Environmental Dust Assessment Report (August 2020)

Tweed Valley Hospital Project, Kingscliff NSW

Prepared for: Delta Group

DLT-01-Q1013 | EDM13.V1F | Date: 04/09/2020

ADE CONSULTING GROUP

Document Information

Report Title: Environmental Dust Assessment Report
Prepared for: Delta Group (Delta)
Project Address: 771 Cudgen Road, Kingscliff QLD
File Reference: DLT-01-Q1013
Report Reference: EDM13.V1F
Date: 04/09/2020

Document Control

Version	Date	Author	Revision description	Reviewer
V1D	04/09/2020	[redacted]	Draft for internal review	[redacted]
V1F	04/09/2020	[redacted]	Final for issue	[redacted]

For and on behalf of
ADE Consulting Group Pty Ltd

Prepared & Issued by:

[redacted]

[redacted]
Occupational Hygienist
B. Env. Sci

Reviewed by:

[redacted]

[redacted]
Project Manager
BSc Hons. (Env. Sci.)

CONTENTS

Executive Summary

ADE Consulting Group Pty Ltd (ADE) was commissioned by Delta Group (DLT) Pty Ltd 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 the real time data observation and discussion to achieve the following:

- Compliance with Tweed Valley Hospital Management Plan – Air Quality (2020);
- 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 from 1st – 31st August 2020.

Results from dust monitoring undertaken during the monitoring period of August 2020 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 August 2020.

Works were only conducted between 7am and 6pm, Monday – Friday from the 1st – 31st August 2020 and only data within this range should be considered.

1 Introduction

1.1 Background

ADE Consulting Group Pty Ltd (ADE) was commissioned by Delta Group (DLT) Pty Ltd 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:	Delta Group
ADE Project Number:	DLT-01-Q1013
Site Address:	771 Cudgen Road, Kingscliff QLD
Monitoring Time and Dates:	Saturday 1st August 2020 – Monday 31st August 2020 (continuous): - Day shift from 07:00 to 17:59 - Night Shift from 18:00 to 06:59
Date of Report:	04/09/2020
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 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 / EDM12 / 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, Turncock 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 on the image in Appendix I. All are 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 (2020) remain undisturbed (refer to **Appendix II – Monitoring Locations**). Dust monitoring location 001 was installed on the 2nd of August 2019. Dust monitoring locations 002 & 003 were installed on the 31st of 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 (2020). 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

Summary of climate data for Coolangatta has been included in Table 2 below.

Table 2. Summary of 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)
01/08/2020	SSE	37	11:50	13.5	21.9	ND
02/08/2020	E	26	14:25	8.6	22.0	0
03/08/2020	ENE	22	11:53	10.5	21.6	0
04/08/2020	N	35	14:52	10.7	23.5	0
05/08/2020	N	30	12:23	8.9	25.9	0
06/08/2020	SE	28	12:40	6.6	22.9	0
07/08/2020	ND	ND	ND	11.8	ND	3.4
08/08/2020	ND	ND	ND	14.5	ND	ND
09/08/2020	W	28	06:56	6.9	20.3	ND
10/08/2020	WSW	35	13:48	7.4	19.7	0
11/08/2020	S	44	10:33	13.5	22.4	0

Table 2. Continued…

Date	Wind direction	Highest wind gusts (km/h)	Time of maximum wind gust	Minimum temperature (°C)	Maximum temperature (°C)	Rain (mm)
12/08/2020	ND	ND	ND	10.6	21.6	0
13/08/2020	NW	43	09:43	14.5	25.3	ND
14/08/2020	N	37	23:43	11.3	23.0	0
15/08/2020	NNW	46	01:08	16.9	23.4	0.8
16/08/2020	ND	ND	ND	8.5	23.2	0.8
17/08/2020	ND	ND	ND	ND	ND	ND
18/08/2020	N	35	16:46	5.0	23.0	ND
19/08/2020	WNW	46	13:53	15.6	26.7	0
20/08/2020	W	41	13:35	7.2	23.3	0
21/08/2020	WSW	35	14:11	6.4	22.1	0
22/08/2020	W	61	13:34	5.9	22.4	0
23/08/2020	WNW	46	13:11	4.5	21.7	0
24/08/2020	WSW	28	03:57	4.5	19.4	0
25/08/2020	ENE	24	12:34	5.5	21.0	0
26/08/2020	SE	37	14:35	8.7	21.0	0
27/08/2020	ND	ND	ND	7.9	21.5	0
28/08/2020	NW	33	09:19	8.1	24.9	ND
29/08/2020	SE	39	11:31	14.3	22.1	0
30/08/2020	ENE	28	11:22	13.1	22.1	0
31/08/2020	ND	ND	ND	9.8	ND	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 (2020):

"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"

Delta and Lendlease have 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 Delta/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.

