SECTION 8: NOISE AND VIBRATION

8.1 INTRODUCTION

This Environmental Impact Statement (EIS) provides supporting information to accompany a Waste Licence Application (WLA) to the Environmental Protection Agency (EPA) by Roadstone Limited for a proposed inert waste recovery facility at its quarry at Milverton, Skerries, Co. Dublin. The principal activity at the site will comprise backfilling of the quarry void using imported inert soil.

This Chapter of the EIS, prepared by SLR Consulting Ireland, addresses the potential impact of noise and vibration emissions associated with the operation of the proposed waste recovery facilities at the Milverton site.

In essence, waste recovery operations will comprise

- Importation of inert soil waste from external sources (construction sites)
- Stockpiling, placement and compaction of inert and site-won soil
- Placement of minor quantities of imported inert / recovered construction and demolition waste along temporary haul roads
- Stockpiling of topsoil pending final surface restoration works

The principal noise impact associated with the continued operation of the proposed waste recovery facility is a potential increase in noise nuisance during daytime (07:00 to 19:00 hrs). No evening time (19:00 to 23:00 hrs) and night-time (23:00 to 07:00 hrs) operations will be carried out at proposed facility. Noise is likely to be generated at the proposed facility by

- Traffic movements along the existing access road to the facility and internally across Roadstone's landholding
- End-tipping, placement and compaction of imported inert soil
- Excavation, placement and compaction of in-situ stockpiled soil
- Operation of plant and equipment within the application site (principally bulldozers and/or mechanical excavators).

With respect to the potential for noise impacts, the key objective at the application site is to manage activities in order to ensure that any discernable increase in noise levels is prevented and the effect of any increase in noise emissions is minimised.

A description of the receiving environment around the waste recovery facility, where noise nuisance could potentially arise is provided in Section 8.2. The potential impacts of noise emissions on sensitive locations around the facility have been assessed and are presented and discussed in Section 8.3. The following issues are addressed separately for the potential impacts:

- methodology used to assess the potential impacts of activities at the facility on noise and vibration levels at local properties;
- baseline conditions pertaining to measured (or estimated) existing noise and vibration levels around the facility;
- evaluation criteria;
- prediction of the potential impacts;
- evaluation of these impacts;
- description of mitigation measures which will be incorporated into the design and operation of the facility to eliminate or reduce the potential for noise (or vibration) impacts;

- summary of any residual impacts and reinstatement;
- monitoring proposals.

Baseline studies and subsequent impact assessment were undertaken by:

- Aldona Binchy MSc.Eng.(Environmental Engineering) SLR Consulting Ireland
- Colin Doyle Environmental Technician Roadstone Limited

8.2 RECEIVING ENVIRONMENT

8.2.1 Outline of the Baseline Study

The noise impact arising from the proposed quarry backfilling scheme and operation of the inert soil recovery facility is assessed by comparing predicted noise levels from proposed activities with existing levels of ambient noise at the site. The existing background noise environment is characterised by undertaking a baseline noise measurement survey at a number of locations around the application site. The objectives of the baseline study are to:

- Determine ambient noise levels at the site
- Identify sources of noise
- Determine impacts on the nearest noise sensitive receptors / residents
- Use the data collected to predict noise levels associated with future activity at the site
- Identify suitable and effective mitigation measures

8.2.2 Baseline Study Methodology

Initial noise surveys were undertaken on the 3 and 4 November 2008 and again on 26 January 2009. At that time, quarrying activities at the application site had been suspended for a period of months. Noise measurements were obtained using Norsonic Nor 118 Model Sound Level Meters, which was calibrated using a Norsonic Calibrator 1443. Noise monitoring was carried out at two separate locations within Roadstone's existing landholding at Milverton. The monitoring locations, designated N1 and N2 are described below and are shown on a site plan in Figure 8.1.

A follow-up noise survey was undertaken on 11 June 2014 to update the baseline measurements in accordance with new guidance published by the EPA and to determine if there was any change to the baseline noise environment at and surrounding the application site. Noise measurements were obtained using Larson Davis 831 Sound Level Meters, which was calibrated using Larson Davis Cal200. Noise monitoring was carried out at three separate locations, closest to existing noise sensitive receptors to Roadstone's landholding at Milverton. The monitoring locations, designated R1, R2 and R3 are described below and are shown on a site plan in Figure 8.1.

