

SECTION 12: TRAFFIC

121 INTRODUCTION

12.1.1 Background

This chapter of the Environmental Impact Statement (EIS) has been prepared by WSP Ireland Ltd and SLR Consulting Ireland and reviews the impact of the proposed Inert Soil Recovery Facility at Milverton on the local road network and traffic flows thereon.

Quarrying and the production of aggregate and other construction materials at Roadstone's site in Milverton was suspended in summer 2008 and the former retail shop was also closed at the same time. It is proposed to commence backfilling of the existing quarry void in order to restore the quarry to near its original ground level. Information from a number of sources has been utilised by WSP in preparing this chapter. This includes:

- Information provided to SLR Consulting Ireland and.
- Quarry and Retail Centre sales dockets provided by Roadstone Ltd.

12.1.2 Scope of Work

This EIS chapter includes a description of the local road network, an estimation of the likely traffic generated by the proposed inert soil recovery facility, the impact of generated traffic upon the local road network, review of the proposed haulage route to and from the quarry, identification of any planned transport improvements for the area that may impact on the quarry haulage route and any mitigation measures required.

An on-site inspection of the application site and haulage route used by quarry traffic was undertaken on Thursday 29th January 2009. This site visit included initial inspections of traffic flow patterns and the geometry and layout of the local road network.

12.1.3 Difficulties Encountered in Compilation

No difficulties were encountered in the compilation of this chapter.

12.2 RECEIVING ENVIRONMENT

12.2.1 Site Location and Local Road Network

The application site is located within Roadstone's landholding at Milverton, 1.5km south west of Skerries in north County Dublin. The total area of the landholding is approximately 8.6ha. (20.7 acres).

The access to the quarry site at Milverton is located directly off the R127 Regional Road. This road runs in a predominantly north-east / south-west alignment from its junction with the R132 Regional Road at Blakes Cross to the town of Skerries and bounds the application site to the north. The cross-sectional width of the R127 generally varies from 6.5m to 7.0m. There are a number of side road "T" junctions and staggered crossroads located along the length of the R127 between its junction with the R132 and Skerries. On the approach to Skerries, there is a low bridge with a maximum height of 3.44m. A photograph of this bridge is reproduced in Plate 12.1.

The R127 is the main route connecting Lusk and Skerries. The town of Lusk is located approximately 5km south of Milverton Quarry along the R127. It is served by a relief road which alleviates congestion and allows vehicles wishing to travel efficiently along the R127 to by-pass the town.

Travelling further south, the R127 then intersects with the R132, which was previously the old N1 National Primary Road. This junction is 3km south of Lusk and is locally known as "Blakes Cross". This intersection is in the form of a priority junction, with priority in favour of the R132.

On the southbound approach to this junction, along the R127, there is a left turn slip lane provided for traffic heading south towards Dublin, enabling it to merge with traffic along the R132. Vehicles travelling northbound along the R132 wishing to turn on to the R127, are facilitated by a ghost island right turn lane. Vehicles travelling from a southbound approach to the junction and making a left turn on to the R127 are facilitated by a left turn slip lane. A photograph of the junction at Blake's Cross is provided in Plate 12.2.

The Lissenhall junction on the M1 Dublin to Belfast Motorway is located 3km south of the R127 / R132 junction at Blakes Cross. This grade-separated modified dumbbell interchange consists of a left slip on and a left slip off in both northern and southern directions.

The Balbriggan junction on the M1 Motorway is located 5km north of Blakes Cross. This is a conventional grade-separated dumbbell interchange consisting of a left slip on and a left slip off in both northern and southern directions

12.2.2 Traffic Volumes and Link Traffic Count

Previous traffic volumes generated by the quarry and construction materials production plant at Milverton have been determined from two sources.

- Information provided by Roadstone on previous traffic movements in and out of the application site in the calendar years 2006, 2007, 2008;
- Link Traffic Count undertaken by WSP in 2009
- Link Traffic Count undertaken by SLR in 2014.

Information provided by Roadstone Ltd.

