

# Wind Power GeoPlanner™

## Communication Tower Study

Deuel Harvest North



Prepared on Behalf of  
Invenergy LLC

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**COMSEARCH**  
A CommScope Company

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## 1. Introduction

This Communication Tower Study was performed for the Deuel Harvest North project in Deuel County, SD to identify the tower structures as well as FCC-licensed communication antennas that exist in the project area. This information is useful in the planning stages of the wind energy facilities to identify turbine setbacks and to prevent disruption to the services provided by the tenants on the towers. This data can be used in support of the wind energy facilities communications needs in addition to avoiding any potential impact to the current communications services provided in the region.

## 2. Summary of Results

The communication towers and antennas in the study area were derived from a variety of sources including the FCC's Antenna Structure Registration (ASR) database, Universal Licensing System (ULS), national and regional tower owner databases, and the local planning and zoning boards. The data<sup>1</sup> was imported into GIS software and the structures mapped in the wind energy area of interest. Each tower location is identified with a unique ID number associated with detailed structure and contact information provided in a spreadsheet attachment.

Three tower structures and thirteen communication antennas were identified within the Deuel Harvest North project area using the data sources described in our methodology above. All three of the structures found were registered with the FCC, which contain four of the thirteen communication antennas. The remaining antennas may be located on a variety of structure types such as guyed towers, monopoles, silos, rooftops or portable structures. The specific type of structure would normally need to be determined by an on-site visit.

Detailed information about the tower structures and communication antennas is provided in Table 1 and Table 2 including location coordinates, structure height above ground level, and owner-operator name<sup>2</sup>.

A discussion of turbine setback distances is provided in section three.

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<sup>1</sup> Comsearch makes no warranty as to the accuracy of the data included in this report beyond the date of the report. The data provided in this report is governed by Comsearch's data license notification and agreement located at [http://www.comsearch.com/files/data\\_license.pdf](http://www.comsearch.com/files/data_license.pdf).

<sup>2</sup> Please note that this report analyzes all known operators on the towers from data sources available to Comsearch. Unidentified operators may exist on the towers due to unlicensed or federal government systems, mobile phone operators with proprietary locations, erroneous data on the FCC license, and other factors beyond our control.

Tower ID	ASR Number	Owner	Structure Height AGL (m)	Latitude (NAD83)	Longitude (NAD83)
Tower001	1214443	Rural Cellular Corporation	99.1	44.906667	-96.701139
Tower002	1042274	Otter Tail Power Company	91.4	44.849722	-96.477222
Tower003	1040232	East River Electric Power Cooperative Inc	93.8	44.849444	-96.476944

