

**HUNTER VALLEY
OPERATIONS**

**ENVIRONMENT
PROTECTION LICENCE 640
MONITORING DATA -
MARCH 2023**

DOCUMENT NUMBER
HVOOC-1797567310-4659

STATUS
Approved

VERSION
1.0

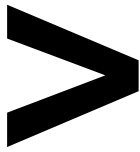
EFFECTIVE
15/08/2023

REVIEW
[Planned Review Date]

OWNER
Environment and Community Officer



| | | |
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1 | OVERVIEW

Environmental Protection Licence Number: 640
Licence Holder: HV Operations Pty Ltd (HVO)
Address of Premises: Hunter Valley Operations, Lemington Road, Singleton, NSW, 2330
Licence Holder Postal Address: PO Box 315, Singleton, NSW, 2330
EPA Public Register Link: <https://apps.epa.nsw.gov.au/prpoeoapp/Detail.aspx?instid=640&id=640&option=licence&searchrange=licence&range=POEO%20licence&prp=no&status=Issued>

The locations of each sampling or monitoring point number identified in EPL 640 are displayed in Figure 1: EPL 640 Monitoring Location.

2 | DEFINITIONS

| Abbreviation | Explanation |
|-------------------------|---|
| DNR | Data Not Received |
| mm/s | Millimetres per Second |
| dB | Decibels |
| g/m ² /month | Grams per Metre Square per Month |
| µg/m ³ | Micrograms per Cubic Meter of Air |
| µS/cm | Microsiemens per Centimetre |
| pH | A measure of the acidity or alkalinity of a solution |
| mg/L | Milligrams per Litre |
| NTU | Nephelometric Turbidity Units |
| ML/day | Megalitres per Day (1ML = 1,000,000L) |
| KL/day | Kilolitres per Day |
| PM10 | Particulate Matter of 10 Microns in diameter or smaller |
| HVAS | High Volume Air Sampler |
| TEOM | Tapered Element Oscillating Microbalance |
| TSP | Total Suspended Particles |
| TSS | Total Suspended Solids |
| t | tonnes |
| YTD | Year To Date - rolling 12 month average |

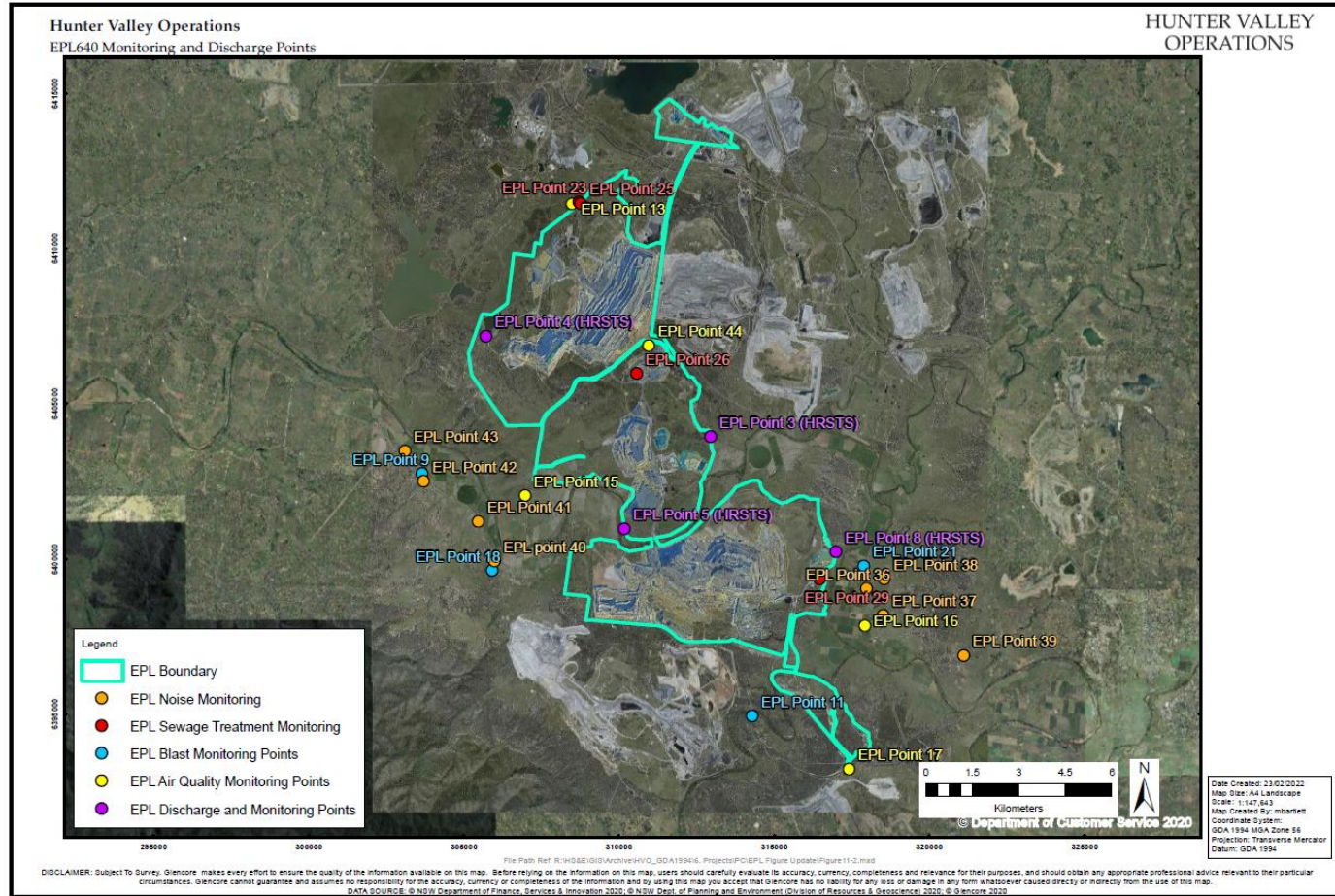
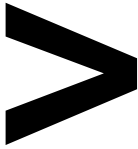


