

## 11 MATERIAL ASSETS

The Study Area, for the purposes of this Chapter, refers to the area in which works are proposed for the River Deel (Crossmolina) Drainage Scheme as described in Chapter 3.

Material assets are generally considered to be the physical resources in the environment, which may be of human or natural origin. This Chapter details the impact and the direct and indirect likely significant effects of the proposed River Deel (Crossmolina) Drainage Scheme on these resources, namely transport infrastructure, subterranean infrastructure, traffic and the management of waste. The residual effects of the proposed Scheme on material assets following mitigation are assessed and presented in this Chapter along with the relevant mitigation measures. Post consent monitoring details are also provided where relevant.

The River Deel (Crossmolina) Drainage Scheme has an indefinite operational duration, therefore it is not considered necessary to assess the impacts of decommissioning.

The impact assessment is based on a desk study, with details of major utilities taken from information supplied by Mayo County Council and the service providers. The road network was identified using Ordnance Survey Ireland (OSi) discovery series mapping along with an examination of aerial photography.

A number of documents were consulted in the preparation of this assessment, as follows:

- The European Commission 'Guidance on the Preparation of the Environmental Impact Assessment Report (2017),
- The EPA Guidelines on the information to be contained in Environmental Impact Assessment Reports' (DRAFT August 2017)
- The Department of Housing's 'Guidelines for Planning Authorities and An Bord Pleanála on Carrying out Environmental Impact Assessment' (August 2018)
- Mayo County Development Plan, (2014 - 2020)
- Connaught Ulster Waste Management Plan (2015- 2021)
- EPA Waste Water Discharge Licence Applications database
- EPA, Guidelines on the information to be contained in Environmental Impact Assessment Reports, Draft August 2017

This Chapter has been prepared in accordance with the relevant European and Irish legislation and jurisprudence including the EIA directive and the European Union (Environmental Impact Assessment) Arterial Drainage Regulations 2019.

An informal scoping document was prepared and issued to relevant stakeholders (incl. Mayo CoCo, EPA, NPWS, IFI, TII) and any responses received are included in Chapter 2 of the EIAR. Responses relevant which have been taken into account in this Chapter are:

- Submission from Mayo County Council regarding impacts on vehicle movements and traffic restrictions
- Submission from Gas Networks Ireland regarding gas distribution mains in the vicinity of the proposed works

## 11.1 RECEIVING ENVIRONMENT

The River Deel (Crossmolina) Drainage Scheme, described in Chapter 3, comprises mainly of works to and in the vicinity of the River Deel upstream of Crossmolina Town and the land spanning from the L1105 to the townlands of Mullenmore to the East of the R315 Crossmolina to Castlebar Regional Road. As such, potential direct impacts to material assets are restricted to these areas. Potential impacts to services may go beyond the Study Area, dependent on the level of service disruption.

The proposed Scheme will have potential to impact on the following:

- Roads Network (incl. increased traffic);
- Water Distribution Network;
- Bord Gáis Distribution Network;
- Electricity Network;
- Telecommunications Network.

## 11.2 TRAFFIC AND ROADS

The construction phase of the River Deel (Crossmolina) Drainage Scheme will have a short term impact on traffic volumes in Crossmolina Town and environs during the construction phase. Hauling of excavated material, combined with the delivery of materials and work force traffic are assessed below in relation to existing traffic volumes and mitigation measures proposed.

### 11.2.1 Description of Project and Roads Network

The proposed scheme will comprise the following works which may contribute to Material Asset impacts in the area:

- Site investigation;
- Site clearance;
- Construction of a new grass lined channel;
- Construction of a new intake structure;
- Construction of a new river flow control structure, earthen embankment and reinforced concrete retaining walls;
- Construction of a reinforced concrete energy dissipation structure;
- Construction of two new bridges, one each on the R315 (Mullenmore Bridge) and L1105 (Pollnacross Bridge);
- Raising the L1105 at the approach to the new bridge;
- Realignment of the Lake Road and creation of a new junction with the R315. This will necessitate the closure of a section of the existing road;
- Realignment and raising of existing avenues connecting the Lake Road to properties to the South;
- Creation of washlands between the termination point of the new channel and Lough Conn;
- Extinguishing existing access points/ access routes and creation of new access points; and
- Construction of an access track along the diversion channel and at the location of the intake structure.

These proposed works are detailed in Chapter 3 (Description of the Proposed Development) and in the scheme drawings in Appendix 3A.

The road network in Crossmolina comprises local, regional roads and one national secondary route through the town itself. The primary road access to Crossmolina Town is via the N59 National Secondary Route, passing through the town in an East West direction and directly serves a large portion of the town centre. Chapel Street/ L1105 runs in parallel to the River Deel along the right bank. The L1105 is used to access areas around Rake Street and Richmond, which can also be accessed via the N59 and R315. The R315 runs south of Crossmolina Town towards Lahardaun and Castlebar.

The River Deel (Crossmolina) Drainage Scheme, as described above and detailed in Chapter 3, is mainly concerned with works in the vicinity of a section of the River Deel upstream of Crossmolina Town and the land spanning from the L1105 to the townlands of Mullenmore to the East of the R315 Crossmolina to Castlebar Regional Road.

The potential impacts and the significant effects of the River Deel (Crossmolina) Drainage Scheme on the road network are assessed in Section 11.2.4 and summarised as follows:

- Permanent impact due to realignment of the Lake Road and creation of a new junction with the R315;
- Short term impact during construction due to site clearance and the construction of the proposed grass lined channel commencing at the River Deel/ L1105 and terminating in the townland of Mullenmore to the East of the R315, along with the construction of a reinforced concrete energy dissipation structure within the footprint of the proposed grass lined channel;
- Temporary impact during construction of a new reinforced concrete intake structure and spillway on the banks of the River Deel;
- Temporary impact during construction of a new river flow control structure on the River Deel;
- Temporary impact during construction of a new reinforced concrete bridge on the R315;
- Temporary impact during construction of a new reinforced concrete bridge on the L1105 and raising the L1105 at the approach to the new bridge;
- Temporary impact during construction due to realignment of the Lake Road and creation of the new junction with the R315;
- Temporary impact during construction due to realignment and raising of existing avenues connecting the Lake Road to properties to the South.

A further impact as a result of the proposed works, is a short term increase in traffic volumes as a result of construction activity on the anticipated construction traffic routes identified in section 11.2.4.2.

The proposed Scheme when constructed will mitigate flood risk in Crossmolina Town. This flood risk affects the N59, R315, L1005, and other roads in the town, which are cut off during flood events. The L1105 also floods at the location of the proposed intake structure and another low lying section to the South.

The following sections present the baseline traffic in the Study Area and assess the impact of construction traffic on the traffic in the study area and provides associated mitigation measures.

### 11.2.2 Existing Traffic

The annual average daily traffic (AADT) data and percentage of heavy goods vehicles (HGV) for the N59 between Crossmolina and Bangor-Erris, Moylaw are presented in Table 11.1.