Traffic volumes generated by activities at the quarry over a three year period between 2006 and 2008 were obtained by detailed analysis of information gathered by Roadstone Ltd. on the numbers of HGV and light vehicle traffic accessing the site.

Roadstone Ltd collated sales data over this three year period and related the number of sales dockets issued for loads of readymix concrete and structural fill (crushed stone) to the number of HGVs accessing the quarry. Each sales docket was taken as the equivalent of 1 HGV accessing and egressing the site.

A maximum and an average number of daily HGV trips to the Milverton Quarry was established through the assessment of the daily figures obtained for each of the assessment years. A variation factor of 3.3 was derived from the ratio between the maximum HGV trips and average HGV trips observed over the three year period between 2006 and 2008.

Table 12.1 below summarises the daily number of HGV trips to and from the quarry at that time:

Table 12.1: Daily HGV Trips Associated with Milverton Quarry (2006-2008)						
Year	Unit	Concrete	Crushed Stone	Total	Total In and Out	Variance between Max and Average (HGV)
2006	Max	51	4	55	110	3.3
	Average	18	3	22	43	
2007	Max	50	30	80	160	
	Average	18	7	25	50	
2008	Max	45	48	93	186	
	Average					

Average	14	8	22	44	
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There were some additional HGV movements in and out of the site over and above those indicated by the figures provided in Table 12.1. These HGV movements generally comprised deliveries to the site offices, batching plant or retail shop, and are likely to have been a fraction of overall HGV traffic levels.

The number of vehicles accessing the retail shop was attained by reviewing sales docket for items purchased over the same three year period. Each receipt was taken to be the equivalent of 1 car or light van.

As with the HGV traffic, a maximum and an average number of daily trips associated with the retail shop was established from the data obtained during the three assessment years. In order to ensure a conservative assessment, the figure obtained for vehicle movements to the retail shop was increased by a further 20%. This increase accounts for a possible discrepancy in respect of journeys made to the retail shop which did not result in the issue of a sales docket (those visiting without buying).

Table 12.2 below summarises the number of trips generated by the former retail shop at Milverton.

Table 12.2: Daily Trips Associated with the Retail Shop						
Year	Unit	Shop	Staff	Visitors 20%	Total	Total In and Out
2006	Max	40	2	8	50	100
	Average	12	2	2	16	32
2007	Max	43	2	9	54	108
	Average	14	2	3	19	38
2008	Max	23	2	5	30	60
	Average	11	2	2	15	30

The information in Tables 12.1 and 12.2 was combined and from this information, an hourly flow was calculated which represents the level of previous quarry traffic flow along the R127 during the over the operating hours of the Milverton batching plant (07.00 – 18.00hours). Table 12.3 details a maximum and average hourly flow of traffic associated with previous activity at Milverton Quarry.

Table 12.3: Hourly two-way traffic along R127 (based on 11hr operations at Milverton Quarry)			
	HGV	CAR	Staff
Max	14	8	-
Average	4	3	-

Information obtained from Link Traffic Count 2009

On the 29th of January 2009 an on-site inspection was carried out by WSP. A traffic survey was undertaken of the link movements occurring during an hour period coinciding with the morning peak hour from 08:00 – 09:00, these survey results are represented in Table 12.4.

Table 12.4: R127 Link Traffic Count : January 2009			
R127 Link Count (2009)	Peak Hour	CAR / LGV	HGV
	08:00-09:00 North-east to Skerries	296	0
	08:00-09:00 South-west to Lusk	392	4

The Annual Average Daily Traffic (AADT) is an estimate of the mean daily traffic volume experienced on a road over the course of a year. This figure has been calculated using the recent (2012) publication "Expansion Factors for Short Period Traffic Counts", which constitutes Unit 16.2 of the National Roads Authority (NRA) Project Appraisal Guidelines. An expansion factor used to derive the AADT on the basis of a short period traffic count was determined using relevant 24 hour, week and monthly traffic flow indices published in Annexes A, B and C respectively of the NRA publication.