- N1 - at the north-eastern boundary of the site,
- N2 - at the south-western boundary of the site,

Station	Date	Monitoring Period	$L_{Aeq(1hr)}$	$L_{A10(1hr)}$	$L_{A90(1hr)}$
N1	3/11/2008	11:39-12:39	47.8	51.2	36.2
N2	4/11/2008	12:54-13:54	43.9	45.3	31.1
N1	26/01/2009	11:45-12:45	48.8	55.2	37.3
N2	26/01/2009	12:47-13:47	42.9	44.4	32.9

Table 8.1 Baseline Noise Monitoring Survey (2008 / 2009)

- R1 - to the north-east of the site,

- R2 - to the south-west of the site,
- R3 - to the south of the site,

Station	Date	Monitoring Period	$L_{Aeq(1hr)}$	$L_{A10(1hr)}$	$L_{A90(1hr)}$
R1	11/06/2014	10:58 - 11:13	69.2	74.6	45.0
R1	11/06/2014	12:00 - 12:15	70.9	76.4	45.8
R1	11/06/2014	12:58 - 13:12	70.8	76.5	37.9
R2	11/06/2014	11:16 - 11:31	71.0	76.0	44.2
R2	11/06/2014	12:17 - 12:32	72.4	77.8	50.3
R2	11/06/2014	13:14 - 13:29	71.0	76.5	44.4
R3	11/06/2014	11:40 - 11:55	54.9	56.7	37.6
R3	11/06/2014	12:38 - 12:52	54.8	54.4	35.8
R3	11/06/2014	13:36 - 13:51	55.4	53.7	32.1

Table 8.2 Baseline Noise Monitoring Survey (2014)

8.2.3 Results of Baseline Monitoring

3 November 2008 : *Weather Conditions: Overcast and Still*
4 November 2008 : *Weather Conditions: Overcast and Still*

At the time of initial baseline noise survey in November 2008, there was no noise emanating from the site as all quarrying and associated concrete production activities had been suspended.

Location N1
At the time of the initial baseline survey, noise levels at location N1 were predominantly influenced by

- traffic movements along the nearby R127 Regional Road

26 January 2009: *Weather Conditions: Sunny with no breeze*

At the time of the follow up baseline survey in January 2009, there was no noise emanating from the site.

Location N1
At the time of the follow-up baseline survey, noise levels at location N1 were predominantly influenced by

- traffic movements along the nearby R127 Regional Road

Intermittent noise was recorded at the application site throughout the noise monitoring periods. This was principally associated with traffic movements along the adjacent road R127 Regional Road. Noise monitoring data indicates that average ambient noise levels around the site typically range between 43 dBA L_{Aeq} and 49 dBA L_{Aeq}. These noise levels are consistent with daytime noise levels which would be expected around suburban parts of the Greater Dublin Area. Intermittent noise levels immediately east of the application site will be higher due to the occasional passing of a train along the nearby Dublin to Belfast railway line.

11 June 2014: *Weather Conditions: Sunny, wind up to 2.7 m/s WSW, Temperature 15^0C.*

At the time of baseline noise survey in June 2014, there was again no noise emanating from the site.

Location R1
At the time of the baseline survey, noise levels at location R1 were predominantly influenced by

- traffic movements along the adjacent R127 Regional Road

Intermittent noise was recorded at the application site throughout the noise monitoring periods. This was principally associated with traffic movements along the adjacent road R127 Regional Road and the occasional passing of a train along the nearby Dublin to Belfast railway line. Noise monitoring data indicates that average ambient noise levels around the site typically range between 69.2 dBA L_{Aeq} to 70.9 dBA L_{Aeq}; background noise levels recorded range between 37.9 dBA L_{A90} to 45.8 dBA L_{A90}.

Location R2
At the time of the baseline survey, noise levels at location R2 were predominantly influenced by

- traffic movements along the adjacent R127 Regional Road

Intermittent noise was recorded at the application site throughout the noise monitoring periods. This was principally associated with traffic movements along the adjacent road R127 Regional Road. Noise monitoring data indicates that average ambient noise levels around the site typically range between 71.0 dBA L_{Aeq} to 72.4dBA L_{Aeq}; background noise levels recorded range between 44.2 dBA L_{A90} to 50.3 dBA L_{A90}.

