolition projects generating in total less than 100m³ of C&D waste.

Tier 2

- A development which exceeds one or more of the thresholds above;
- Larger scale projects, including Strategic Infrastructure Developments, Strategic Housing Developments, and infrastructure projects (road, rail, gas, energy).

Tier 2 developments require a RWMP. The thresholds are based on the principle of proportionality to ensure larger projects with larger potential resource footprints are required to more actively manage resources relative to smaller scale projects. The proposed development falls under this category.

Given the nature of the project, the preparation of this report has also had regard to the following national legislation and guidance:

- “Construction and Demolition Waste Management – a handbook for Contractors and Site Managers”, FÁS and CIF 2002; and
- “Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects”, EPA 2006.

3.3 Regional / Local

The proposed development is in the jurisdiction of Clare County Council (CCC), which is within the Southern Regional Assembly Area. The Southern Region Waste Management Plan 2015-2021 is the Regional Waste Management Plan applicable to the study area of the proposed development. The 2nd annual report was published in 2017, and the most recent evaluation of the waste management plan was carried out in 2021. The Clare County Development Plan 2023-2029 was developed in line with the Southern Region Waste Management Plan 2015-2021.

The Clare County Development Plan 2023-2029 sets out a number of policies for the West Clare Region, in line with the objectives of the Regional Waste Management Plan. The following objectives are relevant to the proposed development:

- To have regard to Best Practice Guidelines for the Preparation of Resource Management Plans for Construction & Demolition Projects (EPA 2021) and any subsequent guidelines in the management of waste from construction and demolition projects and to require the submission of a construction and demolition waste management plan for projects in excess of the Tier 1 thresholds (as above).
- To encourage the development of C&D waste recycling facilities at suitable sites, including quarries, subject to normal planning and environmental considerations.
- To promote environmental awareness measures and action programmes to ensure good environmental awareness and practices, the recycling of waste, water management, and energy conservation

The Southern Region Waste Management Plan has been replaced by the National Waste Management Plan for a Circular Economy (NWMPCE) 2024-2030. The NWMPCE aims to “influence sustainable consumption and prevent the generation of waste, improve the capture of materials to optimise circularity and enable compliance with policy and legislation”. The main objective of the Plan is to experience 0% total waste growth per person over the life of the Plan. Clare County Council will play a crucial role in implementing this Plan across County Clare.

3.4 General Requirements

A RWMP sets out requirements for the management of all construction & demolition waste arising on site and encourages the minimisation of waste and maximisation of re-use of materials and/or the recovery or disposal of this waste to authorised facilities by authorised collectors. The Waste Directive sets out a requirement for “70% preparing for reuse, recycling and other recovery of construction and demolition waste (excluding natural soils and stones and hazardous wastes)”. However, the EPA Guidelines note that the Waste Directive target is

national and is not necessarily appropriate for individual projects. The EPA's 'Progress to EU Targets' (EPA, 2022) reports Ireland's performance against targets set out in European Directives shows performance of 78% was reported for 2020, exceeding the 70% target.

Table below shows various recovery percentages generally feasible for a range of construction materials to inform the project-specific targets.

Table 3-1 Standard, Good and Best Recovery Practice by Material

Material	Standard Recovery Practice (%)	Good Recovery Practice (%)	Best Recovery Practice (%)
Metals	95	100	100
Packaging	80	85	95
Concrete	75	95	100
Inert	75	95	100
Plastics	60	90	95
Miscellaneous	12	50	75
Electrical Equipment	Limited information	70	95
Cement	Limited information	75	95
Liquids and Oils	100	100	100
Hazardous	50	Limited information - cannot be 100% since some hazardous materials, e.g. Asbestos, must be landfilled	

3.5 Roles and Responsibilities

Table 3-2 summarises the key roles and responsibilities for the preparation and construction of the proposed development.

Table 3-2 Roles and Responsibilities

Role	Company	Key Contact	Key responsibilities
Design Team Lead			<ul style="list-style-type: none"> Set client expectations Confirm commitment to the EPA Guidelines Provide client-side information to inform the preparation of the RWMPs at various stages of the project Sign off on planning stage RWMP Sign off on appropriate criteria for tendering Handover planning stage RWMP to the Contractor, once appointed Ensure the Contractor prepares the construction stage RWMP Provide client oversight of implementation of RWMP and appoint Owner's Engineer for day-to-day monitoring, as required, working with the Contractor to meet the performance targets

Role	Company	Key Contact	Key responsibilities
			<ul style="list-style-type: none"> Confirm closeout of RWMP commitments as part of Safety File.
Planning Consultant and Environmental Coordinator			<ul style="list-style-type: none"> Confirm RWMP is prepared and included with the planning documentation Ensure RWMP commitments are reflected in the broader planning documentation.
Engineer			<ul style="list-style-type: none"> Provide information, as required, to permit the preparation of the RWMP.
Resource Manager (Planning)			<ul style="list-style-type: none"> Collate information required for the preparation of the planning stage RWMP Include details and estimated quantities of all projected waste streams. Illustrate the positive circular economy principles applied by the Design Team. Prepare planning stage RWMP and consult, as appropriate Incorporate feedback and finalise planning stage RWMP Adjust RWMP, as required, through the planning process, ensuring any additional commitments or requirements arising from planning conditions are communicated appropriately.
Future Role of the Contractor / Resource Manager (Construction)			<ul style="list-style-type: none"> Appoint Resource Manager (Construction) Develop planning stage RWMP further for construction Implementing and reviewing the RWMP Managing the performance of personnel and subcontractors Ensure hauliers are appropriately licensed Track all destinations of all materials being brought off-site Notify EPA of End-of-waste and by-products, as necessary, and address any EPA requirements Comply with all waste obligations Maintain full records Prepare a RWMP implementation review report on completion

4. DESIGN APPROACH

The design of the West Clare Railway Greenway has been optimised to minimise construction materials and waste generation. The standard design approach is summarised below:

- Reuse of existing railway embankments and structures where possible;
- Reuse and recycling of materials where possible;
- Reuse of excavated materials on site as part of landscaping works;
- Design for off-site construction;
- Material choices and quantities will be reviewed during detailed design, to identify and implement any lower embodied carbon options, where feasible (e.g., recycled aggregates, sustainably sourced timber, low-carbon concrete).
- Materials will be sourced locally where possible to reduce transport related GHG emissions. Additionally, the use of efficient haul routes will reduce transport-related GHG emissions.
- Existing road signage and public lighting will be maintained or re-used where feasible to reduce the need for completely new construction.
- During the construction phase, lighting will only illuminate work areas when necessary and lighting will be restricted to working hours. During the operational phase, lighting will only be installed at road crossings and at the Kilrush trailhead.

The following measures will be implemented during the construction phase of the proposed development where technically, economically and environmentally practicable;

- Ensure that raw materials are ordered so that the timing of delivery, the quantity delivered, and the storage is conducive to the good site practices and does not create unnecessary waste;
- Manage waste in accordance with the waste hierarchy;
- Separate waste materials on site to maximise recycling and recovery;
- Where onsite recycling isn't possible, maximise off-site recycling and recovery;
- Use recycled and secondary materials for construction.

The Contractor will commit to the above in their construction stage RWMP. This will confirm measures to be implemented to reduce, reuse and recycle on site.

5. KEY MATERIALS AND QUANTITIES

5.1 Works to be Undertaken

The following is a non-exhaustive list of the works to be carried out:

- Construction of the roadway of the proposed Greenway, including local links, local access routes, diversions and spurs;
- Associated site clearance and localised demolition works (i.e. walls and boundaries);
- Trailheads incorporating car parking and other facilities;
- Structures such as culverts, retaining structures, overbridges and underbridges;
- Drainage features;
- Fencing and boundary treatments;
- Landscaping;
- Environmental enhancement works;
- Accommodation Works;
- Road Crossings and associated lighting upgrades; and
- Ancillary traffic management works including road markings and signage.

5.2 Potential Waste Streams

The following table estimates the types of material and waste arising from the construction of the proposed development:

Table 5-1 Potential Waste Streams

Activity	Material to be used / reused	Waste
Site Clearance	Excavated topsoil to be used for landscaping Excavated stone to be used for aggregate Good quality vegetation to be replanted elsewhere within the site. Railway ballast	Surplus materials Unsuitable or contaminated soils Unsuitable vegetation from site clearance Treated railway sleepers (if encountered)
Construction Waste	In situ and precast concrete Stone aggregate Steel structures Geotextiles	Offcuts and broken / damaged construction materials Domestic waste from construction workers General waste Packaging materials Excess concrete
Earthworks	Subsoil (Cut and fill will be required along the remaining length of the route where gradients are challenging, and on the approaches to structures)	Surplus subsoil Unsuitable or contaminated subsoils
Structures	In situ and precast concrete Stone aggregate Steel structures Geotextiles	Offcuts and broken / damaged construction materials Excess concrete

Activity	Material to be used / reused	Waste
Drainage	In situ and precast concrete Stone aggregate Steel structures Geotextiles	Offcuts and broken / damaged construction materials Excess concrete Wastewater
Landscaping	Vegetation for planting Topsoil for planting	Waste vegetation Surplus topsoil
Fencing	Posts Mesh	Excess posts and mesh Excess concrete Surplus subsoil/topsoil
Paving	1,560m ³ of bituminous material for the surfacing of the greenway.	

5.3 Material Volumes

The table below shows a preliminary estimate of the quantities of primary earthworks materials.

Table 5-2 Summary of Total Cut and Fill Volumes for the Proposed Development

Item	Totals (m ³)
Total cut volume	9,500m ³
Total fill volume	27,500m ³

It is anticipated that some material will be reused onsite, subject to geotechnical and environmental testing, and/or that clean excavated material will be reused offsite (subject to the appropriate permissions).

The volume of waste to be generated during construction is minimal, and most on-site work can be managed to eliminate waste.

5.4 List of Waste Codes

It is not possible to estimate the exact composition of construction waste at this time, however it is anticipated that the majority of waste will sit within Chapter 17 (construction and demolition waste) of the List of Waste (LoW) Codes within the document "Waste Classification List of Waste and Determining if Waste is Hazardous or Non-hazardous" (EPA 2019).

5.5 Resource Management Route Options

The EPA Guidelines Waste Hierarchy is repeated below:

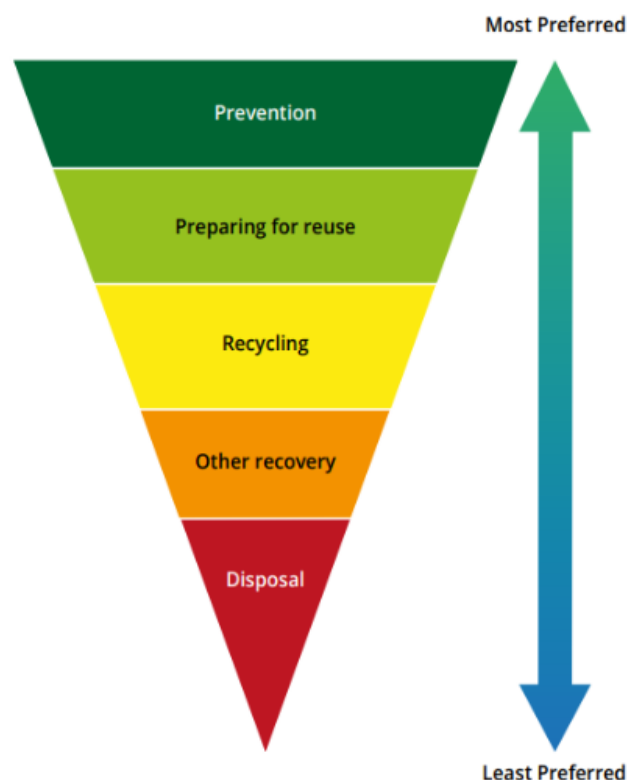


Figure 5-1 Waste Hierarchy (EPA 2019)

The Contractor will be required to fully integrate these principles in its construction stage RWMP and will apply the principles of the Waste Hierarchy and adopt best practice measures. The contractor is required to draw on guidance from:

1. The Considerate Constructors Scheme (CCS);
2. Waste and Resources Action Programme (WRAP); and
3. Construction Industry Research and Information Association (CIRIA).

The Contractor will be able to realise savings by being efficient in its use of materials and to maximise reuse of on-site materials. Not alone will this reduce the direct costs of materials, but it will also realise efficiencies in terms of deliveries and handling. The use of packaging materials by suppliers should be minimised to reduce storage requirements on site and disposal logistics and costs. Measures the Contractor can integrate include:

- Procurement incentives to reduce supplier packaging;
- Just-in-time deliveries;
- Pre-assembly of components off-site;
- Consolidation of deliveries off-site at the Contractor's main depot, or similar facility;
- Avoidance of over-ordering of concrete and the like;
- Provision for separate storage of different material types on site to avoid any risk of cross-contamination;
- Arrangements for return of surplus materials to suppliers;
- Incentivisation of good site management practices to maintain cleanliness.

Off-site disposal of materials shall generally be considered to be a last resort. Where such needs do arise, all disposals shall be to appropriately licensed facilities. Excess peat and soil excavated will be disposed of at licensed facilities off-site, when there is no opportunity to utilise materials onsite.

5.6 **Cost of Resource Management**

It is not possible at this stage to calculate the costs of resource management; however, the contract will be structured so as to incentivise the maximum re-use of material and the minimisation of waste, thereby ensuring that a prudent and sustainable approach to construction will also be the most financially efficient and mutually beneficial for the Client and Contractor.

6. MATERIAL STORAGE, COLLECTION AND MANAGEMENT ON SITE

6.1 Overall Resource Management on Site

The Contractor shall appoint a Construction Stage Resource Manager responsible for the efficient use of materials on site. The person appointed shall be appropriately experienced in terms of construction practices, material procurement, and disposal to optimise the efficient operation of the site. The appointed Resource Manager will be responsible for finalising and implementing the construction Stage RWMP.

6.2 Management of the implementation of the RWMP on Site

All personnel working on site shall be briefed on the requirements of the RWMP as part of the Site Induction. This shall include casual subcontractors as well as larger repeat visitors to site. This will be reinforced through regular toolbox talks. In particular, where the Resource Manager notices any deterioration in site cleanliness of practices, the requirements of the RWMP shall be restated through toolbox talks. This is in keeping with the Contractor's general incentivisation for the efficient operation of the site and the minimisation of waste.

The Resource Manager shall set appropriate procedures for optimising storage and separation of materials on site, managing and minimising deliveries, ensuring disposal hauliers are appropriately licensed, etc. They shall also ensure that any waste disposed of is delivered to appropriate licensed facilities. The Contractor should organise separate sporadic audits of site practices from other members of its organisation not directly involved with day-to-day site operations.

The Resource Manager will also be responsible for liaison with the Local Authority in terms of waste management, and for liaising with any external auditors inspecting site resource management practices.