Since the link count was located within the Greater Dublin Area and was conducted on a Thursday in January with an hour ending of 09:00, the expansion factor is determined to be 15.75. The AADT along the R127, based on 2009 traffic levels was therefore calculated to be 10,901 plus / minus 23% with a 95% confidence level.

Information obtained from Link Traffic Count 2014

On the 10th June 2014, a further traffic count was undertaken by SLR Consulting Ireland to determine if there had been any appreciable increase in traffic levels along the R127 since the time of the earlier survey in 2009. As previously, a traffic survey was undertaken of the link movements occurring during an hour period coinciding with the morning peak hour from 08:00 – 09:00, these survey results are represented in Table 12.5.

Table 12.5: R127 Link Traffic Count : June 2014			
R127 Link Count 2014	Peak Hour	CAR / LGV	HGV
	08:00-10:00 North-east to Skerries	275	2
	08:00-10:00 South-west to Lusk	751	1
	08:00-10:00 North-east to Skerries	757	3
	08:00-10:00 South-west to Lusk	409	1

The Annual Average Daily Traffic (AADT) was again estimated on the basis of an expansion factor determined using relevant 24 hour, week and monthly traffic flow indices published in the NRA document.

Since the link count was located within the Greater Dublin Area and was conducted on a Tuesday in June with a morning peak two-hour period ending at 10.00 hours and an evening peak two-hour period ending at 18.00, the expansion factor for the combined traffic total over the four hours is determined to be 3.044. The AADT along the R127, based on 2014 traffic levels is therefore calculated to be 6,672 plus / minus 14% with a 95% confidence level.

As can be seen, the AADT along the R127 is significantly lower in 2014 than it was previously, in 2009. It is likely that the reduced traffic level reflects reduced levels of commuting and/or activity

in the construction and development sectors as a result of the extended economic downturn since that time.

12.2.3 Existing Site Entrance

The prevailing speed limit on the R127 Regional Road is 80kph. Therefore to provide for an 85km design speed, the existing access junction at the application site must have a sight visibility distance of 160m at a minimum 4.5m setback from the R127 road edge along the access road, as defined in NRA DMRB (TD 42/95). A photograph of the achievable visibility is depicted in Plates 12.3 and 12.4.

Visibility at the access junction onto the R127 is quite good to the right (east). To the left (west) visibility is slightly obstructed by signage and flag poles relating to the former retail centre. A number of mitigation measures are proposed to address this aspect in Section 12.4 (Proposed Mitigation Measures).

In the vicinity of the site entrance, the alignment of the R127 is predominately straight and offers motorists good forward site stopping visibility of any vehicles turning into the application site.

12.2.4 Existing Site Infrastructure

The existing infrastructure facilities provided at Milverton Quarry include:

- Weighbridge
- Fuel storage tanks
- Office/canteen facilities
- Security gates
- Hard-standing areas and internal road network
- Environmental monitoring system
- Utilities
- Designated waste storage areas

The infrastructure will be upgraded to accommodate a wheelwash facility and temporary surface water management systems.

12.2.5 Existing Haulage Route

The route that will be travelled by HGV trucks to and from the proposed inert soil recovery facility is the same as that travelled by trucks which previously travelled going to and from the quarry. This route is illustrated in Figure 12.1.

Upon leaving the site, all HGV traffic will turn left at the site exit and head south-west towards Lusk along the R127. When approaching Lusk, HGV traffic shall use the relief road by taking the first exit on the roundabout, and subsequently travel through the next two roundabouts. They will then proceed to take the first exit on the fourth and last roundabout. HGV traffic will then continue travelling south-west until it approaches the junction between the R127 and R132 at Blake's Cross. At this junction, HGV traffic will turn south and travel toward the Lissenhall Interchange on the M1 to destination sites across the Greater Dublin Area, or will turn north and advance towards the Balbriggan Interchange on the M1 to destination sites in the North Leinster area.

This route ensures that HGV traffic generated by the proposed recovery facility travels along existing regional roads, which have been designed and classified to accommodate HGV traffic. It also avoids going through any towns or roads that are unsuitable for HGV traffic.

