1 September 2023

To whom it may concern,

RE: Dust Monitoring – September 2023

As part of SSD Approval 39170713 Conditions B15, C19 & C20, BESIX Watpac are to monitor and report on the impacts and environmental performance of the development and the effectiveness of the implemented management measures. To meet the requirements of above conditions, weekly monitoring for dust has occurred. The results for monitoring during September 2023 can be found within.

Yours sincerely,

Mark Cahalin
Senior Project Manager
BESIX Watpac

DUST MONITORING REPORT

Client:
MOITS PTY LTD

Stage 3 St. George Hospital, 16 Kensington Street, Kogarah

13 September 2023
Ref: PAR-23661- DM17[A]

Monitoring Period:
01 September 2023 to 07 September 2023

Ref: Par-23661-DM17 [A]
13 September 2023

DUST MONITORING REPORT
Stage 3 St. George Hospital
16 Kensington St, Kogarah

For Duration:
01 September 2023 – 07 September 2023

Prepared for:
Peter Zwamborn
MOITS PTY LTD
142 Wicks Rd, Macquarie Park NSW 2113

Document Authorization

For and on behalf of Paragon Engineering

Michael Duong, BEng
Civil Engineer

Omar Al-Kubaisi, MSc (Honors)
Senior Structural Engineer

Quality information

Revision history

Revision	Report Status	Date	Author	Reviewer
A	1st Revision	13 September 2023	MD	OA

Distribution

Revision	No. of copies	Format	Distributed to	Date
A	1	PDF	MOITS Pty Ltd	13 September 2023

Executive Summary

Paragon Engineering was commissioned by MOITS PTY LTD to provide dust monitoring services during the excavation and shoring activities for the development site located at St. George Hospital. The project comprises of excavation and construction of a new medical facility with two basement carpark.

This report provides weekly dust monitoring information for the excavation works of the above site.

Two dust monitor was installed on site, the monitors are equipped with on-board modem which provides remote monitoring communication functions, system status and dust triggers are instantly reported through mobile SMS function.

Dust data was assessed against the criteria from the EPA document titled "Approved Methods for Modelling and Assessment of Air Pollutants in New South Wales". Based on the EPA criteria, the daily maximum concentration for this site was set to **25µm/m³** for Pollutant Particles ($PM_{2.5}$) and **50µm/m³** for Pollutant Particles (PM_{10}).

The dust monitoring results found on Table 3 and Table 4 summarise the daily average $PM_{2.5}$ and PM_{10} concentrations recorded and compared to the criteria set for this project. The daily average $PM_{2.5}$ and PM_{10} concentrations were found to be within criteria set for this site. Further monitoring is recommended, and dust controls should be implemented to minimise the impact on the surrounding residents.

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1. Introduction

1.1 Background

Paragon Engineering was commissioned by MOITS PTY LTD to provide dust monitoring services during the demolition, excavation and shoring activities for the development site located at St. George Hospital.

1.2 Site Information

The project is located at St. George Hospital. The Stage 3 redevelopment includes the piling, excavation and construction of a new Medical facility with two basement carpark. The nearest dust sensitive receivers are shown in *Figure 1.*

Working Hours

The Project construction working hours shall be in accordance with approved DA Condition C4-C8 as described below:

Activity	Permitted working hours
C4. Construction including the delivery of materials to and from site:	❖ Monday to Friday – 7:00am to 6:00pm inclusive ❖ Saturday - 8:00am to 1:00 pm ❖ Sunday & public holidays - No work permitted
C5. Not withstanding condition C4, provide noise levels do not exceed the existing background level plus 5dB, work may also be undertaken during the following hours:	❖ Monday to Friday – 6:00am to 7:00pm inclusive ❖ Saturday - 1:00pm to 5:00 pm ❖ Sunday & public holidays - No work permitted
C6. Construction activities may be undertaken outside of the hours in condition C4 and C5 if Required:	❖ By the police or a public authority for the delivery of vehicles, plant or materials; or ❖ In an emergency to avoid the loss of life, damage to property or to prevent environment harm; or ❖ Where the works are inaudible at the nearest sensitive receivers; or ❖ For the delivery, set-up and removal of construction cranes, where notice of the crane-related works is provided to the Planning Secretary and affected residents at least seven days prior to the works; or ❖ Where a variation is approved in advance in writing by the Planning Secretary or her nominee if appropriate justification is provided for the works
C7. Notification of such construction activities as referenced in Condition C6 must be given to affected residents before undertaking the activities or as soon as is practical afterwards.	
C8. Rock breaking, rock hammering, sheet piling, pile driving and similar activities may only be carried out between the following hours:	❖ Monday to Friday – 9:00am to 12:00pm ❖ Monday to Friday - 2:00pm to 5:00 pm ❖ Saturday – 9:00am to 12:00pm ❖ Sunday & public holidays - No work permitted

1.3 Objectives

The purpose of this document is to provide a practical construction dust monitoring information to assess the environmental impact / air pollutants on the surrounding properties, compare the collected dust results against the recommended criteria and to provide a discussion about the mitigation measures to reduce the likelihood of its occurrence.

2. Sensitive Receivers

Sensitive Dust Receivers

The nearest dust sensitive receivers are identified in Figure 1 and listed below:

- M1, Medical Facility on the Southern boundary of the site.
- M2, Medical Facility on the Norther boundary of the site along Kensington St.
- M3, Medical Facility on the Norther boundary of the site along Kensington St.
- H1, Fire Station (heritage) on the Western side of the boundary.
- SW, Sydney Water asset along the Northern boundary of the site along Kensington St

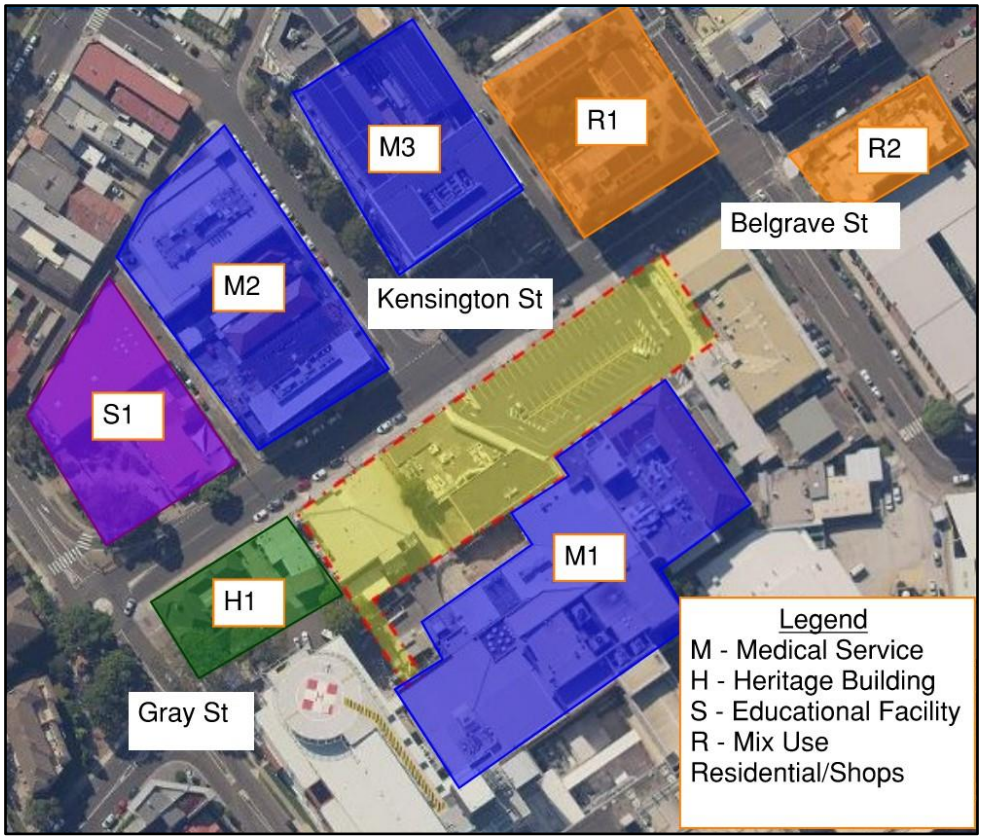


Figure 1 Site plan

3. Dust Criteria

3.1 Applicable Standards

The list below illustrates the relevant reports, standards, guidelines or policies that has been used during the preparation of this report:

- State of NSW and Environment Protection Authority (EPA), "Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales" (2016).
- The Office of Parliamentary Counsel, Canberra, "National Environment Protection (Ambient Air Quality) Measure" (May 2021).
- Australian Standard "AS 2985 – 2009: Workplace atmospheres - Methods for sampling and gravimetric determination of respirable dust"
- Australian Standard "AS 3640 – 2009: Workplace atmospheres - Method for sampling and gravimetric determination of inhalable dust""

3.2 Dust Criteria

In this report, dust data will be assessed against the criteria from the EPA document "Approved Methods for Modelling and Assessment of Air Pollutants in New South Wales" which is recommended by the "National Environment Protection (Ambient Air Quality) Measure". It should be noted that no dust management plan was provided / prepared for this site.

Table 1 Guideline values for dust particles $PM_{2.5}$ and PM_{10}

Pollutant	Maximum Concentration (µg/m^3)	Averaging Period (hrs)
$PM_{2.5}$	25	24
PM_{10}	50	24

Figure 2 represents a summary of the extracted equivalent particle aerodynamic diameter (EAD) in relation to their respirability and inhalable convention and their corresponding percentage in accordance with AS2985-2009 and AS3640-2009

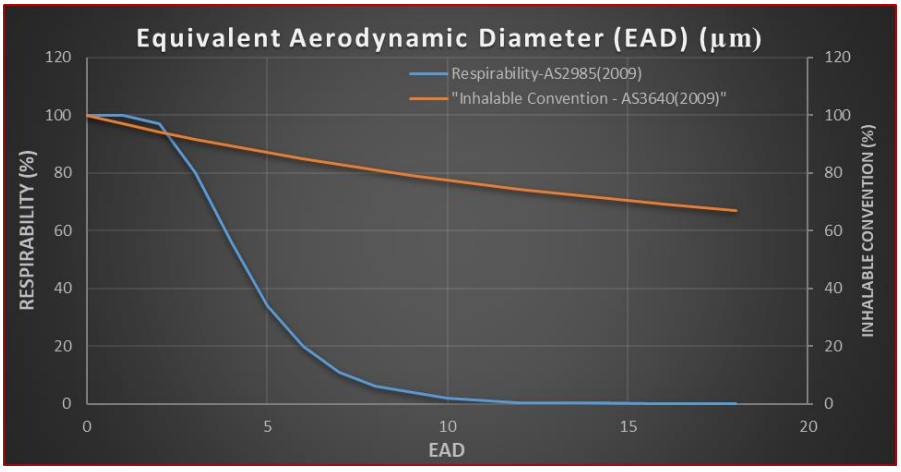


Figure 2 Site setup

4. Methodology

Two dust data monitors were installed on site, the monitors are equipped with on-board modem which provides remote monitoring communication functions, system status and dust triggers are instantly reported through mobile SMS function. The monitors utilise a (Class 1) laser particle monitor to report air pollutant particles as $PM_{2.5}$ and PM_{10} in 360 - degrees. The measurements specifications are illustrated in table below.

Monitor 1 and Monitor 2 are on a solar stand in accordance with the manufacturer's recommendations. The monitor was (re)located to be as close to the operating plant as possible, site setup is shown in Figure 3 below. Each device was set to continuous daily monitoring mode at 15-minute intervals recording pollutant particles as $PM_{2.5}$ and PM_{10}.

Table 2 Dust monitor specifications

Particle range*	Max coincidence probability	0.30 to 12.4
Size categorisation	Number of software bins	16
Sampling interval	Histogram Period (sec)	2 to 30
Total flow rate	L/min (typical)	0.24
Max particle count rate	Particles/sec	10,000
Max coincidence probability	% concentration @ 10^6 particles/L	0.7

* Based on 50% detection efficiency @ 035 µm

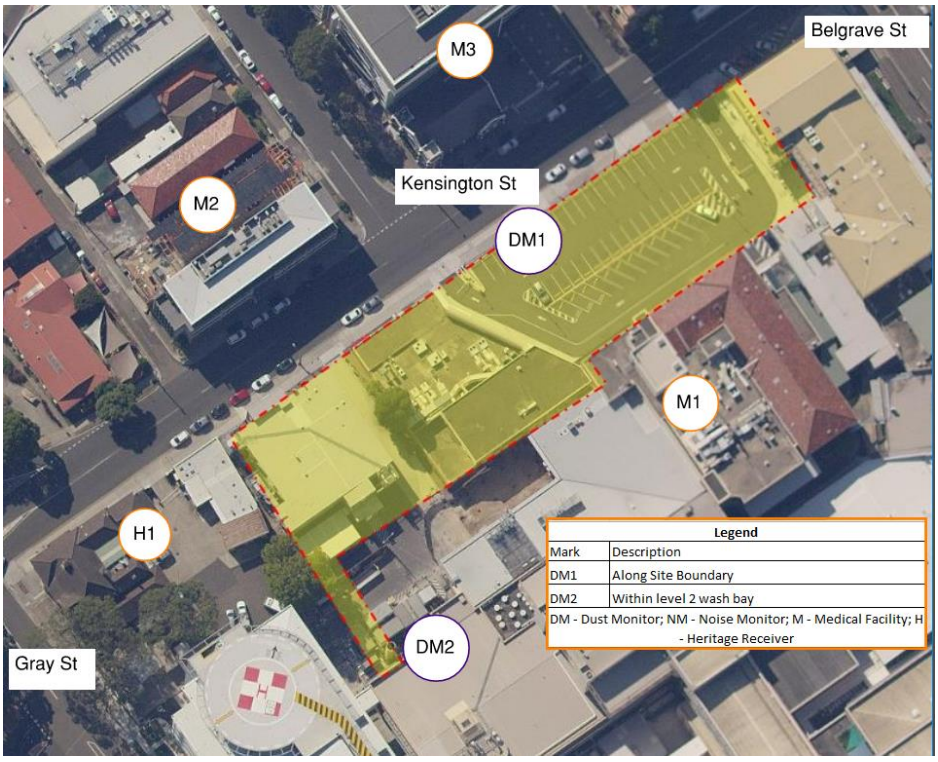


Figure 3 Site setup

5. Monitoring Results

Dust Monitoring

The daily average $PM_{2.5}$ and PM_{10} concentrations are summarised in the following table:

Table 3 Daily average $PM_{2.5}$ Concentration

Date	Daily average $PM_{2.5}$ concentration ($\mu g/m^3$) – Monitor 1	Daily average $PM_{2.5}$ concentration ($\mu g/m^3$) – Monitor 2	Maximum daily $PM_{2.5}$ concentration ($\mu g/m^3$)
Fri 1/09/2023	5.0	0.1	**25.0**
Sat 2/09/2023	0.7	0.1	**25.0**
Mon 4/09/2023	6.3	0.3	**25.0**
Tue 5/09/2023	3.2	0.1	**25.0**
Wed 6/09/2023	4.9	0.1	**25.0**
Thu 7/09/2023	8.7	0.1	**25.0**

Table 4 Daily average PM_{10} Concentration

Date	Daily average PM_{10} concentration ($\mu g/m^3$) – Monitor 1	Daily average PM_{10} concentration ($\mu g/m^3$) – Monitor 2	Maximum daily PM_{10} concentration ($\mu g/m^3$)
Fri 1/09/2023	27.2	0.7	**50.0**
Sat 2/09/2023	2.2	0.2	**50.0**
Mon 4/09/2023	28.5	0.9	**50.0**
Tue 5/09/2023	35.9	0.7	**50.0**
Wed 6/09/2023	45.3	0.6	**50.0**
Thu 7/09/2023	47.5	0.5	**50.0**

6. Discussion and Recommendations

As can be seen from the previous section and the graphs below, the daily average $PM_{2.5}$ and PM_{10} concentrations were found to be within criteria set for this site.