6.3 Training

Copies of the RWMP will be made available to all personnel on-site. The RWMP shall also be included in site induction training and toolbox talks, where required. All site personnel and sub-contractors will be instructed about the objectives of the plan and informed of the responsibilities that fall upon them as a consequence of its provisions. This is traditionally carried out during the induction process for new staff members. Where source segregation and material re-use techniques apply, each member of staff will be given instructions on how to comply with the RWMP. Site notices will be designed to reinforce the key messages within the plan and will be displayed prominently for the benefit of staff.

6.4 Record Keeping

The Resource Manager shall keep comprehensive records of site deliveries, inventories of materials stored on site including re-use potential, records of re-use or recycling of materials on site, and records of all disposals off-site, including acceptance and delivery dockets. Records shall be made available to any external auditors inspecting site resource management practices. It is recommended that the Contractor adopt the resource management templates provided in Appendix D of the EPA Best Practice Guidelines for the Preparation of Resource and Waste Management Plans for Construction and Demolition projects (EPA 2021), adapted as necessary to the specific needs of the site.

7. SITE INFRASTRUCTURE

The Contractor shall, as a minimum, adopt the following infrastructure measures at construction stage:

- Develop a plan for site signage to maximise efficient resource management. This shall visually and concisely convey locations for material storage, recycling, and assessment of suitability for re-use;
- Minimum requirements for waste material storage (dedicated skips, hazardous materials storage, stockpile management, etc), with particular regard to minimising the risk of cross-contamination between materials;
- Comply fully with any specific material storage or stockpiling requirements, e.g. restrictions on stockpiling more than 50kg of certain persistent organic pollutants.
- Clearly establish facilities for the handling and export of resource from site, including provision of clear directional signage, wheel washes, facilities for storage of wastewater from wheel washes, etc.

APPENDIX C

Incident Response Plan

West Clare Railway Greenway Section 1: Kilrush to Kilkee

Incident Response Plan - Construction

Table of Contents

1. INTRODUCTION	1
1.1 Objectives of the Plan	1
1.2 Responsibility.....	1
2. RESPONSE PLANNING	2
2.1 Incident Response Plan	2
2.2 Reporting and Monitoring.....	2
2.3 Accidental Spill Control Measures.....	3
2.4 Extreme Weather Events	3
2.5 Failure of Screening Vegetation.....	4
3. OUTLINE INCIDENT RESPONSE PLAN.....	5

1. INTRODUCTION

This Incident Response Plan - Construction (IRP) describes the procedures, lines of authority and processes that will be followed in the event of an incident during construction of the West Clare Railway Greenway Section 1 Kilrush to Kilkee project. It provides the framework to ensure that incident response efforts are prompt, efficient, and appropriate to particular circumstances. It has been developed to provide the information that each employee may need in order to respond to an emergency and to handle it effectively.

This plan forms an appendix to and should be read in conjunction with the Construction Environmental Management Plan (CEMP).

Incident response measures for the operational phase are described in the Environmental Operating Plan (EOP).

1.1 Objectives of the Plan

The primary objectives of this document are to:

- Ensure the health and safety of workers and visitors at and in proximity to the site;
- Minimise any impacts to the environment and to ensure protection of the water quality and the aquatic species dependent on it;
- Protect property and operations at the proposed site and to minimise the impact on the continuity of business; and
- Establish procedures that enable personnel to respond to incidents with an integrated multi-departmental effort and in a manner that minimises the possibility of loss and reduces the potential.

1.2 Responsibility

Roles and responsibilities during construction of the project are defined in the CEMP for the project. It is the responsibility of the Site Environmental Manager to maintain and update this IRP as required.

This IRP will be reviewed on an ongoing basis and amended, as necessary, when one or more of the following occur:

- Applicable regulations are revised;
- The Plan fails in an emergency;
- Improvement opportunities are identified in relation to incident response processes or procedures (e.g. following an incident or audit);
- The project changes in its design, construction, operation, maintenance, or other circumstance in a way that materially increases the potential for impacts on the environment, workers or visitors to the site during the construction stage; and/or,
- Amendments are required by a regulatory authority.

2. RESPONSE PLANNING

2.1 Incident Response Plan

The Contractor's CEMP will be developed once a contractor is appointed to construct the scheme and will include an IRP in accordance with the framework set out in this plan. The IRP will detail the controls to be adopted to manage the risk of pollution incidents and procedures to be followed in the event of any pollution incidents.

The Contractor's IRP will include the following, as appropriate:

- Reference to the Method Statements and Management Plans for other construction activities, insofar as they are relevant for the purposes of mitigating against health and safety and pollution incidents.
- Procedures to be adopted to contain, limit and mitigate any adverse effects, as far as reasonably practicable, in the event of a health and safety or pollution incident.
- Details (including emergency contact details) of spill clean-up companies appropriate to deal with pollution incidents associated with the materials being used or stored on site.
- Procedures to be followed and appropriate information to be provided in the event of any incident, such as a spillage or release of a potentially hazardous material.
- Procedures for notifying appropriate emergency services, relevant authorities, the Employer's Representative and personnel on the construction site.
- Procedures for notifying relevant statutory bodies, environmental regulatory bodies, local authorities and local water and sewer providers of pollution incidents, where required.
- Maps showing the locations, together with address and contact details, of local emergency services facilities such as police stations, fire authorities, medical facilities and other relevant authorities.
- Contact details for the persons responsible on the construction site and within the Contractor's organisation for pollution incident response.

2.2 Reporting and Monitoring

The Contractor will investigate and provide reports on any health and safety or pollution incidents to the Employer's Representative, including, as appropriate:

- A description of the incident;
- Contributory causes;
- Adverse effects;
- Measures implemented to mitigate adverse effects and prevent or reduce the chance of reoccurrence; and,
- Effectiveness of measures implemented to prevent pollution.

The Contractor will undertake appropriate monitoring of the procedures and measures set out in the management plans for construction activities required to prevent health and safety or pollution incidents to ensure they are being adequately implemented.

The Contractor will monitor the effectiveness of the procedures and measures implemented in the event of an incident and the effectiveness of the response procedures set out in the Incident Response Plan to identify any areas where improvement is required.

2.3 Accidental Spill Control Measures

Every effort will be made to prevent pollution incidents associated with spills during the construction of the proposed development. Nevertheless, the risk of oil/fuel spillages will exist on the site and any such incidents will require an emergency response procedure. As assessed in Chapter 19 of the Environmental Impact Assessment (EIAR), Major Accidents and Disasters, the spillage or long-term seepage of pollutants into a watercourse during the construction phase could potentially have a moderate impact post-mitigation. No significant impacts resulting from accidental spillages are likely in the operational phase.

The following steps are to be followed in the event of an oil/fuel spill occurring on site:

- Identify and stop the source of the spill and alert people working in the vicinity;
- Notify the Site Environmental Manager immediately giving information on the location, type and extent of the spill;
- If applicable and safe to do so, eliminate any sources of ignition in the vicinity of the incident;
- Identify any sensitive receptors in the vicinity and immediately implement measures to block off any potential flow paths from the source of the incident to the sensitive receptor;
- If possible, cover or bund off any vulnerable areas where appropriate such as drains, watercourses and or/or sensitive habitats;
- Contain the spill using control materials, spill kits, track mats or other material as required. Do not spread or flush away the spill;
- Actively monitor the effectiveness of containment measures, and adapt / enhance them as necessary until the risk has been contained;
- Contain any used spill control material and dispose of used materials appropriately using a fully licensed waste contractor with the appropriate permits so that further contamination is limited;
- The Site Environmental Manager shall inspect the site as soon as practicable and ensure the necessary measures are in place to contain and clean up the spill and prevent further contamination from occurring; and
- The Site Environmental Manager will prepare the incident report in accordance with the reporting requirements set out in the IRP and will notify the appropriate stakeholders of the incident.

2.4 Extreme Weather Events

The contractor will consider the impacts of extreme weather events and related conditions during construction. The contractor will use a short to medium range weather forecasting service from Met Éireann or other approved meteorological data and weather forecast provider to inform short to medium term programme management, environmental control and mitigation measures.

As assessed in Chapter 19 of the EIAR, Major Accidents and Disasters, extreme weather events in the construction phase could potentially have a significant post-mitigation impact. Coastal erosion, wildfires, landslides and flooding were specifically identified in the Climate Change Risk Assessment as potential risk to the proposed development.

The Contractor's IRP should consider all measures deemed necessary and appropriate to manage extreme weather events and should specifically cover training of personnel and prevention and monitoring arrangements for staff. As appropriate, method statements should also consider extreme weather events where risks have been identified.

2.5 Failure of Screening Vegetation

Vegetation is proposed to screen construction and operational activities from the sensitive receiving environment. Should such screening fail during the construction stage, temporary screening will be installed and potentially disruptive activities will be stopped until an appropriate screen is in place. The cause of vegetation failure will be investigated and addressed prior to replacement vegetation being installed.

3. OUTLINE INCIDENT RESPONSE PLAN

Name and address of the Client:

Clare County Council
New Road
Ennis
Co. Clare

The contact within the Client organisation is: XX tel no: XXXX

Site Location:**Overview of the activities on site:**

It is estimated that construction of the full scheme will take approximately 16 to 24 months.

The proposed route of the greenway is approximately 15.2km in length and will be a bi-directional shared walking, wheeling, and cycling route.

- Greenway construction
- Ancillary Infrastructure
- Accommodation Works
- New Structures
- Culverts
- Works to existing structures

Potential Incidents:

Potential incidents requiring emergency response procedures:

- Fuel and oil spills;
- Road traffic accidents involving chemical or biological spills;
- Earth slippages;
- Extreme rainfall events;
- Other extreme weather events;
- Fires;
- Activities resulting in noise and vibration, air pollution, hazardous substances or impacts on water;
- Working within and in vicinity of watercourses;
- Waste management; and,
- Discharge of effluent.

The Contractor will update the list of potential incidents based on their proposed construction methods and programme for the proposed development and include, as a minimum, the following:

- The measures to be taken to reduce the risk potential;
- Procedures to be put in place to deal with the risk;
- Person responsible for dealing with incidents;
- Procedures for alerting key staff;
- Standby/rota systems;
- Clearly defined roles and responsibilities;
- Names of staff and contractors trained in incident response;
- The types and location of emergency response equipment available and appropriate personal protective equipment to be worn;

<ul style="list-style-type: none"> • A system of response coordination; • Off-site support; and, • Particular emergency service or persons to be notified in case of incident 		
Date and version of the plan:		Name or position of person responsible for compiling / approving the plan:
Review Date:		Date of next review:
<p>Objectives of the IRP: To ensure works are carried out in such a way as to avoid injury, health hazards or pollution incidents, however, should any such incident occur, procedures and measures will be implemented to contain, limit and mitigate the effects as far as reasonably practicable.</p>		
<p>List of external organisations consulted in the preparation of the IRP: TBC by Contractor when preparing IRP</p>		
Distribution of the IRP		
Recipient	No. of copies	Version

APPENDIX D

Summary of Mitigation and Monitoring Measures

Table of Contents

21.	SUMMARY OF MITIGATIONS AND MONITORING MEASURES	1
21.1	Introduction.....	1
21.2	General Mitigation and Monitoring Measures.....	1
21.3	Mitigation and Monitoring Measures for Traffic and Transportation.....	5
21.4	Mitigation and Monitoring Measures for Population	6
21.5	Mitigation and Monitoring Measures for Human Health.....	7
21.6	Mitigation and Monitoring Measures for Biodiversity	8
21.7	Mitigation and Monitoring Measures for Land and Soils.....	12
21.8	Mitigation and Monitoring Measures for Hydrology	13
21.9	Mitigation and Monitoring Measures for Hydrogeology	16
21.10	Mitigation and Monitoring Measures for Air Quality	18
21.11	Mitigation and Monitoring Measures for Climate	20
21.12	Mitigation and Monitoring Measures for Noise and Vibration.....	22
21.13	Mitigation and Monitoring Measures for Landscape and Visual Amenity.....	23
21.14	Mitigation and Monitoring Measures for Cultural Heritage.....	25
21.15	Mitigation and Monitoring Measures for Material Assets and Land (Agriculture) 26	
21.16	Mitigation and Monitoring Measures for Material Assets and Land (Non- Agriculture).....	27
21.17	Mitigation and Monitoring Measures for Major Accidents and Disasters.....	28

21. SUMMARY OF MITIGATIONS AND MONITORING MEASURES

21.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) presents a summary of the mitigation and monitoring measures which shall be implemented during the construction and operational phase of the proposed West Clare Railway Greenway project (the 'proposed development' hereafter).

Mitigation measures are the measures proposed in order to avoid, reduce or, where possible, remedy the negative environmental effects of a proposed development.

This chapter reiterates the mitigation measures set out in Chapters 4 – 20 of this Environmental Impact Assessment Report for the proposed development. It does not discuss in any level of detail the corresponding impacts – either in the absence of mitigation or residual (i.e. post-mitigation). For an account of the predicted impacts, please refer to the relevant chapter of the EIAR.

This chapter also deals only with mitigation measures and standard features to be applied to the proposed development which go beyond 'mitigation by design', i.e. the inherent features of the design of the proposed development or construction methodology which also mitigate adverse environmental effects. 'Mitigation by design' is regarded as part of the development as proposed (and assessed) and is not the subject of this chapter.

An Environmental Operating Plan (EOP) for the proposed development will be prepared in accordance with the NRA (2007) Guidelines on the Creation, Implementation and Maintenance of an Environmental Operating Plan. The EOP contains all of the mitigation measures as detailed in this EIAR and also the NIS. The contractor will be required to take ownership of the EOP and implement the measures outlined. The contractor will set out their approach to managing environmental issues associated with the construction of the Proposed Scheme and for delivering on the mitigation measures. During the operational and maintenance phase, Clare County Council (CCC) will implement the mitigation measures outlined under 'Operational Phase Mitigation' as part of their operational controls and procedures, including monitoring. These include measures relating to, inter alia, maintenance of landscaping, noise barriers etc.

21.2 General Mitigation and Monitoring Measures

The table below details the general mitigation and monitoring measures identified in Chapter 4, Description of the Proposed Development.