	2019	2018	2017
AADT	2179	2070	1978
% HGV	4.6%	4.9%	4.2%

**Table 11.1 Traffic flows on the N59 between Crossmolina and Bangor-Erris, Moylaw (Source: Transport Infrastructure Ireland [www.nratrafficdata.ie](http://www.nratrafficdata.ie))**

The peak hourly traffic flows for the N59 between Crossmolina and Bangor-Erris, Moylaw are presented in Table 11.2.

Road Name	AADT (2019)	Peak Hourly Flow (11am-12 noon)	Peak Hourly Flow (5 – 6 pm)
N59 Between Crossmolina and Bangor-Erris	2179	137	188

**Table 11.2 Peak hourly traffic flows on the N59 between Crossmolina and Bangor-Erris, Moylaw 2017 (Source: Transport Infrastructure Ireland [www.nratrafficdata.ie](http://www.nratrafficdata.ie))**

A traffic survey was carried out in 2007 by Mayo National Roads Design Office (NRDO). The survey included for the main routes through Crossmolina Town. The Mayo NRDO 2007 traffic survey will provide the baseline for the traffic impact assessment of the River Deel (Crossmolina) Drainage Scheme.

The anticipated routes of the traffic generated during the construction phase are presented on Table 11.3

Road Name	AADT (2007)
N59 – Ballina Street	5000
N59 – Main/Bridge Street	1200
N59 – Erris Street	3200
R315 – Church Street	2100
R315 – Mullenmore Street	2800
Chapel Street	900

**Table 11.3 – Recorded Traffic Flows on Anticipated Construction Traffic Routes (NRDO 2007)**

The busiest areas in Crossmolina Town, as shown above are the N59 (Ballina Street, Erris Street and Main/Bridge Street) and the R315 (Mullenmore Street and Church Street).

### 11.2.3 Construction Traffic

Construction related traffic will originate from the delivery of materials to site, removal of surplus excavated material from site and transport of employees to, from and throughout the site. The estimated number of round trips is approximately 24,000 spread over the anticipated construction period of up to 4 years. A breakdown of the estimated number of trips is provided in Table 11.4.

The removal of surplus material will comprise primarily of material excavated for construction of the diversion channel and intake structure. To a lesser extent, surplus material will also arise from excavation during construction of the bridges and road realignment. The estimated number of round trips from site for removal of surplus material is 10,400 over the anticipated construction programme. This figure is based on the estimated maximum volume of surplus material that will be removed from the site and the volume of material that can be transported per vehicle.

The estimated number of round trips for construction personnel employed on site is approximately 10 - 30 round trips per day over the construction period, depending on the level of activity on site. These trips

include staff movements to and from the site compounds and works areas. It is estimated that construction of the Scheme will take a maximum of four years to allow for phasing of work associated with the programme restrictions outlined in the Chapter 3 (Description of Proposed Development).

Table 11.4 gives a breakdown of the estimated construction traffic for River Deel (Crossmolina) Drainage Scheme and the estimated minimum and peak number of round trips per day. The minimum number of round trips represents the scenario where there is a slow down in construction activity and only workforce movements take place. The peak number of round trips represents the worst-case scenario and has therefore been used in the assessment of impact of construction traffic in Section 11.2.4.2.

Description of Trip	Total Round Trips	Round Trips Per Day	Location
Delivery of Materials	2,000	0 - 10	All Routes
Removal of Excavated Material	10,400	0 - 67	All Routes
Workforce	11,440	10 - 30	All Routes
Total (peak)		107	
Total (during a slow down in construction activity)		10	

**Table 11.4 – Estimated Construction Traffic**

## 11.2.4 Potential Impacts on Traffic and Transport Infrastructure

### 11.2.4.1 Potential Impact on Transport Infrastructure

#### **Potential Short Term Slight Negative Impact and Potential Permanent Significant Positive Impact**

The proposed scheme has the potential to impact on the transport infrastructure in the area. This impact is likely to occur in the following areas;

1. L1105 – construction of Pollnacross Bridge (C02-B01) over the proposed grass lined channel and raising of the road at the approach to the bridge. The road will be widened at the bridge and a footpath will be provided.
2. R315 – construction of the Mullenmore Bridge (C02\_B02) and creation of a new junction with the Lake Road. Two new footpaths will be provided on the Mullenmore Bridge.
3. Lake Road – closure of a section of the existing road, realignment of a section of the existing road and creation of a new junction with the R315. Two new footpaths will be provided on the Lake Road.
4. Access road connecting dwellings and farms to existing junction with the R315 – raising and realignment of the existing road to connect to the Lake Road and closure of a section of the existing access road.

During the construction phase, the above-mentioned works will have a potential short term slight negative impact on transport infrastructure due to works being carried out directly on the infrastructure which could result in damage to existing transport infrastructure. The works will also require the implementation of a temporary road closure of the L1105 and a temporary lane or road closure on the R315, as detailed in Section 11.2.4.4.

During the operation phase, the proposed Scheme will have a permanent significant positive impact on transport infrastructure due to the following upgrades to transport infrastructure:

- Widening of the L1105 at the approach to the new Pollnacross Bridge

- Two new footpaths will be provided on the Mullenmore Bridge
- Two new footpaths will be provided on the new realigned Lake Road

In addition, the proposed Scheme when constructed will mitigate flood risk in Crossmolina Town which affects the N59, R315, L1005, and other roads in the town, which are cut off during flood events. The constitutes a significant positive impact to transport infrastructure during flood conditions.

### **Mitigation Measures**

The construction of the reinforced concrete bridges will be carried out in accordance with the design standards; the Transport Infrastructure Ireland Publications (Technical) and the Structural Eurocodes, including EC0 Basis of Structural Design, EC1 Actions on Structures, EC2 Design of Concrete Structures and EC7 Geotechnical Design as detailed in Chapter 3, Section 3.3.4.

The construction of the roads proposed as part of the scheme will be carried out in consultation with the Local Authority and will also follow all relevant publications by the Department of Transport, Tourism and Sport.

The following mitigation measures will also be implemented:

- The contractor shall provide general condition and structural surveys of all transport infrastructure (roads (including haulage roads), bridges, access tracks) on all routes, including haulage routes, that may be impacted as a result of the proposed Drainage Scheme before works commence on site and after completion and provided to the BMD-West Engineer.
- The contractor shall provide construction details of any lay-buys or hardstand if required to facilitate construction traffic during the construction phase of the Scheme;
- The contractor shall be obliged to identify locations of any bridges that have weight/ height restrictions along proposed haul routes and comply with these restrictions;
- Site entrance locations off the public road may require a durable bound surface and a secure joint must be formed between the access road and the public road. A durable bound surface is required on access roads for a minimum distance of 10m from the public road;
- Adequate drainage will be maintained at all times to ensure that no surface water from the site or site access discharges to the public roads;
- Cleaning regime for plant will be implemented in order to minimise mud/dust on public roads.

