Environmental Dust Assessment Report (February 2021)

Tweed Valley Hospital Project, Kingscliff NSW

Prepared for: Lendlease Group

LND-01-Q1299 | EDM19.V1F | Date: 17/03/2021

ADE CONSULTING GROUP

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For and on behalf of
ADE Consulting Group Pty Ltd

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Executive Summary

ADE Consulting Group Pty Ltd (ADE) was commissioned by Lendlease Group (Lendlease) to measure the levels of dust within the Tweed Valley Hospital Project, located at 771 Cudgen Road, Kingscliff NSW hereafter referred to as 'the Site'. At the time of the dust monitoring, Lendlease is completing substructure works on site.

The Dust Assessment consisted of real time data observation and discussion to achieve the following:

- Compliance with Tweed Valley Hospital Management Plan – Air Quality;
- Avoid excessive dust generation through site planning and the adoption of appropriate work methods and practices; and
- Prevent or minimize to the greatest extent, the impact of construction dust on neighbors and to establish and maintain positive relationships with project stakeholders.

Outcome of the dust assessment did not identify any health exposures presenting an immediate danger to life, health or environment. The report details the outcome of the real time dust assessment conducted by ADE throughout the month of **February 2021.**

Results from dust monitoring undertaken during the monitoring period (February 2021) were **below** 0.5 mg/m^3, as such dust concentrations across all monitoring locations remained below the action limit of 2.5 mg/m^3. No exceedances occurred throughout the month of February 2021.

On February 22 at approximately midday, the dust monitor at location 003 powered down and stopped recording. ADE attended site on February 23 to retrieve the faulty monitor. The cause was identified to be a faulty connection between the battery and the monitor. A replacement part was ordered and fitted by ADE, and the monitor was reinstalled on February 25.

Unfortunately, due to this there is a gap in the data recorded at location 003 between the dates of February 22 and February 25.

Works were only conducted between 7am and 6pm, Monday – Friday from **1 – 28 February 2021.**

1 Introduction

1.1 Background

ADE Consulting Group Pty Ltd (ADE) was commissioned by Lendlease Group (Lendlease) to measure the levels of dust within the Tweed Valley Hospital Project, located at 771 Cudgen Road, Kingscliff NSW hereafter referred to as 'the Site'. At the time of the dust monitoring, Lendlease is completing substructure works on site.

Real time dust monitoring was carried out to determine and quantify the levels of dust created during the days in which the contractors/employees are undertaking construction works.

Table 1. Summary of Site Information.

Site Details	
Client Name:	Lendlease
ADE Project Number:	LND-01-Q1299
Site Address:	771 Cudgen Road, Kingscliff QLD
Monitoring Time and Dates:	Monday 1 – Sunday 28 February 2021 (continuous): ▪ Day shift from 7.00am to 5.59pm ▪ Night Shift from 6.00pm to 6.59am
Date of Report:	17/03/2021
Monitoring Parameters:	Particulate Matter <10 micrometers (PM10); and Data recording frequency: 1 minute.
Exposure Standard:	Australian Institute of Occupational Hygienists (AIOH) recommendation for PM10 Dust **5 mg/m^3** (expressed as 8-hour time weighted average)

1.2 Scope of Work

The scope of work involved the following:

- Completion of a Safety, Health & Environment Work Method Statement prior to undertaking any works;
- Real time continuous monitoring of PM10 in three (3) locations along the Southern boundary of the Site; and
- Preparation of an Environmental Dust Assessment Report outlining the site data, conclusions and recommendations.

1.3 Whole Report

No one section or part of a section, of this report should be taken as giving an overall idea of this report. Each section must be read in conjunction with the whole of this report, including its appendices and attachments.

1.4 Previous Report

Refer to the previous report (DLT-01-Q1013 / EDM18 / V1F) for details from earlier monitoring periods.

1.5 Monitoring Locations

The Site is located at 771 Cudgen Road, bounded by Tweed Coast Road to the West, Turnock Street to the East and Cudgen Road to the South at Kingscliff, NSW (refer to *Appendix I – Aerial Photograph)*.

The DustTrak monitoring locations are indicated by the blue dots, all within the confines of the construction barriers in compliance with condition C29 of the consent.

Dust levels are recorded at these locations to determine the dust levels at the Southern boundary of the project during the alterations on site, and ensure the nearby sensitive receivers listed in the Tweed Valley Hospital Management Plan – Air Quality remain undisturbed (refer to *Appendix II – Monitoring Locations*). Dust monitoring location 001 was installed on the 2 August 2019. Dust monitoring locations 002 & 003 were installed on the 31 July 2019. Dust monitors at locations 001, 002 and 003 remain operational 24 hours a day.

