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## MEMORANDUM

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**TO:** BRYAN BLUNT, MANITOBA CONSERVATION  
**FROM:** KARL-ERIC MARTEL, HELIMAX  
**SUBJECT:** ST. JOSEPH WIND FARM ENVIRONMENTAL IMPACT STUDY - RESPONSE TO PUBLIC COMMENTS  
**DATE:** JUNE 3<sup>RD</sup>, 2009  
**CC:** KEITH KNUDSEN, ST. JOSEPH WIND FARM INC.

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Dear Mr. Blunt,

This memorandum addresses issues brought up to the Proponent by Manitoba Conservation and formulated by a few individuals living in St. Joseph, or in nearby communities. These issues were addressed to Manitoba Conservation during the Environmental Impact Study Report (EISR) consultation period, in August and September 2008. At the time, Manitoba Conservation received a total of eight letters and emails of comments. Specific concerns pertaining to noise, visual impact, stray voltage, etc. were expressed. Until now, these concerns remained unanswered since the turbine model and the final project layout were still to be determined. This memorandum addresses those concerns, in light of the current revised layout.

Since the submittal of the EISR, the St. Joseph turbine layout has been revised due to a change in the wind turbine manufacturer and to further reduce any potential effects. Originally, as a worse-case scenario, a layout of 200 1.5-MW wind turbine generators was considered to assess the potential environmental impacts. These wind turbines were to be distributed over a surface area of approximately 215 km<sup>2</sup> of agricultural land. Since then, an agreement with Siemens was conducted and the Siemens SWT-2.3-101 2.3 MW wind turbine is now the model selected for the Project. This change, for the same nameplate capacity of 300 MW, brings the total number of turbines down to 130. The map attached illustrates the new layout as well as the former locations.

It should be noted that during the EIS, the potential impacts of the Project on the biophysical and social environment were assessed for a "maximum impact" scenario. Since the Project size and footprint was significantly reduced in terms of number of turbines, the potential impacts will either remain the same or be reduced for all valued components.

Finally, an open house event is scheduled towards the end of June in order to inform the population of the revised project and address any remaining issue.

## ST. JOSEPH WIND FARM PROJECT: RESPONSE TO PUBLIC COMMENTS

### Neubergthal Mennonite Street Village

Specific concerns on the effects of the project on the landscape and the integrity of Neubergthal were expressed by Ms. Margruite Krahn.

#### ***Response from the Proponent***

This issue has been addressed and is reflected in the revised layout. Furthermore, the turbine layout complies with all related requirements from Parks Canada.

### Consultation Process

Specific concerns on the consultation process and the information provided during public meetings and the open house event were expressed by Mr. and Ms. Todd and Lisa Braun.

#### ***Response from the Proponent***

Section 4 of the EISR covers the Consultation Process and the open house event held in April 2008. Most comments received after the event were supportive of the Project and people were generally very satisfied about the information given by the Proponent and its consultants. It should be noted that a special attention to the noise issue was given during the open house event. Explanations on simulated noise levels, recommended noise levels and national guidelines, provincial requirements, etc. were given and a sound level meter connected to a laptop computer was on display to familiarize attendees with the decibel scale versus ambient noise levels.

Due to the layout modifications, another open house event is planned in order to inform the population of the final Project size and turbine locations. This open house, initially scheduled for September 2008, will take place in June or July 2009. Any remaining issue, e.g. noise, visual, etc., will be addressed. All potentially affected residents will be notified about the event, including residents in the southern reaches of the project.

### Acoustic Environment

Specific concerns on the effects of the project on the acoustic environment and on follow-up measures were expressed by Mr. and Ms. Todd and Lisa Braun, Mr. and Ms. Joe and Lois Braun, Mr. Art Wiebe, and Mr. Frank Isaak.