### **Residual Impacts – Short Term Not Significant Negative Impact and Permanent Significant Positive Impact**

Taking into account the above-mentioned mitigation measures, the residual impact during the construction phase of the Scheme will be a short term not significant negative impact.

During the operation phase of the Scheme, the residual impact of the proposed Scheme is that the transport infrastructure will be improved ((the widening of the L1105 at the new bridge and the construction of footpaths on the R315 bridge and the realigned Lake Road) and flood risk on roads within and in the vicinity of Crossmolina Town including the N59, R315, L1005 will be mitigated, resulting in a permanent significant positive impact.

## 11.2.4.2 Potential Impact of Construction Traffic

**Potential Short Term Slight Negative Impact and Potential Occasional Imperceptible Negative Impact**

Table 11.5 compares the predicted peak construction traffic with the existing traffic flows in Crossmolina town. A worst-case scenario has been assumed in relation to the daily volume of construction traffic, as detailed in Section 11.2.3 and Table 11.4:

Road Name	Annual Average Daily Traffic	Construction Traffic	
		Peak Daily Construction Traffic	As a Percentage of Existing Traffic
N59 – Ballina Street	5000	107	2.14%
N59 – Main/Bridge Street	1200	107	8.92%
N59 – Erris Street	3200	107	3.34%
R315 – Church Street	2100	107	5.10%
R315 – Mullenmore Street	2800	107	3.82%
L1105 - Chapel Street	900	107	11.89%
The Boreen	82 <sup>a</sup>	14 <sup>b</sup>	17.07%

**Table 11.5– Peak Daily Construction Traffic as a Percentage of Existing Traffic on Anticipated Construction Traffic Routes**

<sup>a</sup>Average annual daily traffic for the Boreen was estimated based on 3 round trips per household per day. No traffic count data currently available.

<sup>b</sup>Peak daily construction traffic for works associated with the construction of the river flow control structure.

During the construction phase, the predicted increase in traffic as a result of construction traffic is estimated to range in an increase of 2.14% to 17.07% on existing base levels assuming the worst case scenario. It is predicted that the L1105/Chapel Street and the Boreen will have the largest increase in traffic volumes during the construction phase of the proposed scheme due to the smaller volumes of traffic currently using the roads, however it is not anticipated that this will result in notable traffic congestion. It is not anticipated that there will be a significant increase in journey time along the anticipated traffic routes as a result of construction traffic. The potential impact will be short term in nature.

During the operation phase of the Scheme, traffic associated with the Scheme maintenance will have an occasional imperceptible negative impact on traffic due to the small volume and infrequent nature of the maintenance works (Chapter 3, Section 3.2.4).

**Mitigation Measures**

Traffic volumes on the L1105 will be mitigated by the road closure during the construction of the Pollnacross Bridge, which will increase traffic volumes using the R315. The L1105 will be used for delivery of materials during construction of the river flow control structure which will minimise construction traffic on the Boreen.

A Road Transport and Traffic Management Report will be prepared to include a map indicating the proposed public roads or haulage routes for removal of surplus material off site, as listed in Table 11.5.

In addition, the following mitigation measure will be implemented within the Plan:

- The locations at which traffic management measures will be put in place will be agreed with the BMD-West Engineer prior to commencement of the construction phase.

- The contractor will confirm the proposed laden weight of trucks identified, max length of same, Journey time and number of trips per route per day to and from works sites.
- The contractor will confirm the proposed start and finish times as outlined in this document and days for truck haulage and estimate the minimum and maximum number of days for full operation.
- Pull-in lay-bys or hardstands for overtaking of slow moving traffic will be identified along the proposed haulage routes.
- Any traffic control measures will be carried out with the agreement and under the supervision of the local Area Engineer. Road signage on the public road network will comply with the Department of the Transport's Traffic Signs Manual "Chapter 8 Temporary Traffic Measures and Signs for Roadworks".
- Traffic management measures will be designed in accordance with the "Guidance for the Control and Management of Traffic at Roadworks – Second Edition".

***Residual Impact – Short Term Not Significant Negative Impact and Occasional Imperceptible Negative Impact***

The impact of additional traffic volumes due to construction traffic will be short term. With the above mitigation measures in place, it is not anticipated that the volume of construction traffic will significantly affect the flow of traffic through Crossmolina Town and it is not anticipated that there will be a significant increase in journey time along the anticipated traffic routes.

During the operation phase, traffic associated with maintenance of the Scheme will have an occasional imperceptible negative impact on traffic volumes.

11.2.4.3 Potential Impact of Works in the Vicinity of Road Network

***Potential Short Term Slight Negative Impact***

Localised traffic disruption is also likely to occur at locations of proposed works on, or in the immediate vicinity of the road network due to construction traffic entering and exiting the works areas. These works include the construction of the proposed grass lined channel and the construction of the reinforced concrete intake structure. This constitutes a potential short term slight negative impact.

***Mitigation Measures***

The localised traffic disruptions as a result of other proposed works throughout the scheme will be mitigated through the use of industry standard traffic management measures. The contractor will be obliged to design the traffic management measures in accordance with the 'Guidance for the Control and Management of Traffic at Roadworks – Second Edition'.

The contractor will also be obliged to provide the following mitigation measures:

- Road signage on the public road network will comply with the Department of the Transport's Traffic Signs Manual "Chapter 8 Temporary Traffic Measures and Signs for Roadworks".
- Site entrance locations off the public road may require a durable bound surface and a secure joint must be formed between the access road and the public road. A durable bound surface is required on access roads for a minimum distance of 10 m from the public road
- Adequate drainage will be maintained at all times to ensure that no surface water from the site or site access discharges to the public roads



- Cleaning regime for plant will be implemented in order to minimise mud/dust on public roads

#### ***Residual Impact –Short Term Imperceptible Negative Impact***

Relatively short, localised delays are likely to be encountered by motorists at the locations of proposed works in the immediate vicinity of the road network due to construction traffic entering and exiting the works areas. This impact will be a short term impact and there will be no residual impact on completion of the proposed works.

#### **11.2.4.4 Potential Impact of Road Closures**

##### ***Potential Temporary Significant Negative Impact***

Temporary road closures will be required for a period of approximately nine months during construction of the Pollnacross Bridge (L1105). In the case of a road closure, traffic will be diverted to the R315 and R316 which will result in an increase in journey time by car of approximately 10 minutes (7.5km) at worst case scenario.

Temporary road closures may also be required during construction of the Mullenmore Bridge (R315) if it does not prove possible to maintain one lane of traffic on the existing road open at all times. In this case, traffic will be diverted temporarily along the realigned Lake Road.

##### ***Mitigation Measures***

Construction works will be sequenced so as to avoid unnecessary interruption to road users insofar as is practicable. The realigned Lake Road will be constructed in advance of constructing the two new bridges thereby providing an alternative route to the R315 locally at the Mullenmore Bridge. This will minimise the potential requirement for a closure of the R315. Any road and lane closures will be timed to minimise the impact to the flow of traffic, and if possible, work will be carried out at off peak times to reduce the impact, particularly on heavy goods vehicles. All residents and interested parties shall be consulted when planning these road closures to optimise the timing of same. A complete schedule of road closures will be published in advance of the works commencing to facilitate residents in making alternative arrangements where necessary.