Table 21-1 General Mitigation and Monitoring Measures

No.	Description
Mitigation Measures – Construction Phase	
1.1	Construction works will be limited to standard working hours as set out below: <ul style="list-style-type: none"> 07:00 - 19:00 Monday to Friday, with works from 08:00 – 16:30 Saturdays No construction works are permitted on Sundays or Bank Holidays (without the written permission of the relevant Authority).
1.2	A preliminary Construction Environmental Management Plan (hereinafter referred to as CEMP) is available in Volume 4 of this EIAR. It has been prepared by ROD in conjunction with CCC. It presents the approach and application of environmental management and

No.	Description
	<p>mitigation for the construction of the proposed development as part of the application for development consent.</p> <p>Prior to any demolition, excavation or construction, a Construction Environmental Management Plan (CEMP) will be produced by the successful contractor. The CEMP will set out the Contractor's methodology in relation to the overall management and administration of the construction project. It will be prepared by the Contractor during the pre-construction phase to ensure commitments included in the statutory approvals are adhered to and that it integrates the requirements of the CEMP, Environmental Operating Plan (EOP) and the Resource Waste Management Plan (RWMP).</p> <p>The Contractor will be required to include details under the following headings:</p> <ol style="list-style-type: none"> 1) Details of working hours and days. 2) Details of emergency plan - in the event of fire, chemical spillage, cement spillage, collapse of structures, failure of equipment or road traffic incident within an area of traffic management. The plan must include contact names and telephone numbers for: Local Authority (all sections/departments); Ambulance; Gardaí and Fire Services. 3) Details of chemical/fuel storage areas (including location and bunding to contain runoff of spillages and leakages). 4) Details of construction plant storage, temporary offices and WC facilities. 5) Traffic management plan (to be developed in conjunction with the Local Authority Roads Section) including details of routing of network traffic; temporary road closures; temporary signal strategy; routing of construction traffic; programme of vehicular arrivals; on-site parking for vehicles and workers; road cleaning and other traffic management requirements. 6) Truck wheel wash details (including measures to reduce and treat runoff). 7) Dust management to prevent nuisance (during demolition & construction). 8) Site run-off management. 9) Noise and vibration management to prevent nuisance (demolition & construction). 10) Management of environmental screening and monitoring 11) Measures for complying with the direction of the Ecological Clerk of Works 12) Measures for securing the site from animal ingress 13) Landscape management. 14) Management of contaminated land and assessment of risks for same by suitably qualified, trained and licenced personnel. 15) Management of stockpiles. 16) Minimisation of artificial lighting and shading. 17) Management of risk from invasive alien species. 18) Management of waste arising from construction and demolition. 19) Project procedures and method statements for: <ol style="list-style-type: none"> a) Site clearance, site investigations, excavations; b) Diversion of services. c) Excavation (through peat, soils & bedrock). d) Piling. e) Temporary hoarding & lighting. f) Storage and Treatment of peat and soft soils. g) Disposal of surplus geological material (peat, soils, rock etc.). h) Earthworks material improvement. i) Protection of watercourses from contamination and silting during construction. 20) Site compounds. 21) Temporary construction zones.

No.	Description
	<p>22) Environmental constraints and commitments.</p> <p>23) Monitoring, inspection and auditing of the Contractor's compliance with his/her environmental commitments.</p> <p>24) Training for site staff regarding environmental constraints.</p> <p>The production of the CEMP will also set out measures or practices that will be put in place to ensure health and safety is maintained for the workforce and the public, and any environmental constraints are managed during the construction phase. Adoption of good management practices on-site during the construction and operation phases will also contribute to reducing environmental impacts.</p> <p>Prior to the CEMP being accepted and implemented, it shall be submitted to both the NPWS and IFI to ensure that all requirements of those bodies are satisfied.</p> <p>The CEMP is a preliminary document, which will be updated and finalised by the successful Contractor. Appended to the preliminary CEMP are the following constituent plans, also to be finalised by the Contractor:</p> <p>Appendix A: Schedule of Environmental Commitments</p> <p>Appendix B: Natura Impact Statement – Mitigation Measures</p> <p>Appendix C: Environmental Operating Plan</p> <p>Appendix D: Resource Waste Management Plan</p> <p>Appendix E: Incident Response Plan</p> <p>Each of these plans are discussed in the following sections. The obligation to develop, maintain and implement the CEMP and all of the above-listed plans will form part of the contract documents for the construction phase, and subject to any further Conditions as may be imposed by the Competent Authority.</p>
1.3	<p>The CEMP document in its current form will be finalised by the successful Contractor prior to the commencement of the construction phase of the proposed development, and subject to any further Conditions as may be imposed by the Competent Authority.</p>
1.4	<p>A Schedule of Environmental Commitments will be included as Appendix A to the preliminary CEMP in Volume 4 of this EIAR. This presents a summary of the mitigation and monitoring measures identified as a result of undertaking the environmental impact assessments carried out in the relevant chapters of this EIAR, and subject to any further Conditions as may be imposed by the Competent Authority.</p>
1.5	<p>Mitigation Measures from the Natura Impact Statement will be included in the preliminary CEMP in Volume 4 of this EIAR. These mitigations were identified as appropriate measures to eliminate, beyond reasonable scientific doubt, the risk of any effects occurring upon one or more European Sites, as identified through Appropriate Assessment (AA), and subject to any further Conditions as may be imposed by the Competent Authority.</p>
1.6	<p>An Environmental Operating Plan (EOP) is a project management tool and will be prepared as Appendix C to the preliminary CEMP in Volume 4 of this EIAR. It outlines procedures for the delivery of environmental mitigation measures and for addressing general day-to-day environmental issues that can arise during the construction phase of developments, and subject to any further Conditions as may be imposed by the Competent Authority. The EOP, will be further developed and adopted by the Contractor during the project construction stage.</p> <p>Before any works commence on site, the Contractor(s) will be required to prepare an EOP in accordance with the TII/National Roads Authority (NRA) Guidelines for the Creation and Maintenance of an Environmental Operating Plan. The EOP will set out the Contractor's approach to managing environmental issues associated with the construction of the scheme and provide a documented account of the implementation of the environmental commitments set out in the EIAR and measures stipulated in the planning conditions. Details within the plan will include:</p>

No.	Description
	<p>1) All environmental commitments and mitigation measures included as part of the planning approval process and any requirements of statutory bodies such as the NPWS and IFI as well as a method documenting compliance with the measures.</p> <p>2) A list of all applicable environmental legislation requirements and a method of documenting compliance with these requirements.</p> <p>3) Outline methods by which construction work will be managed to avoid, reduce or remedy potential adverse impacts on the environment.</p> <p>To oversee the implementation of the EOP, the Contractor will be required to appoint a suitably competent Site Environmental Manager (SEM) to ensure that the mitigation measures included in the EIAR, the EOP and the statutory approvals are executed in the construction of the works and to monitor that that mitigation measures employed are functioning properly.</p>
<p>1.7</p>	<p>A Resource Waste Management Plan (RWMP) will be included as Appendix D to the CEMP in Volume 4 of this EIAR. It sets out the Contractor's proposals regarding the treatment, storage and disposal of waste. The plan will be a live document that will be amended and updated to reflect current conditions on-site as the project progresses. The obligation to develop, maintain and operate a RWMP will form part of the contract documents for the project. The RWMP will include details such as:</p> <ol style="list-style-type: none"> 1) Details of waste storage to be provided for different waste types on site. 2) Details of where and how materials are to be disposed of - landfill or other appropriately licensed waste management facility. 3) Details of storage areas on site for waste materials and containers. 4) Details of how unsuitable excess materials will be disposed of where necessary. <p>Details of how and where hazardous wastes such as oils, diesel and other hydrocarbon or other chemical waste are to be stored and disposed of in a suitable manner.</p>
<p>1.8</p>	<p>The Incident Response Plan (IRP) will be included as Appendix E to the CEMP in Volume 4 of this EIAR. It describes the procedures, lines of authority and processes that will be followed to ensure that incident response efforts during the construction stage of the proposed development are prompt, efficient, and appropriate to particular circumstances.</p> <p>The Contractor will finalise the IRP prior to the commencement of the proposed works to include the following information, at a minimum:</p> <ol style="list-style-type: none"> 1) Contact names and telephone numbers for the local authority, i.e. CCC (all sections and departments), An Garda Síochána and ambulance and fire services. 2) Method statements for weather forecasting and continuous monitoring of water levels in the River Eske and River Finn. The plan must outline how the Contractor will respond to forecasted flood events, including but not limited to, details of removal of site materials, fuels, tools, vehicles and persons from flood zones. 3) The measures to be taken to avoid or reduce the incident risk potential. 4) Reference to the method statement and management plans for construction activities, insofar as they are relevant for the purposes of mitigating against health and safety and pollution incidents. 5) Procedures to be adopted to contain, limit and mitigate any adverse effects, as far as reasonably practicable, in the event of a health and safety or pollution incident. 6) Persons responsible for dealing with incidents and their contact details. 7) Procedures for alerting key staff, appropriate emergency services, authorities, the Employer's Representative and clean-up companies, where required, and contact details of same. 8) Procedures for notifying relevant statutory bodies, environmental regulatory bodies, local authorities and local water and sewer providers of pollution incidents, where required, and contact details of same. 9) Standby / rota systems.

No.	Description
	10) The types and location of emergency response equipment available and appropriate personal protective equipment to be worn.

21.3 Mitigation and Monitoring Measures for Traffic and Transportation

The table below details the mitigation and monitoring measures identified in Chapter 5, Traffic and Transportation.

Table 21-2 Mitigation and Monitoring Measures relating to Traffic and Transportation

No.	Description
Mitigation Measures – Construction Phase	
2.1	The successful contractor shall prepare a comprehensive Construction Traffic Management Plan (CTMP) in consultation with Clare County Council, TII, and An Garda Síochána before the commencement of the construction phase. The CTMP will be reviewed throughout the construction phase and revised on a needs basis as works progress. The purpose of such a plan is to outline the measures which will be employed to manage the expected construction traffic during the construction period. It will detail how facilities for existing road users will be maintained whilst construction operations are proceeding. The CTMP will ensure the safe movement of pedestrians and cyclists around the work areas, including pedestrians with mobility impairments.
2.2	A dedicated competent Traffic Management Coordinator will be appointed for the duration of the project and this person will be the main point of contact for all matters relating to traffic management on the project.
2.3	The CTMP will clearly identify those roads that will be used to access this project and those roads that are not to be used. In some cases, An Garda Síochána and the roads authority may direct/agree that certain roads cannot be used for laden HGV's but can be used for LGV's or unladen HGV's.
2.4	HGV restrictions – HGV movements to facilitate construction of the proposed development will be restricted during school hours. The exact timings will be determined in consultation with Clare County Council based on the proposed HGV routes.
2.5	A pre-condition survey will be carried out on all public roads that will be used in connection with the works to record the condition of the road before the works commence. A post construction survey will also be carried out after the works are completed.
2.6	Upon completion of the construction works all roads will be expeditiously reinstated to their pre-works condition or better and to the satisfaction of the relevant road's authority. If during the construction works, some of the roads used in connection with the development are damaged then these roads will be made good to the satisfaction of the road's authority.
2.7	Site Inductions - All workers will receive a comprehensive site induction which will include, as appropriate, a section on traffic management and clear guidance on the routes to be used/not used.
2.8	24 Hour Emergency Phone Number - A 24-hour emergency phone number will be maintained for the duration of the construction works and the number will be noted on temporary signage at each site compound.
2.9	Orderly Traffic Management - All necessary temporary traffic management will be planned and executed in accordance with best practice, including Chapter 8 of the Traffic Signs Manual as published by the TII/Department of Transport.

No.	Description
2.10	Letter Drops - Subject to agreement with the planning authority, a letter drop will be carried out to notify members of the public living near the proposed site / route / roadworks where necessary, to advise them of any particularly significant upcoming traffic related matters.
2.11	Clear Signage - A system of clear signage relating to the construction works will be agreed with the planning authority. These signs will identify those roads to be used (and not to be used) for accessing the site in line with the objectives of the CTMP.
Mitigation Measures - Operational Phase	
2.12	Monitoring of the proposed development, once it is operational, is recommended to determine the actual trip generation.

21.4 Mitigation and Monitoring Measures for Population

The table below details the mitigation and monitoring measures identified in Chapter 6, Population.

Table 21-3 Mitigation and Monitoring Measures relating to Population

No.	Description
Mitigation Measures – Construction Phase	
3.1	Implementation of the Construction Strategy and all mitigation measures pertaining to Population which are set out in Chapters 5 (Traffic & Transportation), 12 (Air Quality), 14 (Noise and Vibration), 15 (Landscape and Visual Assessment), 18 (Material Assets & Land Non-Agriculture).
3.2	A Construction Traffic Management Plan (CTMP) shall be developed and implemented by the Contractor(s) to address all modes of transport during the construction stage and will be agreed with Clare County Council prior to the commencement of the construction phase. With regard to the CEMP, the following will apply: <ul style="list-style-type: none"> a) The CTMP will be required to maximise the safety of the workforce and the public and to minimise traffic delays, disruption and maintain access to properties. b) The CTMP will be required to minimise disruption to economic operators, including marine operations and users, residential properties and will ensure access is maintained throughout the works, including along haulage routes and in vicinity of the construction site(s) for vehicles, pedestrians, cyclists, and economic operators at all times.
3.3	Prior to the commencement of construction phase, the Contractor will develop and implement all mitigation measures detailed in Chapter 4 (Description of the Proposed Development); this is to include development of Construction Environmental Management Plan (CEMP) and associated traffic management proposals to address all modes of transport and will be required to be agreed with Clare County Council prior to construction stage. <ul style="list-style-type: none"> • The CEMP will be required to maximise the safety of the workforce and the public and minimise traffic delays, disruption and maintain access to properties. • The CEMP will also address temporary disruption to traffic signals, footpath access and the management of pedestrian crossing points. • The contractor shall provide an appropriate information campaign for the duration of the construction works. • The CEMP shall minimise disruption to economic operators, marine users and residential amenities.
3.4	Prior to the commencement of the construction phase, the Project Supervisor Construction Stage (PSCS) will prepare a Construction Health and Safety Plan, which addresses all

No.	Description
	relevant construction phase health risks, including potential exposure to contaminated land, risks associated with working at heights and adjacent to / over water.
3.5	Pedestrian access will be maintained during the construction works where the proposed development is online of the existing Public Rights of Way.
Mitigation Measures - Operational Phase	
3.6	All mitigation measures set out in specialist chapters of this EIAR will be fully implemented – particularly Chapter 5 Traffic and Transportation, Chapter 15 Landscape and Visual, Chapter 18 Material Assets and Land (Non-Agriculture) of this EIAR, no likely significant negative impacts are predicted during operational stage. All mitigation measures are summarised in Chapter 21 of this EIAR.

21.5 Mitigation and Monitoring Measures for Human Health

The table below details the mitigation and monitoring measures identified in Chapter 7, Human Health.