Best management practice

Feasible and reasonable mitigation measures should be applied and best management practices should be used to reduce values as far as practicable, and a comprehensive community consultation program should be instituted.

An example of a possible management strategies is listed below:

- Minimise works that generates dust during extreme weather conditions such as windy days, hot and dry days.
- Spray water during excavation works as well as on stockpiles.
- Dampen and/or cover stockpiles.
- Cover vehicle loads when leaving/entering the site.
- Reduce the vehicle speed when operating on site.
- Remove any mud and/or dust stuck on vehicles prior to leaving the site.
- Typical issues covered in a consultation program include a public contact point for handling complaints
- Early notification of proposed operations and any significant change to operations

Complaint Management

An effective community relations program is essential to keep the stakeholders informed throughout the project development process, to obtain valuable data related to the project, and to become aware of any project-related impacts in a timely manner. Additionally, the community is likely to be more understanding and accepting of the dust where the information provided is frank, does not attempt to understate the likely environmental dust impacts and if commitments made are firmly adhered to. A range of media could be used to notify the community before and during construction, including use of community meetings, individual contact and letterbox drops. Contact details for complaints and further information, including emergency phone numbers, should be readily available to the community.

7. Conclusions

The dust monitoring results found on Table 3 and Table 4 summarise the daily average $PM_{2.5}$ and PM_{10} concentrations recorded and compared to the criteria set for this project. The daily average $PM_{2.5}$ and PM_{10} concentrations within criteria set for this site. Further monitoring is recommended and dust controls should be implemented to minimise the impact on the surrounding residents.

Important information about this report

Introduction

This report has been prepared by Paragon for you, in accordance with the agreed scope, schedule and budget. The opinions, recommendations and conclusions set out herein has been prepared using accepted procedures and practices of the consulting profession at the time it was prepared. It is based on information gained from site conditions. Assessment has been scoped with consideration to industry standards, regulations, guidelines and your specific requirements, including budget and timing. The characterization of site conditions is an interpretation of information collected during assessment, in accordance with industry practice. This interpretation is not a complete description of all conditions on or in the vicinity of the site, due to the inherent variation in spatial and temporal vibration information. For these reasons the report must be regarded as interpretative, in accordance with industry standards and practice, rather than being a definitive record.

Your report has been written for a specific purpose

Your report has been developed for a specific purpose as agreed by us and applies only to the site or area investigated. Unless otherwise stated in the report, this report cannot be applied to other sites, nor can it be used when the nature of the specific purpose changes from that which we agreed.

Limitations of the Report

The work was conducted, and the report has been prepared, in response to an agreed purpose and scope, within time and budgetary constraints, and in reliance on certain data and information made available to Paragon. The analyses, evaluations, opinions and conclusions presented in this report are based on that purpose and scope, requirements, data or information, and they could change if such requirements or data are inaccurate or incomplete. This report is valid as of the date of preparation. The condition of the site (including subsurface conditions) and extent or nature of defect(s) or other effects can change over time, as a result of either natural processes or human influence. Paragon should be kept appraised of any such events and should be consulted for further investigations if any changes are noted.

Report for benefit of client

Unless otherwise agreed between us, the report has been prepared for your benefit and no other party. Paragon assumes no responsibility and will not be liable to any other person or organisation for, or in relation to, any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report. To avoid misuse of the information presented in your report, we recommend that Paragon be consulted before the report is provided to another party who may not be familiar with the background and the purpose of the report.

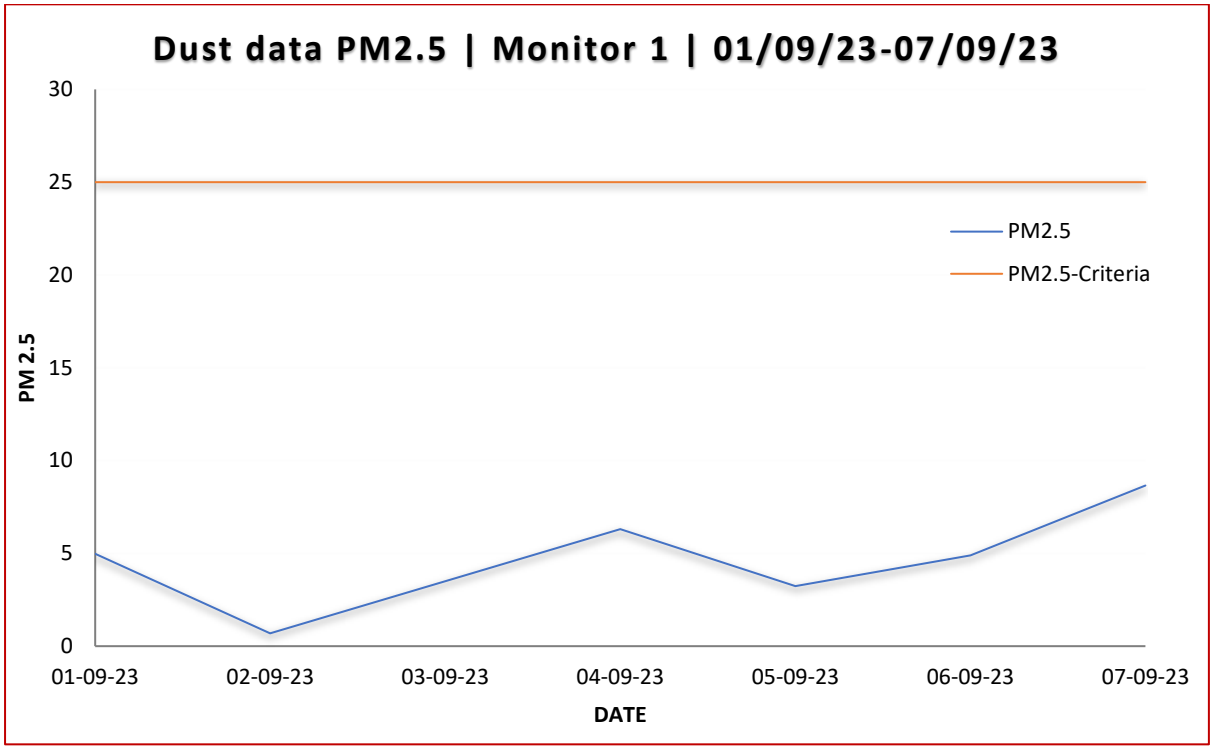
Interpretation by other professionals

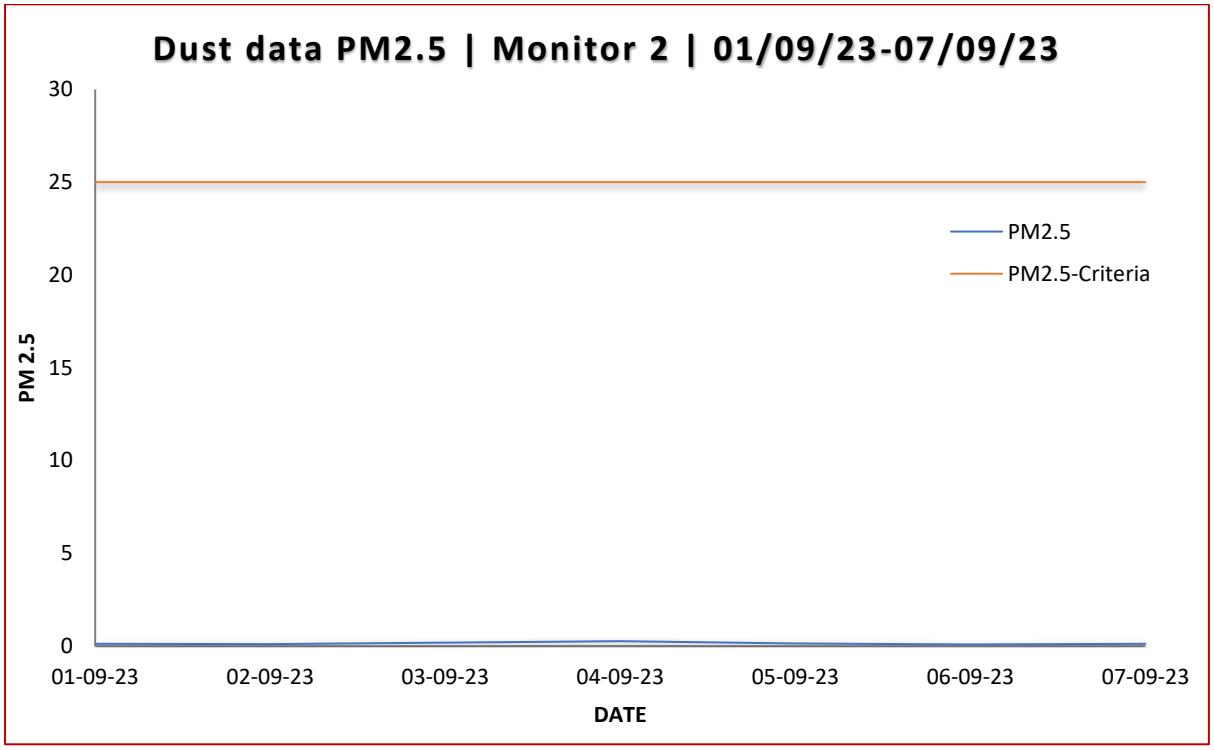
Costly problems can occur when other professionals develop their plans based on misinterpretations of a report. To help avoid misinterpretations, a suitably qualified and experienced consultant should be retained to explain the implications of the report to other professionals referring to the report and then review plans and specifications produced to see how other professionals have incorporated the report findings. Given Paragon prepared the report and has familiarity with the site, Paragon is well placed to provide such assistance. If another party is engaged to interpret the recommendations of the report, there is a risk that the contents of the report may be misinterpreted and Paragon disowns any responsibility for such misinterpretation.

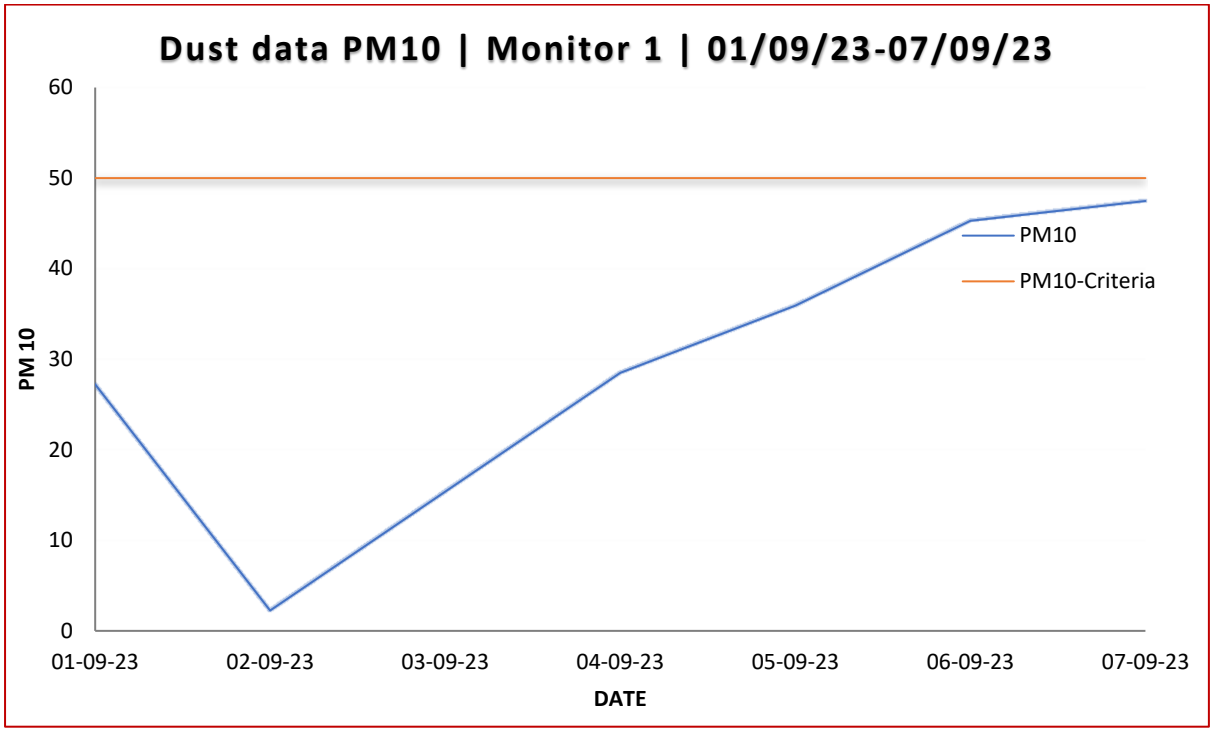
Data should not be separated from the report

The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way. Logs, figures, acquired data, drawings, etc. are customarily included in our reports and are developed by scientists or engineers based on their interpretation of field logs. This information should not under any circumstances be redrawn for inclusion in other documents or separated from the report in any way. This report should be reproduced in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties.

