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30th April, 2014

NSW Planning & Environment
GPO Box 39
SYDNEY NSW 2001

RE: GULLEN RANGE WIND FARM, GOULBURN

In accordance with your instructions I have surveyed, for location purposes 73 wind turbines and 49 residential houses situated at the Gullen Range Wind Farm near Goulburn in the Local Government Area of Goulburn. The purpose of this survey was to compare the surveyed coordinates of the 73 Wind Turbines and 49 Residential Houses with the Coordinates supplied by NSW Planning in order to verify the location of the Residential Houses in relationship to the 73 Wind Turbines As Built.

The Survey was carried out using the following techniques.

1. Field Procedure to determine centre of Wind turbines

A field survey was undertaken from Wednesday 9th April until Saturday 12th April 2014, using GPS survey techniques in order to locate the centre of the Wind Turbines and the centre of the residential dwellings.

The GPS instrumentation was connected to the NSW Corsnet system in order to obtain co-ordinates of 3 survey marks placed in a 5 metres radius around the wind turbines. The circumference of the Wind Turbines was then measured using a tape measure. An Australian Height Datum (AHD) Level was then recorded on the concrete footing of the wind turbines. This process was repeated at each of the 73 wind Turbines.

The GPS was then used to locate the corners of 6 dwellings with the identifiers B7, B12, B17, G43, PW4 and PW34 in order to calculate a co-ordinate for the centre of the residence.

2. Office Procedure to calculate centre of turbine

Once all the field data was captured and reduced the 3 survey marks placed in the 5 metre radius around the Wind Turbine were Intersected in order to determine the centre of each turbine. The coordinates were then tabulated and compared to the proponent coordinates in Table 2-2 supplied by NSW planning & Environment and the differences noted.

Then using the Land Titles Office web site (Six Portal) coordinates were determined for each of the remaining 43 residences (6 were located by field survey). The coordinates were then tabulated and compared to the proponent coordinates.



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Once coordinates were obtained for the centre of the wind turbines and the centre of the residences, straight line distances were calculated from the wind turbines to the residences. These distances were tabulated and compared to those determined by the proponent in the modification Environmental Assessment of 2014.

Finally the coordinates of the wind turbines as surveyed by Michael Shannon & Associates Pty Ltd were tabulated and compared to the Environmental Assessment of 2008.

Yours Faithfully

Michael Shannon
Surveyor registered under
The Surveying Act 2002