

Castlepollard Quarry, Deerpark, Castlepollard, Co. Westmeath

Castlepollard Quarry

Environmental Impact Assessment Report

Section 14

Traffic & Roads

February 2022



Part of the Breedon Group

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TABLE OF CONTENTS

14 TRAFFIC & ROADS	1
14.1 INTRODUCTION	1
14.1.1 General	1
14.1.2 Scope	1
14.1.3 Methodology	1
14.1.4 Location Plan	2
14.2 EXISTING CONDITIONS	3
14.2.1 The Site	3
14.2.2 Existing Road Network	4
14.2.2.1 R395	4
14.2.3 Traffic Volumes	4
14.3 PROPOSED DEVELOPMENT	7
14.3.1 Trip Generation	7
14.3.1.1 Quarry Operational Movements	7
14.3.1.2 Staff Trips	8
14.3.1.3 Derived Trip Rate	9
14.3.2 Trip Distribution	9
14.3.3 Trip Assignment	10
14.3.4 Scope of Assessment	11
14.4 ROAD IMPACTS	12
14.4.1 Assessment Years	12
14.4.2 Traffic Growth	12
14.4.3 Link Capacity Assessment	12
14.4.3.1 R395 Regional Road	12
14.4.4 Junction Capacity Assessment	14
14.4.4.1 Location: Junction of Quarry Access & R395	14
14.5 ROAD SAFETY	16
14.5.1 Collision History	16
14.5.2 Sightlines	17

14.5.3	Parking	17
14.5.4	Public Transport	18
14.5.5	Pedestrians & Cyclists	18
14.6	ASSESSMENT OF IMPACTS	18
14.6.1	'Do-Nothing' Impacts	19
14.6.2	Direct Impacts	19
14.6.3	Indirect Impacts	20
14.6.4	Cumulative Impacts	20
14.6.5	Transboundary Impacts	20
14.6.6	Residual Impacts	20
14.6.7	'Worst-Case' Impacts	20
14.7	MITIGATION	21
14.8	CONCLUSIONS	22
14.9	REFERENCES	23



LIST OF TABLES & FIGURES

Table 14.1: Quarry Access/R395 Junction 6

Table 14.2: Summary of Predicted Daily Trips in Opening Year and Beyond 8

Table 14.3: Summary of Predicted Daily Trips in 2022 and Beyond 10

Table 14.4: Future Year Traffic Growth Figures (Co. Westmeath)..... 12

Table 14.5: Combined AADT for each Assessment Year (R395 Northwest) 13

Table 14.6: Combined AADT for each Assessment Year (R395 Southeast) 13

Table 14.7: Summary of Traffic Analysis at Junction of Quarry Access & R395 14

Table 14.8 Traffic – Impact Assessment 18

Figure 14.1: Location Plan of Quarry at Deerpark 2

Figure 14.2: Proposed Site Layout Plan 3

Figure 14.3: R395 Regional Road in the vicinity of the Quarry Access 4

Figure 14.4: Assignment of Quarry Development Traffic throughout the Network 10

Figure 14.5: AADT and Development Traffic as a Percentage of Existing Traffic. 11

Figure 14.6: Historical Collisions Recorded on the R395 in the vicinity of the Development Quarry Access 16

Figure 14.7: Visibility to the Northwest (Left Photograph) and to the Southeast (Right Photograph) along the R395 from the Quarry Access 17

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14 TRAFFIC & ROADS

14.1 INTRODUCTION

14.1.1 GENERAL

This section of the EIAR describes the road and traffic environment of the proposed development at the quarry at Deerpark, Castlepollard, Co. Westmeath.

The proposed development will consist of the continued use and operation of the existing quarry (permitted under P.A. Ref. 01/525), including deepening of the quarry, along with minor amendments to the permitted quarry layout comprising an extraction area of c. 4 ha within an overall application area of c. 11.4 ha. The development will include provision of new site infrastructure including water management system, wheelwash and other ancillaries. (Refer to EIAR Figure 1.3).

PMCE Ltd were commissioned by Lagan Materials Ltd. to undertake a review of the traffic impacts associated with the proposed development.

This report has been prepared by Alan O'Reilly BA BAI MSc CEng MIEI RSACert. Alan is a Chartered Engineer with PMCE, and has almost 10 years' experience in the area of Traffic and Transport Engineering including Road Safety Audits, Traffic and Transport Assessments, Collision Investigation and Road Design. Alan also has extensive experience working on road safety schemes in the UK and the Middle East.

14.1.2 SCOPE

The objective of this chapter is to examine the traffic implications associated with the proposed development in terms of its integration with existing traffic in the area. The chapter determines and quantifies the extent of additional trips generated by the development, and the impact on operational performance of such trips on the local road network.