12.3 IMPACT OF THE SCHEME

All developments can result in an increase in traffic flows on the surrounding road network. The increased volumes of traffic directly affect all road users and the surrounding local environment.

Possible effects to road users include:

- Increased journey times for vehicular traffic;
- Increased difficulty in crossing roads for pedestrians / cyclists;
- Increased risk of accidents for all road users.

Increased traffic volumes on the road network may also result in significant impacts on the wider community and on the environment in terms of:

- Increased Noise
- Vibration
- Reduced Air Quality

This section of the EIS deals with the traffic generated by the proposed inert waste recovery facility at Milverton quarry; the distribution and assignment of traffic generated by this development; and the impacts it will have on the surrounding road network.

12.3.1 Evaluation Methodology

The methodology employed in the determining the impact of the proposed development upon the local road network involves the following elements:

- Determination of traffic volumes generated in the past by operations at Milverton.
- Obtain estimate for volume of traffic generated by the proposed inert soil recovery facility
- Determine link flow on the R127 during the morning peak of an average weekday.
- Compare generated traffic to and from the inert waste recovery facility to that generated in the past by quarrying and construction materials production operations at the same site.

12.3.2 Potential Impact

Traffic Generation

The proposed quarry backfilling operations at Milverton entail the importation of approximately 1.9million tonnes of material over its lifetime in order to fill the bulk of the void created by quarrying activity. This is equivalent to a total of approximately 100,000 HGV movements at 19 tonnes per load to fill the quarry void.

Assuming there are 50 working weeks in the year, and 5.5 working days per week, this gives a total of 3,300 working hours per year for the proposed waste recovery facility. This assumes an 11 hour working day, equivalent to that which applied when the quarry was operational.

Roadstone Ltd has estimated the facility will have an average intake of inert soil waste at the facility of around 250,000 tonnes / year. This equates to a 7.5 year life expectancy for the proposed facility.

From the information above, it is possible to obtain an average hourly HGV trip rate to and from the waste recovery facility associated with backfilling and restoration activities. This yields an average figure of four HGV movements into and four HGV movements out of the quarry per hour.

However, if backfilling of the quarry was to proceed at this intensity, it is likely that this average figure will be intermittently exceeded during busy periods of the year. It was therefore necessary

to establish a maximum number of hourly trips for the backfilling operations for impact assessment purposes.

A maximum figure was arrived at by applying a variation factor of 3.3 to the average number of trips associated with the backfilling activity. This factor has been derived from the ratio between the maximum HGV trips and average HGV trips observed over the three year period when the quarry was operational between 2006 and 2008 and is considered to be reasonably representative of the variation in traffic levels associated with construction related activities. The variation between the average HGV trips and maximum daily HGV trips is outlined in Table 12.1 above.

In light of this, the maximum predicted flow associated with the backfill operations over a 7.5 year operational period is 13 HGVs per hour (i.e. 26 HGV movements into and out of the proposed recovery facility per hour). Table 12.6 below summarises the total trips along R127 in this 'worst case' peak hour scenario:

Table 12.6: Total Waste Recovery Traffic In and Out of Milverton Facility per hour			
	HGV	Staff	Variance between Max & Average (HGV)
Max	26	3	3.3
Average	8	3	

Comparison of Inert Waste Traffic Volumes to Those for Previous Operations

An initial comparison of the volume of traffic generated from previous operations at Milverton Quarry to those calculated for the proposed inert waste recovery facility reveal that there will be increased HGV trips generated by the proposed development.

It can be deduced from comparison of the data calculated in Table 12.3 and 12.6 that a maximum increase of 12 HGV movements / hour (over and above previous levels) could arise along the R127 in a worst case scenario due to the operation of the proposed inert waste recovery facility.

It should be noted that maximum HGV traffic levels will only occur at peak hours of periods during the course of the postulated 7.5 year backfilling period and will only occur on an intermittent basis. Further comparison shows that the average hourly increase is in the order of an additional four HGV movements per hour, over and above that generated by previous quarrying related activities.

