

TRAFFIC AND TRANSPORTATION 13

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INTRODUCTION

Background

13.1 This Chapter of the EIS deals with vehicular traffic. It presents an assessment of the expected impact of development related traffic and of the ability of the existing public road network to accommodate the worst-case increase in traffic volumes. NRB Consulting Engineers and SLR Consulting Ireland jointly carried out the required baseline studies and the subsequent transportation impact assessment.

Existing Development and Location

13.2 The application site is a former busy quarry. Activity at the quarry was suspended in 2010 in response to the downturn in the construction industry at the time. In its previous incarnation, the site had long established vehicle and traffic generation characteristics.

13.3 The site is located approximately 7km from the centre of Bray, on the western flank of the Great Sugar Loaf. It is located along the R755 Regional Road, approximately 3.8km west of its junction with the N11 dual carriageway at Kilmacanogue, as shown on Figure 13.1.

Proposed Development

13.4 The proposed development comprises restoration of a quarry void by backfilling to former ground level using imported inert soil and stones and re-establishing a heathland / grassland habitat, similar to that which existed prior to quarrying. The proposed development is technically classified as a waste recovery activity and will entail importation of approximately 3,280,000 tonnes of material by road over an expected minimum operating life of 12 years.

13.5 For the purposes of this impact assessment, it is assumed that development-related traffic will be generated at the application site for 50 weeks in a working year, over a 5.5 day working week and 10-hour working day.

13.6 The assumption of a shorter duration, minimum 12 year operation, ensures a robust and onerous assessment of traffic and transport related impacts generated by the proposed development.

Methodology

13.7 NRB Consulting Engineers undertook an appraisal of the existing roads infrastructure based on a visual assessment of the road alignment and structure, and through the use of available topographical and Ordnance Survey mapping.

13.8 An All-Day classified traffic survey of the existing R755 Regional Road at the application site was undertaken in February 2015 in order to establish and validate traffic data obtained from previous surveys. This included a radar speed survey of ambient traffic speeds at the application site in order to establish the current 85%ile passing traffic speed at the site.

13.9 Traffic associated with the development has been assessed based on the anticipated backfilling rate and operational life of the facility. The maximum-expected traffic arising was then assigned to the road network and the ability of

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the roads to accommodate these traffic levels, in terms of capacity and road safety was then assessed.

- 13.10 A comprehensive and complete geometric evaluation of the full length of the Regional Road from the application site to the N11 National Primary Road was undertaken and has been presented herein.

Consultations

- 13.11 In preparing this EIS Chapter, regard was had to consultations undertaken previously in respect of other development proposals (specifically the planned quarry extension, Planning Ref 06/6189) with the following :

- Wicklow County Council (Roads Section), County Buildings, Wicklow Town;
- Wicklow County Council (Area Engineer) - County Buildings, Greystones.

Informal consultations were also had (via email) specifically in respect of this development proposal with officials from Wicklow County Council Planning Department in June / July 2015.

THE EXISTING ENVIRONMENT

Existing Road Network

- 13.12 The application site is located approximately 7km from the centre of Bray. It lies on the eastern side of the R755 Regional Road, approximately 3.8km west of its junction N11 dual carriageway at Kilmacanogue.
- 13.13 The N11 Dublin-Wexford National Primary Road constitutes the main arterial road in the area. It leaves Dublin from the southeast, bypasses to the west of Bray and continues south between the Great Sugarloaf to the west and the Little Sugarloaf to the east.
- 13.14 In 2004, the junction of the R755 Regional Road with the N11 was upgraded to provide an overbridge for traffic turning right onto and off the southbound carriageway, and at-grade merge / demerge lanes for traffic turning left onto and off the northbound carriageway. The current configuration of the junction is shown on an aerial photograph in Figure 13.2.
- 13.15 The R755 Regional Road commences at Kilmacanogue at the N11 junction and proceeds west and then south passing the Great Sugar Loaf Mountain on its western flank. From there, it continues south onwards toward Roundwood and then to Laragh.
- 13.16 The R760 Regional Road is the main route south from Enniskerry village. It continues south and then east where it terminates at the R755 at Rocky Valley, approximately 2.1km to the north of the application site. It is the primary access route to both Powerscourt House and Powerscourt Waterfall, two of the leading tourist attractions in north County Wicklow.
- 13.17 Finally, there is a minor county road which branches south from the R760 approximately 0.7km west of its intersection with the R755. This road continues south over Long Hill, past Powerscourt Paddock, Glasnomullen and on to a T-junction with the R759 Regional Road crossing the Wicklow Mountains National Park. The configuration of the local road network around the application site is shown on the extract from the 1:50,000 scale Discovery Series map of the area, reproduced in Figure 13.1.

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Accident Records

13.18 The Road Safety Authority (RSA) maintains a database of recorded accidents on Irish roads. The RSA database for the period 2005 to date (the period for which information is readily available) at www.rsa.ie/RSA/Road-Safety/Our-Research/Collision-Statistics/Ireland-Road-Collisions reveals that the R755 Regional Road has had a total of 6 minor accidents (i.e. zero reported fatal vehicle accidents) along the entire affected length during this period. This data would suggest that the existing road geometry along the R755 does not present any significant safety concerns.

Existing Traffic Conditions

National Primary Roads

13.19 The only National Primary Route in the immediate vicinity of the application site is the N11 Dublin-Wexford Road. Traffic flow information for the N11 at Kilmacanogue was obtained from Transport Infrastructure Ireland, TII (formerly the National Roads Authority, NRA) and is summarised in Table 13.1 below;-

Table 13.1
Traffic Flow on the N11 at Kilmacanogue (Source NRA)

Year	AADT	%HGV	Total No. HGV	Other Vehicles
2015	47,984	3.0	1,439	46,545
2104	45,783	2.9	1,328	44,455
2103	45,495	2.9	1,319	44,176

Regional Roads

13.20 To assess the impact of traffic generated by the proposed development on the local road network, current day traffic conditions were established. A manual classified traffic data survey was carried out on the R755 Regional Road, at the existing entrance to the former quarry and application site, on Thursday 12th February 2015. The classified traffic survey was undertaken in order to;-

- (i) Assess the total traffic flow on the R755 (as a validation survey to compare with a previous traffic survey undertaken in February 2007).
- (ii) Determine the proportion of Larger Goods vehicles currently using the R755, and
- (iii) Establish the available link-capacity of the R755.

13.21 The results of the 2015 validation survey and the associated 85% ambient traffic speed survey are provided in Appendix 13A, together with the results of the original, 2007 survey. Table 13.2 below summarises the results of the 2015 validation survey and also presents the results of the previous 2007 survey (in brackets) for comparison purposes.

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Table 13.2
Traffic Flow on the R755 (Source Classified Survey, Feb 2015)

Traffic Survey Location (R755 at Entrance)	Current (Previous 2007)
Total 24 Hour AADT, PCUs - extrapolated.	3,480 (3,982)
Total 24hr HGV Traffic Volume	90 (111)
Total HGVs, expressed as a % of total traffic	2.6% (2.8%)

- 13.22 Based on the above information, the following conclusions can be drawn; -
- (i) the existing traffic volumes using the R755 are relatively low, with the hourly traffic flows at approximately 10% of the free-flow link capacity for a road of this nature;
 - (ii) Total HGV traffic currently constitutes less than 3% of the current traffic volume and
 - (iii) HGV Traffic was previously 23% greater in volume, when the application site operated as a quarry.