14.1.3 METHODOLOGY

The methodology adopted for this assessment involved, in brief:-

- A site visit on the 18th June 2021, at which time the weather was dry and the ground surface was dry;
- Trip Generation and Trip Assignment – This is used to derive trip rates for a 12-hour period, from 7am to 7pm which includes the operating hours of the proposed development (7am – 6pm), and to provide information as to which direction of travel vehicles will travel to/from the Castlepollard Quarry;
- Link Capacity Assessment – To obtain an AADT value for the main road linking the Castlepollard Quarry to the surrounding network;

- Existing Traffic Assessment – The traffic survey data was used to develop a Junctions 9 model for the quarry access; and
- Future Year Assessments – The estimated future year volumes on the study area network, as a result of the increase in background traffic and any development related traffic, was used to assess the future operational performance of the existing quarry access junction and surrounding road network for 2022 and at two future assessment years, the Opening Year +5 (2027) and the Opening Year +15 (2037).

14.1.4 LOCATION PLAN

Figure 14.1 shows the location of the Lagan quarry at Castlepollard, which is the subject of this application, and surrounding area.



Figure 14.1: Location Plan of Quarry at Deerpark

(Source: www.openstreetmap.org)

14.2 EXISTING CONDITIONS

14.2.1 THE SITE

The existing quarry is located on the R395 Regional Road (Dublin Road) close to its junction with the R394 Regional Road, and approximately 2.2 km southeast of Castlepollard Town. There are a number of dwellings located along the R395 between Castlepollard and the quarry.

Most residences comprise of single isolated dwellings. There are no large residential settlements close to the development and the surrounding land use generally comprises agriculture and forestry. The quarry is accessed directly from the R395 Regional Road which, in the vicinity of the quarry, runs in a northwest to southeast direction.

The application area comprises 11.4 hectares, with the proposed extraction area accounting for 4 hectares within the site and is primarily composed of limestone rock outcrop which is to be extracted. The development will consist of the continued use and operation of the existing quarry, including deepening of the quarry, along with minor amendments to the permitted quarry layout. The development will also include the provision of new site infrastructure, including water management system, wheelwash and other ancillaries.



Figure 14.2: Proposed Site Layout Plan

14.2.2 EXISTING ROAD NETWORK

14.2.2.1 R395

The R395 is a Regional Road linking Castlepollard to the N52 and the N51 National Roads to the southwest. The R395 is approximately 30 km long, running in a northwest to southeast direction. In the vicinity of the site, the R395 is approximately 6 m wide with no footways or hard strips. It is bounded on both sides by a grassed verge and a hedgerow, or property boundaries, to its rear. The posted speed limit of the R395 in the vicinity of the site is 80 kph.



Figure 14.3: R395 Regional Road in the vicinity of the Quarry Access

14.2.3 TRAFFIC VOLUMES

Classified 12-Hour Junction Turning Counts (JTCs) were carried out on the 15th of April 2021, by Traffinomics Ltd., at the existing quarry access junction with the R395. The traffic survey was carried out between 7:00 am and 7:00 pm, with this time period encompassing the main operating hours of the quarry, which operates between 7:00 am and 6:00 pm. The time period also includes the peak hours on the adjacent road network. Surveyed vehicles were broken down into five categories as follows:

- Cars;
- LGVs (Light Goods Vehicles);
- OGV1 (Two and three axle goods vehicles);
- OGV2 (Four and five axle goods vehicles); and
- Buses.

The detailed results of the traffic survey are summarised in Appendix 14.1 The Morning and Evening Peak Hours have been established as 8:30 am to 9:30 am and 3:15 pm to 4:15 pm, respectively.

At the time of preparing this report Government enforced travel restrictions were in place nationally due to the COVID-19 pandemic. As a direct result of these travel restrictions, travel patterns on the surrounding road network are likely to have significantly reduced, and therefore may not be representative of typical travel patterns.

To address this, traffic flows recorded at the TII traffic counter (Ref: TMU N52 080.0 W) located on the N52 National Road, between Delvin and Mullingar, approximately 15 km southwest of the quarry access were used to determine any reduction in background traffic in the area arising from the Covid-19 travel restrictions. The current traffic flows, recorded by the traffic surveys in April 2021, were then adjusted to account for the observed reduction in traffic between 2019 & 2021 at the nearby TII Traffic Counter based on a comparison of traffic volumes during the same month (April), and day (Thursday), better reflecting similar traffic patterns and operations.

From this comparison, a growth rate was estimated and applied to the 2021 traffic flow data to bring this data in line with pre-pandemic levels. This revised data formed the Base Year traffic data for this Traffic and Transport Assessment.

The traffic survey data at the quarry access has been converted to Annual Average Daily Traffic (AADT) values using the methodology described in "Expansion Factors for Short Period Traffic Counts" (Unit 16.2 NRA Project Appraisal Guidelines, August 2012). Annexes A to C of the above document were used in the expansion of traffic counts to AADTs.

