Appendix 3.
Air Quality Impact Assessment Report

Quality Impact Assessment Report

Robert Murphy Application for a Waste Recovery Facility at Grannagh, Co. Kilkenny.

October 2006

Quality Approval and Revision Record

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Title: Air Quality Impact Assessment Report Waste Recovery Facility, Grannagh, Co. Kilkenny

Job Number: E0506

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Checked By: Siobhan Maher **Signed:**

Approved By: Siobhan Maher **Signed:**

Revision Record

Issue No.	Date	Description	Remark	Prepared	Checked	Approved
1	13/10/06	Air Impact Report	Draft	MCK	SM	SM
2	16/10/06	Air Impact Report	Final	MCK	SM	SM

1.0 Introduction

Robert Murphy proposes to develop a waste recovery facility within Grannagh Quarry, Co. Kilkenny. Figure 1 illustrates the location of the quarry.

Malone O' Regan was commissioned to prepare this report which discusses the existing ambient air quality in the area, assesses the potential impacts of the proposed waste recovery facility in relation to increased dust levels at nearby sensitive receptors and also addresses the impact of vehicle emissions and the abatement measures that may be employed to reduce / eliminate any impact that may arise.

2.0 Study Assessment and Methodology

A literature survey was carried out with regard to existing ambient air quality levels within the area. EPA reports on ambient air quality in Ireland were reviewed. The most up to date report is entitled 'Ambient Air Quality in Ireland' 2005.

3.0 The Receiving Environment

The existing quarry is located in Grannagh approximately 2km north west of Waterford. The boundary of the quarry is located, some 17m north of the N24 Waterford to Limerick Road (at its closest point) as shown on Figure 2. The Quarry lies approximately 385 metres from Granny Castle. The quarry has been operational in the past and it is understood that Ascon Ltd. has permission to use the quarry to extract limestone for the Waterford By-pass scheme.

The outlined area currently comprises existing quarried areas with floor levels as low as 3.2mOD with outcrops of un-quarried or agricultural areas. The area also contains existing agricultural land at levels ranging from 15.5 to 25m OD, also indicated on Figure 2.The nearest sensitive receptors to the proposed waste recovery facility lies south between the boundary and the N24 at approximately 17.5m OD.

The nearest sensitive receptor to the quarry is approximately 10 meters to the southeast of the quarry boundary. The surrounding landscape is predominantly used for agriculture, mainly pasture.

Dust and Particulates

In Ireland there is no criteria set for dust levels, the German TA-Luft recommends a long term dust deposition rate (expressed as a rate in mass per unit area per day) of 350 mg/m^2*d) as a threshold for significant disadvantages and nuisance for non-hazardous dust when using Bergerhoff Gauges which is equivalent to 130 mg/(m^2*d) when Deposit Gauges are used. There is also a 95 percentile value of 650 mg/(m^2*d) (Bergerhoff Gauges) for short term permissible levels.

Typically, background dust levels for a rural area would be in the range of 135 – 190 mg/(m^2*d).[1] Dust deposition rates in the vicinity of the site are expected to be typical of

[1] When using Bergerhoff Dust Gauges, 50-70 mg/(m^2*d) when using Deposit dust gauges.

the agricultural land use carried out in the area. Traffic related dust from the N24 is expected to settle out on verges.

Other Air Quality Parameters

Due to the rural nature of the Grannagh area the existing air quality is likely to be very good; the main source of emissions is the N24; however traffic related emissions are expected to dissipate within 200m of a roadway. Based on the EPA monitoring reports, the area can be classed as within Zone D (rural Ireland, ie the remainder of the State excluding Zones A, B and C) and therefore air quality complies with the AQSs listed in Table 1 below.

