



Figure 7: Photograph of a coal fired heater at the existing facility (1).



Figure 8: Photograph of a coal fired heater at the existing facility (2).





Figure 9: Photograph of the existing broiler houses in opposite direction to Figure 2.



Figure 10: Photograph of an existing broiler house and wash water trench.





Figure 11: Site alternative 1 – Preferred site (1)



Figure 12: Site alternative 1 - Preferred site (2)





Figure 13: Site alternative 1 - Preferred site (3)



Figure 14: Site alternative 1 - Preferred site (4)





Figure 15: Site alternative 1 - Preferred site (5)



Figure 16: Site alternative 2 (1)





Figure 17: Site alternative 2 (2)



Figure 18: Site alternative 2 (3)





Figure 19: Site alternative 2 (4)



Figure 20: Site alternative 2 (5)



2. NATURE AND EXTENT OF THE ENVIRONMENT AFFECTED BY THE ACTIVITY

The following section provides a description of the baseline or status quo environment as well as the social-economic parameters that characterise the region and the study area, and is derived from various specialist studies as well as data sources including aerial photographs, topo-cadastral maps and national and provincial databases.

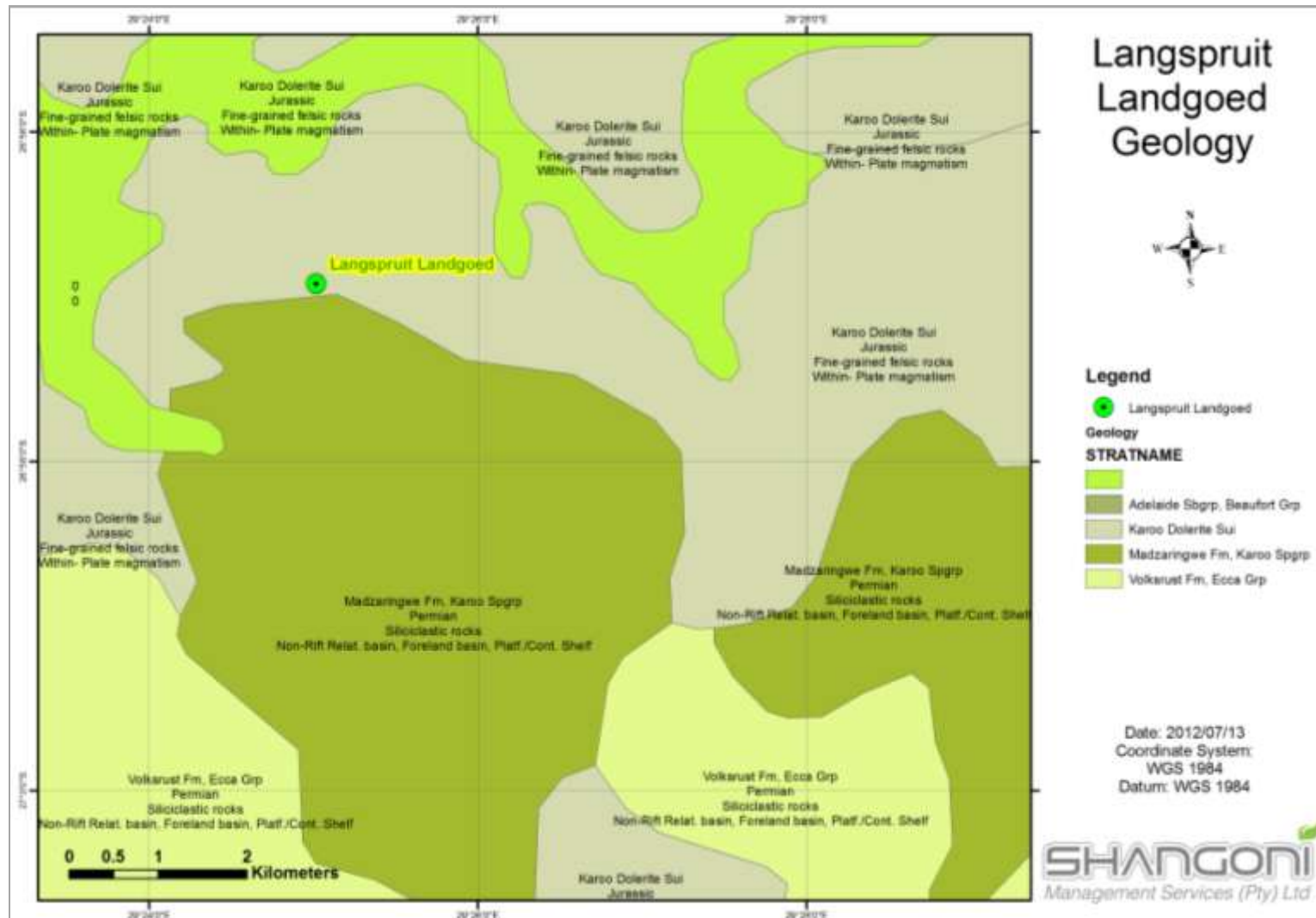
2.1 Biophysical aspects affected

2.1.1 Geology

In general, the area is underlain by sandstone, shale or mudstone of the Madzaringwe Formation, of the Karoo Supergroup, or the intrusive Karoo Suite dolerites that are very common in the area. In the south, rocks of the Volksrust Formation (Ecca Group, Karoo Supergroup) are found while rocks of the older Transvaal, Witwatersrand and Ventersdorp Supergroups are found to the west (Mucina & Rutherford, 2006).