Location R3
At the time of the baseline survey, noise levels at location R3 were predominantly influenced by

- traffic movements along the adjacent local road

Intermittent noise was recorded at the application site throughout the noise monitoring periods. This was principally associated with traffic movements along the adjacent local road and the nearby Dublin to Belfast railway line. Noise monitoring data indicates that average ambient noise levels around the site typically range between 54.8 dBA L_{Aeq} to 55.4dBA L_{Aeq}; background noise levels recorded range between 32.1 dBA L_{A90} to 37.9 dBA L_{A90}.

8.3 IMPACT OF THE SCHEME

8.3.1 Impact Assessment

Potential noise impacts during the operational phase of the development have been undertaken in accordance with the Environmental Protection Agency's (EPA) '*Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4*)'.

In accordance with the NG4 guidance it is necessary to designate the noise environment at each sensitive receptor location as a '*Quiet Area'*, a '*Low Background Noise Area'* or '*Not an Area of Low Background Noise'*.

To be categorised as a '*Quiet Area'* the following criteria must be met:

- at least 3km from urban areas with a population > 1,000 people;
- at least 10km from any urban areas with a population >5,000 people;
- at least 15km from any urban areas with a population >10,000 people;
- at least 3km from any local industry;
- at least 10km from any major industry centre;
- at least 5km from any National Primary Route; and
- at least 7.5km from any motorway or dual carriageway.

If any of the above criteria are not met then it is necessary to undertake a baseline noise survey of the existing daytime, evening, and night-time noise environments in order to establish whether the receptor is located in a '*Low Background Noise Area'* or '*Not an Area of Low Background Noise'*.

The noise criteria for these designations are shown in Table 8.3 below. For an area to be designated as being an area of low background noise, the daytime, evening, and night-time noise limits must all be met.

Designation	Day $L_{AF\ 90}$ dB	Evening $L_{AF\ 90}$ dB	Night $L_{AF\ 90}$ dB
Low Background Noise Area	≤40	≤35	≤30
Not an Area of Low Background Noise	≥41	≥35	≥31

Table 8.3 Noise Criteria for Area Designation

The procedure outlined in the NG4 Guidance document then sets out a methodology to determine an acceptable noise limit at a receptor location. This noise limit is termed the noise rating level, or $L_{Ar,T,}$ and includes, if necessary, a plus 5dB tonal penalty, or a plus 5dB impulsive penalty. If a noise source is both tonal and impulsive however, only one adjustment should be made.

In order to determine whether or not a 5dB tonal penalty should be applied, it is necessary to obtain third octave frequency data of the noise source in question. The NG4 guidance states that

'... the time average sound pressure level in the one-third-octave band of interest should exceed the time-average sound pressure levels of both adjacent one-third-octave bands by some constant level difference'. 'The appropriate level differences vary with frequency. They should be greater than or equal to the following values in both adjacent one-third-octave bands:

- *15dB in low-frequency one-third-octave bands (25Hz to 125Hz);*
- *8dB in middle-frequency bands (160Hz to 400Hz); and*
- *5dB in high-frequency bands (500Hz to 10,000Hz).'*

In order to determine whether or not a 5dB impulsive penalty should be applied to a noise source it is necessary to establish whether or not the noise in question may be '*described as something with a thumping, banging or impact noise that is clearly audible above everything else.'*

The permitted rating noise level in each designated area is shown in Table 8.4 below.

Designation	Daytime Noise Criterion, dB $L_{Ar,T}$	Evening Noise Criterion, dB $L_{Ar,T}$	Night-Time Noise Criterion, dB $L_{Ar,T}$
Quiet Area	Noise from the licensed site to be at least 10dB below the average daytime background noise level measured during the baseline noise survey	Noise from the licensed site to be at least 10dB below the average evening background noise level measured during the baseline noise survey	Noise from the licensed site to be at least 10dB below the average night-time background noise level measured during the baseline noise survey
Areas of Low Background Noise	45.0	40.0	35.0
All other Areas	55.0	50.0	45.0

Table 8.4 Permitted Rating Noise Levels

The draft '*Guidelines for Noise Impact Assessment'* produced by the Institute of Acoustics / Institute of Environmental Management and Assessment Working Party have been referenced in relation to the potential impact of changes in the ambient noise levels during the construction and the operational phases of the proposed development at Milverton.