Table 1 Air Quality Standards (AQSs) Regulations 2002 (SI 271 of 2002)

Reference Period	For the protection of	Number of times in one year not to be exceeded	Equivalent Percentile	Ultimate Air Quality Standard µg/m^3 (1)
Sulphur Dioxide				
Hourly limit value	Human health	24	99.73	350
Daily limit value	Human health	3	99.18	125
Annual Limit Value	Vegetation	0	n.a.	20
Nitrogen Oxides				
Hourly limit value	Human health	18	99.79	200
Annual limit value	Human health	0	n.a	40
Annual Limit Value	Vegetation	0	n.a.	30
Particulate Matter				
24-hr limit value	Human health	32 (2)	90.41 (2)	50 (2)
24-hr limit value	Human health	7 (3)	98.08 (3)	50 (3)
Annual limit value	Human health	0	n.a.	20 (4)
Lead				
Annual limit value	Human health	0	n.a.	0.5
Benzene				
Annual limit value	Human health	0	n.a.	5
Carbon Monoxide				
8-hr limit value	Human health	0	n.a.	10,000

Notes: (1) To be complied with by 1 January, 2010, (2) until 2005, (3) from 2005, (4) 40 µg/m3 until 2005.

4.0 Characteristics of the Proposal and Assessment

4.1 Proposal Description

The proposed waste recovery facility will involve carrying out deposition works within the quarry site in accordance with the requirements and conditions attached to Waste Permit WMP 22/2003 using the proposed new site entrance (Figure 2) which is permitted by planning permission P06/246.

The planning permission application also seeks to carry out deposition works within the quarry site using the existing entrance to the quarry site from the Kilmacow Road (until 2009).

Prior to commencement of filling works on the site all waste on the site not qualifying as inert construction and demolition waste will be removed from the site and disposed of at an authorised waste facility. All foliage will be removed to an authorised waste facility.

Prior to commencement of filling works a 500mm thick layer of low permeability soil will be placed and compacted on the quarry floor. Thereafter the inert waste will be placed in 500mm thick layers. Only one working face will exist at any one time for the deposition of waste material.

All inert construction and demolition waste will be delivered to the site in covered trucks. The material will be deposited by tipping and distributed on the site by caterpillar D5 dozer, Komatsu 210 excavator and Volvo front loaders. A Valmet tractor and trailer and water dowser will also be available on the site.

The operating times are from 08.00 – 17.00 Mon – Fri and 08.00 – 14.00 on Sat. There will be no work on Sunday.

4.2 Potential Dust Generation and Assessment

The waste filling activity will generally be carried out at lower OD levels than the nearby receptors and initially will be at a distance of approx.120m from Receptor 1 as shown on Figure 2. However the waste filling activity will move closer to the receptors at some stage during the operation; thus increasing the potential for dust nuisance. Furthermore, the operation of the covered trucks on the haul roads is the most likely source of regular dust nuisance given the proximity to Receptor 1 as shown on Figure 2. Existing measures such as covering of trucks and the use of a wheelwash should help prevent dust generation however further measures as detailed under Section 5.0 will also be required to reduce nuisance dust.

Other Emissions

Minor emissions of sulphur oxides, nitrogen oxides and hydrocarbons will occur from the operation of heavy machinery and trucks within the quarry. Air quality is however expected to be well within current and future EU Air Standards as shown in Table 1 above.

