



Chapter 13 – Material Assets – Traffic and Transportation

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13. MATERIAL ASSETS – TRAFFIC AND TRANSPORTATION

13.1 Introduction

This chapter of the EIAR undertakes a Traffic and Transportation Assessment (TTA) of any likely or significant impacts associated with traffic and transportation issues arising from the Proposed Development. The report presents an assessment of both the operational and construction stages in terms of vehicular access.

The Proposed Development site comprises a linear pipeline route (including associated construction works compounds) that traverses counties Meath and Offaly (hereinafter referred to as the 'Site' or 'Proposed Development Site').

This chapter is supported by figures contained in Volume 4 of this EIAR. While selected figures may be reproduced within the chapter for ease of reference, the full size and quality of those figures are provided in Volume 4. Annotated mark ups, diagrams and photographic records are excluded, as these are provided for illustrative or contextual purposes only and are not replicated at full presentation quality.

The relevant Volume 4 figures to this chapter include:

- ▶ Figures 13-1 GNI143 Ballykilleen Pipeline Road Crossings
- ▶ Figures 13-2 Daily Construction Traffic Flows

13.2 Methodology

This chapter presents an assessment of the likely significant effects of the Proposed Development on the environment in relation to Traffic and Transportation and has been undertaken in accordance with the Environmental Protection Agency (EPA) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports (2022). The methodology applied is consistent with the overarching assessment methodology described in Chapter 1 of this EIAR.

The assessment addresses the construction and operational phases of the Proposed Development and, where relevant, considers the potential for direct, indirect and residual effects on the receiving environment.

The impact assessment methodology applied within this chapter comprises the following stages:

13.2.1 Characterisation of Receiving Environment

The receiving environment is described in Section 13.3 of this chapter based on desk based review, site visits, surveys – both topographical measured and traffic counts together with consultation responses. The receiving environment has been established for the surrounding road network with respect to traffic flows, cross sectional layout of roads in the network to identify sensitive environmental receptors within the study area. Additionally, public transport services and pedestrian and cycle facilities in the study area have been evaluated.

13.2.2 Study Area

The study area for this assessment includes all public roads that could reasonably be affected by construction or operational traffic. It includes:

- ▶ Roads in the vicinity of the Proposed Development route in particular where crossings are proposed, together with the primary work area access points.
- ▶ Linepipe and material delivery, and construction worker routes from the M4 motorway including Junctions 9 and 10.

- ▶ Construction haul routes to the proposed temporary main construction compounds.

A desktop exercise has been undertaken of all road links within the study area. All road links have been assessed and assigned sensitivity based on the EIAR subject matter experts' experience and judgement.

13.2.3 Defining the Development

The defining of the development includes evaluating the size, use, parking, staffing, trip distribution for the construction and operational stages of the development. The characteristics of the Proposed Development is such that the construction phase will be the predominant element with respect to potential impacts with respect to Traffic and Transportation.

13.2.4 Potential Impact of the Development

The baseline environment for roads and traffic has been determined by identifying those key road links where traffic associated with construction and operation is likely to have an effect on the receiving transport environment.

The road traffic assessment for each phase has been based on the period that generates the peak or maximum traffic, i.e., the most adverse case scenario, and therefore provides a robust assessment for the Proposed Development. The peak periods for construction are identified, and peak day and hour traffic assessments have been undertaken for each assessed road to identify the percentage impact of the construction phase traffic on the road network.

The peak day and hour traffic flows have been assessed against the following Transport Infrastructure Ireland (TII) 'Traffic and Transport Impact Assessment Guidelines' thresholds to measure the impact on the existing local transport network and its ability to carry the development traffic.

To assess the Proposed Development traffic impact on the surrounding road network the current AADT (Annual Average Daily Traffic) flows were calculated based on traffic survey information (weekday classified traffic flows) that were conducted over a seven day period 26th May to 1st June 2025 ATC count for the roads set out in Section 13.3.4. This provides a flow on each link. Assessing these links will address the generated traffic impact on the local road network.

The construction most adverse case scenario will occur when construction movements associated with the Proposed Development are at peak levels. It is assumed that this will occur in 2028 and thus 2025 base flows have been used to assess the impact of the additional construction traffic on the surrounding road network.

Based on a review of Unit 5.3 'Travel Demand Projections' of TII's Project Appraisal Guidelines (PE-PAG-0217), the traffic growth rates associated with the 'Offaly Area' "Central" growth rate for 2016-2030 – Light Vehicles - LV 1.0118 (since this is the predominant flow) are used to grow the traffic derived for the 2028 construction year.

To assess the Proposed Development traffic impact on various roads the current AADT has been calculated utilising the five-day average daily traffic counts survey data.

These figures were then grown from the 2025 base year for the 2028 year for works. Using Central Growth rates as per TII document Transport Infrastructure Ireland (TII) 'Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections (PE-PAG-02017 - May 2019) Table 6.2:

$$2025- 2028 - (1.0118)^3 = \mathbf{1.036}$$

The forecast 2028 usage on the various links as calculated, can be considered to be the Do-Nothing scenario. There will be additional trips on the various links due to the construction works.

The increase in traffic volumes is then compared to capacities of the assessed roads to assess the impact. Where there is no appropriate Irish guidance for a particular design criteria reference is made to alternative UK or US documents. The capacities are established from the following recognised standards and guidance documents:

- ▶ DN-GEO_030301 Road Link Design and TA 79/99 Traffic Capacity of Urban Roads
- ▶ Highways England's TA 79/99 Traffic Capacity of Urban
- ▶ TRB Highway Capacity Manual

13.2.5 Assessment of Potential Effects

The significance of traffic and transport effects has been evaluated using a systematic approach, based on identification of the importance/value of receptors and their sensitivity, together with the predicted magnitude of the impact.

The terms used to define receptor sensitivity and magnitude of impact are based on:

- ▶ A comparison of the traffic volume change from the baseline traffic (i.e. baseflow) to the baseflow with the Proposed Project traffic volume on the road
- ▶ The sensitivity of the road, determined by the importance of the surrounding road network

Significance of effects is usually understood to mean the importance of the outcome of the effects (the consequences of the change). Significance is determined by a combination of (objective) scientific and subjective (social) concerns.

13.2.5.1 Sensitivity

The sensitivity to a change in traffic levels of any given road segment is generally assessed by considering the residual capacity of the network under existing conditions, and the sensitivity of any receptors in the vicinity.

The criteria that have been used to make judgements on the sensitivity of the receptor(s) and the magnitude of change are set out in Table 13-1.

Table 13-1 Criteria for Determination of Sensitivity of the Receptor

Sensitivity	Description
High	The receptor / resource has little ability to absorb change without fundamentally altering its present character is of international or national importance. Local residents whose daily activities depend upon unrestricted movement within their environment. Receptors such as schools, colleges, hospitals and accident hotspots. Roads with low carrying capacity, such as single-track roads.
Medium	The receptor / resource has moderate capacity to absorb change without significantly altering its present character, or is of high importance.
Low	The receptor / resource is tolerant of change without detriment to its character, or is of low / local importance. Areas such as trunk road or National Primary class roads constructed to accommodate significant HGV volumes.
Negligible	Users not sensitive to transport effects. Includes very small settlements and roads with no significant settlements including new strategic National Primary roads or motorways.

13.2.5.2 Magnitude of Effects

The magnitude of effects has been assessed as a function of:

- ▶ The percentage and / or absolute change in traffic volumes increase and change due to the Proposed Development
- ▶ Changes in the type of traffic and the temporal distribution of traffic (day of week, time of day), eg, increases in the number of HGVs on a particular road will have a larger effect on receptors than smaller vehicles would.

The criteria that have been used to make judgement on the magnitude of the effect on the receptor(s) is presented in Table 13-2.

Table 13-2 Criteria for Determination of Magnitude of Impact for the Road Network Capacity

Magnitude	Description
High	Total loss of, or major / substantial alteration to, key elements/features of the baseline (pre-development) conditions such that the post development character/composition/attributes will be fundamentally changed. Generally, a rule of >90% (or >70% at sensitive receptors) change in traffic is considered to be a major magnitude.
Medium	Loss or alteration to one or more key elements/features of the baseline conditions such that post development character / composition / attributes of the baseline will be materially changed. Generally, a rule of 60% - 90% (or 40% - 70% at sensitive receptors) change in traffic is considered to be a moderate magnitude.
Low	A minor shift away from baseline conditions. Change arising from the loss / alteration will be discernible/detectable but not material. The underlying character / composition / attributes of the baseline condition will be similar to the pre-development circumstances / situation. Generally, a rule of 30 – 60% (or 10% - 40% at sensitive receptors) change in traffic is considered to be a minor magnitude.
Negligible	Very little change from baseline conditions. Change barely distinguishable, approximating to a 'no change' situation. Generally, a rule of <30% (or <10% at sensitive receptors) change in traffic is considered to be a negligible magnitude.

Where there is a need for road closures the magnitude of impacts considers the duration of effects on Road Network Capacity and Pedestrian and Cyclist Amenity, following the methodology outlined in Table 13-3 will be used.

