



## **Quarterly Monitoring Report February 2023**

---

**M12 Motorway Central Package**

**Contract No: 20.0000303606.2284**

**Transport for New South Wales**

**TfNSW Client Report**

Reviewed and Approved  
Environment and Sustainability Manager  
Tom Bath

## DOCUMENT CONTROL

### SCHEDULE OF REGISTERED HOLDERS

Copy No	Holder Title	Date Transmitted
1	TfNSW – Easwaran Veeragathipillai	
2	TfNSW – Suzette Graham	
3	SWC – Rob Parry Williams	
4	SWC – Scott Calleja	

\*Note on Controlled / Uncontrolled Copies

Only those copies listed in the Schedule of Registered Holders are Controlled Copies, subject to further official amendment.

All other copies are Uncontrolled Copies, not subject to amendment notification or any further control.

### EDITION / REVISION REGISTER – THIS MONTHLY PROGRESS REPORT

The following revision register provides details on all versions of this Monthly Progress Report.

Rev	Rev Date	Rev Details	Approved by
Orig	08/03	Original	RPW

## TABLE OF CONTENTS

<b>M12 Motorway Central Package</b> .....	1
<b>TABLE OF CONTENTS</b> .....	3
<b>1. ENVIRONMENTAL MONITORING</b> .....	4
<b>1.1. Overview</b> .....	4
<b>1.2. Weather and Rainfall</b> .....	4
<b>1.2.1. December</b> .....	4
<b>1.2.2. January</b> .....	4
<b>1.2.3. February</b> .....	5
<b>1.3. Noise and Vibration</b> .....	5
<b>1.3.1. Noise and Vibration – complaints</b> .....	5
<b>1.3.2. Noise and Vibration - Results</b> .....	6
<b>1.4. Soil and Water</b> .....	7
<b>1.4.1. Soil and Water – Surface Water</b> .....	7
<b>1.4.2. Wet Weather Sampling</b> .....	7
<b>1.4.3. Groundwater</b> .....	7
<b>1.5. Discharge Quality</b> .....	8
<b>1.6. Air Quality</b> .....	8
<b>1.6.1. Air Quality Complaints</b> .....	8
<b>1.7. Air Quality Monitoring Results</b> .....	10
<b>1.7.1. Unattended Monitoring</b> .....	10
<b>1.7.2. Attended (Handheld) Monitoring</b> .....	13
<b>1.7.3. Attended (Handheld) Monitoring in Duff Road</b> .....	14

## 1. ENVIRONMENTAL MONITORING

### 1.1. Overview

This Quarterly Construction Monitoring Report has been prepared to report on the results of Environmental monitoring that has been undertaken to validate the impacts predicted for the M12 Central package, measure the effectiveness of environmental controls and to address approval requirements. The monitoring requirements are included in the relevant issue-specific environmental management plans and summarised in Table 1-1 below.

Table 1-1

NSW CoA and REMM	Description	Relevant plan	Reporting requirements
CoA A16(e)	Program for monitoring the performance outcomes, including a program for noise monitoring consistent with the requirements of NSW CoA C14	Site Establishment Management Plan	See Section 2.5 and Appendix A4
CoA C11(a)	Noise and vibration monitoring	Construction Noise and Vibration Monitoring Program	See Appendix B of Appendix B2
CoA C11(b) SWH05	Surface water monitoring program	Construction Soil and Water Monitoring Program	See Appendix C of Appendix B4
CoA C11(c)	Groundwater monitoring program	Construction Soil and Water Monitoring Program	See Appendix C of Appendix B4

### 1.2. Weather and Rainfall

An Automatic Weather Station (AWS) was established at the Site Compound on Clifton Avenue (AF4) on 06/08/2022. The site received higher than average rainfall during the Quarterly period. The results of monthly weather monitoring are summarised below:

#### 1.2.1. December

Minimum Temperature: 8.2 °C

Maximum Temperature: 36.8 °C

Total Rainfall: 18.2 mm

Maximum 24-hour rain: 8.8 mm to 9am on 06/12/22

Maximum wind gust: 58 km/h on 13/12/22.

