

Report To  
**AUSTRALIAN RAIL TRACK CORPORATION LTD**  
Southern Sydney Freight Line Project  
**(JOB NO. 13379E)**  
METEOROLOGICAL MONITORING RESULTS FOR  
**Villawood**  
**Period: April 2009**



Prepared by:

**ESP – ENVIRONMENTAL & SAFETY PROFESSIONALS**

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## 1. BACKGROUND

Australian Rail Track Corporation Ltd (A.R.T.C. Ltd) is constructing the Southern Sydney Freight Line (SSFL), a thirty six (36) kilometre long, dedicated freight rail line alongside the existing passenger rail line between Macarthur and Sefton Railway Stations, Sydney NSW.

ESP – Environmental has been contracted by A.R.T.C. Ltd to establish two (2) stand-alone ‘weather stations’ to monitor typical meteorological conditions for this rail corridor during the construction period.

ESP will establish one (1) weather station in each of two (2) discreet contract zones.

## 2. LOCATION

A.R.T.C. directed ESP to locate the monitoring stations within its contractor’s compounds. ESP has now established one (1) weather station within the site compound of contractor, Arenco (NSW) Pty Ltd. (Gate 11), Llewellyn Ave., Villawood. This site will be referred to hereafter as the Villawood site.





### 3. PURPOSE OF MONITORING

ESP understands the purpose of this monitoring regime as pursuant to approval consent conditions imposed by the EPA when granting A.R.T.C. Ltd an Environmental Protection Licence under the Protection Of the Environment Operations Act 1997.

### 4. SCOPE OF WORK

ESP understands the scope of work to be monitoring, at the two (2) locations, for:

- wind conditions, directional and velocity and
- temperature and humidity

The information will be represented in both tabular and graphical form for a variety of parameters.

### 5. WEATHER STATION EQUIPMENT

ESP – Environment & Safety Professionals will be utilising the Weathermaster 1600 manufactured by Envirodata Australia Pty Ltd in Warwick, Queensland and its *'Envirodata Compact Weather Data Recording System'*

This equipment will monitor for:

1	AVERAGE	Air Temperature	DegC
2	MAXIMUM	Air Temperature	DegC
3	MINIMUM	Air Temperature	DegC
4	AVERAGE	Wind Speed	km/h
5	MAXIMUM	Wind Speed	km/h
6	CURRENT	Wind Direction	Deg
7	AVERAGE	Relative Humidity	%
8	MAXIMUM	Relative Humidity	%
9	MINIMUM	Relative Humidity	%
10	VWSP	Wind Speed	km/h
11	VWDIR	Wind Direction	Deg
12	MAXIMUM	Peak Wind Gust	km/h

Monitoring will be 24 hour with logging (or sampling) frequency in 15 minute, hourly and daily summary report form. Current readings are available but would require an ESP staff member being present on site.

## 6. DATA PRESENTATION

### Wind Rose Graph

A 'wind rose' diagram shows the spread or distribution of wind speeds for each wind direction for the chosen period. This graph depicts the frequency of occurrence of winds in each of the specified wind direction sectors and wind classes for a given location and time period.

The length of a particular colour equates to the frequency of occurrence of that speed **range**. The overall length in a particular direction represents the frequency of occurrence of that particular **direction**.

The 'calm' value (in the centre) shows the percentage of time when there was no wind.

### Wind Rose Table

The Wind Rose table shows the same information numerically. Data is expressed as a percentage of the total time (called 'normalised').

The total at the bottom of each column shows the percentage of time for a particular direction. The total to the right of each row shows the total time for each speed.