Site Access / Sightlines

- 13.23 At the present time, the current visibility from the proposed access to the application site is approximately 15m to the north and approximately 30m to the south, both from a setback distance of 4.5m.
- 13.24 In order to best and accurately determine the sightline requirements in accordance with the NRA Design Manual for Roads and Bridges (DMRB), an off-peak 85% radar speed survey was undertaken at the application site. This survey established that the off-peak 85%ile traffic speed is currently 70kph.
- 13.25 The general speed limit currently assigned to the R755 is however higher, at 80kph, as is standard for all regional roads. The lower recorded design speed is largely controlled by the existing road alignment.
- 13.26 As the sightlines currently available at the application site access are deficient, it is proposed to upgrade and improve them as part of the proposed development. Planning permission for upgrading of the existing site access to provide improved sightlines and visibility to both the north and south, was previously obtained in 2008 on foot of a planning application for continued operation of Calary Quarry (Planning Permission Ref. No. 06/6189 / An Bord Pleanála Ref. No. PL27.224400).
- 13.27 As was envisaged by the previous planning permission, the existing screening berm / embankment to the north of the site access will be re-graded to provide a sight distance of 120m to the north, while that to the south will be lowered slightly and re-graded to provide a sight distance of 120m to the south.
- 13.28 The details of the reconfigured site access and the sightlines to be provided at the access are identified in Figure 13.3. The proposed sightlines are appropriate for the recorded road design speed of 70kph. In this regard, it will be noted that the proposed sightlines satisfy the minimum requirements of recent NRA DMRB design guidance.

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Road Condition and Geometric Assessment

- 13.29 In order to comprehensively assess the suitability of the R755 for vehicle movements to and from the application site and the haulage of bulk materials, a detailed evaluation of the R755, stretching from the existing quarry to the N11 junction at Kilmacanogue, was undertaken in support of previous planning applications for continued operation / extension of the former quarry (Planning Refs. 06/6189 and 08/1650).
- 13.30 This evaluation included examination of road carriageway width (cross section), alignment (long section) and non-intrusive structural condition and stability. Road alignment drawings presenting findings of this evaluation and related mitigation measures are presented in Appendix 13B in the most recent evaluation report (which was provided in response to a request for further information at the time of the 2008 planning application, Ref. 08/1650). The evaluation comprised the following; -
- (i) A topographic survey of the R755 between the application site and N11 junction at Kilmacanogue;
 - (ii) A visual pavement condition survey;
 - (iii) A desk-based assessment of road carriageway width and alignment, based on the detailed topographical survey data and site observations visits.
- 13.31 Based on the evaluation, a number of conclusions and recommendations were made to improve the R755 between the application site and the N11 junction. These were as outlined below:
- (i) A comprehensive assessment of the vertical and horizontal alignment of the R755 was undertaken. At the one location where the DMRB-recommended stopping-sight distance (70m) cannot be achieved and the prevailing road width is less than 6.0m (for 30m around Chainage 2400), it is recommended that the road be locally widened to achieve satisfactory road width. This can be achieved within existing road boundaries;
 - (ii) In general, the results of the pavement condition survey confirm that there are very few surface defects and that the road pavement is in a good condition over its entire length.
 - (iii) A number of mitigation measures are recommended on the R755 to improve the safety of road users. These measures include localised widening, repairs to localised pavement defects, erection of signs and trimming of vegetation.
- 13.32 The R755 evaluation report has been reviewed in terms of current road condition and geometry and it is considered that it remains current and valid. It is intended that the road improvement and mitigation measures recommended in the evaluation report (and summarised above) will be implemented as part of this development proposal.
- 13.33 The R755 evaluation and proposed road improvement and mitigation measures outlined above were previously submitted to, and approved by, Wicklow County Council (under Planning Ref. No 06/6189).

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TRAFFIC IMPACT OF THE PROPOSED DEVELOPMENT

Development Trip Generation

- 13.34 The proposed backfilling operations at the quarry will entail the importation of approximately 3,280,000 tonnes of material. This translates to approximately 182,200 HGV round-trips (at 18 tonnes per load) over the lifetime of the facility in order to backfill the quarry void.
- 13.35 Based on the Applicant's experience in operating a similar soil waste recovery facility at Fassaroe, it is considered that the minimum time for completion of the backfilling operations would be of the order of 12 years. In terms of transportation impact on roads infrastructure, the assumption of a 12 year operation therefore represents the most robust and onerous scenario.
- 13.36 Our traffic impact assessment is based on an assumed upper-bound intake of 300,000 tonnes of inert soil waste per year (with 50 working weeks per year, 5.5 working days per week and a 10-hour working day). This equates to 6 HGVs, on average, per hour (or 12 HGVs, 2-way); 60 HGV's per day (or 120 per day, both ways). This translates to 36 Passenger Car Units per hour (car-equivalents), or an increase in AADT of approximately 360 PCUs.
- 13.37 This traffic impact should be considered and assessed in light of the fact that the application site operated as a quarry up to relatively recently (2010) and that when it was operating previously, the quarry generated significant traffic flows across the local road network.

Traffic Impact

- 13.38 The Traffic Validation survey demonstrated that the existing R755 currently carries a weekday PM Peak Hour 2-way traffic flow of approximately 350 PCUs (2-way), spread evenly per hour over the post-4pm period. An increase in 36 PCUs associated with the subject application site represents approximately a 10% increase in the hourly traffic conditions.
- 13.39 To put this increased traffic in context, it is accepted that the day-to-day variation in traffic volumes on any road network can be as much as 10%. Therefore in these terms, the predicted increase in traffic along the R755 is likely to go unnoticed.
- 13.40 In addition, the R755 link to the N11 has a maximum traffic-carrying free-flow capacity in excess of 1,000 PCUs each way per hour. The R755 currently carries a maximum 2-way flow of 363 PCUs (based on the 2015 traffic validation survey). In this regard, in link-capacity terms, the R755 is currently operating at approximately 18% of its actual traffic-carrying capacity. The addition of traffic generated by the proposed development can therefore be clearly accommodated on the R755 without any significant effect whatsoever on established traffic flows.

Road Safety

- 13.41 The application site was operated as a quarry up to 2010. When the quarry was operational, it generated significant volumes of HGV traffic. The R755 carried higher traffic volumes and a larger proportion of HGV traffic without any adverse road safety impact in terms of reported accidents (as referenced in Paragraph 13.18).

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- 13.42 This finding is particularly relevant in light of the fact that the recent quarrying operations and proposed development at the application site would have very similar associated traffic characteristics and vehicle types.

Traffic Distribution and Route Assignment

- 13.43 Traffic to and from the proposed waste recovery facility will follow the same established route for traffic which previously accessed the former quarry at the application site.
- 13.44 Southbound traffic will approach the proposed waste recovery facility along the existing N11 National Primary Road from Dublin and Bray, while northbound traffic will approach it along the same road from Ashford and Wicklow. It will turn off the dual carriageway at the existing grade separated junction at Kilmacanogue and onto the R755, before then travelling west for approximately 3.8km to the application site.