#### ***Response from the Proponent***

As stated in the EISR, Manitoba Conservation requires that wind energy projects comply with CanWEA guidelines, which recommend the use of the Ontario Ministry of Environment (MoE) guidelines. These guidelines, as most provincial guidelines or noise regulations in the country and as required by Health Canada, are directly based on WHO Standards. As mentioned by Mr. and Ms. Braun, the WHO recommended maximum sound level within a bedroom is 30 dBA (WHO, 1999). More specifically, the WHO mentions the following for dwellings:

*In Dwellings. The effects of noise in dwellings, typically, are sleep disturbance, annoyance and speech interference. For bedrooms the critical effect is sleep disturbance. Indoor guideline values*

*for bedrooms are 30 dB LAeq for continuous noise and 45 dB LAm<sub>ax</sub> for single sound events. Lower noise levels may be disturbing depending on the nature of the noise source. At night-time, outside sound levels about 1 metre from facades of living spaces should not exceed 45 dB LAeq, so that people may sleep with bedroom windows open. This value was obtained by assuming that the noise reduction from outside to inside with the window open is 15 dB. To enable casual conversation indoors during daytime, the sound level of interfering noise should not exceed 35 dB LAeq. The maximum sound pressure level should be measured with the sound pressure meter set at "Fast".*

*To protect the majority of people from being seriously annoyed during the daytime, the outdoor sound level from steady, continuous noise should not exceed 55 dB LAeq on balconies, terraces, and in outdoor living areas. To protect the majority of people from being moderately annoyed during daytime, the outdoor sound level should not exceed 50 dB LAeq. Where it is practical and feasible, the lower outdoor sound level should be considered the maximum desired sound level for new development.*

As mentioned in the EISR, the St. Joseph Wind Farm has been designed to comply with provincial and federal requirements. Hence, notwithstanding the ROW Agreement, maximum noise levels from the turbines are predicted to be no more than 40 dBA outside of any non-participating dwelling, considering 6 m/s winds. The noise simulation is conducted using conservative assumptions such as: no noise attenuation from vegetation and all receptors located downwind from wind turbines at all time. For all participating dwellings, the layout was designed so that simulated noise levels (outside) would not exceed 45 dBA. Sound power levels from proposed substations were considered in the noise impact assessment.

Considering the results and the conservative assumptions used, pre-development noise monitoring, as requested by Mr. Todd Braun, would not change the conclusions of the impact assessment or the project design and are therefore not recommended.

Even if no systematic post-construction follow-up or monitoring is proposed, St. Joseph Wind Farm Inc. will carry out any justified noise monitoring required by an Environment Officer at the point of reception, as commonly requested by Manitoba Conservation in previous wind farm Environment Act Licenses. St. Joseph Wind Farm Inc. will also implement a complaint reporting and recording process and propose mitigation measures if noise levels exceed current regulations.

## **Visual Impact**

Specific concerns on the visual impact were expressed by Mr. and Ms. Todd and Lisa Braun, and by Mr. and Ms. Joe and Lois Braun.

### ***Response from the Proponent***

The visual impact of the St. Joseph Wind Farm was addressed in Section 5.14 of the EISR. This issue is almost systematically raised, particularly in areas valued by the local population for their natural, pristine landscapes and for tourism. However, public opinion on the aesthetics of wind turbines is divided: some see them as beautiful structures while others feel that they disrupt natural landscapes. The location of turbines, the size of the Project and the surrounding visual setting are key elements that have an impact on the significance of the visual effect. Considering the various setbacks applied in the revised project layout, as well as the considerably reduced number of turbines (from 200 to 130), no significant effects to sensitive viewsheds are expected. Updated visual simulations will be provided at the forthcoming open house event.

## Stray Voltage

Specific concerns on stray voltage were expressed by Mr. and Ms. Todd and Lisa Braun, Mr. Art Wiebe, and Mr. Frank Isaak.

### ***Response from the Proponent***

Stray voltage is a term generally referring to a low voltage difference between two points that a farm animal can come in contact with simultaneously (BDR, 2008). Being normally less than 10 volts, it is not considered to be hazardous to the general public.

Stray voltage on a farm may be caused by both the on-farm wiring system and utility distribution systems. Cases where a wind energy project was proven to be the culprit, the stray voltage issue involved a deficiency either in the electrical collection system design of the wind farm and/or of the on-farm wiring system.

For the St. Joseph Wind Farm, the entire electrical collection system will be installed underground, and will comply with the applicable codes and standards in order to avoid stray voltage.