Appendix 1 – Dust Monitoring Data



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60
50
40
30
20
10
0
PM 10
PM10
PM10-Criteria
01-09-23
02-09-23
03-09-23
04-09-23
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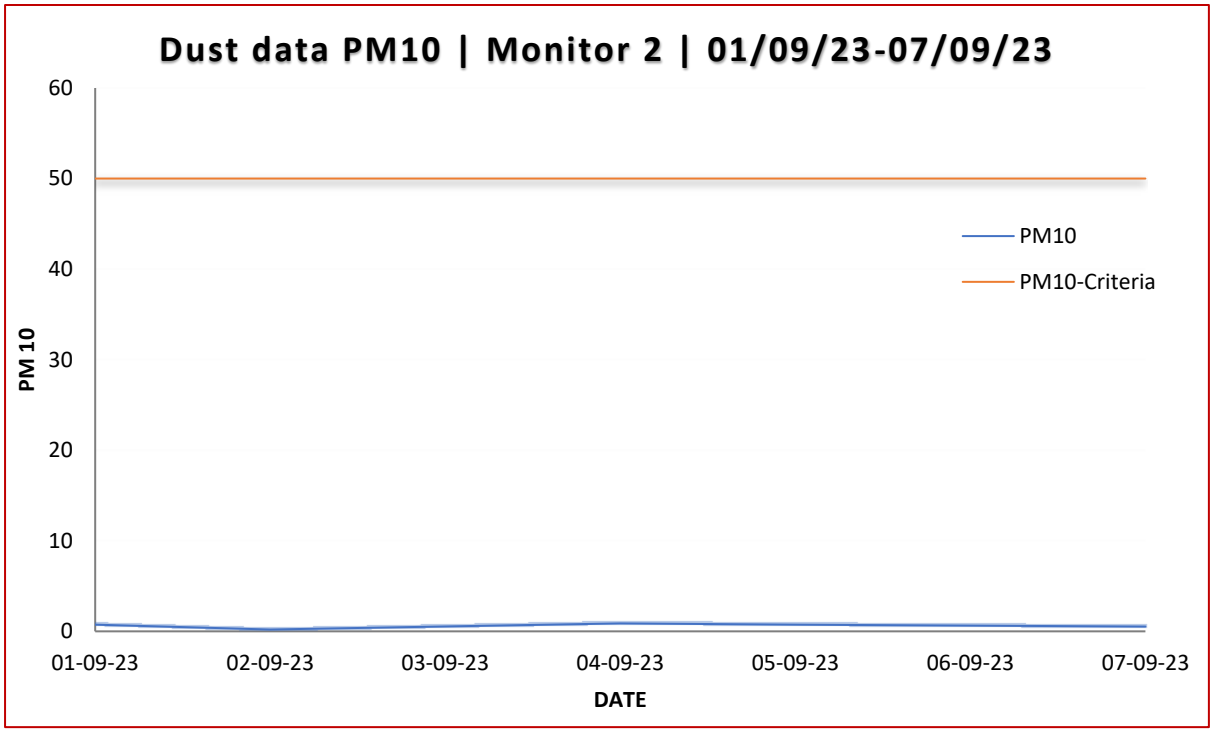
06-09-23
07-09-23
DATE


Dust data PM10 | Monitor 2 | 01/09/23-07/09/23
60
50
40
30
20
10
0
PM 10
PM10
PM10-Criteria
01-09-23
02-09-23
03-09-23
04-09-23
05-09-23
06-09-23
07-09-23
DATE

DUST MONITORING REPORT

Client:
MOITS PTY LTD

Stage 3 St. George Hospital, 16 Kensington Street, Kogarah

18 September 2023
Ref: PAR-23661- DM18[A]

Monitoring Period:
08 September 2023 to 14 September 2023

Ref: Par-23661-DM18 [A]
18 September 2023

DUST MONITORING REPORT
Stage 3 St. George Hospital
16 Kensington St, Kogarah

For Duration:
08 September 2023 – 14 September 2023

Prepared for:
Peter Zwamborn
MOITS PTY LTD
142 Wicks Rd, Macquarie Park NSW 2113

Document Authorization

For and on behalf of Paragon Engineering

Michael Duong, BEng
Civil Engineer

Omar Al-Kubaisi, MSc (Honors)
Senior Structural Engineer

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Dust data was assessed against the criteria from the EPA document titled "Approved Methods for Modelling and Assessment of Air Pollutants in New South Wales". Based on the EPA criteria, the daily maximum concentration for this site was set to **25µm/m³** for Pollutant Particles ($PM_{2.5}$) and **50µm/m³** for Pollutant Particles (PM_{10}).

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1. Introduction

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1.3 Objectives

The purpose of this document is to provide a practical construction dust monitoring information to assess the environmental impact / air pollutants on the surrounding properties, compare the collected dust results against the recommended criteria and to provide a discussion about the mitigation measures to reduce the likelihood of its occurrence.

2. Sensitive Receivers

Sensitive Dust Receivers

The nearest dust sensitive receivers are identified in Figure 1 and listed below:

- M1, Medical Facility on the Southern boundary of the site.
- M2, Medical Facility on the Norther boundary of the site along Kensington St.
- M3, Medical Facility on the Norther boundary of the site along Kensington St.
- H1, Fire Station (heritage) on the Western side of the boundary.
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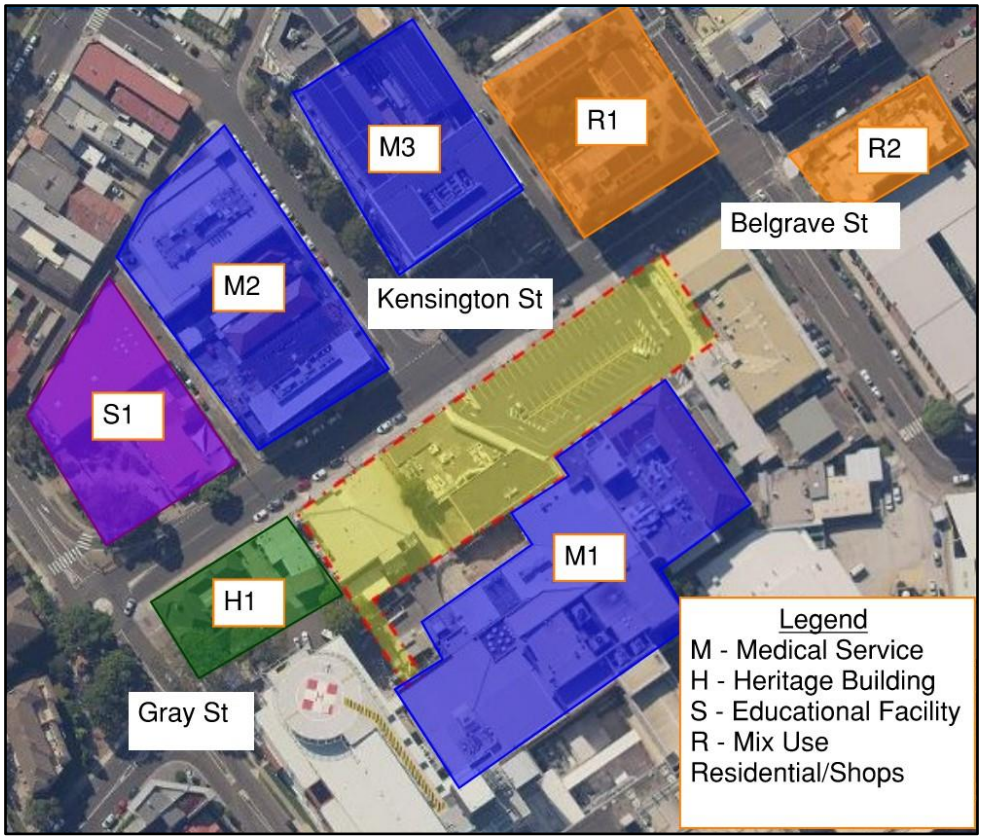

Figure 1 Site plan

3. Dust Criteria

3.1 Applicable Standards

The list below illustrates the relevant reports, standards, guidelines or policies that has been used during the preparation of this report:

- State of NSW and Environment Protection Authority (EPA), "Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales" (2016).
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In this report, dust data will be assessed against the criteria from the EPA document "Approved Methods for Modelling and Assessment of Air Pollutants in New South Wales" which is recommended by the "National Environment Protection (Ambient Air Quality) Measure". It should be noted that no dust management plan was provided / prepared for this site.

Table 1 Guideline values for dust particles $PM_{2.5}$ and PM_{10}

Pollutant	Maximum Concentration (µg/m^3)	Averaging Period (hrs)
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PM_{10}	50	24

Figure 2 represents a summary of the extracted equivalent particle aerodynamic diameter (EAD) in relation to their respirability and inhalable convention and their corresponding percentage in accordance with AS2985-2009 and AS3640-2009

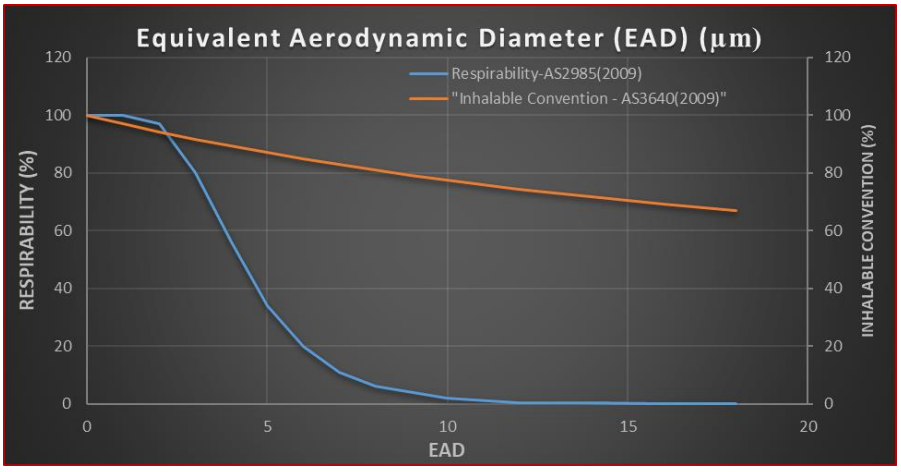

Figure 2 Site setup

4. Methodology

Two dust data monitors were installed on site, the monitors are equipped with on-board modem which provides remote monitoring communication functions, system status and dust triggers are instantly reported through mobile SMS function. The monitors utilise a (Class 1) laser particle monitor to report air pollutant particles as $PM_{2.5}$ and PM_{10} in 360 - degrees. The measurements specifications are illustrated in table below.

Monitor 1 and Monitor 2 are on a solar stand in accordance with the manufacturer's recommendations. The monitor was (re)located to be as close to the operating plant as possible, site setup is shown in Figure 3 below. Each device was set to continuous daily monitoring mode at 15-minute intervals recording pollutant particles as $PM_{2.5}$ and PM_{10}.

Table 2 Dust monitor specifications

Particle range*	Max coincidence probability	0.30 to 12.4
Size categorisation	Number of software bins	16
Sampling interval	Histogram Period (sec)	2 to 30
Total flow rate	L/min (typical)	0.24
Max particle count rate	Particles/sec	10,000
Max coincidence probability	% concentration @ 10^6 particles/L	0.7

* Based on 50% detection efficiency @ 035 µm

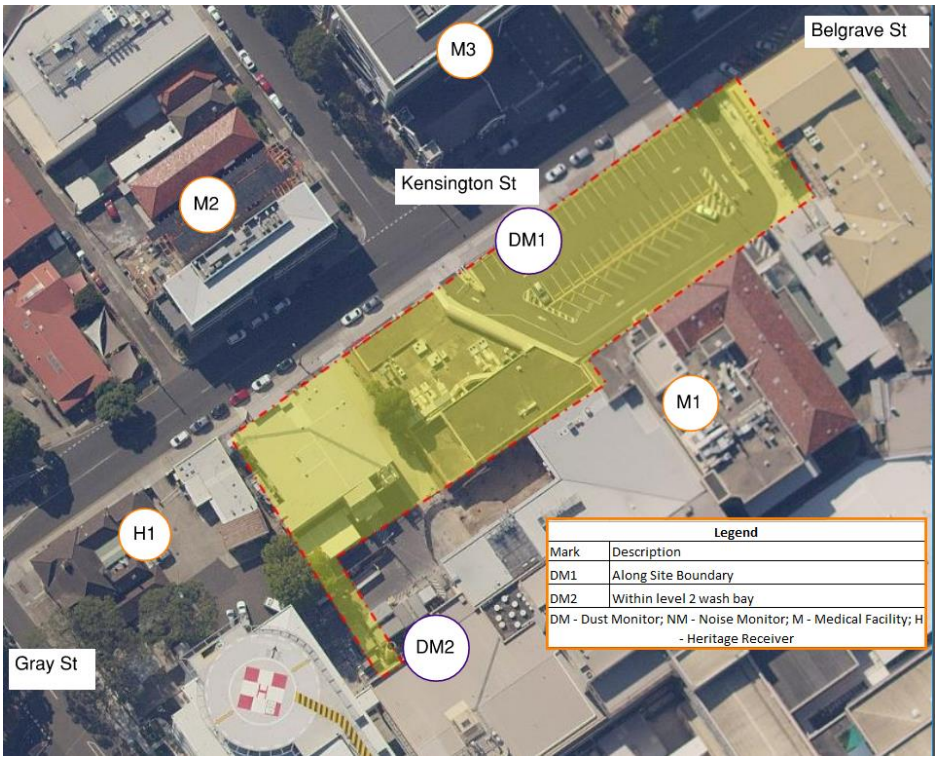

Figure 3 Site setup

5. Monitoring Results

Dust Monitoring

The daily average $PM_{2.5}$ and PM_{10} concentrations are summarised in the following table:

Table 3 Daily average $PM_{2.5}$ Concentration

Date	Daily average $PM_{2.5}$ concentration ($\mu g/m^3$) – Monitor 1	Daily average $PM_{2.5}$ concentration ($\mu g/m^3$) – Monitor 2	Maximum daily $PM_{2.5}$ concentration ($\mu g/m^3$)
Fri 8/09/2023	0.9	0.1	**25.0**
Sat 9/09/2023	0.4	0.1	**25.0**
Mon 11/09/2023	8.8	0.2	**25.0**
Tue 12/09/2023	8.8	0.2	**25.0**
Wed 13/09/2023	13.5	0.2	**25.0**
Thu 14/09/2023	6.2	0.2	**25.0**

Table 4 Daily average PM_{10} Concentration

Date	Daily average PM_{10} concentration ($\mu g/m^3$) – Monitor 1	Daily average PM_{10} concentration ($\mu g/m^3$) – Monitor 2	Maximum daily PM_{10} concentration ($\mu g/m^3$)
Fri 8/09/2023	4.8	0.5	**50.0**
Sat 9/09/2023	1.1	0.1	**50.0**
Mon 11/09/2023	45.9	0.7	**50.0**
Tue 12/09/2023	41.3	0.6	**50.0**
Wed 13/09/2023	33.8	0.7	**50.0**
Thu 14/09/2023	24.9	0.7	**50.0**

6. Discussion and Recommendations

As can be seen from the previous section and the graphs below, the daily average $PM_{2.5}$ and PM_{10} concentrations were found to be within criteria set for this site.