#### 1.2.2. January

Minimum Temperature: 12.8 °C

Maximum Temperature: 36.4 °C

Total Rainfall: 134 mm

Maximum 24-hour rain: 36.2 mm to 9am on 25/01/23.

Maximum wind gust: 55.6 km/h on 07/01/23.

### **1.2.3. February**

Minimum Temperature: 11.4 °C

Maximum Temperature: 38.7 °C

Total Rainfall: 40.6 mm

Maximum 24-hour rain: 14 mm to 9am on 22/02/23.

Maximum wind gust: 75.7 km/h on 19/02/23.

## **1.3. Noise and Vibration**

Works outside of standard construction hours (OOH) have been undertaken for gate construction, utility relocation/ installation, early start of water carts and oversize deliveries. OOH activities are undertaken in accordance with the conditions of EPL 21596.

### **1.3.1. Noise and Vibration – complaints.**

There have been no complaints related to noise or vibration during the reporting period.

### 1.3.2. Noise and Vibration - Results

Date	OOHW Permit no.	Description of works	Stage and location of works	Time	NCA/NML	Modelled Value	Background	L <sub>Aeq</sub>	Comments
08/12/22	3	Telstra Conduit installation - saw cutting	Construction - Cnr Mamre Road and Elizabeth Drive	21:15	NCA 04 Evening NML: 53 dB(A)	51 dB(A)	Evening RBL: 49 dB(A)	67.4	Ambient noise 52dB(A). Predominant noise source from public vehicles. No fluctuation in levels observed when works commenced.
14/12/22	4	750t Crawler Crane assembly	Construction - Bridge 7 piling pad, Clifton Avenue	5:00	NCA07 Night NML: 36	31 dB(A)	Night RBL: 36 dB(A)	52.1	Prior to commencement of the activity, background levels were recorded as 48-50dB(A). Background noise from Mamre Road. No discernible increase in noise levels observed during the activity.

## 1.4. Soil and Water

Construction surface water was used primarily on site for dust suppression or irrigation to ground within the site during the period.

### 1.4.1. Soil and Water – Surface Water

Surface water sites across the Project area have been sampled by the TfNSW appointed consultant on a monthly basis since April 2019 to establish baseline conditions for the receiving waters in the vicinity of the M12 Central Package. The sites were selected on the basis of having persistent water flow and at locations upstream and downstream of receiving waterways that might be impacted by the construction activities.

Ongoing monitoring of the sites will be carried out by the TfNSW appointed consultant on a monthly basis during construction to detect any changes in water quality compared to baseline conditions that might be attributable to Project activities.

Data for the monitored parameters will be analysed by the TfNSW appointed consultant and presented in Overarching Construction Surface Water and Groundwater Monitoring Program Reports.

### 1.4.2. Wet Weather Sampling

In addition to routine sampling, wet weather sampling is being undertaken by the TfNSW appointed consultant during the pre-construction and early works construction phases in accordance with the Guideline for Construction Water Quality Monitoring (RTA 2004).

### 1.4.3. Groundwater

The Project groundwater monitoring sites that are to be monitored during construction are listed in Table 1-2

Groundwater boreholes BH145 will be monitored by TfNSW during construction whilst Seymour Whyte will monitor groundwater in Cut 9 during construction. No groundwater inflows have been observed at Cut 9 to date.

Table 1-2: Groundwater monitoring locations

Site ID*	Sampling type	Frequency	Responsibility
<b>Construction monitoring locations</b>			
BH145	Groundwater quality and level	Monthly	TfNSW
<b>M12 Central</b>			
Clifton Avenue (Cut 9)	Groundwater inflows and quality <sup>^</sup>	Monthly	Seymour Whyte

<sup>^</sup> If groundwater inflows are observed groundwater quality from the cut will be sampled.

## 1.5. Discharge Quality

Surface water discharge has been limited due to re-use of construction surface water for dust suppression on site.

A permit system is implemented to ensure all surface water discharges meet the water quality parameters outlined in EPL 21596.

