



BASELINE DUST DEPOSITION SURVEY REPORT

FOR

Railway Procurement Agency
Parkgate Business Centre
Parkgate Street
Dublin 8

Report Ref. 16124
17th February 2010

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EXECUTIVE SUMMARY

The proposed Metro North scheme will run along an 18km corridor from Belinstown in North County Dublin, through Dublin Airport to the City Centre at St. Stephen's Green. During the construction phase, there is potential for dust to be generated as a result of the construction works and this dust could be deposited onto surfaces. The purpose of this survey is to determine baseline ambient dust deposition levels along the proposed alignment. The baseline monitoring data collected during this survey will ultimately be used to monitor the effects of the proposed scheme on the air quality of the surrounding environment by monitoring the changes, if any, in air quality while construction works are underway.

This report presents the results of a dust deposition survey which was carried out at 48 sampling locations (D-1 to D-48) along the proposed Metro North alignment. Dust deposition rates have been measured over a four month period from 18th August – 16th December 2009.

Monitoring results show that existing air quality is reasonable with respect to dust deposition. A small number (4 out of 192, less than 2%) of results were above the acceptable levels; two of these results are directly attributable to agricultural/farming activity near where the measurements were undertaken. The other two results reflect contamination from algae in the collecting vessel. The results of the survey provide a reliable statement of existing air quality along the route of the proposed scheme and future monitoring results can be compared to these results to identify if the proposed construction works have any impact on air quality in the area.

1.0 INTRODUCTION AND SCOPE

This report presents the results of a dust deposition survey which was carried out at 48 sampling locations (D-1 to D-48) along the proposed Metro North alignment. Dust deposition rates have been measured over a four month period. This report presents the results for four separate monitoring intervals during the period 18th August – 16th December 2009.

The proposed Metro North scheme will run along an 18km corridor from Belinstown in North County Dublin, through Dublin Airport to the City Centre at St. Stephen's Green. It will be a combined underground and surface light rail service development, segregated from traffic using tunnel, road median and green-field construction environments. It will have stops at Belinstown (where its depot will be located), Lissenhall, Estuary, Seatown, Swords, Fosterstown, Dublin Airport, Dardistown, Northwood, Ballymun, Dublin City University, Griffith Avenue, Drumcondra, Mater Hospital, Parnell Square, O'Connell Bridge and St. Stephen's Green. The large development sites along the route will include the depot, construction compounds, stops above ground, portals to below-ground sections and their associated compounds, stations below-ground, vents and emergency access stairways to underground stations and tunnels and park-and-ride facilities. During the construction phase, there is potential for dust generation associated with construction works. The purpose of this survey is to determine baseline ambient dust deposition levels along the proposed alignment. The baseline monitoring data collected during this survey will ultimately be used to monitor the effects of the proposed scheme on the air quality of the surrounding environment.

2.0 SURVEY METHODOLOGY

The survey was conducted by TMS Environment Ltd personnel during the following periods:

- Interval #1 : 8th August to 21st September 2009
- Interval #2 : 21st September to 19th October 2009
- Interval #3 : 19th October to 16th November 2009
- Interval #4 : 16th November to 16th December 2009

The procedure employed for this survey was *Standard Method VDI 2119 (Measurement of Dustfall, Determination of Dustfall using Bergerhoff Instrument (Standard Method) German Institute)*.

The dust deposition rate was measured by positioning 48 Bergerhoff Dust Deposit Gauges at strategic locations along the Metro North alignment for a period of between 28 and 35 days for monitoring Interval #1, for a period of 28 days for monitoring Interval #2 and #3 and for a period of 30 days for monitoring Interval #4. Details of the sampling locations are presented in Table 1 and maps showing the locations are attached in Appendix I. The selection of sampling point locations was completed after consideration of the requirements of VDI 2119 with respect to the location of the samplers relative to buildings and other obstructions, height above ground and sample

collection and analysis procedures, and after detailed consultation with and agreement with the local authorities Fingal County Council (FCC) and Dublin City Council (DCC) and the Electricity Supply Board (ESB). After the exposure period was complete, the gauges were removed from the site; the dust deposits in each gauge were determined gravimetrically and expressed as a dust deposition rate in $\text{mg}/\text{m}^2\text{-day}$. All laboratory analysis was completed at the Irish National Accreditation Body (INAB) accredited TMS Environment Ltd laboratory in Tallaght.

The measurement results are presented in the following tables and figures:

- Interval #1 : Tables 2a and 2b and Figures 1(a) to 1(i)
- Interval #2 : Tables 2a and 2b and Figures 2(a) to 2(i)
- Interval #3 : Tables 2a and 2b and Figures 3(a) to 3(i)
- Interval #4 : Tables 2a and 2b and Figures 4(a) to 4(i)

Average dust deposition rates for each monitoring interval are presented in Figures 5 to 10.

3.0 EVALUATION OF RESULTS

The monitoring locations are situated in a mixture of urban, suburban residential and semi-rural settings. The ambient air quality in all urban and suburban locations is expected to be influenced primarily by emissions from local domestic heating sources, traffic, existing construction works on sites along the alignment route and some contributions from agricultural activities in the Belinstown area.

There are no national or European Union air quality standards with which levels of dust deposition can be compared. However, a figure of $350 \text{ mg}/\text{m}^2\text{-day}$ (as measured using Bergerhoff type dust deposit gauges in accordance with German Standard Method for determination of dust deposition rate, VDI 2119.) is commonly applied by Local Authorities and the Environmental Protection Agency (EPA) to ensure that no nuisance effects will result from specified activities. The measurement results are therefore compared with the guideline value of $350 \text{ mg}/\text{m}^2\text{-day}$ that is defined in the *German TA Luft Air Quality Regulations (TA Luft 2002)* for protection against impairments to property or amenities.

Monitoring Interval #1

The dust gauges were collected for analysis on 21st September 2009 for monitoring Interval #1. On this date one dust gauge, D25, was missing and therefore no result could be reported. Monitoring results for 44 of the 47 monitoring locations are well within the guideline value of $350 \text{ mg}/\text{m}^2\text{-day}$ indicating that existing air quality is reasonable with respect to dust deposition. Monitoring data for 3 of the monitoring locations exceeded the guideline value of $350 \text{ mg}/\text{m}^2\text{-day}$; this information and possible explanations for the relatively high levels of dust recorded in these locations is summarized in Tables 3a.

Monitoring Interval #2

The dust gauges were collected for analysis on 19th October 2009 for monitoring Interval #2. All monitoring results for the 48 locations are well within the guideline value of 350 mg/m²-day indicating that existing air quality is reasonable with respect to dust deposition.

Monitoring Interval #3

The dust gauges were collected for analysis on 16th November 2009 for monitoring Interval #3. Monitoring results for 47 of the 48 monitoring locations are well within the guideline value of 350 mg/m²-day indicating that existing air quality is reasonable with respect to dust deposition. Monitoring data for 1 of the monitoring locations exceeded the guideline value of 350 mg/m²-day; this information and possible explanations for the relatively high levels of dust recorded in these locations is summarized in Table 3b.

Monitoring Interval #4

The dust gauges were collected for analysis on 16th December 2009 for monitoring Interval #4. All monitoring results for the 48 locations are well within the guideline value of 350 mg/m²-day indicating that existing air quality is reasonable with respect to dust deposition.

Table 1 *Dust deposition monitoring locations*

<p><u>St Stephens Green</u> D1: OPW Depot, St Stephen’s Green Park D2: Rear of Playground, St Stephen’s Green Park D3: DCC lighting column No. 57, St Stephen’s Green North D4: DCC lighting column No.48, St Stephen’s Green West</p> <p><u>Parnell Square</u> D5: Parnell Street car park west end D6: Parnell Street car park east end D7: Lighting column in centre of Rotunda Hospital car park D8: DCC lighting column No. 13, Parnell Square East</p> <p><u>Mater Hospital</u> D9: Left lighting column at main entrance to Mater Private Hospital D10: DCC lighting column No. 3, Eccles Place D11: LHS entrance to Mater Public site on North Circular Rd D12: RHS entrance to Mater Public site on North Circular Rd</p> <p><u>Home Farm Rd, Drumcondra</u> D13: DCC lighting column No. 1, Ferguson Rd, Drumcondra D14: Street light on RHS of entrance driveway off Home Farm Rd to Corpus Christi Parish Church D15: DCC lighting column No. 5, Valentia Rd D16: DCC lighting column No. 6, Valentia Rd</p> <p><u>Albert College Park</u> D17: DCC lighting column No. 3, Ballymun Road D18: ESB lighting column No. 5, Hampstead Avenue D19: West corner of main field at entrance to Elmhurst Convalescent Centre D20: Lighting column in the North corner of Hampstead Avenue car park, Albert College Park D21: DCC lighting column No. 27, Ballymun Road D22: DCC lighting column No. 41, Ballymun Road D23: DCC lighting column No. 1, Albert College Lawn D24: DCC lighting column No. 1, Albert College Avenue</p>	<p><u>Albert College Estate</u> D25: DCC lighting column No. 4, Albert College Crescent D26: DCC lighting column No. 5, Albert College Grove D27: DCC lighting column No. 9, Albert College Drive D28: DCC lighting column No 1, Albert College Drive</p> <p><u>Swords Pavillion</u> D29: Lighting column at roundabout in main car park opposite main entrance to Swords Pavilion Centre D30: Lighting column in centre of car park at main road exit D31: FCC lighting column No. 3, Drynam Rd D32: FCC lighting column No. 464, R132</p> <p><u>Seatown Roundabout</u> D33: FCC lighting column No. 488, R132 D34: FCC lighting column No. 496, R132 D35: FCC lighting column at entrance to FCC car park on Seatown Rd D36: FCC lighting column No. 1, Seatown Villas D37: ESB lighting column No. 20, Seatown Villas D38: FCC lighting column No. 12, Estuary Court D39: FCC lighting column, west of Seatown Rd and Estuary Court Estate junction D40: FCC lighting column No. 3, Estuary Rd</p> <p><u>Belinstown</u> D41: North East corner of S. Brangan’s field D42: South East corner of S Brangan’s field D43: North East of W Flynn’s field D44: South West of S Brangans field D45: North West of W Flynn’s field D46: South West corner of S Brangan’s field D47: Beside Ruin in North West corner of W Flynn’s field off Batter Lane D48: South East corner of W Flynn’s field</p>
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Table 2a Dust deposition monitoring results

Dust Deposition Monitoring Location		Dust deposition rate, mg/m ² -day				
		Interval #1	Interval #2	Interval #3	Interval #4	Average
St Stephens Green						
D1	OPW Depot, St Stephen's Green Park	20	43.5	34	83.3	45.2
D2	Rear of Playground, St Stephen's Green Park	58.6	14	240	57.3	92.4
D3	DCC lighting column No. 57, St Stephen's Green North	83	44.6	26.2	32.3	46.5
D4	DCC lighting column No.48, St Stephen's Green West	63.5	13.4	78.1	88.5	60.9
Parnell Square						
D5	Parnell Street car park west end	117.2	128.3	100.4	47.9	98.5
D6	Parnell Street car park east end	161.8	212.1	530.1	114.6	254.7
D7	Lighting column in centre of Rotunda Hospital car park	55.8	26.2	61.4	37.5	45.2
D8	DCC lighting column No. 13, Parnell Square East	117.2	111.6	61.4	43.8	83.5
Mater Hospital						
D9	Left lighting column at main entrance to Mater Private Hospital	78.1	89.3	83.7	88.5	84.9
D10	DCC lighting column No. 3, Eccles Place	55.2	78.1	72.5	41.2	61.7
D11	LHS entrance to Mater Public site on North Circular Rd	61.4	167.4	111.6	83.3	105.9
D12	RHS entrance to Mater Public site on North Circular Rd	111.6	184.2	72.5	88.5	114.2
Home Farm Road Drumcondra						
D13	DCC lighting column No. 1, Ferguson Rd, Drumcondra	42.6	11.7	61.4	72.9	47.2
D14	Street light on RHS of entrance driveway off Home Farm Rd to Corpus Christi Parish Church	47.4	10	133.9	72.9	66.1
D15	DCC lighting column No. 5, Valentia Rd	37.9	195.3	72.5	27.6	83.3
D16	DCC lighting column No. 6, Valentia Rd	52.1	35.7	117.2	32.3	59.3
Albert College Park						
D17	DCC lighting column No. 3, Ballymun Road	50.6	67	48	40.6	51.5
D18	ESB lighting column No. 5, Hampstead Avenue	34	43.5	2.2	35.9	28.9
D19	West corner of main field at entrance to Elmhurst Convalescent Centre	630.6	67	117.2	62.5	219.3
D20	Lighting column in the North corner of Hampstead Avenue car park	211.4	32.4	94.9	88.5	106.8
D21	DCC lighting column No. 27 Ballymun Road	59.7	78.1	318.1	57.3	128.3
D22	DCC lighting column No. 41, Ballymun Road	110.3	46.3	55.2	57.3	67.3
D23	DCC lighting column No. 1, Albert College Lawn	35.9	24	26.8	28.7	28.8
D24	DCC lighting column No. 1, Albert College Avenue	248.2	30.7	2.8	19.3	75.2

NOTE

- Interval #1 18th August to 21st September 2009, Interval #2 21st September 2009 to 19th October 2009, Interval #3 19th October 2009 to 16th November 2009 and Interval #4 16th November 2009 to 16th December 2009.

Table 2b Dust deposition monitoring results

Dust Deposition Monitoring Location		Dust deposition rate, mg/m ² -day				
		Interval #1	Interval #2	Interval #3	Interval #4	Average
Albert College Estate						
D25	DCC lighting column No. 4, Albert College Crescent	NA ^[3]	28.5	25.7	39.1	31.1
D26	DCC lighting column No. 5, Albert College Grove	37.4	6.7	24	19.8	22.0
D27	DCC lighting column No. 9, Albert College Drive	38.4	34.6	31.3	27.6	33.0
D28	DCC lighting column No 1, Albert College Drive	10.9	48	37.4	39.1	33.8
Swords Pavilion						
D29	Lighting column at roundabout in main car park opposite main entrance to Swords Pavilion Centre	96.9	35.7	78.1	57.3	67.0
D30	Lighting column in centre of car park at main road exit	102.4	55.8	46.88	19.3	56.1
D31	FCC lighting column No. 3, Drynam Rd	167	111.6	67	145.8	122.9
D32	FCC lighting column No. 464, R132	118.5	184.2	111.6	7.8	105.5
Seatown Roundabout						
D33	FCC lighting column No. 488, R132	59.3	72.5	29	5.7	41.6
D34	FCC lighting column No. 496, R132	156.3	72.5	32.4	13.0	68.5
D35	FCC lighting column at entrance to FCC car park on Seatown Rd	51.7	67	45.8	78.1	60.6
D36	FCC lighting column No. 1, Seatown Villas	447.2	34.6	78.1	26.6	146.6
D37	ESB lighting column No. 20, Seatown Villas	188.6	20.1	262.3	72.9	136.0
D38	FCC lighting column No. 12, Estuary Court	161.6	35.2	51.9	22.4	67.8
D39	FCC lighting column, west of Seatown Rd and Estuary Court Estate junction	220.9	55.8	19.5	17.2	78.4
D40	FCC lighting column No. 3, Estuary Rd	129.3	122.8	61.4	49.5	90.7
Belinstown						
D41	North East corner of S Brangan's field	8.0	39.1	55.8	46.9	37.4
D42	South East corner of S Brangan's field	98.2	72.5	195.3	57.3	105.8
D43	North East of W Flynn's field	93.8	25.7	117.2	229.2	116.4
D44	South West of S Brangan's field	33.9	83.7	100.4	31.8	62.5
D45	North West of W Flynn's field	602.7	67	167.4	250.0	271.8
D46	South West corner of S Brangan's field	138.4	61.4	30.1	17.2	61.8
D47	Beside Ruin in North West corner of W Flynn's field off Batter Lane	111.6	34	262.3	125.0	133.2
D48	South East corner of W Flynn's field	20.5	50.2	223.2	31.3	81.3

NOTE

- Interval #1 18th August to 21st September 2009 Interval #2 21st September 2009 to 19th October 2009 Interval #3 19th October 2009 to 16th November 2009 and Interval #4 16th November 2009 to 16th December 2009
- Dust Gauge D25 was missing on the date of collection and thus no result could be reported for this gauge.

4.0 SUMMARY OF EXCEEDANCES OF AIR QUALITY GUIDELINE

Details of monitoring exceedances during interval #1 and interval #3 are outlined below in Table 3a and 3b respectively. There were no exceedances recorded during Interval #2 and Interval #4.

Table 3a *Summary of exceedances of air quality guideline for Interval #1*

Dust Deposition Gauge Location		Details of exceedances
D19	West corner of main field at entrance to Elmhurst Convalescent Centre	This gauge is positioned on the boundary of a field which is currently in agricultural use. The farmer ploughed this land in August and this disturbance led to increased dust levels in the area during this time. This dust gauge also contained some organic matter (vegetation traces).
D36	FCC lighting column No. 1, Seatown Villas	Contained some organic matter in the form of algal growth.
D45	North West of W Flynn's field	This gauge is positioned on the boundary of a field which is currently in agricultural use. The farmer ploughed this land in August and this disturbance led to increased dust levels in the area during this time.

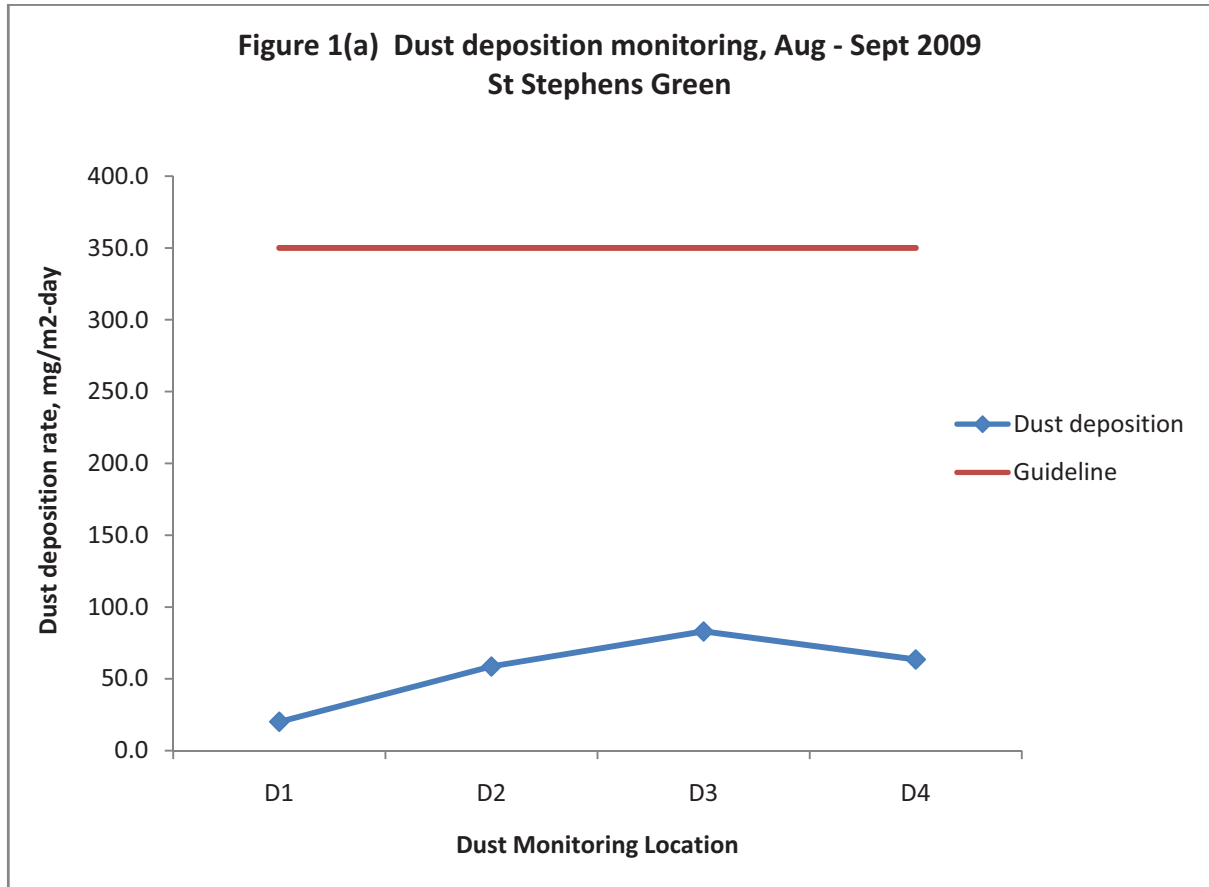
Table 3b *Summary of exceedances of air quality guideline for Interval #3*

Dust Deposition Gauge Location		Details of exceedances
D6	Parnell Street car park east end	This gauge is positioned on the east end of the Rotunda hospitals staff car park on Parnell street. It contained some organic matter in the form of algal growth.

