

SITE
ANALYSIS
by URBANFINITY



SITE ANALYSIS PLAN

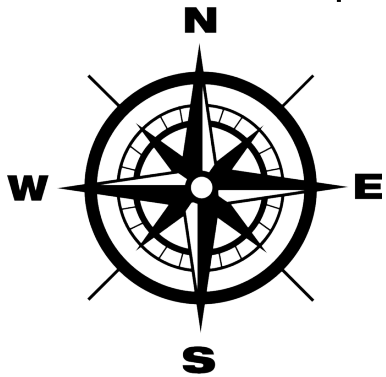
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Site Address: 13 Pineview Ave
Roselands, 2196 NSW
CRS: MGA Zone EPSG:28356
Extent: 321197.3, 6243230.8
321247.3, 6243280.8

Nearmap Imagery:

Latitude: -33.93599°
Longitude: 151.06567°
Resolution: 0.050 m
Capture Date: 2022-06-13

Orientation: True North
Tile Size: 50m x 50m
Scale: 5.0 m



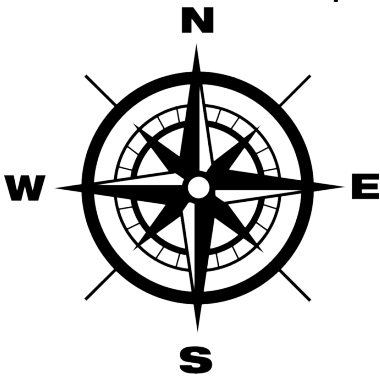
SITE CADASTRE

©URBANFINITY

Site Address: 13 Pineview Ave
Roselands, 2196 NSW
CRS: MGA Zone EPSG:28356
Extent: 321197.3, 6243230.8
321247.3, 6243280.8

Cadastrre:
Latitude: -33.93599°
Longitude: 151.06567°
Cadastral Title: 13//DP30270
Cadastral Area: 464.72 sqm

Orientation: True North
Tile Size: 50m x 50m
Scale: 5.0 m



SITE ANALYSIS

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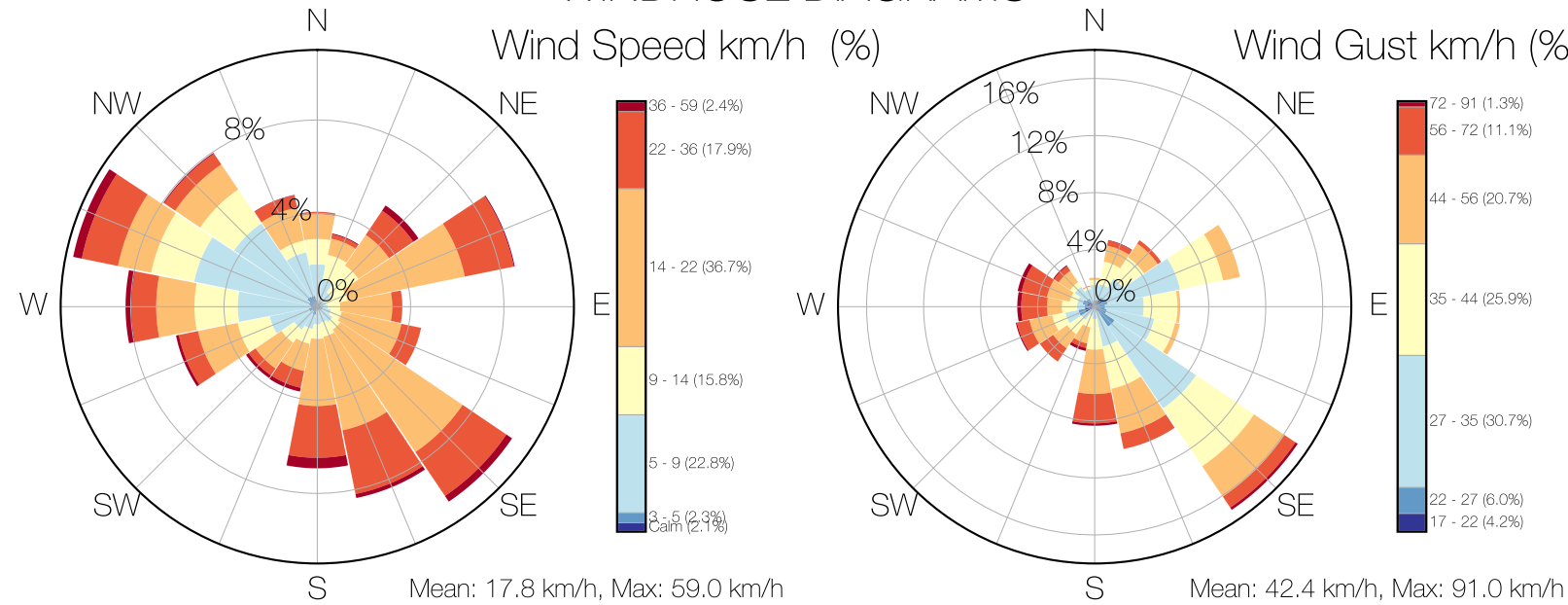
13 Pineview Ave, Roselands NSW 2196, Australia