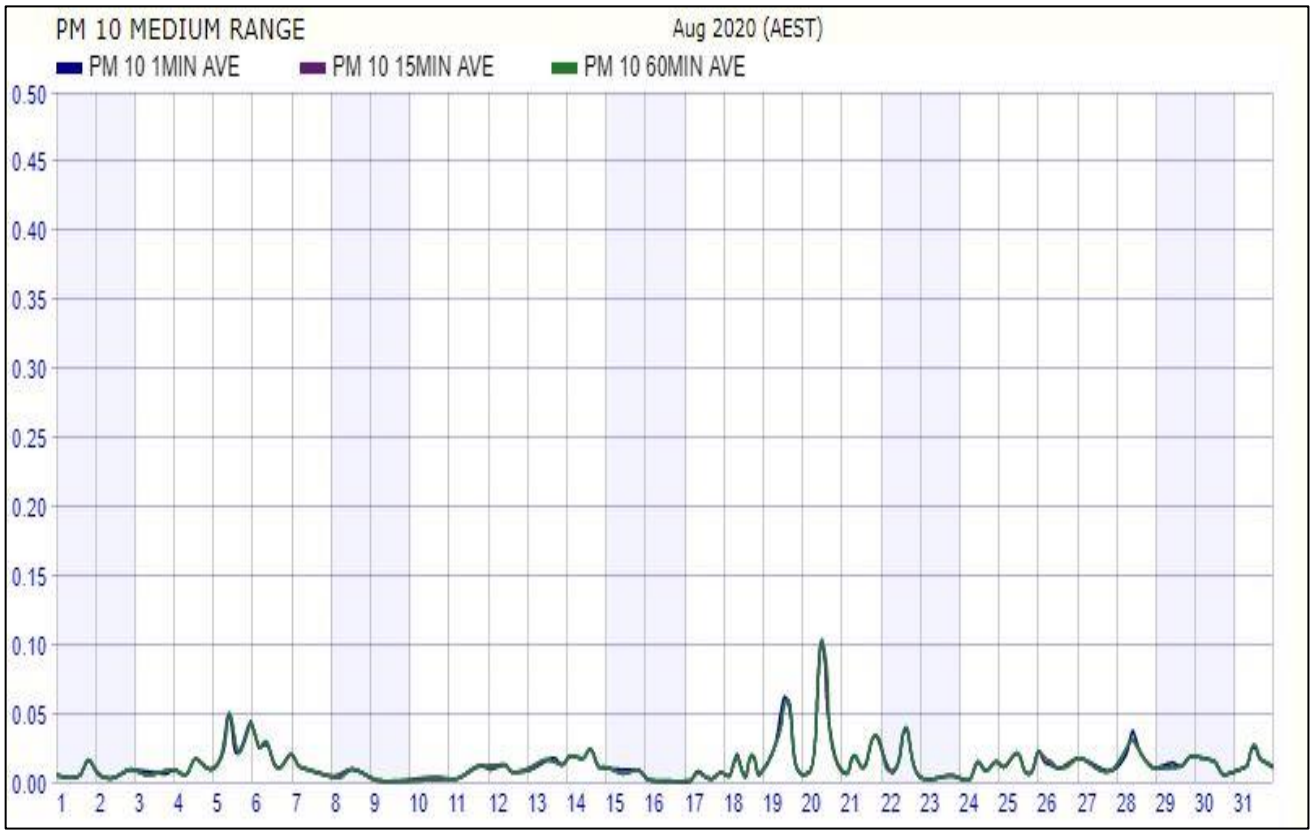

Figure 2. Summary of PM10 from the real time monitoring at location 001 – Adjacent to the carpark.