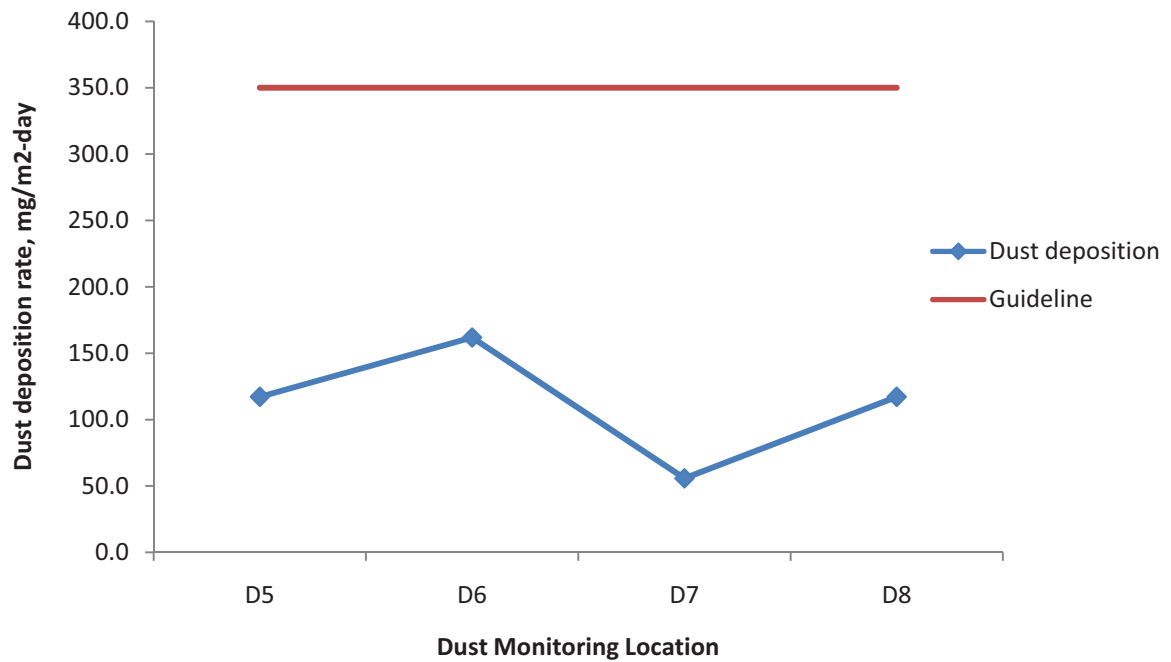
5.0 DUST DEPOSITION MONITORING RESULTS IN GRAPHICAL FORMAT

Dust Deposition Monitoring Results Interval #1

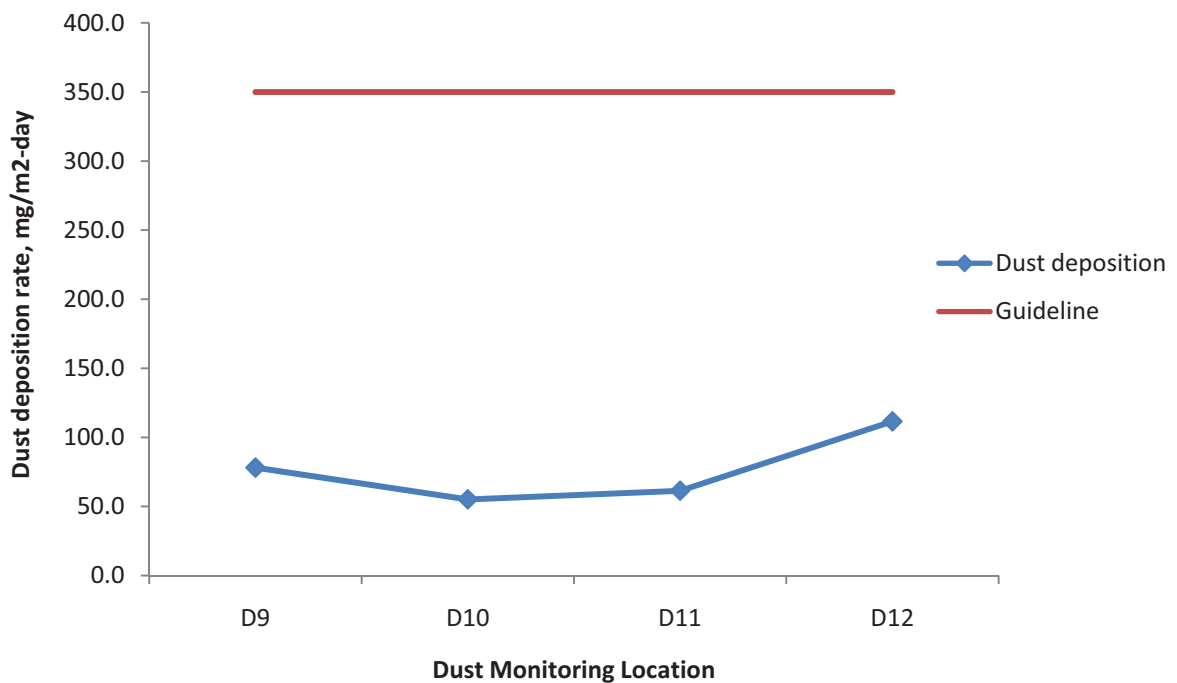
Graphs 1(a) to 1(i) provide details of the dust deposition levels at all locations (on a monthly basis) during Interval #1



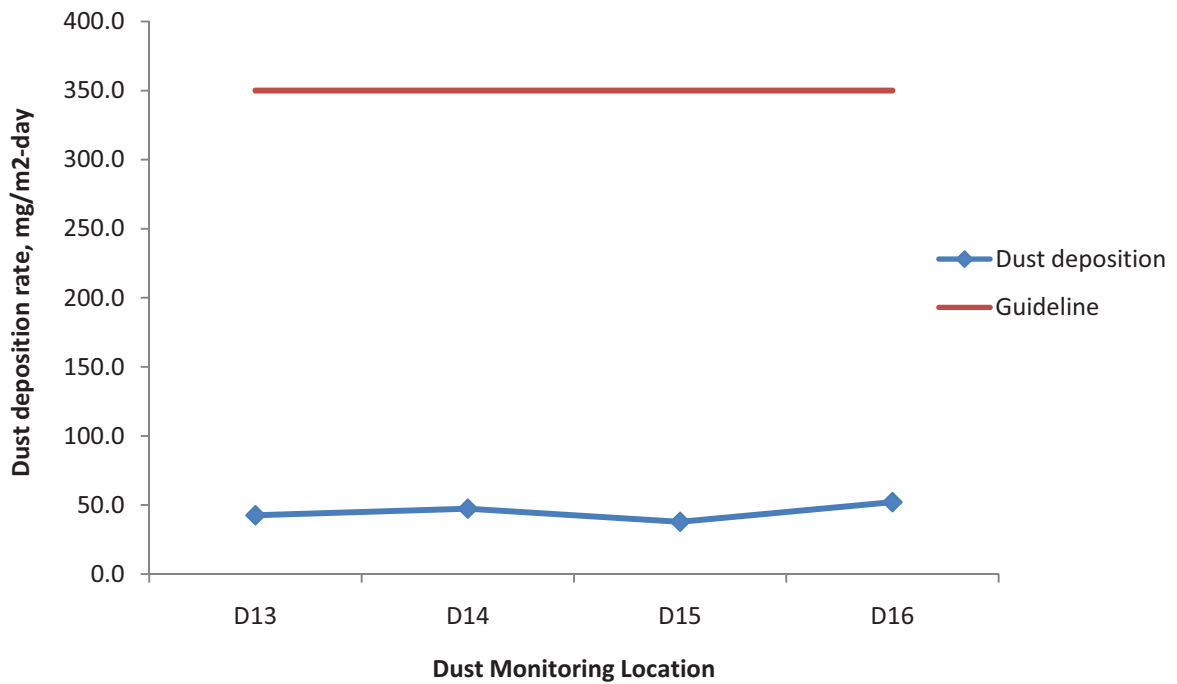
**Figure 1(b) Dust deposition monitoring, Aug - Sept 2009
Parnell Square**



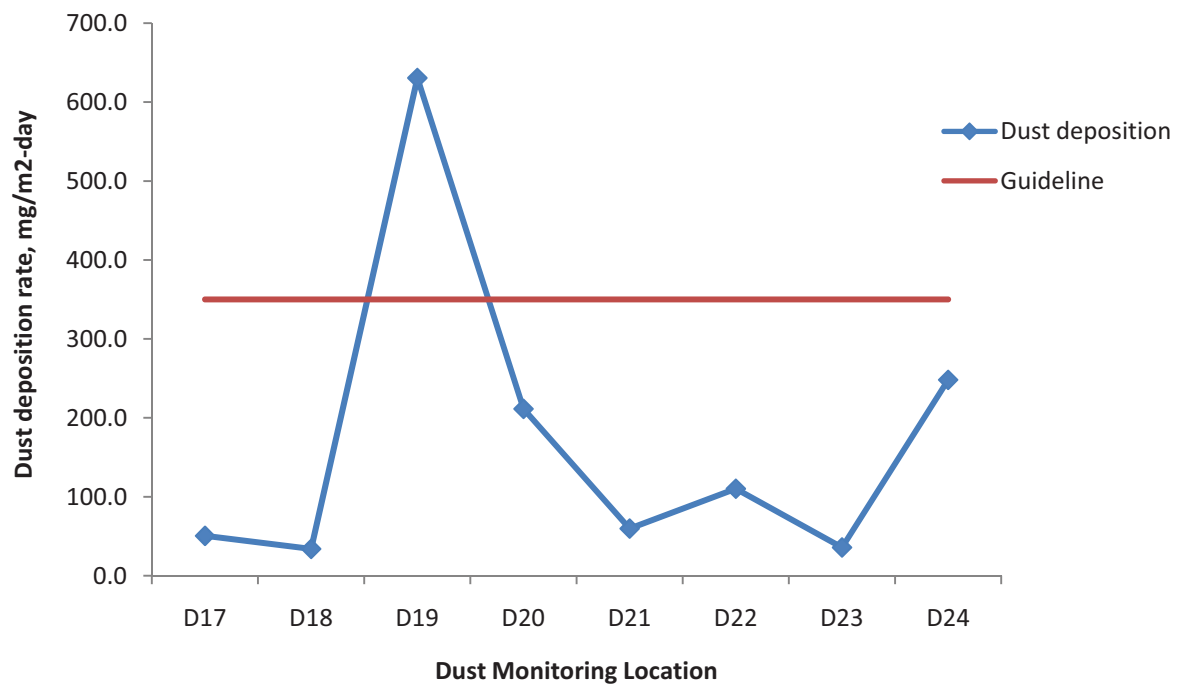
**Figure 1(c) Dust deposition monitoring, Aug - Sept 2009
Mater Hospital**



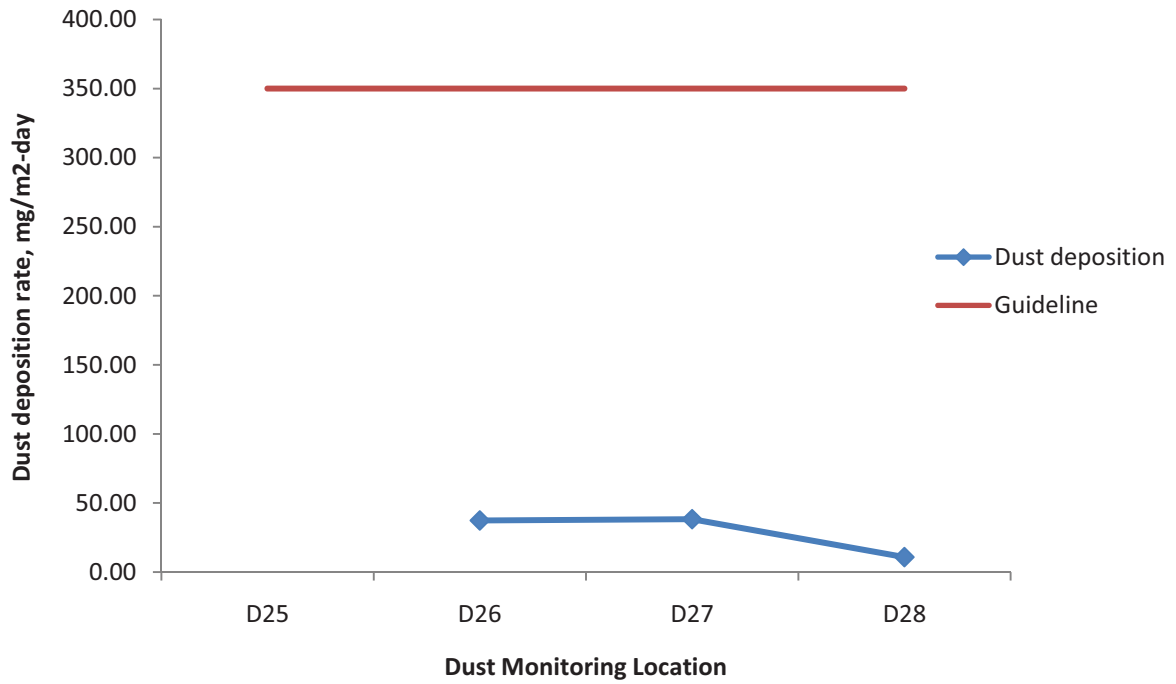
**Figure 1(d) Dust deposition monitoring, Aug - Sept 2009
Home Farm Road Drumcondra**



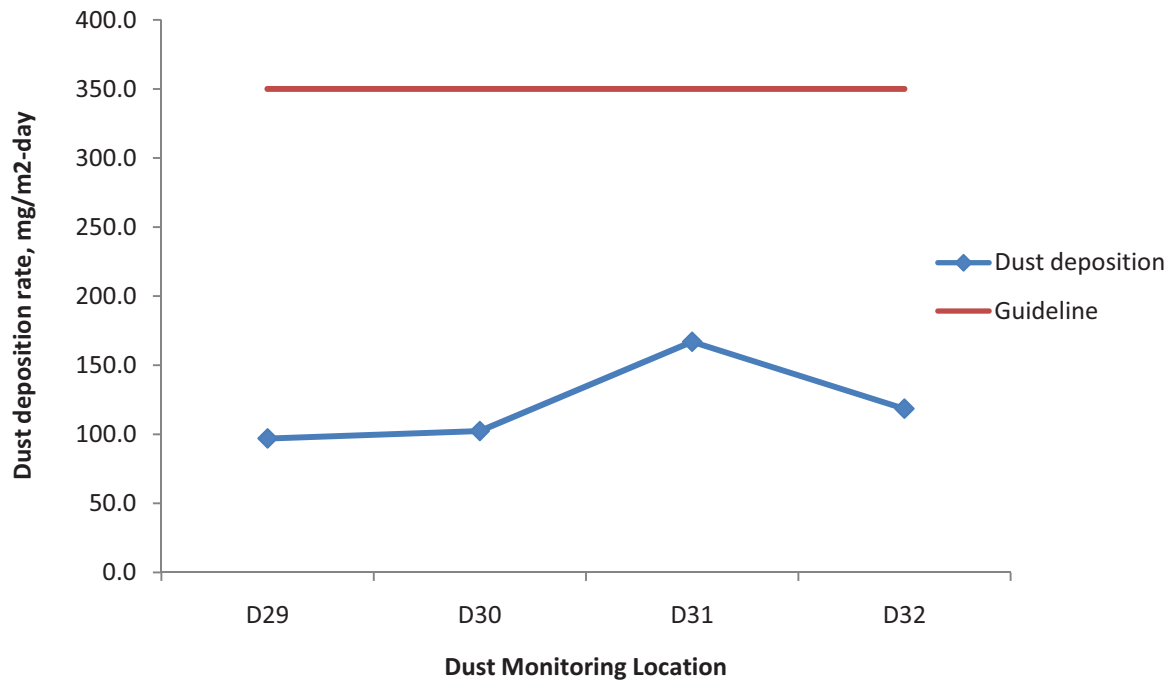
**Figure 1(e) Dust deposition monitoring, Aug - Sept 2009
Albert College Park**