Results of water quality monitoring for discharge events are as follows:

Permit no.	DATE	NTU	pH	Visible Oil/ Grease (Y/N)	Volume (L)	Location	Comments
62	09/12/22	21.4	7.86	None visible	20000	Black Gate	Discharge offsite to establish blue book volume
98	06/02/23	26.1	8.24	None visible	500000	Sediment Sump	Sediment sump has accumulated water
102	07/02/23	44.5	7.9	None visible	700000	Basin 6	Discharge to achieve blue book capacity
103	07/02/23	23.2	8.5	None visible	810000	Basin 7	Discharge to achieve blue book capacity
101	07/02/23	19.1	7.3	None Visible	310	Basin 3, Clifton Avenue	Offsite discharged through clean water diversion
105	08/02/23	27.2	7.44	None visible	775000	Basin 5	Discharge to achieve blue book capacity
109	10/02/23	26.5	8.5	None Visible	810000	Basin 7	Discharge to achieve blue book capacity
116	20/02/23	35	6.89	None visible	5000	Clifton Av Compound	Discharge water surrounding tank to prevent from floating

## 1.6. Air Quality

Dust mitigation and air quality has been a strong focus for the M12 Central package. Mitigation measures such as increasing water cart dust suppression, increase availability of water for dust suppression to increase efficiency, maintenance and refreshment of stabilised access/ egress controls, application of soil binder to haul roads and hydro-seeding of topsoil stockpiles and disturbed areas.

### 1.6.1. Air Quality Complaints

The site has received 1 complaint related to dust during the quarterly period. SWC have responded to all complaints in a timely fashion, made improvements to controls to minimise or prevent dust/ tracking from occurring and increased monitoring to verify the effectiveness of the controls.

Results summary and analysis of the environmental monitoring

Review of monitoring data against relevant air quality criteria

Performance of this Monitoring Program

Summary of any complaints received that are related to air quality complaints



## Dust Complaint Summary

Complaint Identification	Date received	Time received	Complaint Method	Location of complaint	Issue	Construction site/work complaint relates to	Response provided to stakeholder by community team
12	06/02/23	01:29pm	Email in	Tavistock Road	Local community member raised concerns about the amount of dust that is being generated from all the construction projects in the area i.e., airport, M12 Motorway and increased truck movements along Elizabeth Drive. Requested that the government should compensate all residents in the area by giving them money to help with increased power bills as they need to keep their windows and doors closed and run air conditioners as well as providing swimming pool covers. They also mentioned that if the government does not compensate property owners affected by these projects, then he is going to start a petition.	Dust from all construction projects in the area	The community member was contacted on 07/02/23 and advised that SWC regularly deploy regular water trucks wetting down our earthworks and haulage roads to suppress dust and truck sweepers to clean any mud off surrounding roads. As well as using dust monitors to measure dust levels in the area. As the initial complaint was received via Transport's customer relations team, a formal response will be provided by Transport's customer relations team.

## 1.7. Air Quality Monitoring Results

On 25<sup>th</sup> December, the solar panel and battery were stolen from the unattended monitoring station adjacent Irfan College.

### 1.7.1. Unattended Monitoring

On 25<sup>th</sup> December, the solar panel and battery were stolen from the unattended monitoring station adjacent Irfan College (Duff Road). Attended monitoring is being undertaken at the Duff Road location until February when a replacement can be installed. Note that the trigger levels for attended monitoring are compared against the 15min average value.

PM 10.0	Averaging Time	Month	December-2022		
		Date	09/01/23	09/01/23	09/01/23
		Location	AF 5 (Unattended)/Hi Quality_ER092200 2	AF4 (Unattended)/Clifton Avenue_ER09220 03	Irfan College (Unattended)/DuffRoad_ER092200 4
Criteria = 38.000 µg/m <sup>3</sup>	24 hours	Minimum	3.890	4.544	2.767
		Maximum	23.693	23.492	18.049
		Average	11.374	10.616	6.392
Criteria = 190.000 µg/m <sup>3</sup>	1 hour	Minimum	1.285	1.345	0.844
		Maximum	75.980	117.347	111.250
		Average	11.362	10.609	6.344