The site itself is underlain by fine-grained felsic rocks of the Karoo Dolerite Suite (Refer to Figure 21).





2.1.2 Regional climate

The site falls within a cool-temperate climate with thermic continentality. The area experiences high extremes between maximum summer and minimum winter temperatures, frequent occurrence of frost and large thermic diurnal differences especially in autumn and spring (Mucina & Rutherford, 2006).

Rainfall

The site lies in a summer rainfall area receiving a mean average annual rainfall of between 621.42 – 752.36mm. The variability of rainfall as well as the high intensity events will affect the construction phase of the project. It could hinder construction activities with potential soaking of cement mixtures or foundation concrete during the early phases of the construction process.

Construction should preferably be planned for the winter months to avoid construction delays that might have a negative socio-economic impact on the development.

The potential impact of rainfall should be low if mitigated properly.

The site is approximately 16.8km east of Standerton. The Average Monthly Rainfall (Refer to Figure 22) for the area was obtained from the Standerton weather station, as provided by www.weathersa.com. The Average Annual Rainfall for Standerton is also provided by www.weathersa.com (Refer to Figure 23).

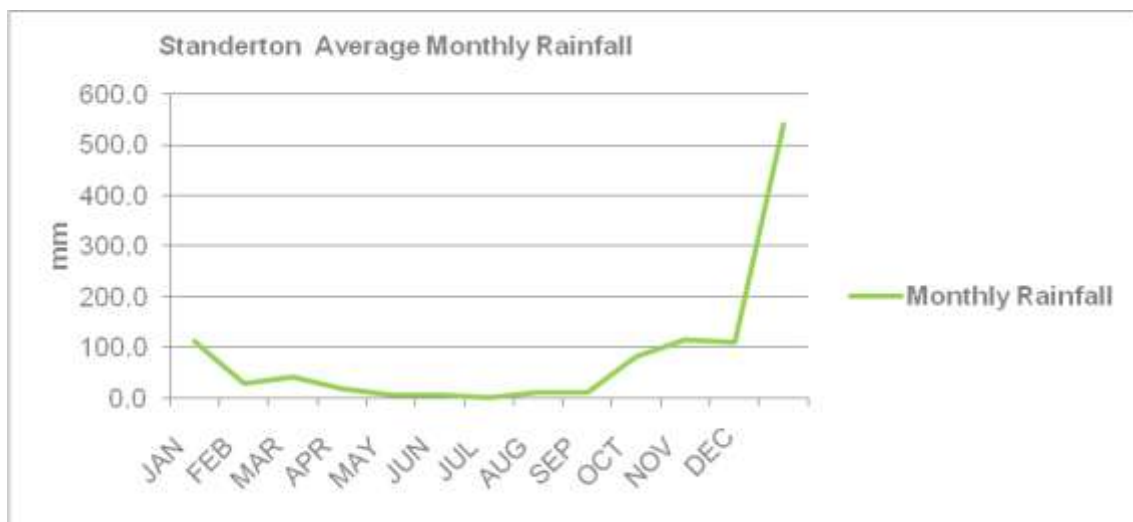


Figure 22: Standerton Average Monthly Rainfall.



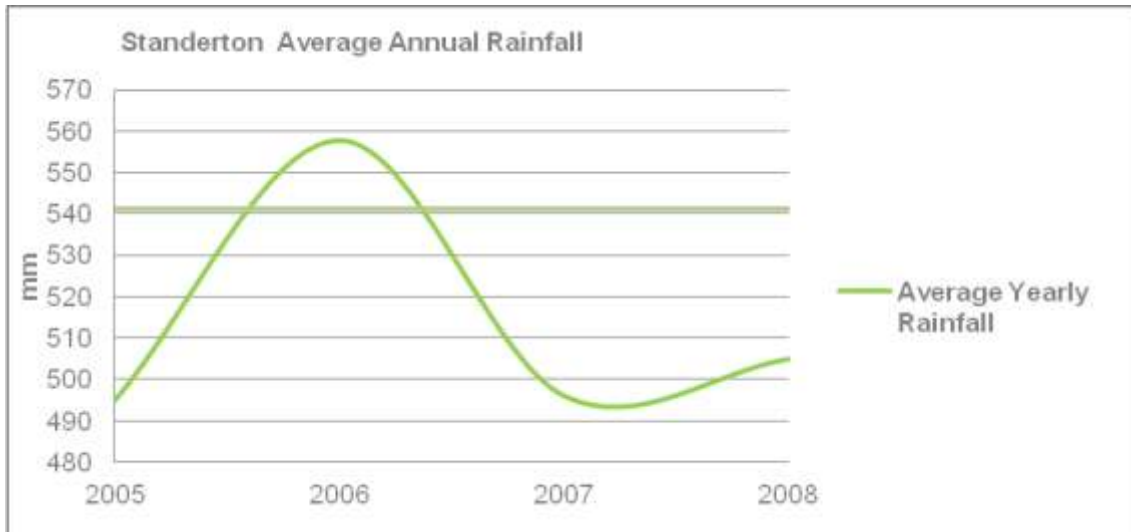


Figure 23: Standerton Average Annual Rainfall.