Figure 1: EPL 640 Monitoring Location

3 | AIR QUALITY

Date Last Sampled: 31/03/2023

Date Obtained: 1/04/2023

Table 1 - Particulate Matter Monitoring (<10µm)

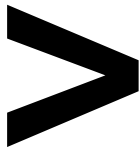
| Date | Unit of Measure | Monitoring Frequency & Capture | EPL ID 13 (Howick) | EPL ID 15 (Wandewoi) | EPL ID 16 (Knodlers Lane) | EPL ID 17 (Golden Highway) | EPL ID 44 (West Pit) |
|------------|-------------------|--------------------------------|--------------------|----------------------|---------------------------|----------------------------|----------------------|
| 1/03/2023 | µg/m ³ | Continuous | 25.6 | 19.0 | 19.1 | 28.7 | 34.9 |
| 2/03/2023 | µg/m ³ | | 24.3 | 16.7 | 16.7 | 20.6 | 23.1 |
| 3/03/2023 | µg/m ³ | | 28.2 | 17.7 | 14.6 | 18.8 | 25.0 |
| 4/03/2023 | µg/m ³ | | 28.7 | 15.7 | 14.7 | 20.4 | 17.1 |
| 5/03/2023 | µg/m ³ | | 35.9 | 23.7 | 35.6 | 30.3 | 48.3 |
| 6/03/2023 | µg/m ³ | | 33.0 | 27.4 | 58.7 | 40.6 | 155.3 |
| 7/03/2023 | µg/m ³ | | 35.1 | 18.6 | 65.1 | 44.5 | 95.1 |
| 8/03/2023 | µg/m ³ | | 43.3 | 23.0 | 66.8 | 39.9 | 114.4 |
| 9/03/2023 | µg/m ³ | | 43.5 | 32.2 | 41.0 | 41.9 | 93.7 |
| 10/03/2023 | µg/m ³ | | 53.1 | 30.1 | 24.2 | 35.1 | 71.7 |
| 11/03/2023 | µg/m ³ | | 35.0 | 20.9 | 25.1 | 30.3 | 57.7 |
| 12/03/2023 | µg/m ³ | | 33.6 | 18.7 | 23.4 | 26.8 | 33.7 |
| 13/03/2023 | µg/m ³ | | 18.9 | 14.5 | 15.5 | 22.7 | 18.4 |
| 14/03/2023 | µg/m ³ | | 21.7 | 12.9 | 13.6 | 19.2 | 20.3 |
| 15/03/2023 | µg/m ³ | | 30.9 | 23.9 | 17.9 | 28.3 | 31.4 |
| 16/03/2023 | µg/m ³ | | 24.3 | 17.1 | 34.2 | 40.4 | 44.9 |
| 17/03/2023 | µg/m ³ | | 48.1 | 38.4 | 33.5 | 33.2 | 64.3 |
| 18/03/2023 | µg/m ³ | | 59.1 | 42.5 | 26.3 | 38.4 | 68.8 |