LOCATION INFORMATION

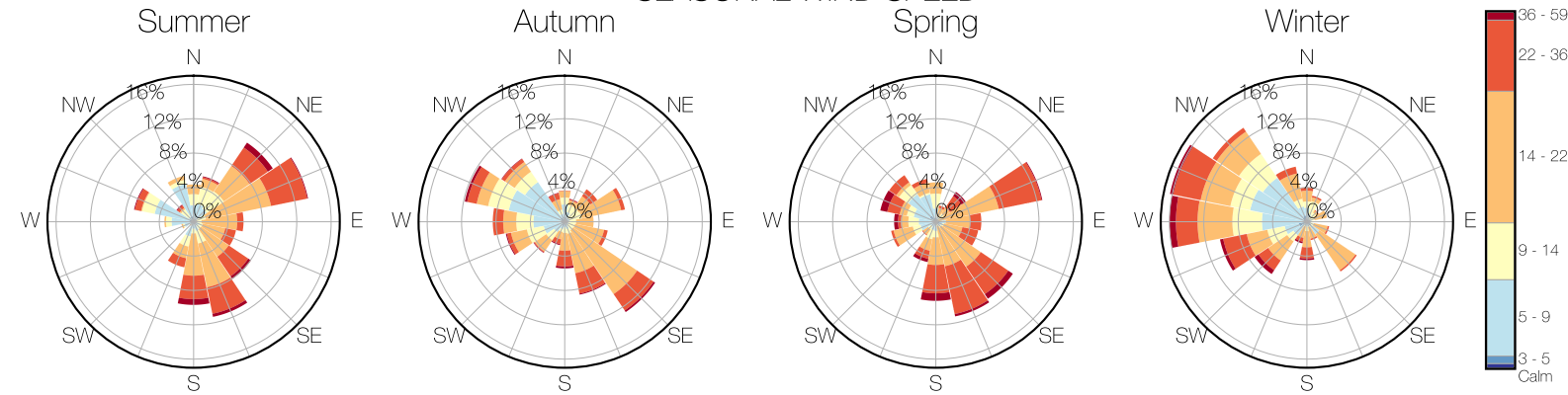
LAT: -33.9360 deg, LNG: 151.0657 deg

BOM STATION NUMBERS: 66194, 66137 and 66037

WINDROSE DIAGRAMS

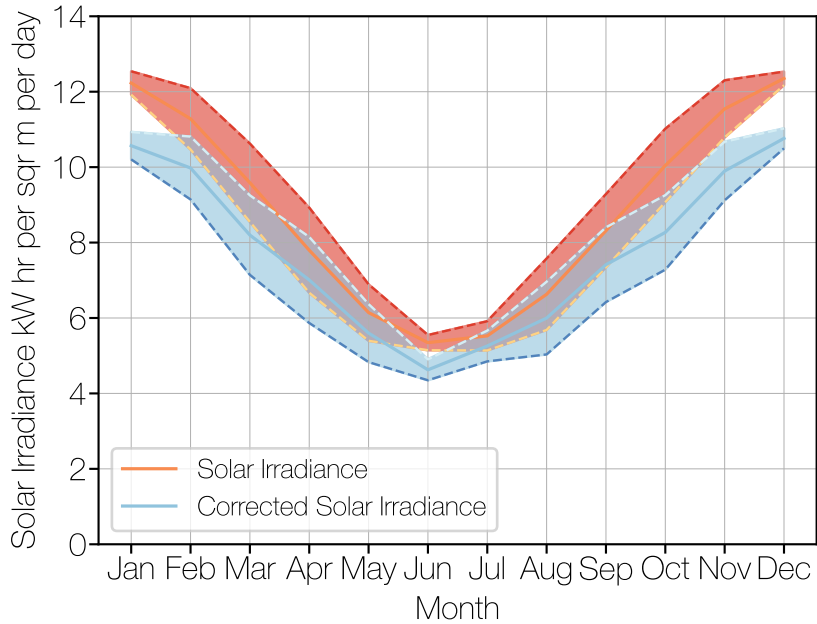


SEASONAL WIND SPEED

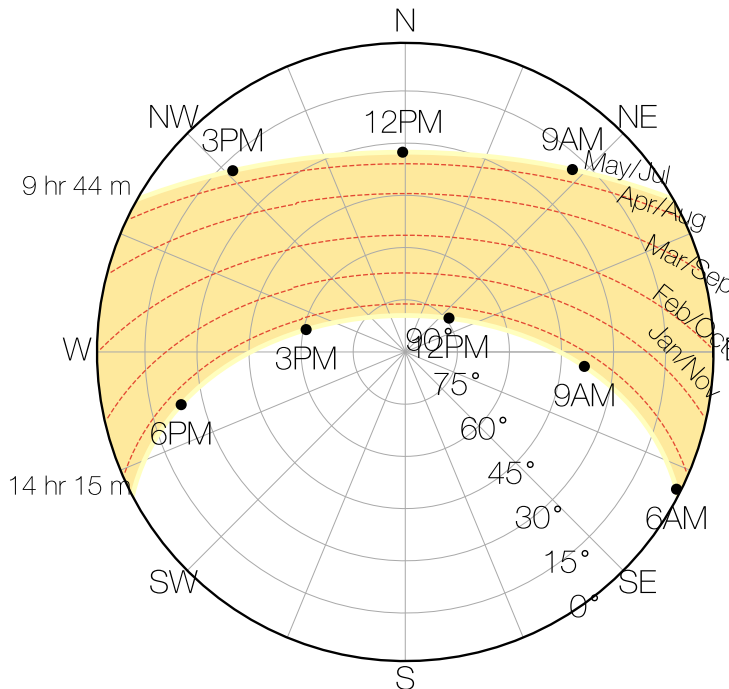


SOLAR DIAGRAMS

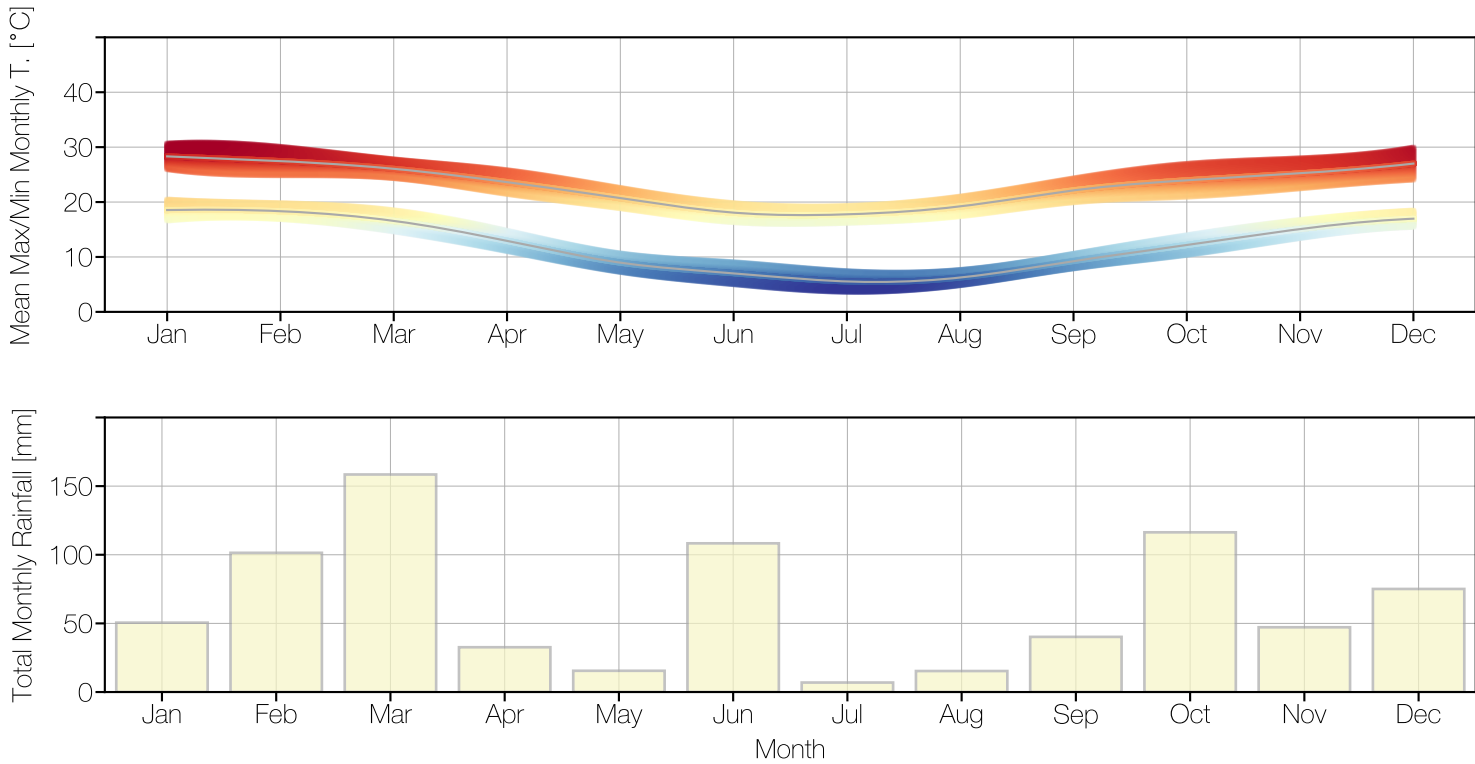
SOLAR IRRADIANCE



SOLAR PATH

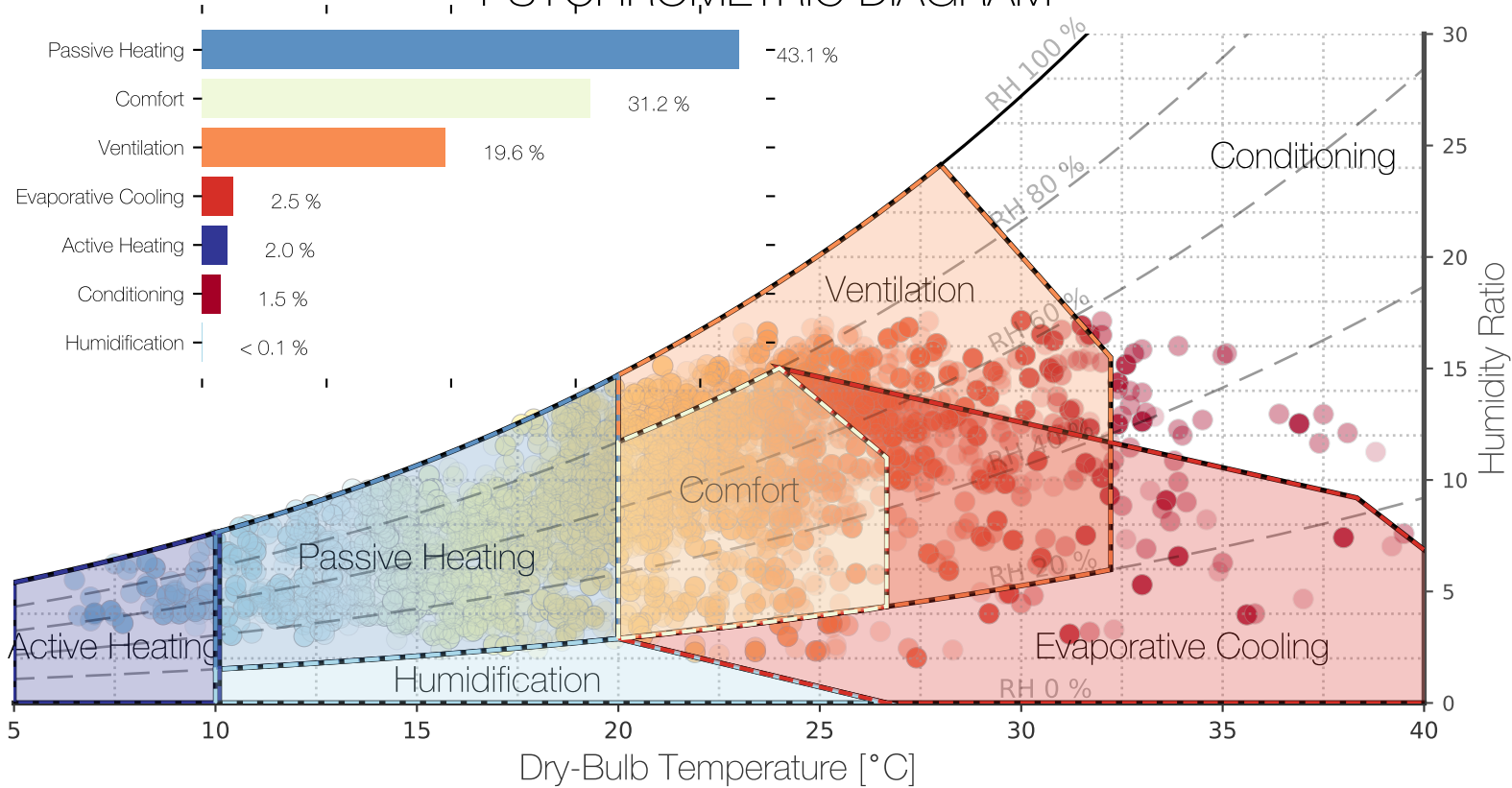


TEMPERATURE & RAINFALL



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
AvgMax[°C]	28.3	27.5	26.1	23.6	20.7	18.1	17.8	19.2	22.1	24.0	25.2	27.0
AvgMin[°C]	18.5	18.3	16.6	12.9	9.0	7.0	5.5	6.3	9.2	12.2	15.1	17.0
Rain [mm]	51	101	158	33	15	108	7	15	40	116	47	75

PSYCHROMETRIC DIAGRAM



SITE ANALYSIS - EXPLANATORY NOTES

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The site analysis is a spatial interpolation of the climate conditions at a specific set of coordinates using the three nearest Bureau of Meteorology (BOM) weather stations. The weather conditions are interpolated using an inverse square distance interpolation. This means that a station 2 km away from the site will be a stronger contributor to the overall mean weather conditions than a station 11 km away from the coordinates.