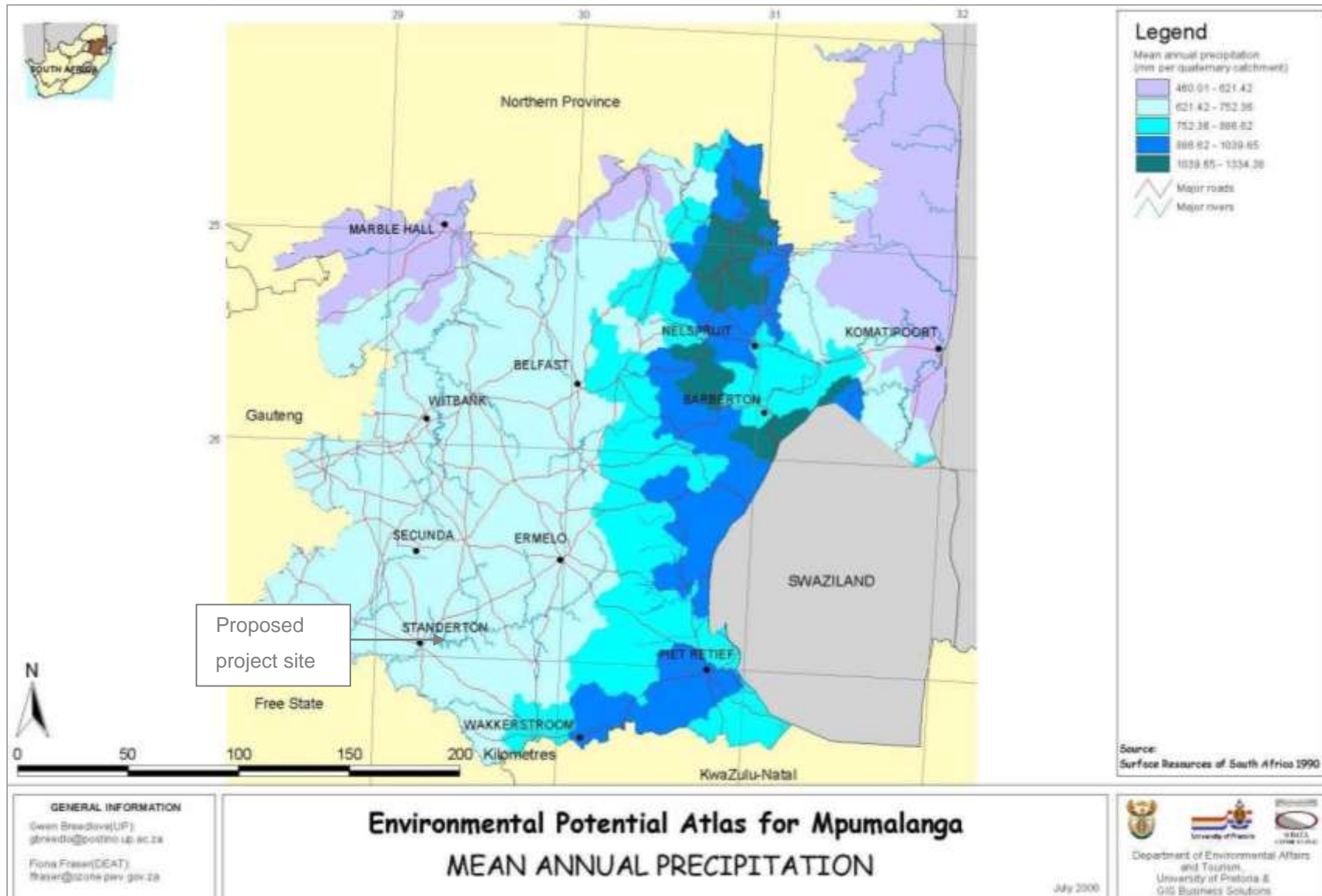


Figure 24: Mean annual precipitation in Mpumalanga.

Temperature

Annually the mean maximum temperature will range between 21.1°C and 27°C and the mean minimum temperature will range between -1,9°C and 10°C (AGIS Comprehensive Atlas, 8 May 2012).

In order to obtain a more accurate representation of the temperatures at the broiler facility, average daily temperatures were obtained from the Standerton weather station (www.weathersa.com).

