SALDANHA STEEL (PTY) LTD

ADDENDUM TO ATMOSPHERIC IMPACT REPORT IN SUPPORT OF THE SALDANHA STEEL AEL AMENDMENT APPLICATION

ARCELORMITTAL SOUTH AFRICA LIMITED

41103718
APRIL 2025

CONFIDENTIAL

SALDANHA STEEL (PTY) LTD

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ARCELORMITTAL SOUTH AFRICA LIMITED

REPORT (VERSION 1) CONFIDENTIAL

PROJECT NO. 41103718
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EXECUTIVE SUMMARY

This report is provided as an addendum to the Atmospheric Impact Report (AIR) developed in 2023 by WSP Group Africa (Pty) Ltd. The original AIR was developed in November 2023, for an Atmospheric Emission Licence (AEL) variation application for the proposed development of a Logistics Hub at the Saldanha Steel (Pty) Ltd (Saldanha Steel) steelworks facility, a subsidiary of ArcelorMittal South Africa Limited (AMSA). The proposed Logistics Hub is for the storage, handling, and export of bulk commodities. Saldanha Steel conducted a public participation meeting on 15 October 2024. An outcome from this meeting was concerns raised regarding the exceedances predicted along the eastern fenceline of Saldanha Steel. These predicted exceedances were predominantly due to the unpaved entrance road to be used for the import of bulk commodities. To address these concerns, Saldanha Steel are proposing to pave a section of this entrance road, from the gate along the OP538 public road to the onsite weighbridge. The paved section of road will be 1.22km in length, aimed at reducing emissions associated with the entrance road, and therefore reducing potential impacts on the receiving environment.

This additional assessment has been conducted to assess the Logistics Hub operations, unchanged as per the original AIR, with the only change associated with paving the entrance road. This entails simulating the original operations with a paved road, namely:

- Scenario 2: Logistics Hub Operations, with the paved entrance road.

The pollutants assessed in this additional assessment remain aligned with the original AIR, with PM_{10}, $PM_{2.5}$ and dust fallout being assessed.

The CALPUFF modelling platform was applied to this additional assessment, aligned with the original AIR approach.

Key findings from this additional assessment comprise:

- With the paving of the entrance road, as described above, emission reductions associated with the use of this road are evident. These reduced emissions have improved the overall impacts on the receiving environment.
- As presented in the original AIR, exceedances of the NAAQS were predicted along this access road. However, by paving this section of road, concentrations remain below the NAAQS in this area, with no exceedances predicted.
- As described above, with the paving of the road, full compliance of the NAAQS and National Dust Control standards is predicted for PM_{10} and $PM_{2.5}$, and dust fallout, respectively.

In WSP's professional opinion and based on the findings of this AIR and recommendations provided, it is recommended Saldanha Steel's AEL be amended to include the operations of the Logistics Hub, with the portion of paved road as assessed in this addendum.

1 INTRODUCTION

This report is provided as an addendum to the Atmospheric Impact Report (AIR) developed in 2023 by WSP Group Africa (Pty) Ltd. The original AIR was developed in November 2023, for an Atmospheric Emission Licence (AEL) variation application for the proposed development of a Logistics Hub at the Saldanha Steel (Pty) Ltd (Saldanha Steel) steelworks facility, a subsidiary of ArcelorMittal South Africa Limited (AMSA). The proposed Logistics Hub is for the storage, handling, and export of bulk commodities.

Saldanha Steel conducted a public participation meeting on 15 October 2024. An outcome from this meeting was concerns raised regarding the exceedances predicted along the eastern fenceline of Saldanha Steel. These predicted exceedances were predominantly due to the unpaved entrance road to be used for the import of bulk commodities.

To address these concerns, Saldanha Steel are proposing to pave a section of this entrance road, from the gate along the OP538 public road to the onsite weighbridge. The paved section of road will be 1.22km in length, aimed at reducing emissions associated with the entrance road, and therefore reducing potential impacts on the receiving environment. Notably, paving the portion of paved road will reduce the length of unpaved road positively reducing the emissions impact.

This additional assessment has been conducted to assess the Logistics Hub operations, unchanged afrom the original AIR, with the only change associated with paving the entrance road. This entails simulating the original operations with a paved road, namely:

- Scenario 2: Logistics Hub Operations, with the paved entrance road.