Notwithstanding the increase in HGV traffic; it is considered that this increase is of an acceptable level. In rational terms this equates to one HGV every two minutes during the maximum peak hour of a peak seasonal period, and one HGV every seven minutes in the average season scenario. Therefore no adverse impact on the local road network would be envisaged.

Impact upon R127

The increase in traffic flows upon the R127 due to the change in use at the application site will result in a maximum increase of 26 vehicles per hour (or just 12 vehicles per hour over and above previous levels) during intermittent periods of heightened waste recovery activity at the facility. This equates to an increase of approximately 4.3% on current traffic volumes along the R127 (but only 2% on 2009 traffic levels).

As the increase in traffic upon the R127 is less than the 10% "area of influence" threshold established by the NRA document "Traffic and Transport Assessment Guidelines 2007", and it can therefore be concluded that the impact of this additional traffic is negligible and that the adjoining roads are outside of the area of influence of the site traffic.

12.3.3 Do-nothing Scenario

In the do-nothing scenario, the volume of HGV traffic accessing from the site onto the R127 will be zero, as the existing quarry has ceased operation. The large void at Milverton quarry will remain, and the land will serve no purpose to either the local community or the surrounding environment. Also sites within the Dublin and North Leinster area wishing to forward inert soil waste for recovery may have to travel further afield, resulting in increased mileage, traffic volumes and related environmental impacts.

12.4. MITIGATION MEASURES

The traffic mitigation measures in respect of the proposed facility are outlined below:

12.4.1 Proposed Mitigation Measures

Improvements to Visibility

To mitigate the impact of the obstruction due to signage and flag poles to the left (west) upon exit from the application site, it is recommended that the sign and the two outer flag poles be removed, particularly as the retail centre is no longer in operation. Maintenance (cutting back) of any vegetation which could also have potential impact on visibility should also be addressed.

Improvements to Signage

In addition to this, introduction of advanced warning signage within 300m east and west of the site entrance should be erected and incorporate a distance marker to inform motorists of their approach to the site access and slow down. It is acknowledged that there is a sign located in advance of the access on approach from the west. This should remain, but a distance information plate should be mounted beneath this sign.

In order to minimise dirt and debris from being transferred from the quarry onto the public road network, it is recommended that a wheel wash facility be provided on site. It is acknowledged that the site infrastructure is to be upgraded to include this facility.

12.4.2 Residual Impacts

The mitigation element will improve the visibility from the existing access / R127 junction, thereby improving road safety for all users.

12.5 INTERACTIONS

The principal environmental interactions with traffic are noise and air quality. These impacts are assessed separately in Sections 7 and 8 of this EIS.

REFERENCES

Department of Environment, Heritage and Local Government et al (2003) “Traffic Management Guidelines”.

National Roads Authority (2007) “Traffic and Transport Assessment Guidelines”.

National Roads Authority “Geometric Design of Major/Minor Priority Junction”. **Design Manual for Roads and Bridges (DMRB) Volume 6, TD-42-95,**

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FIGURES

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PLATES

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Plate 12.1 Low Rail Bridge along R127 on Approach to Skerries



Plate 12.2 R132 / R127 Priority Junction



Figure 12.3 Visibility to the Right (East) of Site Entrance



Plate 12.4 Visibility to the Left (West) of Site Entrance



NOTES

1. Extract from 1:50,000 O.S Discovery Series Map No. 43
2. Ordnance Survey of Ireland Licence No. SU 0000714 (c) Ordnance Survey of Ireland & Government of Ireland

LEGEND

	Site Location
	Motorway (M1)
	National Primary Road (N1)
	Regional Road

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ROADSTONE LTD.
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WASTE RECOVERY FACILITY,
MILVERTON, SKERRIES, CO. DUBLIN
TRAFFIC ROUTE TRANSPORT PLAN

FIGURE 12.1

Scale	Date
1:5,000 @ A3	JUNE 2014