1.6 Exposure Limits

ADE has adopted the recommended exposure standard for PM10 to be 5 mg/m3 (8-hour time weighted average) as per the recommendation of the Australian Institute of Occupational Hygienists (AIOH) for works on-site. If this standard is exceeded, cease works immediately, and review controls and relevant practices listed in the Tweed Valley Hospital Management Plan – Air Quality. An action limit of 2.5 mg/m3 (8-hour time weighted average) has been implemented to minimize the likelihood of an exceedance.

1.7 Bureau of Meteorology (BOM) Climate Data

A summary of climate data from the Coolangatta weather station has been included in Table 2 on the following page.

Table 2. Summary of February 2021 Climate Data at Coolangatta, QLD.

Date	Wind Direction	Highest Wind Gusts (Km/H)	Time of Maximum Wind Gust	Minimum Temperature (°C)	Maximum Temperature (°C)	Rain (Mm)
1	ESE	41	14:10	21	28.8	0.2
2	WSW	19	7:56	20.7	25.3	9.2
3	SE	46	11:20	20.1	28.6	7.4
4	ESE	35	14:46	19	29.2	0
5	SE	35	13:02	19.9	29.2	0
6	NE	26	12:42	20.8	28.5	0
7	SSE	35	0:00	20.7	30.7	0
8	SSE	54	12:36	21.9	29	5.4
9	SE	56	10:57	21.5	28.5	0
10	SE	43	15:46	20.1	26.7	0
11	ESE	37	12:20	18.2	27.5	0.6
12	NNE	33	13:42	18.5	28.6	0.2
13	N	48	13:05	22.8	29.9	0
14	S	85	12:58	21.3	27	15
15	SSE	52	13:33	20.2	27.4	1.4
16	S	48	11:19	19.9	27.1	0.6
17	S	63	10:46	19.3	25.5	35.4
18	ESE	52	13:18	19.6	27.9	44.4
19	SE	43	7:29	21.4	27.9	21.6
20	SW	39	9:45	21	28.1	16
21	SW	35	10:01	21.4	29.4	0
22	N	30	23:20	19.9	29.4	0
23	WNW	46	18:25	22.3	29.7	0
24	ENE	44	16:27	19.4	28.4	14.6
25	E	31	1:07	22	28.3	21
26	NNE	31	12:57	22.5	29.2	0
27	NE	22	13:17	22.1	28.7	0
28	NNE	26	13:09	23.6	29.5	0

Notes to Table 2
ND – No Data provided by BOM.

2 Sampling Methodology

2.1 Air Monitoring Samples

The implementation of continuous dust monitoring using a light scattering instrument (Dust Trak™ DRX Aerosol Monitor) as a supplemented analysis technique for dust deposition and directional dust analysis techniques. This supplemental technique is used as a guide and first response to allow change to dust control measures to be implemented to avoid exceedances within deposition and directional dust analysis techniques.

2.2 Controls

As per Lendlease Tweed Valley Hospital Management Plan – Air Quality:

Works must be undertaken in accordance with the Lendlease GMRs, the Project EHS Plan, this Sub Plan and the Lendlease Building WDC. These documents detail Lendlease's approach and commitment to pro-active and responsible site management.

Site specific controls, monitoring, reporting and performance measures have been identified in this Sub Plan to prevent or minimise the impacts of construction related air emissions on the environment and community. These may include but are not limited to:

- *Clear definition of trafficable and material storage areas to prevent unnecessary vehicle movement into other areas;*
- *Use of water cart to dampen work areas and exposed soils to prevent the emission of excessive dust;*
- *Installation of a wheel shaker grid and/or wash down facilities at the vehicle egress point;*
- *Ensuring trucks transporting materials to and from the site use covers to prevent windblown dust or spillage;*
- *Ensuring truck tailgate locking mechanisms are operational and in use;*
- *Periodic inspection of surrounding roads to ensure no construction contamination and initiation of road sweeping if required;*
- *Careful selection of materials for temporary road surfacing;*
- *Watercarts/water trucks will be in permanent use on site during excavation and civil works;*
- *Temporary stockpiles that are not required for imminent use will be stabilised with spray grass or appropriate fabric;*
- *Continuous monitoring of weather forecast to stop dust generating activities in case that high winds are expected;*
- *Before extended breaks (e.g., Easter, Christmas), areas will be treated with spray grass;*
- *Only those areas where immediate structures are to be build will be stripped. Areas will be stripped at the latest possible date to comply with the program;*
- *Construction haul roads and temporary carparking will maximise the use of permanent infrastructure. These roads/carparks will have a sacrificial seal to minimise dust generation;*
- *Subcontractors to maintain equipment / machinery to ensure exhaust emissions comply with relevant legislation and guidelines;*
- *All waste material to be sorted, collected and removed from site (for recycling where possible);*
- *If rock crushing is assessed to be safe and feasible (i.e. cost effective and meets Nosie restrictions) the following management provisions will be in place:*
- *Rock crushers will have a water attachment for dust suppression at the source. The water is sprayed at the face of the crusher before, during and after the crushing;*