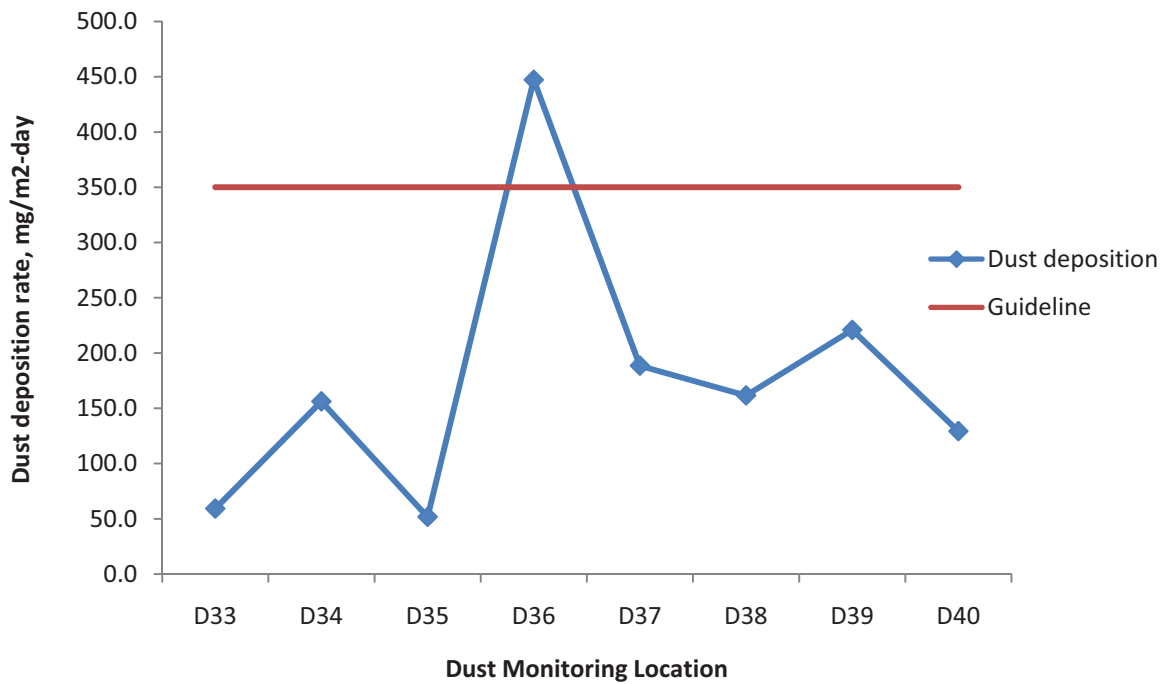
**Figure 1(f) Dust deposition monitoring, Aug - Sept 2009
Albert College Estate**



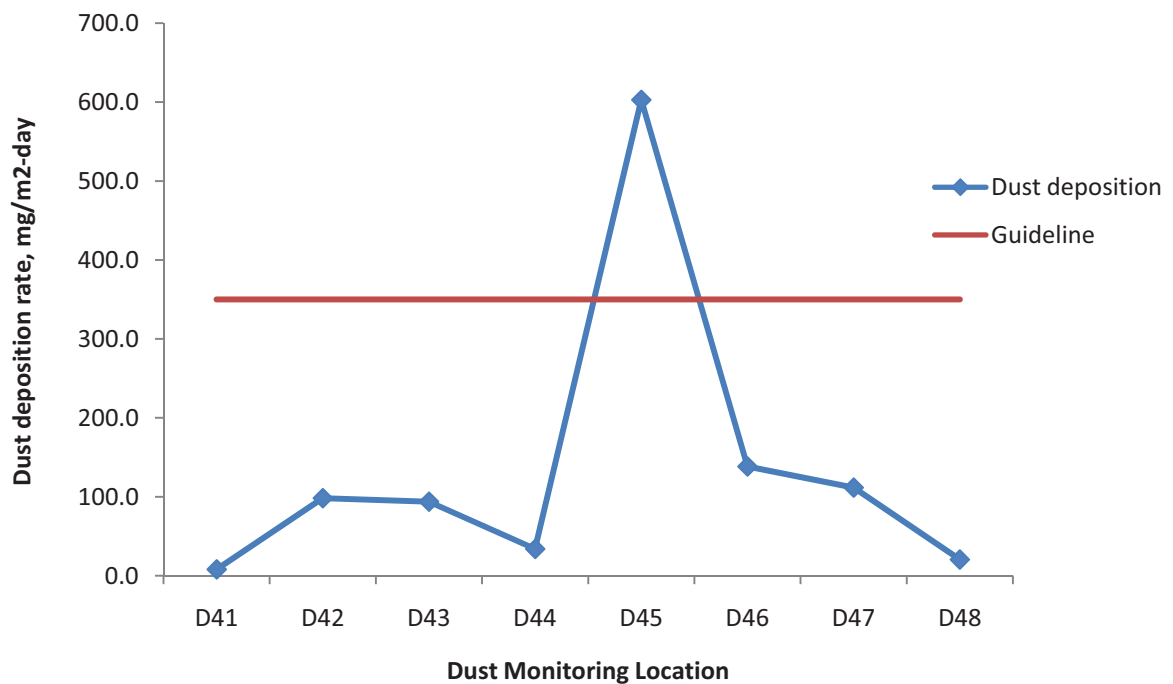
**Figure 1(g) Dust deposition monitoring, Aug - Sept 2009
Swords Pavilion**



**Figure 1(h) Dust deposition monitoring, Aug - Sept 2009
Seatown Road Roundabout**

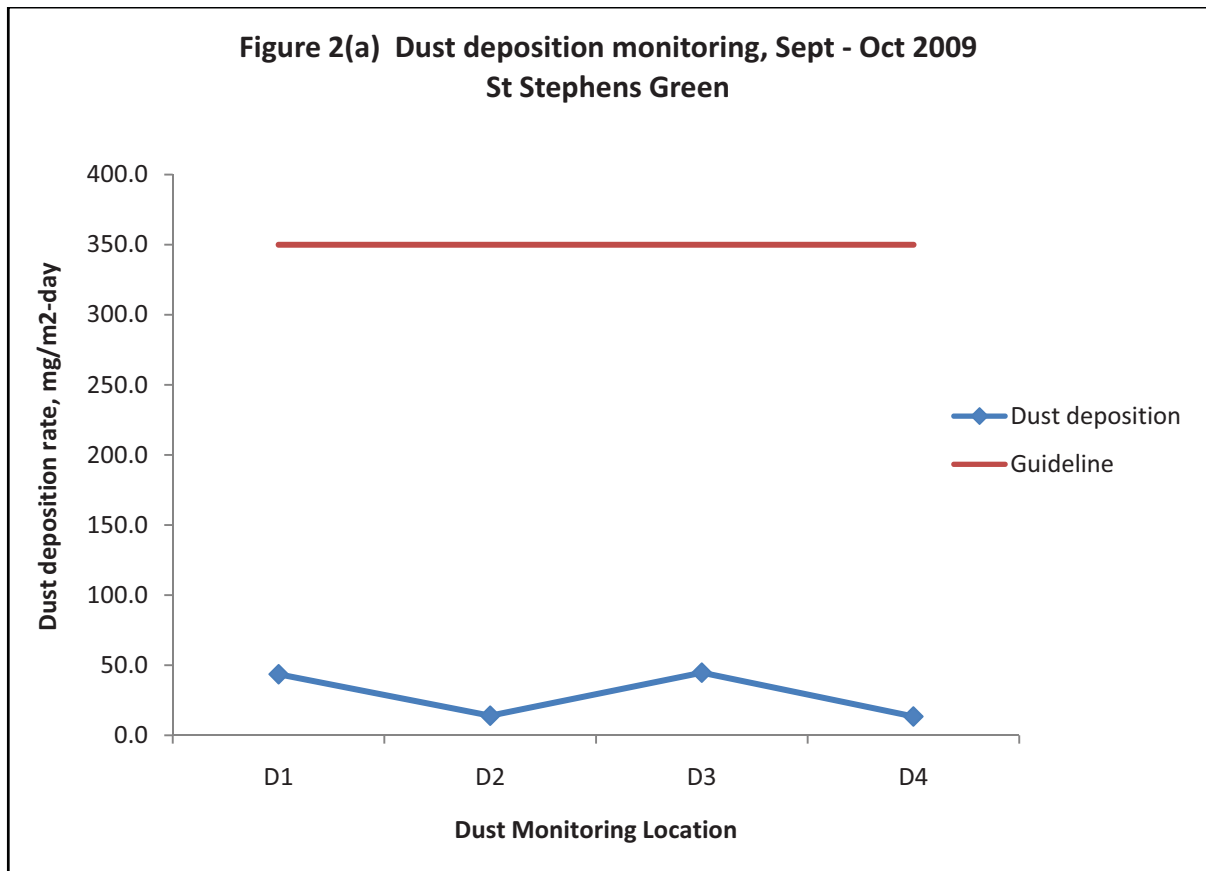


**Figure 1(i) Dust deposition monitoring, Aug - Sept 2009
Belinstown**

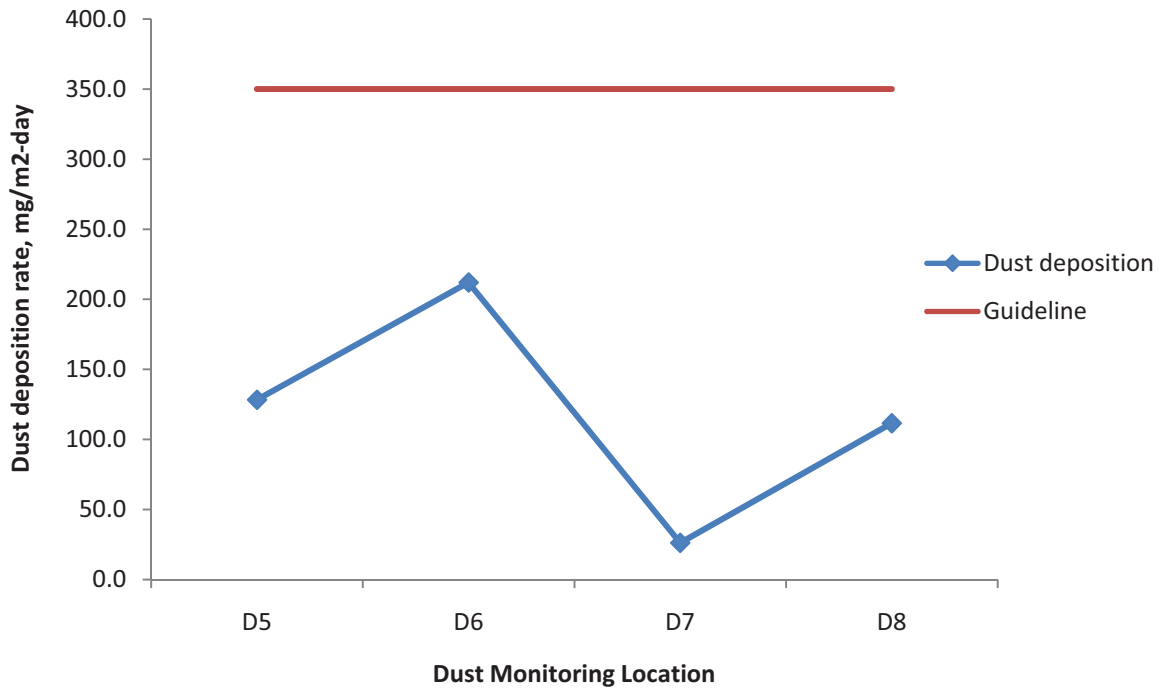


Dust Deposition Monitoring Results Interval #2

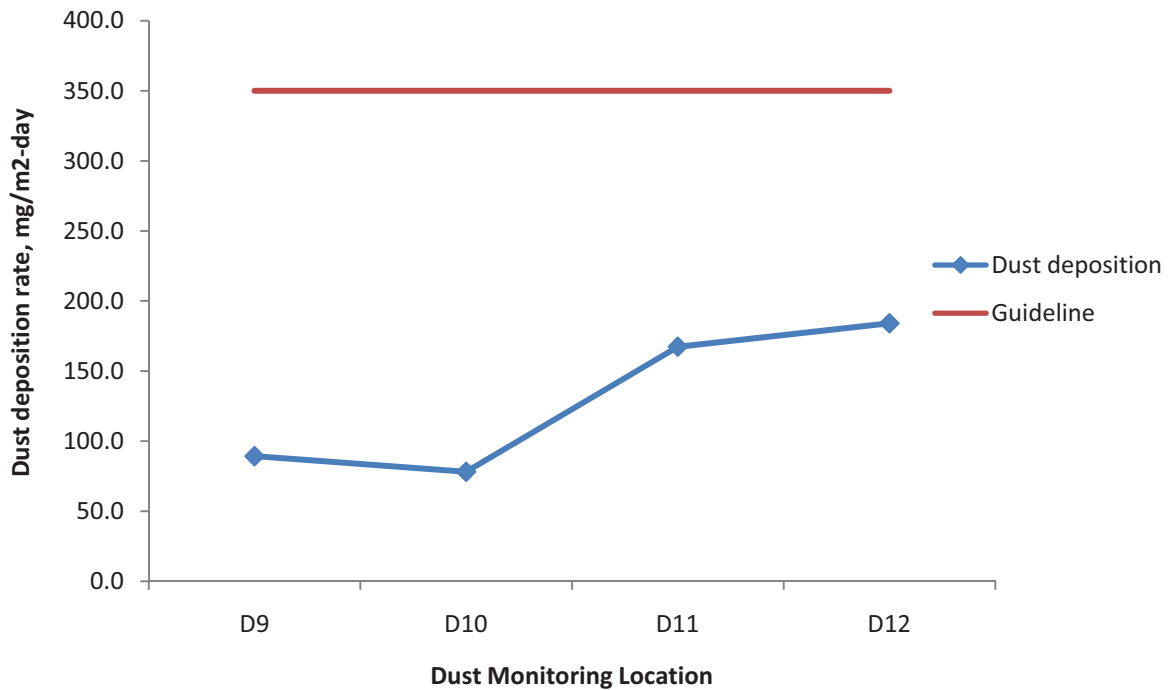
Graphs 2(a) to 2(i) provide details of the dust deposition levels at all locations (on a monthly basis) during Interval #2



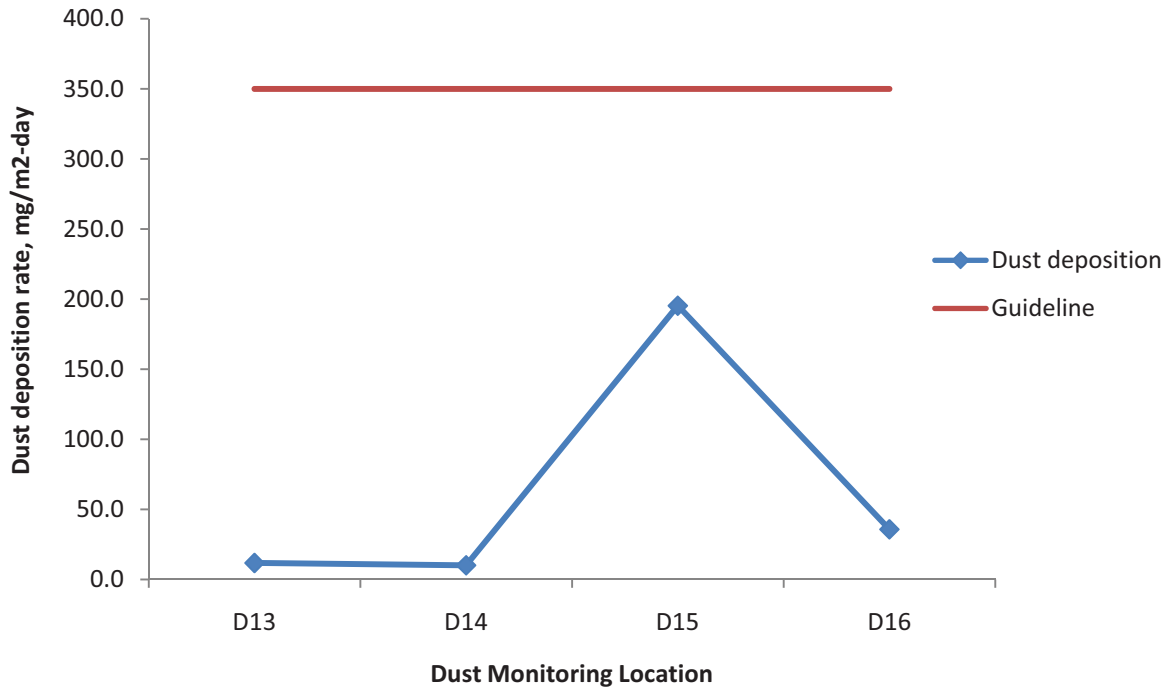
**Figure 2(b) Dust deposition monitoring, Sept - Oct 2009
Parnell Square**



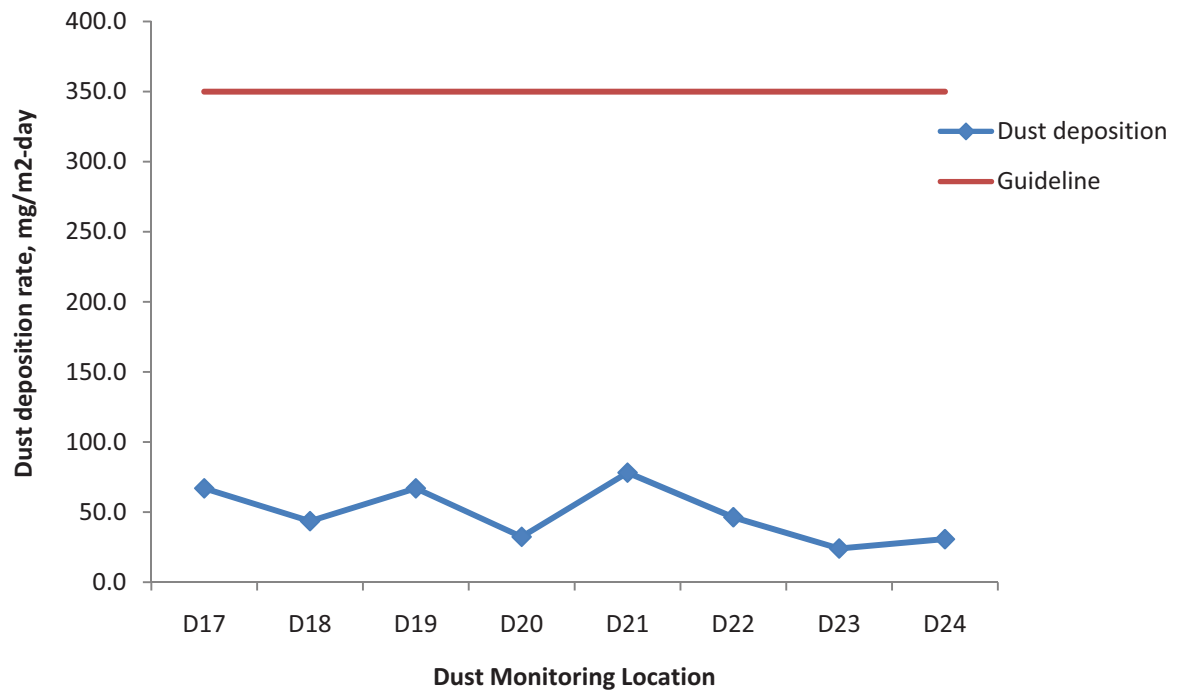
**Figure 2(c) Dust deposition monitoring, Sept - Oct 2009
Mater Hospital**