Table 21-4 Mitigation and Monitoring Measures relating to Human Health

No.	Description
Mitigation Measures – Construction Phase	
4.1	All mitigation measures pertaining to Human Health set out in the other specialist chapters of this EIAR – particularly Chapters 5 (Traffic and Transportation), 6 (Population), 9 (Land and Soils), 10 (Hydrology), 11 (Hydrogeology), 12 (Air Quality), 13 (Climate), 14 (Noise and Vibration), and 19 (Major Accidents & Disasters) – will be fully implemented by the responsible parties.
4.2	A Construction Traffic Management Plan (CTMP) will be developed and implemented by the Contractor(s) to address all modes of transport during the construction stage and will be agreed with Clare County Council prior to the commencement of the construction phase. <ul style="list-style-type: none"> a) The CTMP will be required to maximise the safety of the workforce and the public and to minimise traffic delays, disruption and maintain access to properties. b) The CTMP will be required to minimise disruption to economic operators, including marine operations and users, residential properties and will ensure access is maintained throughout the works, including along haulage routes and in vicinity of the construction site(s) for vehicles, pedestrians, cyclists, and economic operators at all times.
4.3	Prior to the commencement of construction phase, the contractor will develop and implement all mitigation measures detailed in Chapter 4 (Description of the Proposed Development); this is to include development of Construction Environmental Management Plan (CEMP) and associated traffic management proposals to address all modes of transport and will be required to be agreed with Clare County Council prior to construction stage. <ul style="list-style-type: none"> • The CEMP will be required to maximise the safety of the workforce and the public and minimise traffic delays, disruption and maintain access to properties. • The CEMP will also address temporary disruption to traffic signals, footpath access and the management of pedestrian crossing points. • The contractor shall provide an appropriate information campaign for the duration of the construction works.
4.4	Prior to the commencement of the construction phase, the Project Supervisor Construction Stage (PSCS) will prepare a Construction Health and Safety Plan, which addresses all relevant construction phase health risks, including potential exposure to contaminated land, risks associated with working at heights and adjacent to / over water.

No.	Description
4.5	All construction works will be short-term in nature and will be carried out in line with the relevant legislation and standard best practice measures, thereby minimising the impact to human health. The contractor will work within stringent construction limits and guidelines to protect surrounding populations and amenities.
Mitigation Measures – Operational Phase	
4.6	The mitigation measures identified in this section along with those specific mitigation measures described in EIAR Chapter 5 Traffic and Transportation, Chapter 6 Population, Chapter 12 Air Quality, Chapter 13 Climate, Chapter 14 Noise and Vibration, and Chapter 15 Landscape and Visual Amenity will be fully implemented.
4.7	In the event of hazardous weather conditions which may cause flooding, Clare County Council shall adhere to the measures contained in the latest Clare Major Emergency Plan to warn users of flood risk along section(s) of the greenway.

21.6 Mitigation and Monitoring Measures for Biodiversity

The table below details the mitigation and monitoring measures identified in Chapter 8, Biodiversity.

Table 21-5 Mitigation and Monitoring Measures relating to Biodiversity

No.	Description
Mitigation Measures – Construction Phase	
5.1	An Ecological Clerk of Works (ECoW) shall be appointed by Clare County Council prior to the commencement of works. It shall be their responsibility to supervise and provide recommendations on the execution of all works which have the potential to give rise to negative or positive effects on biodiversity. The ECoW will have NFQ Level 8 qualification or equivalent or other acceptable qualification in an ecological discipline and demonstrable appropriate practical experience as an ECoW in the protection of biodiversity.
5.2	Prior to any site clearance, excavation, or construction, a Construction Environmental Management Plan (CEMP) will be produced by the successful contractor(s). The CEMP will set out the Contractor's overall management and administration of the construction phase. The CEMP will be developed by the Contractor during the pre-construction phase, to ensure commitments included in the statutory approvals are adhered to.
5.3	The Contractor will prepare site-specific Method Statements detailing how the works will be carried out. Each Site Foreman shall read, sign and abide by each site-specific Method Statement. A 'toolbox talk' will be conducted to induct the Works Team on the ecological considerations listed in the site-specific Method Statement by the Site Foremen.
5.4	The Contractor will appoint a Site Environmental Manager (SEM) prior to the commencement of works. This person shall be responsible for carrying out environmental monitoring of the works and ensuring that the mitigation measures proposed in this report (as well as the CEMP and site-specific Method Statements) are adhered to.
5.5	Site clearance for the construction of the proposed development and tree and shrub maintenance during the operational phase will generally only take place outside the nesting bird season (1 st March – 31 st August inclusive).
5.6	In the sensitive bird areas listed in Table 8-12, removal of vegetation suitable for nesting will be programmed to take place in September which will avoid risks to nesting and wintering birds.
5.7	If site clearance cannot be avoided during the nesting bird season, the area will be checked by a suitably qualified ecologist within 36 hours of the works. If nesting birds are found to be

No.	Description
	present, the site clearance works will cease until the chicks have fledged, or, until the NPWS has been consulted to determine the course of action.
5.8	The construction envelopes for the compounds will be temporarily fenced off at the outset of the construction to avoid unnecessary loss of habitat outside of the construction footprint.
5.9	The fencing for the compounds will be set so as to avoid existing hedgerow and treeline boundaries to avoid habitat loss. The set-back distance will be signed-off by the ECoW.
5.10	The mitigation measures presented in other chapters of this EIAR (Volume 2), including, but not limited to Chapter 10 'Hydrology' and Chapter 15 'Landscape and Visual Amenity' will be implemented in full.
5.11	Any excavations deeper than 1m will be either covered or have ramps fitted outside of working hours, which will allow Badgers and other wildlife to escape. Similarly, any temporarily exposed open pipe system will be capped to prevent species such as Otter from gaining access when contractors are off site
5.12	A pre-construction survey will be carried out by a suitably qualified ecologist two to three weeks prior to the commencement of any works to ensure that protected species such as Otter and Badger have not taken up residence within the construction envelope and to record invasive species extent and distribution.
5.13	If previously unidentified resting or breeding places of Otter, Badger, or any other protected mammal species are found in the vicinity of the proposed development prior to or during construction, the works at this location will cease immediately. In the case of European protected species which includes Otter and bats, a licence will be required should any works be required that could disturb these species. In the case of species protected under the Wildlife Acts only, any works that could disturb these species will be carried out in accordance with the relevant TII guidance and under the supervision of the ECoW.
5.14	Construction is limited to the hours of 07:00-19:00 Monday to Friday, 08:00 – 16:30 Saturdays thereby reducing noise, vibration and lighting during the hours when Otters or other nocturnal species are active.
5.15	Construction phase lighting will only illuminate work areas when necessary and will avoid illuminating any areas outside of the works area. There will be no lighting outside of working hours (07:00 – 19:00 Monday to Friday, 08:00 – 16:30 Saturdays). Construction works during hours of darkness will only occur during the winter months when works are restricted to outside of sensitive bird areas. The ECoW will ensure that lights are directed into the construction area and that there is minimal light spill into the surrounding habitat.
5.16	Construction works (other than vegetation clearance works mentioned above) across Moyasta Bridge, approach embankments and other sensitive bird areas will only take place over the summer months (April – September inclusive) – to avoid impacting on wintering birds. The only works to take place during the winter months will be short term, minor disturbance works for the installation of planting required to screen the greenway.
5.17	Japanese Knotweed treatment will be delivered in accordance with TII's IAPS standard and technical guidance.
5.18	Vegetation clearance will be minimised along the length of the greenway itself, and will only be undertaken within the footprint of the greenway, 1m verges and earthworks zones. The only work that will take place outside the fence line is the proposed landscape planting.
5.19	Fencing and landscape planting is proposed along the route of the proposed development to ensure greenway users and dogs stay on the greenway and to prevent damage and disturbance to areas outside the greenway.
5.20	The greenway will have a stock proof fence and hedgerow planting to segregate the proposed development from agricultural lands and the avian sensitivities at Poulmasherry Bay and along the coast. The purpose of the fence is to prevent access by people and dogs to sensitive areas outside the greenway.

No.	Description
5.21	The fencing will include a continuous 100mm gap at ground level, designed to allow the movement of small mammals, including otter, while preventing access by dogs
5.22	Mesh screening material (privacy netting) will be attached to the fencing in the sensitive bird areas no.'s 3, 4, 5, 6, 8, 9 and part of no. 2, where no existing screening is present.
5.23	Landscape planting and fencing on the bay-side of the sensitive bird areas will be the first works undertaken following site clearance. The works will be overseen by the ECoW. This will ensure that the planted screening for wintering birds has as much time as possible to established prior to opening of the greenway.
5.24	The fencing on Moyasta Bridge will be a solid barrier of 1.1m high with an additional 0.3m section of low permeability perforated fence to a total height of 1.4m.
5.25	During the wintering bird season, the hedges will be maintained at a minimum height of approximately 1.4m where screening is required in the sensitive bird areas
5.26	The supplementary planting will use the same species and ratios as the general planting specification and achieve the same nine plants per linear meter density where gaps in the vegetation exist.
5.27	Public lighting will only be provided at the trail heads in Kilrush and Moyasta. The public lighting installed will have the lowest low lux level permitted for health and safety and be a warm-white colour of 2700K or less. The lighting will use LED luminaires and will have no upward light spill and a sharp horizontal cut off. Where light spill cannot be avoided, louvres, cowls or shields will be fitted to luminaires Lighting will be in compliance with the Institute of Lighting Professionals ILP Guidance Notes 08, Bats and Artificial Lighting at Night (2023).
5.28	Signage will be included at trailheads and at regular intervals along the route. Signage will inform greenway users of the importance of the general area to wintering birds and request responsible behaviour for all those using the amenity. To avoid an excessive amount of signage being installed and potentially ignored by users, the final locations of signs will be coordinated by Clare County Council.
5.29	<p>Mitigations specific to KER 1: Poulnasherry Bay</p> <p>The construction phase non-specific mitigation measures described above will avoid or minimise the potential effects of the proposed development of KER 1 Poulnasherry Bay.</p>
5.30	<p>Mitigations specific to KER 2: Wintering Waterbirds</p> <ul style="list-style-type: none"> • Unless signed off by the ECoW, no construction works are permitted in the sensitive bird areas during the wintering bird season (October – March inclusive). The sensitive bird areas are listed in Table 8-12 and shown in Appendix 8.3. The exception to this is landscape planting which must be carried out during the winter months when plants are dormant. The ECoW must sign off on any works in the sensitive birds areas in situations such as where they consider enough screening to be present for the type of work / tracking involved, or where access is required to reach areas where construction is permitted. • A single or double strand of steel wire will be installed along the parapet tops of Moyasta Bridge to deter raptors from perching. The number of strands applied will be determined by the parapet width. All wire installations will be securely fixed and designed to withstand interference from members of the public
5.31	<p>Mitigations specific to KER 3: Breeding Waders</p> <p>A minimum of 5 nest boxes suitable for breeding shelduck will be provided. The construction phase and non-specific mitigation measures described above will avoid or minimise the potential effects of the proposed development of KER 3 Breeding Waders. There are no other mitigation measures required for KER 3 Breeding Waders.</p>
5.32	<p>Mitigations specific to KER 4: Birds of Prey and Kingfisher</p> <p>The construction phase and non-specific mitigation measures are described above will avoid or minimise the potential effects of the proposed development of KER 4 Birds of prey and</p>

No.	Description
	Kingfisher. There are no other mitigation measures required for KER 4 Birds of prey and Kingfisher.
5.33	<p>Mitigations specific to KER 5: Otter</p> <p>The construction phase and non-specific mitigation measures are described above will avoid or minimise the potential effects of the proposed development of KER 5 Otter. There are no other mitigation measures required for KER 5 Otter.</p>
5.34	<p>Mitigations specific to KER 6: Bats</p> <ul style="list-style-type: none"> • No potential roost features were identified during the surveys. The proposed development will result in the loss of the former railway line, agricultural grassland, scrub and hedgerows which do not have potential for bats to roost. • A pre-construction bat survey will be undertaken no more than 3 weeks prior to the works to confirm roost absence at the structures and trees. The preconstruction survey will adhere to Guidelines for the Treatment of Bats during the Construction of National Road Schemes (TII, 2006). Felling of trees and alterations to structures with bat potential will only take place in September and October to avoid maternity roosts and hibernating bats. Trees classified as having low suitability including the treelines at the depot will be soft felled in the presence of an Ecologist who will be licensed to handle bats. Should bats be found during the soft felling, the bats will be taken into care and released at dusk.
5.35	<p>Mitigations specific to KER 7: Wildlife Corridors</p> <ul style="list-style-type: none"> • A total of 4.2km of linear scrub and hedgerow habitat will be cleared to facilitate construction of the proposed development. A total of 16.4 km of linear habitats will be planted. The landscape design is presented in Chapter 15 of this EIAR. • The 1m verges along the greenway will be allowed to revegetate naturally with locally occurring native species.
5.36	<p>Mitigations specific to KER 8: Badger</p> <p>The construction phase and non-specific mitigation measures are described above will avoid or minimise the potential effects of the proposed development of KER 8 Badger. There are no other mitigation measures required for KER 8 Badger.</p>
5.37	<p>Mitigations specific to KER 9: Invasive Species</p> <p>Japanese Knotweed was recorded at various locations along the route of the proposed development. The following measures will be implemented with regards to invasive species.</p> <ul style="list-style-type: none"> • The control and management procedures outlined in the Invasive Species Management Plan, presented in Appendix 8.5, will be adhered to during the construction of the proposed development. • The Contractor shall prepare a detailed Biosecurity Protocol describing their proposed approach to ensuring that invasive species are not imported or spread during the construction of the proposed development. The Contractor's Biosecurity Protocol shall be in accordance with The Management of Invasive Alien Plant Species on National Roads – Standard (TII, 2020a) and The Management of Invasive Alien Plant Species on National Roads – Technical Guidance (TII, 2020b). The Biosecurity Protocol shall include, as a minimum, the following measures to prevent the spread of invasive species: • Good construction site hygiene will be employed to prevent the introduction and spread of problematic IAPS (e.g., Japanese knotweed and Himalayan Balsam) by thoroughly washing vehicles prior to leaving any site. • All plant and equipment employed on the construction site (e.g., excavators, etc.) will be thoroughly cleaned down in designated areas only using a power washer unit prior to arrival on site to prevent the spread of IAPS. • Any soil and topsoil required on the site will be sourced from a stock that has been screened for the presence of any IAPS and where it is confirmed that none are present. • Landscaping of the proposed development shall use native species of plants unless in exceptional circumstances, and, insofar as possible, soil reused from on-site

No.	Description
	excavations. If soil/substrate needs to be imported to the site for the purposes of the proposed development, the Contractor shall ensure that the imported soil/substrate is free from invasive species.
Mitigation Measures – Operational Phase	
5.38	A qualified ecologist with relevant experience will be appointed to monitor birds and bird behaviour in the sensitive bird areas for two winter seasons following the opening of greenway to the public, to confirm the effectiveness of the mitigation
5.39	The planted screening and privacy mesh in the sensitive birds areas will be monitored by the ECoW every September and January for three years following the opening of the Greenway.

21.7 Mitigation and Monitoring Measures for Land and Soils

The table below details the mitigation and monitoring measures identified in Chapter 9, Land and Soils.