Table 13-3 Criteria for Determination of Magnitude of Impact for the Road Closures

Magnitude	Description
High	More than two weeks
Medium	1-2 weeks
Low	Less than a week
Negligible	1 day

13.2.5.3 Significance of Effects

The criteria used for determining the significance of traffic related effects are set out in Table 13-4, which is based on the EPA Guidelines.

Table 13-4 Impact Assessment Matrix

Sensitivity of Receptor	Magnitude of Impact			
	High	Medium	Low	Negligible
High	Very Significant	Significant Moderate	Moderate Slight	Not Significant
Medium	Significant Moderate	Moderate	Slight	Imperceptible
Low	Moderate Slight	Slight	Not Significant	Imperceptible
Negligible	Not Significant	Imperceptible	Imperceptible	Imperceptible

13.2.6 Consultation

TII have been consulted with respect to the proposed crossing of the motorway and the associated permissions for same. Offaly and Meath County Councils were consulted with regard to traffic surveys, construction requirements at road crossings needed to ensure the long-term integrity of the road buildup. Additionally, Offaly County Council had an input into future proofing for of potential future road developments along the route of the pipeline.

13.2.7 Reference Documents Used in the Assessment

This chapter has been prepared taking the following documents into account:

- ▶ NRA’s (now TII (Transport Infrastructure Ireland)) Traffic and Transport Assessment Guidelines (PE-PDV-02045) (May 2014).
- ▶ TII document PE-PAG-02039 (Expansion Factors for Short Period Traffic Counts).
- ▶ TII’s Project Appraisal Guidelines - Travel Demand Projections’ (PE-PAG-0217).
- ▶ TII document DN-GEO_030301 Road Link Design.
- ▶ Highway’s England TA 79/99 Traffic Capacity of Urban Roads
- ▶ Transport Research Board’s Highway Capacity Manual
- ▶ Institute of Environmental Management and Assessment (IEMA) Guidelines Environmental Assessment of Traffic and Movement (2023)
- ▶ Environmental Protection Agency (EPA) (2022) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports
- ▶ Fingleton White Gas to Bord na Móna, Edenderry Construction Methodology
- ▶ Edenderry Local Area Plan 2023 – 2029 - *Edenderry Municipal District – Local Transport Plan*

13.2.8 The Forecasting Methods and Difficulties Encountered

The forecasting methods used in this assessment utilise the TII published methods for predicting traffic volumes.

The only difficulty encountered in the preparation of this chapter was the inability to ascertain current collision data from the Road Safety Authority.

13.3 Receiving Environment

This chapter describes the traffic and transportation receiving environment relevant to the Proposed Development. It focuses on the existing road, private lane infrastructure where interaction with construction traffic or pipeline installation works may occur, together with routes to storage compounds for materials and consumables from which same will be stored and later moved to the route of the pipeline with staging areas provided along the route.

Section 13.3.1 describes the road network along the GNI143 Ballykilleen Pipeline route, focusing on roads where the pipeline directly interfaces with the network. Where a road also has a road crossing attributed to it this is highlighted in the title for clarity.

Section 13.3.2 addresses the wider traffic road network within the defined study area, comprising roads that are not directly crossed by the pipeline but may experience indirect effects associated with construction traffic, haulage routes or workforce movements.

Section 13.3.3 describes other traffic and transportation baseline conditions within the study area, including public transport provision, pedestrian and cycle infrastructure and road safety considerations.

Section 13.3.4 sets out existing traffic flow conditions within the study area, providing the baseline against which potential traffic and transportation effects of the Proposed Development are assessed.

The pipeline route predominantly traverses agricultural lands; however, these areas are described in this chapter only insofar as they influence traffic movements, construction access or interaction with the existing transport network. Other environmental receptors are addressed in the relevant EIAR chapters.

Reference Framework and Terminology

For the purposes of clarity within this chapter:

- ▶ RDX references are used to identify road crossings where the proposed pipeline intersects a public road or private lane.
- ▶ RVX references are used to identify river or watercourse crossings.

These references are location identifiers, identified by pipeline chainage and shown on the application drawings prepared by Fingleton White. A complete schedule of road crossings is provided in Table 13-6. River crossings are defined in Chapter 2 and are referenced in this chapter only where relevant to traffic and transportation considerations. This chapter should be read in conjunction with the full application documentation, including the Outline Construction Methodology (Appendix 2.1), the Outline Construction Environmental Management Plan (Appendix 2.2), and the planning drawings prepared by Fingleton White, which together describe the full pipeline alignment and construction approach.

Given the linear nature of the Proposed Development, the pipeline has been divided into six sections solely for the purposes of describing the Proposed Development within this EIAR. The six sections, defined by key crossing points and chainages along the proposed alignment, are outlined in Table 13-5. Within this Traffic and Transportation chapter, these sections are used to describe baseline conditions and potential effects associated with road crossings, access routes and interaction with the existing transport network.

Table 13-5 Structured Sections to describe the Proposed Development

Pipeline Section	Start Point (m)	End Point (m)	Length (m)
Pipeline Section 1: Kilwarden Offtake Installation to the L40181 Road (RDX05)	0	3,931	3,931
Pipeline Section 2: L40181 Road (RDX05) to the L4091 (RDX09)	3,931	7,441	3,510
Pipeline Section 3: L4091 Road (RDX09) to the Yellow River (RVX02)	7,441	11,669	4,228
Pipeline Section 4: Yellow River (RVX02) to the R441 (RDX12)	11,669	15,348	3,679
Pipeline Section 5: R441 (RDX12) to the L5003 (RDX15)	15,348	19,494	4,146
Pipeline Section 6: L5003 (RDX15) to the Ballykilleen AGI	19,494	23,650	4,156
GNI 143 Ballykilleen Pipeline	0	23,650	23,650

Table 13-6 GNI143 Ballykilleen Pipeline Road Crossings

Pipeline Section	Road Crossing Reference	Road No.	Pipeline Chainage (m) ^(a)
1	RDX01	R161	850
	RDX02	R148	2472
	RDX03	L80217	2505
	RDX04	M4	3000
	RDX05	L40181	3925
2	RDX06	L8022	5150
	RDX07	R401	6485
	RDX08	L80241	7140
	RDX09	L4091	7431
4	RDX10	L1004	14441
	RDX11	Private Lane	14679
	RDX12	R441	15338
5	RDX13	L5007	16800
	RDX14	R402	18743
	RDX15	L5003	19489
6	RDX16	Private Lane	22090
	RDX17	R401	22757
	--	Cushaling Windfarm access road ^(b)	23160

a. Approximate pipeline chainage at the GNI143 Ballykilleen Pipeline crossing location

b. The Cushaling Windfarm access road is an internal track within Bord na Móna lands and is under the control of the end user of the Proposed Development (Bord na Móna). As no third-party engagement or statutory road consents are required, it has not been assigned an RDX reference. All other roads, including private roads, are included in the RDX schedule as they require third-party engagement and approvals.

13.3.1 Road Network on the GNI143 Ballykilleen Pipeline route

13.3.1.1 Pipeline Section 1: Kilwarden Offtake Installation to the L40181 Road (RDX05)

13.3.1.1.1 R161 (RDX01)

The R161 is a Regional Road, located east of Kinnegad. It has a posted speed limit of 80km/hr. The road section comprises of a five metre wide single carriageway, with 0.3 metre wide hard shoulders in both directions. It connects to the R148 Main Street Kinnegad to the west and Trim and Navan at its east end.

The layout of this road at the road crossing is shown in Plate 13-1.

Plate 13-1 R161 Road



13.3.1.1.2 R148 (RDX02)

The R148 is a Regional Road, located east of Kinnegad. It has a posted speed limit of 80km/hr. The road section comprises of a 7.3 metre wide single carriageway, with 0.5 metre wide hard shoulders in both directions. It connects to the M4 and M6 interchanges at Kinnegad to the west and Enfield and Maynooth to the east.

The layout of this road at the road crossing is shown in Plate 13-2.

Plate 13-2 R148 Road



13.3.1.1.3 L80217 Ardnamullan (RDX03)

The L80217 is a Local Road, located east of Kinnegad. It has a posted speed limit of 60km/hr. The road section comprises of a 4.0 metre wide single track with passing places. It connects to the R148 at each end and services a small number of properties to the south of the R148.

The layout of this road at the road crossing is shown in Plate 13-3.

Plate 13-3 L80217 Road



13.3.1.1.4 M4 (RDX04)

The M4 is a Motorway, located south of Kinnegad. It has a posted speed limit of 120km/hr. The road section comprises 7.5 metre wide dual carriageway, with hard shoulders in each direction and a central reservation. It connects to Dublin in the east, and the M6.

The layout of this road at the road crossing is shown in Plate 13-4.

Plate 13-4 M4 Motorway



13.3.1.1.5 L40181 Tichronan (RDX05)

The L40181 is a Local Road, located south of Kinnegad. It has a posted speed limit of 60km/hr. The road section comprises 4.0 metre wide single track with passing places. It connects to the R401 at the west end and Tichronan to the east.

The layout of this road at the road crossing is shown in Plate 13-5.