The proposed Logistics Hub will also make use of the existing rail network to the northeast of the Saldanha Steel facility for the import of Mn material. 50% of the total Mn ore delivered to the Logistics Hub will be via the existing rail and rotary tipplers. The existing rail runs parallel to the R27 approximately 3.23km east of Vredenburg; given this distance, air quality impacts on sensitive receptors are unlikely. Further, Saldanha Steel is unable to enforce emission control measures on the rail operators. Given this, railway related emissions are considered outside the scope of this project.

2 EMISSIONS CHARCTERISATION

For the purposes of this addendum, the original emissions inventory was updated to include the paving of the portion of the entrance. Use was made of the United States Environmental Protection Agency (USEPA) AP-42 emission factors[1] where applicable, as detailed in the following sections, and aligned with the Modelling Regulations.

2.1.1 SCENARIO 2: LOGISTICS HUB OPERATIONS

Logistics Hub operations, as described within the original AIR released for public comment, have not changed. The only change to Logistic Hub operations, to improve emissions, is that a portion of the entrance road will now be paved, reducing truck related emissions due to the use of this road.

It is important to note that the portion of paved road (Entrance road to Weighbridge) will be used as an entrance road for the import of bulk commodities and link with the existing paved exit route for empty haul trucks (Exit haul road).

Given this, the following section only presents those emission sources, and associated emission rates, that are affected by this change i.e. the addition of emissions associated with the paved road, and a reduction in emissions associated with the unpaved roads originally assessed. All other process and/or source related information, that remains unchanged, is presented in the original AIR.

[1] USEPA (1995): Compilation of Air Pollutant Emission Factors (AP-42)

Figure 2-1: Logistics Hub source layout

Saldanha Steel are proposing to pave a section of this entrance road, from the gate along the OP538 public road to the onsite weighbridge. The paved section of road will be 1.22km in length, aimed at reducing emissions associated with the entrance road, and therefore reducing potential impacts on the receiving environment.

It is important to note that the portion of paved road (Entrance road to Weighbridge) will be used as an entrance road for the import of bulk commodities and link with the existing paved exit route for empty haul trucks (Exit haul road).

The proposed Logistics Hub will make use of the existing road network for the export of material commodities from site to the terminal. 50% of the total Mn ore delivered and all other bulk material commodities delivered to the Logistics Hub will be via the existing truck entrance road and weighbridge. Importantly, once the export trucks have been loaded with bulk material within the warehouse, all truck bins will be covered with heavy-duty tarpaulin covers to ensure no dust emissions will occur from the truck bins during transit to the terminal.

Key, paved roads will comprise the onsite paved road routes for vehicles entering and exiting the facility, moving from the warehouse to the waiting area, and haul road route to export bulk material commodities to the terminal. PM emissions generated from vehicles travelling on paved roads were calculated using the US EPA's AP42 Section 13.2.1 Paved Roads equation. The equation quantifies particulate matter emissions from the resuspension of loose material on the road surface due to vehicle travel on a dry paved road:

$$E = k(sL)^{0.91} \times (W)^{1.02} \qquad g/VKT \tag{1}$$

Where E = particulate emission factor

k = particle size multiplier for particle size range

sL = road surface silt loading (g/m²)

W = average weight (tons) of vehicles traveling on the road

This emission factor relates the amount of particulate emissions (in grams) to the number of kilometres travelled by vehicles (VKT). The truck fleet and specifications remain unchanged from the original AIR. **Table 2-1** presents the paved road specifications, while **Table 2-2** presents calculated paved road emission rates.

Table 2-1: Paved road specifications

Paved Road Name	Length (m)	Trips / Day	Total VKT / Day	Total VKT / Year	Updates
Onsite Roads – Haul truck to waiting area	1,989	439	1,747	637,915	Unchanged from original AIR
Haul Road to Terminal	3,109	199	617	225,290	Unchanged from original AIR
Entrance road to weighbridge	1,220	241	294	107,234	New paved section
Exit Haul road	1,630	241	393	143,272	New paved section