Best management practice

Feasible and reasonable mitigation measures should be applied and best management practices should be used to reduce values as far as practicable, and a comprehensive community consultation program should be instituted.

An example of a possible management strategies is listed below:

- Minimise works that generates dust during extreme weather conditions such as windy days, hot and dry days.
- Spray water during excavation works as well as on stockpiles.
- Dampen and/or cover stockpiles.
- Cover vehicle loads when leaving/entering the site.
- Reduce the vehicle speed when operating on site.
- Remove any mud and/or dust stuck on vehicles prior to leaving the site.
- Typical issues covered in a consultation program include a public contact point for handling complaints
- Early notification of proposed operations and any significant change to operations

Complaint Management

An effective community relations program is essential to keep the stakeholders informed throughout the project development process, to obtain valuable data related to the project, and to become aware of any project-related impacts in a timely manner. Additionally, the community is likely to be more understanding and accepting of the dust where the information provided is frank, does not attempt to understate the likely environmental dust impacts and if commitments made are firmly adhered to. A range of media could be used to notify the community before and during construction, including use of community meetings, individual contact and letterbox drops. Contact details for complaints and further information, including emergency phone numbers, should be readily available to the community.

7. Conclusions

The dust monitoring results found on Table 3 and Table 4 summarise the daily average $PM_{2.5}$ and PM_{10} concentrations recorded and compared to the criteria set for this project. The daily average $PM_{2.5}$ and PM_{10} concentrations within criteria set for this site. Further monitoring is recommended and dust controls should be implemented to minimise the impact on the surrounding residents.

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Your report has been written for a specific purpose

Your report has been developed for a specific purpose as agreed by us and applies only to the site or area investigated. Unless otherwise stated in the report, this report cannot be applied to other sites, nor can it be used when the nature of the specific purpose changes from that which we agreed.

Limitations of the Report

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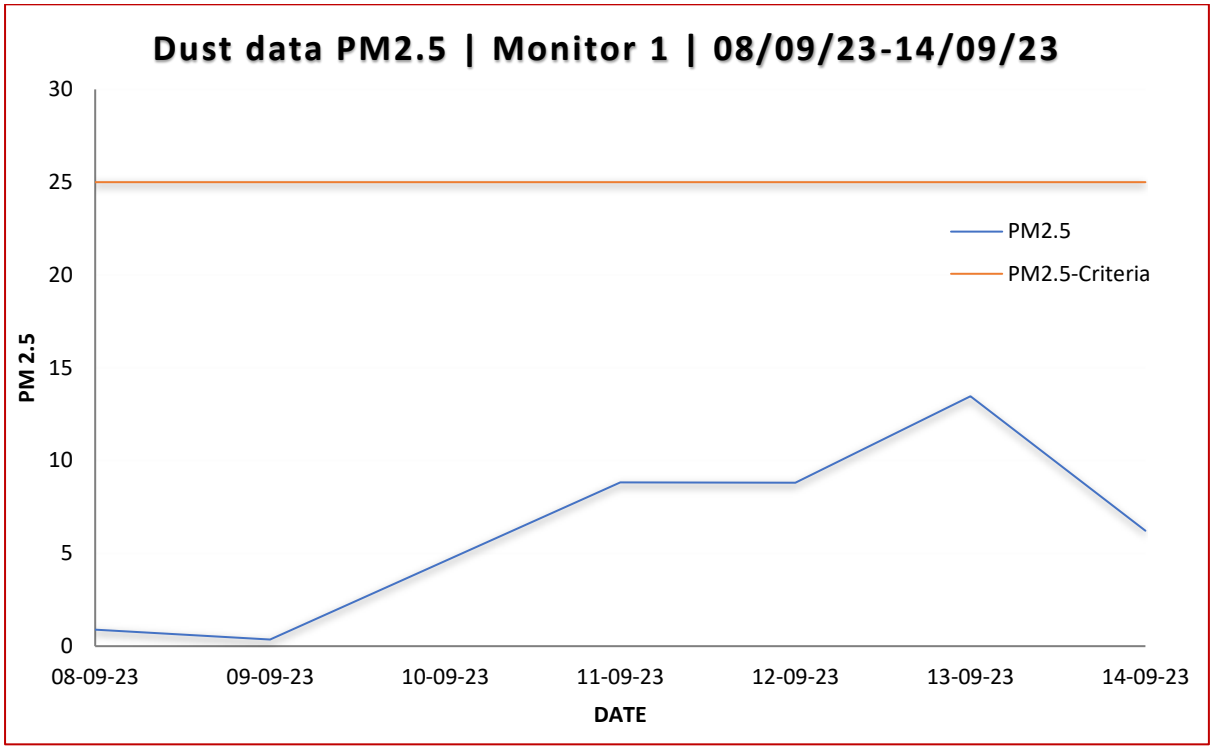
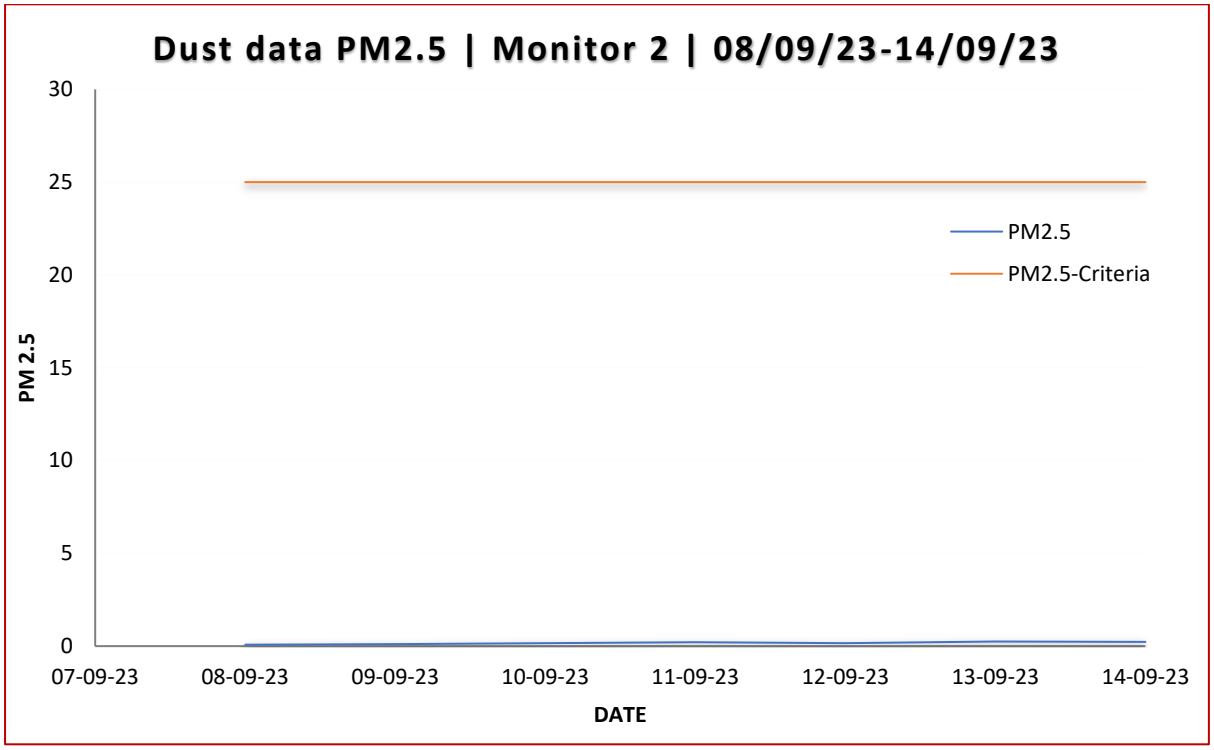
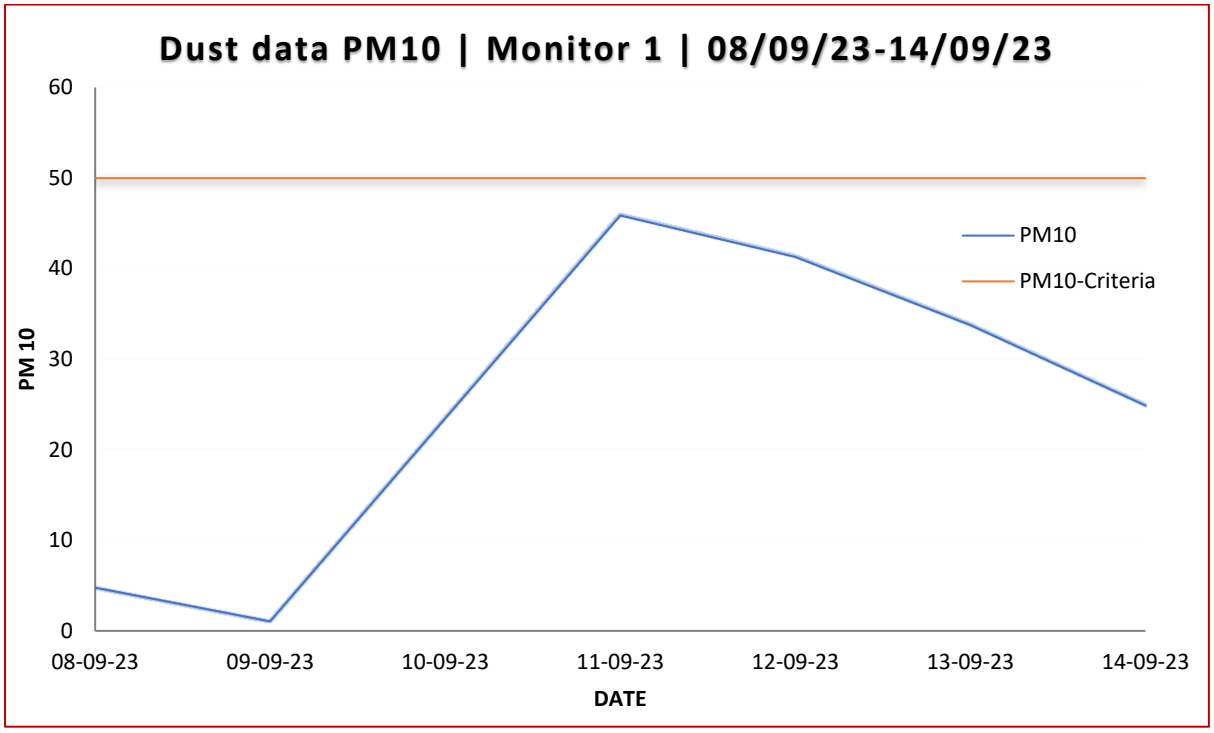
Data should not be separated from the report

The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way. Logs, figures, acquired data, drawings, etc. are customarily included in our reports and are developed by scientists or engineers based on their interpretation of field logs. This information should not under any circumstances be redrawn for inclusion in other documents or separated from the report in any way. This report should be reproduced in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties.

Appendix 1 – Dust Monitoring Data



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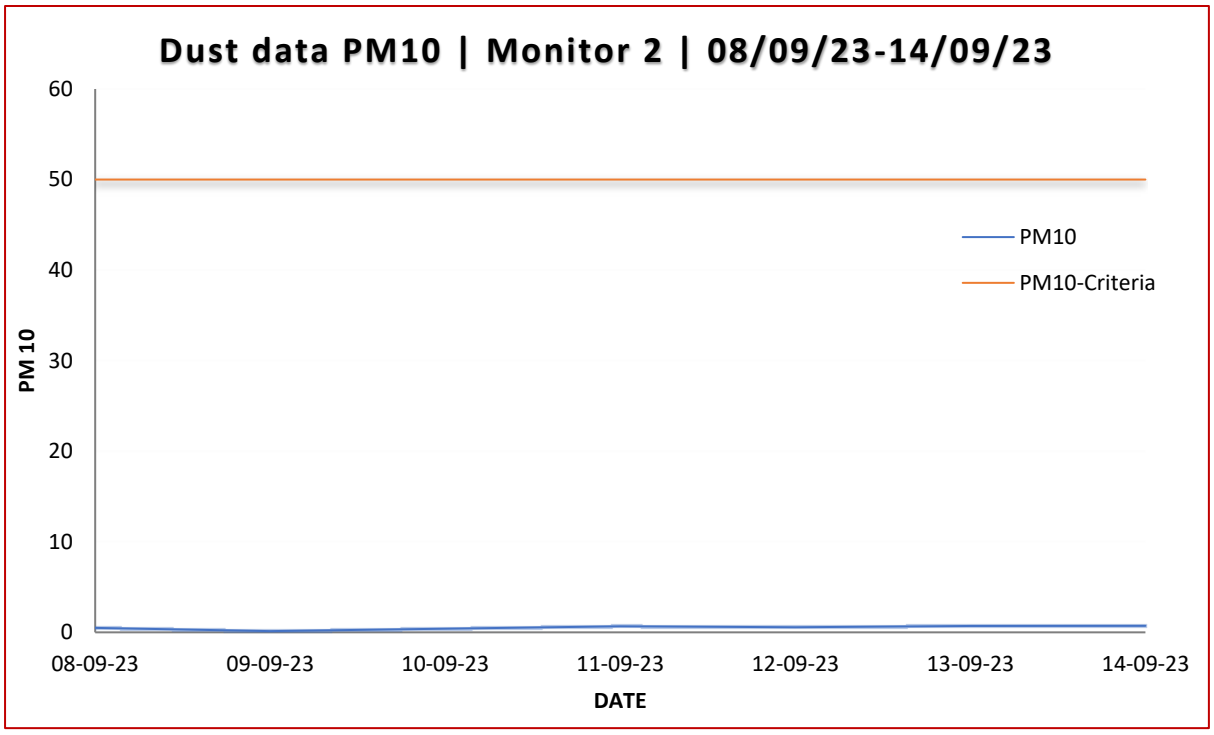
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PM10
PM10-Criteria
08-09-23
09-09-23
10-09-23
11-09-23
12-09-23
13-09-23
14-09-23
DATE

DUST MONITORING REPORT

Client:
MOITS PTY LTD

Stage 3 St. George Hospital, 16 Kensington Street, Kogarah

27 September 2023
Ref: PAR-23661- DM19[A]

Monitoring Period:
15 September 2023 to 21 September 2023

Ref: Par-23661-DM19 [A]
27 September 2023

DUST MONITORING REPORT
Stage 3 St. George Hospital
16 Kensington St, Kogarah

For Duration:
15 September 2023 – 21 September 2023

Prepared for:
Peter Zwamborn
MOITS PTY LTD
142 Wicks Rd, Macquarie Park NSW 2113

Document Authorization

For and on behalf of Paragon Engineering

Michael Duong, BEng
Civil Engineer

Omar Al-Kubaisi, MSc (Honors)
Senior Structural Engineer

Quality information

Revision history

Revision	Report Status	Date	Author	Reviewer
A	1st Revision	27 September 2023	MD	OA

Distribution

Revision	No. of copies	Format	Distributed to	Date
A	1	PDF	MOITS Pty Ltd	27 September 2023

Executive Summary

Paragon Engineering was commissioned by MOITS PTY LTD to provide dust monitoring services during the excavation and shoring activities for the development site located at St. George Hospital. The project comprises of excavation and construction of a new medical facility with two basement carpark.