PROPOSED MITIGATION MEASURES

- 13.45 National road upgrading works at Kilmacanogue, carried out some years ago as part of the N11 Glen of the Downs Project, has been of significant benefit to all traffic users on the R755 Regional Road, including traffic previously generated by operations at Calary Quarry and any future traffic which may be generated by the proposed quarry backfilling operations. These benefits include:
- significant reduction in the impacts of HGV turning movements at the R755 / N11 junction, as this junction is now grade separated for right turning movements (and at-grade for left turning movements);
 - Overall improvement in traffic management and safety at the R755 / N11 junction.
 - More efficient and timely transport of the inert soil backfill materials to the application site from local / regional construction and development sites
- 13.46 Ongoing re-surfacing and maintenance works undertaken by Wicklow County Council on the R755 Regional Road have generally ensured that the road pavement along the route to the application site to/from Kilmacanogue is in relatively good condition, with few surface defects. Where any localised pavement defects are identified, these shall be repaired by agreement with the Local Authority.
- 13.47 Current notices and signs along the R755 provide advance warning to drivers that there is a quarry facility ahead. These signs were placed in accordance with the scheme for the former quarry (previously agreed with the Planning Authority). Where appropriate, existing warning signs will be replaced with signs indicating there is a soil recovery facility ahead.
- 13.48 Sightlines, geometry, forward stopping distances, road signage and markings along the R755 will be upgraded in accordance with the previously approved planning permission (Wicklow Co Council Ref 06/6189 and An Bord Pleanála Ref PL27.224400). These measures include; -
- A wheel wash facility will be maintained on site and will be utilised by all vehicles to eliminate the risk of mud and dust being transported from the planned recovery facility onto the R755. There is an existing concrete apron all the way into the proposed facility from the existing junction of the site access with the R755;

TRAFFIC AND TRANSPORTATION 13

- The area between the existing road carriageway and the sightline set back boundary (Refer to Figure 13.3) will be levelled and grassed in accordance with the requirements of the Local Authority;
- A road sweeper will be used on a regular basis as necessary to maintain the entrance clean and free from debris;
- In the unlikely event that a spillage occurs on the public roads, any such material will be removed in a timely manner;
- Strategically placed advance warning signage will be placed on approach roads, close to sharp bends and/or concealed junctions to improve driver awareness of potential traffic risks.
- Any roadside vegetation at bends which regularly impede driver visibility will be regularly trimmed to maintain / improve stopping sight distances;
- The R755 will be subject to some geometric improvements (local road widening around Chainage 2400) to enhance road safety and capacity characteristics, all as previously proposed and as set out on the previously submitted and approved planning submissions (in respect of planning applications 06/6189 and 08/1650), copies of which are reproduced in Appendix 13B.

13.49 Roadstone Limited is willing to make a reasonable financial contribution in the form of a Special Contribution for any required improvements to the R755. The amount of the financial contribution would be in proportion to the volume of traffic generated by the proposed development relative to the total volume and would be agreed with the Local Authority.

CONCLUSION

13.50 It is anticipated that, taken together, the access improvements, the internal vehicle management measures and the R755 road improvements will ameliorate any potential road capacity or road safety implications associated with any additional traffic generated by the proposed recovery facility at the application site.

TRAFFIC AND TRANSPORTATION 13

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FIGURES

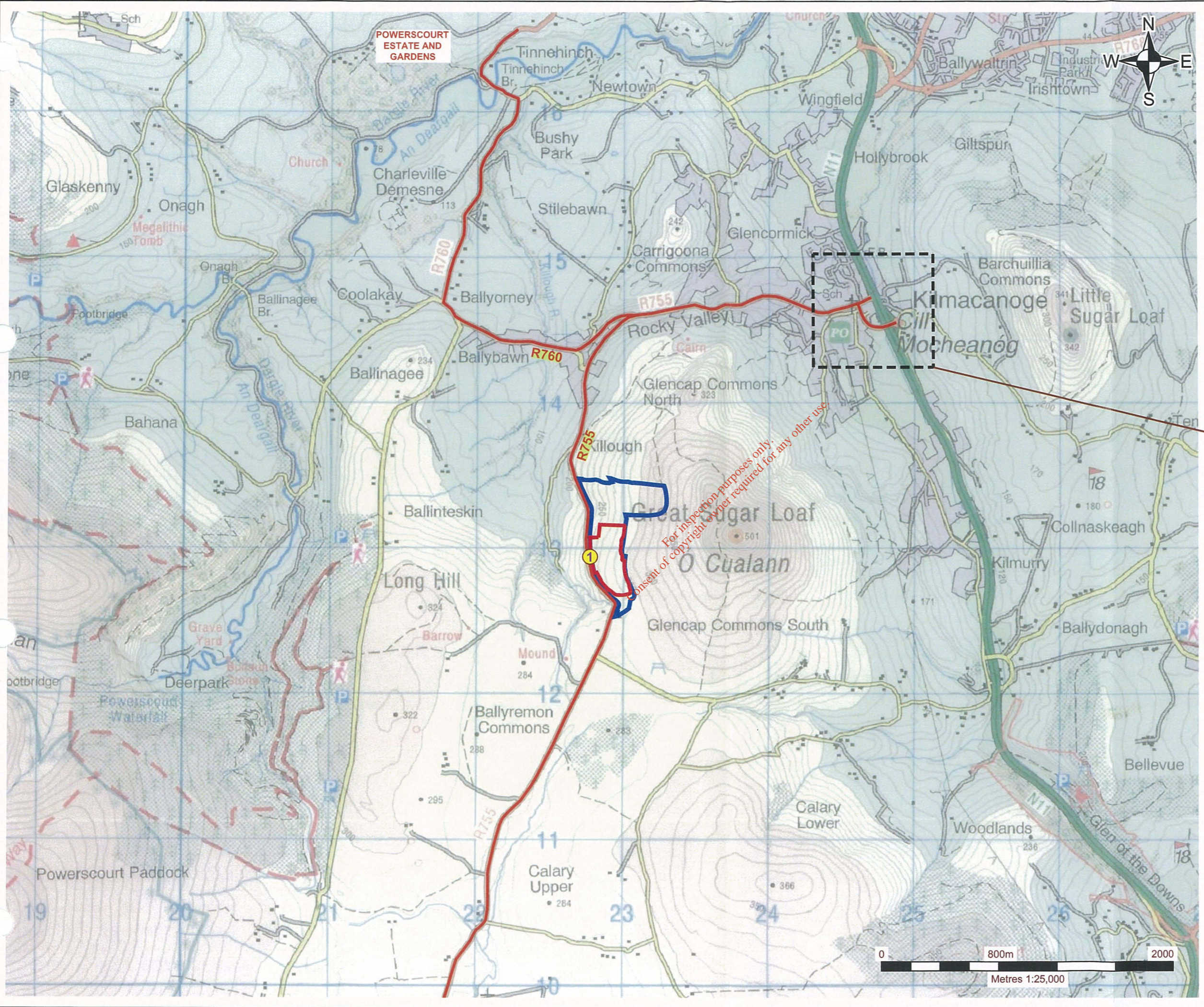
Figure 13-1
Traffic Route/Traffic Survey Location

Figure 13-2
Route to N11 from R755

Figure 13-3
Site Access Sightline Improvements




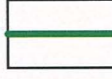

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00180.00109.0 - 13-1.Site & Traffic Survey Location Map.dwg



NOTES

1. ORDNANCE SURVEY IRELAND LICENCE NO. SU 0000716 (C) ORDNANCE SURVEY IRELAND & GOVERNMENT OF IRELAND
2. MAPPING FROM ORDNANCE SURVEY DISCOVERY SERIES MAPPING - MAP NO'S 68, 69, 76 & 77