- *Crushers will be located as far as practicable from Cudgen Road and immediate neighbours (i.e., on the north-west area of the site);*
- *All crushed rock suitable for re-use will be recycled on site as fill, sediment control, pavements, hardstands, construction exits and pipe bedding materials;*
- *Where possible, the oversize material from hard rock projects is also reused for vehicle entry shake downs and erosion control;*
- *Air quality monitoring is required for dust only. Given all plant and equipment will be fitted with air filter caps, analytical air quality monitoring except for asbestos works is not required;*
- *Dust screens and airlocks to be utilised with interior works;*
- *Controlling dust close to its source by installing sprays and sprinkler systems to prevent off-site migration;*
- *Maintaining the site access to prevent dust generation and tracking off-site; and*
- *No blasting will be performed as part of the proposed construction works program.*

Demolition (e.g., existing inground services), excavation and construction stage dust, odour and emission management requirements must be included in relevant specifications, contract agreements, quality assurance documents, and subcontractor work method statements.

Site inspections, monitoring and reporting will be undertaken by Lendlease and subcontractors as detailed in the Project EHS Plan and the following implementation table to ensure controls remain effective overtime.

Lendlease has established a daily check list on site to ensure all monitors are operating in the field correctly, have adequate sunlight to power the units and that they are reporting consistently. Lendlease will report any issues immediately to ADE. Furthermore, ADE will conduct daily checks via telemetry to ensure the monitors are operating and recording correctly. ADE are to advise Lendlease of any issues immediately. Monitors will not be removed unless consultation with Lendlease, TSA and HI has occurred and alternative locations are agreed upon.

3 Data

All graphs below express dust levels as an hourly average and values <0.01 will not be graphed. Figures below show monthly dust results for each of the three (3) monitoring locations.

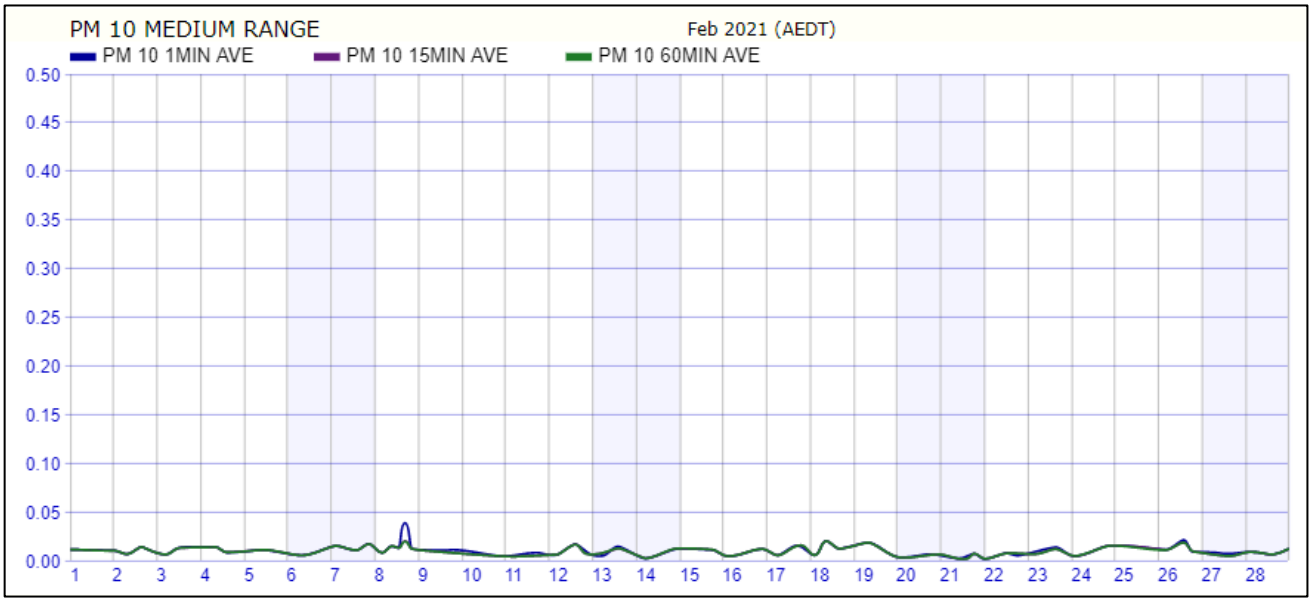

Figure 1. Summary of PM10 from the real time monitoring at location 001 – Adjacent the carpark for the month of February 2021.