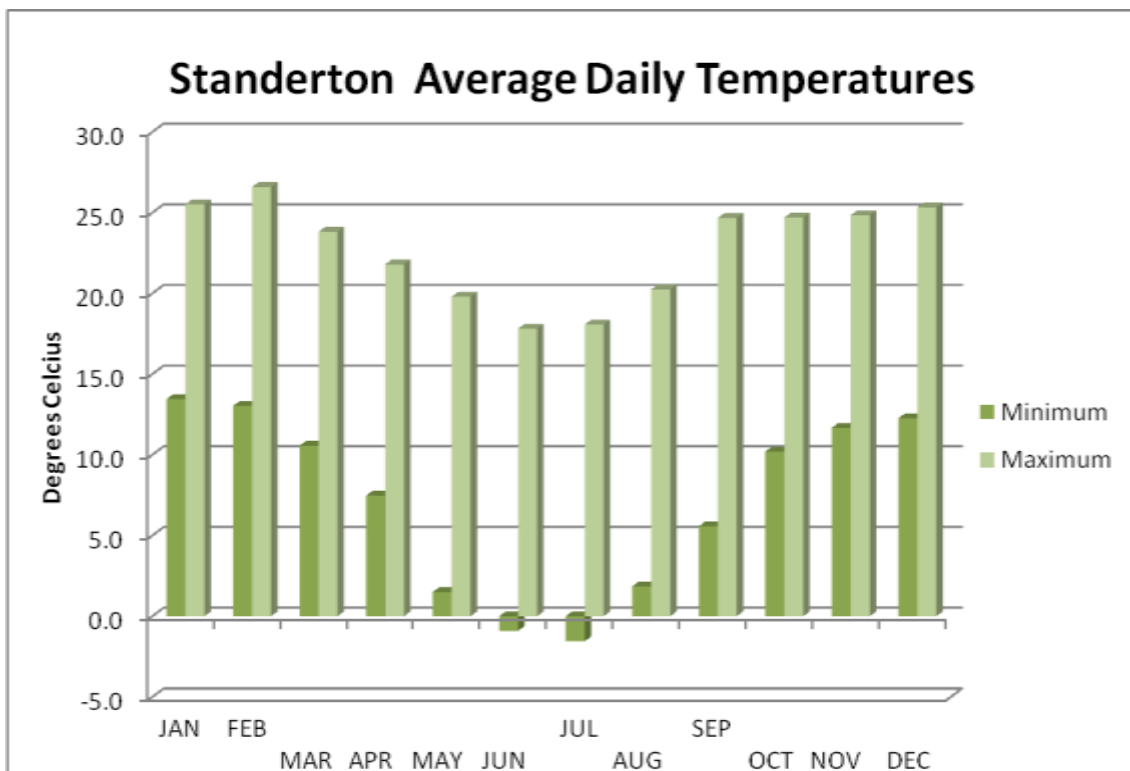


Figure 25: Standerton Average Daily Temperatures.

Wind

The site is approximately 16.8km east of Standerton. See the figures below for wind roses of Standerton from January to December.



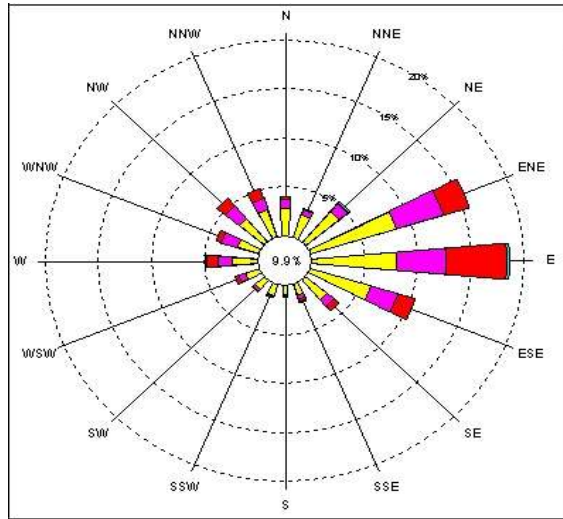


Figure 26: Wind Rose – January.

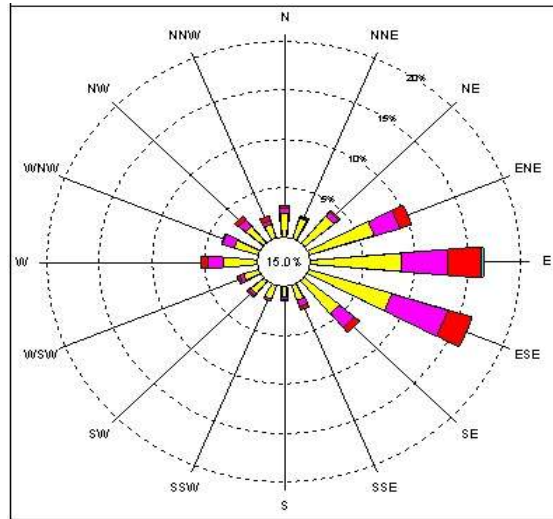


Figure 27: Wind Rose – February.

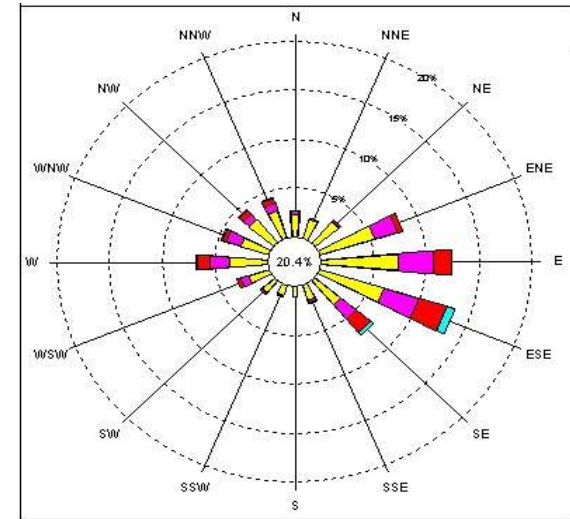


Figure 28: Wind Rose – March.