5.0 Mitigation Measures and/or Factors

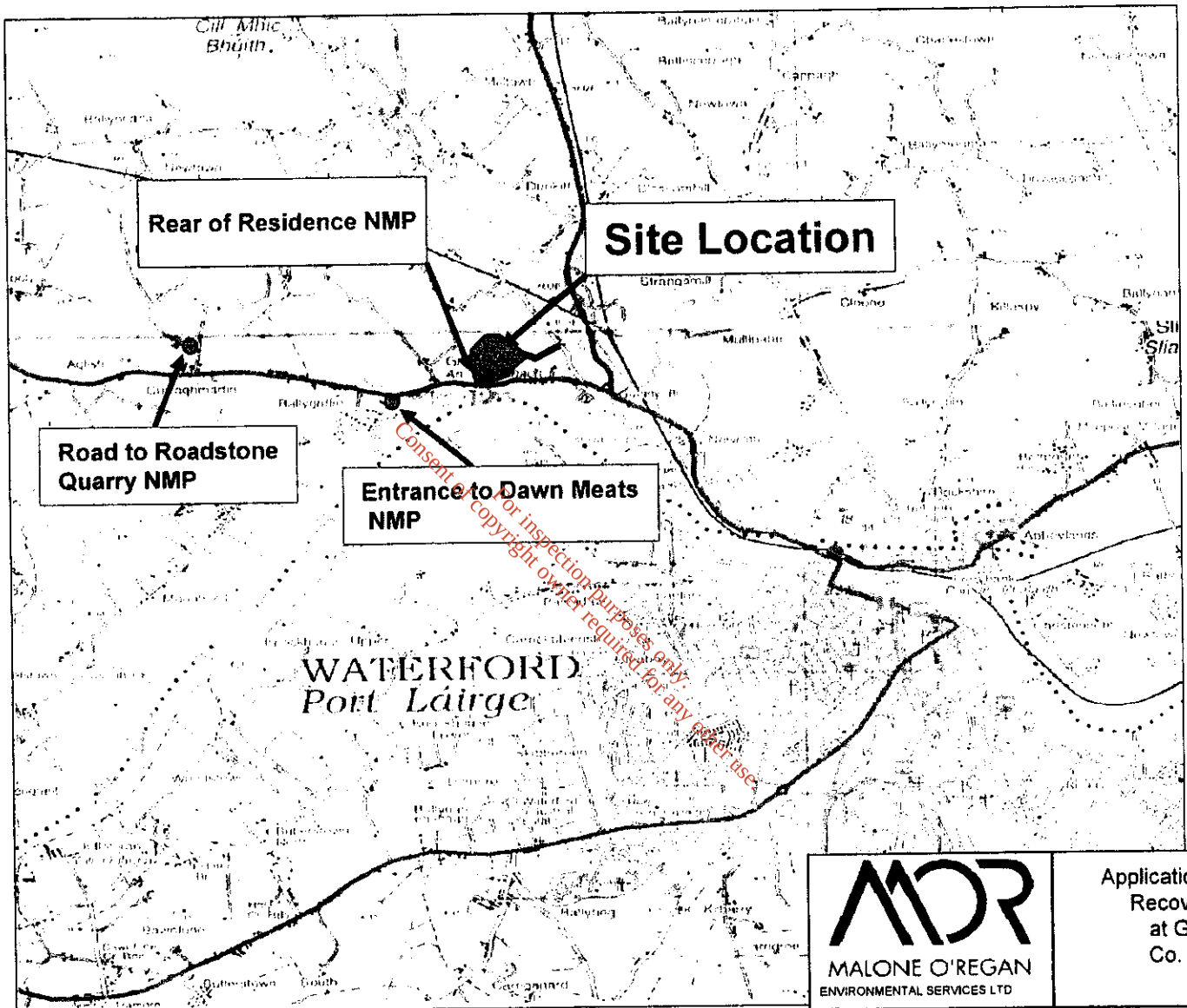
The following mitigation or remedial measures should be implemented:

- Monitoring should be carried out via dust deposition gauges which should be placed at the boundary with sensitive receptors. Where levels breach 130 mg/m^2/day (based on using deposit gauges) then measures should be taken to reduce dust generation; these are detailed below.
- All approach roads to the facility should be kept free from any deposits as a result of operation. Material deposited on the road should be cleaned immediately.
- Regular spraying of site roads should be carried out.
- Regular sweeping of surfaced site roads should be carried out.
- Spray equipment around active tipping area should be provided if dusty waste is a regular problem.
- Vehicle equipment will comply with relevant vehicle emission standards, and will be serviced regularly to ensure that exhaust emissions are minimised.