REPORT | ENVIRONMENT PROTECTION LICENCE 640 MONITORING DATA - MARCH 2023

| Date | Unit of Measure | Monitoring Frequency & Capture | EPL ID 13 (Howick) | EPL ID 15 (Wandewoi) | EPL ID 16 (Knodlers Lane) | EPL ID 17 (Golden Highway) | EPL ID 44 (West Pit) |
|-------------------------|-------------------|--------------------------------|--------------------|----------------------|---------------------------|----------------------------|----------------------|
| 19/03/2023 | µg/m ³ | Continuous | 53.7 | 38.6 | 35.8 | 53.9 | 68.6 |
| 20/03/2023 | µg/m ³ | | 56.6 | 40.3 | 33.3 | 39.6 | 72.6 |
| 21/03/2023 | µg/m ³ | | 28.9 | 25.5 | 16.7 | 21.5 | 20.7 |
| 22/03/2023 | µg/m ³ | | 37.7 | 24.9 | 18.4 | 29.2 | 27.5 |
| 23/03/2023 | µg/m ³ | | * | 18.4 | 30.5 | 19.6 | 62.3 |
| 24/03/2023 | µg/m ³ | | 21.5 | 15.0 | 11.8 | * | 20.8 |
| 25/03/2023 | µg/m ³ | | 11.5 | 18.4 | 6.3 | * | 10.6 |
| 26/03/2023 | µg/m ³ | | 16.7 | 27.1 | 8.9 | * | 14.2 |
| 27/03/2023 | µg/m ³ | | 16.6 | 14.1 | 8.6 | * | 22.5 |
| 28/03/2023 | µg/m ³ | | 17.7 | 14.4 | 12.1 | 17.2 | 24.9 |
| 29/03/2023 | µg/m ³ | | 8.5 | 10.1 | 11.1 | 14.0 | 17.0 |
| 30/03/2023 | µg/m ³ | | 4.2 | 7.0 | 13.1 | 10.4 | 27.1 |
| 31/03/2023 | µg/m ³ | | 12.8 | 7.5 | 15.5 | 43.2 | 40.3 |
| Monthly Meaningful Data | | | | | | | |
| March | µg/m ³ | Minimum | 4.2 | 7.0 | 6.3 | 10.4 | 10.6 |
| | µg/m ³ | Mean | 30.3 | 21.8 | 24.8 | 30.0 | 46.7 |
| | µg/m ³ | Maximum | 59.1 | 42.5 | 66.8 | 53.9 | 155.3 |
| | µg/m ³ | Median | 28.8 | 18.7 | 18.4 | 29.2 | 33.7 |

* Less than 75% data capture



4 | SURFACE WATER MONITORING DATA

No discharges under the HRSTS occurred during March.

Table 2 - HRSTS Discharge Monitoring

| Discharge Point | Pollutant | Unit of Measure | Licence Limits | No. Samples Required by Licence | No. Samples Collected and Analysed |
|------------------------|------------------------|------------------------|-----------------------|--|---|
| EPL ID 3 (Dam 11N) | pH | pH | 6.5-9.5 | 0 | 0 |
| | Total Suspended Solids | Milligrams per Litre | 120 | 0 | 0 |
| EPL ID 4 (Dam 9W) | pH | pH | 6.5-9.5 | 0 | 0 |
| | Total Suspended Solids | Milligrams per Litre | 120 | 0 | 0 |
| EPL ID 8 (Dam 15S) | pH | pH | 6.5-9.5 | 0 | 0 |
| | Total Suspended Solids | Milligrams per Litre | 120 | 0 | 0 |