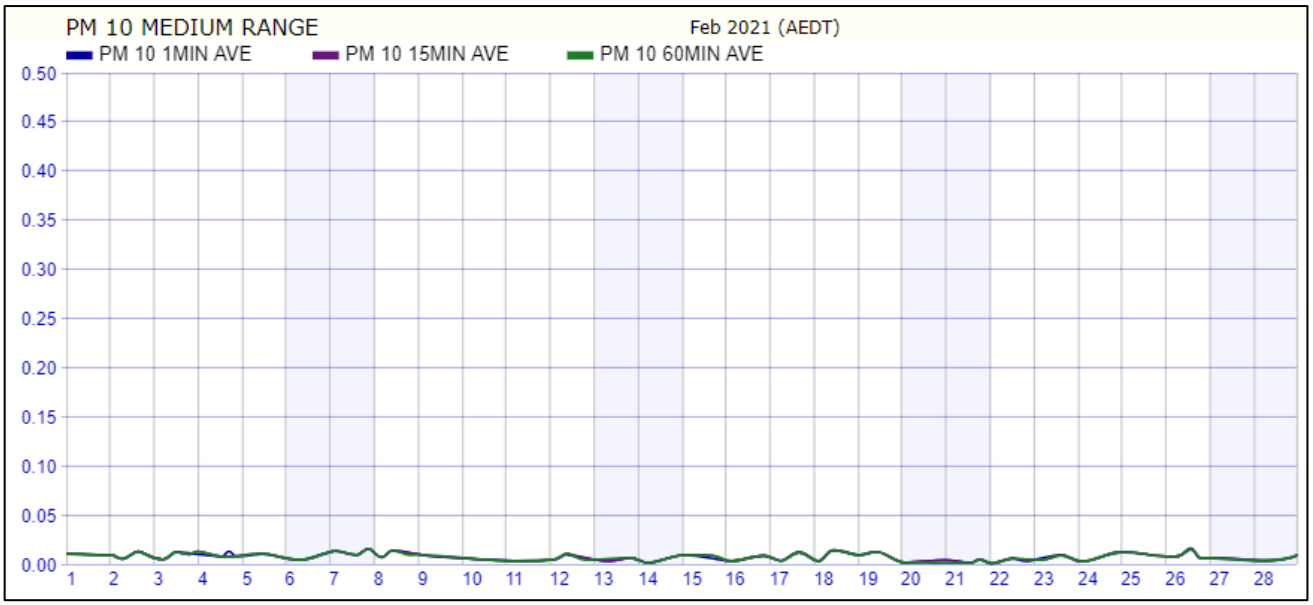

Figure 2. Summary of PM10 from the real time monitoring at location 002 – Central location for the month of February 2021.