Although the findings of the Working Party are draft at present, they are of assistance in this assessment. The draft guidelines state that for any assessment, the noise level threshold and significance should be determined by the assessor, based upon the specific evidence and likely subjective response to noise.

The draft *'Guidelines for Noise Impact Assessment'* impact scale adopted in this assessment is shown in Table 8.5 below. The corresponding significance of impact presented in the *'Advice Note on Current Practice (in the preparation of Environmental Impact Assessments) (2003)'* is also presented.

Noise Level Change dB(A)	Subjective Response	Impact *Guidelines for Noise Impact Assessment Significance*	Impact *Advice Note on Current Practice (in the preparation of EIAs)*
0	No change	None	Imperceptible
0.1 – 2.9	Barely perceptible	Minor	Slight
3.0 – 4.9	Noticeable	Moderate	Moderate
5.0 – 9.9	Up to a doubling or halving of loudness	Substantial	Significant
10.0 or more	More than a doubling or halving of loudness	Major	Profound

Table 8.5 Noise Impact Scale

The criteria above reflect the key benchmarks that relate to human perception of sound. A change of 3dB(A) is generally considered to be the smallest change in environmental noise that is perceptible to the human ear. A 10dB(A) change in noise represents a doubling or halving of the noise level. The difference between the minimum perceptible change and the doubling or halving of the noise level is split to provide greater definition to the assessment of changes in noise level.

It is considered that the criteria specified in the above table provide a good indication as to the likely significance of changes on noise levels in this case and as such, they have been used to assess the impact of construction and operational noise.

8.3.2 Short Term Impacts

When the waste recovery facility is operational, the principal sources of noise emanating from the application site will be generally from bulldozer activity and truck movements across the quarry. Some noise may also be generated on an occasional basis by mechanical excavators. To determine the noise impact at the site, SLR Consulting Ireland carried out a noise prediction assessment, whereby the levels of noise were calculated at the nearest noise sensitive receptors (residences) shown on Figure 8.2.

The noise assessment methodology used was based on BS5228: Part 1 (2009) "Code of Practice for Noise and Vibration Control on Construction and Open Sites''

On the basis of the available noise monitoring data, the area around monitoring locations R1 and R2 is designated a normal noise environment with a recommended daytime noise limit of $55L_{Aeq, T}$ dB(A). The area around noised monitoring location R3 however satisfies the criteria for an area of low background noise levels and has a recommended daytime noise limit of $45L_{Aeq, T}$ dB(A).

For the purposes of this assessment, a reduction of -10 to -15dB(A) for full noise screening by existing berms has been adopted. A reduction of -5 dB(A) has been adopted for partial noise screening. Monitoring of the effects of actual full noise screening by berms indicates that a reduction of -15 to -20 dB(A) is often more realistic. In addition, for the purposes of this noise assessment, it is assumed that all of the noise sources are active for 100% of the time, at the

distances stated during the working hours of the development. On this basis it is considered that the noise assessment is very conservative and represents a worst case scenario.

The following noise sources have been considered in the noise assessment for the facility operation:

- Bulldozer
- HGV truck

For the purposes of the noise assessment, it is assumed that a bulldozer will be used to spread the imported inert natural materials when backfilling and restoring the void. HGV trucks will be used to transport the material onto and around the site.

A noise prediction assessment has been undertaken, whereby the levels of noise arising from the development were calculated at the nearest sensitive receptors R1, R2 and R3 shown on Figure 8.2. Detailed noise assessment calculations are provided in Appendix 8.1

The worst case scenario in relation to the above noise sources occurs when quarry backfilling activity takes place closest to each sensitive receptor, when bulldozers spreading and compacting the soil and HGV trucks are at the shortest distance, refer to Figure 8.2

The noise assessment indicates that the cumulative noise levels arising from the backfilling activities and operation of the bulldozer plant at the nearest noise sensitive receptors will, in the worst case scenario, be as follows:

a) Soil placement and compaction at the Northern Boundary Worst Case I
(Refer to Appendix 8.1 – Table (i)):

1 No. Bulldozer and HGV Truck

Combined Noise Level at R1 = **49 dB L_{Aeq}**

Combined Noise Level at R2 = **47 dB L_{Aeq}**

Combined Noise Level at R3 = **41 dB L_{Aeq}**

b) Soil placement and compaction at the Southern Boundary Worst Case II
(Refer to Appendix 8.1– Table (ii)):