##### ***Residual Impact –Temporary Moderate to Significant Negative Impact***

The temporary closure of L1105 and temporary lane closure or road closure of the R315 to facilitate the proposed construction of two new bridges is likely to cause a moderate to significant temporary impact to the flow of traffic in the vicinity of the works. In the case of road closures, alternative diversion routes have been identified. There will be no residual impact once the proposed scheme is completed.

### **11.3 POTENTIAL IMPACTS ON SERVICES AND PROPOSED MITIGATION MEASURES**

The majority of proposed works pertaining to the River Deel (Crossmolina) Drainage Scheme, described in detail in Chapter 3, are as a result of the construction of a new grass lined channel spanning from the proposed intake structure at the River Deel to the townland of Mullenmore to the East of the R315 Crossmolina to Castlebar road. This section will explore the potential impact the scheme could have on existing services, and propose necessary mitigation measures. Appendix 11A provides an overview of the location of existing services in relation to the proposed Scheme.

### 11.3.1 Potential Impact of Site Investigation

#### **Potential Temporary Imperceptible Negative Impact**

Limited site investigation will be carried out during the construction phase of the Scheme, in the form of pre-construction archaeological test trenching and trial pits to confirm the location of existing services as detailed in the mitigation measures in sections 11.3.2 – 11.3.5. These works have the potential to impact existing services however standard industry methodologies will mitigate this impact. As such, with mitigation in place, the pre-construction site investigation is anticipated to have a temporary imperceptible negative impact on existing services during the construction phase. There will be no impact during the operation phase of the Scheme.

### 11.3.2 Potential Impact to the Water Distribution Network

#### **Potential Temporary Moderate Negative Impact**

The proposed scheme will potentially impact the water distribution network in the locations identified in Table 11.6 below and as shown in Appendix 11A.

Crossing Type	Diameter	Location	Interference Reference
Watermain - HDPE	50mm	Lake Road at diversion channel chainage 132m	C02_S03
Watermain - UPVC	75mm	Lake Road at diversion channel chainage 149m	C02_S03
Watermain - HDPE	125mm	L1105 at diversion channel chainage 905m	C02_C01, C02_R05
Watermain - UPVC	75mm	X=114286.9, Y=316808.1 to X=114353.2, Y=316829.3	C02_R06
Watermain - UPVC	75mm	X=114192.5, Y=316764.1 to X=114213.4, Y=316773.7	C02_R07
Watermain - HDPE	50mm	X=114195.4, Y=316744.7 To X=114200.7, Y=316747.9	C02_R07

**Table 11.6 – Water Distribution Pipework Crossings**

Watermains may be encountered during excavation works for the proposed diversion channel and road realignment at the locations identified in Table 11.6. It is possible that watermains could be damaged during the construction phase, resulting in loss of distribution to the potable water supply in the area. The impacts are predicted to be moderate and temporary.

#### **Mitigation Measures**

The Employer's Representative (Consultant Engineer) will assess the water distribution drawing and detailed site investigation in order to determine the locations of watermains relative to the proposed works as part of the Design Phase. Any anticipated clashes between the water distribution network and the proposed works will be identified during the design phase and any diversions necessary to avoid

accidental clashes during the construction phase will be designed, planned and agreed with Irish Water in advance of the construction phase of the Scheme.

The Contractor will be supplied with record service drawing and the results of the Site Investigation prior to excavation in order to determine the location of existing watermains within the works area. The Contractor will carry out additional site investigation in order to confirm the location of the watermains. This will further reduce the risk of striking the watermains and causing unscheduled interruption to the potable water supply in the area.

#### **Residual Impact – Temporary Not Significant Negative Impact**

Taking into account the above-mentioned mitigation measures, the residual impact to the water distribution network during the construction phase is a temporary not significant negative impact. There will be no residual impact to the water distribution network during the operation phase of the Scheme.

### **11.3.3 Potential Impact to the Gas Network**

#### **Potential Temporary Significant Negative Impact**

The proposed works may interact with the gas distribution network at the locations detailed in Table 11.7 and as shown in Appendix 11A:

Crossing Type	Location	Interference Reference
Gas Distribution	C02.0252	C02_C01
Gas Distribution	X=114080.4, Y=316823.8 To X=1140893.3, Y=316778.4	C02_B02
Gas Distribution	X=114067.2, Y=316891.9 To X=114073.6, Y=316859.0	C02_R06

**Table 11.7 – Gas Pipework (Distribution) Crossings**

Excavation for the diversion channel, foundations of the Mullenmore Bridge (R315) and the new junction on the R315 could encounter a gas main that runs along the R315 at the locations identified in Table 11.7. It is possible that this gas main could be damaged during the construction phase, affecting the supply to properties in the area and potentially causing a fire or explosion.

The impacts described above are predicted to be temporary and significant.

#### **Mitigation Measures**

The locations of the gas pipelines relative to the proposed works will be confirmed as part of the Design Phase. The Employer's Representative (Consulting Engineer) will assess the gas network drawings and result of the detailed site investigation in order to determine the exact depth and location of the existing gas pipelines within the works area. Should it be anticipated that the excavation for the diversion channel and bridge foundations will impact on this pipework, this will be taken into consideration at detailed design stage and any diversions necessary to avoid accidental clashes during construction phase will be designed, planned and agreed with Bord Gáis in advance of the construction phase. Planned diversions will be included in the works requirements or carried out in advance as appropriate. Works will be carried out in

accordance with Gas Networks Ireland publication 'Safety advice for working in the vicinity of natural gas pipelines'.

The Contractor will be supplied with the site investigation report and record drawings of the gas distribution network. Prior to excavation the Contractor will carry out additional site investigation, including slit trenches, in order to determine the exact location of the gas pipelines in close proximity to the works area. This will ensure that the gas distribution network will not be damaged during the construction phase.

#### **Residual Impact - Temporary Not Significant Negative Impact**

Taking into account the abovementioned mitigation measures, the residual impact to the gas network during the construction phase is a temporary not significant negative impact. There will be no residual impact to the gas network during the operation phase of the Scheme.

### **11.3.4 Potential Impact to Electricity Network**

#### **Potential Temporary Significant Negative Impact**

The proposed scheme may impact on the overground and underground electricity network at the locations detailed in table 11.8 and as shown in Appendix 11A.

Crossing Type	Location	Interference Reference
ESB Overhead Cable	X=113842.7, Y=316737.6 to X=113814.0, Y=316794.9	CO2_C01
ESB Overhead Cable	X=113974.9, Y=316776.9 to X=113966.6, Y=316843.4	CO2_C01
ESB Overhead Cable	X= 114151.5, Y=316725.4 to X=114174.4, Y=316737.2	CO2_S03
ESB Overhead Cable	X=114193.3, Y=316747.3 to X=114202.1, Y=316751.7	CO2_R07
ESB Underground Cable	X=114195.0, Y=316696.6 to X=114188.2, Y=316744.9	CO2_G23

**Table 11.8 – ESB Cable Crossings**

Electricity cable laid in close proximity to the location of the proposed access road realignment, the energy dissipation structure and drainage channel has the potential to be damaged during excavation works. This would result in a loss of power in the area. The striking of an underground electricity cable during construction operations could potentially result in serious injury or death of site staff.