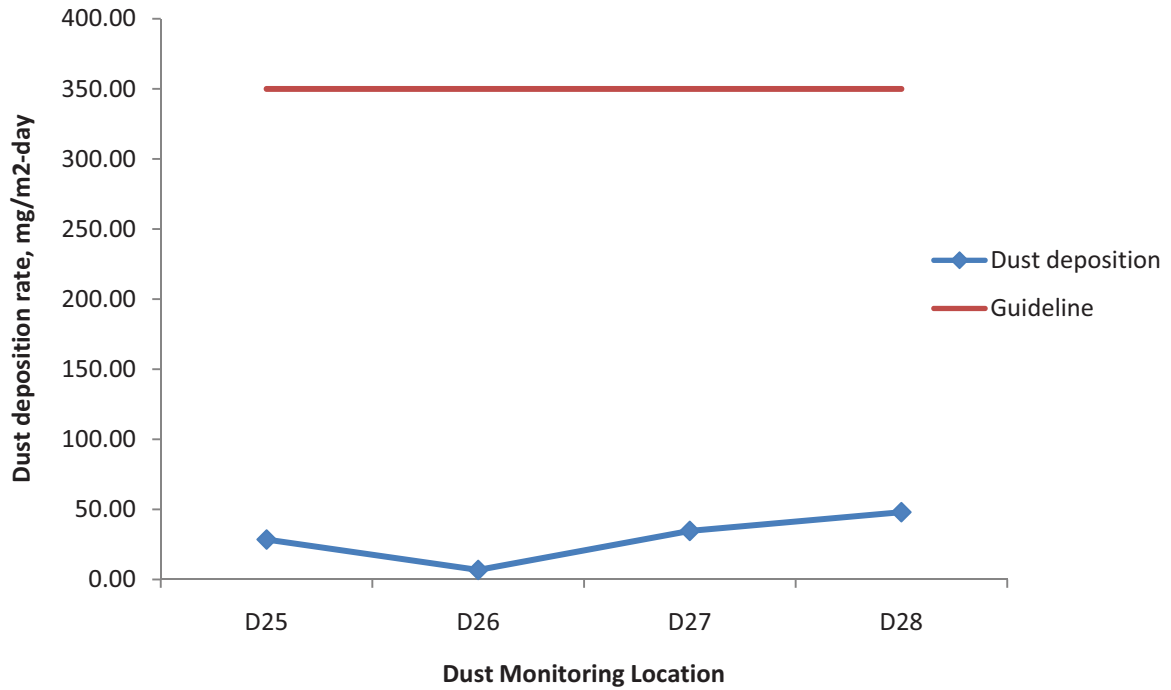
**Figure 2(d) Dust deposition monitoring, Sept - Oct 2009
Home Farm Road Drumcondra**



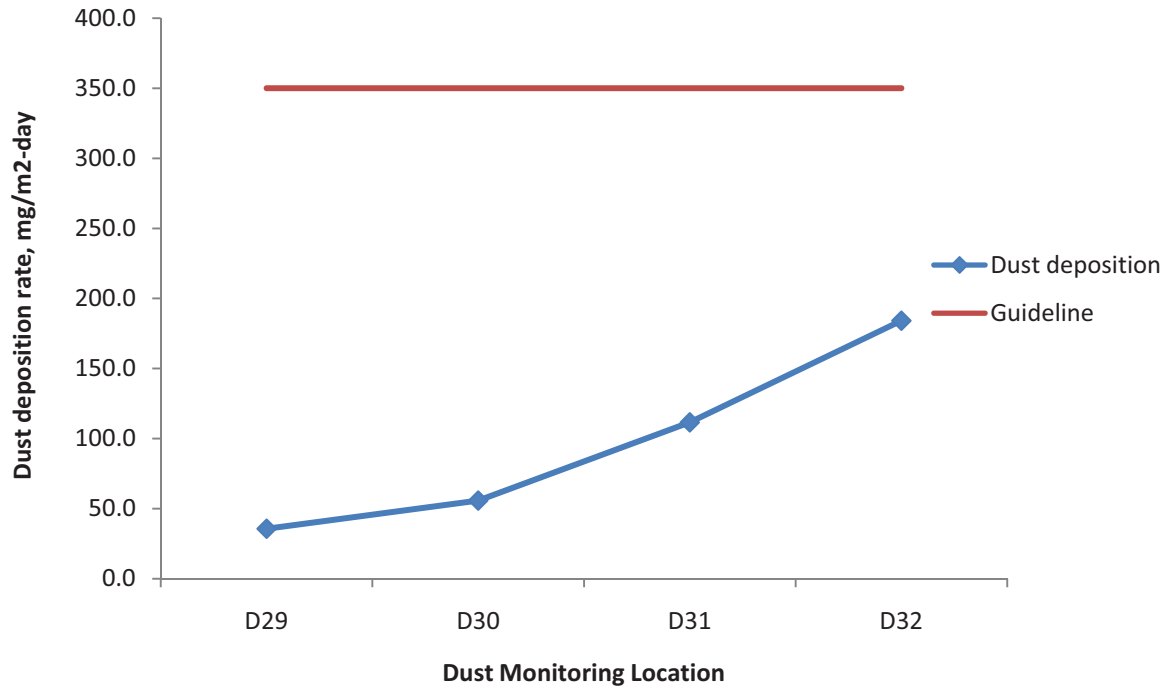
**Figure 2(e) Dust deposition monitoring, Sept - Oct 2009
Albert College Park**



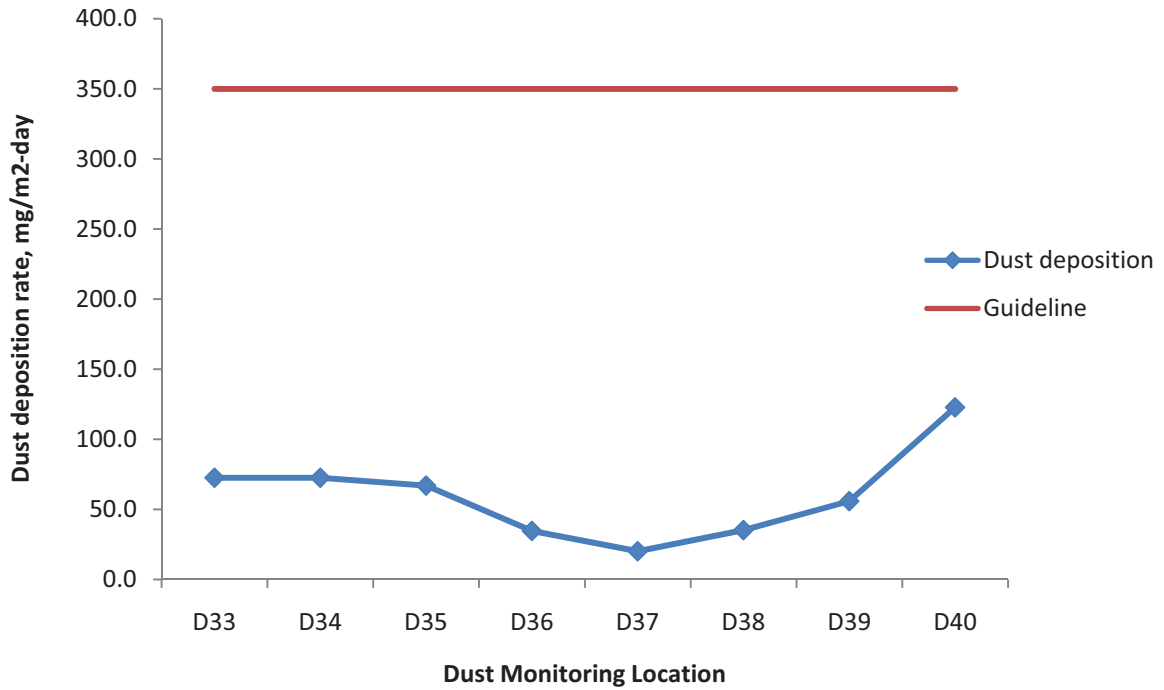
**Figure 2(f) Dust deposition monitoring, Sept - Oct 2009
Albert College Estate**



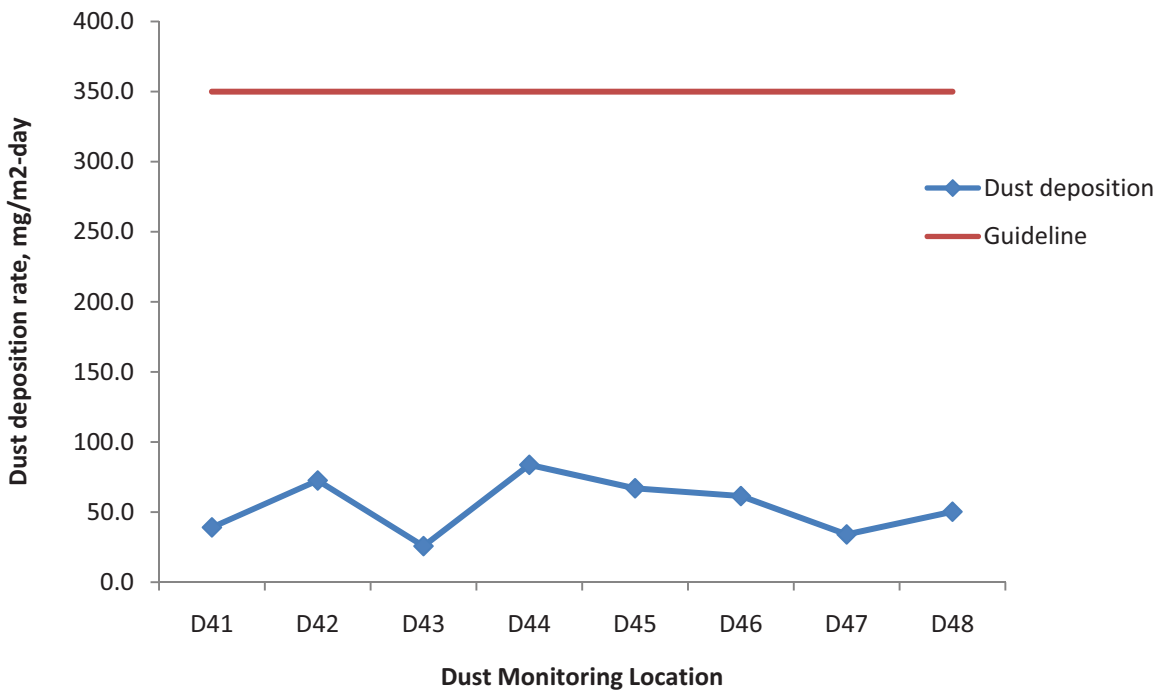
**Figure 2(g) Dust deposition monitoring, Sept - Oct 2009
Swords Pavilion**



**Figure 2(h) Dust deposition monitoring, Sept - Oct 2009
Seatown Road Roundabout**

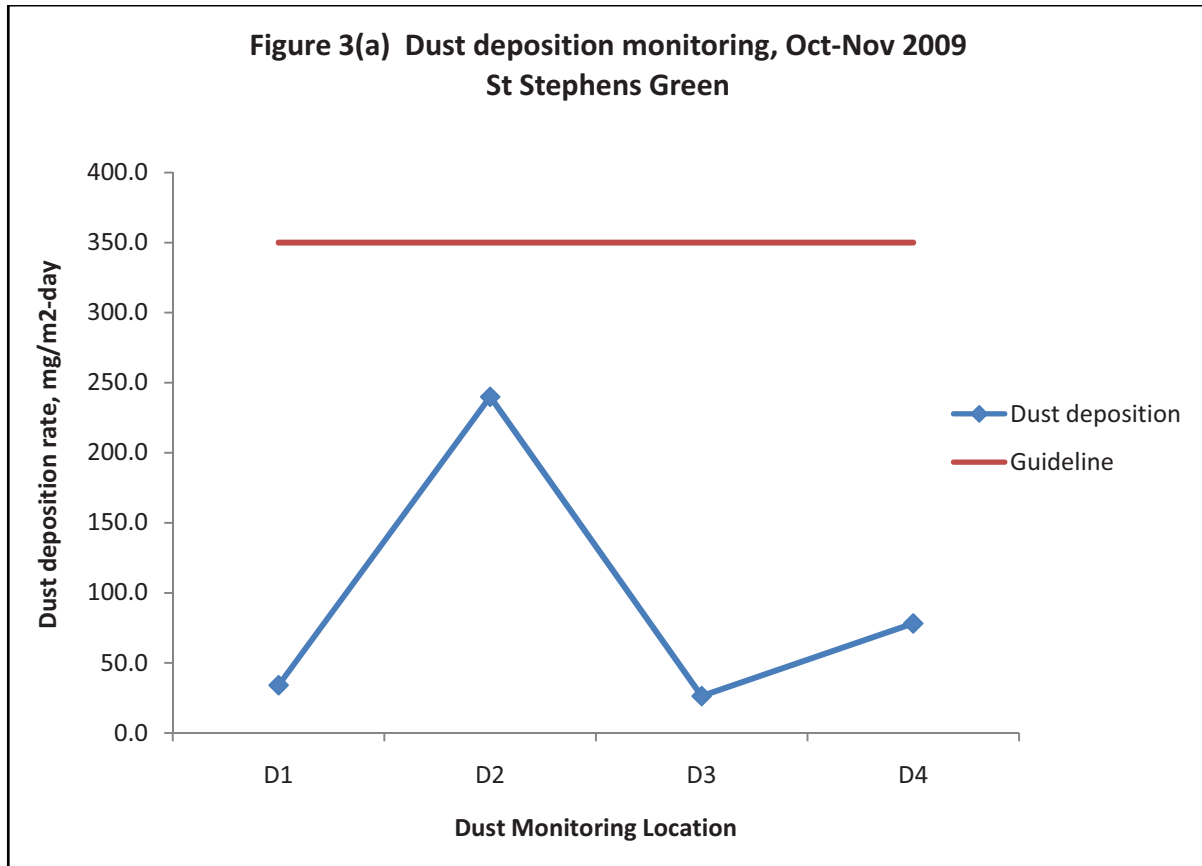


**Figure 2(i) Dust deposition monitoring, Sept - Oct 2009
Belinstown**

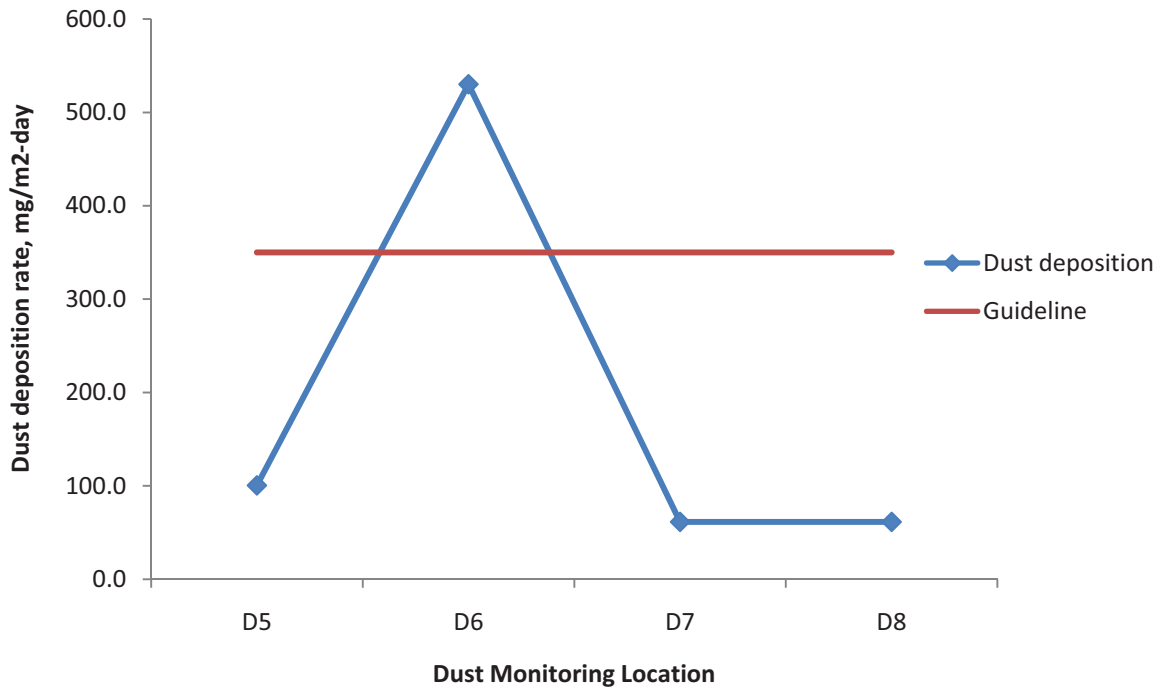


Dust Deposition Monitoring Results Interval #3

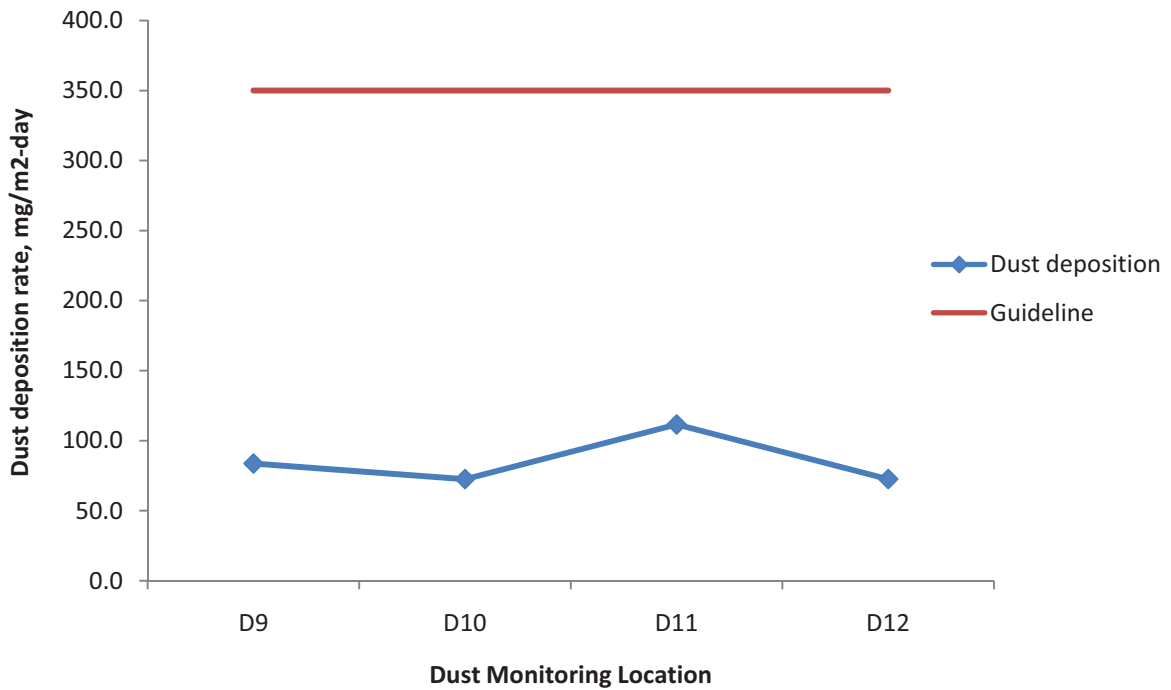
Graphs 3(a) to 3(i) provide details of the dust deposition levels at all locations (on a monthly basis) during Interval #3