REPORT | ENVIRONMENT PROTECTION LICENCE 640 MONITORING DATA - MARCH 2023

5 | BLAST MONITORING DATA

Date Last Sampled: 30/03/2023

Date Obtained: 1/04/2023

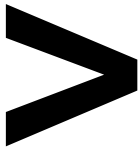
Table 3 – Blast Monitoring (Air Blast Overpressure and Ground Vibration)

| Blast ID | Date & Time | Unit of Measure | Monitoring Frequency & Capture | EPL Limits | | Monitoring Point | | | |
|----------------------------------|---------------------|-----------------|--------------------------------|---------------|----------------|--------------------------|------------------------|-----------------------|---------------------|
| | | | | 95% of Blasts | 100% of Blasts | Moses Crossing EPL ID 18 | Jerrys Plains EPL ID 9 | Maison Dieu EPL ID 21 | Warkworth EPL ID 11 |
| P208BR506B_P208BYP04A | 1/03/2023 13:04 | dB(L) | All blasts 100% | 115 | 120 | 91.33 | 95.32 | 91.41 | 90.48 |
| WS49LEB01A | 2/03/2023 13:07 | dB(L) | | 115 | 120 | 100.38 | 104.14 | 101.26 | 88.84 |
| P208BR506D | 9/03/2023 14:17 | dB(L) | | 115 | 120 | 96.94 | 109.82 | 91.14 | 94.96 |
| P209N2002A_P209W9P02C_P209M4P01A | 9/03/2023 14:17 | dB(L) | | 115 | 120 | 90.68 | 110.82 | 99.65 | 101.71 |
| WS47LEB04A | 10/03/2023 13:02 | dB(L) | | 115 | 120 | 99.28 | 92.86 | 90.99 | 98.53 |
| WS46U2A02A_WS46BAP01A | 15/03/2023 13:48 | dB(L) | | 115 | 120 | 89.99 | 81.89 | 85.65 | 97.75 |
| P208BR603A_P208BYP05A | 16/03/2023 13:12 | dB(L) | | 115 | 120 | 93.70 | 101.59 | 104.10 | 102.33 |



REPORT | ENVIRONMENT PROTECTION LICENCE 640 MONITORING DATA - MARCH 2023

| Blast ID | Date & Time | Unit of Measure | Monitoring Frequency & Capture | EPL Limits | | Monitoring Point | | | |
|-----------------------|---------------------|-----------------|--------------------------------|---------------|----------------|--------------------------|------------------------|-----------------------|---------------------|
| | | | | 95% of Blasts | 100% of Blasts | Moses Crossing EPL ID 18 | Jerrys Plains EPL ID 9 | Maison Dieu EPL ID 21 | Warkworth EPL ID 11 |
| P125WK901A_P125W9P01A | 16/03/2023 13:14 | dB(L) | All blasts 100% | 115 | 120 | 86.85 | 115.54 | 101.69 | 98.56 |
| M1T111501B | 18/03/2023 15:10 | dB(L) | | 115 | 120 | 94.15 | 95.75 | 97.13 | 93.81 |
| WS49LEB01B | 20/03/2023 13:13 | dB(L) | | 115 | 120 | 102.48 | 104.87 | 105.11 | 88.28 |
| WN49LDP01A | 20/03/2023 13:13 | dB(L) | | 115 | 120 | 104.37 | 105.99 | 105.11 | 97.30 |
| WS46U2A01A_WS46BAP01B | 22/03/2023 14:40 | dB(L) | | 115 | 120 | 88.25 | 94.79 | 89.07 | 92.56 |
| WN47ULD03A_WN47ULP03A | 23/03/2023 13:17 | dB(L) | | 115 | 120 | 91.63 | 106.68 | 94.64 | 93.76 |
| P208BR506C | 23/03/2023 16:55 | dB(L) | | 115 | 120 | 96.52 | 97.36 | 96.71 | 99.05 |
| WN47ULD03B | 25/03/2023 16:01 | dB(L) | | 115 | 120 | 96.37 | 102.38 | 107.06 | 88.38 |
| WS49ARC06A_WS49BAY19A | 25/03/2023 16:03 | dB(L) | | 115 | 120 | 103.97 | 104.92 | 108.92 | 96.75 |