PM 2.5	Averaging Time	Month	December-2022		
		Date	09/01/23	09/01/23	09/01/23
		Location	AF 5 (Unattended)/Hi Quality_ER092200 2	AF4 (Unattended)/Clifton Avenue_ER09220 03	Irfan College (Unattended)/DuffRoad_ER092200 4
Criteria = 21.000 µg/m <sup>3</sup>	24 hours	Minimum	1.213	1.335	0.941
		Maximum	5.571	6.503	4.265
		Average	2.891	3.467	1.881
Criteria = 190.000 µg/m <sup>3</sup>	1 hour	Minimum	0.292	0.225	0.261
		Maximum	12.832	104.893	6.095
		Average	2.890	3.465	1.834

PM 2.5	Averaging Time	Month	January-2023		
		Date	31/01/23	31/01/23	31/01/23
		Location	AF 5 (Unattended)/Hi Quality_ER0922002	AF4 (Unattended)/Clifton Avenue_ER0922003	Irfan College (Unattended)/DuffRoad_ER0922004
Criteria = 21.000 µg/m <sup>3</sup>	24 hours	Minimum	1.457	1.298	-
		Maximum	5.014	6.740	-
		Average	2.527	2.806	-
Criteria = 190.000 µg/m <sup>3</sup>	1 hour	Minimum	0.404	0.368	-
		Maximum	12.301	18.663	-
		Average	2.507	2.789	-

PM 10.0	Averaging Time	Month	January-2023		
		Date	31/01/23	31/01/23	31/01/23
		Location	AF 5 (Unattended)/Hi Quality_ER0922002	AF4 (Unattended)/Clifton Avenue_ER0922003	Irfan College (Unattended)/DuffRoad_ER0922004
Criteria = 38.000 µg/m <sup>3</sup>	24 hours	Minimum	5.311	3.833	-
		Maximum	14.368	12.154	-
		Average	8.994	7.615	-
Criteria = 190.000 µg/m <sup>3</sup>	1 hour	Minimum	1.383	0.781	-
		Maximum	44.529	57.216	-
		Average	8.948	7.637	-

PM 2.5	Averaging Time	Month	February-2023		
		Date	01/03/23	01/03/23	01/03/23
		Location	AF 5 (Unattended)/Hi Quality_ER092200 2	AF4 (Unattended)/Clifton Avenue_ER09220 03	Irfan College (Unattended)/DuffRoad_ER092200 4
Criteria = 21.000 µg/m <sup>3</sup>	24 hours	Minimum	1.537	1.721	1.073
		Maximum	4.797	5.314	5.472
		Average	2.767	3.265	2.247
Criteria = 190.000 µg/m <sup>3</sup>	1 hour	Minimum	0.770	0.776	0.527
		Maximum	11.239	39.147	8.000
		Average	2.718	3.401	2.052

10+BB14:G22	Averaging Time	Month	February-2023		
		Date	01/03/23	01/03/23	01/03/23
		Location	AF 5 (Unattended)/Hi Quality_ER092200 2	AF4 (Unattended)/Clifton Avenue_ER09220 03	Irfan College (Unattended)/DuffRoad_ER092200 4
Criteria = 38.000 µg/m <sup>3</sup>	24 hours	Minimum	5.756	5.538	2.544
		Maximum	15.770	15.633	21.722
		Average	10.397	11.173	6.503
Criteria = 190.000 µg/m <sup>3</sup>	1 hour	Minimum	2.850	2.446	1.100
		Maximum	62.529	76.680	55.396
		Average	10.288	11.950	5.622

### 1.7.2. Attended (Handheld) Monitoring

PM 2.5	Averaging Time	Month	December-2022						
		Date	05/12/22	05/12/22	05/12/22	05/12/22	05/12/22	05/12/22	05/12/22
		Location	South Creek	Salisbury Avnue (AF 13)	Kemps Creek	Elizabeth Drive (near AF5)	Range Rd (AF15)	Range Road	Water Tower Access Road
		Weather	SW with 8km/hr, Sunny with 27 degree celcius	NE with 7km/hr, Drizzle with 33 degree celcius	NE with 8km/hr, Drizzle with 32 degree celcius	SE with 6km/hr, Drizzle with 33 degree celcius	SE with 6km/hr, Drizzle with 33 degree celcius	SE with 6km/hr, Cloudy with 33 degree celcius	SW with 8km/hr, Sunny with 31 degree celcius
Criteria = 0.190 mg/m3	15 minutes	Minimum	0.002	0.002	0.001	0.002	0.003	0.003	0.003
		Maximum	0.062	0.014	0.006	0.093	0.012	0.004	0.008
		Average	0.032	0.008	0.002	0.010	0.008	0.004	0.006