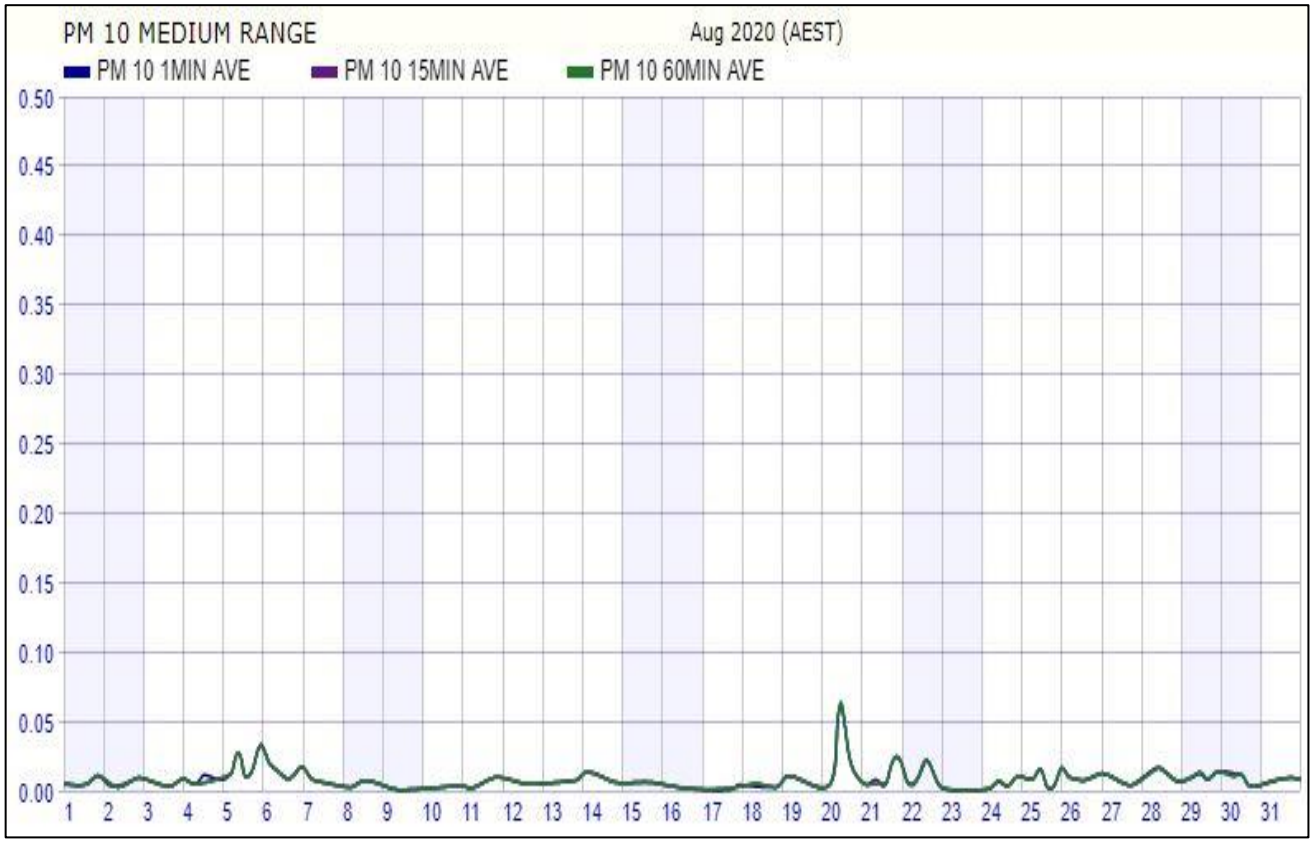

Figure 3. Summary of PM10 from the real time monitoring at location 002 – Central location.

