

ADELAIDE WIND ENERGY CENTRE

Stage 1 and 2 Archaeological Assessment Reports Summary

APRIL 2012

Kerwood Wind, Inc. is proposing to develop the Adelaide Wind Energy Centre (the "Project"). Kerwood Wind, Inc. is a wholly-owned subsidiary of NextEra Energy Canada, ULC (NextEra). The parent company of NextEra Energy Canada, ULC is NextEra Energy Resources, LLC, with a current portfolio of nearly 8,500 operating wind turbines across North America. The Project is located in the Township of Adelaide-Metcalf and North Middlesex and is proposed to consist of 37, 1.62 MW turbines with a total nameplate capacity of up to 59.9 MW, though 38 turbine positions will be permitted.

The purpose of a Stage 1 Archaeological Assessment is to find out whether there are any known archaeological sites on or near the Project area. If the Stage 1 Assessment determines there is archaeological potential, a Stage 2 Assessment is completed to identify any archaeological resources and confirm if further archaeological studies are required.



ADELAIDE WIND ENERGY CENTRE

Stage 1 and 2 Archaeological Assessment Reports Summary

STAGE 1 ARCHAEOLOGICAL ASSESSMENT

The Stage 1 Archaeological Assessment is a desktop background study and was completed in 2010 and involved reviewing background research, such as land use history and historic maps of the area, a property inspection and a review of the Ontario Archaeological Sites Database.

CONCLUSIONS

The potential for Aboriginal and Euro-Canadian Archaeological resources within the study area was determined to be moderate to high. For pre-contact Aboriginal Sites, this is based on the account of nearby water sources, level topography, soils that can be used for agriculture, and known archaeological sites. The historic Euro-Canadian potential was an account of documentation indicating early 19th century occupation, abandoned villages, plus the continued existence of historic transportation routes such as Egremont Road.

Only one pre-contact Aboriginal site had been discovered in the study area historically, this is in the southeast corner of the study area. The Ambro site was a 10 x 15 m lithic scatter but no diagnostic artifacts had been found and therefore can only be interpreted as an undateable pre-contact Aboriginal Site.



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Stage 1 and 2 Archaeological Assessment Reports Summary

Stage 2 Archaeological Assessment

FIELD METHODS

The Stage 2 Assessment was completed in February 2012. The study involved “pedestrian surveys” (i.e. archaeologists walking ploughed fields). Pedestrian surveys were completed for all areas within ploughed agricultural fields while the remainder fall within municipal right-of-ways deemed to be disturbed by previous construction activity. A total of five First Nations monitors participated in the Stage 2 Archaeological Assessment between 2008 and 2012.

CONCLUSIONS

A total of 29 archaeological sites were identified through pedestrian surveys; these included:

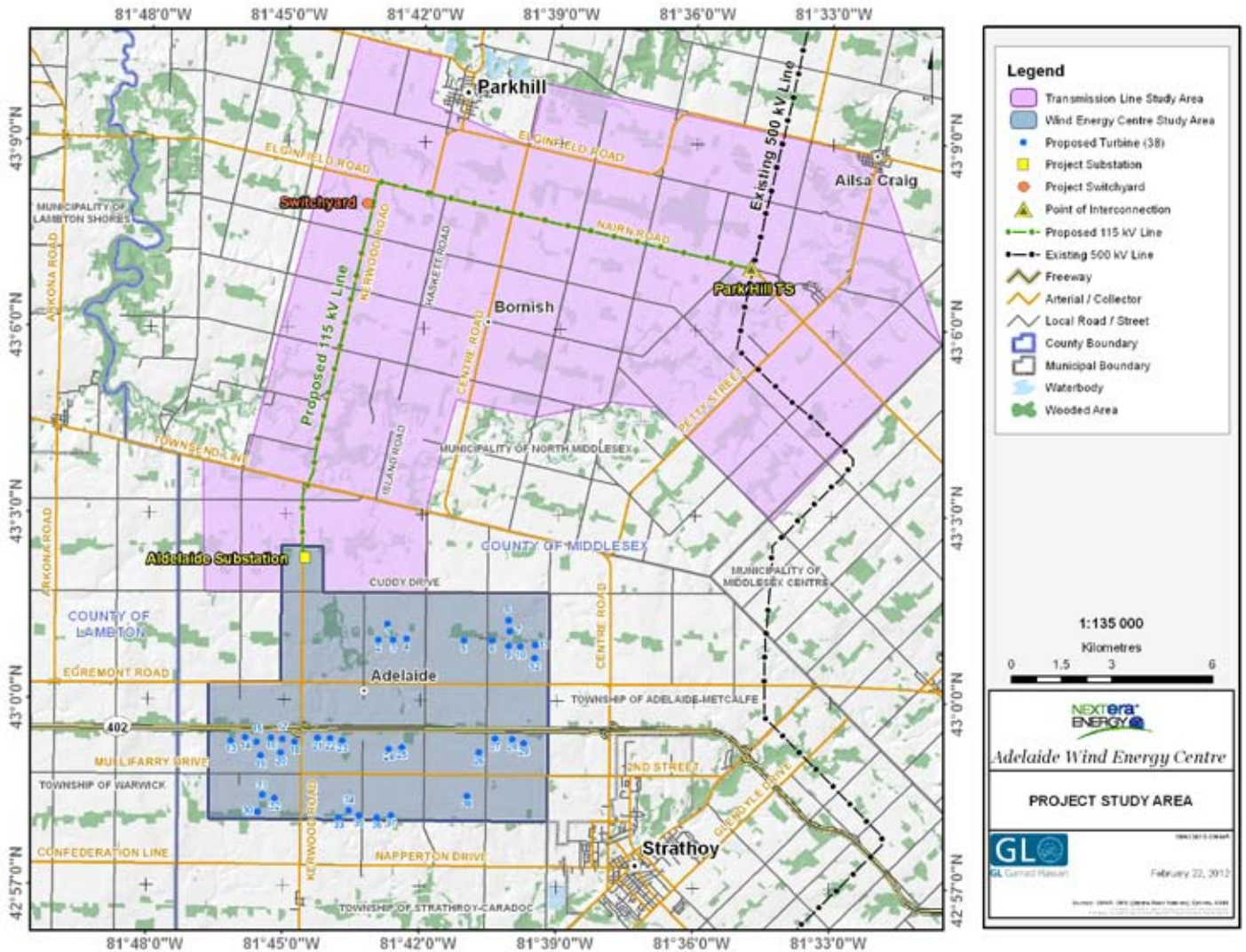
- ✦ 17 pre-contact Aboriginal sites and,
- ✦ 12 historic Euro-Canadian sites.

Thirteen of the 29 sites have been recommended for a Stage 3 Assessment. To date, 6 of the 13 have been completed, of which, 1 has been recommended for a Stage 4 Archaeological Assessment.



ADELAIDE WIND ENERGY CENTRE

Stage 1 and 2 Archaeological Assessment Reports Summary



Have A Question?

We hope you find this Plain Language Summary helpful. In case you would like additional information or have any questions, please contact us directly:

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ADELAIDE WIND ENERGY CENTRE

Decommissioning Plan Report Summary

APRIL 2012

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The purpose of the Decommissioning Plan Report is to describe all activities involved in dismantling or decommissioning the Project at the end of the operations phase. The report also explains the Project owner will restore the land and manage excess water or waste.



ADELAIDE WIND ENERGY CENTRE

Decommissioning Plan Report Summary

DECOMMISSIONING PLAN OVERVIEW

The anticipated life of the Project is approximately 30 years. Decommissioning typically occurs following the operations phase.

At the end of the Project life, the wind turbines may be 're-powered', meaning turbine components could be replaced to extend the life of the Project and delay any decommissioning activities. Alternatively, the wind turbines may be decommissioned. Project decommissioning will follow the Ontario Health and Safety Act along with any applicable municipal, provincial and federal regulations and standards.

The following components will be removed during dismantling:

1. Turbines;
2. Overhead lines and poles; and,
3. Transformer substation.

RESTORATION OF LAND AND WATER

All areas, including the access roads, transformer pads and crane pads will be restored as much as practical to their original condition with native soils and seeding.