A combined factor of 0.736 was arrived at by combining the individual hourly factors for the count duration. This factor was then used to determine the 24-hour traffic flow. This was then converted to a Weekly Average Daily Traffic (WADT) using an index of 0.96 for the Thursday traffic count. Finally, this was converted to AADT using an index of 0.98 for the month of April. These factors were used to calculate the AADT for the quarry access junction.

Table 14.1: Quarry Access/R395 Junction

Hour Ending	R395 (NW)	Quarry Access	R395 (SE)
08:00	93	0	93
09:00	135	1	136
10:00	144	3	147
11:00	97	3	100
12:00	116	3	117
13:00	119	0	119
14:00	140	0	140
15:00	170	0	170
16:00	195	1	196
17:00	188	0	188
18:00	176	2	178
19:00	121	0	121
Period Total	1,694	14	1,706
Period Total HGVs	119	2	121
% HGVs	7.03%	13.87%	7.09%
Total AADT	2,165	18	2,180

14.3 PROPOSED DEVELOPMENT

The proposed development comprises an application for continuance of the current operations at Lagan's existing Castlepollard Quarry. An average extraction capacity of 100,000 tonnes per annum is anticipated.

14.3.1 TRIP GENERATION

14.3.1.1 QUARRY OPERATIONAL MOVEMENTS

An average extraction capacity of 100,000 tonnes per annum is anticipated as part of the proposed development.

The materials are transported from site in 20 and 28 tonne loads, with an average load of 24 tonnes used for this assessment.

In determining the daily traffic volumes associated with the development an average of 16 loads per day arriving to, and departing from, the site has been calculated based on the following assumptions: -

- The facility will operate for 48 weeks per year;
- The facility will operate for 5.5 days per week (Monday to Saturday) inclusive;
- Quarried material will be transported from the site in 20 tonne and 28 tonne loads (a 24 tonne average load has been used for this assessment);
- The facility opening times will be 07:00 to 18:00 Monday to Friday and 07:00 to 14:00 on Saturday;
- The proposed development of the quarry directly employs a work force of two persons i.e., 4 trips per day; and

There will be occasional contractor, maintenance and delivery vehicles travelling to/from the quarry supporting the needs of the quarry, which will amount to 8 trips per day.

Table 14.2 below summarises the calculation of daily trips to/from the quarry from the average annual import, export and extraction rates.

Table 14.2: Summary of Predicted Daily Trips in Opening Year and Beyond

	Daily Trips			
	Proposed Exported Quarried Material	Staff	Miscellaneous (occasional contractor, maintenance & delivery vehicles)	Total
Avg quantity per annum	100,000t	-	-	
Quantity per week (48 operational weeks / year)	2,083t	-	-	
Loads per week (24 tonnes / load)	87	-	-	
Loads per Hour (62 working hours / week)	1.4	-	-	
Loads per Day (11 working hours / weekday)	16 (15.4)	-	-	
Trips per Day	32	4	8	44

14.3.1.2 STAFF TRIPS

The site currently employs 1 full-time and 1 part-time staff member and it is not anticipated that these numbers will increase. Staff movements will generate 4 peak hour trips, 2 trips inbound in the morning and 2 trips outbound during the evening peak. Staff car movements have been distributed in accordance with the existing light vehicle distribution at the site access.

14.3.1.3 DERIVED TRIP RATE

The traffic generated by the quarry will therefore fall into a number of categories:-

- Quarry aggregate haulage traffic exiting laden onto the public road network;
- Quarry aggregate haulage traffic entering empty to the quarry;
- Employees' vehicles; and
- Occasional contractor, maintenance & delivery vehicles.

The total daily trips associated with the quarry operation will therefore account for an average of 44 movements daily, 32 of which relate to HGV's (73%). These numbers are arrived at by summing the following components:-

- 32 daily truck movements enter and exit the site in relation to the general quarrying operations (16 inbound and 16 outbound);
- 4 staff trips daily (2 inbound and 2 outbound); and
- 8 miscellaneous trips daily (4 inbound and 4 outbound).

14.3.2 TRIP DISTRIBUTION

Appendix 14.2 contains extracts from the Trip Rate Information Computer System (TRICS) database regarding the forecast daily arrival/departure distribution for quarry sites. TRICS is a database containing empirically obtained trip generation data for a wide range of different types of developments. By inspection, it can be seen that the pattern of arrivals/departures is consistent with a short turn around within the sites, e.g., that vehicles generally arrive and depart within a short time period, likely to be less than an hour.

The distribution of the development traffic on the adjacent road network is based on an assessment of the existing traffic flows at the site access derived from the traffic count data. Table 14.3 details the trip distribution that has been applied to the development traffic as part of the junction capacity analysis.

Table 14.3: Summary of Predicted Daily Trips in 2022 and Beyond

Development	Type of Traffic	Avg. Daily Trips	
		Arrivals	Departures
Quarry	Transportation of Material (HGVs)	16	16
	Staff (LVs)	2	2
	Miscellaneous (LVs)	4	4
Total		22	22

14.3.3 TRIP ASSIGNMENT

At the quarry access junction on the R395, when travelling to/from the quarry, it is anticipated that development traffic will be split 50:50 to the northwest and southeast for arrivals and departures. The traffic assignments are illustrated in Figure 14.4.