# Appendix A

## Villawood Site Data

April 2009

**Table Summary For April 2009**

	<b>Temperature</b>	<b>Humidity</b>	<b>Wind</b>
<b>Max.</b>	30.0	99.0	25.2
<b>Min.</b>	8.7	15.7	
<b>Av.</b>	18.6	65.45	12.322

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	Av. Air Temp. [ DegC]	Max. Air Temp. [ DegC]	Min. Air Temp. [ DegC]	Av. Wind Speed [ km/h]	Max. Wind Speed [ km/h]	Av. Relative Humidity [ %]	Max. Relative Humidity [ %]	Min. Relative Humidity [ %]	Max. Peak Wind Gust [ km/h]
Average	18.6	24.356	14.141	2.95	12.322	62.45	86.709	36.563	20.522
Minimum	13	18.6	8.7	0	0	35.7	52.8	15.7	0
Maximum	22.5	30	19.3	7.5	25.2	88	99	68.2	40
Total	559.7	730.7	424.5	86.9	369.1	1874.7	2622.9	1086.1	614
1/04/2009	19.9	22.7	18.3	4.9	18.6	86.7	93.9	68.2	28
2/04/2009	21	24.5	19	5	16.7	84.9	95.6	62.7	28
3/04/2009	21.8	25.8	19.3	4	15.7	83.3	96.1	56.2	24
4/04/2009	22.4	28.5	18.1	3.2	16.4	75.3	90.5	48.8	26
5/04/2009	18.5	20.7	16.8	2.8	8.9	64.2	75.5	50.9	18
6/04/2009	19.8	26.6	14	2.9	11.1	64.6	94.5	38.3	20
7/04/2009	18	22.4	14.6	3.1	10.6	60.6	78.9	43.4	18
8/04/2009	16.3	22.4	10.5	2	11.1	66.1	92.8	42.5	18
9/04/2009	17.8	24.3	12.7	2.2	11.5	71.2	96.6	37.3	20
10/04/2009	17.7	25.1	11.4	2.6	14.4	74.4	98.8	37.3	18
11/04/2009	19.9	26.7	15.3	1.2	8.4	70.7	95.5	35.6	12
12/04/2009	20.9	25.1	17.9	1.3	7.8	74.2	94.8	40.5	12
13/04/2009	22.5	27.6	19.3	1.2	6.5	67.7	86.2	37.7	8
14/04/2009	19.3	23.2	17.3	2	10.2	88	96.7	63.8	14
15/04/2009	19.6	29.2	13.8	1.9	11.9	78.8	99	33.8	20
16/04/2009	21.5	30	13	0	0	35.7	67.9	16.2	0
17/04/2009	22.3	28.5	12.7	2.4	8.1	42.2	73.4	19.6	19
18/04/2009	18.6	20.7	16.8	1.9	9.7	41.4	79.7	23.1	16
19/04/2009	19.8	26.6	12.7	3.6	10.2	44.3	96.1	37.2	22
20/04/2009	18.2	22.4	14	4.1	8.8	52.1	98.8	35.1	24
21/04/2009	16.3	22.4	15.3	1.2	10.6	60.3	95.6	17.6	21
22/04/2009	17.8	24.3	10.5	1.3	11.1	58.2	94.9	22.8	17
23/04/2009	17.7	25.1	14.6	1.2	11.5	63.1	86.5	16.5	23
24/04/2009	17.2	27.8	11.1	0.7	9.5	67.5	96.7	15.7	14
25/04/2009	19.8	25	13.6	4.3	16.3	55	97.5	39.7	26

Monitoring Site: Contractor, Arenco (NSW) Pty Ltd's construction compound in Llewellyn Street, Villawood

(Data collected and presented by ESP - Environmental Safety Professionals)