WINDROSE DIAGRAMS

The upper left windrose diagram is the wind speed for the location determined using an inverse square distance weighting.

The colourbar representing the wind speed is divided logarithmically into seven speed bins. The size of each distinct colour is the proportion of speeds.

The wind gust windrose in the upper right corner of the windrose diagrams is the maximum recorded wind gust by the weather station, which is recorded daily.

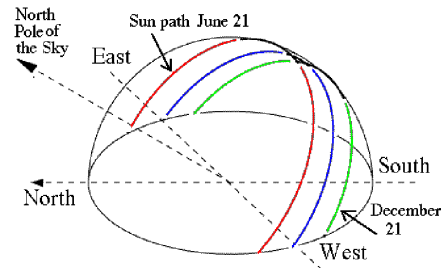
The four seasonal windrose diagrams are created by taking only data in each season (Summer: December-February, Autumn: March-May, Winter: June-July, Spring: August-November) and then binning them using the same bins as the wind speed windrose in the upper left corner. Each of the season windrose diagrams will have the same radial axis limits making it easy to directly compare all four diagrams.

SOLAR DIAGRAMS

The left hand plot is the solar irradiance determined for the coordinates. The solar irradiance is determined using the latitude and longitude and is the theoretical maximum average daily irradiance, binned monthly.