There are also a number of overground electricity cabling crosses in the vicinity of the proposed works.

There is existing public lighting columns on the left side of the R315 on the approach to the town commencing at the junction of the R315 and the Lake Road. There is also public lighting on the right side of Lake Road towards the Gortnoraby School. There is also a kiosk located off the R315 close to the proposed works.

A 3 phase power supply line is located close to the proposed intake structure.

The potential impact to the electricity infrastructure as a result of the construction of the proposed works is predicted to be temporary and significant.

#### **Mitigation Measures**

The locations of the electricity network relative to the proposed works will be confirmed as part of the Design Phase. The Employer's Representative (Consulting Engineer) will assess the service drawings and results of the detailed site investigation in order to determine the exact depth and location of the existing electricity cables within the works area. Should it be anticipated that the excavation for the proposed works will impact on the electricity network, any diversions necessary to avoid accidental clashes during construction phase will be designed, planned and agreed with the ESB in advance of the construction phase. Planned diversions will be included in the works requirements or carried out in advance as appropriate.

The Contractor will be supplied with the site investigation report and record drawings of the electricity network. Prior to excavation the Contractor will carry out additional site investigation, including slit trenches, in order to determine the exact location of the electricity network in close proximity to the works area. This will ensure that the underground electricity network will not be damaged during the construction phase.

The Contractor will be supplied with the information obtained in the slit trenches and the electrical cable locations will be marked prior to excavation in the area. The Contractor will carry out additional site investigation to determine the exact location of the electrical cables in the vicinity of the proposed works. This will further reduce the risk of striking the cables and causing damage during the construction phase.

It is considered that any likely impacts to or from the overhead cables will be mitigated by applying standard construction practices. The Contractor will be obliged to adhere to the ESB Code of Practice for Avoiding Danger from Overhead Electricity Lines, May 2019 and the HSA Code of Practice for Avoiding Danger from Underground Services, 2010.

#### **Residual Impact - Temporary Not Significant Negative Impact**

Taking into account the abovementioned mitigation measures the residual impact to the electricity network during the construction phase is a temporary not significant negative impact. There will be no residual impact to the electricity network during the operation phase of the Scheme.

### **11.3.5 Potential Impact to Telecommunications Network**

#### **Potential Temporary Moderate Negative Impact**

The telecommunications network intersects the proposed Scheme at the locations listed in Table 11.9 below and as shown in Appendix 11A.

Crossing Type	Location	Works Schedule Ref.
Underground Cable	X=114068.2, Y=316891.8 To X=114075.0, Y=316858.5	C02_R06
Underground Cable	X=114082.6, Y=316823.5 To X=114093.0, Y=316777.8	C02_B02

Crossing Type	Location	Works Schedule Ref.
Underground Cable	C02.0252	C02_C01

**Table 11.9 – Telecommunications Network Crossings**

Works are proposed along the R315 at the locations identified Table 11.9 where telecommunication cables are present below ground. Should these cables clash with the works they could become damaged during construction phase which could result in service disruption.

The potential impacts are considered to be temporary and moderate.

### **Mitigation Measures**

The Employer's Representative (Consultant Engineer) will assess the telecommunications network drawings and the detailed site investigation reports in order to determine the exact depth and location of the existing network within the works area. The locations of the telecommunications cable locations relative to the proposed works have been confirmed as part of the Design Phase. Should it be anticipated that the excavation for the proposed works will impact on this cabling, any diversions necessary to avoid accidental clashes during construction phase will be designed, planned and agreed with the service provider in advance of the construction phase.

The Contractor will be supplied with the information obtained in the slit trenches and the telecommunication cable locations. Prior to excavation the Contractor will carry out additional site investigation in order to determine the exact location of any underground telecommunications cables. This will further reduce the risk of striking the cables and causing damage during the construction phase.

It is considered that any likely impacts to the overhead cables will be mitigated by applying standard construction practices.

### **Residual Impact - Temporary Not Significant Negative Impact**

Taking into account the abovementioned mitigation measures, the residual impact to the telecommunications network during the construction phase is a temporary not significant negative impact. There will be no residual impact to the telecommunications infrastructure following the construction phase.

## **11.4 WASTE MANAGEMENT DURING CONSTRUCTION**

The River Deel (Crossmolina) Drainage Scheme will produce a significant volume of surplus excavated material during the construction phase. This section will examine the likely significant effects associated with this waste and any mitigation measures required.

### **11.4.1 Background Information**

'Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects (2006)' were published by the DoEHLG. These Guidelines outline the issues that need to be addressed at the pre-planning stage of a development all the way through to its completion.

Best Practice Guidelines sets thresholds to ascertain which projects require the preparation of C&D plans. The proposed development, exceeds the following threshold and therefore requires a C&D Waste Management Plan;

- Civil Engineering projects producing in excess of 500 m<sup>3</sup> of waste, excluding waste materials used for development works on the site.

The Waste Management Plan is included in the Outline Construction Environmental Management Plan (Appendix 3C). As outlined in Chapter 6, excavated material will be reused on site as much as practicable. Where this is not possible, the recycling rates for the C&D waste produced throughout the construction of the River Deel (Crossmolina) Drainage Scheme should be maintained at or above 85%, if possible, as outlined in the Waste Management (Planning) Regulations 1997.

#### 11.4.2 Classification Of Waste

Excavation for the proposed diversion channel, bridge foundations, retaining wall and embankment foundations and road alignment will give rise to a surplus volume of material during the construction phase of the proposed scheme. The topsoil and excavated material will be reused on site where possible. In addition, any gravels removed from the River Deel as part of the maintenance regime (Chapter 3, Section 3.2.4) will be made available to IFI for use in fisheries enhancement elsewhere in the catchment. It is anticipated that approximately 166,400 m<sup>3</sup> of excavated material will have to be exported from the site.

The European Waste Codes (EWC) for typical waste materials that may possibly be generated during the construction phase are outlined in Table 11.10.

Waste Material	LoW
Soil, stones and dredged spoil	17 05
Bituminous mixtures, coal tar and tarred products	17 03
Concrete, Bricks, Tiles and Ceramics	17 01
Metals (including their alloys)	17 04
Waste Hydraulic Oils*	13 01
Wastes of Liquid Fuels*	13 07
* Denotes Hazardous Materials	

**Table 11.10 – Applicable List of Waste (LoW) Code**

A breakdown of the estimated volumes of waste, origin of waste, and List of Waste (LoW) Codes are shown on Table 11.11. The volumes are estimated based on the extent of excavation required and local topography.