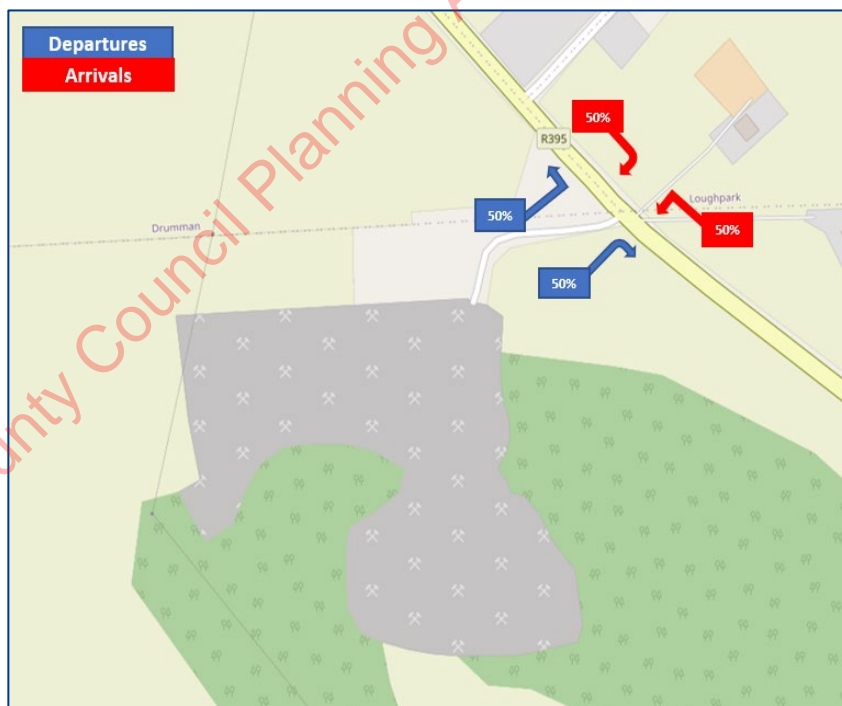


Figure 14.4: Assignment of Quarry Development Traffic throughout the Network

14.3.4 SCOPE OF ASSESSMENT

Section 2.1 of the “Traffic and Transport Assessment Guidelines” published by Transport Infrastructure Ireland recommends that, in a rural setting, a traffic assessment should include all of the roads and junctions where the development traffic exceeds 10% of the existing or background traffic.

Figure 14.5 outlines the distributed development traffic (as discussed in Section 14.3.1 of this Chapter) as a percentage of the background traffic on the R395. Whilst the development traffic does not exceed the 10% threshold on the R395, for the purpose of a robust assessment, the quarry access on the R395, and the R395 itself, have undergone full junction capacity and link capacity assessments, respectively.

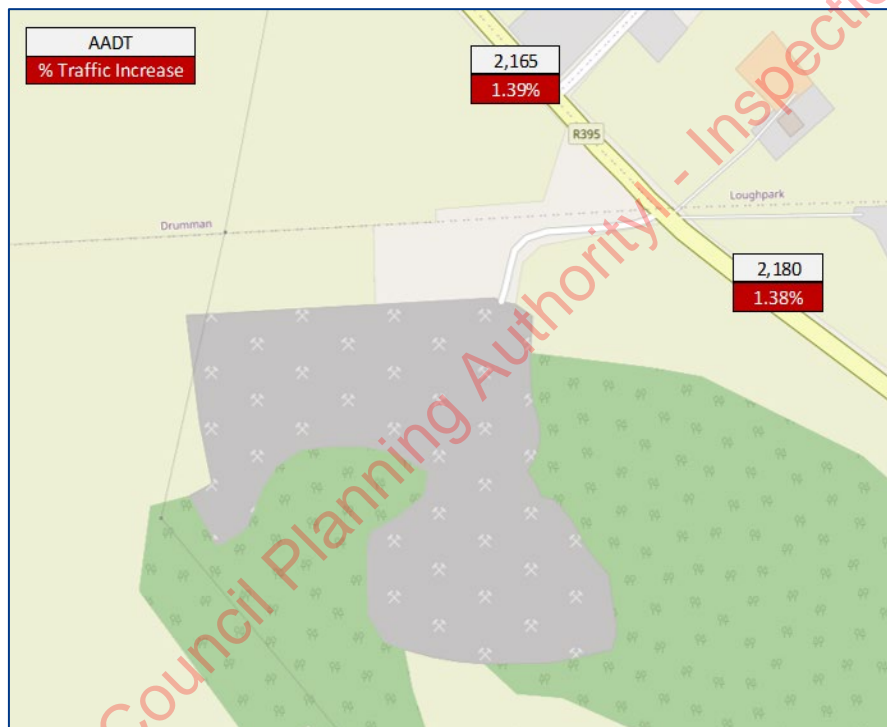


Figure 14.5: AADT and Development Traffic as a Percentage of Existing Traffic.