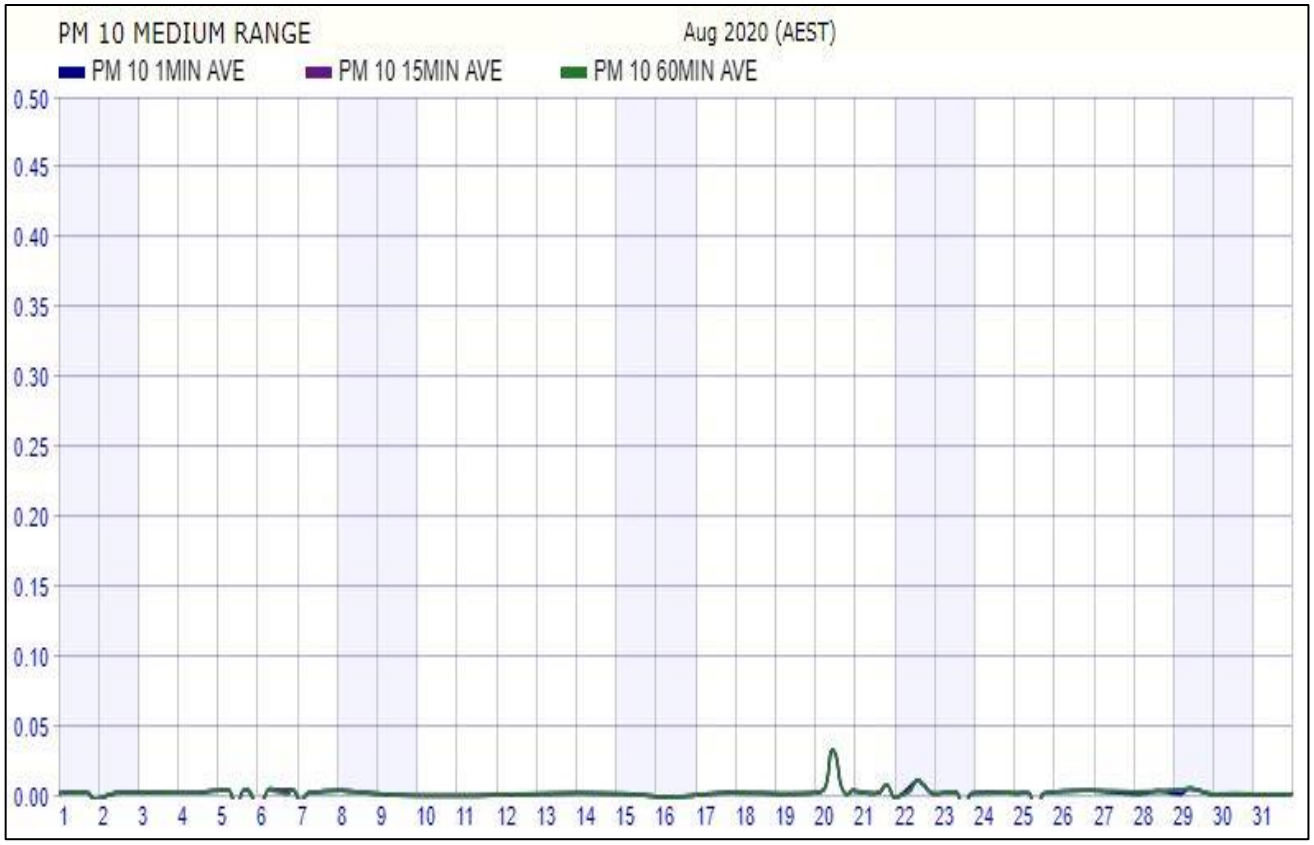

Figure 4. Summary of PM10 from the real time monitoring at location 003 – Eastern Section of site.

4 Conclusions/Recommendations

All dust levels remained below 0.5mg/m^3 during the month of August 2020 (*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 (refer to Section 3. Data).

Ensure adequate dust control measures continue to be implemented as per the Tweed Valley Hospital Management Plan – Air Quality (2020) 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.

ADE's professional opinions are based upon its professional judgment, experience, training and results from analytical data. In some cases, further testing and analysis may be required, thus producing different results and / or opinions. ADE has limited investigation to the scope agreed upon with its client.

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), 2020
- Lendlease Building Pty Ltd Tweed Valley Hospital Management Plan – Air Quality, dated 07/02/2020.