## Safety

Specific concerns on safety were expressed by Mr. and Ms. Todd and Lisa Braun, by Mr. and Ms. Joe and Lois Braun, and by Mr. Art Wiebe.

### ***Response from the Proponent***

As stated several times by St. Joseph Wind Farm inc. during the consultation process, there will be no wind turbine located at less than 550 m from a residence, which exceeds the 500-m setback required by the municipal by-law. This setback results in having wind turbines generally positioned at more than 400 m from people's backyard. However, it should be taken into consideration that risks of accidents or failures due to wind turbines are very low. Since 1975, there have been only 78 reported cases of blades falling and only 25 reported cases of tower failure across the world. Together, they represented 0.1% of world installed capacity at the time (Caithness 2006). The risk of incident due to ice throw is negligible at more than 200 m from a wind turbine (EISR, Section 5.15.2.3). Given the setbacks considered for residences and roads, low traffic densities and relatively rare icing conditions in the area, the overall probability of an incident is considered negligible.

Globally, installed wind capacity reached 121,188 MW at the end of 2008, the product of approximately over 117,000 wind turbines installed in over 70 countries.

## Crop Spraying Activities

Specific concerns on agricultural aerial application were expressed by Mr. and Ms. Todd and Lisa Braun, by Mr. and Ms. Tony and Jody Harms and by Mr. Frank Isaak.

### ***Response from the Proponent***

In previous wind projects, agricultural aerial applicators have flown among turbines provided the pilot is experienced and is confident that it can be done safely, taking weather conditions into account. The St.

Leon Wind Farm experience mentioned in the EISR is well described in an article from the June 21, 2007 Manitoba Co-operator (2007). The crop spraying issue was also covered in CanWEA's WindSight publication (CanWEA, 2007). The article stresses the fact that turbines positioned in linear lines would greatly help in crop spraying operations.

Crop spraying activities are generally carried out during periods of low wind, while turbines do not generate electricity, or very little. Therefore, if necessary, turbines can be sometimes shut off during crop spraying activities with little inconvenience to either the landowner or the Proponent.

Turbines at St. Joseph will mostly be positioned in parallel rows along the lot lines, with a 1-mile distance between each row. Considering the turbine alignments and since St. Joseph Wind Farm Inc. will be working with landowners and crop sprayers to find suitable times to turn off the turbines during period of low winds, it is expected that the Project will have no significant impact on crop spraying activities.