- LEGEND**
-  ROADSTONE LIMITED LAND INTEREST (c.25.4 Hectares)
 -  PLANNING APPLICATION AREA (c.9.1 Hectares)
 -  TRAFFIC SURVEY LOCATION (2015)
 -  N11 NATIONAL ROAD
 -  R760 & R755 REGIONAL ROAD

REFER TO FIGURE 13-2 FOR JUNCTION LAYOUT

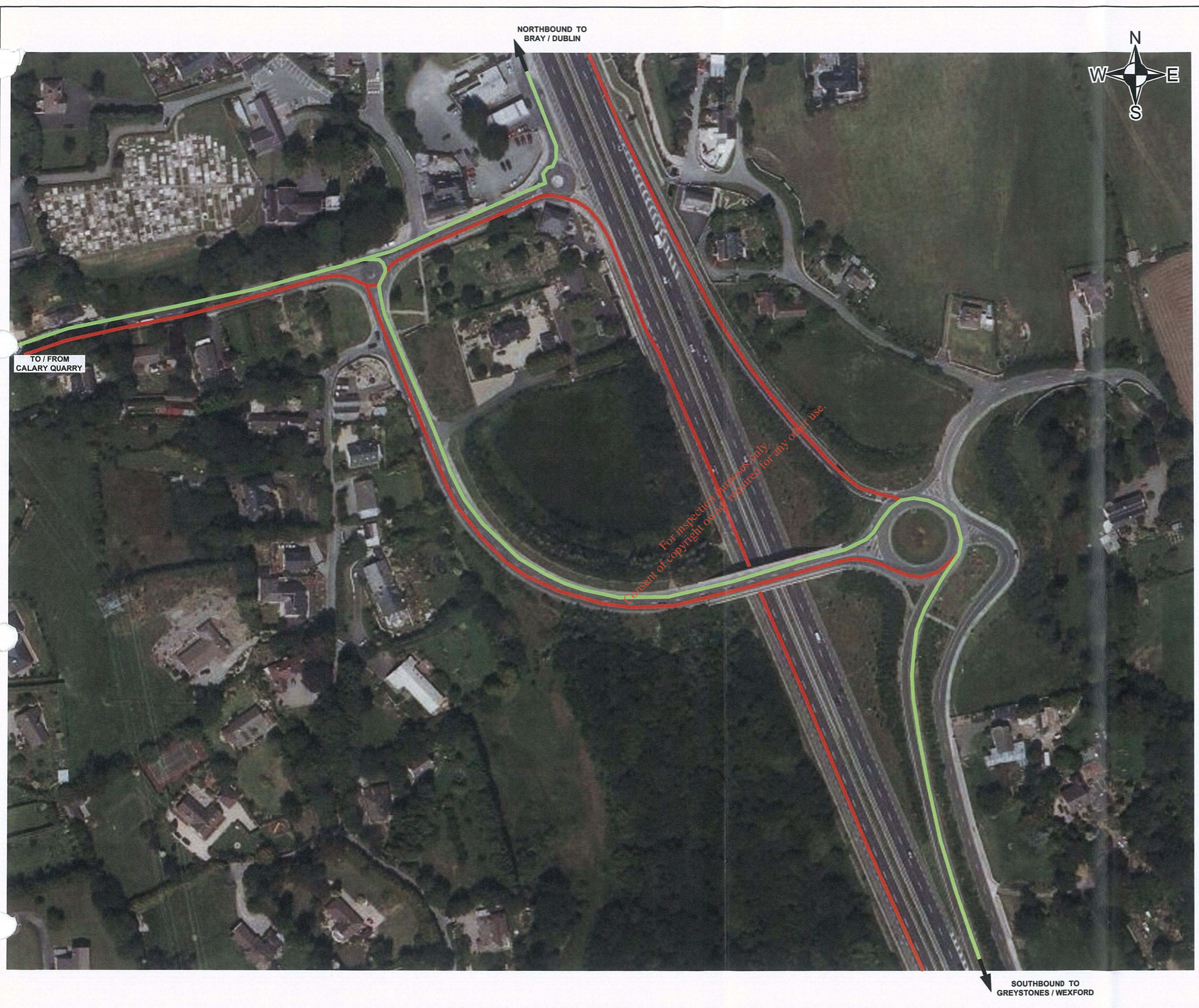
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**ROADSTONE LIMITED
 ENVIRONMENTAL IMPACT STATEMENT
 INERT SOIL WASTE RECOVERY FACILITY
 CALARY QUARRY,
 KILMACANOGE, CO. WICKLOW
 SITE / TRAFFIC SURVEY LOCATION MAP**

FIGURE 13-1

Scale 1:25,000 @ A3 Date MAY 2016

00180.00109.0_F.S_13-2.N11_R755 Junction Layout.dwg



NOTES
1. EXTRACT FROM WWW.BING.COM

LEGEND

- TO CALARY QUARRY
- FROM CALARY QUARRY

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ROADSTONE LIMITED
ENVIRONMENTAL IMPACT STATEMENT
INERT SOIL WASTE RECOVERY FACILITY
CALARY QUARRY,
KILMACANOGE, CO. WICKLOW

N11 / R755 JUNCTION LAYOUT MAP

FIGURE 13-2

Scale: NTS @ A3 Date: MAY 2016

NOTES

1. 'Orthomosaic produced from Aerial Photography flown February 2015 by SLR Consulting Ireland (IAA Permit No. 04/2015) www.slrconsulting.com Tel. +353-1-2964667.

Orthomosaic produced using Ground Control Points; Related to Irish Transverse Mercator Coordinate System and OS Malin Head Level Datum.



The accuracy of the orthomosaics and the digital elevation models (DEM) strongly depends on the flight height, lighting conditions, availability of textures, image quality, overlap, and type of terrain. Contours / 3D data relates to the surface model and not terrain levels. Typical accuracies: E: 0.05 m; N: 0.05 m; Levels: 0.30 m.