14.4 ROAD IMPACTS

14.4.1 ASSESSMENT YEARS

The “Traffic and Transport Assessment Guidelines” published by Transport Infrastructure Ireland recommend the assessment of traffic in the Opening Year, the first year of operation of proposed continuance of development, for the Opening Year +5 years and the Opening Year +15 years. The assessment years for this Traffic and Transport Assessment are therefore 2022 for the Opening Year and 2027, and 2037, for the Future Assessment Years.

14.4.2 TRAFFIC GROWTH

Growth Factors outlined in the "Project Appraisal Guidelines - Unit 5.3 – Travel Demand Projections (PE-PAG-02017)," updated by TII in November 2021, have been used to determine future year traffic flows on the network from the estimated 2021 traffic count data. Table 14.4 contains a summary of the traffic Growth Factors published in the "Project Appraisal Guidelines". For this assessment, a central growth scenario has been adopted (a 'central' growth scenario was assumed given the site location and scale).

Table 14.4: Future Year Traffic Growth Figures (Co. Westmeath)

Year	Low Growth		Central Growth		High Growth	
	LV	HV	LV	HV	LV	HV
2016-2030	1.0145	1.0300	1.0161	1.0316	1.0194	1.0352
2030-2040	1.0042	1.0126	1.0062	1.0147	1.0101	1.0185

14.4.3 LINK CAPACITY ASSESSMENT

When assessing the link capacity of a road, a Level of Service D was chosen, as according to the TII Publications document DN-GEO-03031, “Rural Road Link Design,” it is at this level that, *“speeds begin to decline slightly with slight increase of flows and density begins to increase somewhat more quickly. Freedom to manoeuvre within the traffic stream is more noticeably limited, and the driver experiences reduced comfort levels.”*

The capacity of the local and national roads within the surrounding road network has therefore been assessed with reference to the TII Publications document DN-GEO-03031, “Rural Road Link Design,” for a level of Service D.

14.4.3.1 R395 REGIONAL ROAD

The capacity of the R395 has been assessed with reference to the TII Publications document DN-GEO-03031, “Rural Road Link Design.”

The 'Road Type' selected for the R395, which best describes the road layout, is a 'Type 3 Single Carriageway' in accordance with this publication, which represents a 6 m wide carriageway with 0.5 m hard strips that minimises the number of direct accesses to avoid standing vehicles, minimises turning movements, and incorporates simple priority junctions with ghost islands where necessary. The maximum AADT for a road of this type at Level of Service D is 5,000.

The R395 has a paved carriageway width of 6 m and no pedestrian and cycle facilities on either side. The forecast two-way AADT for the final future forecast year, when combined with the additional traffic generated by the proposed development, is 2,663, which is less than the maximum AADT for a road of this type at Level of Service D.

Table 14.5: Combined AADT for each Assessment Year (R395 Northwest)

	Assessment Year			
	2021	2022	2027	2037
Background Traffic	2,180	2,218	2,416	2,641
Development Traffic	-	22	22	22
Combined Traffic (Background + Dev. Traffic)	2,180	2,240	2,438	2,663
Development Traffic as % of Combined Traffic	-	0.98%	0.90%	0.83%

Table 14.6: Combined AADT for each Assessment Year (R395 Southeast)

	Assessment Year			
	2021	2022	2027	2037
Background Traffic	2,165	2,202	2,398	2,622
Development Traffic	-	22	22	22
Combined Traffic (Background + Dev. Traffic)	2,165	2,224	2,420	2,644
Development Traffic as % of Combined Traffic	-	0.99%	0.91%	0.83%

Traffic generated by the proposed development will account for between 0.83% and 0.99% of total traffic on the R395 from 2022 to 2037. It is consequently concluded that the R395 will have sufficient link capacity for each of the future assessment years with, and without, the traffic generated by the extension of operations at the quarry.

14.4.4 JUNCTION CAPACITY ASSESSMENT

The capacity of the surveyed junction was assessed using the Transport Research Laboratory's (TRL) Junctions 9 computer programme.

Junction performance is measured as a ratio between the flow and capacity (RFC). The capacity analysis has been carried out for a period of 12-hours, which corresponds to the operational hours of the quarry, which is 7:00am to 6:00pm, for each of the assessment years, the base year (2021), 2022, 2027 and 2037. A rural junction with an RFC below 0.85 is considered to be operating within capacity, while an RFC of 0.85 indicates a junction operating at capacity.

The detailed junction capacity analysis outputs for the analysed junction, for each of the assessment years, are contained within Appendix 14.3 of this report.

14.4.4.1 LOCATION: JUNCTION OF QUARRY ACCESS & R395

A summary of the junction capacity analysis results for the Quarry Access junction is shown in Table 14.7. The results indicate that the junction will continue to operate within capacity for each of the assessment years 2022, 2027 and 2037.