Table 1: Summary of Tower Structures

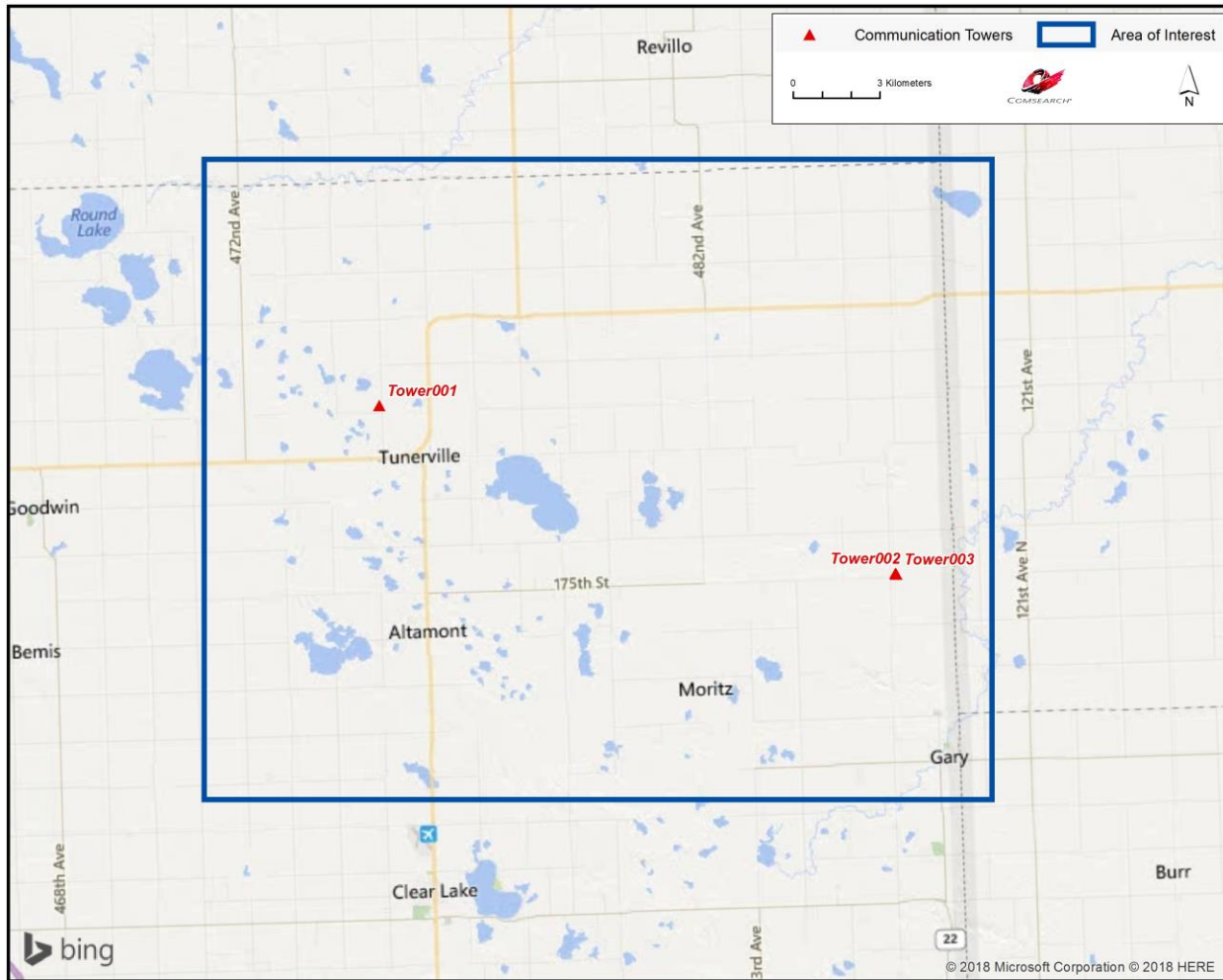


Figure 1: Towers within the Area of Interest

ID	Tower ID	Callsign	Service Type	Licensee	Antenna Height AGL (m)	Latitude (NAD83)	Longitude (NAD83)
1		WPXV845	Land Mobile	TRIEBWASSER, TERRY	15	44.966944	-96.726944
2		WPRU758	Land Mobile	KREUTNER, ROGER	23	44.944444	-96.535833
3		WQEH382	Land Mobile	Kruse, Roger	23	44.941389	-96.474722
4		WRAA611	Land Mobile	Magedanz Farms	17	44.939611	-96.620500
5		WPCR283	Land Mobile	Brookings Deuel Rural Water System Inc	27	44.919417	-96.617000
6	Tower001	KNKN368	Cellular	Rural Cellular Corporation	91.4	44.906667	-96.700556
7		WQOA383	Land Mobile	Peterson, Heath	18.6	44.891444	-96.555583
8	Tower002	WHI614	Microwave	Otter Tail Power Company	89.9	44.849667	-96.477250
9	Tower002	WPIT709	Land Mobile	EAST RIVER ELECTRIC POWER COOP	94	44.849417	-96.477000
10	Tower003	WIA895	Microwave	East River Electric Power Cooperative	88.4	44.849417	-96.477000
11		WPCR283	Land Mobile	Brookings Deuel Rural Water System Inc	6	44.816639	-96.683667
12		WNSL464	Land Mobile	DEUEL, COUNTY OF	42	44.792750	-96.455889
13		WQDM218	Land Mobile	DEUEL, COUNTY OF	6.1	44.778306	-96.455833