REPORT | ENVIRONMENT PROTECTION LICENCE 640 MONITORING DATA - MARCH 2023

| Blast ID | Date & Time | Unit of Measure | Monitoring Frequency & Capture | EPL Limits | | Monitoring Point | | | |
|--------------------------------|---------------------|-----------------|--------------------------------|---------------|----------------|--------------------------|------------------------|-----------------------|---------------------|
| | | | | 95% of Blasts | 100% of Blasts | Moses Crossing EPL ID 18 | Jerrys Plains EPL ID 9 | Maison Dieu EPL ID 21 | Warkworth EPL ID 11 |
| WN47ULD04A | 30/03/2023 16:10 | dB(L) | | 115 | 120 | 93.38 | 95.92 | 108.98 | 100.24 |
| Monthly Meaningful Data | | | | | | | | | |
| March | dB(L) | Minimum | 115 | 120 | 86.85 | 81.89 | 85.65 | 88.28 | |
| | dB(L) | Mean | 115 | 120 | 95.31 | 101.21 | 98.74 | 95.49 | |
| | dB(L) | Maximum | 115 | 120 | 108.85 | 115.54 | 108.98 | 102.33 | |
| | dB(L) | Median | 115 | 120 | 94.15 | 102.38 | 99.65 | 96.75 | |



REPORT | ENVIRONMENT PROTECTION LICENCE 640 MONITORING DATA - MARCH 2023

| Blast ID | Date & Time | Unit of Measure | Monitoring Frequency & Capture | EPL Limits | | | Monitoring Point | | |
|----------------------------------|---------------------|-----------------|--------------------------------|---------------|----------------|--------------------------|------------------------|-----------------------|---------------------|
| | | | | 95% of Blasts | 100% of Blasts | Moses Crossing EPL ID 18 | Jerrys Plains EPL ID 9 | Maison Dieu EPL ID 21 | Warkworth EPL ID 11 |
| P208BR506B_P208BYP04A | 1/03/2023 13:04 | mm/s | All Blasts 100% | 5 | 10 | 0.10 | 0.03 | 0.17 | 0.16 |
| WS49LEB01A | 2/03/2023 13:07 | mm/s | | 5 | 10 | 0.12 | 0.07 | 0.03 | 0.48 |
| P208BR506D | 9/03/2023 14:17 | mm/s | | 5 | 10 | 0.11 | 0.05 | 0.46 | 0.17 |
| P209N2002A_P209W9P02C_P209M4P01A | 9/03/2023 14:17 | mm/s | | 5 | 10 | 0.21 | 0.11 | 0.53 | 1.05 |
| WS47LEB04A | 10/03/2023 13:02 | mm/s | | 5 | 10 | 0.25 | 0.11 | 0.05 | 0.48 |
| WS46U2A02A_WS46BAP01A | 15/03/2023 13:48 | mm/s | | 5 | 10 | 0.21 | 0.10 | 0.09 | 0.45 |
| P208BR603A_P208BYP05A | 16/03/2023 13:12 | mm/s | | 5 | 10 | 0.27 | 0.13 | 0.68 | 0.89 |
| P125WK901A_P125W9P01A | 16/03/2023 13:14 | mm/s | | 5 | 10 | 0.22 | 0.09 | 0.14 | 0.46 |
| M1T111501B | 18/03/2023 15:10 | mm/s | | 5 | 10 | 0.16 | 0.13 | 0.04 | 0.13 |
| WS49LEB01B | 20/03/2023 13:13 | mm/s | | 5 | 10 | 0.12 | 0.04 | 0.04 | 0.14 |
| WN49LDP01A | 20/03/2023 13:13 | mm/s | | 5 | 10 | 0.15 | 0.07 | 0.04 | 0.44 |
| WS46U2A01A_WS46BAP01B | 22/03/2023 14:40 | mm/s | | 5 | 10 | 0.18 | 0.11 | 0.11 | 0.58 |
| WN47ULD03A_WN47ULP03A | 23/03/2023 13:17 | mm/s | | 5 | 10 | 0.22 | 0.24 | 0.10 | 0.24 |