Table 21-6 Mitigation and Monitoring Measures relating to Land and Soils

No.	Description
Mitigation Measures – Construction Phase	
6.1	Reuse of excavated topsoil will be implemented wherever possible. Surplus topsoil will be stored temporarily at a construction compound before being transported to an authorised waste facility.
6.2	The Contractor will be incentivised to source imported fill material from the nearest and most economic locations.
6.3	The excavated soil arising on-site will be screened for contaminants and re-used during construction where possible.
6.4	Whenever the excavated / potentially treated soils do not meet the requirements, they will have to be disposed of by the Contractor who will ensure that all subsurface materials excavated during the construction phase of the proposed development are managed in accordance with the relevant waste management legislation, including the Waste Management Act 1996 (as amended).
6.5	The Contractor will have to ensure that all unsuitable materials are removed from the site and sent to authorised waste management facilities (e.g., those which hold all relevant, valid permits / licences) which accept the corresponding types of waste.
6.6	Temporary and permanent stock-proof fencing will be installed to define the site boundaries, and machinery will stay within this working area to protect surrounding soil and peat.
6.7	To prevent soil erosion, excavations will be completed and promptly backfilled. Work will not continue during heavy rainfall to avoid soil erosion risks.
6.8	A Construction Environmental Management Plan (CEMP) will be implemented prior to any ground disturbance. This plan will incorporate protective measures including the installation of sediment traps, swales and ditches before any significant site earthworks take place. Vegetation clearance operations will be phased with respect to seasonality.
6.9	As part of the detailed design prior to construction, detailed peat surveys shall be carried out to map the extent and depths of peat deposits. In these areas, a floating construction technique will be implemented as much as possible leaving the peat in place.
6.10	All plant movement in these areas will be restricted to designated routes protected by temporary timber matting, with bog master plant machinery having lower ground pressure.

No.	Description
6.11	Where peat excavation is unavoidable, the material will be reused on-site for habitat restoration where possible, with any surplus being transported to licensed disposal facilities in accordance with EPA guidelines.
6.12	The successful contractor will produce a Resource and Waste Management Plan (RWMP) detailing how construction and demolition waste will be prevented, minimised, reused, recycled, transported and disposed of in compliance with Waste Management Act 1996–2023, Resource and Waste Management Plan requirements under the National Waste Management Plan for a Circular Economy (2023–2029), EPA Best Practice Guidelines for C&D Waste Management and EU Waste Framework Directive (2008/98/EC).
6.13	A soil testing program shall be implemented prior to excavation in areas of known or suspected contamination, particularly along the abandoned railway corridor or where former buildings were previously located. Any excavated contaminated materials will be segregated and disposed of at licensed facilities.
6.14	All construction compounds will be equipped with spill containment kits and designated refuelling areas located far enough from watercourses to prevent hydrocarbon contamination.
6.15	To prevent soil contamination, excavations will be completed and promptly backfilled and work will not continue during heavy rainfall. Refuelling of machinery will be restricted to designated areas with spill containment measures.
Mitigation Measures – Operational Phase	
6.16	Pesticide application for managing invasive species will adhere to the guidance of the Department of Agriculture, Food and the Marine, with herbicides used exclusively by trained personnel, under appropriate weather conditions, and at the lowest effective dosage. When possible, non-chemical control techniques like manual removal will be given priority. Collectively, these actions will diminish the likelihood of soil, surface water, and groundwater contamination throughout the project's operational period.

21.8 Mitigation and Monitoring Measures for Hydrology

The table below details the mitigation and monitoring measures identified in Chapter 10, Hydrology.

Table 21-7 Mitigation and Monitoring Measures relating to Hydrology

No.	Description
Mitigation Measures – Construction Phase	
7.1	<p>During construction, the following guidance documents for construction work on, over or near water will be adhered to:</p> <ul style="list-style-type: none"> • C532 Control of water pollution from construction sites: guidance for consultants and contractors (CIRIA, 2001) • Central Fisheries Board Channels and Challenges – The enhancement of Salmonid Rivers. • CIRIA C648 Control of water pollution from linear construction projects: technical guidance (CIRIA, 2006) • Construction, Replacement or Alteration of Bridges and Culverts: A Guide to Applying for Consent under Section 50 of the Arterial Drainage Act, 1945 (OPW, 2019) • Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes (TII, 2006b) • Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (IFI, 2016)

No.	Description
	<ul style="list-style-type: none"> Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites (Eastern Regional Fisheries Board)
<p>The following mitigation measures relating to the protection of water quality will apply during the construction of the proposed development:</p>	
7.2	<p>Double silt fences will be installed along the watercourses in the vicinity of the works to contain any potential silt or sediment run-off, with particular attention to watercourses where instream works are required. Silt fences will be erected in accordance with the manufacturer's recommendations.</p>
7.3	<p>Stockpiling of construction material or topsoil will be prohibited within 10m of the watercourse, in order to minimize sources of sediment runoff.</p>
7.4	<p>Storage tanks will be bunded to capture any oil leakage. Bund specification will conform to the current best practice for oil storage (Enterprise Ireland, BPGCS005).</p>
7.5	<p>Storage tanks, bunding, and machinery will be maintained and checked regularly for leakage.</p>
7.6	<p>There are no instream works proposed to watercourses other than ditches, so the normal restriction of in-stream works to the months of June and September is not required for the proposed development.</p>
<p>The following measures prescribed regarding surface water run-off will also minimise the risk of any input of cementitious material into watercourses during the construction of the proposed development:</p>	
7.7	<p>When working in or near the surface water and the application of in-situ materials cannot be avoided, the use of alternative materials such as biodegradable shutter oils shall be used.</p>
7.8	<p>Any plant operating close to the water will require special consideration on the transport of concrete from the point of discharge from the mixer to final discharge into the delivery pipe (tremie). Care will be exercised when slewing concrete skips or mobile concrete pumps over or near the watercourses.</p>
7.9	<p>Placing of concrete in or near the watercourses will be carried out only under the supervision of a suitably qualified Environmental Manager;</p>
7.10	<p>There will be no hosing into surface water drains of spills of concrete, cement, grout or similar materials. Such spills shall be contained immediately, and runoff prevented from entering watercourses.</p>
7.11	<p>Concrete waste and wash-down water will be contained and managed on site to prevent pollution of the watercourses.</p>
7.12	<p>On-site concrete batching and mixing activities will only be allowed at the identified construction compounds.</p>
7.13	<p>Washout from concrete lorries, with the exception of the chute, will not be permitted on site and will only take place at the construction compound (or other appropriate facility designated by the supplier).</p>
7.14	<p>Chute washout will be carried out at designated locations only. These locations will be signposted. The concrete plant and all delivery drivers will be informed of their location with the order information and on arrival on site; and.</p>
7.15	<p>Chute washout locations will be provided with appropriate designated, contained impermeable area and treatment facilities including adequately sized settlement tanks. The clear water from the settlement tanks shall be pH corrected prior to discharge (which shall be by means of one of the construction stage settlement facilities) or alternatively disposed of as waste in accordance with the Contractor's Waste Management Plan.</p>
<p>The measures prescribed regarding surface water run-off will also remove the risk of any input of hydrocarbons and other chemicals into the watercourses. However, the following additional measures shall also apply:</p>	

No.	Description
7.16	Fuel storage tanks shall have secondary containment provided by means of an above ground bund to capture any oil leakage.
7.17	Storage tanks and associated provision, including bunds, will conform to the current best practice for oil storage and will be undertaken in accordance with Best Practice Guide BPGCS005 – Oil Storage Guidelines (Enterprise Ireland).
7.18	Spill kits shall be available on-site. Spill kits shall be provided at all refuelling points and fuel/chemical storage areas. Staff shall be trained in the use of spill kits.
The following mitigation measures relating to sediment control and water quality during the installation of the culverts:	
7.19	Culverts will be installed in ditches by placing a suitably sized pipe or section of box culvert in the existing channel.
7.20	It is expected that the ditches will be dry, but if flow is present, the works area will be over pumped which the culvert is installed. The pump inlet and outlet will be fitted with a silt sock to prevent sediment being released into the ditch. A hay bale, silt fence or similar silt trap will be installed downstream of the works area.
7.21	The pipe will be laid inside the existing channel and covered with crushed stone to the level required. The silt trap will be removed once the sediment has settled.
7.22	No machinery is permitted in the watercourses.
The following mitigation measures relating to the repair of structures are as follows:	
7.23	Repointing and concrete repairs will be undertaken on foot, from a ladder, using scaffolding or using a bridge inspection unit.
7.24	A catch net will be placed flush with the bridge to catch any spilled mortar or concrete. The catch net will be made of Visqueen heavy duty plastic sheeting or similar and will cover the entire area underneath the works.
7.25	Repointing and concrete repairs will take place in dry weather and will not take place if rain is forecast in the following 12 hours. The commencement of the works will be approved by the Employer's Representative.
7.26	Mortar and concrete will be mixed in a watertight container at least 20m from the watercourse.
7.27	Vegetation will be removed mechanically. No herbicide will be used to remove vegetation from bridges.
The following mitigation measures relating to sediment control and water quality during the construction of the bridges as follows:	
7.28	The new bridges will be clear span, with abutments set back from the riverbanks as far as possible, and the decks and parapets will be prefabricated.
7.29	Where watercourses are present, silt fences will be installed along the riverbanks to intercept run-off during the construction phase and to protect the riparian vegetation.
7.30	The silt fences will be located as far back from the bank as possible.
7.31	No machinery is permitted in the watercourses.
The following mitigation measures relating to sediment control and water quality during the construction of bridges are:	
7.32	A scaffold structure will be hung on the bridge desk and used to create a frame around the bridge structure.
7.33	Plastic sheeting will be fitting over the scaffolding and tightened by applying heat.
7.34	Any gaps will be sealed using tape.

No.	Description
7.35	The access point will be fitted with a zip to create a fully enclosed working area.
7.36	The encapsulated area will ensure that no dust, grit or paint reaches the watercourse below. The internal temperature will be raised using heaters to create a dry environment and to ensure that the paint cures properly.
7.37	Following the works, any dust, grit and the plastic sheeting will be removed and disposed of appropriately and the scaffolding will be dismantled.
7.38	Wastewater drainage from all site offices and construction facilities will be contained and disposed of in an appropriate manner to prevent water pollution and in accordance with the relevant statutory requirements.
7.39	Method statements that are prepared for the works that could affect biodiversity will be reviewed and approved by the Employer / Employer's Representative and the ECoW in advance of the works beginning. All method statements for works in, near or liable to impact on a waterway must have prior agreement with IFI.
Mitigation Measures – Operational Phase	
7.40	At the trail heads, surface water will be directed to bioretention areas for treatment in line with SUDs principles. The use of permeable pavements will provide sufficient mitigation for hydrocarbon pollution that there are no residual impacts on the waterbodies.

21.9 Mitigation and Monitoring Measures for Hydrogeology

The table below details the mitigation and monitoring measures identified in Chapter 11, Hydrogeology.

Table 21-8 Mitigation and Monitoring Measures relating to Hydrogeology

No.	Description
Mitigation Measures – Construction Phase	
8.1	Following appointment, the contractor will be required to further develop the CEMP to provide detailed construction phasing and methods to manage and prevent any potential emissions to ground with regard to the relevant industry standards (e.g., Guidance for Consultants and Contractors, CIRIA-C532', CIRIA, 2001).
8.2	The CEMP will be implemented for the duration of the Construction Phase, covering construction and waste management activities that will take place during the Construction Phase of the proposed development.
8.3	A project-specific Environmental Operating Plan (EOP) (Outline EOP included in Volume 4 Appendix 4.2 of this EIAR, will also be developed in accordance with the TII/NRA Guidelines for the Creation and Maintenance of an Environmental Operating Plan.
8.4	Best practice control measures have been included to ensure the avoidance of any potential impact on the receiving hydrogeological environment (i.e., groundwater) during the construction phase of the proposed development and will also be presented within the EOP.
8.5	The removal of any residual contamination in soil will be undertaken under supervision of the Project Environmental Consultant as per the CEMP, and validated in accordance with relevant guidelines including EPA 'Guidance on the Management of Contaminated Land and Groundwater at EPA Licensed Sites' (EPA, 2013a) and guidance and standards current at the time of construction works to ensure that a 'clean edge' is reached in the area of excavation.
8.6	The removal of localised hotspots shall be undertaken prior to the bulk excavation works for structures or trailheads, utility infrastructure and other works to reduce the potential risks associated with exposure of soils to rainfall or surface runoff and leaching to groundwater.

No.	Description
8.7	Storage of stockpiled materials pending reuse onsite, where required, will be located away from the location of any sensitive receptors (watercourses and drains).
8.8	For any excavated material identified for removal offsite, appropriate management measures will be implemented in accordance with the CEMP and Resource Waste Management Plan for the site.
8.9	Foul drainage from temporary welfare facilities during the construction phase of the proposed development will either be discharged to temporary holding tank(s), the contents of which will periodically be tankered off site to a licensed facility or discharged to public sewer in accordance with the necessary temporary discharge licences issued by UE.
8.10	There will be no authorised discharge of water to ground during the construction phase. Where dewatering of shallow groundwater is required or where surface water runoff must be pumped from the excavations, water will be managed in accordance with best practice standards (i.e., CIRIA C750), the CEMP and regulatory consents to minimise the potential impact on the local groundwater flow regime within the soil and bedrock.
8.11	The appointed Contractor will ensure that the discharge of water to ground (where required) will be in accordance with the necessary discharge licences issued by the local authority under Section 4 of the Local Government (Water Pollution) Act 1977, as amended in 1990.
8.12	The use of cementitious grout used during the Construction Phase of the proposed development will avoid any contamination of the receiving hydrogeological environment through the use of appropriate design and methods implemented by the appointed contractor and in accordance with the CEMP and relevant industry standards to prevent impact on groundwater quality such as the use of water compatible grout.
8.13	All ready-mixed concrete will be delivered to the construction site by truck. Concrete batching will take place offsite, wash down and wash out of concrete trucks will take place into a container located within a controlled bunded area which will then be emptied into a skip for appropriate compliant removal offsite in accordance with all relevant waste management legislation. Any excess concrete is not to be disposed of onsite.
8.14	Washing of tools or machinery with wet concrete will take place offsite at an appropriate dedicated wash facility that will pose no threat to receiving groundwaters.
8.15	Fuelling and lubrication of equipment will be carried out in accordance with the procedures outlined in the Outline CEMP, in a designated area of the site (where not possible to carry out such activities offsite).
8.16	<p>Fuel will not be stored onsite for the duration of the construction phase. Fuel will only be brought to site via mobile fuel bowser. Any other lubricants, chemicals or hydraulic oils stored onsite will be stored in designated areas. These areas will be bunded on flat ground at the contractor's compound. All tank and drum storage areas will, as a minimum, be bunded to a volume not less than the greater of the following:</p> <ul style="list-style-type: none"> • 110% of the capacity of the largest tank or drum within the bunded area; or • 25% of the total volume of substance that could be stored within the bunded area.
8.17	The main contractor will maintain an emergency response action plan and emergency procedures will be developed by the appointed contractor in advance of any works commencing. Construction staff will be familiar with the emergency response plan.
8.18	Strict supervision of contractors will be adhered to in order to ensure that all plant and equipment utilised on-site is in good working condition. Site personnel will be responsible for ensuring the regular maintenance of construction plant and equipment, to prevent leaks. Any equipment not meeting the required standard will not be permitted for use within the site.
8.19	Only emergency breakdown maintenance will be carried out on-site. Drip trays and spill kits will be available on-site to ensure that any spills from vehicles are contained and removed off-site.