1 No. Bulldozer and HGV Truck

Combined Noise Level at R1 = **43 dB L_{Aeq}**

Combined Noise Level at R2 = **46 dB L_{Aeq}**

Combined Noise Level at R3 = **46 dB L_{Aeq}**

c) Soil placement and compaction at the Eastern Boundary Worst Case III
(Refer to Appendix 8.1 – A Table (iii)):

1 No. Bulldozer and HGV Truck

Combined Noise Level at R1 = **44 dB L_{Aeq}**

Combined Noise Level at R2 = **50 dB L_{Aeq}**

Combined Noise Level at R3 = **45 dB L_{Aeq}**

Location	Existing Baseline $L_{A90, 15min}$ dB(A)	Predicted Worst Case Scenario $L_{Aeq, T}$ dB(A)	Recommended Noise Limit Criteria Daytime $L_{Aeq, T}$ dB(A)	Difference	Impact
R1	42.9	49	55	-6	Imperceptible
R2	43.6	47	55	-8	Imperceptible
R3	35.1	41	45	-4	Imperceptible

Table 8.6 Assessment of Noise Levels Northern Boundary Worst Case I

Location	Existing Baseline $L_{A90, 15min}$ dB(A)	Predicted Worst Case Scenario $L_{Aeq,T}$ dB(A)	Recommended Noise Limit Criteria Daytime $L_{Aeq, T}$ dB(A)	Difference	Impact
R1	42.9	43	55	-12	Imperceptible
R2	43.6	46	55	-9	Imperceptible
R3	35.1	46	45	+1	Slight

Table 8.6 Assessment of Noise Levels Southern Boundary Worst Case II

Location	Existing Baseline $L_{A90, 15min}$ dB(A)	Predicted Worst Case Scenario $L_{Aeq, T}$ dB(A)	Recommended Noise Limit Criteria Daytime $L_{Aeq, T}$ dB(A)	Difference	Impact
R1	42.9	44	55	-11	Imperceptible
R2	43.6	50	55	-5	Imperceptible
R3	35.1	45	45	0	Imperceptible

Table 8.6 Assessment of Noise Levels Eastern Boundary Worst Case III

Projections show that in a worst case scenario, works close to the southern boundary during the proposed remediation works will only have slight impact at monitoring location R3. The predicted noise level increase in relation to recommended Noise Limit Criteria is 1 dB(A) which, for the human ear is barely perceptible.

The resultant noise levels identified above are very much a worst case scenario, as it assumes plant and machinery will be running for 100% of the time, rather than intermittently. In reality this will not occur and average ambient noise levels would be expected to be significantly below those predicted.

Worst case scenario works at eastern and northern boundary can be carried out without exceeding the noise emission limit criteria recommended in the EPA's NG4 Guidance.

Arising out of this assessment and considering past land-usage site and the limited operational life of the proposed waste facility (estimated at 10-15 years), the noise impact of the proposed waste recovery facility at surrounding residences is assessed as slight and negative.

8.3.3 Long-Term Impacts

The nature of the proposed backfilling and restoration scheme is such that there will be no long-term impacts in relation to noise. Once quarry backfilling works are complete, there is likely to be

significantly less operational and/or traffic noise generated across the application site. The reduction in traffic levels along the internal haul roads and over public roads, coupled with the reduction in waste recovery activity at the application site should result in average ambient noise levels falling back to existing levels, with negligible long-term impact on the local environment.

8.3.4 Interaction with other Environmental Receptors

There are no interactions of the identified impacts with other environmental receptors.

8.4 MITIGATION MEASURES

A number of mitigation measures will be put in place to ensure noise impacts arising from the proposed waste recovery activities are minimised at each of the noise sensitive receptors.

It is proposed to monitor average ambient noise levels as backfilling works at the quarry proceed close to residences at the northern, south-western and western boundaries of the application site (proposed noise monitoring locations N1, N2 and R3 are shown on Figure 8.1).

Should noise monitoring at these locations indicate that threshold average ambient noise limits are exceeded (or likely to be exceeded), provision will be made for a combination of one or more of the following mitigation measures in order to ensure that noise levels are maintained below threshold limits :

(i) construction of temporary screening embankments;
(ii) installation of a temporary noise barrier between noise source(s) and receptor(s)
(iii) reduction of noise emissions at source
(iv) management of activities to minimise vehicular movements and/or duration of activities in the vicinity of affected residences.