This report provides weekly dust monitoring information for the excavation works of the above site.

Two dust monitor was installed on site, the monitors are equipped with on-board modem which provides remote monitoring communication functions, system status and dust triggers are instantly reported through mobile SMS function.

Dust data was assessed against the criteria from the EPA document titled "Approved Methods for Modelling and Assessment of Air Pollutants in New South Wales". Based on the EPA criteria, the daily maximum concentration for this site was set to **25µm/m³** for Pollutant Particles ($PM_{2.5}$) and **50µm/m³** for Pollutant Particles (PM_{10}).

The dust monitoring results found on Table 3 and Table 4 summarise the daily average $PM_{2.5}$ and PM_{10} concentrations recorded and compared to the criteria set for this project. The daily average $PM_{2.5}$ and PM_{10} concentrations were found to be within criteria set for this site. Further monitoring is recommended, and dust controls should be implemented to minimise the impact on the surrounding residents.

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1. Introduction

1.1 Background

Paragon Engineering was commissioned by MOITS PTY LTD to provide dust monitoring services during the demolition, excavation and shoring activities for the development site located at St. George Hospital.

1.2 Site Information

The project is located at St. George Hospital. The Stage 3 redevelopment includes the piling, excavation and construction of a new Medical facility with two basement carpark. The nearest dust sensitive receivers are shown in *Figure 1.*

Working Hours

The Project construction working hours shall be in accordance with approved DA Condition C4-C8 as described below:

Activity	Permitted working hours
C4. Construction including the delivery of materials to and from site:	❖ Monday to Friday – 7:00am to 6:00pm inclusive ❖ Saturday - 8:00am to 1:00 pm ❖ Sunday & public holidays - No work permitted
C5. Not withstanding condition C4, provide noise levels do not exceed the existing background level plus 5dB, work may also be undertaken during the following hours:	❖ Monday to Friday – 6:00am to 7:00pm inclusive ❖ Saturday - 1:00pm to 5:00 pm ❖ Sunday & public holidays - No work permitted
C6. Construction activities may be undertaken outside of the hours in condition C4 and C5 if Required:	❖ By the police or a public authority for the delivery of vehicles, plant or materials; or ❖ In an emergency to avoid the loss of life, damage to property or to prevent environment harm; or ❖ Where the works are inaudible at the nearest sensitive receivers; or ❖ For the delivery, set-up and removal of construction cranes, where notice of the crane-related works is provided to the Planning Secretary and affected residents at least seven days prior to the works; or ❖ Where a variation is approved in advance in writing by the Planning Secretary or her nominee if appropriate justification is provided for the works
C7. Notification of such construction activities as referenced in Condition C6 must be given to affected residents before undertaking the activities or as soon as is practical afterwards.	
C8. Rock breaking, rock hammering, sheet piling, pile driving and similar activities may only be carried out between the following hours:	❖ Monday to Friday – 9:00am to 12:00pm ❖ Monday to Friday - 2:00pm to 5:00 pm ❖ Saturday – 9:00am to 12:00pm ❖ Sunday & public holidays - No work permitted

1.3 Objectives

The purpose of this document is to provide a practical construction dust monitoring information to assess the environmental impact / air pollutants on the surrounding properties, compare the collected dust results against the recommended criteria and to provide a discussion about the mitigation measures to reduce the likelihood of its occurrence.

2. Sensitive Receivers

Sensitive Dust Receivers

The nearest dust sensitive receivers are identified in Figure 1 and listed below:

- M1, Medical Facility on the Southern boundary of the site.
- M2, Medical Facility on the Norther boundary of the site along Kensington St.
- M3, Medical Facility on the Norther boundary of the site along Kensington St.
- H1, Fire Station (heritage) on the Western side of the boundary.
- SW, Sydney Water asset along the Northern boundary of the site along Kensington St

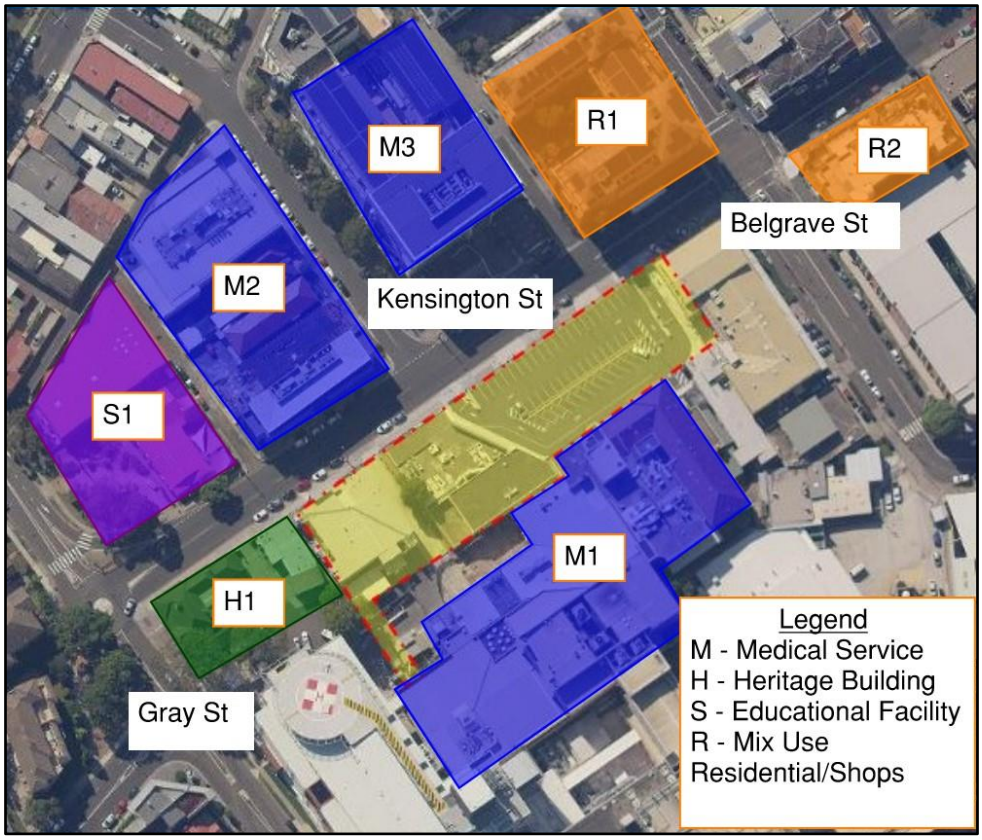

Figure 1 Site plan

3. Dust Criteria

3.1 Applicable Standards

The list below illustrates the relevant reports, standards, guidelines or policies that has been used during the preparation of this report:

- State of NSW and Environment Protection Authority (EPA), "Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales" (2016).
- The Office of Parliamentary Counsel, Canberra, "National Environment Protection (Ambient Air Quality) Measure" (May 2021).
- Australian Standard "AS 2985 – 2009: Workplace atmospheres - Methods for sampling and gravimetric determination of respirable dust"
- Australian Standard "AS 3640 – 2009: Workplace atmospheres - Method for sampling and gravimetric determination of inhalable dust""

3.2 Dust Criteria

In this report, dust data will be assessed against the criteria from the EPA document "Approved Methods for Modelling and Assessment of Air Pollutants in New South Wales" which is recommended by the "National Environment Protection (Ambient Air Quality) Measure". It should be noted that no dust management plan was provided / prepared for this site.

Table 1 Guideline values for dust particles $PM_{2.5}$ and PM_{10}

Pollutant	Maximum Concentration (µg/m^3)	Averaging Period (hrs)
$PM_{2.5}$	25	24
PM_{10}	50	24

Figure 2 represents a summary of the extracted equivalent particle aerodynamic diameter (EAD) in relation to their respirability and inhalable convention and their corresponding percentage in accordance with AS2985-2009 and AS3640-2009

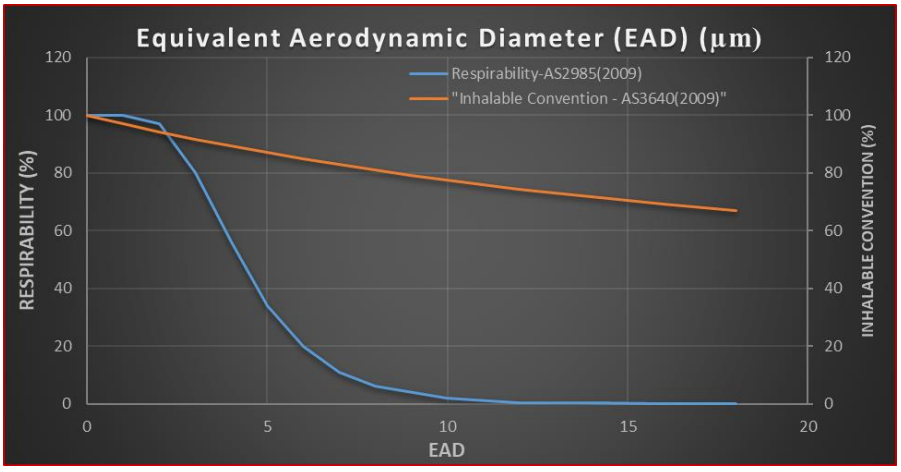

Figure 2 Site setup

4. Methodology

Two dust data monitors were installed on site, the monitors are equipped with on-board modem which provides remote monitoring communication functions, system status and dust triggers are instantly reported through mobile SMS function. The monitors utilise a (Class 1) laser particle monitor to report air pollutant particles as $PM_{2.5}$ and PM_{10} in 360 - degrees. The measurements specifications are illustrated in table below.

Monitor 1 and Monitor 2 are on a solar stand in accordance with the manufacturer's recommendations. The monitor was (re)located to be as close to the operating plant as possible, site setup is shown in Figure 3 below. Each device was set to continuous daily monitoring mode at 15-minute intervals recording pollutant particles as $PM_{2.5}$ and PM_{10}.

Table 2 Dust monitor specifications

Particle range*	Max coincidence probability	0.30 to 12.4
Size categorisation	Number of software bins	16
Sampling interval	Histogram Period (sec)	2 to 30
Total flow rate	L/min (typical)	0.24
Max particle count rate	Particles/sec	10,000
Max coincidence probability	% concentration @ 10^6 particles/L	0.7

* Based on 50% detection efficiency @ 035 µm

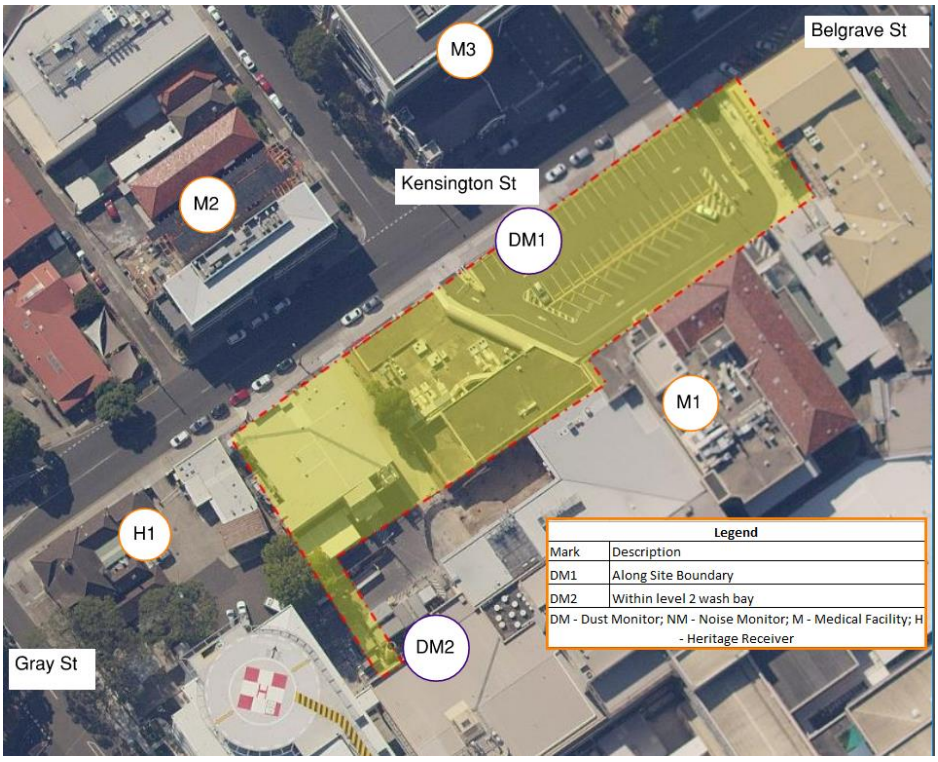

Figure 3 Site setup

5. Monitoring Results

Dust Monitoring

The daily average $PM_{2.5}$ and PM_{10} concentrations are summarised in the following table:

Table 3 Daily average $PM_{2.5}$ Concentration

Date	Daily average $PM_{2.5}$ concentration ($\mu g/m^3$) – Monitor 1	Daily average $PM_{2.5}$ concentration ($\mu g/m^3$) – Monitor 2	Maximum daily $PM_{2.5}$ concentration ($\mu g/m^3$)
Fri 15/09/2023	4.7	0.2	**25.0**
Sat 16/09/2023	1.3	0.1	**25.0**
Mon 18/09/2023	5.1	0.4	**25.0**
Tue 19/09/2023	5.8	0.1	**25.0**
Wed 20/09/2023	3.3	0.1	**25.0**
Thu 21/09/2023	3.3	0.3	**25.0**

Table 4 Daily average PM_{10} Concentration

Date	Daily average PM_{10} concentration ($\mu g/m^3$) – Monitor 1	Daily average PM_{10} concentration ($\mu g/m^3$) – Monitor 2	Maximum daily PM_{10} concentration ($\mu g/m^3$)
Fri 15/09/2023	18.3	0.7	**50.0**
Sat 16/09/2023	8.0	0.2	**50.0**
Mon 18/09/2023	46.0	0.9	**50.0**
Tue 19/09/2023	40.9	0.5	**50.0**
Wed 20/09/2023	36.3	0.4	**50.0**
Thu 21/09/2023	25.5	0.6	**50.0**

6. Discussion and Recommendations

As can be seen from the previous section and the graphs below, the daily average $PM_{2.5}$ and PM_{10} concentrations were found to be within criteria set for this site.