No.	Description
8.20	Spill kits will be made available onsite and identified with signage for use in the event of an environmental spill or leak. A spill kit will be kept in close proximity to the fuel storage area for use in the event of any incident during refuelling or maintenance works. Heavy machinery used on the site will also be equipped with its own spill kit.
8.21	There may also be the requirement for use of portable generators or similar fuel containing equipment during the construction phase of the proposed development, which will be placed on suitable drip trays. Regular monitoring of drip tray content will be undertaken to ensure sufficient capacity is maintained at all times.
8.22	Emergency procedures will be developed by the appointed Contractor in advance of works commencing and spillage kits will be available onsite including in vehicles operating onsite. Construction staff will be familiar with emergency procedures for in the event of accidental fuel spillages. Remedial action will be immediately implemented to address any potential impacts in accordance with industry standards and legislative requirements
8.23	Any required emergency vehicle or equipment maintenance work will take place in a designated impermeable area within the site
8.24	Emergency response procedures and contingency plans will be put in place, in the unlikely event of emergency accidents (i.e., spillages of fuels or lubricants).
8.25	Spill kits, including oil absorbent material, will be provided and available onsite, so that any spillage of fuels, lubricants or hydraulic oils will be immediately contained.
8.26	In the event of a leak or spill from equipment in the instance of a mechanical breakdown during operation, any contaminated soil will be removed from the proposed development site and compliantly disposed of offsite. Residual soil will be tested to validate that all potentially contaminated material has been removed. This procedure will be undertaken in accordance with industry best practice procedures, standards and EPA guidelines.
8.27	All construction works staff will be familiar with the emergency procedures in the event of accidental fuel spillages.
8.28	All construction works staff onsite will be fully trained on the use of equipment.
8.29	The local authority and / or the EPA will be informed immediately of any spillage or pollution incident that may occur onsite during the construction phase.
8.30	The appointed Contractor will provide method statements for weather and storm surge forecasting and continuous monitoring of water levels in the adjoining water courses. The appointed Contractor will also provide method statements for the removal of site materials, fuels, tools, vehicles, and persons from flood zones in order to minimise the risk to persons working on the site as well as potential input of sediment or construction materials into the waterbodies during flood events.
Mitigation Measures – Operational Phase	
8.31	Ongoing regular operational monitoring and maintenance of drainage measures will be incorporated into the overall management strategy for the proposed development. These measures will ensure that no adverse impacts on water quality or groundwater flow regime arise during the operational phase.

21.10 Mitigation and Monitoring Measures for Air Quality

The table below details the mitigation and monitoring measures identified in Chapter 12, Air Quality.

Table 21-9 Mitigation and Monitoring Measures relating to Air Quality

No.	Description
Mitigation Measures – Construction Phase	
9.1	Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
9.2	Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
9.3	Display the head or regional office contact information.
9.4	Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
9.5	Make the complaints log available to the local authority when asked.
9.6	Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book.
9.7	Hold regular liaison meetings with other high risk construction sites within 500m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.
9.8	Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
9.9	Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
9.10	Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period
9.11	Avoid site runoff of water or mud.
9.12	Keep site fencing, barriers and scaffolding clean using wet methods.
9.13	Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
9.14	Cover, seed or fence stockpiles to prevent wind whipping.
9.15	Ensure all vehicles switch off engines when stationary – no idling vehicles.
9.16	Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
9.17	Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate)
9.18	Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
9.19	Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing)
9.20	Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems
9.21	Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate
9.22	Use enclosed chutes and conveyors and covered skips.

No.	Description
9.23	Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
9.24	Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
9.25	Bonfires and burning of waste materials are legally prohibited.
9.26	Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable
9.27	Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as is practicable.
9.28	Only remove the cover in small areas during work and not all at once.
9.29	Avoid scabbling (roughening of concrete surfaces) if possible.
9.30	Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
9.31	Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
9.32	For smaller supplies of fine powder materials, ensure bags are sealed after use and stored appropriately to prevent dust.
9.33	Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.
9.34	Avoid dry sweeping of large areas.
9.35	Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
9.36	Record all inspections of haul routes and any subsequent action in a site logbook.
9.37	Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).

21.11 Mitigation and Monitoring Measures for Climate

The table below details the mitigation and monitoring measures identified in Chapter 13, Climate.

Table 21-10 Mitigation and Monitoring Measures relating to Climate

No.	Description
Mitigation Measures – Construction Phase	
10.1	Where possible, existing structures associated with the old railway (bridges, culverts, etc.) will be retained and demolition avoided to negate additional GHG emissions being released.
10.2	The alignment design endeavours to follow the natural topography and utilise existing embankments and ballast associated with the old railway where possible, to minimise waste and reduce imported materials.
10.3	Existing fencing along boundaries will be retained where possible to reduce the need for new fencing.

No.	Description
10.4	Vegetation clearance will be minimised through the retention of vegetation along existing boundaries where possible.
10.5	In areas of peat, floating construction is proposed ('No-dig' solutions).
10.6	Site-won material will be re-used on site, specifically in relation to earthworks, where feasible, excavated materials will be re-used as fill. The GHG assessment calculations have assumed that 50% of excavated material will be reused as fill material on site as an embedded design mitigation measure to reduce GHG emissions.
10.7	Re-use and recycling of materials on site as opposed to disposal and landfill will be prioritised in line with TII's Sustainability Implementation Plan and Circular Economy Guidance.
10.8	As Clare County Council and TII are public bodies, the procurement process will align with the <i>Green Public Procurement Strategy and Action Plan 2024 – 2027</i> (Government of Ireland 2024c). This requires public bodies to seek to procure goods, services and works with a reduced environmental impact throughout their life cycle.
10.9	A suitably competent contractor will be appointed who will undertake waste audits detailing resource recovery best practice and identify materials can be reused/recycled.
10.10	Idling of on-site or delivery vehicles will not be permitted, even over short periods.
10.11	All plant and machinery will be well maintained and inspected regularly.
10.12	Waste of materials due to poor timing or over ordering on site will be minimised and will aid to minimise the embodied carbon footprint of the site.
10.13	Materials will be sourced locally where possible to reduce transport related GHG emissions. Additionally, the use of efficient haul routes will reduce transport-related GHG emissions.
10.14	Material choices and quantities will be reviewed during detailed design, to identify and implement any lower embodied carbon options, where feasible (e.g., recycled aggregates, sustainably sourced timber, low-carbon concrete).
10.15	Lower embodied carbon concrete will be utilised with a carbon intensity equivalent or better than concrete with a 50% granulated blast furnace slag (GGBS) replacement.
10.16	Existing road signage and public lighting will be maintained or re-used where feasible to reduce the need for completely new construction.
10.17	During the construction phase lighting will only illuminate work areas when necessary and lighting will be restricted to working hours.
10.18	A whole-life Carbon Management Plan aligned to PAS 2080 will be implemented to inform the detailed design, build and operation.
Mitigation Measures – Operational Phase	
10.19	Lower carbon maintenance materials will be the preferred choice throughout the lifetime of the development. Routine monitoring of all infrastructure will be undertaken in line with best practice to ensure timely repairs and effective maintenance, thereby maximising the full lifecycle value of all assets.
10.20	The proposed development has been designed to reduce the impact on climate change through the promotion and opportunity for active travel (walking and cycling). Opportunities to integrate the proposed development with public transport hubs, such as bus stops, specifically those at the trailhead in Moyasta and near the trailhead in Kilrush will help to support multimodal journeys and reduce reliance on fossil-fuel vehicles.
10.21	Provide secure bike parking at trailheads and rest areas along the route as well as wayfinding to make cycling more attractive.
10.22	Promote active travel campaigns to shift commuter habits and reduce car dependency.

No.	Description
10.23	Green infrastructure has been incorporated into the proposed development through the inclusion of tree planting and vegetation along the route to capture carbon. Additionally, the proposed SuDS features will manage stormwater naturally which reduces the need for energy-intensive drainage systems.
10.24	Lighting will utilise low emission LEDs during operation and will be limited to trail heads in Kilrush and Moyasta.
10.25	A Management and Maintenance Plan is included in Volume 4 of this EIAR which includes maintenance requirements to be implemented during operation of the greenway, including measures required to ensure drainage infrastructure is kept free of debris.
10.26	To address climate change vulnerability and risk of flooding, the proposed development will incorporate features to slow runoff and promote infiltration.
10.27	The design has accounted for extreme wind events. Bridge structures will be engineered to meet standards for high wind speeds and have been designed in accordance with the Eurocodes EN1991/1/5 and Irish NA. Soil stability measures are included in the design for new embankments.
10.28	The design has accounted for extreme wind events. Bridge structures will be engineered to meet standards for high wind speeds and have been designed in accordance with the Eurocodes EN1991/1/5 and Irish NA. Soil stability measures are included in the design for new embankments.
10.29	Appropriate plant species have been selected that are suitable for the current site conditions with consideration of future climate changes where necessary. The proposed plant species will be able to withstand the climate and conditions of the west coast of Ireland.

21.12 Mitigation and Monitoring Measures for Noise and Vibration

The table below details the mitigation and monitoring measures identified in Chapter 14, Noise and Vibration.

Table 21-11 Mitigation and Monitoring Measures relating to Noise and Vibration

No.	Description
Mitigation Measures – Construction Phase	
11.1	With regard to construction activities, best practice control measures for noise and vibration from construction sites are found within BS 5228 (2009 +A1 2014) <i>Code of Practice for Noise and Vibration Control on Construction and Open Sites</i> Parts 1 and 2
11.2	Selection of quiet plant is recommended in relation to static plant such as compressors and generators. It is recommended that these units be supplied with manufacturers' proprietary acoustic enclosures.
11.3	If replacing a noisy item of plant is not a viable or practical option, consideration will be given to noise control "at source". This refers to the modification of an item of plant or the application of improved sound reduction methods in consultation with the supplier.
11.4	Screening will be provided at locations where predicted construction noise levels exceed the relevant Construction Noise Threshold (CNT), including works in proximity to residential receptors at Lisdeen, Carrowncalla, Moyasta and the Kilrush trailhead. Temporary hoarding or mobile/demountable acoustic screens will be installed around high-noise activities such as breaking or bridge works in the vicinity of sensitive receptors to reduce noise at nearby dwellings and high-amenity areas.

No.	Description
11.5	Piling at areas where bridges will be constructed will be done using augured piling methods. This piling method is less intrusive than other piling methods by minimising vibration at nearby receptors.
11.6	As part of the Construction Environmental Management Plan (CEMP) proposed as part of the project a designated environmental liaison officer will be appointed to site during construction works. The liaison officer will inform the nearest noise sensitive locations of the time and expected duration of the noisy works.
11.7	The phasing programme will be arranged so as to control the amount of disturbance in noise and vibration sensitive areas at times that are considered of greatest sensitivity.
11.8	The appointed contractor will carry out noise monitoring at representative NSLs to evaluate and inform the requirement and / or implementation of noise management measures. Noise monitoring will be conducted in accordance with ISO 1996–1 (ISO 2016) and ISO 1996–2 (ISO 2017). The selection of monitoring locations will be based on the nearest representative NSLs to the working area which will progress along the length of the Proposed Development.

21.13 Mitigation and Monitoring Measures for Landscape and Visual Amenity

The table below details the mitigation and monitoring measures identified in Chapter 15, Landscape and Visual Amenity.

Table 21-12 Mitigation and Monitoring Measures relating to Landscape and Visual Amenity

No.	Description
Mitigation Measures – Landscape Strategy	
12.1	The Landscape Strategy outlined in Chapter 15 of the EIAR and summarised in the mitigation measures below shall be implemented in conjunction with Biodiversity mitigation measures listed herein, and the Greenway Layout Drawings included in Volume 3 of this EIAR (Figures 4.1 – 4.46).
12.2	Existing fencing and hedgerows shall be retained where possible in accordance with the design of the proposed development, and supplemented as required to maintain a suitable boundary and visual screen.
12.3	Continuous timber post and tension mesh fencing (TII standard: CC-SCD-0320) is proposed along the length of the proposed greenway to segregate the proposed development from agricultural lands. Hedgerows will be planted alongside the new fencing. Proposed vegetation planting will be located on the outside of the fence line, which will ensure that there is minimal disturbance to the planting or damage to these habitats by greenway users.
12.4	A number of areas along Poulmasherry Bay have been identified as sensitive bird areas. Visual screening at these locations is required to mitigate impacts to wintering birds, with planting to maintained at a minimum 1.4m height during operation of the greenway.
12.5	Landscape planting and fencing on the bay-side of the sensitive bird areas will be the first works undertaken following site clearance. This will ensure that the planted screening for wintering birds has as much time as possible to become established prior to opening of the greenway.
12.6	Mesh screening material (privacy netting) will be attached to the fencing in these sensitive bird areas, where no existing screening is present. The purpose of the mesh netting is to provide a full level of screening while the landscape planting becomes established. The construction of the greenway is anticipated to take 16-24 months.
12.7	The fencing on Moyasta Bridge will be a solid barrier of 1.1m high with an additional 0.3m section of low permeability perforated fence to a total height of screening of 1.4m. In addition,