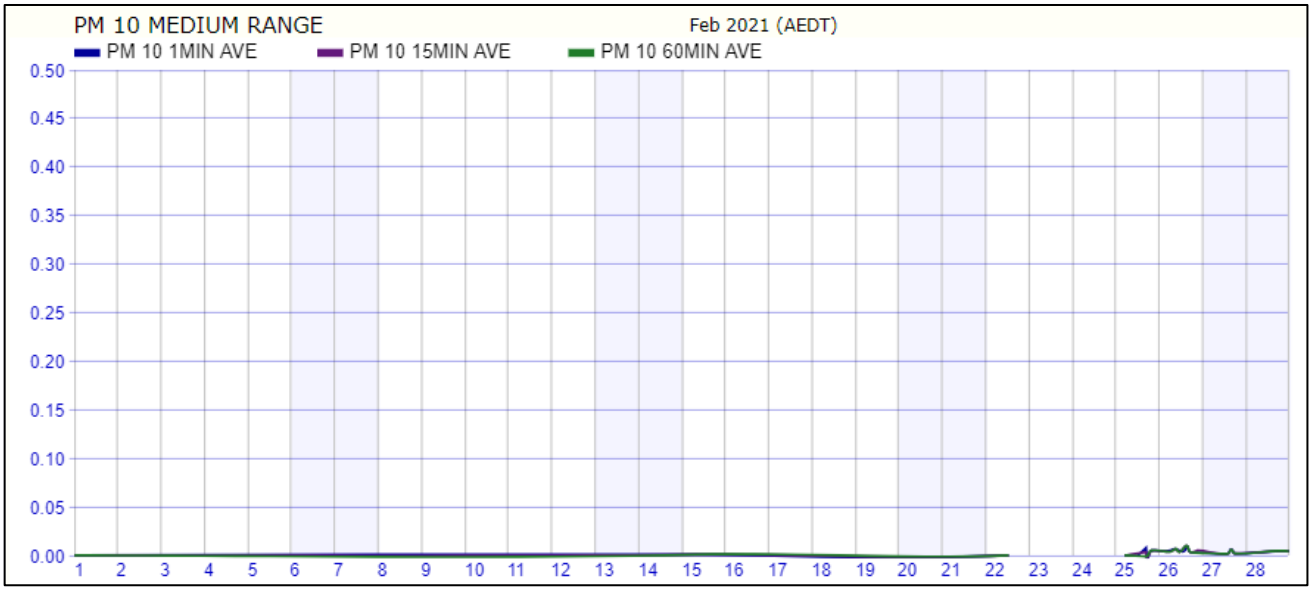

Figure 3. Summary of PM10 from the real time monitoring at location 003 – Eastern Section of site for the month of February 2021.

3.1 Data Gaps

On 22nd of February at approximately midday, the dust monitor at location 003 powered down and stopped recording. ADE attended the Site on the 23rd of February to retrieve the faulty monitor. The cause was identified to be a faulty connection between the battery and the monitor. A replacement part was ordered and fitted by ADE, and the monitor was reinstalled on the 25th of February.

Unfortunately, due to this there is a gap in the data recorded at location 003 between the dates of the 22nd and 25th of February.

4 Conclusion & Recommendations

All dust levels remained below 0.5mg/m^3 during the month of February 2021 (*refer to Section 3 Data).*

It should be noted that the DustTrak minimum concentration reading is 0.001mg/m^3 and values of lower concentration will be recorded as zero.

Dust concentrations across all monitoring locations remained below the action limit of 2.5 mg/m^3.

Ensure adequate dust control measures continue to be implemented as per the Tweed Valley Hospital Management Plan – Air Quality and continue monitoring of PM10 for the duration of the project. If the action limit of 2.5 mg/m^3 (8-hour time weighted average) is exceeded, cease works and review and implement additional dust prevention techniques.

To reduce the likelihood of data gaps, daily on-site visual checks are undertaken by Lendlease accompanied by daily checks of the online telemetry by ADE.

5 Limitations

This report has been prepared for use by the client who has commissioned the works in accordance with the project brief only and has been based on information provided by the client. The advice herein relates only to this project and all results, conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose. ADE Consulting Group Pty Ltd accepts no liability for use or interpretation by any person or body other than the client who commissioned the works. This report should not be reproduced or amended in any way without prior approval by the client or ADE and should not be relied upon by any other party, who should make their own independent enquiries.

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ADE has used a degree of care and skill ordinarily exercised in similar investigations by a reputable member of the Environmental Industry within Australia. No other warranty, expressed or implied, is made or intended.

6 References

- AIOH Position Paper, Dust not otherwise specified (Dust NOS) AND Occupational Health Issues, published by the Australian Institute of Occupational Hygienists (AIOH), May 2016.
- Australian Government, Bureau of Meteorology (BOM)
- Lendlease Building Pty Ltd Tweed Valley Hospital Management Plan – Air Quality.

Appendix I – Aerial Photograph

Aerial photograph of the Tweed Valley Hospital Project at Kingscliff, NSW (as of 30 November 2020).

Appendix II – Monitoring Locations

Photograph 1. Representative photograph of monitoring location 001 – Adjacent Carpark location, as observed 22/02/21.

Photograph 2. Representative photograph of monitoring location 002 – Central location, as observed 22/02/21.

Photograph 3. Representative photograph of monitoring location 003 – Eastern Section of Site, as observed 22/02/21.

Appendix III – ADE Site Visit Summary

Date of site visit	Time of site visit
02/02/2021	1015 to 1415
05/02/2021	1340 to 1640
08/02/2021	1445 to 1630
12/02/2021	0700 to 1100
22/02/2021	1200 to 1430
23/02/2021	1000 to 1530
25/02/2021	1400 to 1800

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