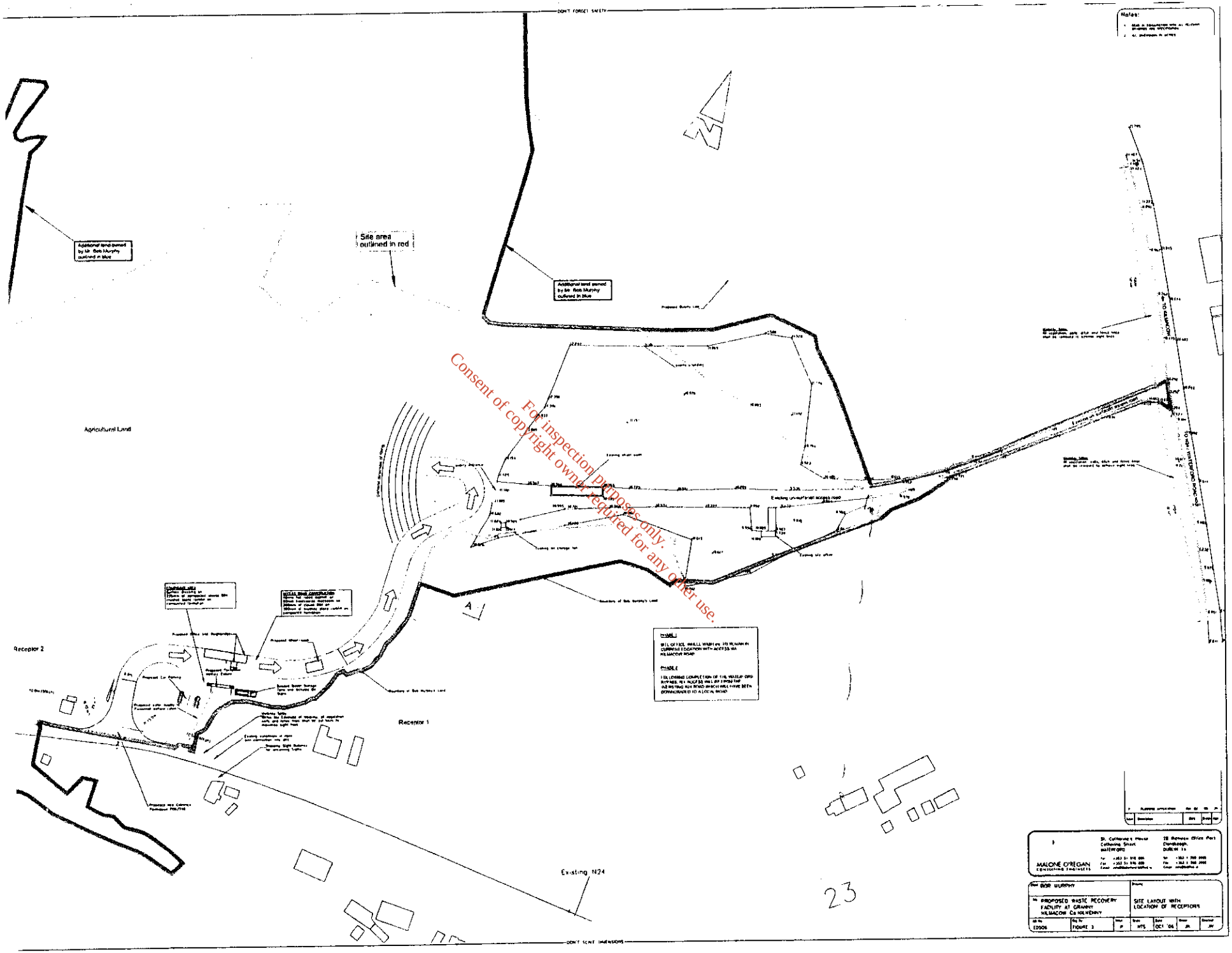
6.0 Conclusions

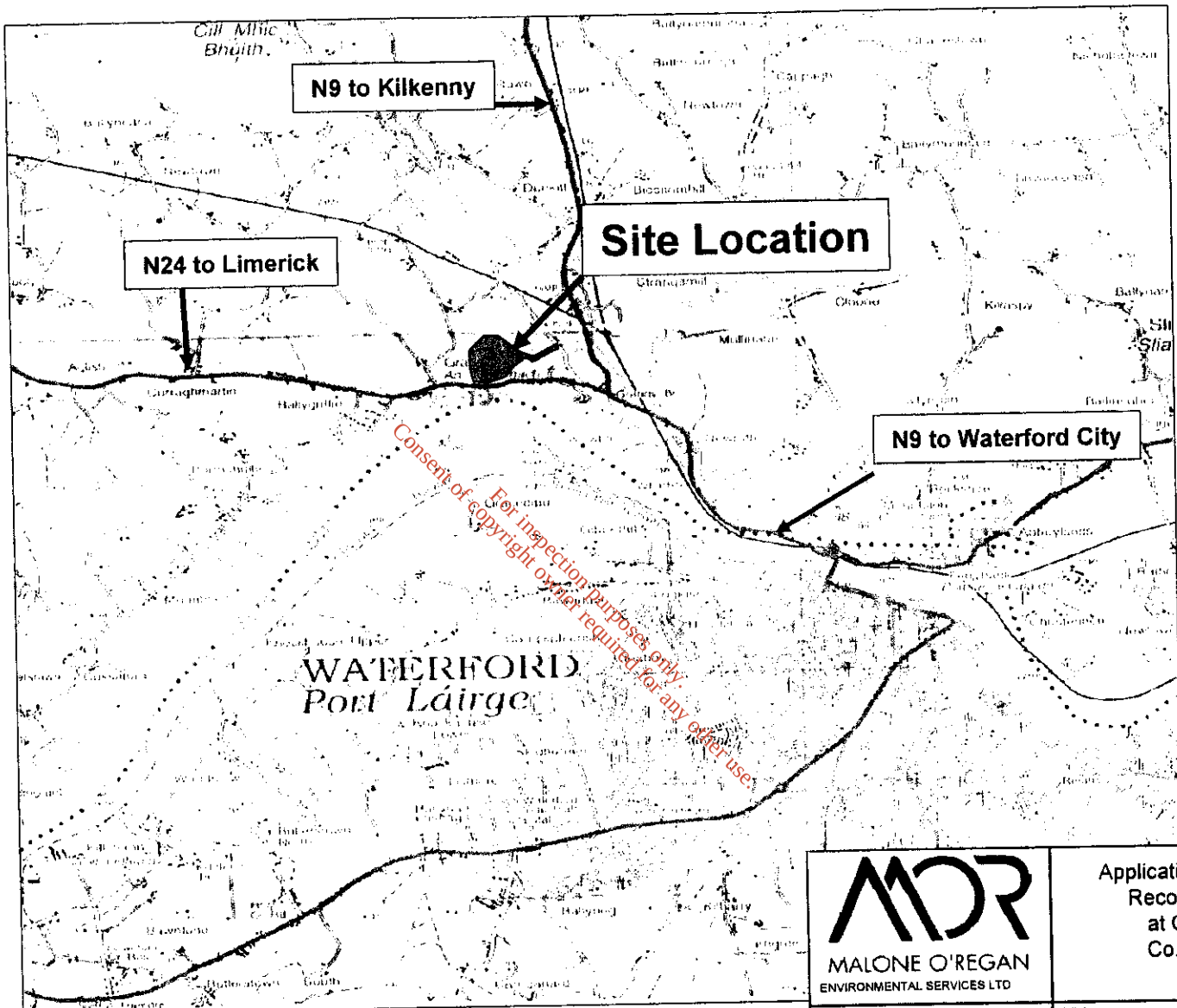
Provided the mitigation measures and factors listed above are implemented then it is not anticipated that nuisance dust will occur at the nearest sensitive receptors as a result of the proposed waste recovery operation.

Figures



MALONE O'REGAN ENVIRONMENTAL SERVICES LTD					Application for a Waste Recovery Facility at Grannagh, Co. Kilkenny.
No. Figure 3					Title. Past Noise Monitoring Locations
Job No. E0506	Scale. NTS	Issue. 01	Chk. MCK	Date. Oct '06	





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Application for a Waste Recovery Facility at Grannagh, Co. Kilkenny.

No.	Title.			
Figure 1	Regional Location			
Job No.	Scale.	Issue.	Chk.	Date.
E0506	NTS	01	MCK	Oct '06