A screening embankment (or noise barrier), should it be required, will serve to reduce the projection of noise beyond the site boundary as well as screen site activities from view.

Providing mitigation measures outlined are implemented if and when required, predicted residual noise levels experienced at each of the three closest receptors will be maintained at or lower than the noise threshold levels. This impact is considered acceptable in view of the long-term environmental benefit that will accrue by backfilling and restoring the existing quarry.

It is currently envisaged that noise monitoring will be undertaken at the monitoring locations identified above on a quarterly basis while waste recovery activities are ongoing. This monitoring regime is in line with standard conditions attaching to EPA licences for waste facilities.

REFERENCES

British Standards Institute (2009): Part 1 Noise "Code of practice for noise and vibration control on construction and open sites.''

EPA (2012):''*Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4*)''.

IEMA (2003) draft *''Guidelines for Noise Impact Assessment''* and *''Advice Note on Current Practice (in the preparation of Environmental Impact Assessments) ''*

FIGURES

APPENDIX 8.1

DETAILED NOISE ASSESSMENT

Appendix 8.1 – Noise Assessment (Refer to Figure 8.2)

Table (i) Soil placement and compaction at the Northern Boundary Worst Case I

Plant Type	Average L_{Aeq} at 10m (dB(A))	Screening (dB(A))			Reflection (dB(A))			Activity Distance (m)			Attenuation with Distance (dB(A))			Activity L_{Aeq} (dB(A))		
		R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3
Bulldozer	73	-10	-10	-10	+3	+3	+3	163	213	404	24	26	32	42	40	34
HGV/Dumper Truck	80	-10	-10	-10	+3	+3	+3	163	213	404	24	26	32	49	47	41

Combined Noise Level at R1 = **49 dB L_{Aeq}**

Combined Noise Level at R2 = **47 dB L_{Aeq}**

Combined Noise Level at R3 = **41 dB L_{Aeq}**

Table (ii) Soil placement and compaction at the Southern Boundary Worst Case II

Plant Type	Average L_{Aeq} at 10m (dB(A))	Screening (dB(A))			Reflection (dB(A))			Activity Distance (m)			Attenuation with Distance (dB(A))			Activity L_{Aeq} (dB(A))		
		R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3
Bulldozer	73	-10	-10	-10	+3	+3	+3	321	238	238	30	27	27	36	39	39
HGV/Dumper Truck	80	-10	-10	-10	+3	+3	+3	321	238	238	30	27	27	43	46	46