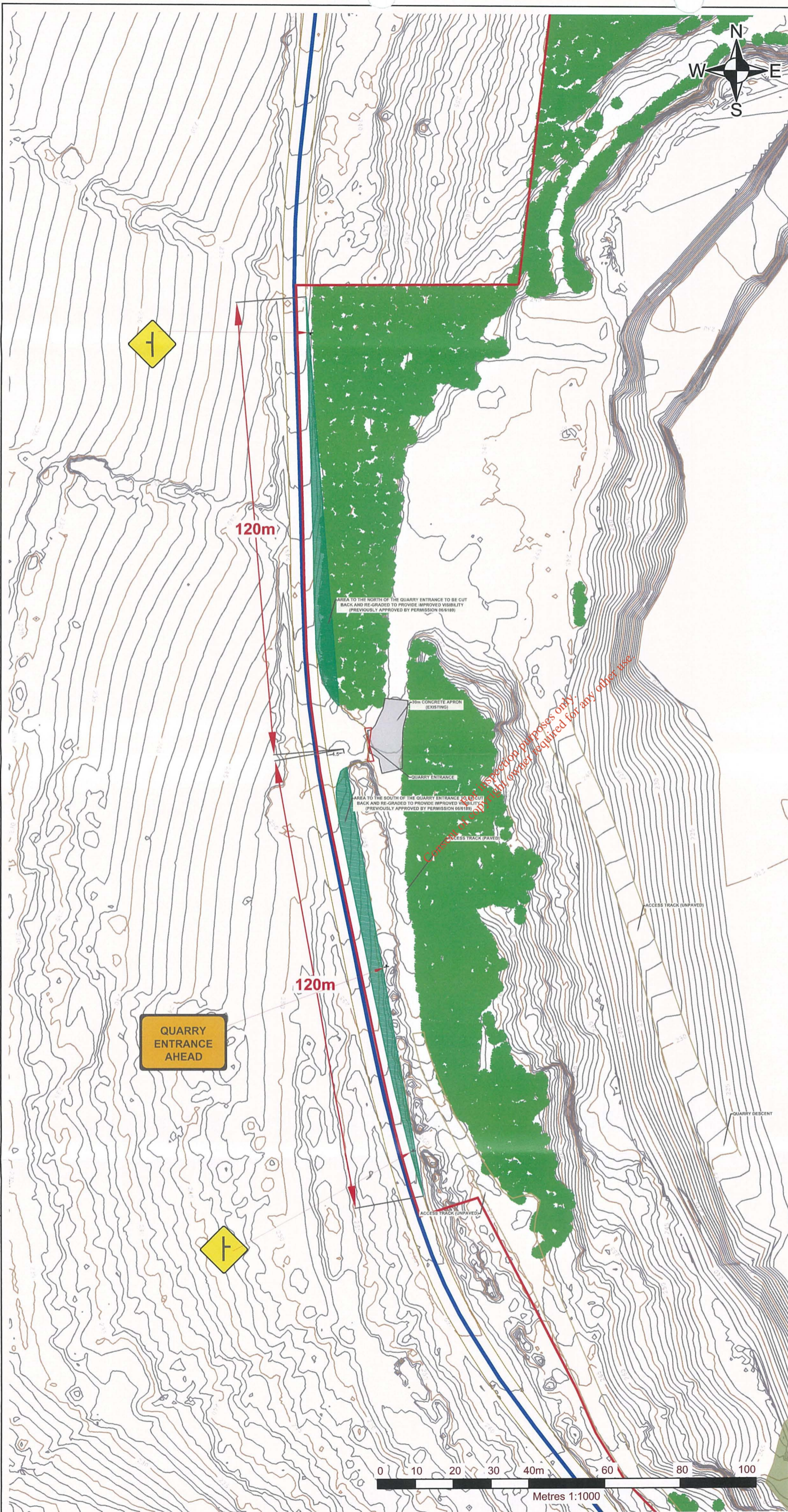
All Dimensions and Levels are to be checked on site.

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LEGEND

-  ROADSTONE LIMITED LAND INTEREST (c.25.4 Hectares)
-  PLANNING APPLICATION AREA (c.9.1 Hectares)



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**ROADSTONE LIMITED
ENVIRONMENTAL IMPACT STATEMENT
INERT SOIL WASTE RECOVERY FACILITY
CALARY QUARRY,
KILMACANOGE, CO. WICKLOW
QUARRY ENTRANCE / R755 SIGHTLINES**

FIGURE 13-3

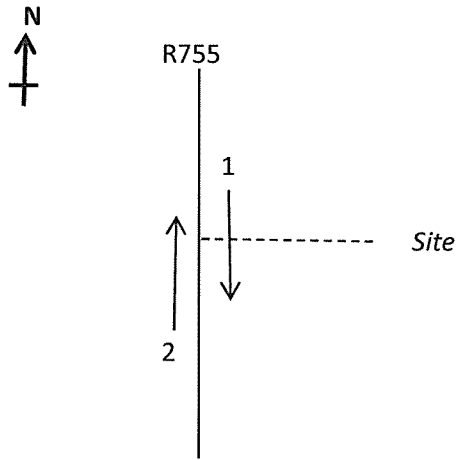
Scale 1:1,000 @ A3	Date MAY 2016
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00180.00109.0.FIG_13-3.Quarry Entrance R755 Sightlines.dwg

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APPENDIX 13A TRAFFIC SURVEY DATA 2015 AND 2007

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Weekday PM	Movement 1 (Up)			Movement 2 (Down)		
	Cars	Hgvs*	Total	Cars	Hgvs*	Total
300-315	24	0	24	23	1	26
315-330	39	1	42	36	3	45
330-345	29	1	32	28	1	31
345-400	24	1	27	17	0	17
400-415	45	1	48	24	0	24
415-430	56	4	68	23	2	29
430-445	50	0	50	32	2	38
445-500	53	1	56	34	3	43
500-515	48	2	54	25	0	25
515-530	62	1	65	17	0	17
530-545	59	1	62	20	1	23
545-600	60	0	60	9	0	9

* includes > 2 Axle Vehicles

Resulting 2015 Hourly 2-Way Flows (PCUs); -

300-400	244
315-415	266
330-430	276
345-445	301
400-500	356
415-515	363
430-530	348
445-545	345
500-600	315

Original EIS Traffic Data
Comparison With Orig EIS Figures

← 315
← 340
← 330

The Above Assessment Confirms that the Original EIS Traffic Data is Robust and Remains Valid. In Addition, the Radar Speed Survey confirms that the current 85%ile Speed is 70kph (as previously demondatrated as being adequate by WSP)

COUNT ON US

WICKLOW
AUTOMATIC TRAFFIC COUNT

FEBRUARY 2007
33364

CLASSIFICATION, DATA AND TOTALS

A 13-fold classification was used

MCL	Motorcycles
CAR	Cars
LGV	Light Goods Vehicles
PSV	Buses and Coaches
2R	2-Axle Rigid Heavy Goods Vehicles
3R	3-Axle Rigid Heavy Goods Vehicles
4R	4-Axle Rigid Heavy Goods Vehicles
4A	3 & 4-Axle Articulated Heavy Goods Vehicles
5A	5-Axle Articulated Heavy Goods Vehicles
6A	6-Axle Articulated Heavy Goods Vehicles
5M	5-Axle Multiple Section Heavy Goods Vehicles
6M	6-Axle Multiple Section Heavy Goods Vehicles
7/+	Heavy Goods Vehicles of any format with 7 or more axles

Other Data Types

Mean	Average speed of vehicles for the period
85th%	85 th percentile speed of vehicles for the period
>PSL%	Percentage of vehicles exceeding the posted speed limit for the period

Totals

07-19	12 hour total for the period 07:00 to 19:00 hours
06-22	16 hour total for the period 06:00 to 22:00 hours
06-00	18 hour total for the period 06:00 to 00:00 hours the next day
00-00	24 hour total for the period 00:00 to 00:00 hours the next day

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SURVEY RESULTS

AUTOMATIC COUNT

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Count On Us

**WICKLOW
AUTOMATIC TRAFFIC COUNT**

**FEBRUARY 2007
33364**

Site: 1 - R755, approximately 2 kilometres south of junction with R760
 Filter time: 00:00 23 February 2007 => 00:00 24 February 2007
 Direction: North (bound)
 Speed limit: 80 km/h