*Table 2: Summary of Communication Antennas*

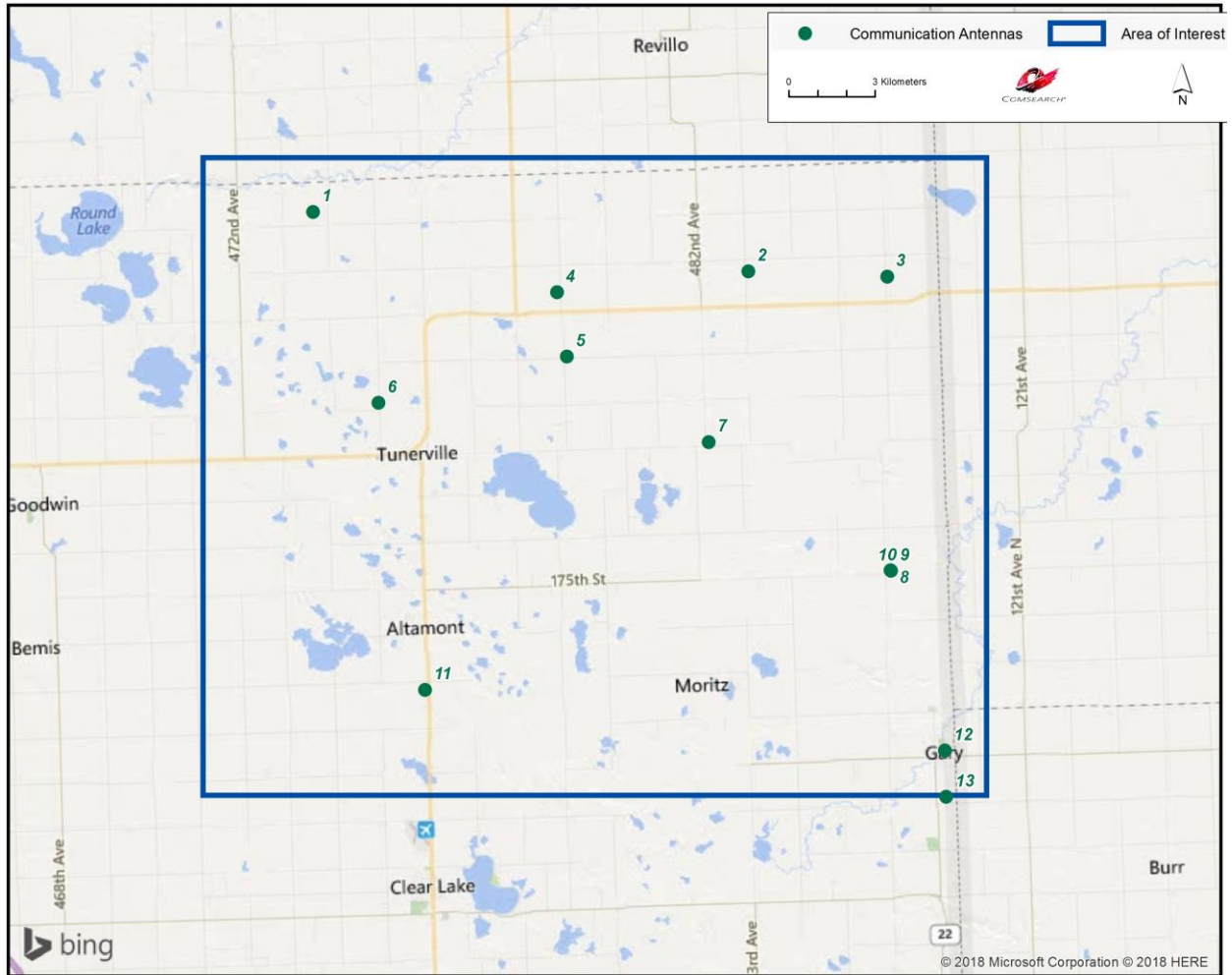


Figure 2: Communication Antennas within the Area of Interest

### **3. Discussion of Separation Distances**

In planning the wind energy turbine locations, a conservative approach would dictate not locating any turbines in close proximity to existing tower structures to avoid any possible impact to the communications services provided by the structures. Reasonable distance between communication towers and wind turbine towers is a function of two things: (1) the physical turning radius of the wind turbine blades and (2) the characteristics of the communication systems on the communication tower.

Since wind turbine blades can rotate 360°, the first consideration of separation distance to other structures is clearance of the blades. If the blade radius is 50 meters, then a separation distance greater than 50 meters is necessary. From a practical standpoint, a setback distance greater than the maximum height of the turbine is necessary to insure a “fall” safety zone in the unlikely event of a turbine tower failure. Setback requirements for “fall” safety are typically specified by the local zoning ordinances.

The required separation distance based on the characteristics of the communication systems will vary depending on the type of communication antennas that are installed on the tower. For example, AM broadcast antennas should be separated by distances that allow for normal coverage which can extend up to 3 kilometers. For land mobile and mobile phone systems, setback distances are based on FCC interference emission limits from electrical devices in the land mobile and mobile phone frequency bands.

Finally, the tower structures identified could be a potential benefit in support of communications network needs for the wind energy facility. An example would be the implementation of a Supervisory Control and Data Acquisition (SCADA) system that monitors and provides communications access to the wind energy facility.

### **4. Conclusions**

Our study identified three tower structures and thirteen communication antennas within the project area. They are used for microwave, cellular, and land mobile services in the area.



## **5. Contact Us**

For questions or information regarding the Communication Tower Study, please contact:

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