PM 10.0	Averaging Time	Month	December-2022						
		Date	05/12/22	05/12/22	05/12/22	05/12/22	05/12/22	05/12/22	05/12/22
		Location	South Creek	Salisbury Avnue (AF 13)	Kemps Creek	Elizabeth Drive (near AF5)	Range Rd (AF15)	Range Road	Water Tower Access Road
		Weather	SW with 8km/hr, Sunny with 27 degree celcius	NE with 7km/hr, Drizzle with 33 degree celcius	NE with 8km/hr, Drizzle with 32 degree celcius	SE with 6km/hr, Drizzle with 33 degree celcius	SE with 6km/hr, Drizzle with 33 degree celcius	SE with 6km/hr, Cloudy with 33 degree celcius	SW with 8km/hr, Sunny with 31 degree celcius
Criteria = 0.190 mg/m3	15 minutes	Minimum	0.002	0.002	0.001	0.002	0.003	0.003	0.003
		Maximum	0.062	0.014	0.006	0.093	0.012	0.004	0.008
		Average	0.032	0.008	0.002	0.010	0.008	0.004	0.006

PM 2.5	Averaging Time	Month	January-2023						
		Date	10/01/23	10/01/23	10/01/23	10/01/23	10/01/23	10/01/23	10/01/23
		Location	South Creek	Salisbury Avnue (AF 13)	Kemps Creek	Elizabeth Drive (near AF5)	Range Rd East (AF15)	Range Rd West (AF16)	Water Tower Access Road
		Weather	NW with 3km/hr, Sunny with 21 degree celcius	NW with 4km/hr, Sunny with 23 degree celcius	NW with 4km/hr, Sunny with 23 degree celcius	NW with 5km/hr, Sunny with 24 degree celcius	NW with 8km/hr, Sunny with 26 degree celcius	NW with 6km/hr, Sunny with 25 degree celcius	NW with 9km/hr, Sunny with 28 degree celcius
Criteria = 0.190 mg/m3	15 minutes	Site Details	No work in progress	T&D and water cart at work	T&d,Excavator,LV 's,Moxy passing by & Sheet pile unloading	Trucks passing by	T&d,Excavator,LV 's,Moxy at work	Work in progress (Cut/fill)	No work in progress
		Minimum	0.002	0.001	0.001	0.001	0.001	0.007	0.001
		Maximum	0.012	0.007	0.816	0.015	0.821	0.085	0.070
Average	0.002	0.002	0.010	0.003	0.008	0.043	0.005		

PM 10.0	Averaging Time	Month	January-2023						
		Date	10/01/23	10/01/23	10/01/23	10/01/23	10/01/23	10/01/23	10/01/23
		Location	South Creek	Salisbury Avnue (AF 13)	Kemps Creek	Elizabeth Drive (near AF5)	Range Rd (AF15)	Range Road	Water Tower Access Road
		Weather	NW with 3km/hr, Sunny with 21 degree celcius	NW with 4km/hr, Sunny with 23 degree celcius	NW with 4km/hr, Sunny with 23 degree celcius	NW with 5km/hr, Sunny with 24 degree celcius	NW with 8km/hr, Sunny with 26 degree celcius	NW with 6km/hr, Sunny with 25 degree celcius	NW with 9km/hr, Sunny with 28 degree celcius
Criteria = 0.190 mg/m3	15 minutes	Site Details	No work in progress	T&D and water cart at work	T&d,Excavator,LV 's,Moxy passing by & Sheet pile unloading	Trucks passing by	T&d,Excavator,LV 's,Moxy at work	Work in progress (Cut/fill)	No work in progress
		Minimum	0.006	0.007	0.044	0.006	0.003	0.008	0.006
		Maximum	0.022	0.090	1.875	0.130	1.901	0.857	0.152
Average	0.012	0.018	0.039	0.022	0.045	0.112	0.025		