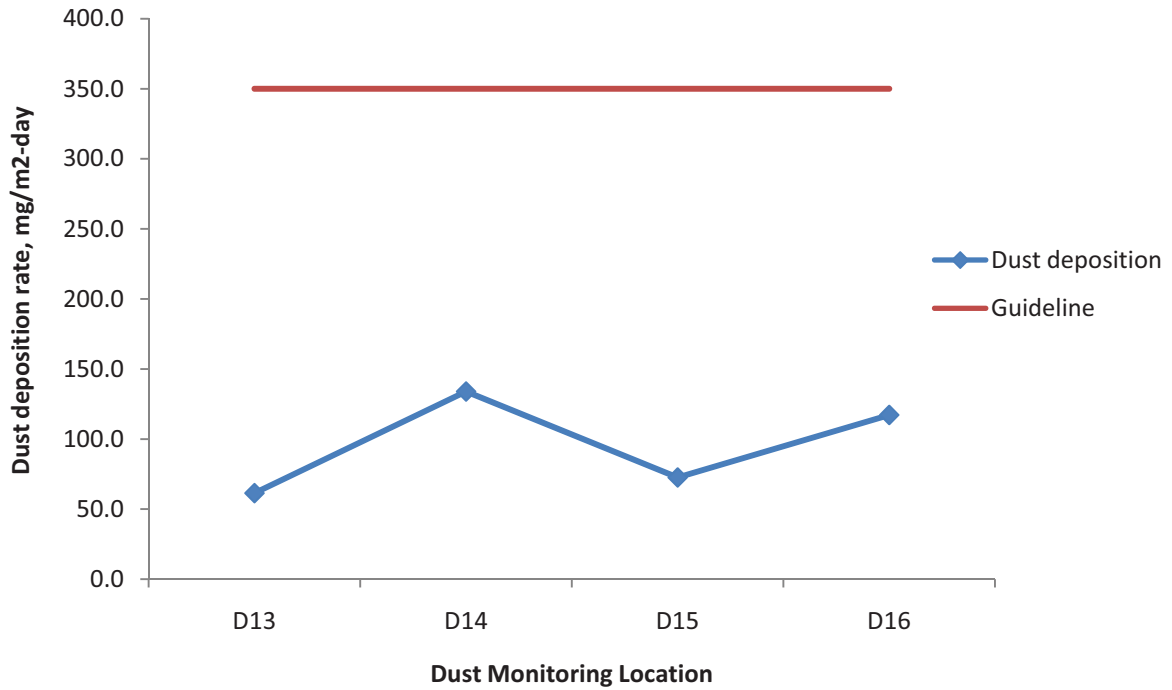
**Figure 3(b) Dust deposition monitoring, Oct-Nov 2009
Parnell Square**



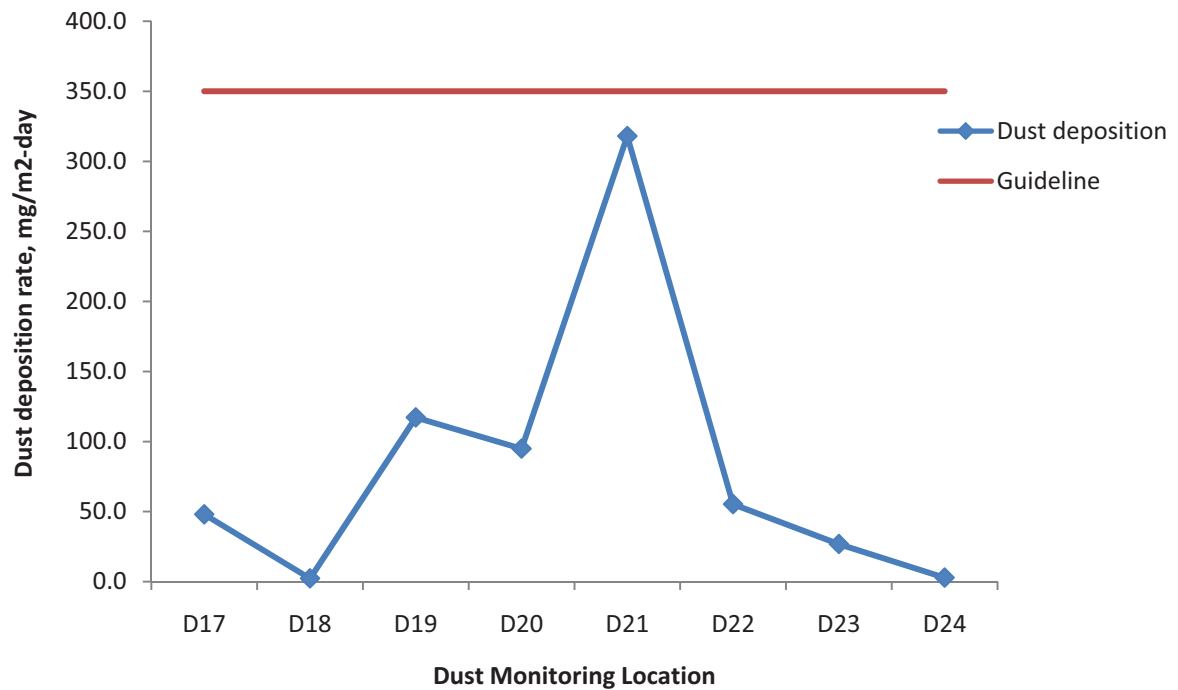
**Figure 3(c) Dust deposition monitoring, Oct-Nov 2009
Mater Hospital**



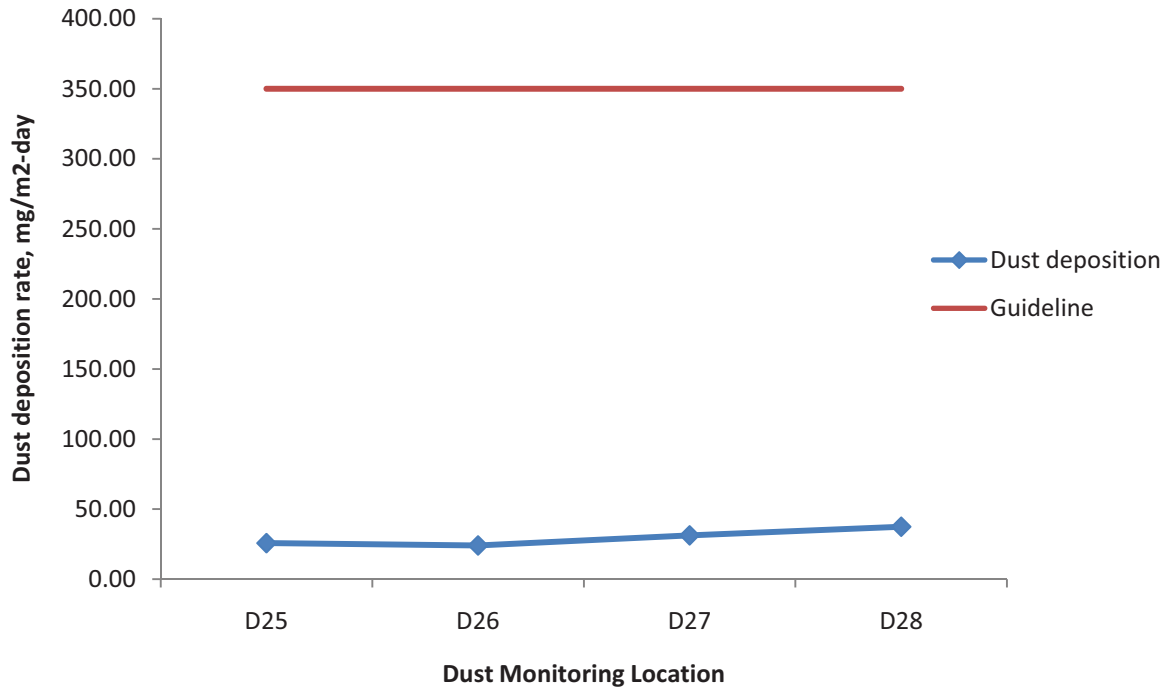
**Figure 3(d) Dust deposition monitoring, Oct-Nov 2009
Home Farm Road Drumcondra**



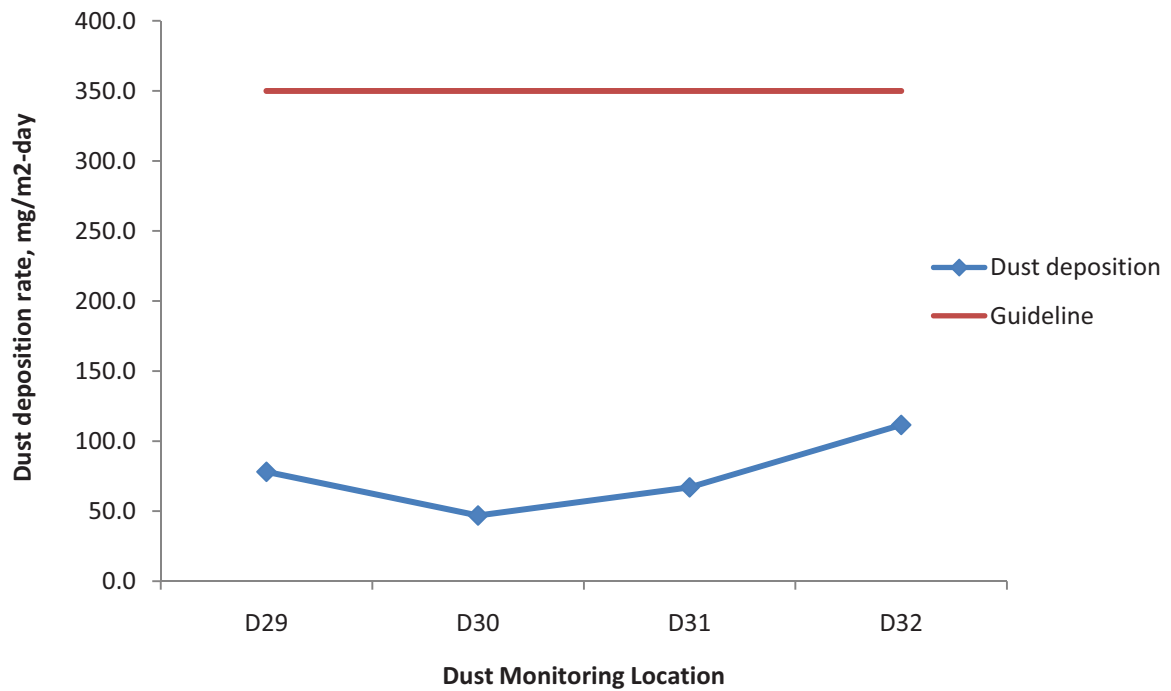
**Figure 3(e) Dust deposition monitoring, Oct-Nov 2009
Albert College Park**



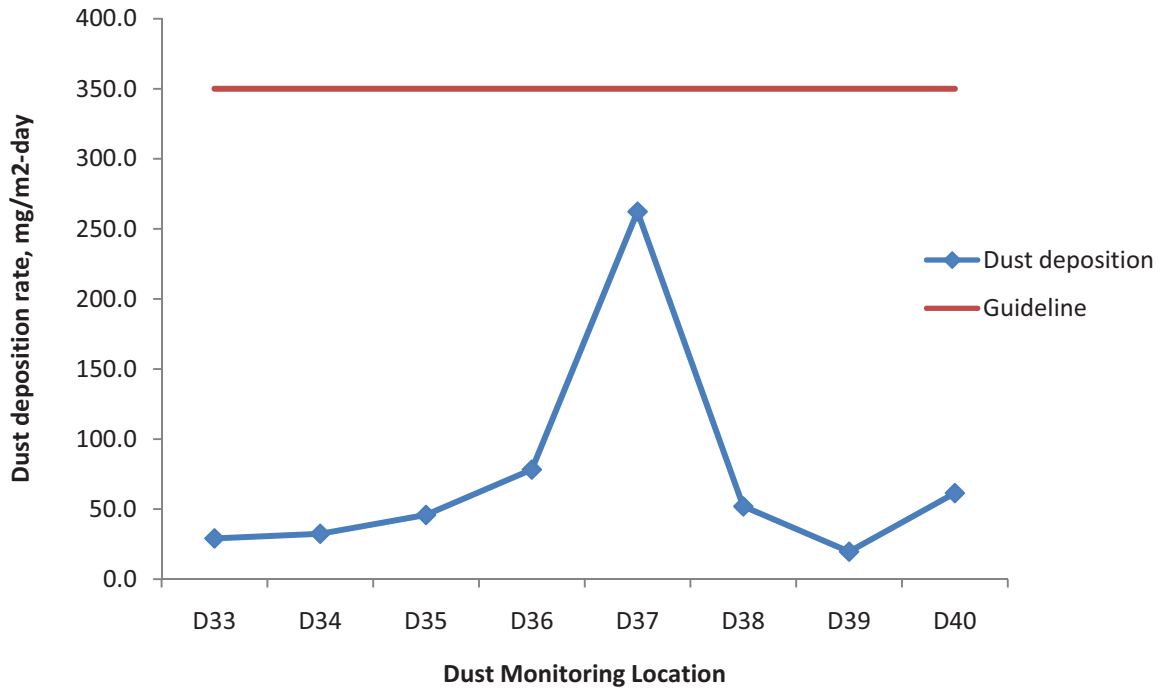
**Figure 3(f) Dust deposition monitoring, Oct-Nov 2009
Albert College Estate**



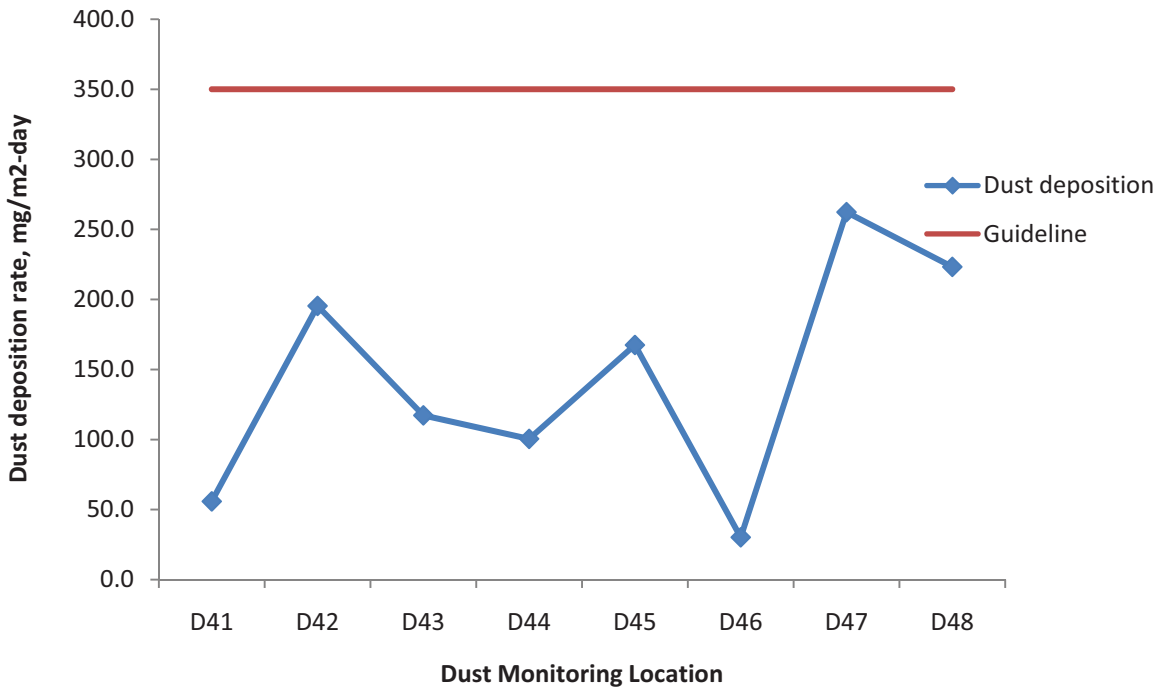
**Figure 3(g) Dust deposition monitoring Oct-Nov 2009
Swords Pavilion**