Table 14.7: Summary of Traffic Analysis at Junction of Quarry Access & R395

Stream	12 Hours (07:00 – 19:00)		
	Queue (Veh.)	Delay (s)	RFC
2021 (Base Year)			
Quarry Access - R395 (West)	0.0	7.24	0.02
Quarry Access - R395 (East)	0.0	7.38	0.01
R395 (West) - Quarry Access / R395 (East)	0.0	10.68	0.02
2022 Without Development			
Quarry Access - R395 (West)	0.0	7.27	0.02
Quarry Access - R395 (East)	0.0	7.38	0.01
R395 (West) - Quarry Access / R395 (East)	0.0	10.67	0.02
2022 With Development			
Quarry Access - R395 (West)	0.0	11.09	0.02
Quarry Access - R395 (East)	0.0	15.79	0.01
R395 (West) - Quarry Access / R395 (East)	0.0	10.84	0.02
2027 Without Development			
Quarry Access - R395 (West)	0.0	7.41	0.02
Quarry Access -R395 (East)	0.0	7.43	0.01
R395 (West) -Quarry Access / R395 (East)	0.0	10.61	0.02
2027 With Development			
Quarry Access - R395 (West)	0.0	11.15	0.02
Quarry Access - R395 (East)	0.0	15.97	0.01
R395 (West) - Quarry Access / R395 (East)	0.0	10.79	0.02
2037 Without Development			
Quarry Access - R395 (West)	0.0	7.59	0.02

Quarry Access - R395 (East)	0.0	7.49	0.01
R395 (West) - Quarry Access / R395 (East)	0.0	10.54	0.02
Stream	2037 With Development		
Quarry Access - R395 (West)	0.0	11.23	0.03
Quarry Access - R395 (East)	0.0	16.18	0.01
R395 (West) - Quarry Access / R395 (East)	0.0	10.74	0.02

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14.5 ROAD SAFETY

14.5.1 COLLISION HISTORY

The Road Safety Authority website (www.rsa.ie) was consulted to identify historical collisions on the R395 in the vicinity of the quarry access. The website includes summary information on collision occurrence for the period 2005 to 2016.

The historical collision data indicates that there was one Serious Injury collision recorded between 2005 and 2016, approx. 110 m north of the quarry access (see Figure 14.6). It was a head-on collision involving a car and occurred in 2016, resulting in four casualties. It occurred on a Saturday between 7 pm and 11 pm.

The number of collisions recorded do not indicate that a pattern of collisions exists at this location.

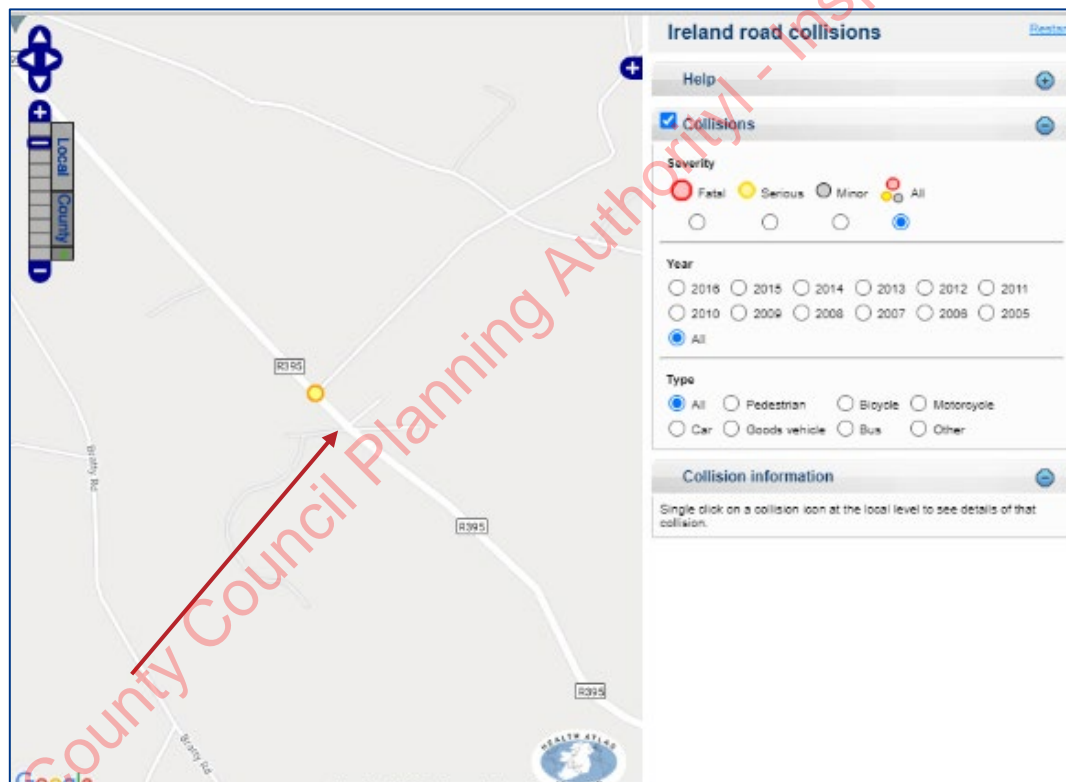


Figure 14.6: Historical Collisions Recorded on the R395 in the vicinity of the Development Quarry Access