PM 2.5	Averaging Time	Month	February-2023						
		Date	06/02/23	06/02/23	06/02/23	06/02/23	06/02/23	06/02/23	06/02/23
		Location	South Creek	Salisbury Avnue (AF 13)	Kemps Creek	Elizabeth Drive (near AF5)	Range Rd East (AF15)	Range Rd West (AF16)	Water Tower Access Road
		Weather	SW with 3km/hr, Sunny with 28 degree celcius	SW with 9km/hr, Sunny with 29 degree celcius	SW with 9km/hr, Sunny with 31 degree celcius	SW with 9km/hr, Sunny with 31 degree celcius	SW with 9km/hr, Sunny with 33 degree celcius	SW with 9km/hr, Sunny with 32 degree celcius	NE with 8km/hr, Sunny with 31 degree celcius
		Site Details	No work in progress	T&D and water cart at work	T&d,Excavator,LV's,Moxy passing by & Sheet pile	Trucks passing by	T&d,Excavator,LV's,Moxy at work	Work in progress (Cut/fill)	No work in progress
Criteria = 0.190 mg/m3	15 minutes	Minimum	0.005	0.002	0.003	0.003	0.006	0.001	0.002
		Maximum	0.008	0.007	0.008	0.007	0.048	0.017	0.027
		Average	0.007	0.005	0.005	0.005	0.012	0.008	0.008

PM 10.0	Averaging Time	Month	February-2023						
		Date	06/02/23	06/02/23	06/02/23	06/02/23	06/02/23	06/02/23	06/02/23
		Location	South Creek	Salisbury Avnue (AF 13)	Kemps Creek	Elizabeth Drive (near AF5)	Range Rd (AF15)	Range Road	Water Tower Access Road
		Weather	SW with 3km/hr, Sunny with 28 degree celcius	SW with 9km/hr, Sunny with 29 degree celcius	SW with 9km/hr, Sunny with 31 degree celcius	SW with 9km/hr, Sunny with 31 degree celcius	SW with 9km/hr, Sunny with 33 degree celcius	SW with 9km/hr, Sunny with 32 degree celcius	NE with 8km/hr, Sunny with 31 degree celcius
		Site Details	No work in progress	T&D and water cart at work	T&d,Excavator,LV's,Moxy passing by & Sheet pile	Trucks passing by	T&d,Excavator,LV's,Moxy at work	Work in progress (Cut/fill)	No work in progress
Criteria = 0.190 mg/m3	15 minutes	Minimum	0.012	0.011	0.008	0.013	0.011	0.002	0.009
		Maximum	0.045	0.056	0.016	0.035	0.144	0.162	0.101
		Average	0.017	0.018	0.027	0.018	0.032	0.029	0.025

### 1.7.3 Attended (Handheld) Monitoring in Duff Road

PM 2.5	Averaging Time	Location	Duff Road			
		Month	Jan-23			
		Week	Week 1	Week 2	Week 3	Week 4
		Date			23/01/23	30/01/23
		Weather			NE with 8Km/hr,Sunny with 27 degree Celcius	NE with 5km/hr, Light showers with 21 degree celcius
Criteria = 0.190 mg/m3	15 minutes	Site Details			No work nearby	No work nearby
		Minimum	0.000	0.000	0.001	0.002
		Maximum	0.000	0.000	0.049	0.061
Average	0.000	0.000	0.003	0.006		

PM 10.0	Averaging Time	Location	Duff Road			
		Month	Jan-23			
		Week	Week 1	Week 2	Week 3	Week 4
		Date			23/01/23	30/01/23
		Weather			NE with 8Km/hr,Sunny with 27 degree Celcius	NE with 5km/hr, Light showers with 21 degree celcius
Criteria = 0.190 mg/m3	15 minutes	Site Details			No work nearby	No work nearby
		Minimum	0.000	0.000	0.004	0.006
		Maximum	0.000	0.000	0.068	0.129
Average	0.000	0.000	0.009	0.017		