Plate 13-5 L40181 Road



13.3.1.2 Pipeline Section 2: L40181 Road (RDX05) to the L4091 (RDX09)

13.3.1.2.1 L8022 – Single Track (RDX06)

The L8022 is a Local Road, located south of Kinnegad. It has a posted speed limit of 60km/hr. The road section comprises 5.0 metre wide single track with passing places. It connects to the R401 at the west end and Tichronan to the northeast.

The layout of this road at the road crossing is shown in Plate 13-6.

Plate 13-6 L8022 Road



13.3.1.2.2 R401 (RDX07)

The R401 is a Regional Road. It has a posted speed limit of 80km/hr. The road section comprises 6.0 metre wide carriageway with 0.5m hardstrips at the location of the proposed road crossing. The road connects to the Kinnegad and the M4 motorway at the north end and Edenderry to the south. The road section is wider at the northern end from Kinnegad with a 7.0m wide cross section and 2.5m wide hard shoulders.

The layout of this road at the road crossing is shown in Plate 13-7.

Plate 13-7 R401 Road



13.3.1.2.3 L80241 Ballybogen (RDX08)

The L80241 is a Local Road, located south of Kinnegad. It has a posted speed limit of 60km/hr. The road section comprises 4.0 metre wide single track with passing places. It connects to the L4019 Ballynakill at the east end and another local road to the west.

The layout of this road at the road crossing is shown in Plate 13-8.

Plate 13-8 L80241 Road



13.3.1.2.4 L4019 Ballynakill (RDX09)

The L4019 is a Local Road, located south of Kinnegad. It has a posted speed limit of 60km/hr. The road section comprises 5.0 metre wide with additional widening to allow passing at various locations. It connects to the Castlejordan Road at the west end and R401 to the east.

The layout of this road at the road crossing is shown in Plate 13-9.

Plate 13-9 L4019 Road



13.3.1.3 Pipeline Section 3: L4091 Road (RDX09) to the Yellow River (RVX02)

The receiving environment within Pipeline Section 3 comprises predominantly agricultural lands. Interaction with the existing road network in this section is limited to the northern extent of the section only, where construction access to the works area is facilitated via existing road crossings at RDX09 L4019 Ballynakill (RDX09) (described in 13.3.1.2.4 above).

Accordingly, traffic and transportation within this section is associated with construction access movements at these entry and exit, rather than with direct pipeline crossings of public roads.

The receiving environment will be agricultural lands with the work zones accessed via RDX07. There are no road crossings within Pipeline Section 3.

13.3.1.4 Pipeline Section 4: Yellow River (RVX02) to the R441 (RDX12)

13.3.1.4.1 L1004 Clongall (RDX10)

The L1004 is a Local Road, located north of Edenderry. It has a posted speed limit of 60km/hr. The road section comprises 4.5 metre wide road with a number of gravelled areas adjacent to allow passing of wider vehicles. It connects to Castlejordan at the north end and R441 to the south.

The layout of this road at the road crossing is shown in Plate 13-10.

Plate 13-10 L1004 Road



13.3.1.4.2 R441 (RDX12)

The R441 is a Regional Road, located north of Edenderry. It has a posted speed limit of 80km/hr. The road section comprises 6 metre wide road with 0.3m hardstrips. It connects to Rhode at the west end and to the R402 within Edenderry to the south.

The layout of this road at the road crossing is shown in Plate 13-11.

Plate 13-11 R441 Road



13.3.1.5 Pipeline Section 5: R441 (RDX12) to the L5003 (RDX15)

13.3.1.5.1 L5003 (RDX15)

The L5003 is a Local Road, located south of Edenderry. It has a posted speed limit of 60km/hr. The road section comprises 4 metre wide road primarily providing residential access. It connects to the R402 the west end and to the R401 to the east.

The layout of this road at the road crossing is shown in Plate 13-12.

Plate 13-12 L5003 Road



13.3.1.5.2 L5007 Monasteroris (RDX13)

The L5007 is a Local Road, located north of Edenderry. It has a posted speed limit of 60km/hr. The road section comprises 5 metre wide road. It connects to a local road the west end and to the R441 to the east.

The layout of this road at the road crossing is shown in Plate 13-13.

Plate 13-13 L5007 Road



13.3.1.5.3 R402 (RDX14)

The R402 is a Regional Road. It has a posted speed limit of 80km/hr. The road section comprises 6.0 metre wide carriageway with 0.3m hardstrips and grassed verges located to the southwest of Edenderry. It connects to Edenderry to the north and Daingean to the west.

North of Edenderry this road connects to the M4 Junction 9 at Johnstown Bridge. The carriageway section varies between at 7.0m wide with 2.5m wide hardstrips and a narrower 6.0m wider carriageway.

The layout of this road at the road crossing is shown in Plate 13-14.

Plate 13-14 R402 Road



13.3.1.6 Pipeline Section 6: L5003 (RDX15) to the Ballykilleen AGI

13.3.1.6.1 R401 (RDX17)

The R401 is a Regional Road. It has a posted speed limit of 80km/hr. The road section comprises 6.0 metre wide carriageway located to the south of Edenderry. It connects to Edenderry to the north and Edenderry Power Station and Clonbulloge to the south.

The layout of this road at the road crossing is shown in Plate 13-15.

Plate 13-15 R401 Road



13.3.1.6.2 Cushaling Windfarm Access Road

The access road is private and has a posted speed limit of 25km/hr. The road section is predominantly c.5 metre wide gravel surfaced track located to the south of Edenderry. It connects to the R401 to the west and the windfarm infrastructure to the east and north.

The layout of this road at the road crossing is shown in Plate 13-16.

Plate 13-16 Cushaling Windfarm Access Road



13.3.2 Wider Road Network within the Study Area

13.3.2.1 R402 (in Edenderry)

The R402 is a Regional Urban Road within Edenderry. It has a posted speed limit of 50km/hr. The road section comprises generally a 7.3 metre wide carriageway with footpaths either side together with house/commercial accesses.

The layout of this road is shown in Plate 13-17.

Plate 13-17 R402 Urban Road



13.3.2.2 Edenderry Inner Relief Road

The Inner Relief Road is within Edenderry. It has a posted speed limit of 50km/hr. The road section comprises generally a 7.3 metre wide carriageway with off road footpaths/cyclepaths either side together with limited commercial accesses off it.

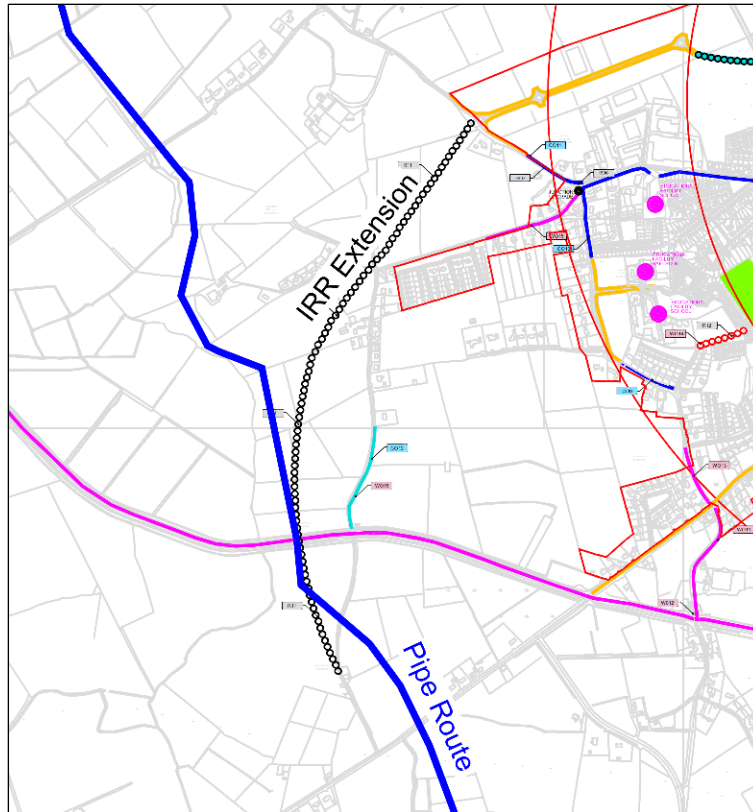
The layout of this road is shown in Plate 13-18.

Plate 13-18 Edenderry Inner Relief Road



13.3.2.3 Future Extension to Edenderry Inner Relief Road

Insert 13-1 Future Extension to Edenderry Inner Relief Road



As part of the Edenderry Local Area Plan 2023 – 2029 the *Edenderry Municipal District – Local Transport Plan* has been prepared to illustrate potential future transport development in and around the town of Edenderry. A potential route for a future "Inner / Outer relief route" located to the west of Edenderry is illustrated on this plan. A portion of the pipeline associated with the Proposed Development is located within this relief route corridor. The shared corridor of less than one kilometre in length located just in the vicinity of the Grand Canal.

Currently there is no formal planning undertaken to allow for the development of this relief route. To ensure that the Proposed Development is compatible with this potential future road development additional design measures proposed.