Origin of Waste	LoW Code	Estimated Volume of Waste
Diversion Channel	17 05/17 03	166,000
Bridge/ Retaining Wall Foundations	17 05/17 03	300
Miscellaneous	17 05/ 17 04/17 03/17 01/ 13 01/ 13 07	100
<b>Total</b>		<b>166,400</b>

**Table 11.11 – Estimated C&D Waste resulting from the proposed scheme**

Three strands of Japanese Knotweed (*Fallopia japonica*) were identified in the works area and an area of the proposed washlands. Therefore, any soil removed from any effected areas must be managed in accordance with the Invasive Species Management Plan as set out Chapter 5.

#### 11.4.3 Potential Impact during Construction Phase

##### **Potential Permanent Moderate Negative Impact**



As detailed in Chapter 6, the vast majority of surplus material will be generated during the construction of the diversion channel and will consist of natural Fluvio-glacial deposits and Glacial till.

Poor management of waste has the potential to cause nuisance and an adverse environmental impact, particularly due to the presence of Japanese Knotweed in the proposed working areas. Mismanagement of soil removed from these areas could lead to the spreading of the invasive alien species in other areas. Waste that is not managed and stored appropriately on site may result in water and ground pollution on or in the vicinity of the site. Litter and debris may be generated from leftover construction materials, packaging from materials and mixed waste produced by the site staff.

Poor management of excavated waste could lead to the disposal of waste deemed unsuitable for reuse or recycling in facilities that do not carry the appropriate licenses.

In addition, if waste is not managed and stored correctly on site, it has the potential to cause nuisance and environmental impact. Litter may be generated from packaging taken from materials, mixed waste produced by the construction workers (lunches, cigarette waste etc.), or from debris from leftover/damaged construction materials. Poor management of waste may also result in water and ground pollution on the site or adjacent to the site.

Fuels and hydraulic oils/lubricants that will be used during the construction phase are classed as hazardous. There will be fuels stored on site for machinery and construction vehicles along with oils and lubricants. Should any spillages, waste or surplus liquids be disposed of incorrectly it could cause serious harm to the surrounding environment.

The potential impacts of construction and demolition waste on the environment, given the presence of Japanese Knotweed in the study area, are predicted to be permanent and moderate.

### ***Mitigation Measures***

All current and applicable waste management legislation will be applied and adhered to. Contractors that are engaged in the transport of waste off-site will comply with the provisions of the Waste Management Act (1996) (as amended), associated Regulations and the Waste Management Plan prepared in accordance with 'Best Practice Guidelines for the Preparation of Waste Management Plans for Construction and Demolition Projects (2006)'. As such, the Contractor must handle, transport and dispose of waste in a manner that ensures that no adverse environmental impacts occur as a result of any of these activities. A waste collection permit to transport the waste which has been issued by the National Waste Collection Permit Office must be held by the relevant contractor.

Waste receiving facilities must also be appropriately licensed or permitted for the waste being received. The Contractor will be prohibited from delivering waste to unlicensed facilities and Operators of such facilities cannot receive any waste, unless in possession of a waste permit granted by the Local Authority under the 'Waste Management (Facility Permit & Registration) Regulations 2007' (as amended) or a waste license granted by the EPA. The permit/license held will specify the type and quantity of waste able to be received, stored, sorted, recycled and/or disposed of at the specific site. The contractor shall provide details of all proposed waste facilities to the Area Engineer before works commence on site. It has been confirmed that there are appropriate facilities in the area available to receive and process waste material.

The construction compound for the proposed scheme will have a dedicated Waste Storage Area (WSA) for any construction waste generated. Receptacles/skips or bays will be provided for each recyclable material.



### **Bedrock, Block and Concrete**

It is reasonable to assume that gravels and bedrock may be encountered during the excavation of the diversion channel, bridge foundations. Made ground is likely to be encountered in areas where the proposed diversion channel crosses the R315, Lake Road and access roads. Any material which is not reused will be separated out and sent to an appropriate authorised recycling facility or waste facility if deemed unsuitable for recycling.

During construction of the two new bridges, the intake structure, river flow control structure, energy dissipation structure, access roads and footpaths it is reasonable to assume that there will be some waste concrete and blocks generated. This waste will be adequately contained and stored within the WSA of the construction compound. It will then be disposed of to an appropriate authorised licensed facility.

### **Soil/Subsoil**

As mentioned above, the majority of the C&D generated from the construction phase will result from the excavation of the proposed diversion channel. All works carried out in areas where Japanese Knotweed has been identified will be managed in accordance with the measures set out in the Invasive Species Management Plan (Chapter 5).

Soils generated from excavations which is not in a Japanese Knotweed infested area will be stored separately from the gravels and bedrock and will be transported to an appropriately licensed facility by permitted contractors.

Although it is not foreseen, if contaminated soils are encountered, they will be stored separately to the inert material. Samples will be taken and tested in order to appropriately classify the material as non-hazardous or hazardous to establish the criteria for the acceptance of waste at landfills. They will then be transported to an appropriately licensed facility by permitted contractors.

### **Scrap Metal**

Reinforced concrete is likely to be used as part of the construction of the river flow control structure, intake structure, energy dissipation structure and two new bridges. As such it is reasonable to assume that a small amount of scrap metal be generated.

Scrap metal is highly recyclable and as such it will be segregated from other waste and recycled accordingly.

### **Timber**

A small amount of timber waste may also be generated as a result of hoarding around works areas, or from shuttering for in-situ concrete pours. It is likely that this timber can be reused for a number of different functions throughout the construction phase however a small amount of waste will be generated, and the timber as a whole could be disposed of as the construction phase comes to a close.

Timber that is uncontaminated, i.e. free from paints, preservatives, glues etc, will all be recycled. Should any timber be deemed to be contaminated it will be collected by an appropriately permitted specialist contractor and disposed of in an appropriately licensed facility.

### **Hazardous Materials**

If hazardous materials are used/encountered on site, i.e. bituminous mixtures containing coal tar, timber with paint, asbestos concrete pipes, a specialist contractor will be employed to carry out an environmental clean-up to remove all traces of contaminated material from the site. The specialist contractor will be

licensed under the 'Waste Management (Collection Permit) Regulations, 2007' (as amended). This will be disposed of at an appropriately licensed facility.

In order to avoid any hazardous materials infiltrating the ground water during construction and operation phase there will be a bunded area constructed within the site compound with sufficient volume to contain any spills. All plant refuelling, maintenance or washing will be carried out within the bunded area. Spill kits will also be available at this area to facilitate the quick and effective cleaning of any substances.

#### Documentation

Waste will be weighed, either by weighing mechanism on the truck or at the receiving facility, and these records will be kept by the contractor (both hard and soft copies).

A copy of all waste collection permits, for all waste contractors will be kept by the Waste Manager, working on behalf of the Contractor, on site.