REPORT | ENVIRONMENT PROTECTION LICENCE 640 MONITORING DATA - MARCH 2023

| Blast ID | Date & Time | Unit of Measure | Monitoring Frequency & Capture | EPL Limits | | | Monitoring Point | | |
|-------------------------|---------------------|-----------------|--------------------------------|---------------|----------------|--------------------------|------------------------|-----------------------|---------------------|
| | | | | 95% of Blasts | 100% of Blasts | Moses Crossing EPL ID 18 | Jerrys Plains EPL ID 9 | Maison Dieu EPL ID 21 | Warkworth EPL ID 11 |
| P208BR506C | 23/03/2023 16:55 | mm/s | | 5 | 10 | 0.13 | 0.04 | 0.10 | 0.20 |
| WN47ULD03B | 25/03/2023 16:01 | mm/s | | 5 | 10 | 0.16 | 0.08 | 0.04 | 0.12 |
| WS49ARC06A_WS49BAY19A | 25/03/2023 16:03 | mm/s | | 5 | 10 | 0.14 | 0.05 | 0.06 | 0.16 |
| WN47ULD04A | 30/03/2023 16:10 | mm/s | | 5 | 10 | 0.24 | 0.22 | 0.15 | 0.86 |
| Monthly Meaningful Data | | | | | | | | | |
| March | mm/s | Minimum | 5 | 10 | 0.10 | 0.02 | 0.02 | 0.08 | |
| | mm/s | Mean | 5 | 10 | 0.19 | 0.09 | 0.15 | 0.35 | |
| | mm/s | Maximum | 5 | 10 | 0.88 | 0.24 | 0.45 | 1.35 | |
| | mm/s | Median | 5 | 10 | 0.15 | 0.07 | 0.08 | 0.29 | |



6 | SEWAGE TREATMENT PLANT MONITORING DATA

Date Sampled: 15th March 2023

Date Obtained: 20th April 2023

Table 4 Sewage Treatment Plant Monitoring

| Monitoring Site | Date & Time | Pollutant | Unit of Measure | Monitoring Result |
|-----------------|------------------------|------------------|----------------------------|-------------------|
| EPA ID 23 | 15/03/2023 08:30:00 | Faecal Coliforms | Colony forming units/100ml | 3,300,000 |
| | | pH | pH | 7.24 |
| EPA ID 25 | 15/03/2023 08:40:00 | Faecal Coliforms | Colony forming units/100ml | 78,000 |
| | | pH | pH | 7.51 |
| EPA ID 26 | 15/03/2023 10:45:00 | Faecal Coliforms | Colony forming units/100ml | 2,300,000 |
| | | pH | pH | 7.33 |
| EPA ID 29 | 15/03/2023 12:30:00 | Faecal Coliforms | Colony forming units/100ml | ~95,000 |
| | | pH | pH | 9.18 |

7 | NOISE MONITORING DATA

Date Sampled: 15/03/2023

Date Obtained: 17/04/2023

Table 5 Night $L_{Aeq,15minute}$ and $L_{A1,1minute}$ Generated by HVO Against EPL Criteria

| Location | Start date and time | Wind | | Stability class | Very enhancing? ¹ | EPL limits, dB ¹ | | HVO levels, dB | | Exceedances, dB | |
|---------------------------------|---------------------|-----------|------------------------|-----------------|------------------------------|-----------------------------|---------------|---------------------------------|---------------|--------------------|---------------|
| | | Speed m/s | Direction ³ | | | $L_{Aeq,15minute}$ | $L_{A1,1min}$ | $L_{Aeq,15minute}$ ² | $L_{A1,1min}$ | $L_{Aeq,15minute}$ | $L_{A1,1min}$ |
| Shearers Lane | 15/03/2023 21:31 | 2.2 | 124 | E | Yes | 35 | 46 | IA | IA | Nil | Nil |
| Knodlers Lane | 15/03/2023 21:53 | 2.2 | 131 | E | Yes | 35 | 46 | IA | IA | Nil | Nil |
| Maison Dieu | 15/03/2023 21:10 | 1.8 | 127 | E | Yes | 35 | 46 | IA | IA | Nil | Nil |
| Long Point (Dights Crossing) | 15/03/2023 22:43 | 2.5 | 140 | D | Yes | 35 | 46 | IA | IA | Nil | Nil |
| Kilburnie South | 15/03/2023 23:13 | 1.0 | 125 | D | Yes | 39 | 46 | IA | IA | Nil | Nil |
| Jerrys Plains East | 15/03/2023 22:52 | 2.5 | 140 | D | Yes | 39 | 46 | 31 | 35 | Nil | Nil |
| Jerrys Plains Village | 15/03/2023 21:21 | 1.8 | 127 | E | Yes | 40 | 46 | 31 | 35 | Nil | Nil |
| Jerrys Plains West | 15/03/2023 21:01 | 1.7 | 137 | E | Yes | 40 | 46 | 30 | 40 | Nil | Nil |

Notes: 1. Noise limits are adjusted by +5 dB during 'very noise-enhancing meteorological conditions' in accordance with the NPfl.

2. Site-only $L_{Aeq,15minute}$, includes modifying factor penalties if applicable.

3. Degrees magnetic north, "-" indicates calm conditions.