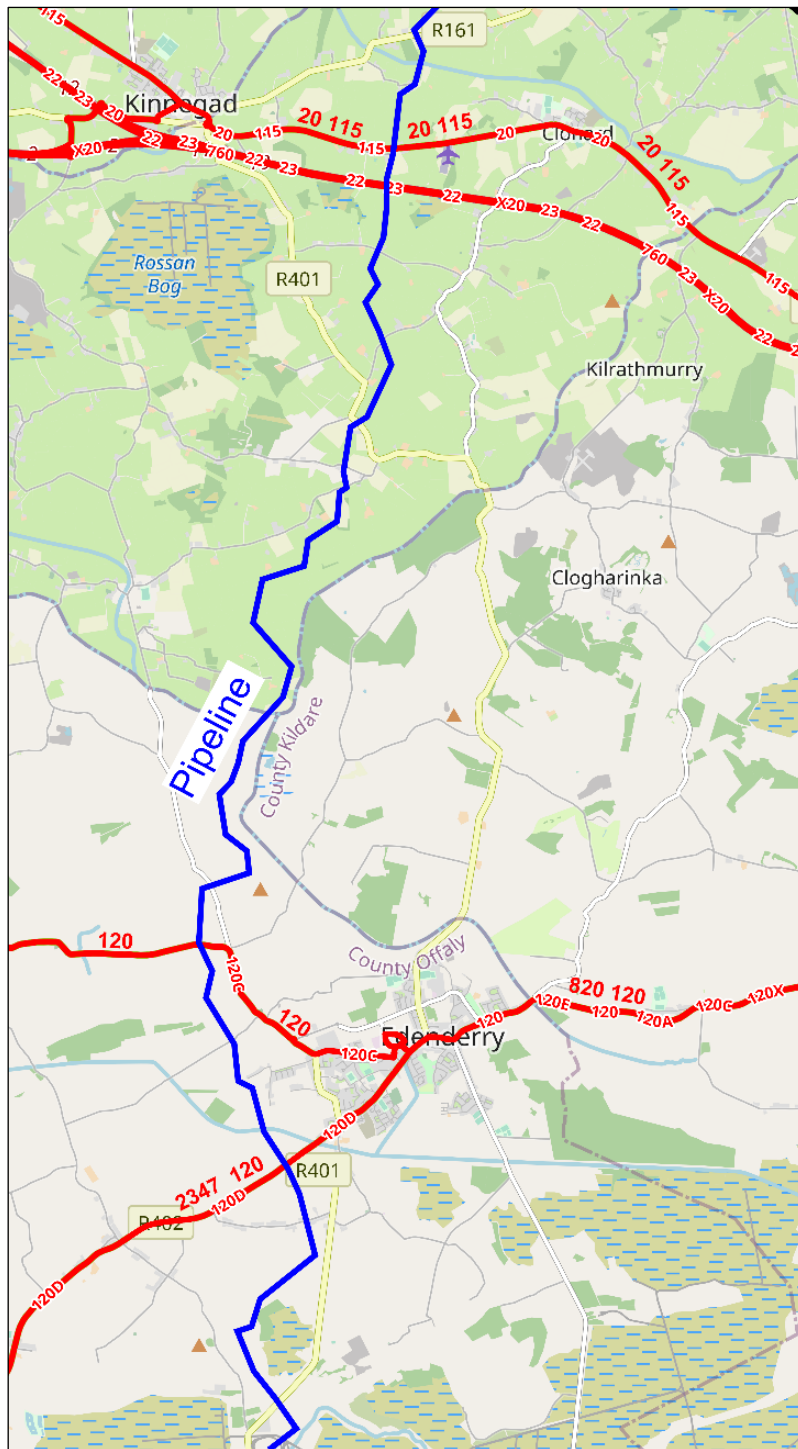
The layout of this road is shown in Plate 13-18.

13.3.3 Other Traffic and Transportation Baseline Conditions within the Study Area

13.3.3.1 Existing Public Transport

The Proposed Development site is largely remote from serviced bus routes. However, there are buses that service Kinnegad and Edenderry. Regular service routes include 115, 2347, 820 and 120. Local routes are set out in Insert 13-2.

Insert 13-2 Public Transport Routes

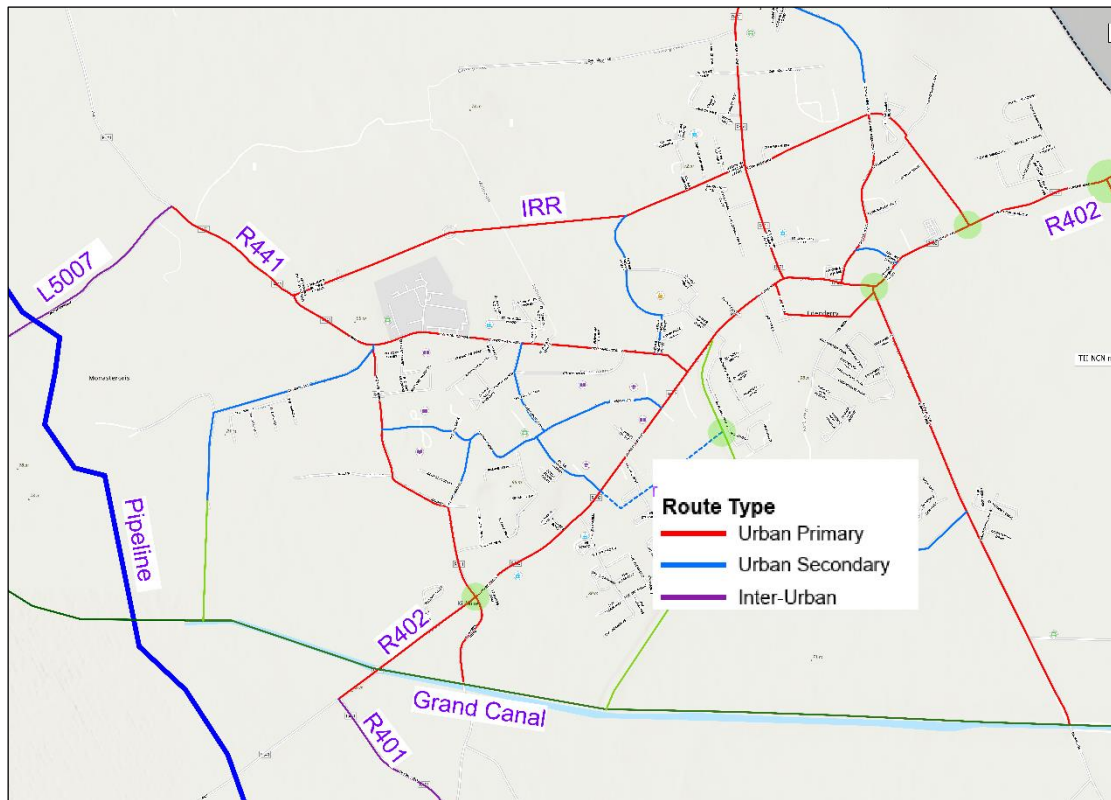


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13.3.3.2 Existing Pedestrian and Cycle Facilities

The Proposed Development is remote from the greater provision of pedestrian and cycle facilities which are provided to Edenderry and the surrounding area. However, there one inter urban cycle route on the L5007 which will be in the vicinity of the works. There are no cycle routes in the vicinity of the Proposed Development in the Kinnegad area. Pedestrian footpaths are provided on the urban street network. The cycle network in the vicinity of Edenderry is shown in Insert 13-3 below.

Insert 13-3 Edenderry Cycle Routes



13.3.3.3 Road Safety

As part of the completion of this chapter, an assessment of collision statistics as published by the Road Safety Authority (RSA) is normally conducted. At the time of preparation of this chapter the RSA was unable to share the information. Therefore, no assessment has been feasible.