* 23 February 2007

Date and Time	MCL	CAR	LGV	PSV	2R	3R	4R	4A	5A	6A	5M	6M	7/+	Total	Mean	85th%	>PSL%
23/02/2007 00:00	0	13	1	0	0	0	0	0	0	0	0	0	0	14	73.7	82.8	21.4
23/02/2007 01:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3	60.7	-	0.0
23/02/2007 02:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2	77.9	-	50.0
23/02/2007 03:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3	78.5	-	33.3
23/02/2007 04:00	0	4	0	0	0	0	0	0	0	0	0	0	0	4	80.4	-	75.0
23/02/2007 05:00	0	15	1	0	0	0	0	0	0	0	0	0	0	16	76.1	81.4	31.3
23/02/2007 06:00	0	83	4	0	0	0	0	0	0	0	0	0	0	87	78.1	86.0	36.8
23/02/2007 07:00	2	192	18	0	3	0	0	1	0	0	0	0	0	216	74.0	83.5	28.2
23/02/2007 08:00	0	229	16	0	2	0	0	0	0	0	0	0	0	247	69.4	79.6	13.8
23/02/2007 09:00	3	138	15	0	3	2	0	0	0	1	0	0	0	162	67.8	78.1	12.3
23/02/2007 10:00	0	127	10	1	4	3	0	1	0	0	0	0	0	146	66.2	76.7	8.9
23/02/2007 11:00	0	104	6	1	6	3	0	0	0	0	0	0	0	120	65.2	74.9	5.0
23/02/2007 12:00	0	117	4	0	3	0	0	0	0	0	0	0	0	124	67.3	77.0	6.5
23/02/2007 13:00	1	94	6	0	0	3	0	0	0	0	0	0	0	105	65.9	75.2	7.6
23/02/2007 14:00	0	101	2	1	4	2	0	2	0	0	0	0	0	112	66.5	77.0	8.9
23/02/2007 15:00	0	94	7	0	1	3	0	1	0	0	0	0	0	106	63.9	74.5	4.7
23/02/2007 16:00	0	96	6	0	2	2	0	0	1	0	0	0	0	107	66.0	78.1	10.3
23/02/2007 17:00	0	92	7	0	2	0	0	0	0	0	0	0	0	101	67.9	77.0	8.9
23/02/2007 18:00	0	103	5	1	2	0	0	0	0	0	0	0	0	111	64.1	71.6	3.6
23/02/2007 19:00	1	55	3	0	0	0	0	0	0	0	0	0	0	59	70.5	83.5	22.0
23/02/2007 20:00	0	71	3	0	0	0	0	0	0	0	0	0	0	74	68.7	76.3	4.1
23/02/2007 21:00	0	30	2	0	1	0	0	0	0	0	0	0	0	33	69.7	79.6	15.2
23/02/2007 22:00	0	20	2	0	0	0	0	0	0	0	0	0	0	22	71.3	85.0	22.7
23/02/2007 23:00	0	22	1	0	2	0	0	0	0	0	0	0	0	25	66.9	75.2	16.0
07-19	6	1488	102	4	32	18	0	5	1	2	0	0	0	1658	67.7	78.1	11.4
06-22	7	1726	114	4	33	18	0	5	1	2	0	0	0	1910	68.3	78.8	12.7
06-00	7	1768	117	4	35	18	0	5	1	2	0	0	0	1957	68.3	78.8	12.8
00-00	7	1807	120	4	35	18	0	5	1	2	0	0	0	1999	68.5	78.8	13.2

78.1 Average 85%ile
Speed for quarry
operational hours

Total	1999
Total HGV	61

Count On Us

**WICKLOW
AUTOMATIC TRAFFIC COUNT**

**FEBRUARY 2007
33364**

Site: 1 - R755, approximately 2 kilometres south of junction with R760
 Filter time: 00:00 23 February 2007 => 00:00 24 February 2007
 Direction: North (bound)
 Speed limit: 80 km/h

Speed km/h	Class													Speed Totals		
	MCL	CAR	LGV	PSV	2R	3R	4R	4A	5A	6A	5M	6M	7/+			
0 - 5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0.0%
5 - 10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0.0%
10 - 15	.	1	.	.	.	.	.	.	.	.	.	.	.	.	1	0.1%
15 - 20	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0.0%
20 - 25	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0.0%
25 - 30	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0.0%
30 - 35	.	4	.	1	1	1	.	.	.	.	.	.	.	.	7	0.4%
35 - 40	.	18	1	.	.	6	.	.	1	1	.	.	.	.	27	1.4%
40 - 45	.	21	2	1	1	6	.	.	.	1	.	.	.	.	32	1.6%
45 - 50	.	42	5	1	3	.	.	1	.	.	.	.	.	.	52	2.6%
50 - 55	.	76	5	.	5	.	.	.	.	.	.	.	.	.	86	4.3%
55 - 60	.	163	10	1	3	4	.	1	.	.	.	.	.	.	182	9.1%
60 - 65	.	287	18	.	8	.	.	1	.	.	.	.	.	.	314	15.7%
65 - 70	1	358	26	.	3	.	.	.	.	.	.	.	.	.	388	19.4%
70 - 75	2	346	18	.	4	.	.	2	.	.	.	.	.	.	372	18.6%
75 - 80	1	247	23	.	3	.	.	.	.	.	.	.	.	.	274	13.7%
80 - 85	1	130	7	.	2	1	.	.	.	.	.	.	.	.	141	7.1%
85 - 90	1	69	2	.	1	.	.	.	.	.	.	.	.	.	73	3.7%
90 - 95	.	32	2	.	.	.	.	.	.	.	.	.	.	.	34	1.7%
95 - 100	.	8	1	.	1	.	.	.	.	.	.	.	.	.	10	0.5%
100 - 105	.	2	.	.	.	.	.	.	.	.	.	.	.	.	2	0.1%
105 - 110	1	2	.	.	.	.	.	.	.	.	.	.	.	.	3	0.2%
110 - 115	.	1	.	.	.	.	.	.	.	.	.	.	.	.	1	0.1%
115 - 120	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0.0%
120 - 125	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0.0%
125 - 130	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0.0%
130 - 135	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0.0%
135 - 140	0	0.0%
Totals	7	1807	120	4	35	18	0	5	1	2	0	0	0	1999		
	0.4%	90.4%	6.0%	0.2%	1.8%	0.9%	0.0%	0.3%	0.1%	0.1%	0.0%	0.0%	0.0%			

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Count On Us

WICKLOW AUTOMATIC TRAFFIC COUNT

FEBRUARY 2007
33364

Site: 1 - R755, approximately 2 kilometres south of junction with R760
 Filter time: 00:00 23 February 2007 => 00:00 24 February 2007
 Direction: North (bound)
 Speed limit: 80 km/h

Vehicles = 1999
 Posted speed limit = 80 km/h, Exceeding = 1612 (80.64%), Mean Exceeding = 72.38 km/h
 Maximum = 112.7 km/h, Minimum = 14.8 km/h, Mean = 68.5 km/h
 85% Speed = 78.8 km/h, 95% Speed = 86.0 km/h, Median = 68.8 km/h
 20 km/h Pace = 59 - 79, Number in Pace = 1364 (68.23%)
 Variance = 125.85, Standard Deviation = 11.22 km/h

Speed Bins

Speed	Bin	Below	Above
0 - 5	0	0	1999
5 - 10	0	0	1999
10 - 15	1	1	1998
15 - 20	0	1	1998
20 - 25	0	1	1998
25 - 30	0	1	1998
30 - 35	7	8	1991
35 - 40	27	35	1964
40 - 45	32	67	1932
45 - 50	52	119	1880
50 - 55	86	205	1794
55 - 60	182	387	1612
60 - 65	314	701	1298
65 - 70	388	1089	910
70 - 75	372	1461	538
75 - 80	274	1735	264
80 - 85	141	1876	123
85 - 90	73	1949	50
90 - 95	34	1983	16
95 - 100	10	1993	6
100 - 105	2	1995	4
105 - 110	3	1998	1
110 - 115	1	1999	0
115 - 120	0	1999	0
120 - 125	0	1999	0
125 - 130	0	1999	0
130 - 135	0	1999	0
135 - 140	0	1999	0