The corrected solar irradiance is calculated by subtracting the average monthly cloud cover (percentage) from the 3 nearest BOM stations.

The right hand plot is the yearly path of the sun over the site. This is a 3D representation of the sun's movement during the day. The outer circle with the cardinal markings (0°) indicates the horizon surrounding the site. The very center of the plot (90°) known as the zenith, the point directly overhead at the coordinates.



TEMPERATURE & RAINFALL

Temperature and rainfall measurements are taken from BOM data for the year 2000-onwards. This is to avoid the effect that climate change would have on the mean maximum and mean minimum temperatures.

The first diagram is the variation of the max and minimum daily temperatures. We have grouped the daily temperatures monthly and then taken the mean value. The thickness of the segment represents the two sigma range of max/min temperatures. The line through the center is the mean maximum/minimum temperature.

The second diagram is the mean monthly rainfall of the site. As with the temperatures we have determined the average monthly rainfall across the three weather stations.

The table at the bottom of this section gives the mean maximum/minimum monthly temperatures and the average monthly rainfall.

PSYCHROMETRIC DIAGRAM

The Psychrometric plot is a useful tool to aid in design strategies. The Psychrometric plot is a plot of Dry bulb temperature (the temperature measured by a thermometer exposed to air) and relative humidity. The Psychrometric plot is divided into seven areas: active heating, passive heating, humidification, comfort, ventilation, evaporative cooling and conditioning.

Active heating is when energy is used to heat the building (i.e gas heating) while passive heating is when the building is designed to store the sun's heat within the building's elements and released when the sun is not present.

The humidification zone is where water is needed to be added to the air without changing the dry bulb temperature.

The comfort zone is where most people feel comfortable, typically between 20-27°C and 20-80% relative humidity.

The ventilation and evaporative cooling zones are where cooling is required either by mechanical means (evaporative) or non-mechanical means (ventilation).

The conditioning zone is where air conditioning is a must, where both cooling and dehumidifying is necessary.