13.3.4 Existing Traffic Flows

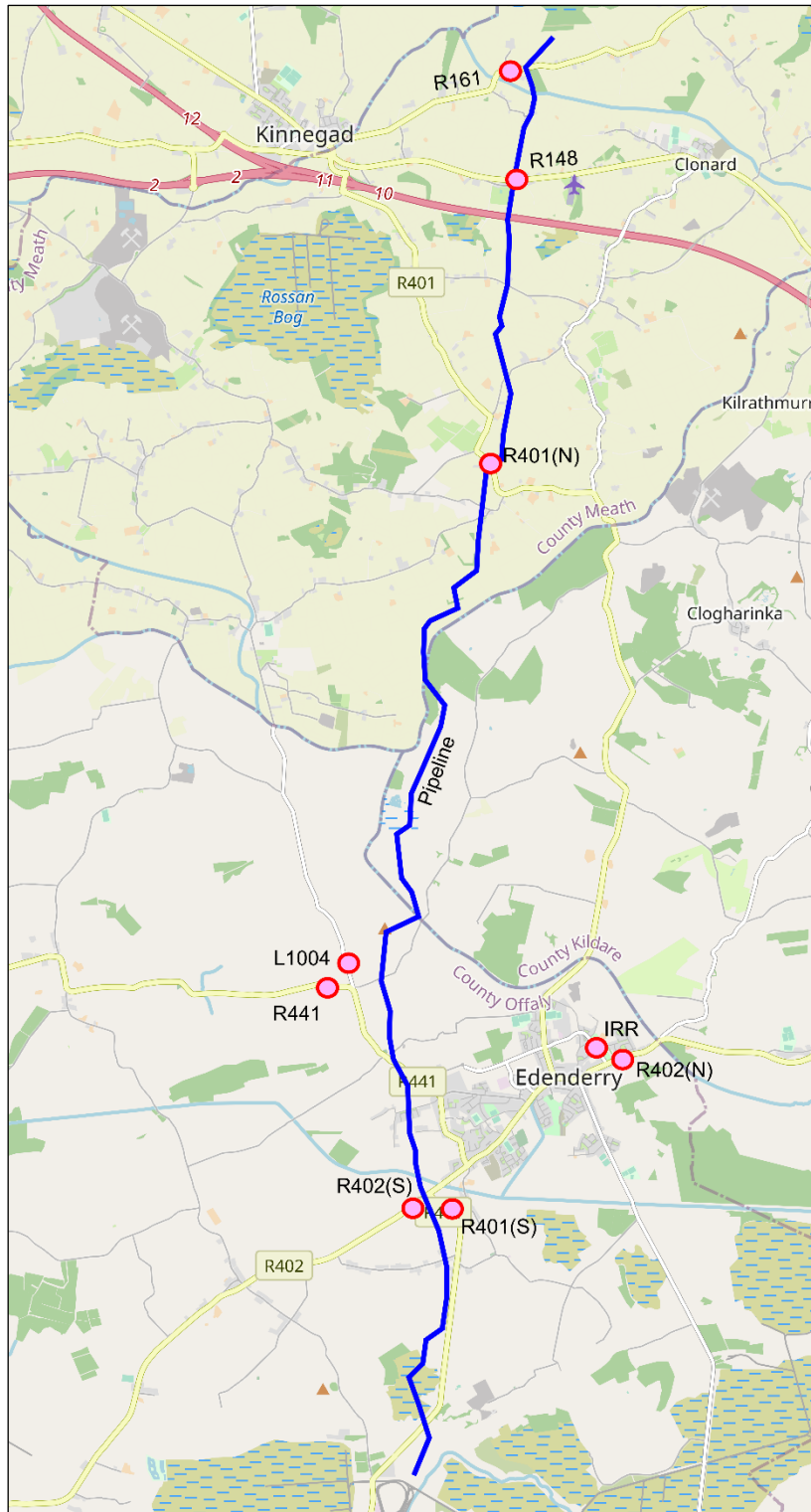
In order to establish the existing local road network's traffic characteristics and subsequently enable the identification of the potential impact of the Proposed Development, traffic surveys (automated traffic count) at various locations along the route of the pipeline works will be used. The surveys were undertaken between 26th May and 1st June 2025 on a number of roads in the vicinity of the Proposed Development.

Summary data for the traffic surveys carried out by Tracsis Ltd is set out in Appendix 13.1. The weekday AADT base line flows at the survey locations – as set out in Insert 13-4 are as below.

Table 13-7 Baseline Traffic Flows

Road	AADT	HV	HV (%)	Peak Hr	HV	HV (%)
R161	1033	121	11.7%	103	11	10.7%
R148	10030	1586	15.8%	894	100	11.2%
R401 (N)	2366	303	12.8%	205	18	8.8%
L1004	1342	149	11.1%	114	10	8.8%
R441	2702	353	13.1%	233	21	9.0%
R402(N)	4984	790	15.9%	423	50	11.8%
R401(S)	2899	559	19.3%	244	39	16.0%
R402(S)	12285	1519	12.4%	1054	111	10.5%
Inner RR	4897	376	7.7%	449	54	12.0%

Insert 13-4 Traffic Survey Locations



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13.4 Characteristics of the Proposed Development

The Proposed Development comprises:

- ▶ Construction of a c. 23.65 km 300mm NB steel pipeline (GNI143 Ballykilleen Pipeline) routing south, cross country, through counties Meath and Offaly. The route includes several special crossings, notably the Kilwarden River, the Yellow River, M4 motorway, and the Grand Canal. For the purposes of assessment in this chapter the Proposed Development will be considered in six sections as set out in Table 13-4.
- ▶ Construction of an above ground compound at the pipeline offtake location (Kilwarden Offtake Installation) where the new pipeline ties into the existing 750 mm NB BGE77 pipeline,
- ▶ Construction of a new Above Ground Installation (AGI), Ballykilleen AGI located at the southern end of the pipeline, where the proposed pipeline terminates.

The site of the works will be the entire length of the pipeline together with the terminals comprising the Proposed Development together with additional Temporary Construction Compounds set out in section 13.4.1 below

13.4.1 Construction Phase

The site for the gas transmission pipeline and associated works comprises predominantly undulating private farmland together with rural roadway, whilst the terminals comprise private lands at Kilwarden (Offtake) and Edenderry Renewable Energy Complex (Ballykilleen AGI), as set out in Figure 13-1 GNI143 Ballykilleen Pipeline Road Crossings in Volume 4 of the EIAR.

A number of types of access and compounds have been identified in the Construction Methodology. They are set out below.

13.4.1.1 Temporary Construction Compounds

There will be five no. temporary construction compounds (TCC's):

- ▶ Temporary Construction Compound 01 - Located at Kilwarden Offtake Installation
- ▶ Temporary Construction Compound 02 - Located near RDX4
- ▶ Temporary Construction Compound 03 - Located near Edenderry town
- ▶ Temporary Construction Compound 04 - Located in the Esker More townland
- ▶ Temporary Construction Compound 05 - Located at Ballykilleen AGI

The key features of the temporary construction compounds, insofar as they are relevant to this assessment, include:

- ▶ HGV and plant entry point: Controlled access for delivery of materials, equipment, and heavy plant. Access for delivery and loading of linepipe and construction materials.
- ▶ Bulk linepipe storage: Designated areas for storage of steel pipeline sections.
- ▶ Security and access control: Temporary security fencing, controlled access points, and site signage.
- ▶ Site offices: Offices for site management, engineering, supervision, and administration.
- ▶ Welfare facilities: Temporary welfare units including toilets, showers, drying rooms, changing facilities, and break areas.
- ▶ Parking: Parking provision for up to approximately 60 workers' vehicles, construction vehicles, and plant not in use.

Construction activities associated with the Kilwarden Offtake Installation and Ballykilleen AGI will be contained within the boundary of proposed site compound. In contrast, construction of the GNI 143 Ballykilleen Pipeline laying will be linear in nature with sections of work opened up and reinstated on a daily basis.

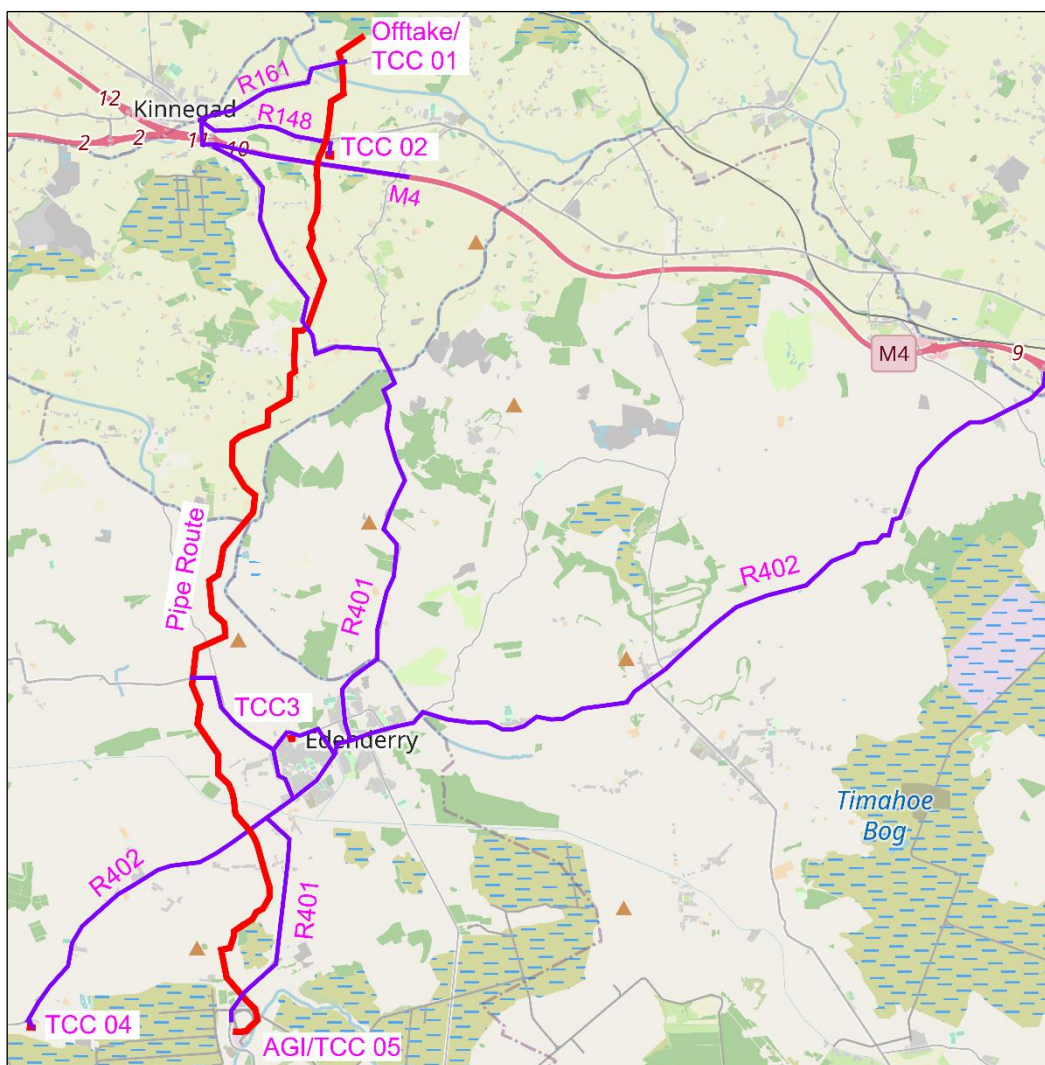
The pipeline materials will likely be delivered from Dublin Port, with delivery trucks routing along the M4. Deliveries to the Compound 02 will be routed via M4 Junction 10 – Kinnegad and then via the R148 to the compound. Deliveries of materials to the work zones will be via the R148, R401 and R402 roads.