Hour Bins

Time	Bin	Min	Max	Mean	Median	85%	95%	>PSL		
0000	14	0.7%	56.0	85.9	73.7	72.4	82.8	85.0	3	21.4%
0100	3	0.2%	58.5	62.4	60.7	60.8	62.3	62.3	0	0.0%
0200	2	0.1%	69.5	86.4	77.9	69.1	86.0	86.0	1	50.0%
0300	3	0.2%	67.6	88.1	78.5	79.6	87.8	87.8	1	33.3%
0400	4	0.2%	67.0	87.1	80.4	80.3	86.8	86.8	3	75.0%
0500	16	0.8%	61.1	90.2	76.1	76.7	81.4	90.0	5	31.3%
0600	86	4.3%	63.4	112.7	78.2	77.0	86.0	92.5	32	37.2%
0700	217	10.9%	50.6	95.1	74.0	73.4	83.5	88.2	61	28.1%
0800	247	12.4%	14.8	100.0	69.4	70.2	79.6	85.7	34	13.8%
0900	162	8.1%	33.8	106.8	67.8	69.1	78.1	90.4	20	12.3%
1000	146	7.3%	36.1	90.5	66.2	67.3	76.7	82.4	13	8.9%
1100	120	6.0%	33.2	90.5	65.2	66.6	74.9	78.8	6	5.0%
1200	124	6.2%	39.8	90.5	67.3	66.2	77.0	81.7	8	6.5%
1300	105	5.3%	38.5	85.8	65.9	66.6	75.2	80.3	8	7.6%
1400	112	5.6%	37.7	90.4	66.5	65.9	77.0	82.1	10	8.9%
1500	106	5.3%	37.6	89.7	63.9	63.7	74.5	78.8	5	4.7%
1600	107	5.4%	32.8	104.5	66.0	65.9	78.1	83.9	11	10.3%
1700	101	5.1%	43.1	101.5	67.9	67.3	77.0	81.7	9	8.9%
1800	111	5.6%	42.4	88.6	64.1	63.0	71.6	77.0	4	3.6%
1900	59	3.0%	47.8	94.3	70.5	69.1	83.5	87.1	13	22.0%
2000	74	3.7%	43.2	108.9	68.7	67.7	76.3	79.2	3	4.1%
2100	33	1.7%	44.3	90.1	69.7	70.9	79.6	85.0	5	15.2%
2200	22	1.1%	42.3	109.1	71.3	67.3	85.0	90.0	5	22.7%
2300	25	1.3%	49.1	98.9	66.9	64.1	75.2	86.4	4	16.0%
Totals	1999	100.0%	14.8	112.7	68.5	68.8	78.8	86.0	264	13.2%

Count On Us

**WICKLOW
AUTOMATIC TRAFFIC COUNT**

**FEBRUARY 2007
33364**

Site: 1 - R755, approximately 2 kilometres south of junction with R760
 Filter time: 00:00 23 February 2007 => 00:00 24 February 2007
 Direction: South (bound)
 Speed limit: 80 km/h

* 23 February 2007														Total	Mean	85th%	>PSL%
Date and Time	MCL	CAR	LGV	PSV	2R	3R	4R	4A	5A	6A	5M	6M	7/+	Total	Mean	85th%	>PSL%
23/02/2007 00:00	0	26	0	0	0	0	0	0	0	0	0	0	0	26	59.9	67.3	0.0
23/02/2007 01:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3	55.4	-	0.0
23/02/2007 02:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3	64.4	-	0.0
23/02/2007 03:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4	57.4	-	0.0
23/02/2007 04:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2	51.8	-	0.0
23/02/2007 05:00	0	2	2	0	0	0	0	0	0	0	0	0	0	4	60.7	-	25.0
23/02/2007 06:00	0	5	0	0	0	0	0	2	0	0	0	0	0	7	51.6	-	0.0
23/02/2007 07:00	0	35	3	0	1	1	0	0	0	0	0	0	0	40	42.4	54.0	0.0
23/02/2007 08:00	3	54	6	0	0	0	0	1	0	0	0	0	0	64	40.9	54.7	1.6
23/02/2007 09:00	5	69	7	0	3	3	0	0	0	0	0	0	0	87	41.3	58.0	0.0
23/02/2007 10:00	1	81	7	0	4	4	0	0	0	0	0	0	0	97	43.3	54.4	0.0
23/02/2007 11:00	0	110	6	0	0	0	0	0	0	0	0	0	0	116	46.6	61.9	0.0
23/02/2007 12:00	0	115	8	0	3	1	1	0	0	0	0	0	0	128	42.0	56.5	0.0
23/02/2007 13:00	3	129	5	0	2	2	2	0	0	0	0	0	0	143	46.9	59.4	0.0
23/02/2007 14:00	0	116	8	0	4	3	1	0	0	0	0	0	0	132	42.8	58.3	0.0
23/02/2007 15:00	0	165	10	0	2	2	0	0	0	1	0	0	0	180	42.4	57.2	0.0
23/02/2007 16:00	0	187	12	0	0	3	1	0	1	0	0	0	0	204	50.6	63.4	0.5
23/02/2007 17:00	2	209	11	1	0	0	0	0	0	0	0	0	0	223	56.5	64.1	0.0
23/02/2007 18:00	1	152	8	0	1	0	0	0	0	0	0	0	0	162	57.7	64.1	0.0
23/02/2007 19:00	2	132	7	0	0	0	0	0	0	0	0	0	0	141	66.8	63.7	0.7
23/02/2007 20:00	2	73	1	0	1	0	0	0	0	0	0	0	0	77	57.7	66.6	2.6
23/02/2007 21:00	0	59	3	0	0	0	0	0	0	0	0	0	0	62	59.2	64.1	3.2
23/02/2007 22:00	0	35	2	0	0	0	0	0	0	0	0	0	0	37	60.3	69.1	2.7
23/02/2007 23:00	0	40	1	0	0	0	0	0	0	0	0	0	0	41	58.3	63.7	0.0
07-19	15	1422	91	1	20	19	5	1	1	1	0	0	0	1676	47.7	61.6	0.1
06-22	19	1691	102	1	21	19	5	3	1	1	0	0	0	1863	49.2	62.3	0.4
06-00	19	1766	105	1	21	19	5	3	1	1	0	0	0	1941	49.6	62.6	0.4
00-00	19	1805	108	1	21	19	5	3	1	1	0	0	0	1983	49.8	62.6	0.5

COMBINED			
HRS	PEAK	PEAK	TOTAL
0	0	0	0
1	0	0	0
2	0	0	0
3	0	0	0
4	0	0	0
5	0	0	0
6	0	2	2
7	4	2	6
8	2	1	3
9	6	6	12
10	9	8	17
11	10	0	10
12	3	5	8
13	4	6	10
14	9	8	17
15	5	5	10
16	5	5	10
17	2	1	3
18	3	1	4
19	0	0	0
20	0	1	1
21	1	0	1
22	0	0	0
23	2	0	2

59.2 Average 85%ile
 Speed for quarry
 operational hours

Total	1983
Total HGV	50

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Count On Us

**WICKLOW
AUTOMATIC TRAFFIC COUNT**

**FEBRUARY 2007
33364**

Site: 1 - R755, approximately 2 kilometres south of junction with R760
 Filter time: 00:00 23 February 2007 => 00:00 24 February 2007
 Direction: South (bound)
 Speed limit: 80 km/h