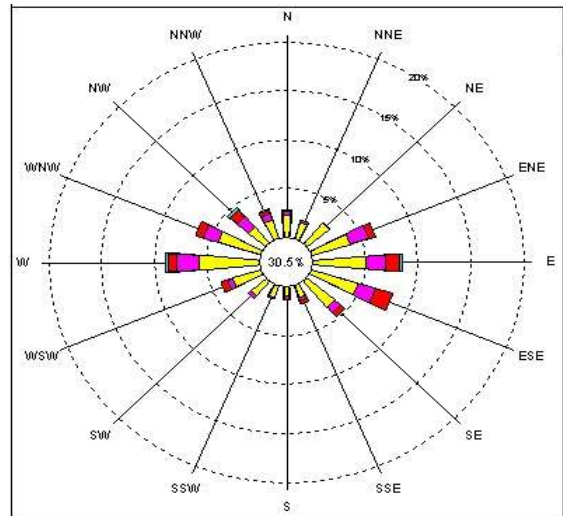


Figure 29: Wind Rose – April.

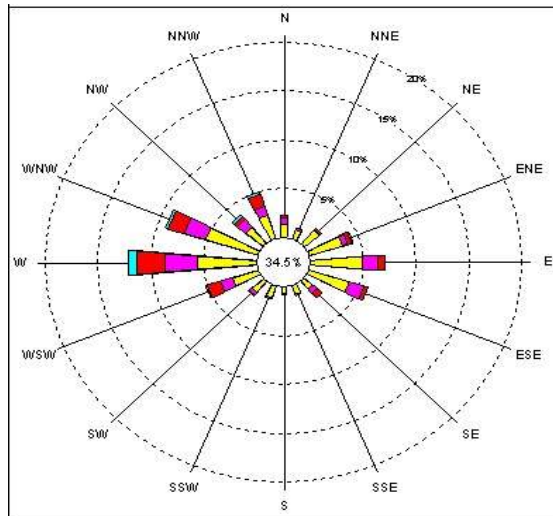


Figure 30: Wind Rose – May.

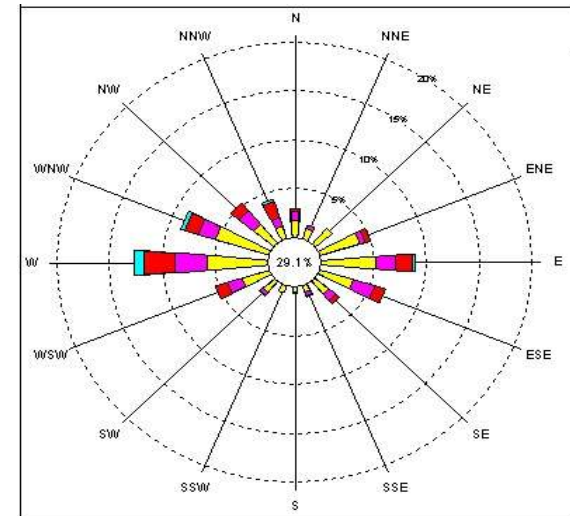


Figure 31: Wind Rose – June.



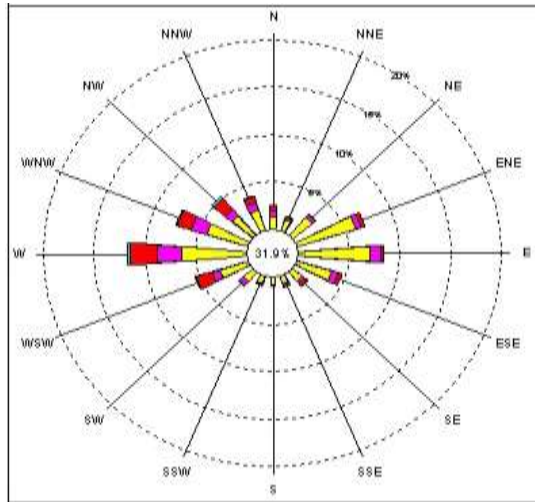


Figure 32: Wind Rose – July.

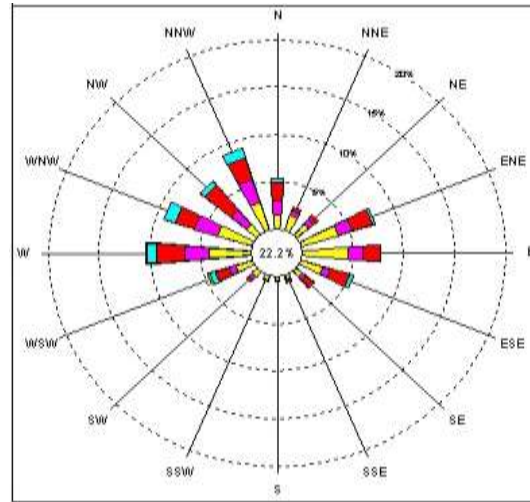


Figure 33: Wind Rose – August.

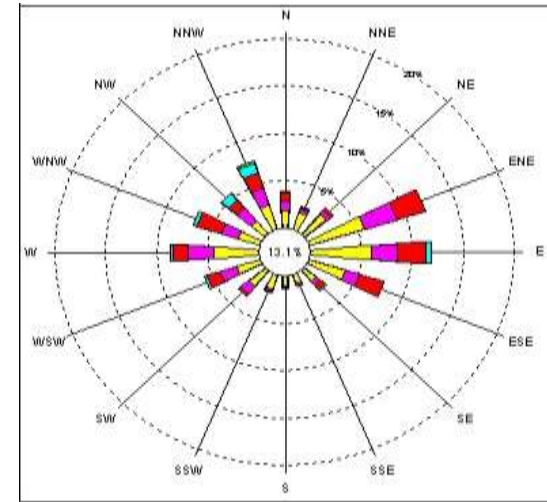


Figure 34: Wind Rose – September.