Appendix I – Aerial Photograph

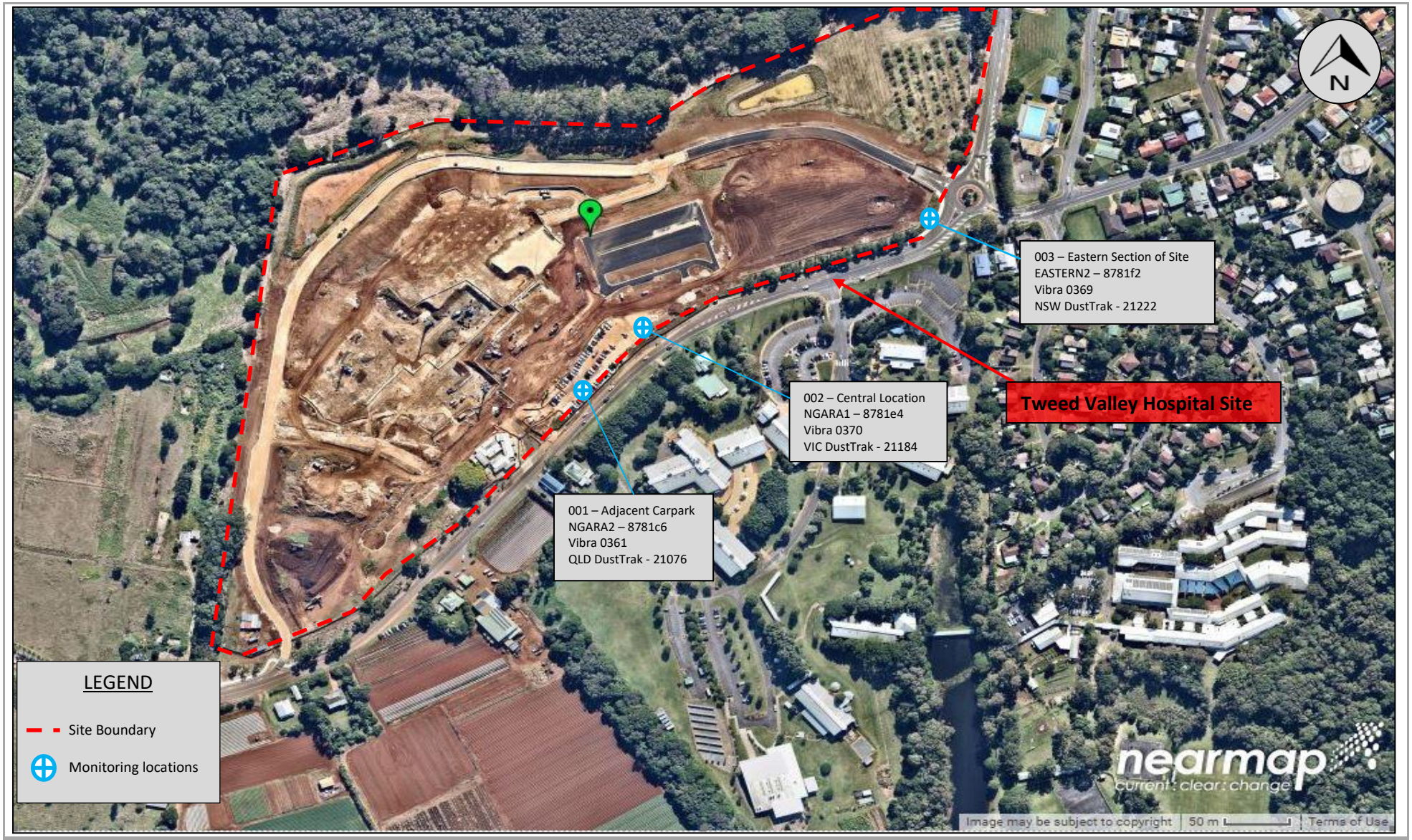

Figure 1. Aerial photograph of the Tweed Valley Hospital Project at Kingscliff, NSW.

Appendix II – Monitoring Locations

Photograph 1. Representative photo of monitoring location 001 – Adjacent Carpark location, as observed 01.09.2020.

Photograph 2. Representative photo of monitoring location 002 – Central location, as observed 01.09.2020.

Photograph 3. Representative photo of monitoring location 003 – Eastern Section of Site, as observed 01.09.2020.

Appendix III – ADE Site Time Summary

Date of site visit	Time of site visit
03.08.2020	1000 to 1300
13.08.2020	0700 to 1000
18.08.2020	0930 to 1200
01.09.2020	0955 to 1130

Further details regarding ADE's Services are available via

info@ade.group www.ade.group

ADE Consulting Group Pty Ltd

Sydney
Unit 6/7 Millennium Court,
Silverwater, NSW 2128 Australia

Newcastle
Unit 9/103 Glenwood Drive
Thornton, NSW 2322, Australia

ADE Consulting Group (QLD) Pty Ltd

Brisbane
Unit 3/22 Palmer Place
Murarrie, QLD 4172, Australia

ADE Consulting Group (VIC) Pty Ltd

Melbourne
Unit 4/95 Salmon Street
Port Melbourne, VIC 3207, Australia