Speed km/h	Class													Speed Totals		
	MCL	CAR	LGV	PSV	2R	3R	4R	4A	5A	6A	5M	6M	7/+			
0 - 5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0.0%
5 - 10	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0.0%
10 - 15	.	2	.	.	.	.	.	.	.	.	.	.	.	.	2	0.1%
15 - 20	.	9	.	.	1	2	.	.	.	.	.	.	.	.	12	0.6%
20 - 25	.	35	4	.	.	2	.	.	.	.	.	.	.	.	41	2.1%
25 - 30	5	118	8	.	4	2	.	1	.	.	.	.	.	.	138	7.0%
30 - 35	2	173	11	.	1	2	2	.	1	1	.	.	.	.	193	9.7%
35 - 40	.	139	6	.	3	3	.	.	.	.	.	.	.	.	152	7.7%
40 - 45	4	102	13	.	.	1	.	1	.	.	.	.	.	.	121	6.1%
45 - 50	1	161	13	.	8	.	3	.	.	.	.	.	.	.	186	9.4%
50 - 55	2	284	22	1	3	4	.	.	.	.	.	.	.	.	316	15.9%
55 - 60	2	330	13	.	1	3	.	.	.	.	.	.	.	.	349	17.6%
60 - 65	.	267	12	.	.	.	.	.	.	.	.	.	.	.	279	14.1%
65 - 70	1	117	6	.	.	.	.	.	.	.	.	.	.	.	124	6.3%
70 - 75	1	46	.	.	.	.	.	.	.	.	.	.	.	.	47	2.4%
75 - 80	.	14	.	.	.	.	.	.	.	.	.	.	.	.	14	0.7%
80 - 85	.	6	.	.	.	.	.	.	.	.	.	.	.	.	6	0.3%
85 - 90	.	1	.	.	.	.	.	.	.	.	.	.	.	.	1	0.1%
90 - 95	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0.0%
95 - 100	.	1	.	.	.	.	.	.	.	.	.	.	.	.	1	0.1%
100 - 105	1	.	.	.	.	.	.	.	.	.	.	.	.	.	1	0.1%
105 - 110	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0.0%
110 - 115	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0.0%
115 - 120	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0.0%
120 - 125	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0.0%
125 - 130	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0.0%
130 - 135	.	.	.	.	.	.	.	.	.	.	.	.	.	.	0	0.0%
135 - 140	0	0.0%
Totals	19	1805	108	1	21	19	5	3	1	1	0	0	0	1983		
	1.0%	91.0%	5.4%	0.1%	1.1%	1.0%	0.3%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%			

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Count On Us

WICKLOW AUTOMATIC TRAFFIC COUNT

FEBRUARY 2007
33364

Site: 1 - R755, approximately 2 kilometres south of junction with R760
 Filter time: 00:00 23 February 2007 => 00:00 24 February 2007
 Direction: South (bound)
 Speed limit: 80 km/h

Vehicles = 1983
 Posted speed limit = 80 km/h, Exceeding = 1612 (80.64%), Mean Exceeding = 72.38 km/h
 Maximum = 103.0 km/h, Minimum = 10.0 km/h, Mean = 49.8 km/h
 85% Speed = 62.6 km/h, 95% Speed = 68.8 km/h, Median = 52.6 km/h
 20 km/h Pace = 45 - 65, Number in Pace = 1148 (57.89%)
 Variance = 178.86, Standard Deviation = 13.37 km/h

Speed Bins

Speed	Bin	Below	Above
0 - 5	0	0.0%	100.0%
5 - 10	0	0.0%	100.0%
10 - 15	2	0.1%	99.9%
15 - 20	12	0.6%	99.3%
20 - 25	41	2.1%	97.2%
25 - 30	138	7.0%	90.3%
30 - 35	193	9.7%	80.5%
35 - 40	152	7.7%	72.9%
40 - 45	121	6.1%	66.8%
45 - 50	186	9.4%	57.4%
50 - 55	316	15.9%	41.5%
55 - 60	349	17.6%	23.9%
60 - 65	279	14.1%	9.8%
65 - 70	124	6.3%	3.5%
70 - 75	47	2.4%	1.2%
75 - 80	14	0.7%	0.5%
80 - 85	6	0.3%	0.2%
85 - 90	1	0.1%	0.1%
90 - 95	0	0.0%	0.1%
95 - 100	1	0.1%	0.1%
100 - 105	1	0.1%	0.0%
105 - 110	0	0.0%	0.0%
110 - 115	0	0.0%	0.0%
115 - 120	0	0.0%	0.0%
120 - 125	0	0.0%	0.0%
125 - 130	0	0.0%	0.0%
130 - 135	0	0.0%	0.0%
135 - 140	0	0.0%	0.0%

Hour Bins

Time	Bin	Min	Max	Mean	Median	85%	95%	>PSL		
0000	26	1.3%	43.3	70.5	59.9	59.8	67.3	69.5	0	0.0%
0100	3	0.2%	43.1	63.2	55.4	59.8	63.0	63.0	0	0.0%
0200	3	0.2%	61.4	66.9	64.4	64.8	66.6	66.6	0	0.0%
0300	4	0.2%	44.4	79.7	57.4	51.1	54.0	79.6	0	0.0%
0400	2	0.1%	46.7	56.9	51.8	46.4	56.9	56.9	0	0.0%
0500	4	0.2%	38.0	80.7	60.7	61.6	62.3	80.6	1	25.0%
0600	7	0.4%	38.4	72.7	51.6	54.4	59.0	72.4	0	0.0%
0700	40	2.0%	19.2	63.8	42.4	40.3	54.0	58.7	0	0.0%
0800	64	3.2%	10.0	95.0	40.9	35.3	54.7	65.2	1	1.6%
0900	87	4.4%	23.6	69.5	41.3	36.4	58.0	65.2	0	0.0%
1000	97	4.9%	17.0	67.5	43.3	45.4	54.4	58.0	0	0.0%
1100	116	5.8%	24.4	77.0	46.6	47.2	61.9	64.4	0	0.0%
1200	128	6.5%	17.6	72.3	42.0	42.1	56.5	61.9	0	0.0%
1300	143	7.2%	25.5	71.5	46.9	47.2	59.4	67.0	0	0.0%
1400	132	6.7%	21.7	73.8	42.8	40.3	58.3	66.2	0	0.0%
1500	180	9.1%	12.8	79.6	42.4	39.2	57.2	65.2	0	0.0%
1600	204	10.3%	25.0	81.0	50.6	52.2	63.4	67.7	1	0.5%
1700	223	11.2%	18.2	77.3	56.5	57.2	64.1	69.1	0	0.0%
1800	162	8.2%	40.1	77.6	57.7	57.6	64.1	70.2	0	0.0%
1900	141	7.1%	39.5	103.0	56.8	56.2	63.7	67.7	1	0.7%
2000	77	3.9%	42.0	83.2	57.6	57.2	66.6	73.8	2	2.6%
2100	62	3.1%	45.7	85.3	59.2	58.0	64.1	74.5	2	3.2%
2200	37	1.9%	40.2	83.3	60.3	58.7	69.1	77.4	1	2.7%
2300	41	2.1%	39.9	70.3	58.3	57.6	63.7	68.8	0	0.0%
Totals	1983	100.0%	10.0	103.0	49.8	52.6	62.6	68.8	9	0.5%

Traffic Count 23 / 24 February 2007 (Location 1)