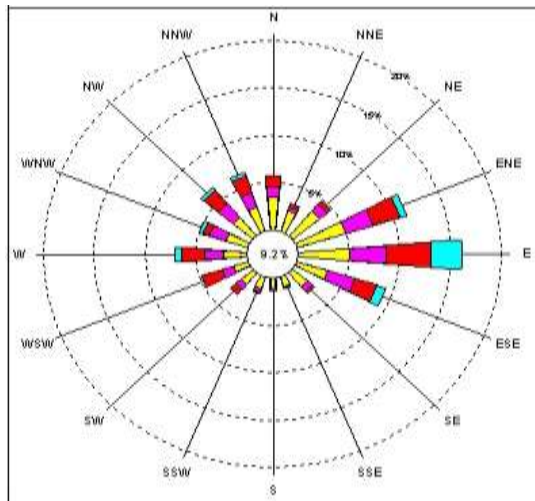


Figure 35: Wind Rose – October.

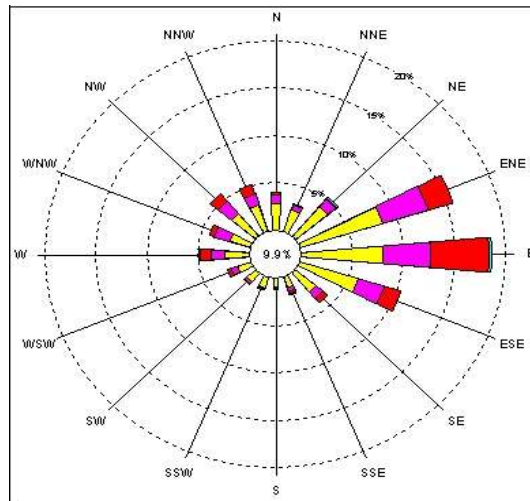


Figure 36: Wind Rose – November.

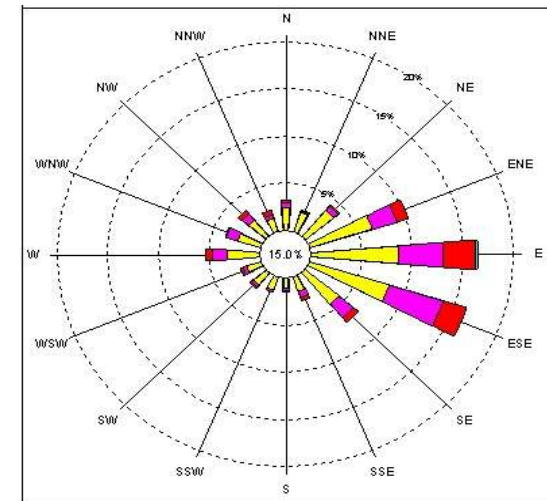


Figure 37: Wind Rose – December.



2.1.3 Topography

The Soweto Highveld Grassland has a gentle to moderately undulating landscape, supporting short to medium-high, dense, tufted grassland. The site is located approximately 1 583 metres above mean sea level.