If the waste is being transported to another site, a copy of the waste permit or EPA Waste License for that site must be provided and kept by the Waste Manager. If the waste is being shipped abroad, a copy of the Transfrontier Shipping (TFS) document must be obtained from Dublin City Council (as the relevant authority on behalf of all local authorities in Ireland) and kept on site along with details of the final destination (permits, licenses etc). A receipt from the final destination of the material will be kept as part of the on-site waste management records.

All information will be entered into the waste management system to be maintained on site.

#### ***Residual Impacts – Short Term Imperceptible Negative Impact***

Taking into account the abovementioned mitigation measures, the residual impact of construction and demolition waste generated during the construction phase will be a Short Term imperceptible negative impact.

#### **11.4.4 Potential impact during the Operational Phase**

##### ***Potential Temporary Slight Negative Impact***

The operational phase of the proposed scheme is unlikely to produce any waste of significant volume. Periodic maintenance of the River Deel channel between the Jack Garrett (N59) bridge and the diversion channel will be required along with attendance at the intake structure for maintenance of mechanical elements, maintenance of the river gauges and general maintenance of vegetation. Such maintenance could generate very small volumes of litter, packaging, concrete, scrap metal, bitumen products or soils that if not disposed of correctly could adversely affect the local environment.

##### ***Mitigation Measures***

For maintenance and repair work, all maintenance teams involved will take all waste generated on site back to their compounds to be placed in appropriate waste streams designated for recycling, reuse or disposal. No waste will be left at the site of the repair or maintenance.

##### ***Residual Impacts – Neutral Impact***

Taking into account the abovementioned mitigation measures the residual impact of the operational phase will be imperceptible.

#### **11.5 ACCESS TO PROPERTY**

**Potential Permanent Significant Negative Impact**

The project when constructed will mitigate flood risk to Crossmolina Town. This flood risk affects the N59, R315, L1005, and other roads in the town, which are cut off during flood events. The L1105 also floods at the location of the proposed intake structure and another low lying section to the South.

Nonetheless, the new infrastructure will traverse agricultural land between the River Deel and the Mullenmore Springs. It will also cross two roads, and local accesses to residential properties.

The development has the potential to sever access to residential properties, and agricultural land on a permanent basis. There is also potential for disruption to access during the construction phase (refer to Section on Traffic and Roads).

Washlands will be created between the end of the diversion channel and Lough Conn. These washlands do not currently serve as access routes to anywhere other than the agricultural land that they will cover.

**Mitigation Measures**

The route of the diversion channel has been chosen with regard to several factors including the goal to minimise the division of existing fields and land holdings where possible. This has not been possible in all cases and severance of some landholdings will occur.

New bridges are proposed for the L1105 and R315. Access to property along the Lake Road will be maintained by realigning the road and creating a new junction with the R315 Regional Road.

Where access to residential properties are to be relocated, alternative access routes will be provided as per the scheme drawings (Appendix 3A). Where existing access routes to agricultural lands are to be extinguished, these will be replaced. Indicative locations are shown on the drawings in Appendix 3A.

The Lake Road diversion will be constructed in advance of the other elements of the scheme so that access is maintained in the vicinity of the Lake Road. Maintenance of access will also be taken into account in the overall sequencing of the works.

**Residual Impacts – Permanent Significant Positive Impact**

Taking into account the abovementioned mitigation measures, access to properties and agricultural land will be maintained or replaced during the construction phase of the Scheme. In addition, the proposed Scheme when operational, will mitigate the flood risk which affects the N59, R315, L1005, and other roads in the town and prevent them being cut off in flood conditions. The residual impact will be significant permanent positive.

**11.6 LAND USE****11.6.1 Residential and Commercial Land Use****Potential Permanent Moderate Positive Impact**

The proposed drainage scheme will result in a significantly reduced risk of flooding in Crossmolina Town which will have a significant positive impact on residential and commercial properties in the town. Property values will be maintained or increased as a result and the ability to obtain housing insurance will be greatly improved.

As the new infrastructure will mainly traverse agricultural land between the River Deel and the Mullenmore Springs, there will be limited impact on residential landholdings. While no houses will be lost based on the chosen diversion channel route, the Scheme will encroach on 4 no. landholdings, to construct elements of the

scheme including the intake structure, diversion channel and realigned Lake Road. There will be no direct impact on commercial properties.

### **Mitigation Measures**

The route of the diversion channel has been chosen with regard to several factors including the goal to minimise impacts on residential properties where possible. Encroachment on residential landholdings has been minimised by design so far as is practicable.

### **Residual Impacts – Permanent Significant Positive Impact**

Taking into account the abovementioned mitigation measures and the benefit of the Scheme to the Crossmolina Town (protection of properties and businesses from flood events), the residual impact will be significant permanent positive.

## **11.6.2 Agricultural Land Use**

### **Potential Permanent Moderate Negative Impact**

The main permanent impacts on agricultural activity as a consequence of the scheme will consist of permanent acquisition of land for construction of the scheme, and severing of landholdings.

As detailed in Chapter 6, following construction of the Scheme, there will be a total permanent loss of approximately 8.58 ha of agricultural lands as a result of the proposed diversion channel. During the construction phase there will be an additional temporary loss of 6.74 ha of agricultural land to facilitate the temporary works areas as shown in Chapter 3, Figure 3.1.

During flood conditions, an additional area of up to 23.7 ha of agricultural land will be flooded as a result of the new washlands created downstream of the diversion channel, dependent on levels in Lough Conn at the time of an overflow event. The washlands described in Chapter 3 mainly consist of marginal agricultural lands, with the notable exception of existing farm buildings and an old mill at Mullenmore. The areas designated as “Washlands” are those areas between the proposed channel and Lough Conn which under the Scheme, will be deliberately flooded to reduce flood waters in the River Deel and the consequent flood risk to Crossmolina Town. The washlands will extend from the termination point of the channel to Lough Conn. The washlands extents shown in Appendix 3A (Drawings WL\_01, WL\_02 and WL\_03) represent the extent to which flood waters will propagate in the event that the 92 cumec design flow overtops the intake weir, flows down the new channel and across the washlands en route to Lough Conn. The flood extents will vary depending on the lake level at the time of the overflow event and flow in the diversion channel. This will impact the use of the lands in question as they will be temporarily unusable during a flood event.

The route of the diversion channel has been chosen with regard to several factors including the goal to minimise the division of existing fields and land holdings where possible. This has not been possible in all cases and severance of some landholdings is proposed. Access to land will be maintained or alternative access will be provided as detailed in the Scheme drawings (Appendix 3A).

In addition, there will be changes in frequency and duration for which livestock will need to be removed from agricultural land. This inconvenience, while significant to individual farmers, is not significant on a county or national level.

Likely significant effects include those associated with construction activities such as noise, dust, restricted access, and potential temporary interruption of water supply. However, the proposed Scheme when

constructed will mitigate flood risk to Crossmolina Town, and as a consequence the agricultural lands along the river bank downstream will benefit from reduced flood risk as a result of the Scheme construction which will increase the value and potential usage of the land. Access to these lands via Crossmolina Town and other local access routes, which are presently cut off during flood events, will also improve as a result.