Table 2-2: Paved road emission rates

Source Description	TSP Emission Rate (g/m²/s)	PM_{10} Emission Rate (g/m²/s)	$PM_{2.5}$ Emission Rate (g/m²/s)	TSP Emission Rate (t/a)	PM_{10} Emission Rate (t/a)	$PM_{2.5}$ Emission Rate (t/a)	Updates
Onsite Roads – Haul truck to waiting area	2.23E-05	4.31E-06	1.06E-06	1.40E+01	2.70E+00	6.63E-01	Unchanged from original AIR
Haul Road to Terminal	1.00E-5	1.94E-06	4.86E-07	9.81E+00	1.19E+00	4.77E-01	Unchanged from original AIR
Entrance road to weighbridge	2.74E-06	5.27E-07	1.27E-07	1.06E+00	2.03E-01	4.90E-02	New paved section
Haul road to OP538 gate	3.67E-06	7.04E-07	1.70E-07	1.88E+00	3.62E-01	8.75E-02	New paved section

Given that a section of the unpaved road assessed in the original AIR will be paved, the overall unpaved road length is reducing, therefore the emissions will be reduced. PM emissions generated from vehicles travelling on unpaved roads (stockyard road) were calculated using the US EPA's AP42 Section 13.2.2 Unpaved Roads equation.

Table 2-3: Unpaved road specifications

Unpaved Road Name	Length (m)	Trips / Day	Total VKT / Day	Total VKT / Year	Update
Stockyard road	2,261	241	544.48	198,735	Road length reduced from original AIR

Table 2-4: Unpaved road emission rates

Source Description	TSP Emission Rate (g/m²/s)	PM_{10} Emission Rate (g/m²/s)	$PM_{2.5}$ Emission Rate (g/m²/s)	TSP Emission Rate (t/a)	PM_{10} Emission Rate (t/a)	$PM_{2.5}$ Emission Rate (t/a)	Update
Stockyard road	3.93E-05	6.60E-06	6.74E-07	2.80E+01	4.71E+00	4.81E-01	Emission rates reduced as road length is reduced.

3 AMBIENT IMPACT RESULTS

The following section presents the dispersion modelling predictions associated with the Logistics Hub operations unchanged, as per the original AIR, with the only change being the paved portion of the entrance road. For this assessment, particulate matter ground-level concentrations are presented in isopleth format and concentration tables at receptors.

3.1 SENARIO 2: LOGISTICS HUB OPERATIONS

3.1.1 PM_{10} CONCENTRATION PREDICTIONS

Table 3-1 presents predicted PM_{10} concentrations at receptors during Logistics Hub operations at Saldanha Steel, unchanged as per the original AIR, with the only change being the paved portion of the entrance road. **Figure 3-1** illustrates PM_{10} 24-hour average concentrations and **Figure 3-2** illustrates long-term PM_{10} predicted concentrations. Key findings include:

- All residential sensitive receptor concentrations remain well below the 24-hour average and annual standards, with highest concentrations predicted at Camp St, although remaining well below the relevant NAAQS.
- Of the nearest, publicly accessible areas (Main Road), PM_{10} 24-hour concentrations are predicted to remain below the 24-hour average and annual standards. Importantly, this selected receptor does not represent a residential receptor but is rather a nearby road where the public may be exposed to intermittent PM_{10} 24-hour average concentrations.
- The maximum 24-hour average fence line concentration predicted was 17 µg/m^3, remaining well below the 24-hour NAAQS (75 µg/m^3), with a long-term concentration of 4 µg/m^3 predicted, remaining well below the annual NAAQS (40 µg/m^3), both occurring along the northern fence line of Saldanha Steel. Importantly, predicted concentrations disperse substantially with distance from this fence line, with all residential receptor concentrations predicted to be low.
- In the original AIR, with the entrance road unpaved, exceedances were predicted along the eastern fenceline. Paving of the entrance road positively impacts emissions, with no exceedances of the NAAQS predicted. The maximum predicted concentrations remain well below the relevant NAAQS.