**Figure 3(h) Dust deposition monitoring, Oct-Nov 2009
Seatown Road Roundabout**

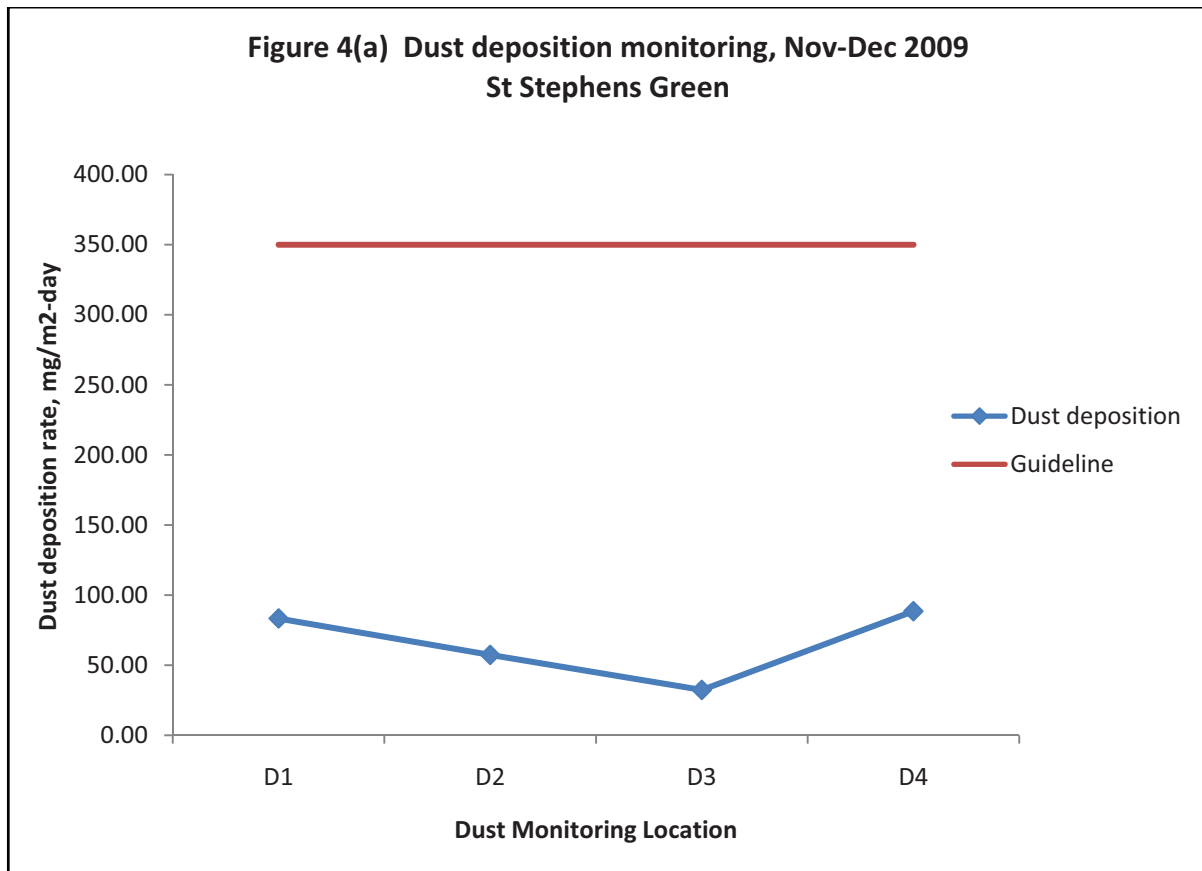


**Figure 3(i) Dust deposition monitoring Oct-Nov 2009
Belinstown**

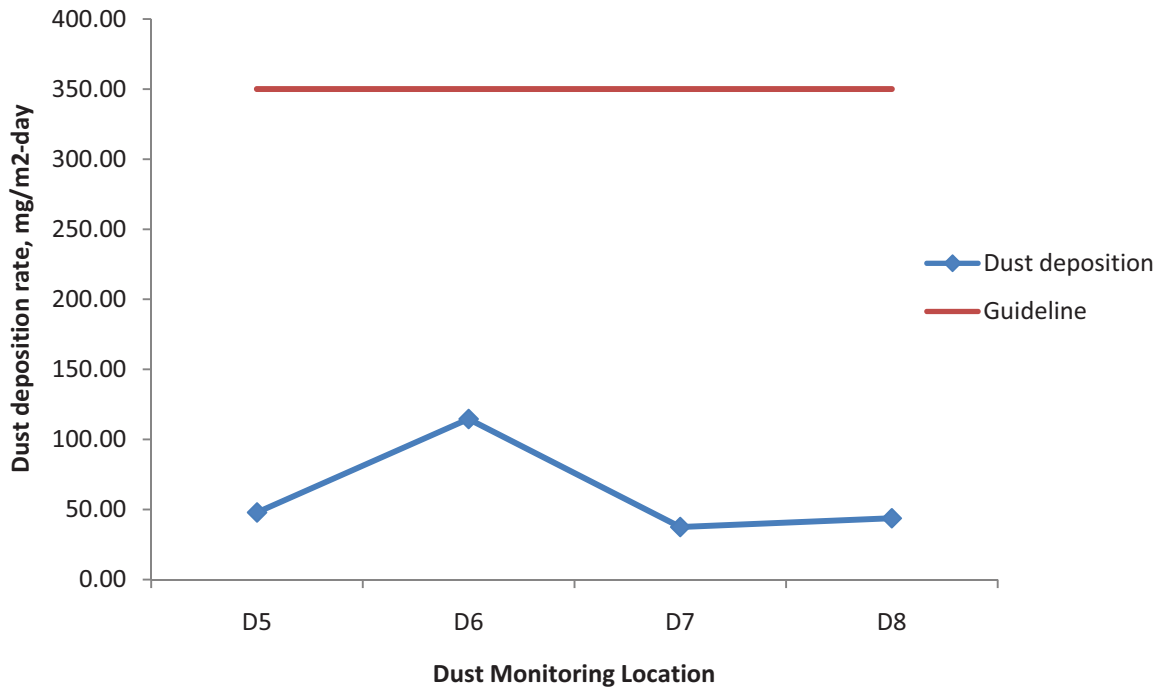


Dust Deposition Monitoring Results Interval #4

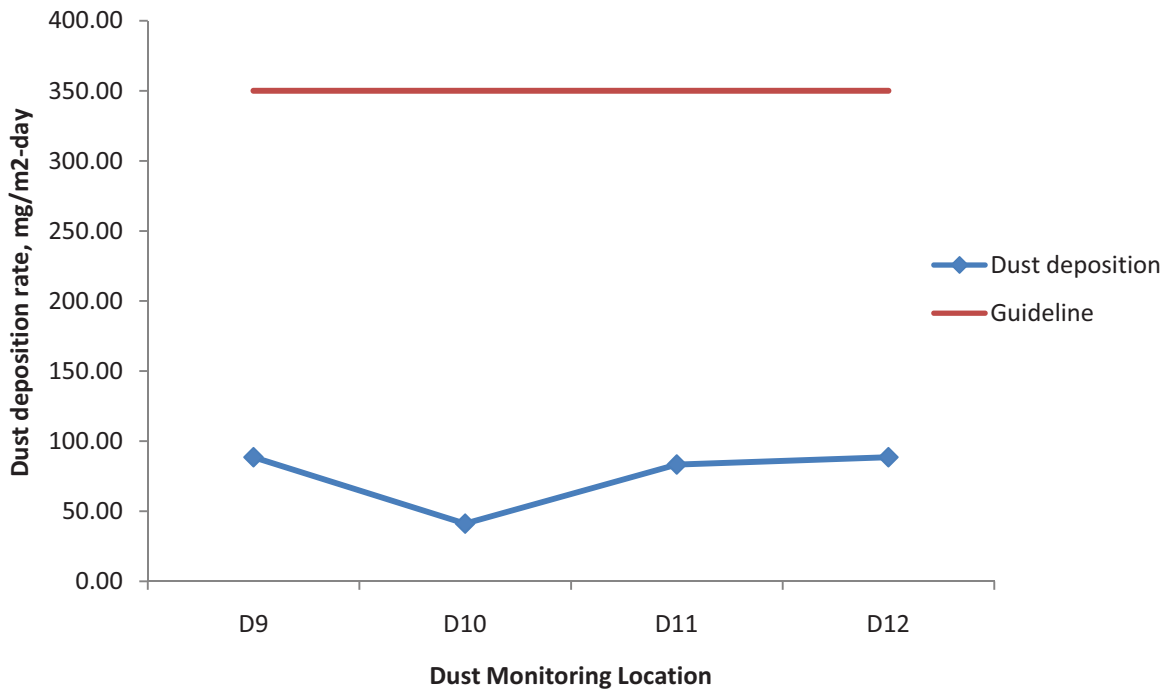
Graphs 4(a) to 4(i) provide details of the dust deposition levels at all locations (on a monthly basis) during Interval #4



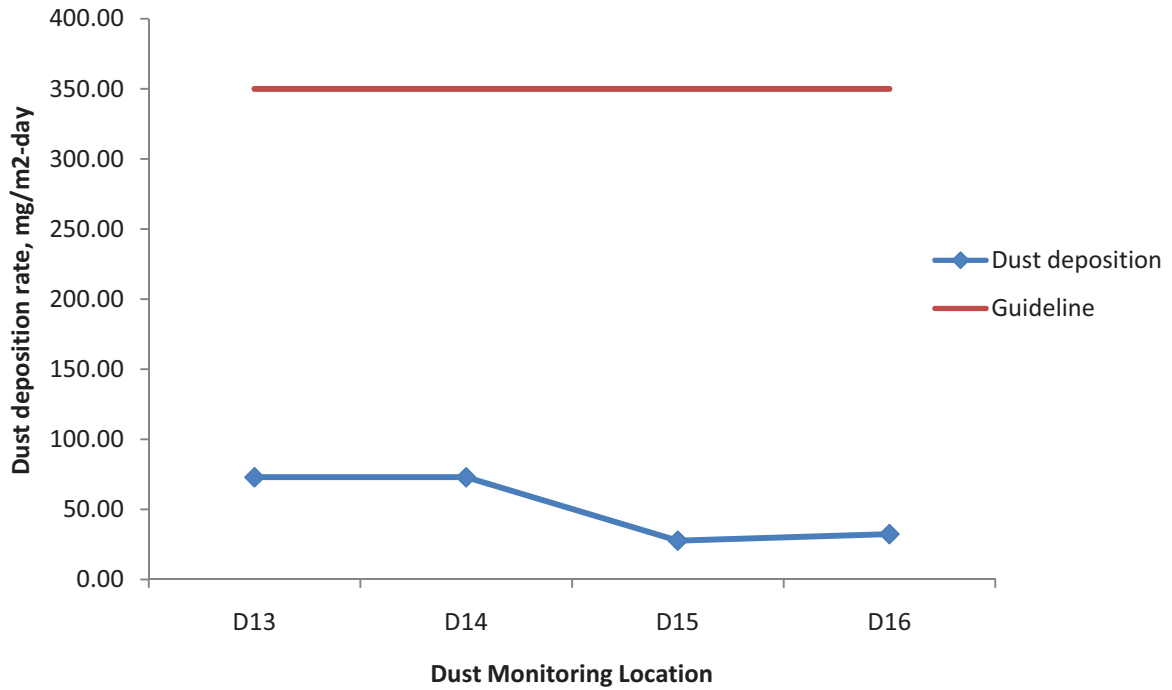
**Figure 4(b) Dust deposition monitoring, Nov-Dec 2009
Parnell Square**



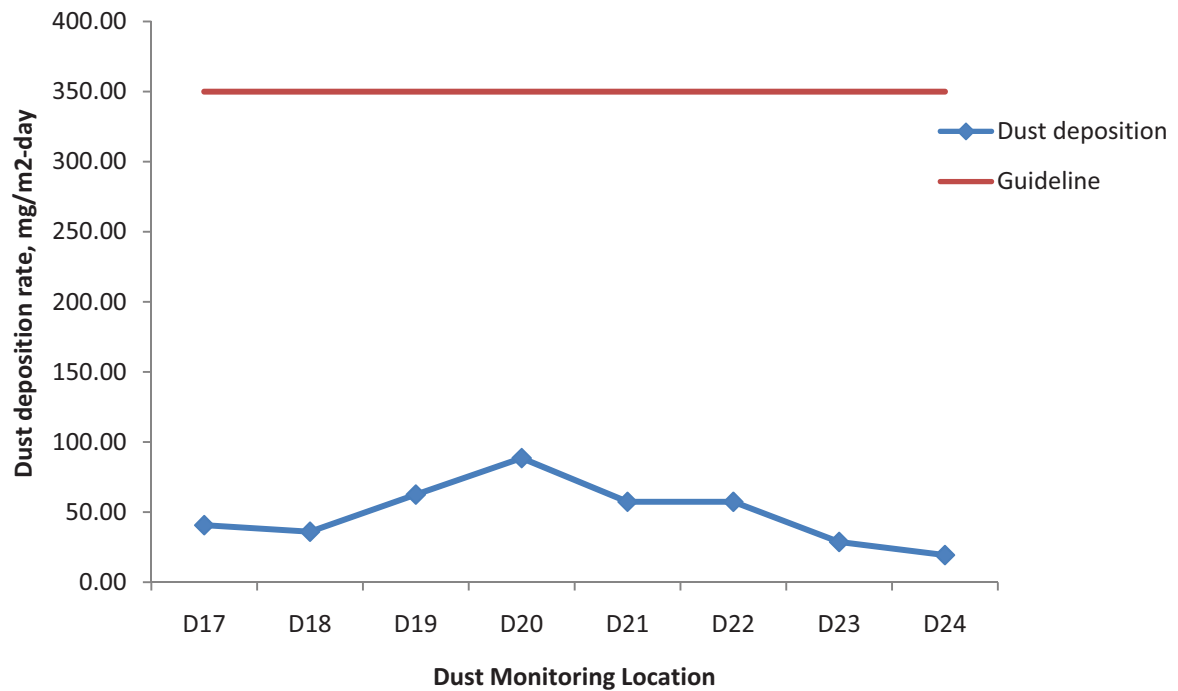
**Figure 4(c) Dust deposition monitoring, Nov-Dec 2009
Mater Hospital**



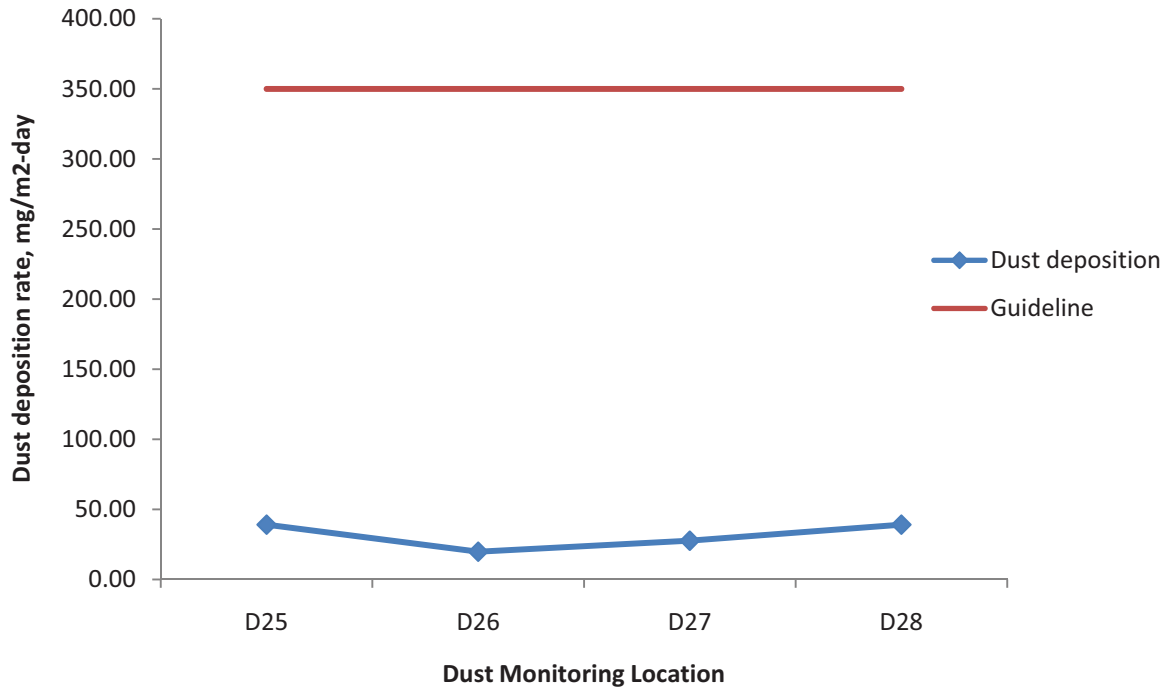
**Figure 4(d) Dust deposition monitoring, Nov-Dec 2009
Home Farm Road Drumcondra**



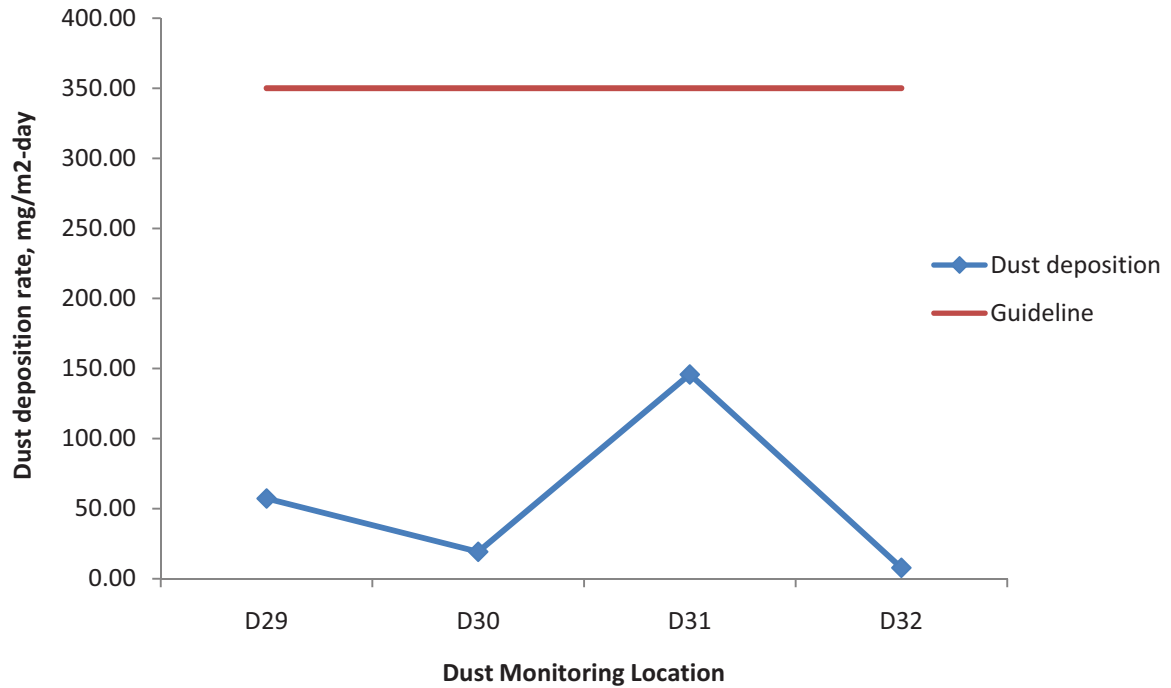
**Figure 4(e) Dust deposition monitoring, Nov-Dec 2009
Albert College Park**



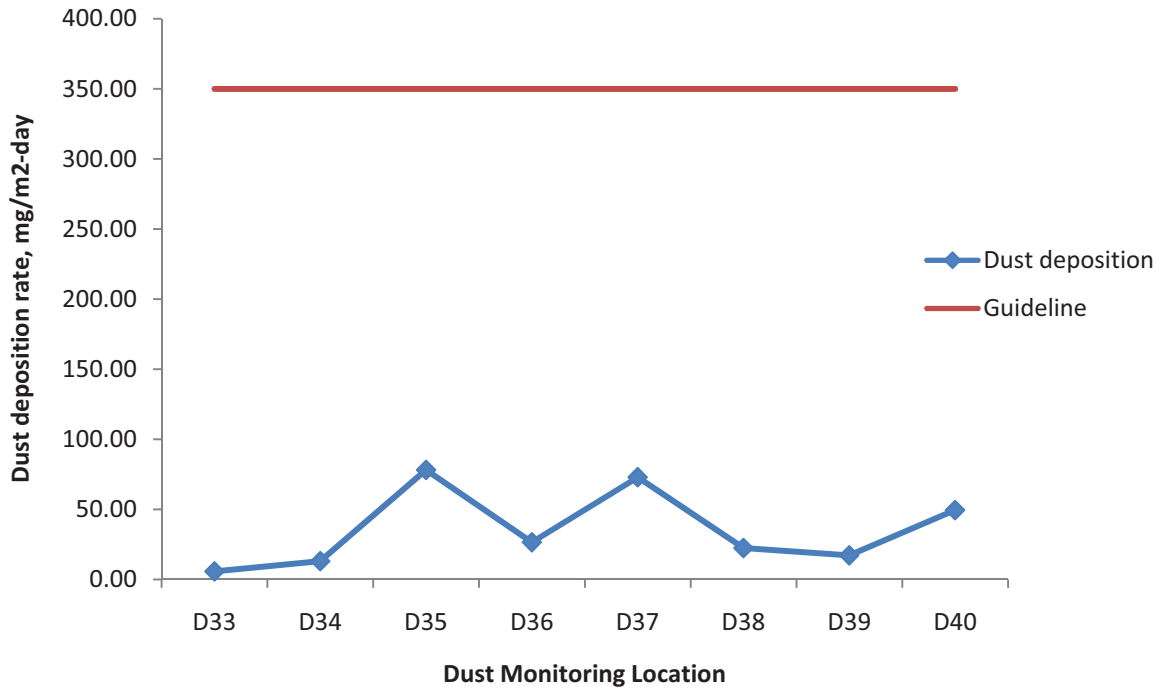
**Figure 4(f) Dust deposition monitoring, Nov-Dec 2009
Albert College Estate**