Deliveries to the Compounds 03 and 04 will be via M4 junction 9 – Johnstown Bridge and then onwards on the R402. Deliveries of materials to the work zones will then be via the R402, R401, R148 and R161.

The main delivery routes are summarised in Insert 13-5.

It is estimated that the number of loads of pipeline materials will total 100 HGV's over a two-week period which equates to ten loads per day. Deliveries of linepipe to the work zones will be distributed over a period of six weeks.

Insert 13-5 Main Delivery Routes



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13.4.1.2 Laydown Area (Type A)

Construction access to work zones will be via the local road network as necessary, with the main accesses being via seven Type A Laydowns will be provided at the following road crossings:

- ▶ RDX01 (R161),
- ▶ RDX02 (R148),

- ▶ RDX07 (R401),
- ▶ RDX10 (L1004),
- ▶ RDX12 (R441),
- ▶ RDX14 (R402) and
- ▶ RDX17 (R401)

These locations will facilitate the movement of heavy plant, delivery vehicles including linepipe deliveries), and construction traffic associated with the main pipeline spread. The key features of each laydown area (Type A), insofar as they are relevant to this assessment, include:

- ▶ HGV and plant entry point: Access for construction traffic, including linepipe deliveries.
- ▶ Security and access control: Temporary fencing, controlled entry points, and signage.
- ▶ Site offices: Temporary offices for site supervision and coordination where required.
- ▶ Technical facilities and Cabins: Temporary dark rooms (where required for welding and inspection), material and equipment storage containers.
- ▶ Welfare facilities: Temporary welfare units including toilets, showers, drying rooms, changing facilities, and break areas.
- ▶ Materials storage and staging: Temporary storage of construction materials including pipeline sections, aggregates, sheet piling, steel, cement, and ancillary materials.
- ▶ Parking: Parking provision for up to approximately 60 workers' vehicles, construction vehicles, and plant not in use.

There will be a requirement for haulage of pipe bedding materials to the site, however quantities will not be significant. It is anticipated that these deliveries will occur throughout the day. There are three quarries within 15 minutes drive of the pipeline route. Imported granular materials are likely to be sourced from these quarries, and deliveries will be moved along established existing routes.

Construction materials will need to be brought to the site as well as specialist plant. Construction plant and materials will be routed along the length of the pipeline from these access points.

13.4.1.3 Laydown Area (Type B)

There will be a total of 8 standard road crossings

- ▶ RDX05 (L40181),
- ▶ RDX06 (L8022),
- ▶ RDX08 (L80241),
- ▶ RDX09 (L4019),
- ▶ RDX11 (Private Lane),
- ▶ RDX13 (L5007),
- ▶ RDX15 (L5003), and
- ▶ RDX16 (Private Lane).

These locations will facilitate localised construction access, the movement of heavy plant, delivery vehicles including linepipe deliveries), and construction traffic associated with the main pipeline spread.

The key features of each laydown area (Type B), insofar as they are relevant to this assessment, include:

- ▶ Light vehicle entry point: Access primarily for light vehicles and construction plant.
- ▶ Security and access control: Temporary fencing and controlled access points.
- ▶ Materials storage and staging: Temporary storage and staging of pipe, fittings, and small quantities of construction materials.
- ▶ Parking: Parking for up to approximately 10 workers' vehicles and limited construction plant.

13.4.1.4 Road Crossings

A total of 17 road crossings have been set out in the Proposed Development proposals. The Fingleton White Construction Methodology sets out types of crossings of the various local roads, with them varying between Open Cut and Trenchless methods.

There is also a requirement for crossing the private Cushaling Windfarm Access Road, this road is under the control of the Bord na Móna the end user of the pipeline project. The crossing construction technique is open cut.

The crossings are summarised in Table 13-8 below.

Table 13-8 Pipeline Road Crossings

RDX No.	Road No.	Pipeline Chainage (m)	Anticipated Crossing Construction Technique
Pipeline Section 1: Kilwarden Offtake Installation to the L40181 Road (RDX05)			
RDX01	R161	850	Open Cut
RDX02	R148	2472	Trenchless ^(b)
RDX03	L80217	2505	Trenchless ^(b)
RDX04	M4	3000	Trenchless ^(c)
RDX05	L40181	3925	Open Cut
Pipeline Section 2: L40181 Road (RDX05) to the L4091 (RDX09)			
RDX06	L8022	5150	Open Cut
RDX07	R401	6485	Trenchless ^(b)
RDX08	L80241	7140	Open Cut
RDX09	L4019	7431	Open Cut
Pipeline Section 3: L4091 Road (RDX09) to the Yellow River (RVX02)			
-	-	-	-
Pipeline Section 4: Yellow River (RVX02) to the R441 (RDX12)			
RDX10	L1004	14441	Open Cut
RDX11	Private Lane	14679	Open Cut
RDX12	R441	15338	Trenchless ^(b)
Pipeline Section 5: R441 (RDX12) to the L5003 (RDX15)			
RDX13	L5007	16800	Open Cut
RDX14	R402	18743	Trenchless ^(b)
RDX15	L5003	19489	Open Cut
Pipeline Section 6: L5003 (RDX15) to the Ballykilleen AGI			
RDX16	Private Lane	22090	Open Cut
RDX17	R401	22757	Trenchless

- Pipeline Chainage (m) indicates the approximate location of the crossing along the pipeline.
- The crossing is currently anticipated to be undertaken using trenchless construction techniques. Refer to Chapter 2 for more details.
- The M4 (RDX04) crossing has been confirmed to be installed using trenchless construction methods. Refer to Chapter 2 for more details.

It is proposed that only the crossing of the M4 (RDX04) will be by Trenchless method, whilst the crossings of other major roads will be by either trenchless or open cut depending on the appointed Contractor's proposals. The crossings will be carried out under temporary road closures where the road widths are narrow and do not readily facilitate one way working, i.e. R161 (RDX01), L80217 (RDX03), L40181 (RDX05), L8022 (RDX06), R401 (RDX07), L80241 (RDX08), L4019 (RDX09), L1004 (RDX10), R441 (RDX12), L5007 (RDX13), L5003 (RDX15), and R401 (RDX17). Diversion routes are available for these road crossings.

Open cut crossings for wider roads proposed crossings R148 (RDX02), and R402(RDX14), will be carried out under traffic management at nonpeak hours with one way working subject to agreement with the relevant local authority. Temporary localised offline road construction will be used in order to facilitate the Temporary Traffic Management as necessary. It is anticipated that such road crossings will be completed in a maximum of two days.

Two crossings will be carried across private dwelling accesses RDX11 and RDX16. Works to these crossings will be by temporary closure by agreement with the landowner.

The crossing of the private Cushaling Windfarm access road is sufficiently wide to carry out works under shuttle traffic management.

13.4.1.5 Construction Traffic Generation

Onsite parking area will be provided for construction vehicles at the construction compound at each Laydown Area (Type A). Construction plant and materials will be routed along the length of the pipeline from these access points.

Timelines for the sections of work and maximum number of worker-related traffic movements are as below in Table 13-9, commencing in Q1 2028 with works completion scheduled within a two-year timeframe (maximum). Works which will have greatest impact on the local road environment will be the pipeline works, and it is scheduled that these works are carried out over a ten-month period.

Typical worker numbers will be 30-40, with a maximum of 80 per day at peak times. It will be anticipated that the average car/light vehicle occupancy will be 1.5 operatives per vehicle. Heavy vehicle movements are estimated to be predominantly associated with pipeline laying works with an average of 30 truck deliveries per day.

Table 13-9 Construction Traffic Volumes

Work Package	Duration	Maximum daily LV's	Maximum daily HV's
Offtake	4 months	60	5
AGI	8 months	60	5
Gas Main	10 months	60	30 ^(a)
Maximum Total trips		60 inwards 60 outwards 120 total	30 inwards 30 outwards 60 total

(a) The maximum number of HV trips for the pipeline construction will occur over a 26 week period.

Traffic flows have been assessed against the relative capacity of the type of road used during the construction works.