Combined Noise Level at R1 = **43 dB L_{Aeq}**

Combined Noise Level at R2 = **46 dB L_{Aeq}**

Combined Noise Level at R3 = **46 dB L_{Aeq}**

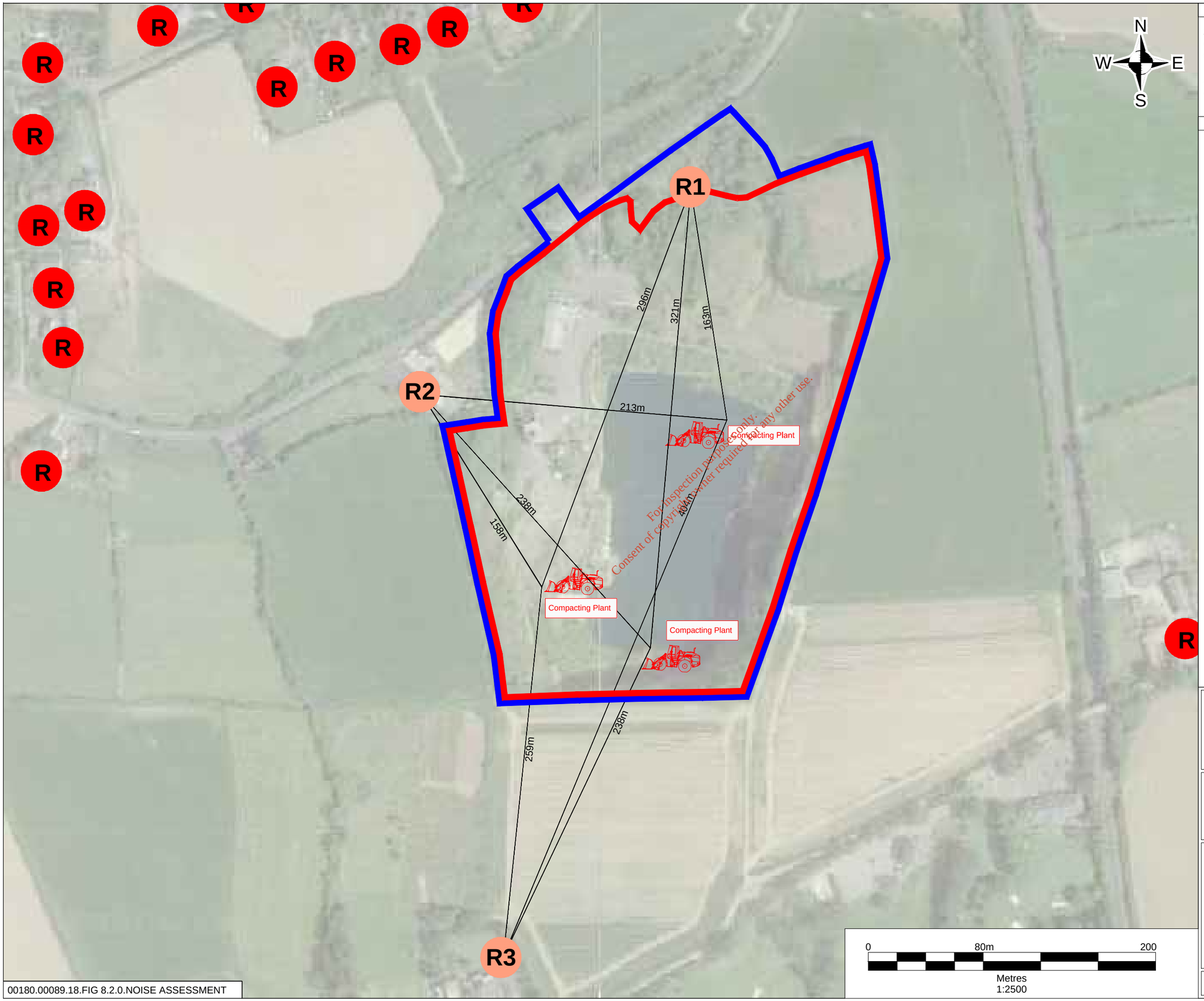
Table (iii) Soil placement and compaction at the Eastern Boundary Worst Case III

Plant Type	Average L_{Aeq} at 10m (dB(A))	Screening (dB(A))			Reflection (dB(A))			Activity Distance (m)			Attenuation with Distance (dB(A))			Activity L_{Aeq} (dB(A))		
		R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3	R1	R2	R3
Bulldozer	73	-10	-10	-10	+3	+3	+3	296	158	259	29	23	28	37	43	38
HGV/Dumper Truck	80	-10	-10	-10	+3	+3	+3	296	158	259	29	23	28	44	50	45

Combined Noise Level at R1 = **44 dB L_{Aeq}**

Combined Noise Level at R2 = **50 dB L_{Aeq}**

Combined Noise Level at R3 = **45 dB L_{Aeq}**



NOTES

1. Ordnance Survey of Ireland Licence No. SU 0000714 (c) Ordnance Survey of Ireland & Government of Ireland

2. Based on Aerial Photography produced by European Air Surveys

LEGEND

- *Applicant's Land Interest (c. 8.6ha)*
- *Waste Licence Application Area (c. 7.9ha)*
- R1 — *Noise Receptor Locations*
- R — *Location of Residences*
- *Building*
- 420 — *Distances (in metres)*