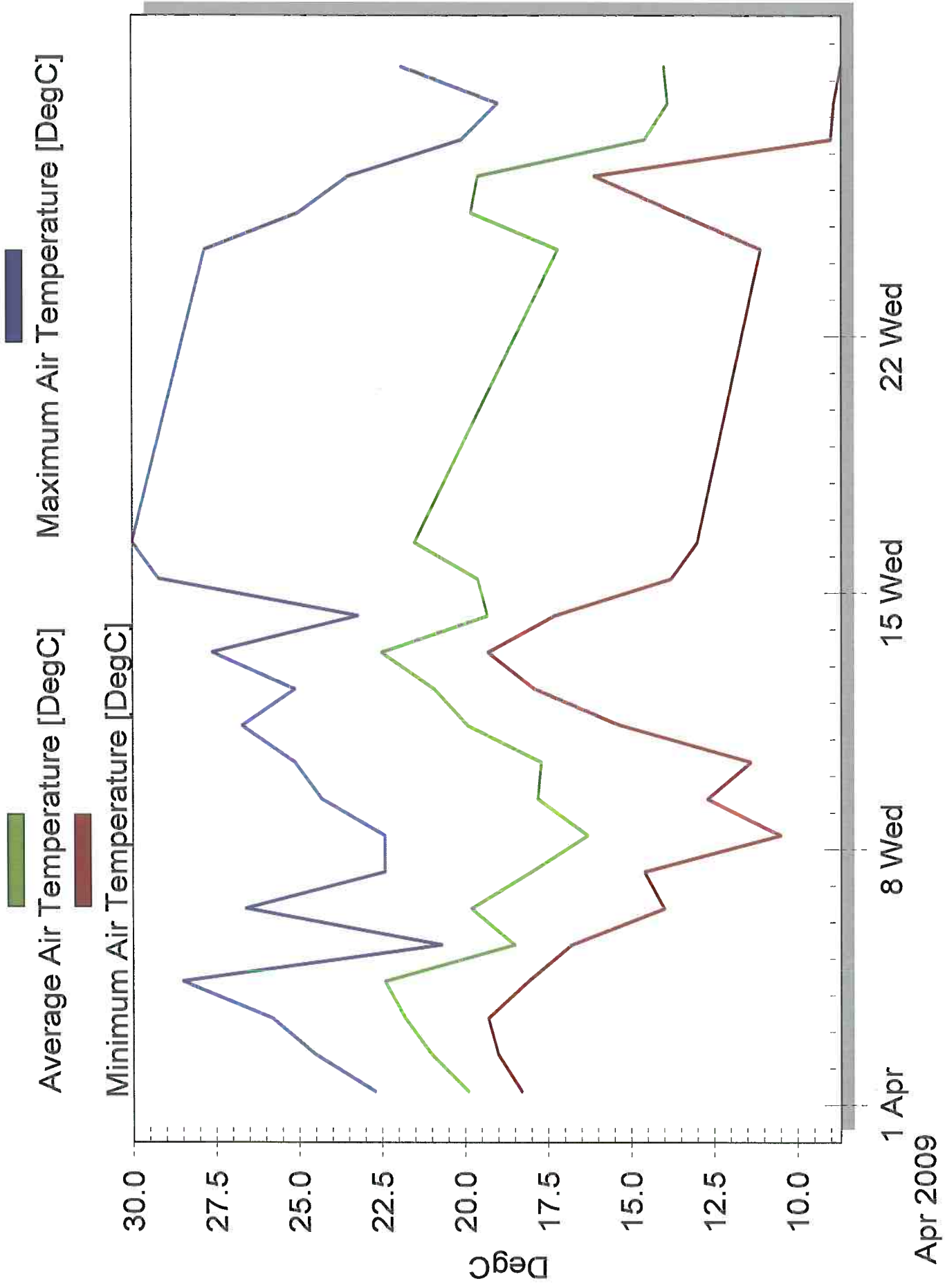
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WEATHER DATA REPORT FOR APRIL 2009