No.	Description
	a single or double strand of steel wire will be installed along the parapet tops to deter raptors from perching.
12.8	Where no boundary is present, the standard planting proposal along the greenway will consist of a triple staggered row on each side of the greenway, outside the fence. The hedge will include both evergreen and deciduous species planted to a density of nine plants per linear meter, with a 70:30 ratio of evergreen to deciduous species. The hedges will be made up of species that are fast growing and tolerant to exposure along the coast.
12.9	In areas where some planting is present such a hedge with gaps, supplementary fencing and planting will be undertaken to ensure that adequate screening and stock proofing is provided. The supplementary planting will use the same species and ratios as the general planting specification and achieve the same nine plants per linear meter density where gaps in the vegetation exist.
12.10	The species to be used in hedging shall be native, tolerant to exposure and mostly fast growing (refer to examples in the Landscape Strategy for the proposed development). The final specification can include other species depending on availability and will be signed off by the Ecological Clerk of Works (ECoW) in advance of ordering the plants.
12.11	The causeway leading to Moyasta Bridge may not have space to place three rows of native hedging on each side. If this is confirmed by the landscape contractor, there will be an option to use non-native species such as <i>Eleagnus</i> to provide screening.
12.12	Verges will be allowed to revegetate naturally with locally occurring native species. Reseeding with commercially available grass seed or wildflower mixes will be avoided.
Mitigation Measures – Construction Phase	
12.13	Prior to any construction activities including site clearance and excavation works, a Construction Environmental Management Plan (CEMP) will be produced by the successful contractor(s) for each element of the proposed development. The CEMP will set out the Contractor's overall management and administration of the construction project.
12.14	<p>Before any works commence on site, the Contractor will be required to prepare an Environmental Operating Plan (EOP) in accordance with the TII/NRA Guidelines for the Creation and Maintenance of an Environmental Operating Plan. The EOP will set out the Contractors approach to managing environmental issues associated with the construction of the road and provide a documented account to the implementation of the environmental commitments set out in the EIAR and measures stipulated in the planning conditions. Details within the plan will include:</p> <ul style="list-style-type: none"> • All Environmental commitments and mitigation measures included as part of the planning approval process and any requirements of statutory bodies such as the National Parks and Wildlife Services as well as a method documenting compliance with the measures. • A list of all applicable environmental legislation requirements and a method of documenting compliance with these requirements; and • Outline methods by which construction work will be managed to avoid, reduce or remedy potential adverse impacts on the environment. <p>To oversee the implementation of the EOP, the Contractors will be required to appoint a person to ensure that the mitigation measures included in the EIAR, the EOP and the statutory approvals are executed in the construction of the works and to ensure that those mitigation measures employed are functioning properly throughout the duration of the construction phase.</p>
Mitigation Measures – Operational Phase	
12.15	A detailed Management and Maintenance Plan will be developed and implemented by Clare County Council and will include management and monitoring measures to ensure vegetation is appropriately maintained during operation of the greenway. This will allow for safe usage of the greenway as well as ensuring the effectiveness of the planting as a visual screen. This

No.	Description
	will include maintaining screening vegetation to a minimum height of 1.4m at bird sensitive locations. Boundary treatments will be identified in the plan and included in the schedule of monitoring and maintenance inspections to be developed as part of the plan. This will include inspection and maintenance of fencing along the greenway as required in accordance with the inspection schedule to be developed as part of the plan.
12.16	Monitoring of vegetation screening will be carried out in accordance with the Management and Maintenance Plan.

21.14 Mitigation and Monitoring Measures for Cultural Heritage

The table below details the mitigation and monitoring measures identified in Chapter 16, Cultural Heritage.

Table 21-13 Mitigation and Monitoring Measures relating to Cultural Heritage

No.	Description
Mitigation Measures – Construction Phase	
13.1	A programme of archaeological test trenching will be carried out to the south of AH2 ringfort at Lisdeen, prior to the commencement of construction. This will be carried out in consultation with the TII Project Archaeologist and under licence from the National Monuments Service of the DoHLGH. Subject to the results of test trenching, further mitigation may be required, such as preservation by record or in-situ. Any further agreement will require agreement from the National Monuments Service of the DoHLGH.
13.2	Prior to the commencement of construction, a written and photographic record will be made of the section of the Kilrush ACA to be developed at the eastern trail head. This will be carried out by a suitably qualified heritage specialist, in consultation with the TII Project Archaeologist.
13.3	CH1 West Clare Railway – Substantial excavations within the existing railway will be subject to monitoring by an archaeologist under licence to the National Monuments Service of the DoHLGH. This will be carried out following a review of detailed design and in consultation with the TII Project Archaeologist. The monitoring works will aim to record the method of railway construction.
13.4	A written and photographic record will be made of the following sites, prior to the commencement of construction and following the removal of any vegetation that may be present: CH1.3, CH1.4, CH1.6, CH1.10, CH1.15 and CH1.18. The records will be compiled by a suitably qualified heritage specialist, in consultation with the TII Project Archaeologist.
13.5	A programme of archaeological test trenching will be carried out at the site of Kilrush Trail head prior to the commencement of construction. This will be carried out in consultation with the TII Project Archaeologist and under licence from the National Monuments Service of the DoHLGH. Subject to the results of test trenching, further mitigation may be required, such as preservation by record or in-situ. Any further agreement will require agreement from the National Monuments Service of the DoHLGH.
13.6	A programme of archaeological test trenching will be carried out within the designated AAPs prior to the commencement of construction. This will be carried out in consultation with the TII Project Archaeologist and under licence from the National Monuments Service of the DoHLGH. Subject to the results of test trenching, further mitigation may be required, such as preservation by record or in-situ. Any further agreement will require agreement from the National Monuments Service of the DoHLGH.
13.7	Prior to the removal of the section of TB3, the section of townland boundary to be affected will be subject to a townland boundary survey. Subject to access, this may include the excavation of a test trench in order to record the construction of the boundary. The works

No.	Description
	will be carried out in consultation with the TII Project Archaeologist and under licence from the National Monuments Service of the DoHLGH.
13.8	A programme of archaeological test trenching will be carried out within all greenfield areas prior to the commencement of construction. This will be carried out in consultation with the TII Project Archaeologist and under licence from the National Monuments Service of the DoHLGH. Subject to the results of test trenching, further mitigation may be required, such as preservation by record or in-situ. Any further agreement will require agreement from the National Monuments Service of the DoHLGH.

21.15 Mitigation and Monitoring Measures for Material Assets and Land (Agriculture)

The table below details the mitigation and monitoring measures identified in Chapter 17, Material Assets and Land (Agriculture).

Table 21-14 Mitigation and Monitoring Measures relating to Material Assets and Land (Agriculture)

No.	Description
Mitigation Measures – Construction Phase	
14.1	Following the completion of relevant construction works, lands temporarily acquired will be reinstated to existing agricultural condition.
14.2	Where new access is proposed affecting existing property boundaries these will be reinstated on a like for like basis. This may require storage of stone wall material during construction or replanting of hedgerow / trees, as required.
14.3	Measures to mitigate noise impacts on sensitive receptors are detailed in Chapter 14 Noise and Vibration
14.4	Measures to mitigate air quality impacts on sensitive receptors are detailed in Chapter 12 Air Quality.
14.5	Where farm division has occurred, temporary access across the proposed construction works corridor will need to be maintained on farms until such time as permanent alternative access is provided. Access will be restored, as soon as possible, to lands where it is removed or restricted by the proposed project. The location of such access will be at a suitable location and, where possible, with the agreement of the landowner as part of the statutory process.
14.6	Temporary fencing will be erected as required to delineate the site boundary and to minimise disturbance to adjacent lands.
14.7	In cases where drainage is impeded during construction and causes obvious difficulty to a particular landowner, temporary measures will be considered on a site-specific basis. This may include allowing waters to drain to less critical areas, so as to minimise the impact.
14.8	Where required, an alternative source of water / electricity will be provided to ensure that disruption to farming is minimised during the construction phase.
Mitigation Measures – Operational Phase	
14.9	For landowners with land on either side of the greenway, access crossing points will be provided as required for crossing movements of livestock and machinery. Gates will be hung on opposite piers either side of the greenway, and when opened, will temporarily close off the greenway to allow the landowner to cross. The location of such field access gates will be at a suitable location and, where possible, with the agreement of the landowner as part of the statutory process.

No.	Description
14.10	On impacted agricultural properties, access will be provided via an access accommodation structure to divided lands as per the design.
14.11	Permanent boundary treatment along agricultural lands will consist of a stockproof boundary that is comprised of timber post and tension mesh wire (per TII standard CC-SCD-00320).
14.12	The new drainage system will be designed to ensure that there will be no increased risk of flooding as a consequence of the proposed project.
14.13	Any services that are interfered with as a result of the proposed project will be repaired / replaced without unreasonable delay.
14.14	Ducting for the restoration of water and power supply services will be provided, as necessary.
14.15	Screening will be provided, where required, to mitigate the noise and visual effects of construction works and operational traffic.

21.16 Mitigation and Monitoring Measures for Material Assets and Land (Non-Agriculture)

The table below details the mitigation and monitoring measures identified in Chapter 18, Material Assets and Land (Non-Agriculture).

Table 21-15 Mitigation and Monitoring Measures relating to Material Assets and Land (Non-Agriculture)

No.	Description
Mitigation Measures – Construction Phase	
15.1	Lands temporarily acquired for construction will be reinstated as soon as is practicable.
15.2	Access will be maintained to all affected property as much as possible and if interrupted will be restored without unreasonable delay. Traffic management measures will be put in place during construction where temporary or minor diversions are required.
15.3	Any services that are disturbed during construction of the proposed development will be subject to temporary measures as required to minimise impacts and repaired / replaced without unreasonable delay.
15.4	Ducting for the restoration of water and power supply services will be provided, as necessary, at a suitable location with the agreement of the landowner as part of the statutory process.
15.5	Where 24-hour access is required for the continuation of commercial activities, such as the access to the marina mechanical gates, construction of alternative access routes shall be constructed in the first instance prior to any access restriction on current access routes.
15.6	Where land is severed with no means of alternative access, the proposed access gates shall be installed in the first instance to facilitate continual access to all lands.
Mitigation Measures – Operational Phase	
15.7	Where part of the curtilage of a property is to be permanently acquired, the acquiring authority will hold discussions with the property owner and generally agree to replace boundaries on a like-for-like basis where possible, subject to safety considerations, as part of the statutory process.
15.8	Any services that are interfered with as a result of the proposed development will be repaired / replaced without unreasonable delay.

No.	Description
15.9	Any new drainage system will be designed to ensure that there will be no increased risk of flooding to non-agricultural properties as a consequence of the proposed development.

21.17 Mitigation and Monitoring Measures for Major Accidents and Disasters

The table below details the mitigation and monitoring measures identified in Chapter 19, Major Accidents and Disasters.

Table 21-16 Mitigation and Monitoring Measures relating to Major Accidents and Disasters

No.	Description
Mitigation Measures – Construction Phase	
16.1	<p>Mitigations in relation to extreme weather events (flooding)</p> <ul style="list-style-type: none"> • Monitoring of weather forecasts and tidal forecasts to ensure that necessary actions will be implemented in time at construction sites prior to prolonged / extreme weather events. • Monitoring of water levels in watercourses. • Siting of construction compounds, earthworks and materials will be planned to minimise the potential for surface water runoff or contaminants entering watercourses, particularly during extreme weather events. A CEMP will be prepared detailing the procedures to be undertaken in the event of extreme weather (flooding) events.
16.2	<p>Mitigations in relation to spillage or long-term seepage of pollutants into a watercourse</p> <ul style="list-style-type: none"> • As is normal practice with infrastructure projects, an EOP and CEMP will be prepared for the proposed development which will detail measures to be taken on site, such as secondary containment for storage of fuel. An Incident Response Plan will be prepared as part of the CEMP detailing the procedures to be undertaken in the event of spillage of chemical, fuel or other hazardous wastes, non-compliance with any permit or license, or other such risks that could lead to a pollution incident, including flood risks. • The Environmental Manager will prepare Method Statements for construction works as detailed in the EOP to be undertaken on, over or near water in consultation with Inland Fisheries Ireland (IFI) and other relevant authorities. • Implementation of mitigation measures identified in Chapter 7 Biodiversity, Chapter 8 Soils and Geology, Chapter 9 Hydrology, and Chapter 10 Hydrogeology in EIAR Volume 2. • During construction, cognisance will have to be taken of the following guidance documents for construction work on, over or near water: <ul style="list-style-type: none"> ○ Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites (Eastern Regional Fisheries Board) ○ CD 529 Standards for Highways Design Manual for Roads and Bridges ○ Standard for Highways: Design of Outfall and Culvert Details ○ Central Fisheries Board Channels and Challenges – The enhancement of Salmonid Rivers. ○ CIRIA C532 Control of Water Pollution from Construction Sites Guidance for Consultants and Contractors. ○ CIRIA C648 Control of Water Pollution from Constructional Sites. ○ CIRIA C753 The SuDS Manual ○ CIRIA C698 Site Handbook for the Construction of SuDS

No.	Description
	<ul style="list-style-type: none"> ○ Construction, Replacement or Alteration of Bridges and Culverts: A Guide to Applying for Consent under Section 50 of the Arterial Drainage Act, 1945 ○ Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes ○ Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters
Mitigation Measures – Operational Phase	
16.3	<p>Mitigations in relation to extreme weather events (flooding)</p> <ul style="list-style-type: none"> • Monitoring of weather forecasts by CCC to ensure that necessary actions such as flood warnings, will be implemented in time, prior to prolonged / extreme weather events. • A Maintenance and Management Plan (MMP) will be developed which will include extreme weather management and response procedures prior to and following extreme weather events.

APPENDIX E

Natura Impact Statement – Mitigation Measures

1. SUMMARY OF MITIGATIONS MEASURES

The table below details the mitigation measures identified in the Natura Impact Statement (NIS).

Table 1-1 Mitigation and Monitoring Measures provided in the Natura Impact Statement (NIS)

No.	Description
Mitigation Measures – Construction Phase	
The following general mitigation measures will be employed to minimise potential significant negative effects on biodiversity which might arise during the construction of the proposed development.	
17.1	An Ecological Clerk of Works (ECoW) shall be appointed by Clare County Council prior to the commencement of works. It shall be their responsibility to supervise and provide recommendations on the execution of all works which have the potential to give rise to negative or positive effects on biodiversity. The ECoW will have at least five years' experience as an Ecologist of Works on linear infrastructure projects.
17.2	Prior to any site clearance, excavation, or construction, a Construction Environmental Management Plan (CEMP) will be produced by the successful contractor(s). The CEMP will set out the Contractor's overall management and administration of the construction phase. The CEMP will be developed by the Contractor during the pre-construction phase, to ensure commitments included in the statutory approvals are implemented adhered to, and subject to any further Conditions as may be imposed by the Competent Authority.
17.3	The Contractor will prepare site-specific Method Statements detailing how the works will be carried out. Each Site Foreman shall read, sign and abide by each site-specific Method Statement. A 'toolbox talk' will be conducted to induct the Works Team on the ecological considerations listed in the site-specific Method Statement by the Site Foremen.
17.4	The Contractor will appoint a Site Environmental Manager (SEM) prior to the commencement of works. This person shall be responsible for carrying out environmental monitoring of the works and ensuring that the mitigation measures proposed in this report (as well as the CEMP and site-specific Method Statements) are adhered to, and subject to any further Conditions as may be imposed by the Competent Authority.
17.5	Site clearance for the construction of the proposed development and tree and shrub maintenance during the operational phase will only take place outside the nesting bird season (1 st March – 31 st August inclusive).
17.6	If site clearance cannot be avoided during the nesting bird season, the area will be checked by a suitably qualified ecologist within 36 hours of the works. If nesting birds are found to be present, the site clearance works will cease until the chicks have fledged, or, until the NPWS have been consulted to determine the course of action.
17.7	In the sensitive bird areas listed in Section 2.4.3.1 of the Natura Impact Statement, removal of vegetation suitable for nesting will be programmed to take place in September which will avoid risks to nesting and wintering birds.
17.8	The construction envelopes for the compounds will be temporarily fenced off at the outset of the construction to avoid unnecessary loss of habitat outside of the compound footprint during construction activities.
17.9	The fencing for the compounds will be set so as to avoid existing hedgerow and treeline boundaries to avoid habitat loss. The set-back distance will be signed-off by the ECoW.
17.10	Any excavations deeper than 1m will be either covered or have ramps fitted outside of working hours, which will allow Otter and other wildlife to escape. Similarly, any temporarily exposed open pipe system will be capped to prevent species such as Otter from gaining access when contractors are off site.