Best management practice

Feasible and reasonable mitigation measures should be applied and best management practices should be used to reduce values as far as practicable, and a comprehensive community consultation program should be instituted.

An example of a possible management strategies is listed below:

- Minimise works that generates dust during extreme weather conditions such as windy days, hot and dry days.
- Spray water during excavation works as well as on stockpiles.
- Dampen and/or cover stockpiles.
- Cover vehicle loads when leaving/entering the site.
- Reduce the vehicle speed when operating on site.
- Remove any mud and/or dust stuck on vehicles prior to leaving the site.
- Typical issues covered in a consultation program include a public contact point for handling complaints
- Early notification of proposed operations and any significant change to operations

Complaint Management

An effective community relations program is essential to keep the stakeholders informed throughout the project development process, to obtain valuable data related to the project, and to become aware of any project-related impacts in a timely manner. Additionally, the community is likely to be more understanding and accepting of the dust where the information provided is frank, does not attempt to understate the likely environmental dust impacts and if commitments made are firmly adhered to. A range of media could be used to notify the community before and during construction, including use of community meetings, individual contact and letterbox drops. Contact details for complaints and further information, including emergency phone numbers, should be readily available to the community.

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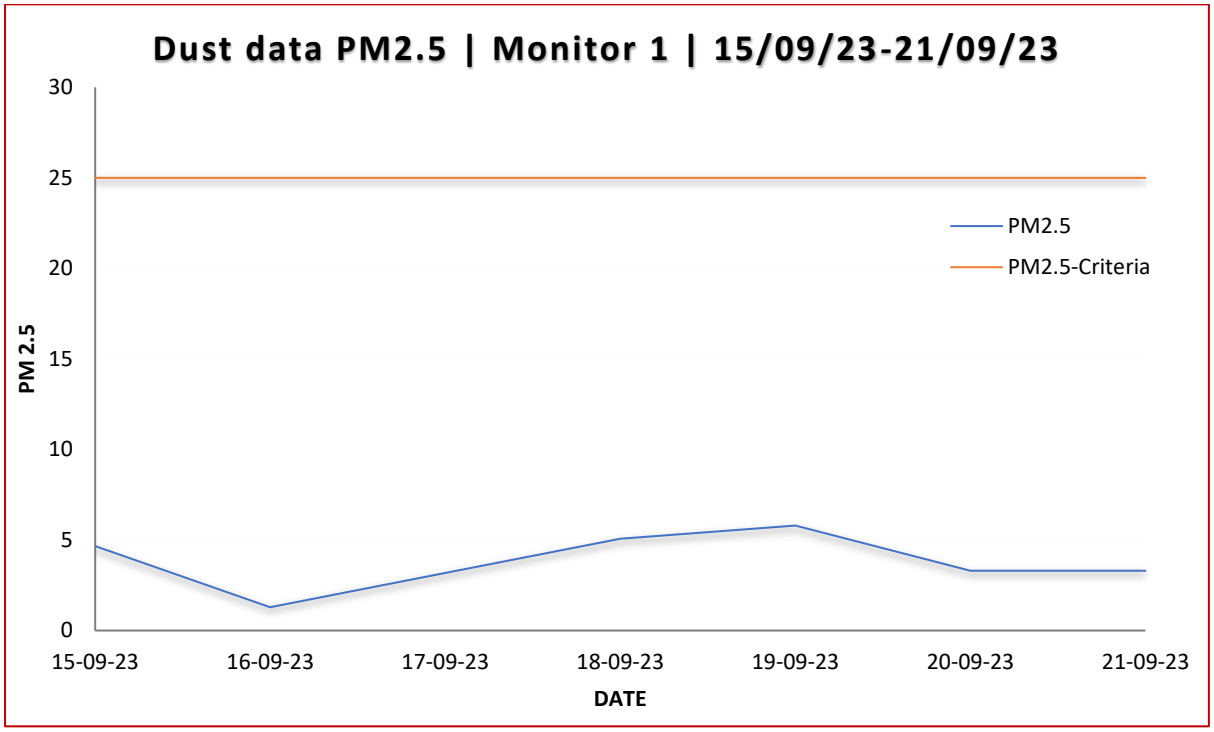

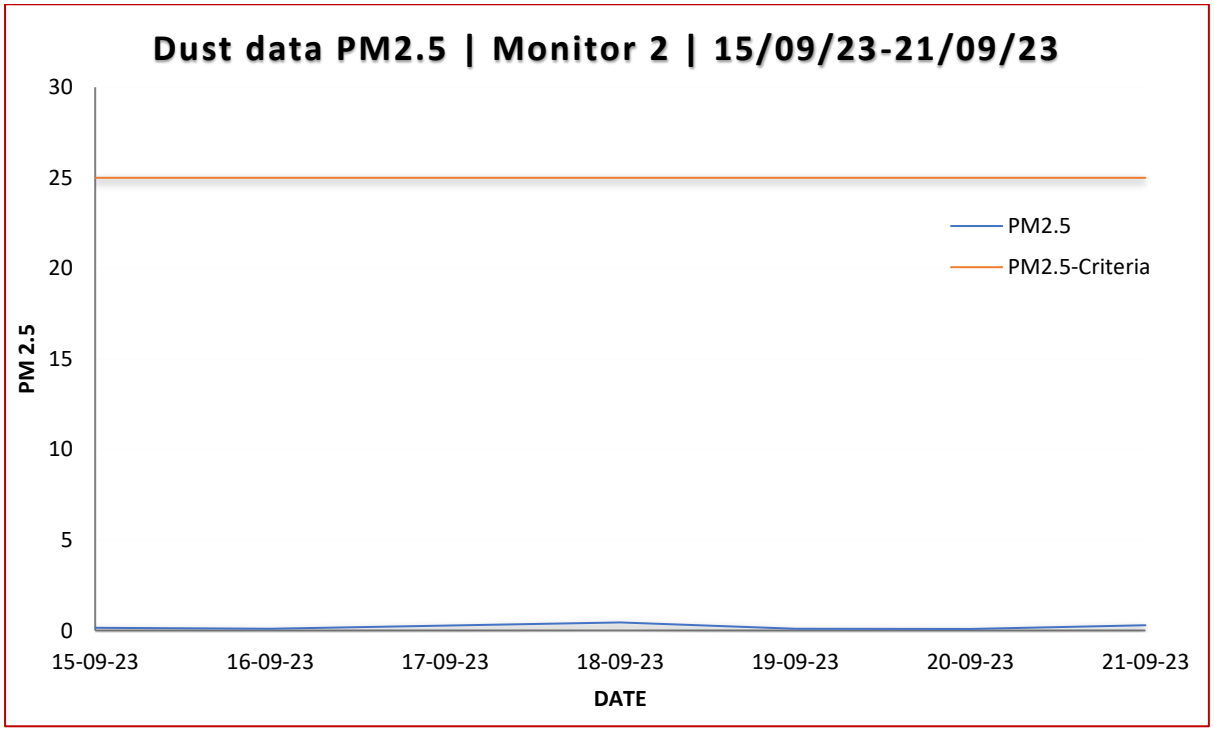

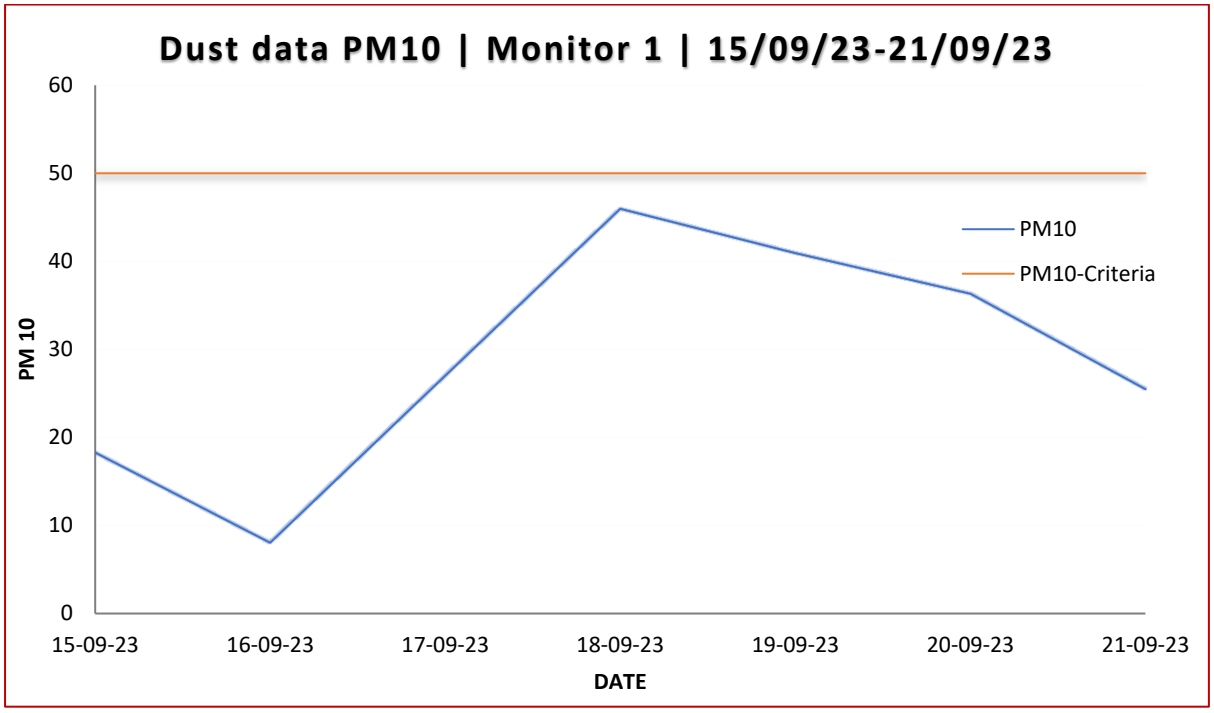
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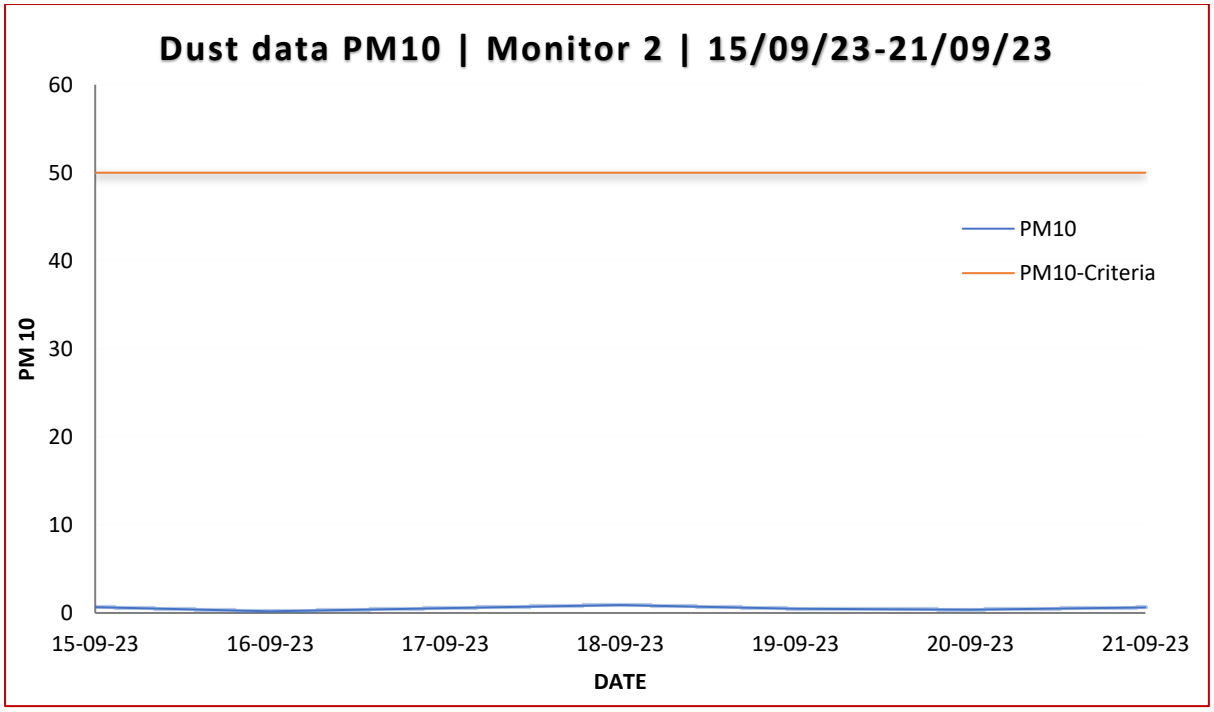
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20-09-23
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DUST MONITORING REPORT

Client:
MOITS PTY LTD

Stage 3 St. George Hospital, 16 Kensington Street, Kogarah

4 October 2023
Ref: PAR-23661- DM20[A]

Monitoring Period:
22 September 2023 to 28 September 2023

Ref: Par-23661-DM20 [A]
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DUST MONITORING REPORT
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16 Kensington St, Kogarah

For Duration:
22 September 2023 – 28 September 2023

Prepared for:
Peter Zwamborn
MOITS PTY LTD
142 Wicks Rd, Macquarie Park NSW 2113

Document Authorization

For and on behalf of Paragon Engineering

Michael Duong, BEng
Civil Engineer

Omar Al-Kubaisi, MSc (Honors)
Senior Structural Engineer

Quality information

Revision history

Revision	Report Status	Date	Author	Reviewer
A	1st Revision	4 October 2023	MD	OA

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Revision	No. of copies	Format	Distributed to	Date
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1.3 Objectives

The purpose of this document is to provide a practical construction dust monitoring information to assess the environmental impact / air pollutants on the surrounding properties, compare the collected dust results against the recommended criteria and to provide a discussion about the mitigation measures to reduce the likelihood of its occurrence.