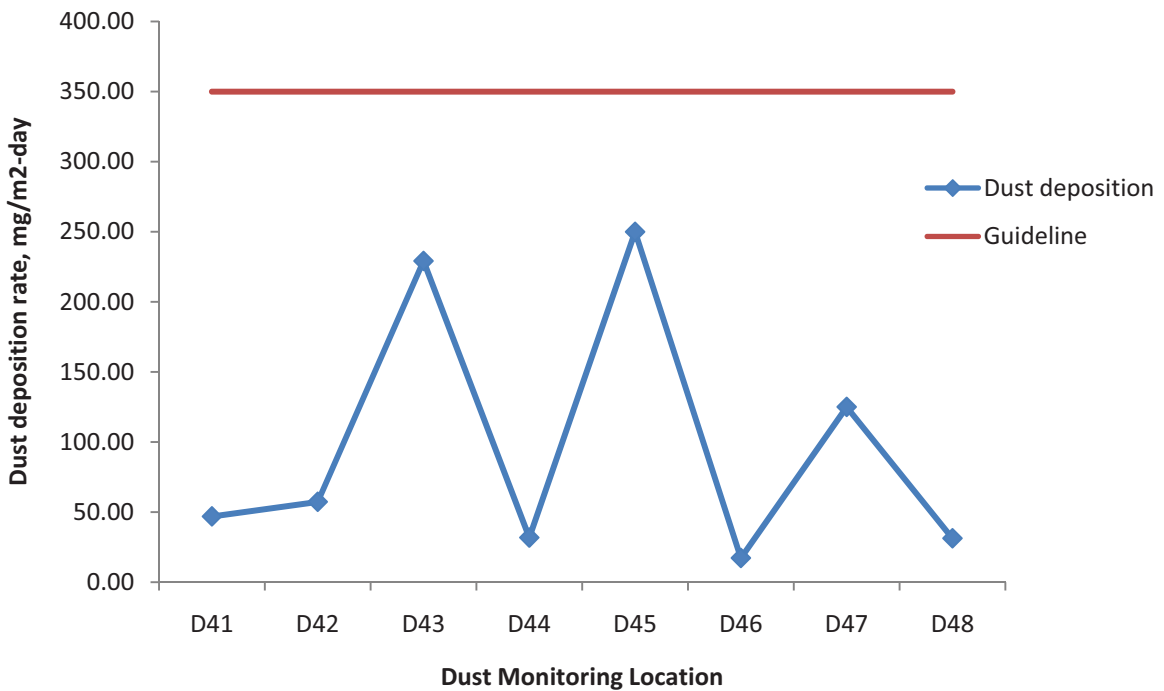
**Figure 4(g) Dust deposition monitoring Nov-Dec 2009
Swords Pavilion**



**Figure 4(h) Dust deposition monitoring, Nov-Dec 2009
Seatown Road Roundabout**

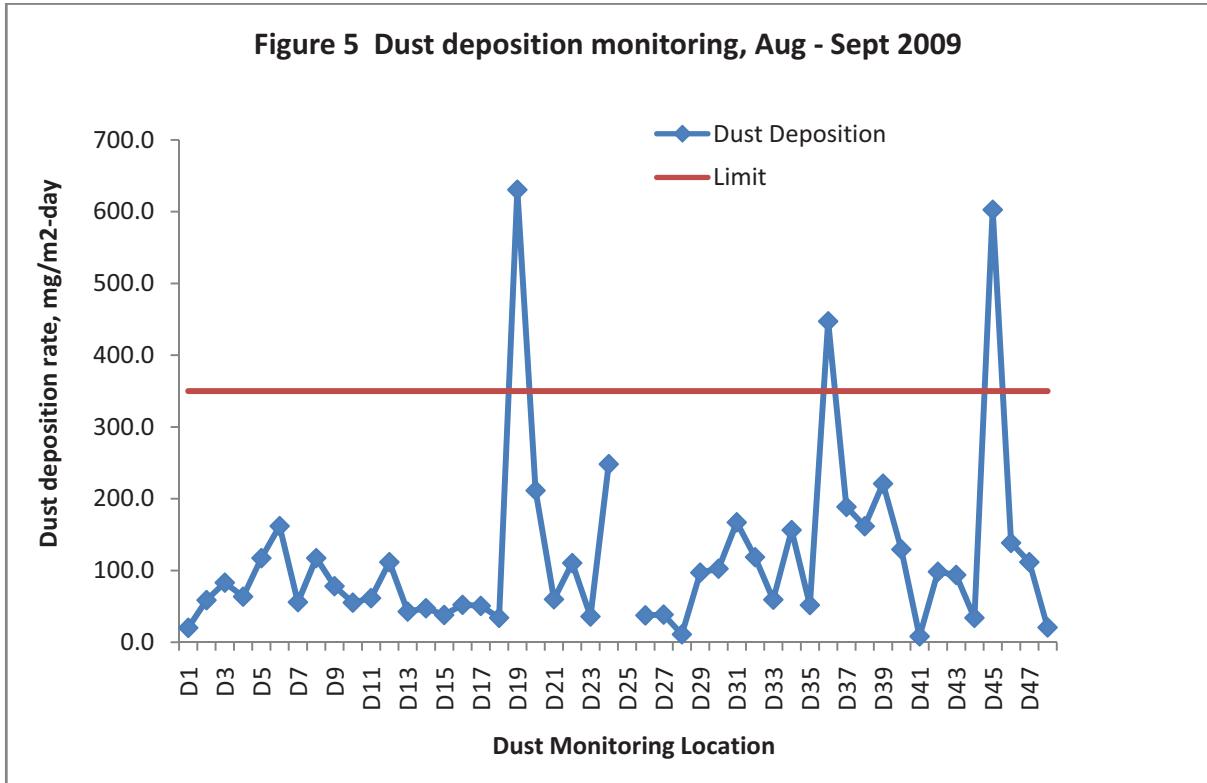


**Figure 4(i) Dust deposition monitoring Nov-Dec 2009
Belinstown**

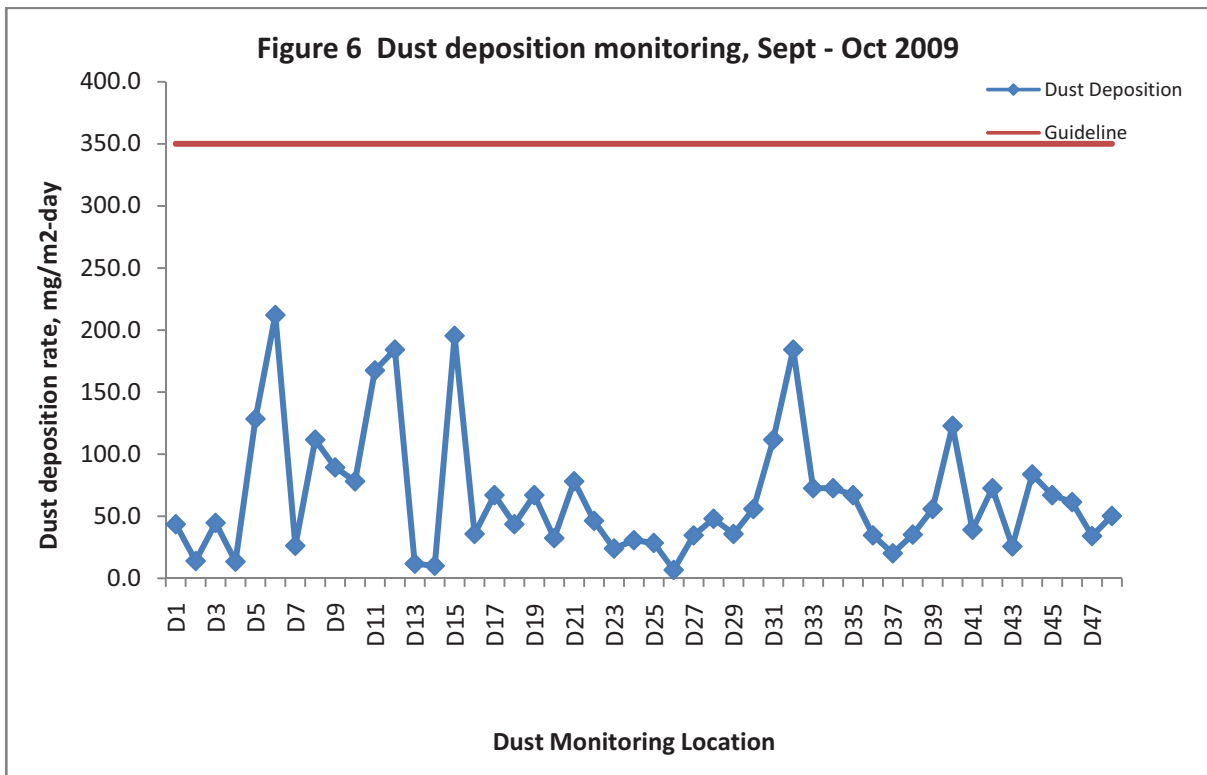


DUST DEPOSITION MONITORING RESULTS IN GRAPHICAL FORMAT: ALL LOCATIONS

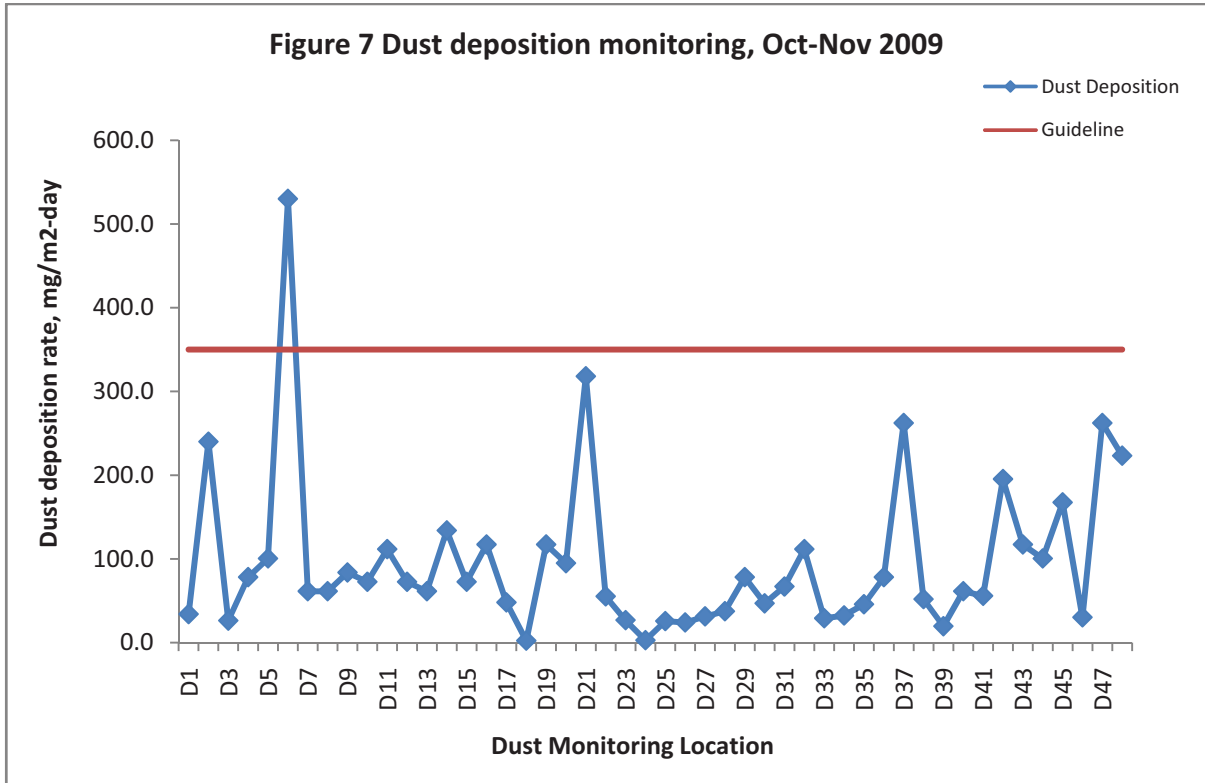
Interval #1



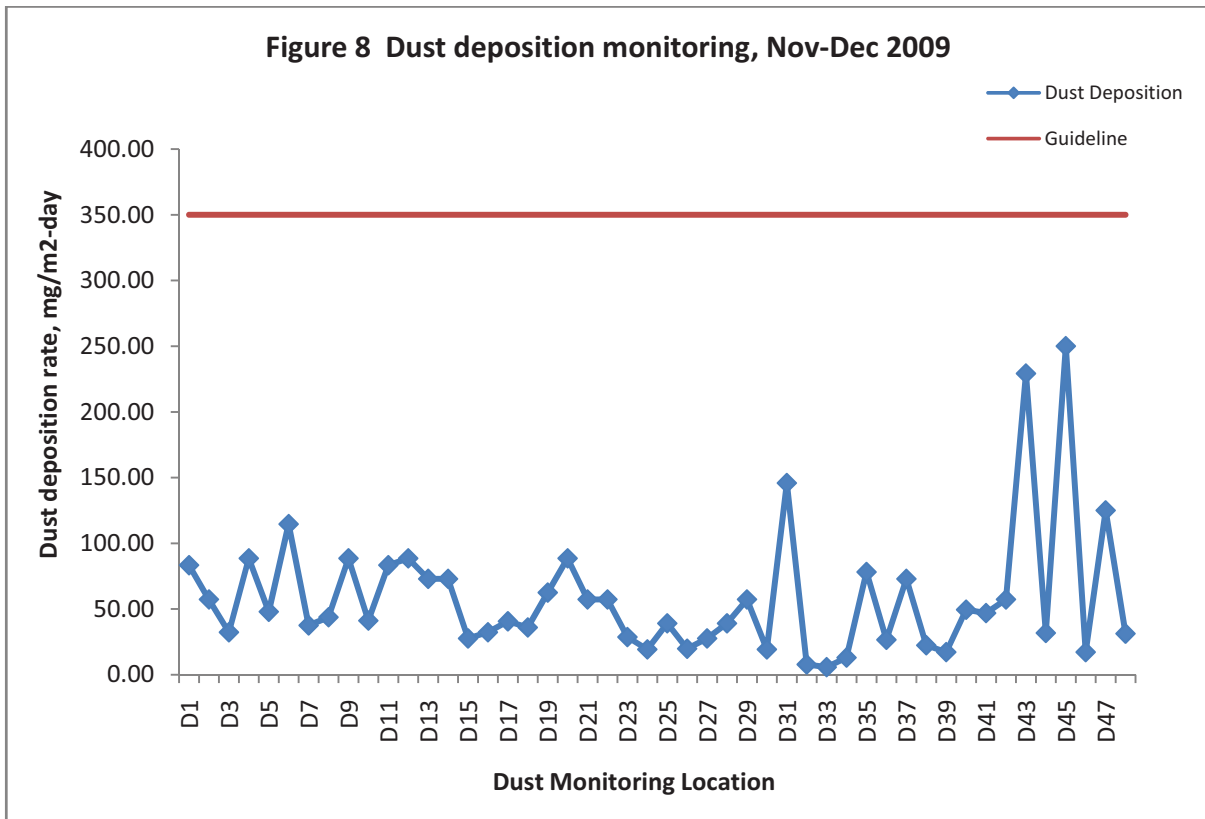
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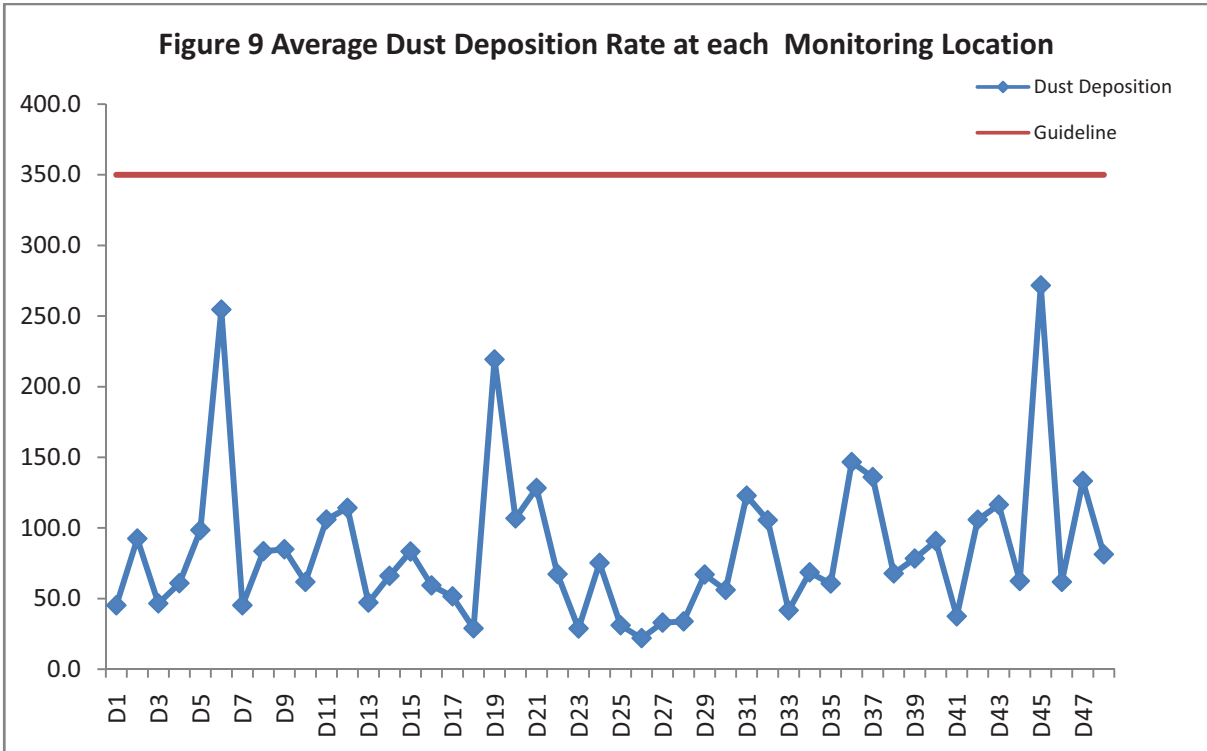
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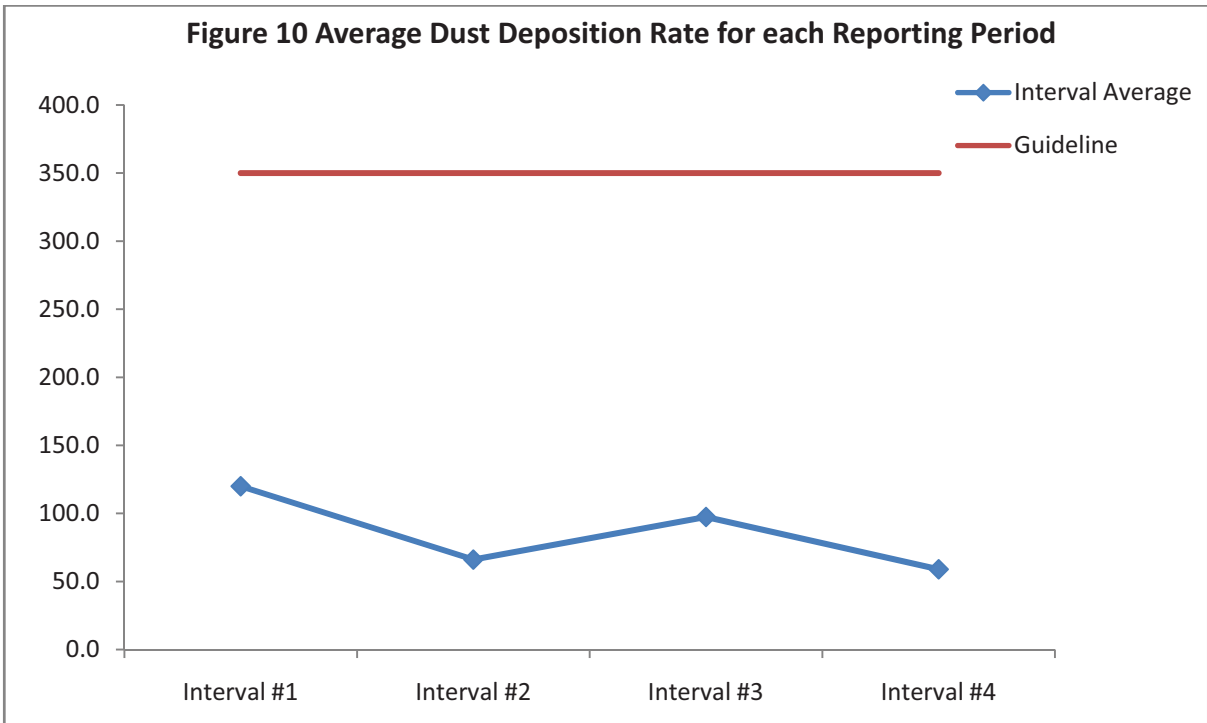
Interval #4



AVERAGE DUST DEPOSITION RATE AT EACH MONITORING LOCATION: INTERVALS #1 - #4



AVERAGE DUST DEPOSITION RATE FOR EACH REPORTING PERIOD



GLOSSARY OF ABBREVIATIONS

DCC	Dublin City Council
EPA	Environmental Protection Agency
ESB	Electricity Supply Board
FCC	Fingal County Council
OSI	Ordnance Survey of Ireland
PM₁₀	Particulate Matter with diameter of a less than 10 microns
µg/m³	Micrograms per cubic metre

GLOSSARY OF TERMS

Alignment	The position of the proposed schemes tracks relative to the surrounding topography.
Baseline environment	Environmental conditions that currently exist and against which any future changes can be assessed.
Baseline studies	Work done to determine and describe the baseline environmental conditions against which any future changes can be measured or predicted and assessed.
Bergerhoff dust gauge	A device used for measuring the amount of dust deposited on a surface
Dust	Particulate solid material carried in or deposited from the air
Dust deposition rate	The rate at which dust is deposited from the atmosphere onto surfaces
Environmental Protection Agency (EPA)	Ireland's statutory body for the balanced and sustainable protection and management of the environment.
Monitoring	The repetitive and continuous observation measurement and evaluation of environmental data to follow changes over a period of time, also used to assess the efficiency of control measures. Monitoring is the regular observation and recording of activities taking place in a project or programme. It is a process of routinely gathering information on all aspects of the project.