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WASTE LICENCE APPLICATION

WASTE RECOVERY FACILITY,
MILVERTON, SKERRIES, CO. DUBLIN

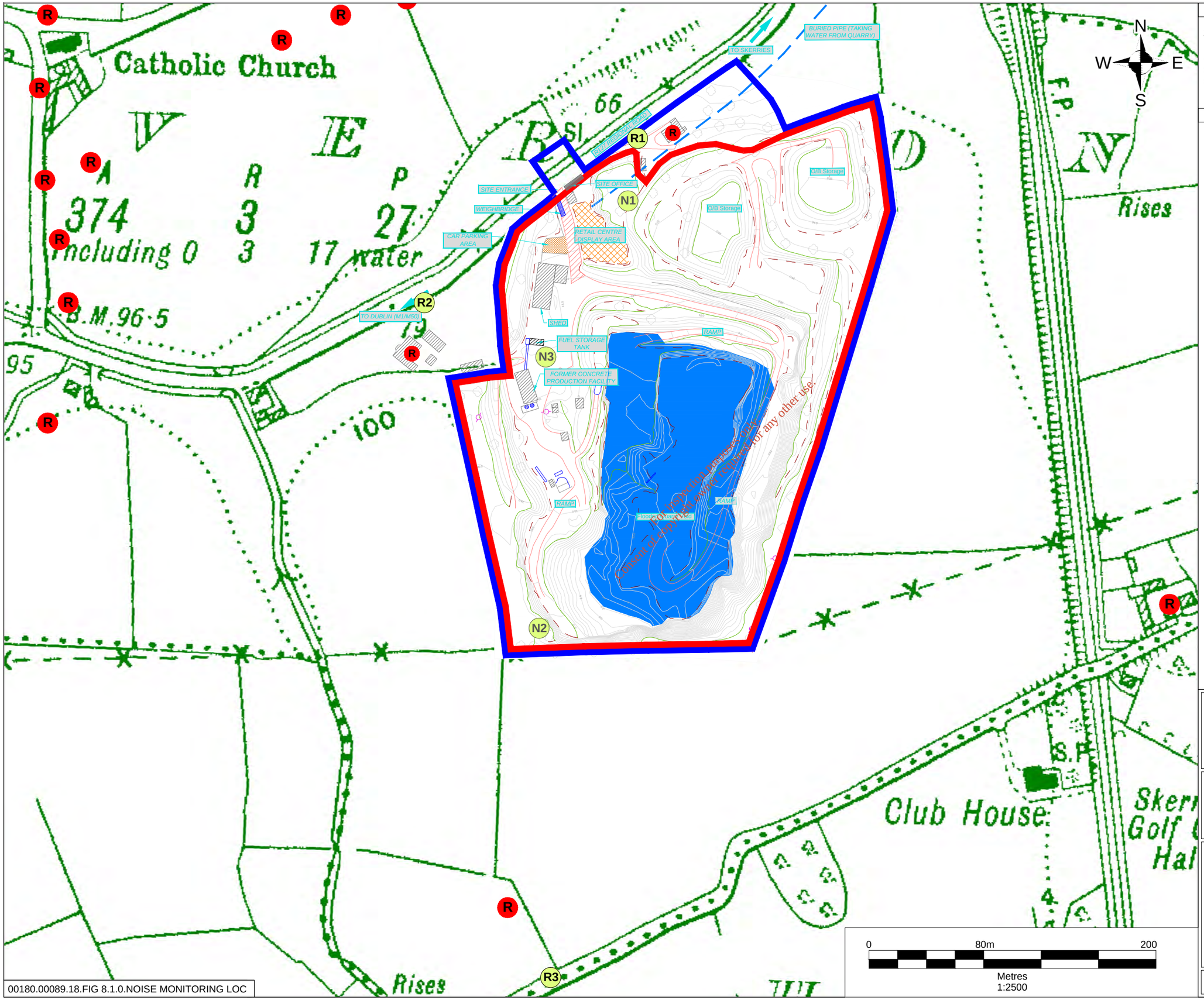
NOISE ASSESSMENT

FIGURE 8.2

Scale: 1:2500 @ A3

Date: JUNE 2014

00180.00089.18.FIG 8.2.0.NOISE ASSESSMENT



NOTES

1. Based on OSi 25inch Dublin Sheet No. 5 & 5a

2. Ordnance Survey of Ireland Licence No. SU 0000714 (c) Ordnance Survey of Ireland & Government of Ireland

LEGEND

- Applicant's Land Interest (c. 8.6ha)
- Waste Licence Application Area (c. 7.9ha)
- N1 R1 Noise Monitoring Locations
- Buried Pipe
- Top of Bank
- Bottom of Bank
- Road
- Contour Line
- Building
- Internal Unpaved Road
- Internal Paved Road
- R Location of Residence

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NOISE MONITORING LOCATIONS

FIGURE 8.1

Scale 1:2,500 @ A3

Date JUNE 2014

00180.00089.18.FIG 8.1.0.NOISE MONITORING LOC