### **Mitigation Measures**

Good communication between the Communications Officer and the landowners during the construction phase will prevent undue disturbance due to noise, dust and to minimise difficulties caused by the restriction of access to severed land parcels. In cases where impeded drainage during construction will cause obvious difficulty to a particular landowner, temporary measures will be taken to allow waters to drain to less critical areas and so minimise the impact. Any existing service connections severed as a result of construction of the diversion channel will be reinstated.

Mitigation measures detailed in this section relate to engineering accommodation works alone. Further measures to compensate farmers due to land acquisition, drainage works and loss of facilities will be agreed with OPW at a later stage. Where existing access routes to agricultural lands are to be extinguished, these will be replaced where practicable. Where access points are to be relocated, these will be agreed with landowners in advance of construction works. Indicative locations are shown on the drawings in Appendix 3A. In most cases simple gateways will be appropriate, while in other cases new accommodation roads may have to be constructed.

### **Residual Impacts – Permanent Slight Negative Impact**

Nationally there are approximately 4,883,600 hectares of agricultural land (including rough grazing) of which 4,088,000 ha is grassland based enterprises and 351,500 ha is cereal and non-cereal crop production (Central Statistics Office, 2018).

The impact of the proposed Scheme on land use is imperceptible on a national level, however it constitutes a permanent slight negative impact on agricultural land in the Study Area due to the permanent loss of 8.58 ha of agricultural land during the operation phase of the Scheme and occasional loss of an additional 23.7 ha of agricultural land associated with the flooding of the washlands during flood conditions.

In addition, the agricultural lands along the river bank downstream of Crossmolina town will benefit from reduced flood risk as a result of the Scheme construction. Access to these lands via Crossmolina Town and other local access routes, which are presently cut off during flood events, will also improve as a result.

## **11.7 ACCIDENTS AND DISASTERS**

An assessment of the following key elements was undertaken in accordance with the EIA Directive (2014/52/EU):

- The vulnerability of the proposed Scheme to potential accidents and disasters
- The proposed Scheme's potential to cause major accidents or disasters which pose a risk to human health, cultural heritage and/ or the environment

### **11.7.1 Vulnerability to Accidents and Disasters**

Due to Ireland's geographical location and temperate oceanic climate, the proposed Scheme is less vulnerable to natural disasters such as earthquakes or tsunamis. The potential natural disasters that could occur are

therefore limited to flooding and fire. Severe weather conditions, and associated extreme weather events such as flooding and flash flooding pose a more common risk in Ireland and to the proposed Scheme. The River Deel and Crossmolina Town have a long history of flooding. The four most recent flood events in 1989, 2006, and 2015 (November and December) resulted in flooding of three main streets in Crossmolina Town. The proposed Scheme has been designed to prevent flooding in Crossmolina Town up to the 1% AEP flood event and is highly adaptable to increasing flood risk due to climate change, given that flows in excess of Q100 are split between the River Deel and the diversion channel, with the majority diverted to the diversion channel. During the construction phase of the Scheme, works will be sequenced, and temporary works areas have been selected to avoid potential for inundation of the works area by flood water in so far as is practicable. Works on the intake structure and river flow control structure will be carried out at times of good weather and low flow in the river where there is no potential for significant volumes of surface water runoff from the works area or inundation with flood waters. There will be no storage of materials, machinery or soil in areas that are susceptible to flooding.

It is considered that the risk of significant fire occurring and affecting the proposed Scheme is limited due to the nature of the scheme itself. The grass lined channel and reinforced concrete structures (Intake Structure, River Flow Control Structure and Energy Dissipation Structure) would be largely unaffected by fire.

The proposed Scheme is not connected to or in the vicinity of any site regulated under the Control of Major Accident Hazards Involving Dangerous Substances Regulations (SEVESO sites), therefore no significant effects associated with major industrial accidents involving dangerous substances are anticipated.

### **11.7.2 Potential to Cause Major Accidents and Disasters**

The proposed Scheme's impact on flooding during the operation phase is assessed in Chapter 7 Water. The Scheme is designed to reduce flooding up to the 1% AEP flood event and will therefore have a permanent significant positive effect on flooding during the operation phase of the Scheme.

The proposed Scheme is not a source of pollution during the operation phase. During the construction phase, sources of pollution with the potential to cause significant effects are storage of fuels and chemicals, storage of waste and stockpiling of excavated material leading to an increase in sediment in surface water bodies. These impacts are assessed in Chapter 6, Chapter 7 and Chapter 11 (Section 11.4) of this EIAR. With mitigation measures in place, no significant effects are anticipated. The proposed Scheme's potential to cause major accidents and disasters is therefore unlikely.

## **11.8 ASSESSMENT OF CUMULATIVE AND IN COMBINATION IMPACTS**

### **11.8.1 Cumulative Impact Assessment**

All elements of the proposed Scheme were assessed in order to identify any cumulative effects.

The construction phase of the project will give rise to road closures and restrictions of traffic movements during the construction of Pollnacross Bridge (L1105) and Mullenmore Bridge and whilst realigning the lake road. This will create some short-term inconvenience for road users. By ensuring that these impacts occur at times and locations provided for in a traffic management plan, this will be mitigated in so far as is possible.

The movement of construction vehicles within, to and from the works areas has the potential to give rise to noise and dust nuisance impacts during the construction phase of the Scheme. However, these effects and the measures that are in place to avoid any cumulative or interactive effects are fully described in this EIA.

Poor management of waste has the potential to cause nuisance to human beings and an adverse impact on water, soils and biodiversity, particularly due to the presence of Japanese Knotweed in the proposed working areas. These effects and the measures that are in place to avoid any cumulative or interactive effects are fully described in this EIA.

### 11.8.2 In Combination Impact Assessment

A search in relation to plans and projects that may have the potential to result in a cumulative impact with the project on the environment was carried out as part of the EIA. The proposed Scheme has been considered, in combination with plans and the projects set out in Chapter 2, Section 2.8 of the EIA. In addition, the following data sources were assessed:

- Mayo County Development Plan (2014 – 2020)
- Relevant Local Area Plans
- National River Basin Management Plan 2018- 2021
- An Bord Pleanála Website (Planning Searches)
- Myplan.ie
- Web search for major infrastructure projects in County Mayo

The proposed drainage scheme will provide increased protection to residential and commercial premises in Crossmolina. Property values will be maintained or increased and the ability to obtain housing insurance will be greatly improved. Overall, a long-term significant positive cumulative impact is anticipated.

The impact on transport infrastructure, access to properties, land use, utilities, and waste management is unlikely to occur cumulatively as a result of the proposed works. The potential impact on infrastructure and services is temporary and will not result in residual impact in combination with other plans or projects. Similarly, impacts on traffic and transport infrastructure and access to local properties will be temporary during the construction phase.

Following a detailed assessment of the potential for any further impact when considered in combination with any or all of the plans and projects set out in set out in Chapter 2, Section 2.8, the proposed Scheme, with mitigation measures in place, was found to have no potential for significant in-combination cumulative effects on material assets.