2. Sensitive Receivers

Sensitive Dust Receivers

The nearest dust sensitive receivers are identified in Figure 1 and listed below:

- M1, Medical Facility on the Southern boundary of the site.
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- M3, Medical Facility on the Norther boundary of the site along Kensington St.
- H1, Fire Station (heritage) on the Western side of the boundary.
- SW, Sydney Water asset along the Northern boundary of the site along Kensington St

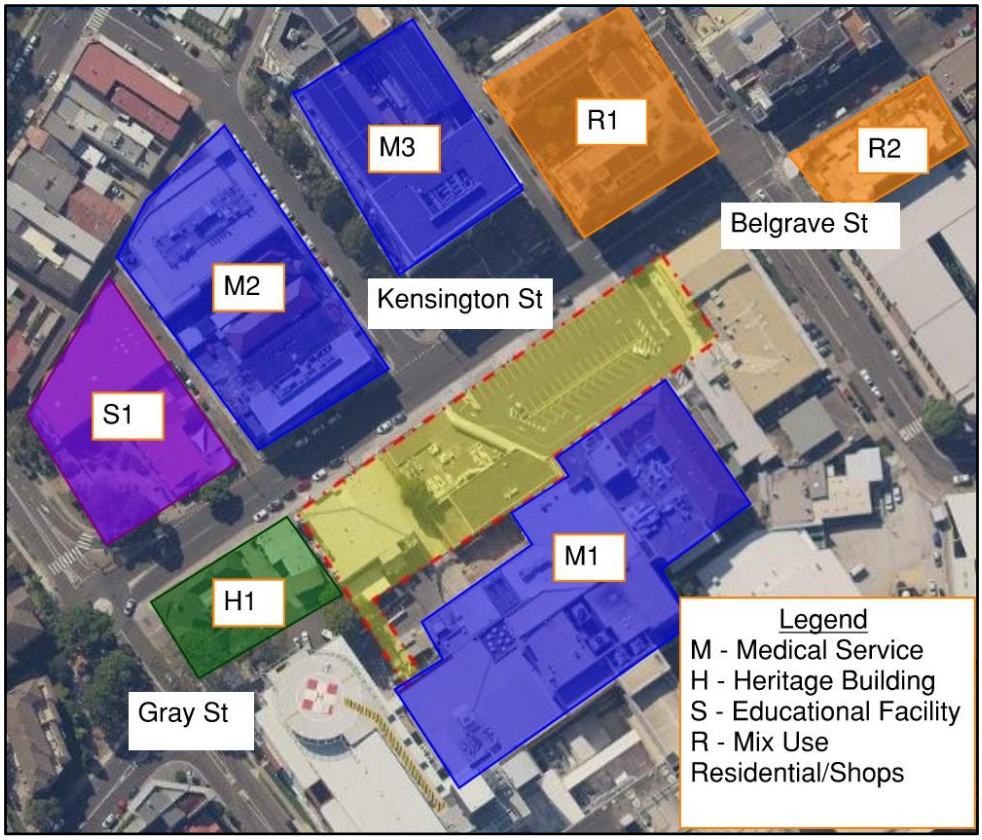


Figure 1 Site plan

3. Dust Criteria

3.1 Applicable Standards

The list below illustrates the relevant reports, standards, guidelines or policies that has been used during the preparation of this report:

- State of NSW and Environment Protection Authority (EPA), "Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales" (2016).
- The Office of Parliamentary Counsel, Canberra, "National Environment Protection (Ambient Air Quality) Measure" (May 2021).
- Australian Standard "AS 2985 – 2009: Workplace atmospheres - Methods for sampling and gravimetric determination of respirable dust"
- Australian Standard "AS 3640 – 2009: Workplace atmospheres - Method for sampling and gravimetric determination of inhalable dust""

3.2 Dust Criteria

In this report, dust data will be assessed against the criteria from the EPA document "Approved Methods for Modelling and Assessment of Air Pollutants in New South Wales" which is recommended by the "National Environment Protection (Ambient Air Quality) Measure". It should be noted that no dust management plan was provided / prepared for this site.

Table 1 Guideline values for dust particles $PM_{2.5}$ and PM_{10}

Pollutant	Maximum Concentration (µg/m^3)	Averaging Period (hrs)
$PM_{2.5}$	25	24
PM_{10}	50	24

Figure 2 represents a summary of the extracted equivalent particle aerodynamic diameter (EAD) in relation to their respirability and inhalable convention and their corresponding percentage in accordance with AS2985-2009 and AS3640-2009

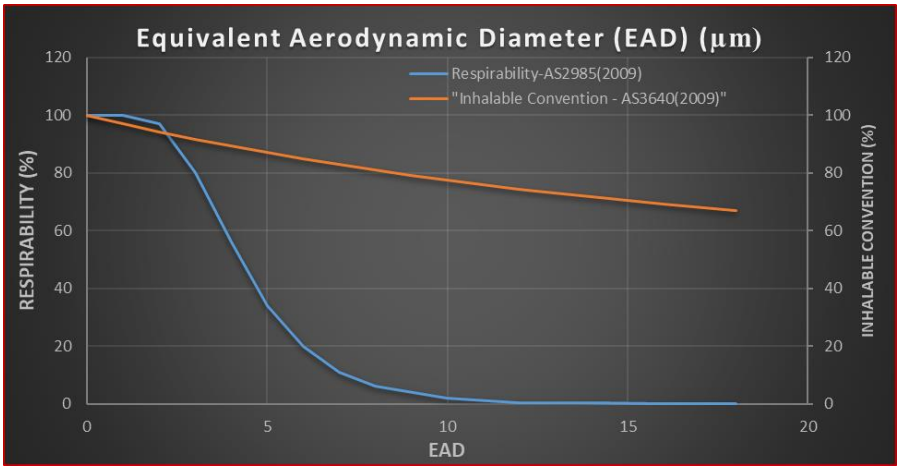


Figure 2 Site setup

4. Methodology

Two dust data monitors were installed on site, the monitors are equipped with on-board modem which provides remote monitoring communication functions, system status and dust triggers are instantly reported through mobile SMS function. The monitors utilise a (Class 1) laser particle monitor to report air pollutant particles as $PM_{2.5}$ and PM_{10} in 360 - degrees. The measurements specifications are illustrated in table below.

Monitor 1 and Monitor 2 are on a solar stand in accordance with the manufacturer's recommendations. The monitor was (re)located to be as close to the operating plant as possible, site setup is shown in Figure 3 below. Each device was set to continuous daily monitoring mode at 15-minute intervals recording pollutant particles as $PM_{2.5}$ and PM_{10}.

Table 2 Dust monitor specifications

Particle range*	Max coincidence probability	0.30 to 12.4
Size categorisation	Number of software bins	16
Sampling interval	Histogram Period (sec)	2 to 30
Total flow rate	L/min (typical)	0.24
Max particle count rate	Particles/sec	10,000
Max coincidence probability	% concentration @ 10^6 particles/L	0.7

* Based on 50% detection efficiency @ 035 µm

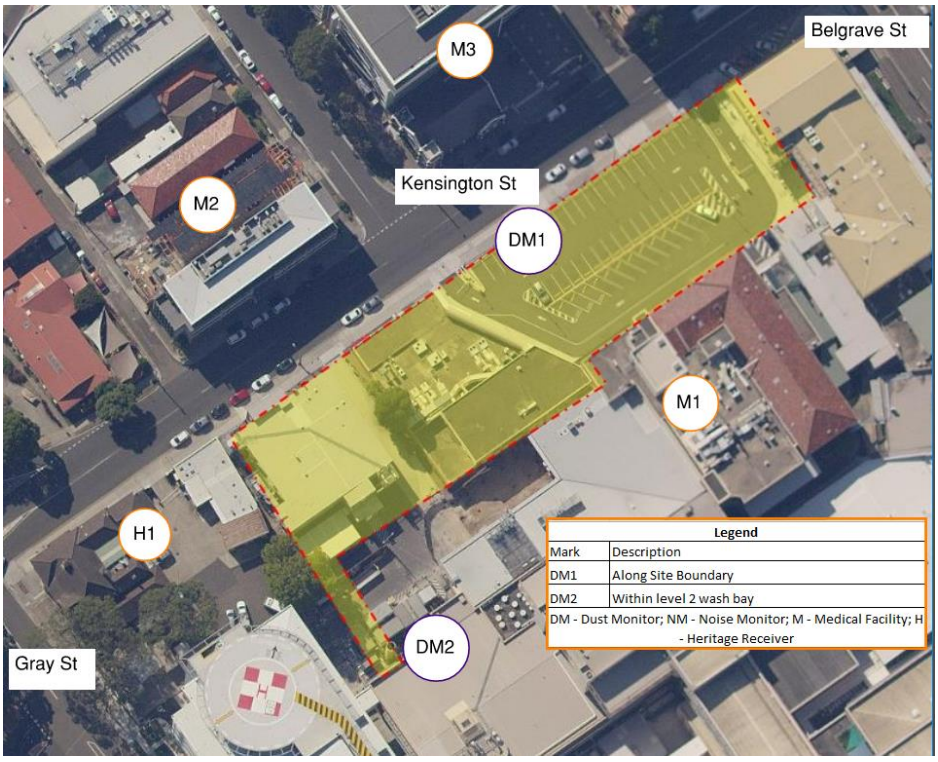


Figure 3 Site setup

5. Monitoring Results

Dust Monitoring

The daily average $PM_{2.5}$ and PM_{10} concentrations are summarised in the following table:

Table 3 Daily average $PM_{2.5}$ Concentration

Date	Daily average $PM_{2.5}$ concentration ($\mu g/m^3$) – Monitor 1	Daily average $PM_{2.5}$ concentration ($\mu g/m^3$) – Monitor 2	Maximum daily $PM_{2.5}$ concentration ($\mu g/m^3$)
Fri 22/09/2023	2.6	1.8	**25.0**
Sat 23/09/2023	0.5	0.2	**25.0**
Mon 25/09/2023	3.4	0.1	**25.0**
Tue 26/09/2023	5.9	0.1	**25.0**
Wed 27/09/2023	4.4	0.1	**25.0**
Thu 28/09/2023	3.6	0.1	**25.0**

Table 4 Daily average PM_{10} Concentration

Date	Daily average PM_{10} concentration ($\mu g/m^3$) – Monitor 1	Daily average PM_{10} concentration ($\mu g/m^3$) – Monitor 2	Maximum daily PM_{10} concentration ($\mu g/m^3$)
Fri 22/09/2023	9.7	2.1	**50.0**
Sat 23/09/2023	1.9	0.2	**50.0**
Mon 25/09/2023	21.3	0.3	**50.0**
Tue 26/09/2023	23.6	0.5	**50.0**
Wed 27/09/2023	13.9	0.4	**50.0**
Thu 28/09/2023	13.7	0.3	**50.0**

6. Discussion and Recommendations

As can be seen from the previous section and the graphs below, the daily average $PM_{2.5}$ and PM_{10} concentrations were found to be within criteria set for this site.

Best management practice

Feasible and reasonable mitigation measures should be applied and best management practices should be used to reduce values as far as practicable, and a comprehensive community consultation program should be instituted.

An example of a possible management strategies is listed below:

- Minimise works that generates dust during extreme weather conditions such as windy days, hot and dry days.
- Spray water during excavation works as well as on stockpiles.
- Dampen and/or cover stockpiles.
- Cover vehicle loads when leaving/entering the site.
- Reduce the vehicle speed when operating on site.
- Remove any mud and/or dust stuck on vehicles prior to leaving the site.
- Typical issues covered in a consultation program include a public contact point for handling complaints
- Early notification of proposed operations and any significant change to operations

Complaint Management

An effective community relations program is essential to keep the stakeholders informed throughout the project development process, to obtain valuable data related to the project, and to become aware of any project-related impacts in a timely manner. Additionally, the community is likely to be more understanding and accepting of the dust where the information provided is frank, does not attempt to understate the likely environmental dust impacts and if commitments made are firmly adhered to. A range of media could be used to notify the community before and during construction, including use of community meetings, individual contact and letterbox drops. Contact details for complaints and further information, including emergency phone numbers, should be readily available to the community.

7. Conclusions

The dust monitoring results found on Table 3 and Table 4 summarise the daily average $PM_{2.5}$ and PM_{10} concentrations recorded and compared to the criteria set for this project. The daily average $PM_{2.5}$ and PM_{10} concentrations within criteria set for this site. Further monitoring is recommended and dust controls should be implemented to minimise the impact on the surrounding residents.