13.4.2 Operational Phase

The Proposed Development does not require any full time staff to operate it on a daily basis. It is forecast that GNI maintenance staff (one van), will carry out checks every two weeks to a month along with routine inspection and maintenance, including pigging, of the asset every seven to ten years.

13.4.2.1 Vehicle Parking

No parking is proposed along the route of the pipeline. A truck park bay will be provided at the Kilwarden Offtake Installation and within the Ballykilleen AGI compound at the southern extent of the pipeline. Additionally, three car parking spaces will be provided outside the Kilwarden Offtake Installation and Ballykilleen AGI.

13.4.2.2 Cycle Parking

No cycle parking spaces are proposed as part of the Proposed Development as all maintenance personnel servicing it shall access the site via vehicles.

13.5 Potential Impacts of the Proposed Development

13.5.1 Construction Phase

13.5.1.1 Potential Impacts on Traffic Flow and Capacity

13.5.1.1.1 Network Flow and Capacity

Increases in traffic volumes on a road will potentially impact it via exceedance of capacity together with delays, increased congestion and journey times. Additionally, increases in traffic volumes may impact road safety of the various users – including private vehicles, public transport as well as cyclists and pedestrians.

Construction works will generate additional traffic on the road network. The delivery to site of materials will be spread throughout the day. Site operatives will arrive and leave the site over approximately two-hour periods during the morning and evening.

The impacts of site operative and construction vehicles on the surrounding road network will be reduced by the offset nature of trips from that of the receiving road network. Due to the spread-out nature of trips it is more appropriate to compare the traffic against the daily traffic using the road.

To assess the Proposed Development traffic impact on the surrounding road network the current AADT (Annual Average Daily Traffic) flows were calculated based on traffic survey information (weekday classified traffic flows) that were conducted over a seven-day period 26th May to 1st June 2025 ATC count for the roads set out in section 13.3.13. This provides a flow on each link. Assessing these links will address the generated traffic impact on the local road network. These flows form baseline figures and are set out in Appendix 13.1

The forecast 2028 usage on the various links is calculated below, can be considered to be the Do-Nothing scenario. There will be additional trips on the various links due to the construction works as per the generation set out in Table 13-8 above. The maximum additional construction trips are summarised in Table 13-10.

Table 13-10 Rural Road Flow to Capacity

Road	2028 AADT	Constr'n trips	Total	% increase	Capacity Level of Service D (AADT)	% Capacity (Do Nothing)	% Capacity (Do Something)
R161	1,070	140	1,210	13.1%	5000	21.4%	24.2%
R148	10,389	180	10,569	1.7%	11600	89.6%	91.1%
R401 (N)	2,451	180	2,631	7.3%	5000	49.0%	52.6%
L1004	1,390	140	1,530	10.1%	-		(a)
R441	2,799	140	2,939	5.0%	5000	56.0%	58.8%
R402(S)	5,163	180	5,343	3.5%	5000	103.3%	106.9%
R401 (S)	3,003	140	3,143	4.7%	5000	60.1%	62.9%

a. road width is below the minimum figures set out in the standard.

Peak Daily Traffic Flows on the main routes associated with the Proposed Development are set out on Figure 13-2 Daily Construction Traffic Flows in Volume 4 of the EIAR. The combined trips are assessed relative to the Service Level D for the carriageway cross sections as set out in DN-GEO_030301 Road Link Design and TA 79/99 Traffic Capacity of Urban Roads.

For the sections of urban road, it is more appropriate to use Highways England's TA 79/99 Traffic Capacity of Urban Roads, as Irish guidance only covers rural roads, to assess the relative flow to capacity for the roads. The relative capacities are assessed based on the hourly flows. This information is set out for the two sections of road below.

Table 13-11 Urban Road Flow to Capacity

Road	2028 maximum hourly flow	Construction trips	total	% increase	Busiest direction flow capacity (vph)	Percentage capacity
R402(N) urban	1,092	20	1,112	1.8%	1140	98%
Inner RR	465	20	485	4.3%	1140	43%

The higher proportional additional trips on the L1004 and R161 are due to the existing flows being relatively low, whilst the additional flows on the other links are insignificant compared to existing flows, and it should be noted that there is significant residual capacity for the latter carriageway. The R402 south of Edenderry is already operating slightly above capacity, but the additional traffic generated by the Proposed Development is low overall. The impact of the construction trips relative to the Service Level D for the carriageway cross sections as set out in DN-GEO_030301 Road Link Design and TA 79/99 Traffic Capacity of Urban Roads show that the additional construction trips will have negligible impact on the carriageway capacity. Where the width of the road is narrow with passing places provided it is expected that the capacity would be between 2,000 and 5,000 vehicles per day. Therefore, the L1004 would operate within capacity.

Construction traffic will need to access the pipeline at the local road crossings; however, the numbers of vehicles will be significantly lower than the numbers forecast for the Type A Laydown Areas as those access points will be used for localised set down and access only. Based on the observed traffic flows on the smaller local road the associated trips will not have a significant impact on the local road capacity and will be within rural link capacities. The length of pipeline served by individual access points will vary with the longest distance being c.7 km between Crossings 9 and 10, which also has the Yellow River trenchless crossing at its midpoint. This will result in the longest duration of use of these accesses – with deliveries operating for greater part of the ten-month construction period.

In relation to the trenchless crossing under the M4, there will no disruption to road users nor disconnections of third-party services predicted. The licencing for the crossing will be managed through the Section 53 Road Act consent process. All other trenchless crossings of carriageways will be designed to ensure no disruption to road users and no adverse impact on third party services installed within the road boundaries.

The relatively low increase in traffic on the local road network would not have a measurable impact on pedestrians or cyclists. Nor would it be expected that there would be an impact on the bus services.

It is therefore concluded that the increase in traffic during the construction phase on the existing roads has the potential for a **neutral, imperceptible and temporary effects** (Effects lasting less than a year) on the existing road network including pedestrians, cyclists and public transport.

13.5.1.1.2 Traffic Management Impacts

As the works associated with the pipeline works will require trenching and reinstatement at the various crossings of public roads there will be a need to carry out the works under traffic management (TM) via shuttle working or by road closure with associated diversions.

The crossing of the M4 motorway is to be undertaken entirely by trenchless construction, with no interaction with the carriageway and therefore no requirement for traffic management, road closures or diversions. All other road crossings are assessed on a conservative worst-case basis, assuming open-cut construction is required. In accordance with the Fingleton White Construction Methodology, open-cut road crossings will be completed and fully reinstated within one working day.

This will impact local traffic to the road crossing through delay disruption and longer journeys at diversions. These works will be carried out over only part of the eight-month time frame required for this part of the works, typically in the order of 1-2 days maximum. The impact on local traffic is summarised in Table 13-12 below. The diversion lengths are taken from the Outline Traffic Management Plan (Appendix 13.2) which accompanies the application.

Table 13-12 Traffic Management Plan Diversions

RDX No.	Road No.	AADT (2028)	Normal Travel Distance (km)	Diversion Distance (km)	Type of TM
Pipeline Section 1: Kilwarden Offtake Installation to the L40181 Road (RDX05)					
RDX01	R161	1,070	5.2	8.8	road closure
RDX02	R148	10,389			one way working
RDX03	L80217	n/a	0	0	road closure
RDX04	M4	n/a			trenchless
RDX05	L40181	n/a	2.3	4.3	road closure
Pipeline Section 2: L40181 Road (RDX05) to the L4091 (RDX09)					
RDX06	L8022	n/a	1.4	4.7	road closure

RDX No.	Road No.	AADT (2028)	Normal Travel Distance (km)	Diversion Distance (km)	Type of TM
RDX07	R401	2,451	2.8	6.1	road closure
RDX08	L80241	n/a	0.9	2.3	road closure
RDX09	L4091	n/a	3.5	7.1	road closure
Pipeline Section 3: L4091 Road (RDX09) to the Yellow River (RVX02)					
-	-	-	-	-	-
Pipeline Section 4: Yellow River (RVX02) to the R441 (RDX12)					
RDX10	L1004	1,390	2.6	9.6	road closure
RDX11	Private Lane	n/a			road closure
RDX12	R441	2,799	3.9	8.4	road closure
Pipeline Section 5: R441 (RDX12) to the L5003 (RDX15)					
RDX13	L5007	n/a	3	7.2	road closure
RDX14	R402	5,163	n/a		one way working
RDX15	L5003	n/a	1.7	2.3	road closure
Pipeline Section 6: L5003 (RDX15) to the Ballykilleen AGI					
RDX16	Private Lane	n/a			road closure
RDX17	R401	3,003	4.1	6	road closure

Only one public bus route is on a road which require temporary closure – R441 (RDX12). This will result in a delay to users for the short time that the diversion is required. Only one designated cycle route will be impacted by the need for a temporary diversion at the L5007 crossing which will result in delays due to longer routing, but again this will only be for the short time that the diversion is needed.

Road crossings carried out by open trenching will require temporary reinstatement at the time of carrying the works. Permanent reinstatement will be required to ensure long term integrity of the pavement. Works will be carried out in accordance with road opening licences issued by the relevant local authority.