Negative impact	A change that reduces the quality of the environment.
Operational phase	The period of time over which the proposed scheme will be in operation.
Positive impact	A result of the project that has made the situation better than before.
Proposed scheme	The Metro North development proposals subject to the Railway Order.
Railway Procurement Agency (RPA)	The independent statutory body responsible for securing the provision of, or provision of, such light railway and metro Infrastructure as may be determined from time to time by the Minister for Transport.
Receptor	Any element in the environment which is subject to impacts.
Scope	The spatial and temporal extent which the environmental Impact assessment is to be evaluated over.
Sensitive receptors	Those who are likely to experience a change in their environment as a result of the construction of Metro due to their own nature.
Significant impact	An impact which, by its character, magnitude, duration or intensity alters a sensitive aspect of the environment.
T A Luft Air Quality Regulations	German Regulations which give guidance on the acceptable levels of dust deposition from various activities

BASELINE DUST DEPOSITION SURVEY REPORT
RAILWAY PROCUREMENT AGENCY, METRO NORTH ALIGNMENT

APPENDIX I
MAPS SHOWING DUST DEPOSITION MONITORING LOCATIONS

LEGEND:

SAMPLING POINT LOCATION



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53 Broomhill Drive,
Tallaght, Dublin 24
Tel: +353-1-4629710
Fax: +353-1-4629714

Client: RPA

Project: AMBIENT AIR QUALITY MONITORING

Title: SAMPLING POINT LOCATION MAP:
ST. STEPHEN'S GREEN

Dwg No.:	TMS-AMQ001	Project No.:	15691
Scale:	1:1000 AT A2	Drawn By:	TC
Date:	27TH JAN 2010	Checked By:	PB



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t m s environment ltd

53 Brimhill Drive,
 Tallaght, Dublin 24
 Tel: +353-1-4627110
 Fax: +353-1-4627114

Client: RPA

PROJECT: AMBIENT AIR QUALITY MONITORING

Title: SAMPLING POINT LOCATION MAP:
 PARNELL SQ.

Dwg No.: TMS-MN002
Scale: 1:1000 AT A2
Date: 27TH JAN 2010

Project No.: 15691
Drawn By: TC
Checked By: PB



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 Tallaght, Dublin 24
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 Fax: +353-1-4629714

Client: **RPA**

PROJECT: **AMBIENT AIR QUALITY MONITORING**

TITLE: **SAMPLING POINT LOCATION MAP: WATER HOSPITAL**

Dwg No: TMS-MN003
 Scale: 1:1000 AT A2
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Project No.: 15691
 Drawn By: TC
 Checked By: PB



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 Tallaght, Dublin 24
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 Fax: +353-1-4627114

Client: RPA

PROJECT: AMBIENT AIR QUALITY MONITORING

Title: SAMPLING POINT LOCATION MAP:
 DRUMCONDRA

Dwg No.: TMS-HAQ025
Scale: 1:1000 AT A2
Date: 27TH JAN 2010

Project No.: 15691
Drawn By: TC
Checked By: PB



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Fax: +353-1-4629214

Client: **RPA**

PROJECT: **AMBIENT AIR QUALITY MONITORING**

TITLE: **SAMPLING POINT LOCATION MAP:
ALBERT COLLEGE PARK**

Dwg No: TMS-MN006 Project No: 15691
Scale: 1:1000 AT A2 Drawn By: TC
Date: 27TH JAN 2010 Checked By: PB



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Fax: +353-1-4627114

Client: RPA

PROJECT: AMBIENT AIR QUALITY MONITORING

TITLE: SAMPLING POINT LOCATION MAP:
ALBERT COLLEGE ESTATE

Dwg No:	TMS-PA0807	Project No.:	15691
Scale:	1:1000 AT A2	Drawn By:	TC
Date:	27TH JAN 2010	Checked By:	PB



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Fax: +353-1-4629714

Client:

RPA

Project:

AMBIENT AIR QUALITY MONITORING

Title:

SAMPLING POINT LOCATION MAP:
SWOROS PAVILION

Dwg No: TMS-PA0205 Project No: 15691

Scale: 1:1000 AT A2 Drawn By: TC

Date: 27TH JAN 2010 Checked By: PB



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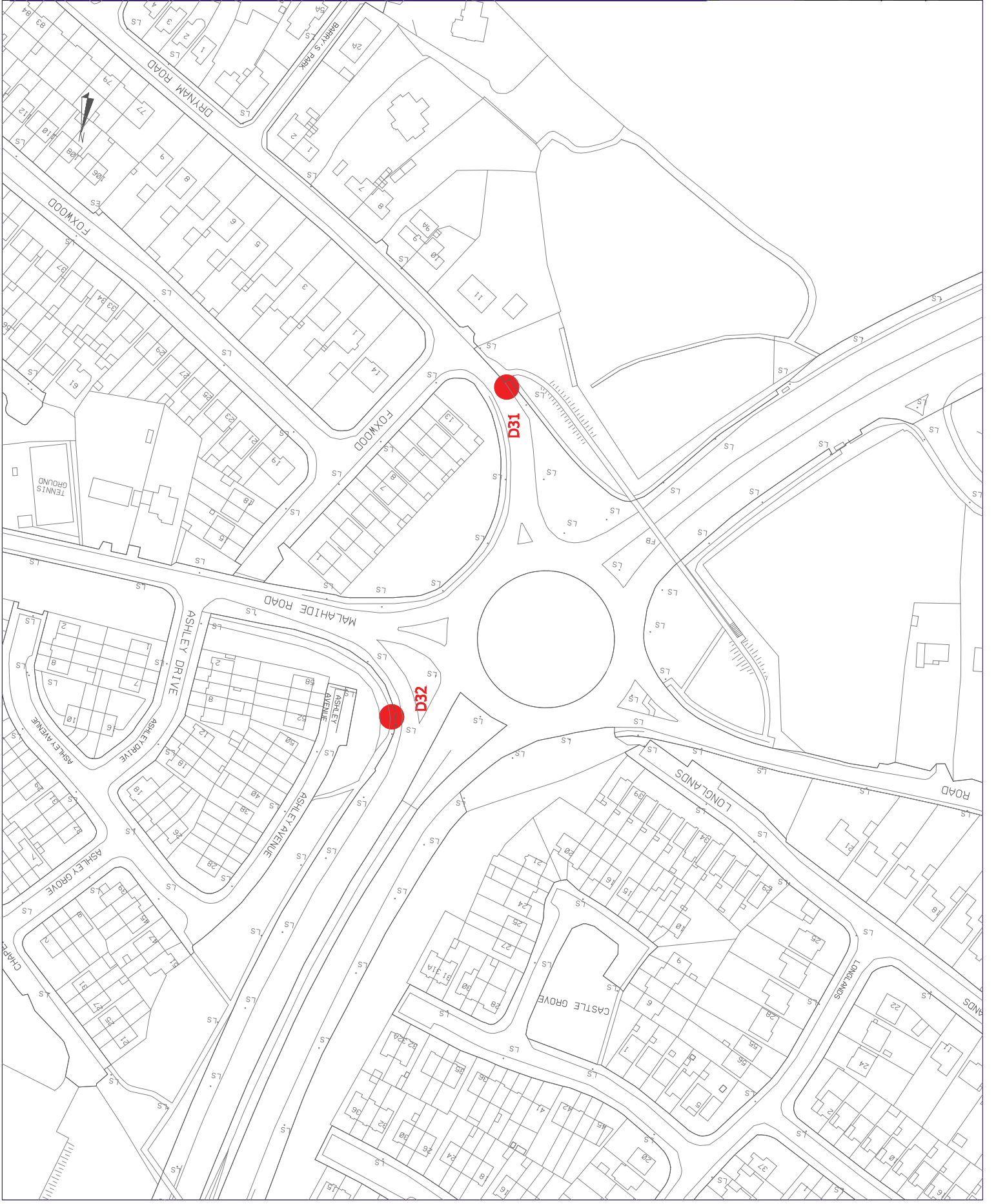
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Tallaght, Dublin 24
Tel: +353-1-4692710
Fax: +353-1-4629714

Client: RPA

PROJECT: AMBIENT AIR QUALITY MONITORING

TITLE: SAMPLING POINT LOCATION MAP:
SWORDS PAVILION

Dwg No:	TMS-HN0205	Project No.:	15691
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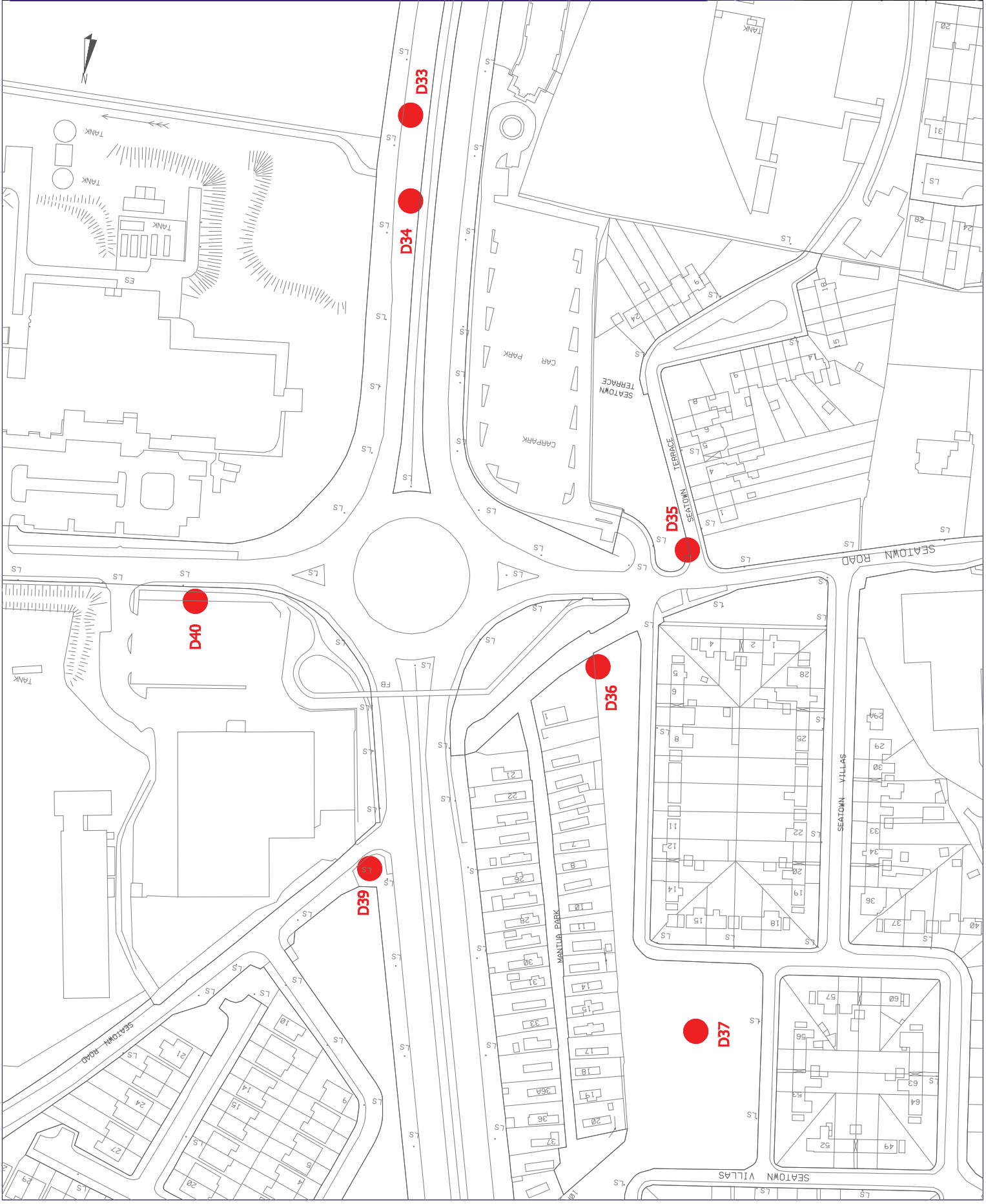
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Tallaght, Dublin 24
Tel: +353-1-4627110
Fax: +353-1-4627114

Client: RPA

PROJECT:
AMBIENT AIR QUALITY MONITORING

TITLE:
SAMPLING POINT LOCATION MAP:
SEATOWN ROUNDABOUT

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Scale:	1:1000 AT A2	Drawn By:	TC
Date:	27TH JAN 2010	Checked By:	PB



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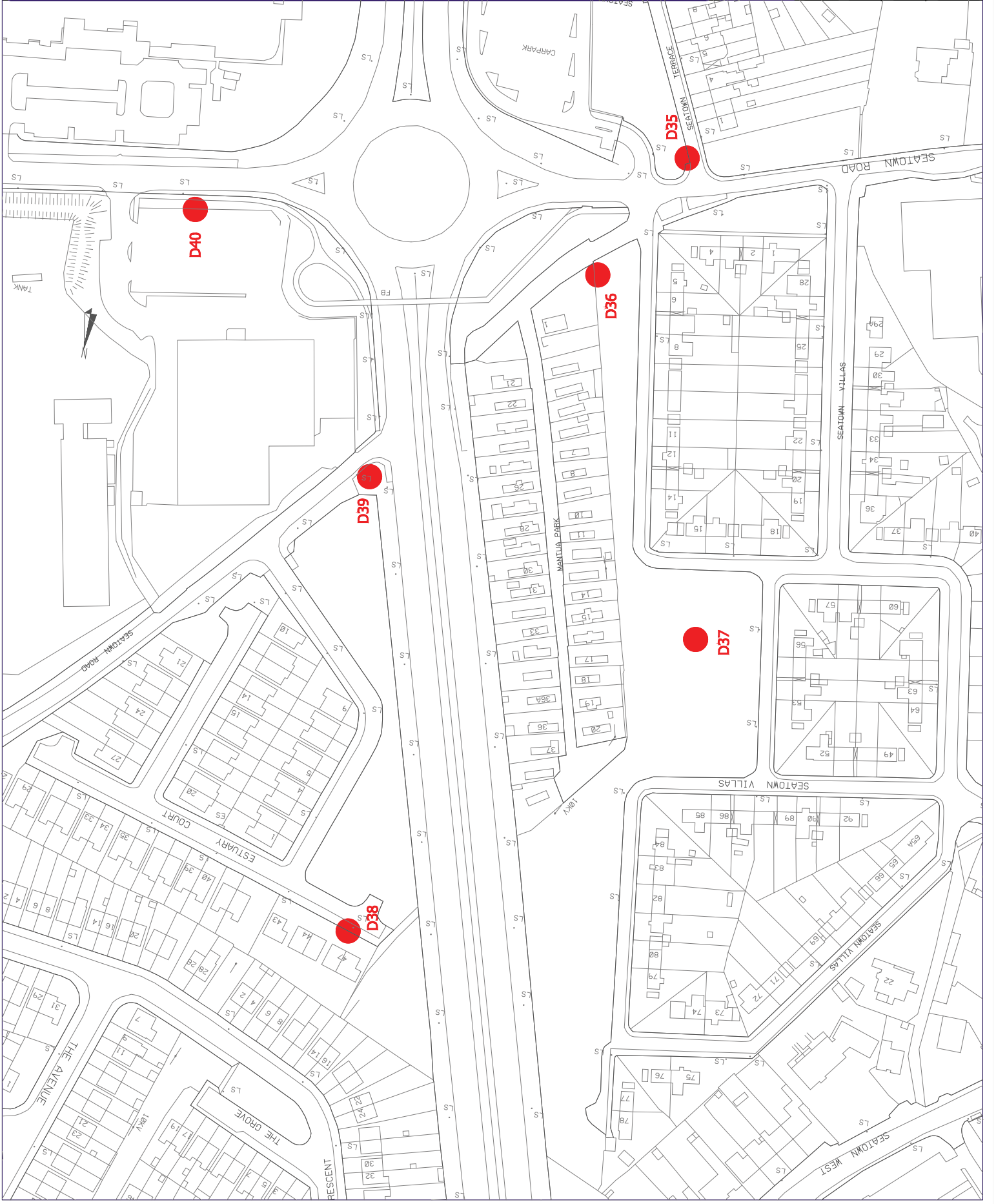
53 Broomhill Drive,
Tallaght, Dublin 24
Tel: +353-1-4629710
Fax: +353-1-4629714

Client: RPA

PROJECT: AMBIENT AIR QUALITY MONITORING

TITLE: SAMPLING POINT LOCATION MAP:
SEATOWN ROUNDABOUT

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Client:

RPA

PROJECT:

AMBIENT AIR QUALITY MONITORING

TITLE:

SAMPLING POINT LOCATION MAP:
BELINSTOWN

Dwg No: TMS-AMQ12 Project No: 15691

Scale: 1:2000 AT A2 Drawn By: TC

Date: 27TH JAN 2010 Checked By: PB



D43

D45

D47

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