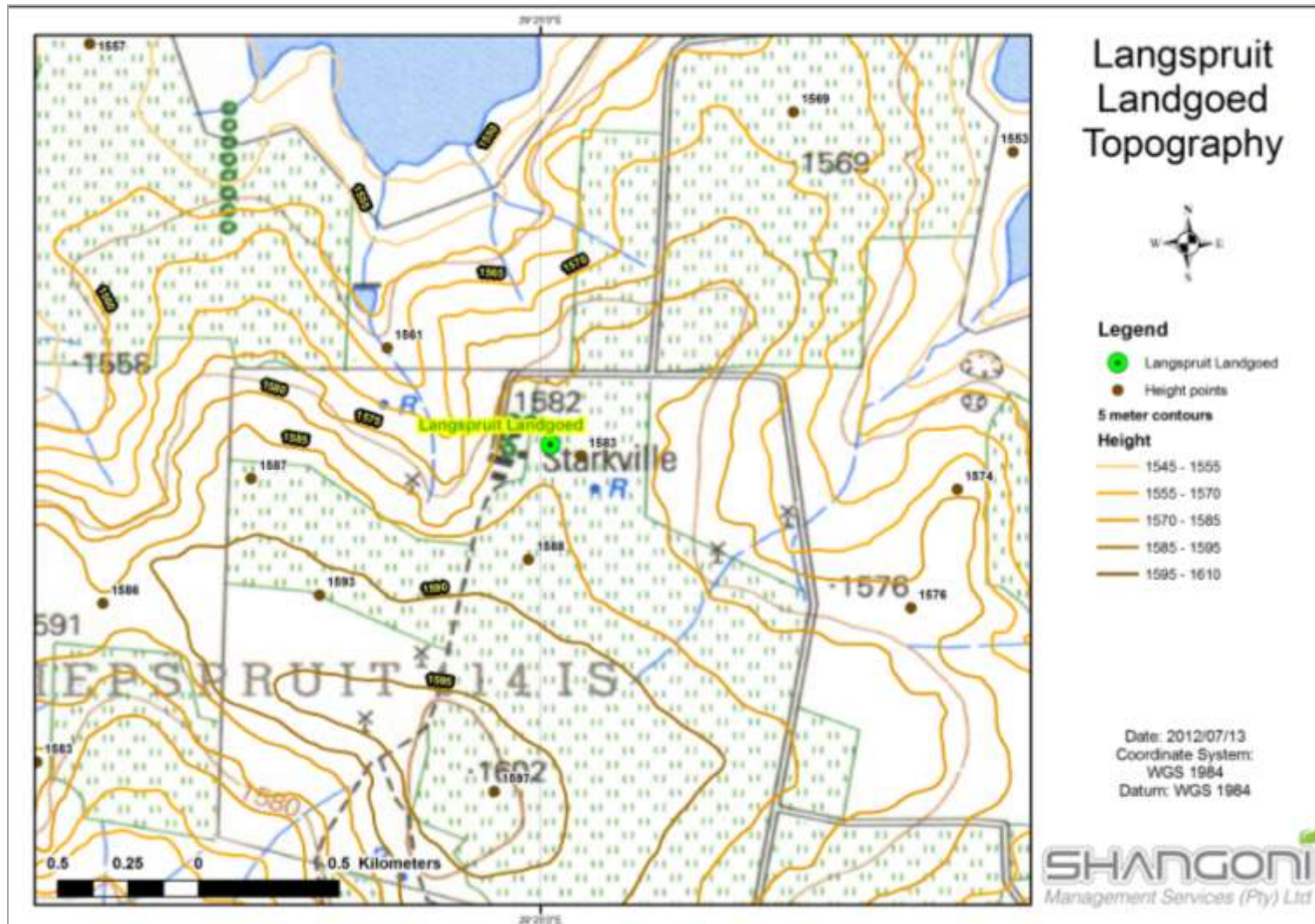


Figure 38: Topography Map of Site.

2.1.4 Soils

The soil type of the project site is S5 (Refer to Figure 39). These are swelling clay soils with high natural fertility. The soils have high swell-shrink potential and are very plastic and sticky.

Topsoil is the uppermost layer of soil and seen as a valuable resource because of its high concentration of organic matter and microorganisms. Plants obtain most of their nutrients from this soil layer.

The Environmental Potential Atlas for South Africa describes the soil found in the region of the site as black and red strongly structured clayey soils with a high base status (Refer to Figure 48). Topsoil in the area ranges in depth from 450mm to 750mm (Refer to Figure 42) and non-calcareous soils (Refer to Figure 41) with a high natural fertility can be expected ($\geq 35\%$ clay) (Refer to Figure 43).