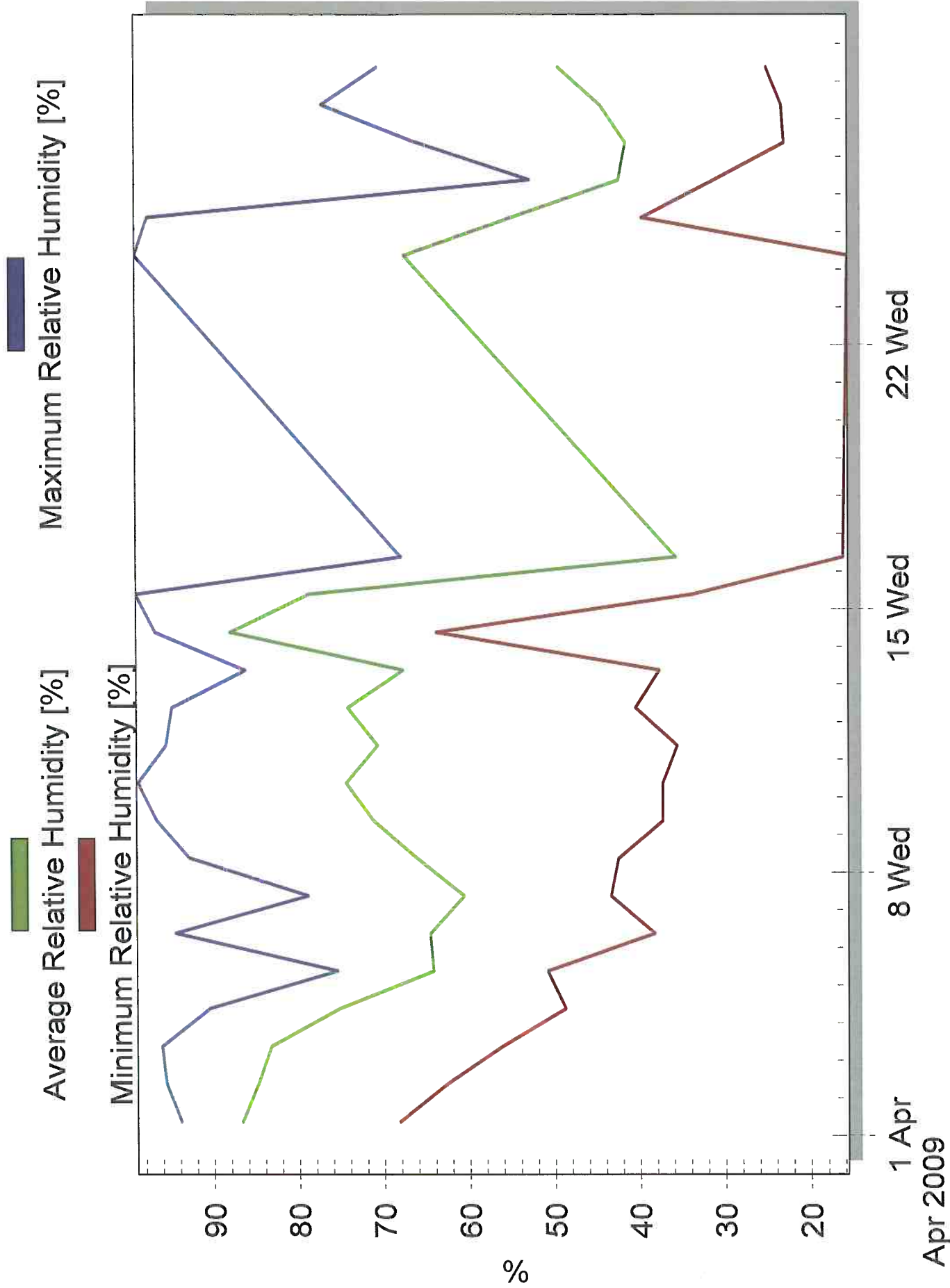
26/04/2009	19.6	23.5	16.1	7.5	19.2	42.3	52.8	31.2	34
27/04/2009	14.6	20.1	9	6.9	25.2	41.5	66	23	40
28/04/2009	13.9	19	8.9	4.4	18.5	44.5	77.1	23.3	26
29/04/2009	14	21.9	8.7	4.4	20.5	49.4	70.6	25.1	30
30/04/2009	13	18.6	9.2	2.7	10.1	66.5	83.9	43	18

\END OF DATA

# Villawood\_Temp.\_April 2009



# Villawood\_Humidity\_April 2009



# Villawood\_Wind\_April 2009