Table 3-1: Scenario 2 predicted PM_{10} receptor concentrations

ID	Receptor Name	24-Hour NAAQS (µg/m³)	24-Hour Average (µg/m³)	Annual NAAQS (µg/m³)	Long-Term Average (µg/m³)
R_1	Langebaan Weg	75	0.14	40	0.01
R_2	Main Rd (R399)		2.23		0.55
R_3	Camp St		4.45		0.49
R_4	Saldanha Industrial Development		1.46		0.16
R_5	Curro School Langebaan		0.23		0.02
R_6	Long Acres Country Estate		0.23		0.02
R_7	Mykonos		0.23		0.02
R_8	Paradise Beach		0.27		0.03
R_9	Langebaan Country Estate		0.15		0.01
R_10	Langebaan Clinic		0.14		0.01
R_11	Gerimed Langebaan (Retirement)		0.13		0.01
R_12	Blue Water Bay Lodge		0.51		0.04
R_13	Blue Water Bay		0.43		0.04
R_14	Saldanha Continuous Station		0.21		0.02
R_15	Olive Manor Nursing Home		0.21		0.01
R_16	Saldanha FamMed		0.21		0.01
R_17	Saldanha Aerodrome		0.63		0.05
R_18	Vredenburg (Weskus Mall)		0.20		0.04
R_19	Vredenburg (Witteklip)		0.24		0.06
R_20	Vredenburg (Ongegund)		0.27		0.05
R_21	Life West Coast Private Hospital		0.16		0.03
R_22	Huis Wittekruin (Vredenburg Old Age Home)		0.18		0.03
R_23	Vredenburg Continuous Station		0.13		0.03
R_24	Vredenburg Golf Club		0.27		0.03
	Maximum Fence line Concentration – 24Hr [X: 220703m; Y:6347192m]		17.07		-
	Maximum Fence line Concentration – LT [X: 221093m; Y:6347386m]		-		3.80