Traffic management and diversions for the various crossings of public roads during the construction phase has the potential for **negative, moderate** and **brief effects** (effects lasting less than a day) to **temporary effects** (effects lasting less than a year) on the existing road network. The impact on cyclist and public transport has the potential to be of **negative, imperceptible** and **brief** effects. The impact on pedestrians will be **neutral, imperceptible** and **brief**.

13.5.1.2 Potential Impacts on Roads as Material Assets

Potential impacts on roads are primarily addressed through design, construction and reinstatement measures, as outlined below.

At road crossings the pipeline will be installed under the road with a minimum of 1600mm cover to the road surface, and any adjacent roadside ditches that may exist. A precast concrete marker slab will be laid 300mm above the pipeline. Refer to drawings GNI143-GNI-PL-RD-0001 for reinstatement details, and GNI143-GNI-PL-MIS-0008-01 for typical crossing details.

Approved bedding, surround and backfill materials will be used in accordance with IS 328:2021, GNI/AO/SP/007, and the Guidelines for Managing Openings in Public Roads (2017) (the Purple Book).

Concrete and asphalt concrete road crossings will have immediate permanent reinstatement in accordance with design drawings, IS 328:2021, GNI/AD/SP 007, Guidelines for Managing Openings in Public Roads 2017 (The Purple Book) and to the approval of the local authority and/or private landowners, unless otherwise agreed with local authorities.

At locations where trenchless construction techniques are employed (including the M4 crossing at RDX04 and other confirmed trenchless road crossings), the pipeline will be installed entirely beneath the road structure, with no requirement for excavation or disturbance of the road. As a result, there will be no physical interaction between the works and the road pavement, and therefore no impact on the road as a material asset.

While trenchless techniques avoid direct excavation of the road structure, there is a theoretical potential for localised ground settlement to occur if subsurface conditions are not adequately controlled during installation. In extreme circumstances, such settlement could manifest as minor deformation of the carriageway surface. This potential impact has been addressed through the design and construction methodology for the Proposed Development. The selected construction techniques for the trenchless crossings are designed with industry standard separation between the pipeline and the road pavement structure which would result in no impact on the road structure. Post construction monitoring of crossings including for subsidence will be carried out as part of the proposals. The resultant potential for subsidence at trenchless road crossings is assessed as unlikely.

On the basis of the design and embedded mitigation, the effect on roads during the construction phase is therefore assessed as ***neutral, imperceptible and long-term***.

13.5.2 Operational Phase

13.5.2.1 Potential Impacts on Network Flow and Capacity

As there are no permanent employees required for the operational phase with only intermittent visits resulting in occasional additional trips on the external roads network.

Due to the low magnitude of additional trips (1-2 per fortnight) no quantitative assessment is required. The associated traffic will reasonably be a constituent of the background traffic using the local road network.

The additional traffic generated during the operational phase on the existing road network has the potential to result in a ***neutral, imperceptible and long-term effect*** on traffic flow and network capacity.

13.5.2.2 Potential Impacts on Roads as Material Assets

During the operational phase, the Proposed Development will not give rise to any activities that would affect roads as built environment or material assets. The gas transmission pipeline will be fully buried below ground, and all road crossings where open trenching has been carried out will have been permanently reinstated following construction in accordance with relevant standards and local authority requirements.

Therefore, the Proposed Development will have no operational impacts on roads as material assets, and the potential impact is assessed as ***neutral, imperceptible and long-term***.

13.6 Mitigation Measures

13.6.1 Construction Phase

13.6.1.1 Traffic Capacity and Network Flow

The route of the pipeline has been designed to be predominantly through agricultural fields. There will need to be crossings of 17 roads along the pipeline route, at the various RDX's set out in Table 13-6.

An outline Construction Traffic Management Plan (CTMP) has been prepared for the Proposed Development (Appendix 13.2). This CTMP will be further developed by the construction contractor to include the measures below to minimise the impacts associated with the construction phase upon the peak periods on the surrounding road network. Overall, the mitigation measures will include:

- ▶ Trenchless crossings where proposed by the works contractor
- ▶ Carrying out road crossing works under traffic management/road closures and diversions;
- ▶ Regular cleaning of the road;
- ▶ Surface of the car park will be prepared and finished to a standard sufficient to avoid mud spillage onto adjoining roads;
- ▶ Monitoring and control of construction traffic during construction works;
- ▶ Material deliveries and collections from site will be planned, scheduled and staggered to avoid unnecessary build-up of construction work related traffic;
- ▶ All works carried out within public roadways will be carried out under Traffic Signs Manual Chapter 8 requirements.
- ▶ All works to be carried out in accordance with the Construction Traffic Management Plan.
- ▶ Routing traffic to work zones to be designated and monitored to reduce construction traffic on local streets and roads.
- ▶ Recycling of construction materials used for temporary laydown areas at different ones along the length of the pipeline.
- ▶ Carry out regular audits to track compliance with Waste Management practices.

HGV trips are anticipated to arrive and depart the site at a uniform rate throughout the day, to avoid pressure on the morning and evening peak hour periods.

All contractors' vehicles will be required to be parked in designated areas off the adjacent road on temporary gravelled surfaces. There will be no parking permitted on the surrounding road network by the contractor or site operatives.

13.6.1.2 Roads as Material Assets

Mitigation measures will be implemented as part of the works to ensure that the physical impact on the road as material assets is minimised. Condition surveys of existing road surfaces on construction traffic routes and crossings will be carried out prior to construction and on completion to ensure that any reinstatement works are completed to a satisfactory standard. Condition surveys of the reinstatement will be carried out at set agreed timelines post construction.

All open-cut crossings of regional and local roads will be undertaken under Road Opening Licences issued by the relevant road authorities and carried out in accordance with the Guidelines for Managing Openings in Public Roads (2017). These licences govern the opening, backfilling and reinstatement of the road surface and ensure that permanent reinstatement is completed to the satisfaction of the road authority. Any proposals will be agreed with the local authority prior to commencement of construction.

Where trenchless construction techniques are employed, including the crossing of the M4 motorway (RDX04) and other national roads, the works will be subject to consent under Section 53 of the Roads Act 1993, as the pipeline will be installed beneath the road without disturbance of the road pavement. Section 53 consent controls works carried out under national roads and ensures that the structural integrity and operation of the road is protected.

All necessary consents will be obtained in advance of construction.

During construction, trenchless works will be undertaken in accordance with detailed method statements, with continuous monitoring of drilling parameters to ensure ground stability is maintained. Drilling fluid pressures (where applicable) will be controlled to prevent loss of ground, and works will be halted immediately should any abnormal ground movement be detected. Pre- and post-construction road

condition surveys will be undertaken where required, and any damage attributable to the works will be promptly rectified.

13.6.2 Operational Phase

Due to the imperceptible increase in traffic associated with the operational phase of the Proposed Development there are no further mitigation measures required.

13.7 Monitoring or Reinstatement Measures

13.7.1 Construction Phase

At construction stage traffic management and deliveries will be carefully monitored during the construction stage as part of the overall Construction Management Plan.

13.7.2 Operational Phase

Due to there being negligible amount of traffic associated with the operational phase of the Proposed Development there are no monitoring or reinstatement measures are required.

13.8 Residual Effects of the Proposed Development

13.8.1 Construction Phase

13.8.1.1 Traffic Flow and Capacity

Construction works for the gas pipeline will be carried out in a linear manner through farmland and across carriageways which will result in localised delays due to traffic management and diversions. Based on the assessment of the network links there will be insignificant effects on the receiving traffic and transportation environments. The residual effect of construction works will be **temporary, not significant** and **negative**.

13.8.1.2 Roads as Material Assets

Following the implementation of the design measures, construction controls and reinstatement requirements, no residual adverse effects on roads as material assets are predicted. All road crossings will be reinstated in accordance with the Fingleton White Construction Methodology, relevant standards and road authority requirements. Accordingly, the residual impact on roads as built material assets is assessed as **neutral, imperceptible**, and **long-term**.

13.8.2 Operational Phase

The Proposed Development will have a negligible impact the road network, in particular the road links in the proximity of the development. Overall, the residual impact of the Proposed Development will be **long term** in duration of **imperceptible, neutral** effect on the traffic and transportation environment.

13.9 References

- ▶ NRA's (now TII (Transport Infrastructure Ireland)) Traffic and Transport Assessment Guidelines (PE-PDV-02045) (May 2014).
- ▶ TII document PE-PAG-02039 (Expansion Factors for Short Period Traffic Counts).
- ▶ TII's Project Appraisal Guidelines - Travel Demand Projections' (PE-PAG-0217).
- ▶ TII document DN-GEO_030301 Road Link Design.
- ▶ Highway's England TA 79/99 Traffic Capacity of Urban Roads
- ▶ Transport Research Board's Highway Capacity Manual
- ▶ Institute of Environmental Management and Assessment (IEMA) Guidelines Environmental Assessment of Traffic and Movement (2023)
- ▶ Environmental Protection Agency (EPA) (2022) Guidelines on the Information to be Contained in Environmental Impact Assessment Reports
- ▶ Fingleton White Gas to Bord na Mona, Edenderry Construction Methodology 1718-RT-01002
- ▶ Edenderry Local Area Plan 2023 – 2029 - *Edenderry Municipal District – Local Transport Plan*