No.	Description
17.11	A pre-construction survey will be carried out by a suitably qualified ecologist two to three weeks prior to the commencement of site clearance. The purpose of the survey is to identify Otter holts and invasive species that have appeared in the intervening period between the surveys undertaken for the EIAR/NIS and construction
17.12	If previously unidentified resting or breeding place of Otter are found in the vicinity of the proposed development prior to or during construction, the works at this location will cease immediately and direction will be sought from the NPWS.
17.13	Construction is limited to the hours of 07:00-19:00 thereby reducing noise, vibration and lighting during the hours when Otters or other nocturnal species are active.
17.14	Construction phase lighting will only illuminate work areas when necessary and will avoid illuminating any areas outside of the works area. There will be no lighting outside of working hours (07:00 – 19:00 Monday to Friday, 08:00 – 16:30 Saturdays). Construction works during hours of darkness will only occur during the winter months when works are restricted to outside of sensitive bird areas. The ECoW will ensure that lights are directed into the construction area and that there is minimal light spill into the surrounding habitat.
17.15	Construction works (other than vegetation clearance works mentioned above) across Moyasta Bridge, approach embankments and other sensitive bird areas will only take place over the summer months (April – September inclusive) – to avoid impacting on wintering birds. The only works to take place during the winter months will be short term, minor disturbance works for the installation of planting required to screen the greenway.
The following measures will be implemented with regards to wintering waterbirds which are Qualifying Interests of the River Shannon and River Fergus SPA and the Mid-Clare Coast SPA	
17.16	Unless signed off by the ECoW, no construction works are permitted in the sensitive bird areas during the wintering bird season (October – March inclusive). The sensitive bird areas are listed in Section 2.4.3.1 and in Appendix E. The exception to this is landscape planting used bare root plants, which must be carried out during the winter months. The preparation of the area for planting must be carried out before the wintering bird season. The ECoW must sign off on any works including the tracking of vehicles in the sensitive bird areas. This will only apply in situations where the ECoW considers enough screening is present for the type of work/ tracking involved, or where access through a sensitive bird area is required occasionally to reach areas where construction is permitted.
17.17	The greenway will be segregated by a continuous stock proof fence and hedgerow planting. The proposed fencing is intended to prevent access by people and dogs to sensitive habitats located outside the greenway. A 100mm gap at ground level has been incorporated along the fence to facilitate the continued movement of small mammals, including otter, across the greenway.
17.18	The existing hedgerows and treelines that form the boundaries of the railway corridor and field boundaries will be retained. Vegetation clearance will be minimised along the length of the greenway itself, and will only be undertaken within the footprint of the greenway, 1m verges and earthworks zones, up to a maximum width of 10m.
17.19	Mesh screening material (privacy netting) will be attached to the fencing in the sensitive bird areas, where no existing screening is present. The purpose of the mesh netting is to provide a full level of screening while the landscape planting becomes established.
17.20	Landscape planting and fencing on the bay-side of the sensitive bird areas will be the first works undertaken following site clearance. These planting works will take place over the winter following site clearance in September but are short duration and minor in nature so associated disturbance will be minimal.
17.21	The works will be overseen by the ECoW. This will ensure that the planted screening for wintering birds has as much time as possible to established prior to opening of the greenway. The construction of the Greenway is anticipated to take 16-24 months.

No.	Description
17.22	The fencing on Moyasta Bridge will be a solid barrier of 1.1m high with an additional 0.3m section of low permeability perforated fence to a total height of 1.4m.
17.23	Where no boundary is present, the standard planting proposal along the greenway will consist of a triple staggered row on each side of the greenway, outside the fence. The hedge will include both evergreen and deciduous species planted to a density of nine plants per linear meter, with a 70:30 ratio of evergreen to deciduous species. The hedges will be maintained at a height of at least 1.4m where screening is required in the sensitive bird areas.
17.24	In areas where some planting is present such a hedge with gaps, supplementary fencing and planting will be undertaken to ensure that adequate screening and stock proofing is provided. The supplementary planting will use the same species and ratios as the general planting specification and achieve the same nine plants per linear meter density where gaps in the vegetation exist.
17.25	Signage will be included at trail heads and at regular intervals along the route. Signage will inform greenway users of the importance of the area to wintering birds and request responsible behaviour from all those using the amenity. To avoid an excessive amount of signage being installed and potentially ignored by users, the final locations of signs will be coordinated by Clare County Council.
The following mitigation measures relating to the protection of water quality will apply during the construction of the proposed development:	
17.26	Double silt fences will be installed along the watercourses in the vicinity of the works to contain any potential silt or sediment run-off, with particular attention to watercourses where instream works are required. Silt fences will be erected in accordance with the manufacturer's recommendations.
17.27	Stockpiling of construction material or topsoil will be prohibited within 10m of the watercourse, in order to minimize sources of sediment runoff.
17.28	Storage tanks will be bunded to capture any oil leakage. Bund specification will conform to the current best practice for oil storage (Enterprise Ireland, BPGCS005).
17.29	Storage tanks, bunding, and machinery will be maintained and checked regularly for leakage.
17.30	There are no instream works proposed to watercourses other than ditches, so the normal restriction of in-stream works to the months of June and September is not required for the proposed development.
The following measures prescribed regarding surface water run-off will also minimise the risk of any input of cementitious material into watercourses during the construction of the proposed development:	
17.31	When working in or near the surface water and the application of in-situ materials cannot be avoided, the use of alternative materials such as biodegradable shutter oils shall be used.
17.32	Any plant operating close to the water will require special consideration on the transport of concrete from the point of discharge from the mixer to final discharge into the delivery pipe (tremie). Care will be exercised when slewing concrete skips or mobile concrete pumps over or near the watercourses
17.33	Placing of concrete in or near the watercourses will be carried out only under the supervision of a suitably qualified Environmental Manager
17.34	There will be no hosing into surface water drains of spills of concrete, cement, grout or similar materials. Such spills shall be contained immediately, and runoff prevented from entering watercourses

No.	Description
17.35	Concrete waste and wash-down water will be contained and managed on site to prevent pollution of the watercourses
17.36	On-site concrete batching and mixing activities will only be allowed at the identified construction compound
17.37	Washout from concrete lorries, with the exception of the chute, will not be permitted on site and will only take place at the construction compound (or other appropriate facility designated by the supplier)
17.38	Chute washout will be carried out at designated locations only. These locations will be signposted. The concrete plant and all delivery drivers will be informed of their location with the order information and on arrival on site.
17.39	Chute washout locations will be provided with appropriate designated, contained impermeable area and treatment facilities including adequately sized settlement tanks. The clear water from the settlement tanks shall be pH corrected prior to discharge (which shall be by means of one of the construction stage settlement facilities) or alternatively disposed of as waste in accordance with the Contractor's Waste Management Plan.
The measures prescribed regarding surface water run-off will also remove the risk of any input of hydrocarbons and other chemicals into the watercourses. However, the following additional measures shall also apply:	
17.40	Fuel storage tanks shall have secondary containment provided by means of an above ground bund to capture any oil leakage.
17.41	Storage tanks and associated provision, including bunds, will conform to the current best practice for oil storage and will be undertaken in accordance with Best Practice Guide BPGCS005 – Oil Storage Guidelines (Enterprise Ireland).
17.42	Spill kits shall be available on-site. Spill kits shall be provided at all refuelling points and fuel/chemical storage areas. Staff shall be trained in the use of spill kits and spill kits.
The following mitigation measures relating to sediment control and water quality during the installation of the 25 culverts:	
17.43	Culverts will be installed in ditches by placing a suitably sized pipe or section of box culvert in the existing channel.
17.44	It is expected that the ditches will be dry, but if flow is present, the works area will be over pumped which the culvert is installed. The pump inlet and outlet will be fitted with a silt sock to prevent sediment being released into the ditch. A hay bale, silt fence or similar silt trap will be installed downstream of the works area.
17.45	The pipe will be laid inside the existing channel and covered with crushed stone to the level required. The silt trap will be removed once the sediment has settled.
17.46	No machinery is permitted in the watercourses.
The following mitigation measures relating to the repair of structures are as follows:	
17.47	Repointing and concrete repairs will be undertaken on foot, from a ladder, using scaffolding or using a bridge inspection unit.
17.48	A catch net will be placed flush with the bridge to catch any spilled mortar or concrete. The catch net will be made of Visqueen heavy duty plastic sheeting or similar and will cover the entire area underneath the works.
17.49	Repointing and concrete repairs will take place in dry weather and will not take place if rain is forecast in the following 12 hours. The commencement of the works will be approved by the Employer's Representative.
17.50	Mortar and concrete will be mixed in a watertight container at least 20m from the watercourse.

No.	Description
17.51	Vegetation will be removed mechanically. No herbicide will be used to remove vegetation from bridges.
The following mitigation measures relating to sediment control and water quality during the construction of the eight bridges are:	
17.52	The new bridges will be clear span, with abutments set back from the riverbanks as far as possible, and the decks and parapets will be prefabricated.
17.53	Where watercourses are present, silt fences will be installed along the riverbanks to intercept run-off during the construction phase and to protect the riparian vegetation.
17.54	The silt fences will be located as far back from the bank as possible.
17.55	No machinery is permitted in the watercourses
The following mitigation measures relating to the protection of water quality during the sandblasting and painting of Moyasta Bridge are:	
17.56	A scaffold structure will be hung on the bridge deck and used to create a frame around the bridge structure.
17.57	Plastic sheeting will be fitted over the scaffolding and tightened by applying heat.
17.58	Any gaps will be sealed using tape.
17.59	The access point will be fitted with a zip to create a fully enclosed working area.
17.60	The encapsulated area will ensure that no dust, grit or paint reaches the watercourse below. The internal temperature will be raised using heaters to create a dry environment and to ensure that the paint cures properly.
17.61	Following the works, any dust, grit and the plastic sheeting will be removed and disposed of appropriately and the scaffolding will be dismantled.
17.62	Wastewater drainage from all site offices and construction facilities will be contained and disposed of in an appropriate manner to prevent water pollution and in accordance with the relevant statutory requirements.
17.63	Method statements that are prepared for the works that could affect biodiversity will be reviewed and approved by the Employer / Employer's Representative and the ECoW in advance of the works beginning.
17.64	All method statements for works in, near or liable to impact on a waterway must have prior agreement with IFI.
17.65	At the trail heads, on the surface water will be directed to bioretention areas for treatment in line with SUDs principles. The use of permeable pavements will provide sufficient mitigation for hydrocarbon pollution that there are no residual impacts on the waterbodies.
The following measures will be implemented with regards to invasive species.	
17.66	The control and management procedures outlined in the Invasive Species Management Plan will be adhered to during the construction of the proposed development.
17.67	The Contractor shall prepare a detailed Biosecurity Protocol describing their proposed approach to ensuring that invasive species are not imported or spread during the construction of the proposed development.
17.68	The Contractor's Biosecurity Protocol shall be in accordance with <i>The Management of Invasive Alien Plant Species on National Roads – Standard</i> (TII, 2020a) and <i>The Management of Invasive Alien Plant Species on National Roads – Technical Guidance</i> (TII, 2020b).
17.69	Good construction site hygiene will be employed to prevent the introduction and spread of problematic IAPS (e.g., Japanese knotweed and Himalayan Balsam) by thoroughly washing vehicles prior to leaving any site.

No.	Description
17.70	All plant and equipment employed on the construction site (e.g., excavators, etc.) will be thoroughly cleaned down in designated areas only using a power washer unit prior to arrival on site to prevent the spread of IAPS.
17.71	Any soil and topsoil required on the site will be sourced from a stock that has been screened for the presence of any IAPS and where it is confirmed that none are present.
17.72	Landscaping of the proposed development shall use native species of plants unless in exceptional circumstances, and, insofar as possible, soil reused from on-site excavations. If soil/substrate needs to be imported to the site for the purposes of the proposed development, the Contractor shall ensure that the imported soil/substrate is free from invasive species.
17.73	The treatment of Japanese Knotweed will continue as per Clare County Councils current invasive species management plan. Clare County Council will continue treatment of Japanese Knotweed outside of the red line boundary, with the agreement of neighbouring landowners, to ensure that it is fully eradicated from the area and it does not spread back into the proposed development boundary from adjacent lands.
Mitigation Measures – Operational Phase	
The following monitoring and adaptive management measures will be undertaken to ensure that the mitigation measures are in place and to document their effectiveness.	
17.74	The planted screening and privacy mesh in the sensitive birds areas will be monitored by the ECoW every September and January for three years following the opening of the Greenway. Any damaged or dead plants or damaged privacy mesh will be replaced by the Contractor within the three year defects period.
17.75	A qualified ecologist with relevant experience will be appointed to monitor birds and bird behaviour in the sensitive bird areas for two winter seasons following the opening of greenway to the public, to demonstrate the effectiveness of the mitigation.
17.76	<p>The response of birds to greenway users will be examined over three 3-hour surveys each season, which will be undertaken over the winter months for two years following the opening of the greenway to the public. The surveyor will position themselves so that they do not disturb the birds. The survey will commence at dawn to ensure birds have not been disturbed when the survey begins. The surveyor will record:</p> <ul style="list-style-type: none"> • The number and position of birds in the vicinity of each sensitive bird area. • The details of the greenway users (number of people, dogs on/off lead, cyclist/ walkers etc.). • Any behavioural change by birds, including no response. • Any activity which led to the disturbance such as shouting or waving.
17.77	<p>Should the surveys demonstrate that birds are being disturbed in a particular area at levels which would constitute a significant effect, notwithstanding the screening, the following adaptive management strategies can be implemented along with a further season of monitoring to confirm their effectiveness:</p> <ul style="list-style-type: none"> • Additional planting along the sensitive bird areas will be added locally using evergreen shrubs. • The height of the screening on both sides of the greenway can be adjusted if it is concluded that users are causing disturbance in a particular area. This will be achieved by allowing the vegetation to grow to a greater height.

APPENDIX F

An Coimisiún Pleanála Approval Including any Conditions / Modifications

[The An Coimisiún Pleanála Approval including conditions/modifications will be inserted into the final CEMP once received and will be carried forward into the Contractors CEMP]