Important information about this report

Introduction

This report has been prepared by Paragon for you, in accordance with the agreed scope, schedule and budget. The opinions, recommendations and conclusions set out herein has been prepared using accepted procedures and practices of the consulting profession at the time it was prepared. It is based on information gained from site conditions. Assessment has been scoped with consideration to industry standards, regulations, guidelines and your specific requirements, including budget and timing. The characterization of site conditions is an interpretation of information collected during assessment, in accordance with industry practice. This interpretation is not a complete description of all conditions on or in the vicinity of the site, due to the inherent variation in spatial and temporal vibration information. For these reasons the report must be regarded as interpretative, in accordance with industry standards and practice, rather than being a definitive record.

Your report has been written for a specific purpose

Your report has been developed for a specific purpose as agreed by us and applies only to the site or area investigated. Unless otherwise stated in the report, this report cannot be applied to other sites, nor can it be used when the nature of the specific purpose changes from that which we agreed.

Limitations of the Report

The work was conducted, and the report has been prepared, in response to an agreed purpose and scope, within time and budgetary constraints, and in reliance on certain data and information made available to Paragon. The analyses, evaluations, opinions and conclusions presented in this report are based on that purpose and scope, requirements, data or information, and they could change if such requirements or data are inaccurate or incomplete. This report is valid as of the date of preparation. The condition of the site (including subsurface conditions) and extent or nature of defect(s) or other effects can change over time, as a result of either natural processes or human influence. Paragon should be kept appraised of any such events and should be consulted for further investigations if any changes are noted.

Report for benefit of client

Unless otherwise agreed between us, the report has been prepared for your benefit and no other party. Paragon assumes no responsibility and will not be liable to any other person or organisation for, or in relation to, any matter dealt with or conclusions expressed in the report, or for any loss or damage suffered by any other person or organisation arising from matters dealt with or conclusions expressed in the report. To avoid misuse of the information presented in your report, we recommend that Paragon be consulted before the report is provided to another party who may not be familiar with the background and the purpose of the report.

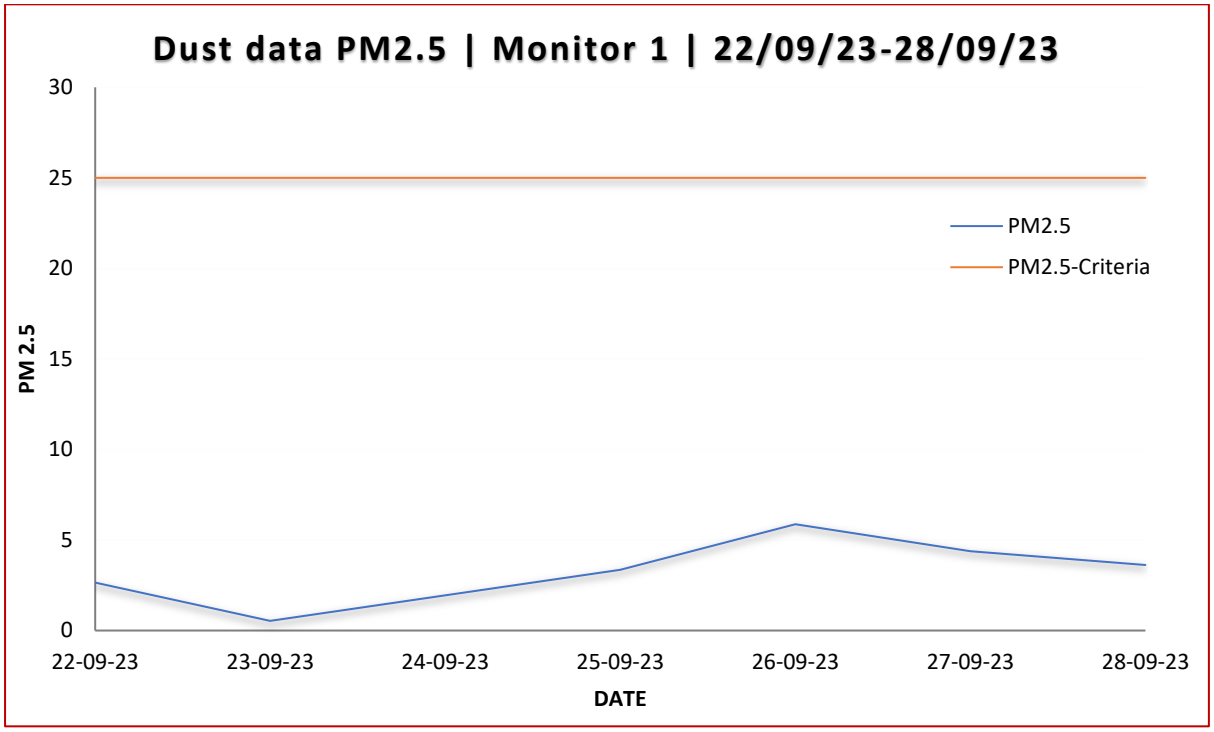
Interpretation by other professionals

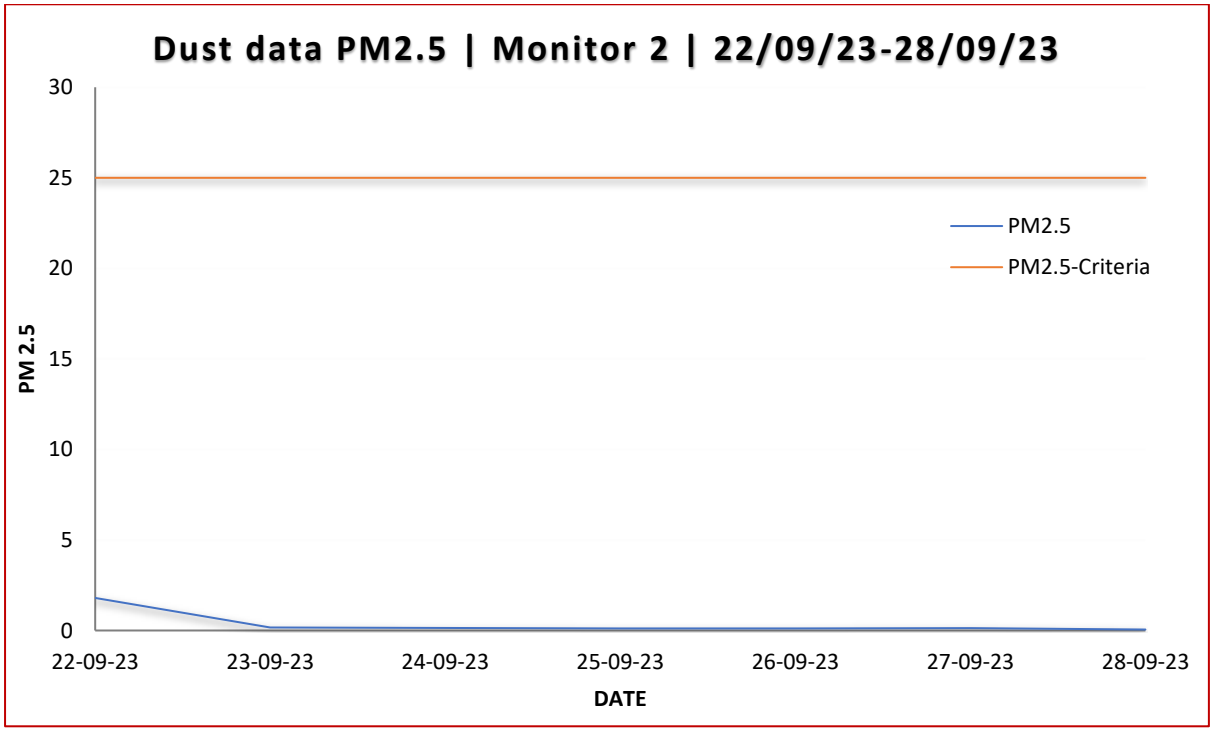
Costly problems can occur when other professionals develop their plans based on misinterpretations of a report. To help avoid misinterpretations, a suitably qualified and experienced consultant should be retained to explain the implications of the report to other professionals referring to the report and then review plans and specifications produced to see how other professionals have incorporated the report findings. Given Paragon prepared the report and has familiarity with the site, Paragon is well placed to provide such assistance. If another party is engaged to interpret the recommendations of the report, there is a risk that the contents of the report may be misinterpreted and Paragon disowns any responsibility for such misinterpretation.

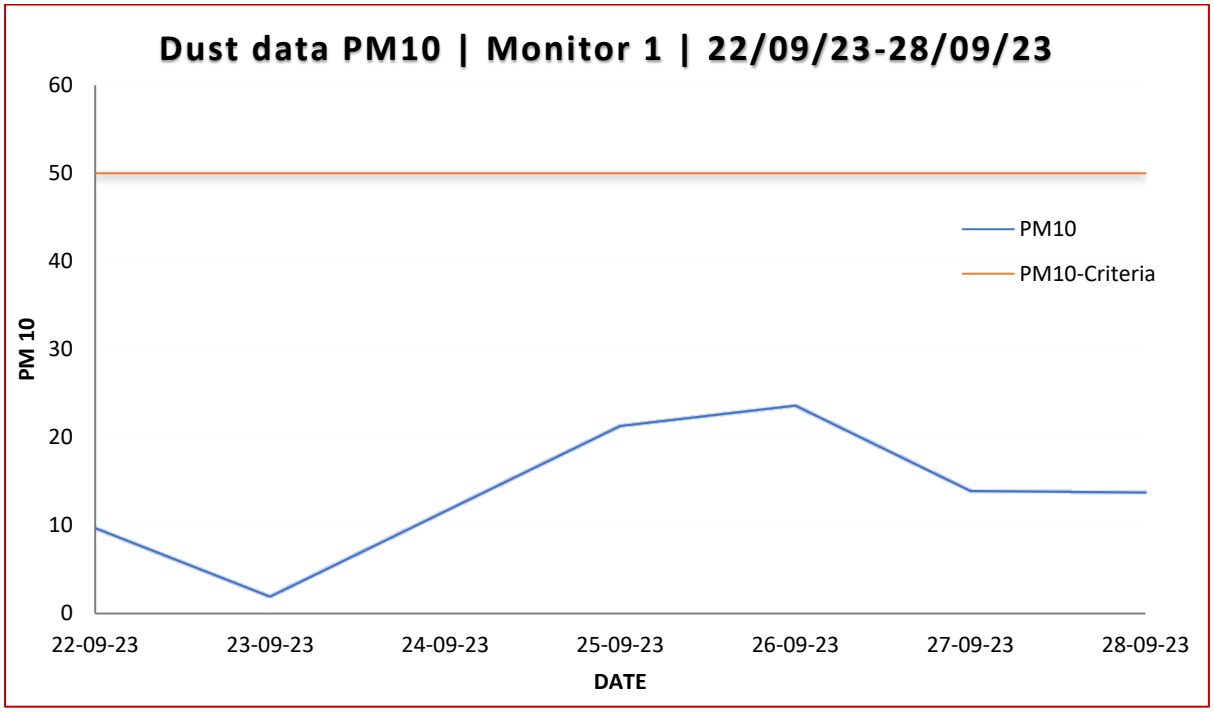
Data should not be separated from the report

The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way. Logs, figures, acquired data, drawings, etc. are customarily included in our reports and are developed by scientists or engineers based on their interpretation of field logs. This information should not under any circumstances be redrawn for inclusion in other documents or separated from the report in any way. This report should be reproduced in full. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties.

Appendix 1 – Dust Monitoring Data



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50
40
30
20
10
0
PM 10
PM10
PM10-Criteria
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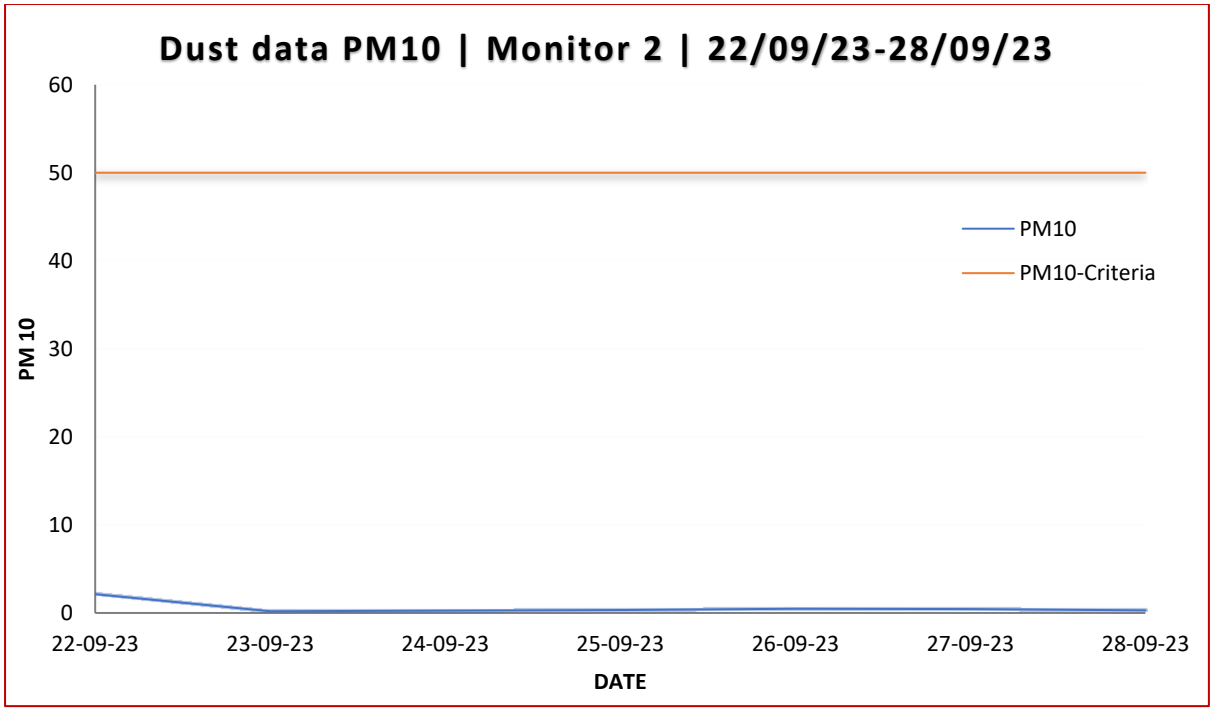
23-09-23
24-09-23
25-09-23
26-09-23
27-09-23
28-09-23
DATE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PM 10
PM10
PM10-Criteria
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23-09-23
24-09-23
25-09-23
26-09-23
27-09-23
28-09-23
DATE