Note: Bold, red highlight indicates exceedance of NAAQS

Figure 3-1: Scenario 2 predicted PM_{10} 24-hour concentrations

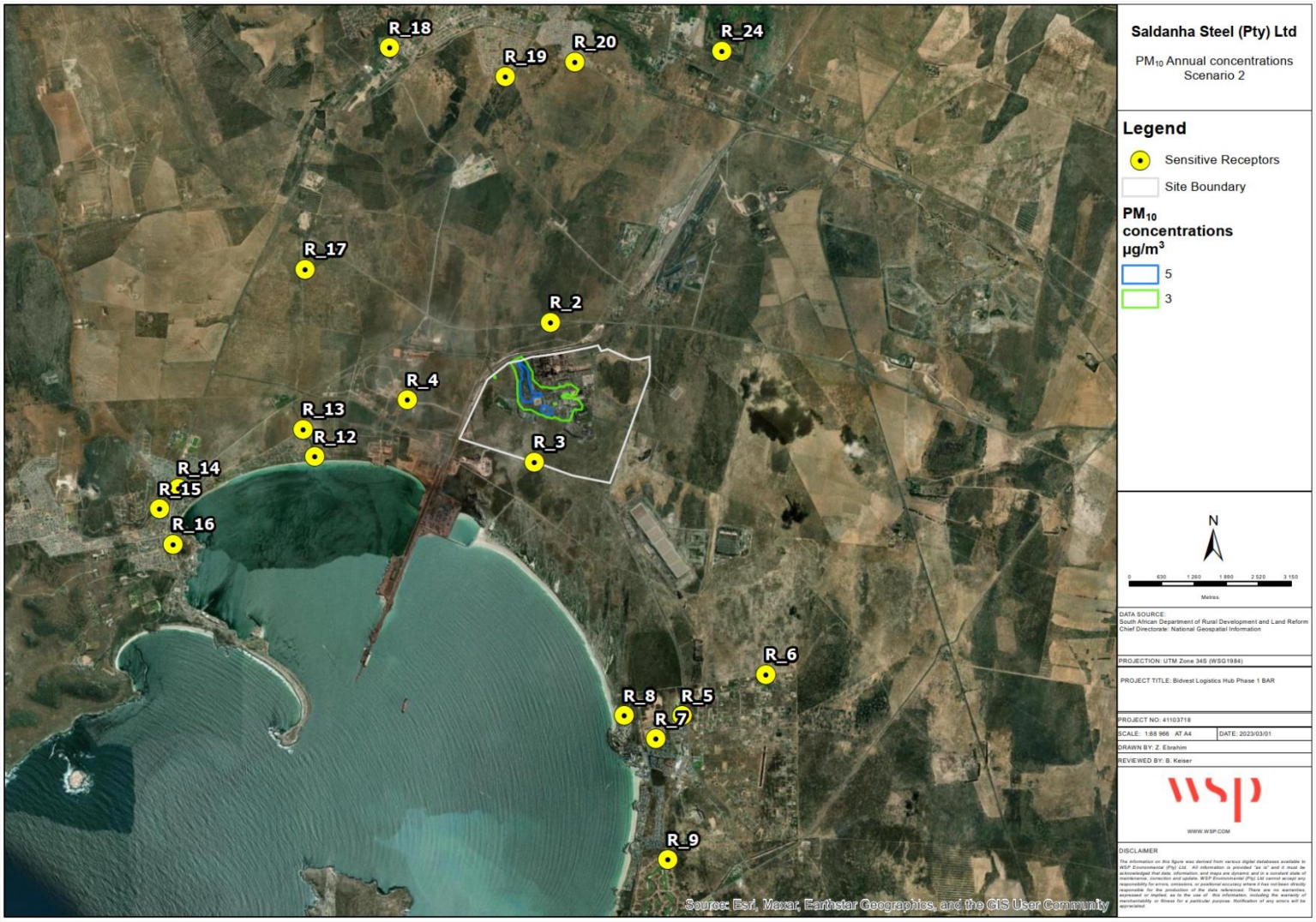

Figure 3-2: Scenario 2 predicted PM_{10} long-term concentrations

3.1.2 $PM_{2.5}$ CONCENTRATION PREDICTIONS

Table 3-2 presents predicted $PM_{2.5}$ concentrations at receptors during Logistics Hub operations at Saldanha Steel, unchanged as per the original AIR, with the only change being the paved portion of the entrance road. **Figure 3-3** illustrates $PM_{2.5}$ 24-hour average concentrations and **Figure 3-4** illustrates long-term $PM_{2.5}$ predicted concentrations. Key findings include:

- All residential sensitive receptor concentrations remain well below the 24-hour average and annual standards, with highest concentrations predicted at Vredenburg (Ongegund), although remaining well below the relevant NAAQS.
- Of the nearest, publicly accessible areas, highest $PM_{2.5}$ 24-hour average and long-term average (annual) concentrations are predicted at Main Road, although remaining below their relevant NAAQS. Importantly, this selected receptor does not represent a residential receptor but is rather a nearby road where the public may be exposed to intermittent $PM_{2.5}$ concentrations.
- The maximum 24-hour average fence line concentration predicted was 14 µg/m^3, remaining well below the 24-hour NAAQS (40 µg/m^3), with a long-term concentration of 2 µg/m^3 predicted, remaining well below the annual NAAQS (20 µg/m^3), both occurring along the northern fence line of Saldanha Steel, both of which are well below their relevant NAAQS. Importantly, predicted concentrations disperse substantially with distance from this fence line, with all residential receptor concentrations predicted to be low.
- In the original AIR, with the entrance road unpaved, exceedances were predicted along the eastern fenceline. Paving of the entrance road positively impacts emissions, with no exceedances of the NAAQS predicted. The maximum predicted concentrations remain well below the relevant NAAQS.

Table 3-2: Scenario 2 predicted $PM_{2.5}$ receptor concentrations

ID	Receptor Name	24-Hour NAAQS (µg/m³)	24-Hour Average (µg/m³)	Annual NAAQS (µg/m³)	Long-Term Average (µg/m³)
R_1	Langebaan Weg	40	0.03	20	0.002
R_2	Main Rd (R399)		0.42		0.100
R_3	Camp St		0.71		0.080
R_4	Saldanha Industrial Development		0.29		0.033
R_5	Curro School Langebaan		0.04		0.004
R_6	Long Acres Country Estate		0.04		0.004
R_7	Mykonos		0.04		0.004
R_8	Paradise Beach		0.05		0.005
R_9	Langebaan Country Estate		0.03		0.003
R_10	Langebaan Clinic		0.03		0.002
R_11	Gerimed Langebaan (Retirement)		0.02		0.002
R_12	Blue Water Bay Lodge		0.10		0.007
R_13	Blue Water Bay		0.07		0.007
R_14	Saldanha Continuous Station		0.04		0.003
R_15	Olive Manor Nursing Home		0.04		0.003
R_16	Saldanha FamMed		0.04		0.003
R_17	Saldanha Aerodrome		0.12		0.010
R_18	Vredenburg (Weskus Mall)		0.03		0.007
R_19	Vredenburg (Witteklip)		0.04		0.010
R_20	Vredenburg (Ongegund)		0.05		0.010
R_21	Life West Coast Private Hospital		0.03		0.006
R_22	Huis Wittekruin (Vredenburg Old Age Home)		0.03		0.005
R_23	Vredenburg Continuous Station		0.02		0.005
R_24	Vredenburg Golf Club		0.05		0.006
	Maximum Fence line Concentration – 24Hr [X: 220735m; Y:6347217m]		3.44		-
	Maximum Fence line Concentration – LT [X: 223293m; Y:6346124m]		-		0.690
Note: Bold, red highlight indicates exceedance of NAAQS					