(Source: www.RSA.ie)

14.5.2 SIGHTLINES

The entrance to the quarry is provided via an existing access on the R395 Regional Road. The R395 continues northwest of the quarry access in one direction and southeast of the quarry access in the other direction. Vehicles travelling on the R395 have priority over vehicles entering/exiting the quarry. The posted speed limit on the R395 at, and on the approaches to the quarry access, is 80 kph.

The visibility splays at the quarry access were assessed against the TII Publication document, DN-GEO-03060, "*Geometric Design of Junctions (priority junctions, direct accesses, roundabouts, grade separated and compact grade separated junctions)*," which requires the visibility to be assessed from a point 3 m back from the edge of the major road. Unobstructed sightlines of 160 m are required for a Design Speed of 85 kph to the high object height of 1.05 m.



Figure 14.7: Visibility to the Northwest (Left Photograph) and to the Southeast (Right Photograph) along the R395 from the Quarry Access

The required sightlines are achievable to the southeast from a point 3 m back from the edge of the R395. To the northwest, the visibility splay is indicated as passing through existing trees and vegetation. These will be cut back and maintained to ensure the required visibility is provided.

Appendix 14.4 provides a drawing illustrating the available visibility splays at the R395 junction.

14.5.3 PARKING

The site contains 6 parking spaces. This parking provision is sufficient for the number of staff working on site and also for any miscellaneous trips that may occur.

14.5.4 PUBLIC TRANSPORT

There are no public transport provisions in the vicinity of the site due to its rural location. The absence of these facilities at this location however is not connected with the operation of the quarry.

14.5.5 PEDESTRIANS & CYCLISTS

There are no footpaths or cycle provisions in the vicinity of the site. The absence of these facilities at this location is not connected with the operation of the site.

14.6 ASSESSMENT OF IMPACTS

The following Impact Assessment matrix provides an indication of the significance of potential effects arising during the life cycle of the development not accounting for any mitigation measures.

The impact of the proposed development on the regional and national road network has been assessed for the construction, operation and restoration phases of the proposed development.

Table 14.8 Traffic – Impact Assessment			
'Do Nothing' Impacts	x		
Factors	Construction	Operation	Decommissioning
Direct Impacts	x	●	x
Indirect Impacts	x	●	x
Cumulative Impacts	x	x	x
Residual Impacts	x	x	x
'Worst Case' Impacts	x	●	x
None/imperceptible: x; Slight: ●; Moderate: ●; Significant/Very significant: ●.			
Refer to Appendix 3 for definition of Significance			

14.6.1 'DO-NOTHING' IMPACTS

The 'do nothing' impacts will be none or imperceptible as the quarry development will remain as it exists today. Table 14.7 shows the results of the junction capacity analysis at the quarry access both with, and without, the proposed development. The results of this analysis indicate that, should the quarry development maintain its current layout, and operations, it will continue to operate within capacity, and without any impacts on the surrounding road network.

Under the 'Do Nothing' scenario, all quarrying and ancillary activities would cease when the current planning permission expires. The site would be restored as per the requirements of the existing planning permission (P.A. Ref. 01/525). There would be a slight, temporary impact from the decommissioning and restoration phases.

If the proposed recommencement of the quarry did not proceed, the local supply of good quality aggregates would be more restricted resulting in the need to transport aggregates from more remote locations to meet demand in the region.

14.6.2 DIRECT IMPACTS

The volume of traffic generated by the proposed development will result in an average daily vehicle flow of 44 vehicles, 32 of which would be HGVs. It will be most pronounced along the R395 from the site entrance to the junction with the R394 regional road in Castlepollard to the northwest and to the N52 national road in Delvin to the southeast.

The capacity of the R395 at the quarry access junction is 5,000 AADT and the existing and proposed volume on the R395 falls within this envelope of available capacity, with spare capacity available. Thus, no additional access requirements will be needed for the proposed development.

The traffic impact of the quarry site on the R395 will result in an increase in traffic on the network, but this increase is considered not significant. The projected increase in traffic due to the quarry site is between 0.83% and 0.99% of the total traffic on the R395, given the present and forecasted levels of activity at the quarry (Refer to Table 14.5 and Table 14.6). The existing capacity of the adjacent road network has been shown to comfortably accommodate these minor increases.