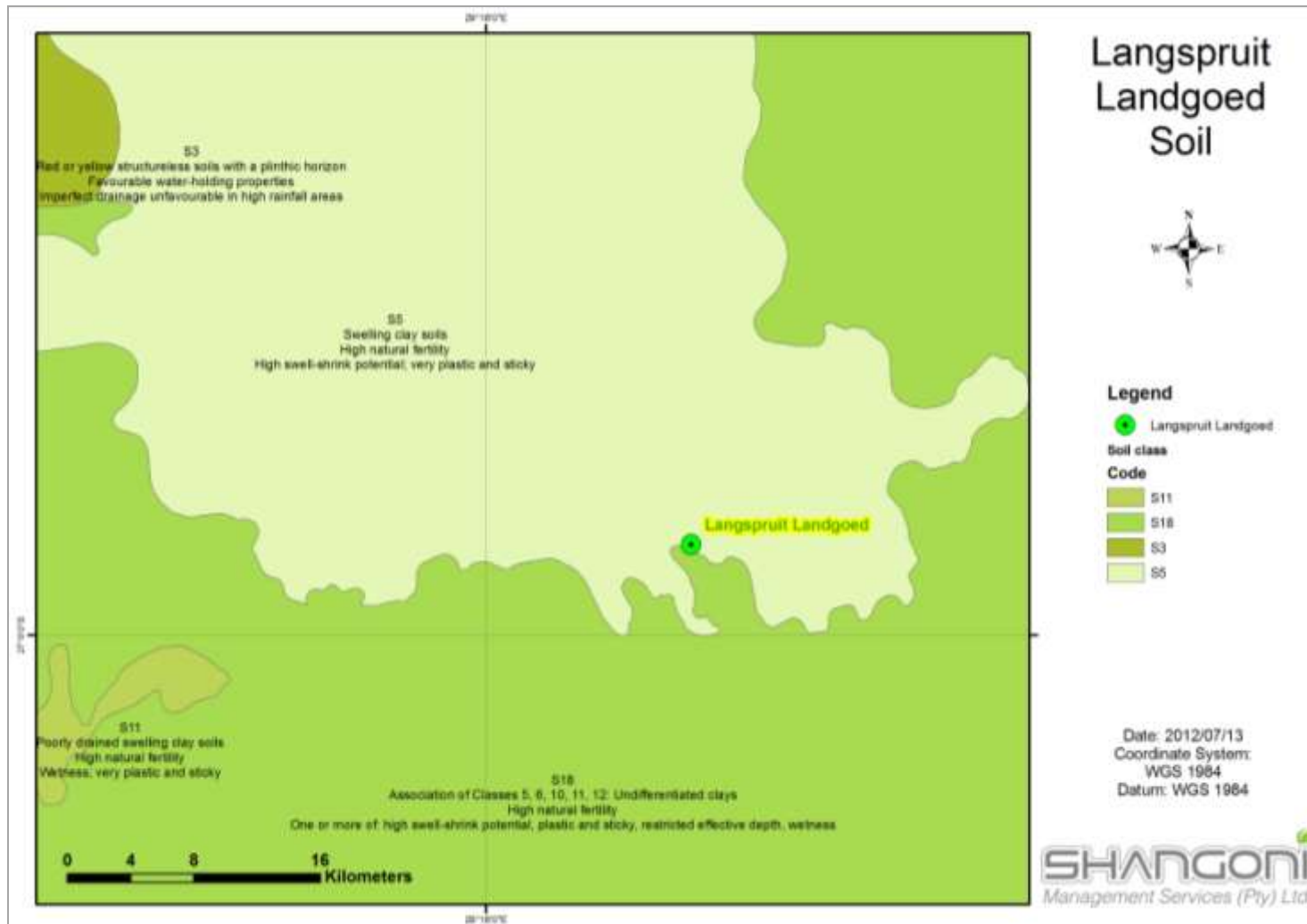


Figure 39: Soil map.

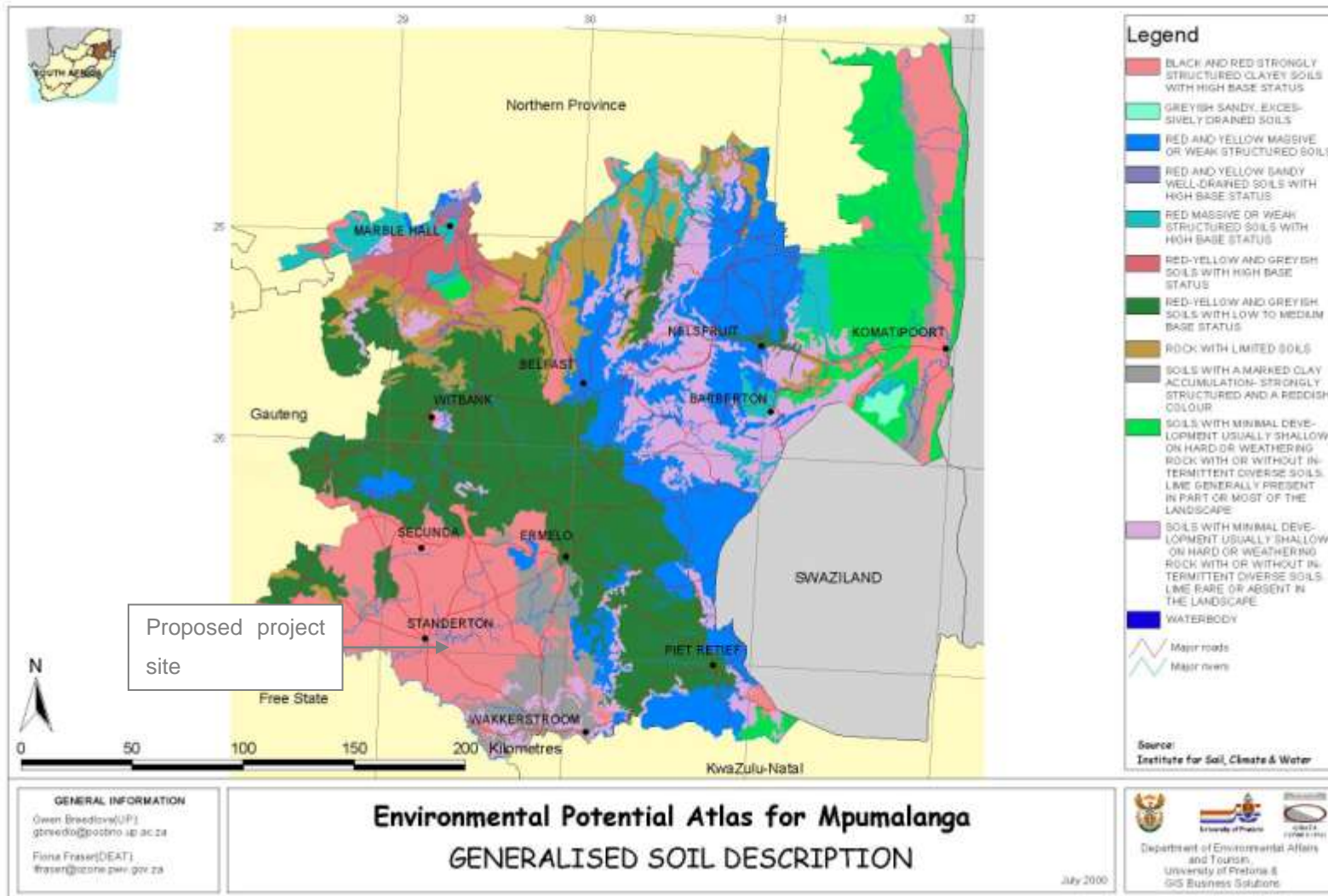


Figure 40: General soil description for Mpumalanga.