Figure 3-3: Scenario 2 predicted $PM_{2.5}$ 24-hour concentrations

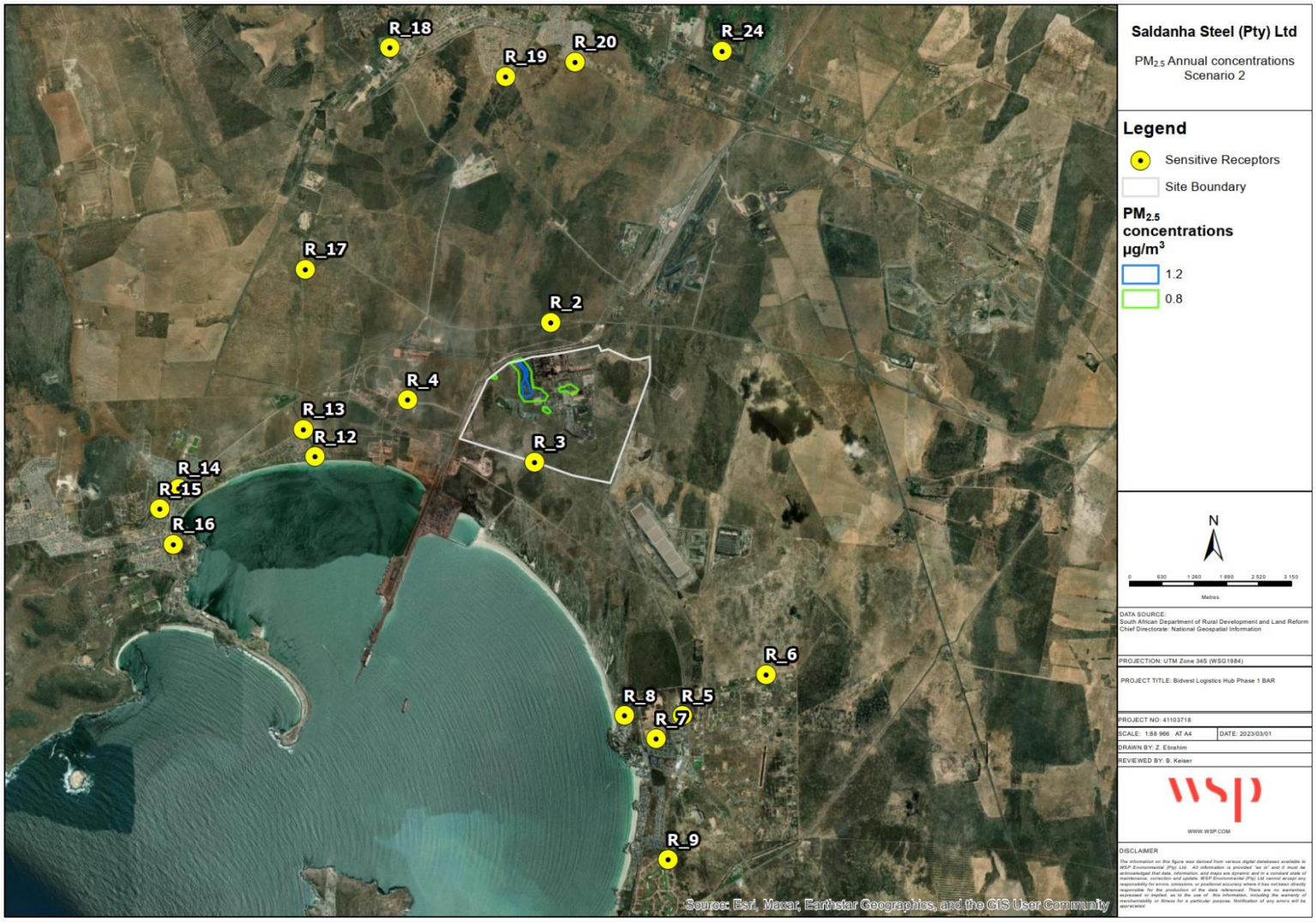

Figure 3-4: Scenario 2 predicted $PM_{2.5}$ long-term concentrations

3.1.3 DUST FALLOUT PREDICTIONS

Table 3-3 presents predicted 30-day average particulate matter dust fallout rates at receptors during Logistics Hub operations at Saldanha Steel, unchanged as per the original AIR, with the only change being the paved portion of the entrance road. **Figure 3-5** illustrates dust fallout rate predictions. Key findings include:

- All residential sensitive receptor fallout rates remain well below the residential standard of 600 mg/m^2/day, with highest fallout rates predicted at Camp St, with a rate of 30 mg/m^2/day predicted, remaining well below the standard.
- The maximum fence line dust fallout rate predicted was 335 mg/m^2/day, occurring along the northern fence line of Saldanha Steel, well within the non-residential standard of 1,200 mg/m^2/day.
- In the original AIR, with the entrance road unpaved, exceedances were predicted along the northern fenceline. Paving of the entrance road positively impacts emissions, with no exceedances of both the residential and non-residential standards.

Table 3-3: Scenario 2 predicted dust fallout rates

ID	Receptor Name	Non-Residential Standard (mg/m^2/day)	Residential Standard (mg/m^2/day)	Dust Fallout Rate (mg/m^2/day)
R_1	Langebaan Weg	-	600	0.5
R_2	Main Rd (R399)	-	600	19.1
R_3	Camp St	-	600	29.9
R_4	Saldanha Industrial Development	-	600	4.6
R_5	Curro School Langebaan	-	600	0.8
R_6	Long Acres Country Estate	-	600	2.6
R_7	Mykonos	-	600	6.1
R_8	Paradise Beach	-	600	1.2
R_9	Langebaan Country Estate	-	600	0.6
R_10	Langebaan Clinic	-	600	0.5
R_11	Gerimed Langebaan (Retirement)	-	600	0.5
R_12	Blue Water Bay Lodge	-	600	1.2
R_13	Blue Water Bay	-	600	1.8
R_14	Saldanha Continuous Station	-	600	0.7
R_15	Olive Manor Nursing Home	-	600	0.7
R_16	Saldanha FamMed	-	600	0.6
R_17	Saldanha Aerodrome	-	600	3.3
R_18	Vredenburg (Weskus Mall)	-	600	2.6

ID	Receptor Name	Non-Residential Standard (mg/m²/day)	Residential Standard (mg/m²/day)	Dust Fallout Rate (mg/m²/day)
R_19	Vredenburg (Witteklip)	-	600	3.9
R_20	Vredenburg (Ongegund)	-	600	6.0
R_21	Life West Coast Private Hospital	-	600	1.6
R_22	Huis Wittekruin (Vredenburg Old Age Home)	-	600	2.0
R_23	Vredenburg Continuous Station	-	600	1.6
R_24	Vredenburg Golf Club	-	600	1.4
	Maximum Fence line Concentration [X: 223293m; Y:6346124m]	1,200	-	335.3
Note: Bold, red highlight indicates exceedance of the National Dust Control Regulations Standard				

Figure 3-5: Scenario 2 predicted dust fallout rates

3.2 CONCLUSION AND RECOMMENDATIONS

Based on the dispersion modelling predictions, the following key, summary findings are noted:

- Predicted concentrations associated with the Logistics Hub operations, unchanged as per the original AIR, with the only change being the paved portion of the entrance road, are predicted to be well within the 24-hour average and long term PM_{10} and $PM_{2.5}$ NAAQS past the Saldanha Steel fence line, with all sensitive receptor concentrations predicted to remain well below the relevant NAAQS.
- Dust fallout rates associated with the Logistics Hub operations, unchanged as per the original AIR, with the only change being the paved portion of the entrance road, are predicted to remain low at all sensitive receptors, well below the residential standard. No exceedances of the non-residential standard are predicted.
- With the paving of the entrance road, as described above, emission reductions associated with the use of this road are evident. These reduced emissions have improved the overall impacts on the receiving environment.
- As presented the original AIR, exceedances of the NAAQS were predicted along this access road. However, by paving this section of road, concentrations remain below the NAAQS in this area, with no exceedances predicted.
- As described above, with the paving of the road, full compliance of the NAAQS and National Dust Control standards is predicted for PM_{10} and $PM_{2.5}$, and dust fallout, respectively.