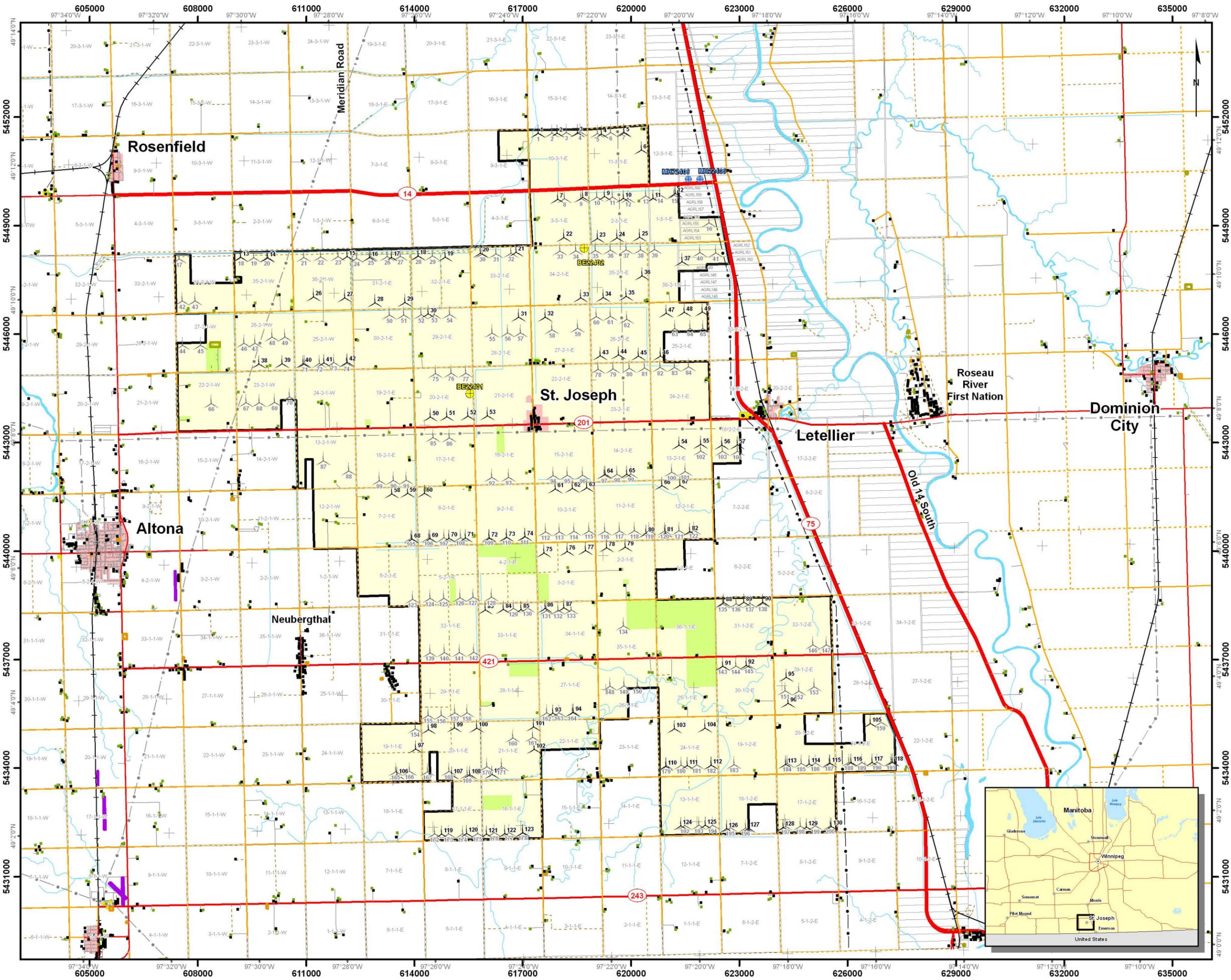
## References

BDR, 2008. Regulatory Approaches to Addressing the Impact of Stray Voltage on Farm Operations. Report submitted to the Ontario energy Board, March 31, 2008. 83 p. Available at: [http://www.oeb.gov.on.ca/OEB/\\_Documents/EB-2007-0709/report\\_BDR\\_20080530.pdf](http://www.oeb.gov.on.ca/OEB/_Documents/EB-2007-0709/report_BDR_20080530.pdf)

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Visscher, Andre W., Dairy Management Consultant, University of Alberta, 2001,  
[http://www.afns.ualberta.ca/Hosted/DRTC/Articles/Stray\\_Voltage.asp](http://www.afns.ualberta.ca/Hosted/DRTC/Articles/Stray_Voltage.asp)

World Health Organisation (WHO), 1999. Guidelines For Community Noise. 161 p.



**Legend**

- Project Area
- Revised Layout (130 WTGS)
- EISR Layout (200 WTGS)
- Wind Monitoring Tower (Project)
- Optioned Lot
- Dwelling
- Other Building
- Excluded Land
- Wind Monitoring Tower (Manitoba Hydro)
- Transmission Line
- Runway, Airstrip
- Cemetery
- Dump
- Electrical Substation Complex
- Provincial Trunk Highway
- Provincial Road
- Road Paved
- Gravel Road
- Dirt Road
- Street, Accessway or Unclassified Road
- Track (Cart or Tractor)
- Railway
- Pipeline
- Watercourse
- Built-up Area
- Waterbody
- Section



*St. Joseph Wind Farm Inc.*

**MAP 1  
REVISED PROJECT LAYOUT (130 WTGS)  
AND EISR LAYOUT (200 WTGS)**



277-065-040609-04-CLA  
Layouts: 277-02-StJoseph-L31  
and L30-277-02-StJoseph-L31-20080520-5D  
June 04, 2009

Projection: UTM Zone 14, NAD83  
Sources: DTM 1:20 000, Manitoba Land Initiative, NTDB,  
NRSI and Industry Canada.  
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