The traffic impact on the R395/Quarry Access junction will result in a slight increase in vehicles entering and exiting the quarry during the day. The increase in traffic at the Quarry Access Junction will result in a slight increase in capacity at the junction, from an RFC of 0.02 (2022) to 0.03 (2037). There will also be a slight increase in delay at the junction, in the order of approx. 4 seconds. The increase in RFC and delay however is considered not to have a significant impact on the operation of the junction which is forecast to continue to experience spare capacity for the lifetime of the development.

Existing vegetation to the northwest, which currently encroaches on the visibility splay at the Quarry access, will be trimmed back and maintained to ensure the required visibility is achieved at all times.

14.6.3 INDIRECT IMPACTS

The volume of traffic generated by the proposed development will result in an average daily vehicle flow of 44 vehicles. It has been shown that these increases can be comfortably accommodated by the local road network.

There will be no indirect impacts during the construction and decommissioning phases of the development due to the low requirement for mobilisation of earthmoving equipment to the site during these phases.

14.6.4 CUMULATIVE IMPACTS

There will be no cumulative impacts resulting from the proposed development during the construction, operation, or commissioning phases of the proposed development.

14.6.5 TRANSBOUNDARY IMPACTS

The EIA Directive 2014-52-EU invokes the Espoo Convention on Environmental Impact Assessment in a Transboundary Context, 1991, and applies its definition of transboundary impacts. Given the location (c. 50 km from the border with N. Ireland), nature, size, and scale of the proposed development, it is expected that the impacts of the development would not have any significant transboundary effects on traffic and roads.

14.6.6 RESIDUAL IMPACTS

As a result of the proposed mitigation and enhancement measures incorporated in the design, no significant, adverse residual impacts are predicted in terms of roads and traffic during the operational phase.

It is considered that following full restoration and closure of the site that there will also be no significant, long-term, adverse impacts in terms of the local road network. The restored quarry will provide a change in land-use from mineral extraction to a beneficial after-use as a wildlife amenity.

14.6.7 'WORST-CASE' IMPACTS

It is considered that the Worst-Case Impact of the development could be the accelerated deterioration of the pavement along the R395 due to increased HGV traffic, particularly at the site entrance. This may require maintenance works during the life of the development. The mechanism for dealing with this situation can be incorporated in a planning condition to be agreed with the Road Engineering Department of Westmeath County Council.

Another worst-case impact would be a traffic accident involving HGV truck associated with the proposed development. Following an assessment of road collisions recorded between 2005 and 2016, one collision was identified approximately 110 m north of the existing quarry access on the R395. This was a Serious Injury collision, involving a car and occurred in 2016, resulting in four casualties. The collision occurred on a Saturday between 7 pm and 11 pm (outside of the quarries operating hours). This recorded collision data suggests that the HGV traffic from the existing quarry had no impact on road safety on the R395. As such, there is no evidence to suggest that future collisions involving quarry traffic is likely.

14.7 MITIGATION

The proposed development at the existing quarry site will generate increased traffic movements on the surrounding road network. A number of mitigation measures will be implemented to reduce the impacts of quarry traffic on the local road network. The mitigation measures proposed are as follows:-

- The R395 road in the vicinity of the entrance will be mechanically swept on a regular basis;
- The pavement of the roads in the vicinity of the existing quarry and the R395 is in good condition and will be reviewed with the Roads Section of Westmeath County Council at an agreed frequency;
- The parking requirements for the proposed development mainly relate to the quarry employees and visitors. It is proposed to provide sufficient parking spaces within the quarry for employees and visitors. The maximum number of direct employees will be 2, while spaces will be provided for other contractors. A total of 6 parking spaces will be provided; and
- To the northwest, the visibility splay is indicated as passing through existing trees and vegetation. These will be cut back and maintained to ensure the required visibility will be provided.



14.8 CONCLUSIONS

The Traffic and Transport Assessment makes the following conclusions:

- 1) Link capacity analysis was carried out on the R395 within the vicinity of the quarry, and it was determined that the R395 will continue to operate within capacity for each of the assessment years 2022, 2027 and 2037.
- 2) Junction capacity analysis was undertaken at the existing junction of the quarry and the R395. The results of the analysis indicate that the junction will operate within capacity for assessment years 2022, 2027 and 2037.
- 3) The visibility splays at the quarry access were assessed against the TII Publication document, DN-GEO-03060, "*Geometric Design of Junctions (priority junctions, direct accesses, roundabouts, grade separated and compact grade separated junctions)*," which requires the visibility to be assessed from a point 3 m back from the edge of the major road. Unobstructed sightlines of 160 m are required for a Design Speed of 85 kph to the high object height of 1.05 m.

The required sightlines are achievable to the southeast from a point 3 m back from the edge of the R395. To the northwest, the visibility splay is indicated as passing through existing trees and vegetation. These will be cut back and maintained to ensure the required visibility will be provided.



14.9 REFERENCES

- NRA (now TII) (2014). *Traffic and Transport Assessment Guidelines*, National Roads Authority (NRA), Dublin, Ireland.
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