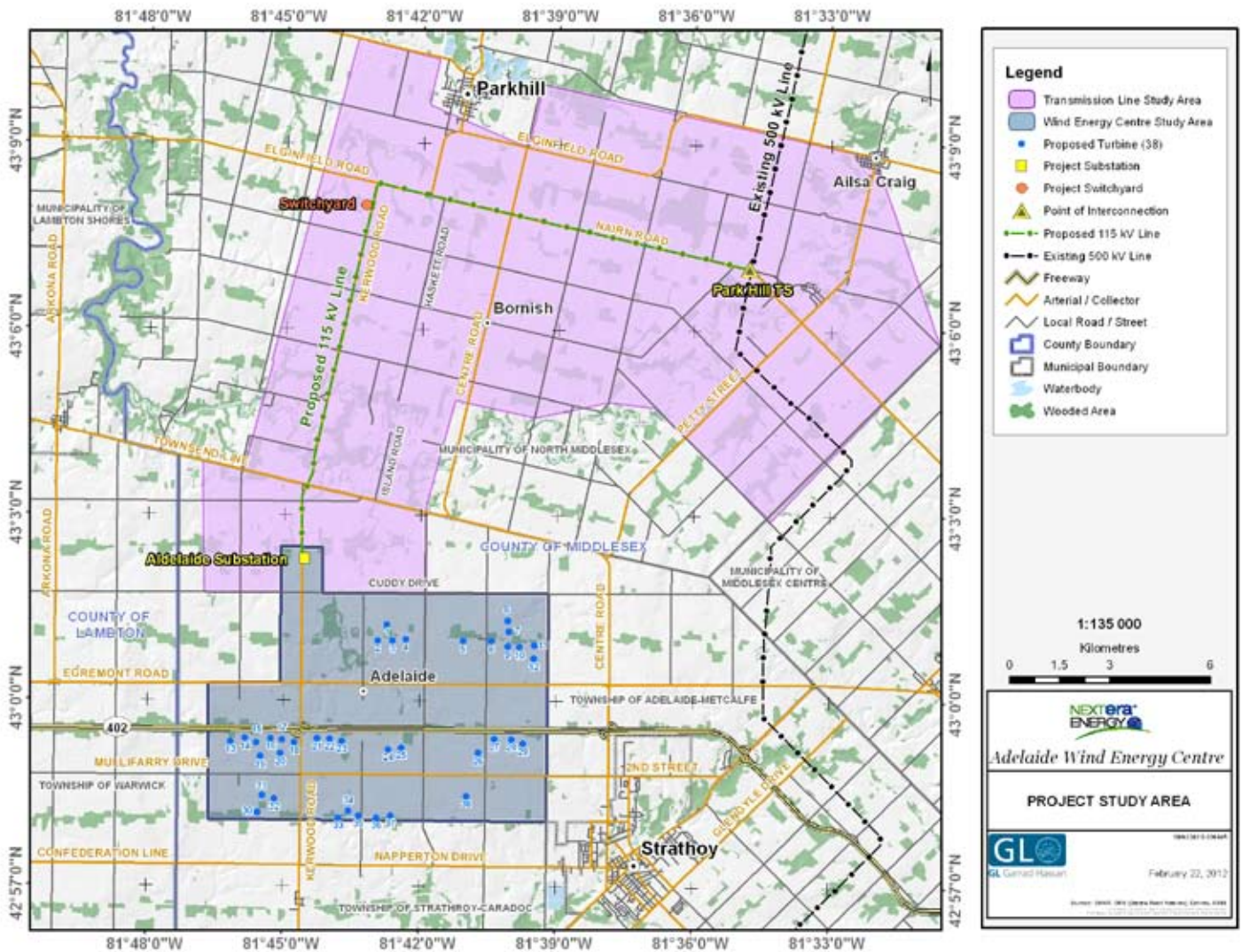
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Decommissioning Plan Report Summary



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Decommissioning Plan Report Summary



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ADELAIDE WIND ENERGY CENTRE

Heritage Assessment Report Summary

APRIL 2012

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The purpose of the Heritage Assessment Report is to identify known and potential heritage resources in the study area in order to identify potential effects on these areas from the Project.



ADELAIDE WIND ENERGY CENTRE

Heritage Assessment Report Summary

STUDY PROCESS

The Heritage Assessment was conducted through the use of historic research, mapping, field surveys and consultation with local historians, the municipalities of Middlesex, North Middlesex and the Township of Adelaide-Metcalf to identify any potential effects to heritage resources from the Project. A heritage resource may be a building, structure or landscape that has cultural heritage value or interest.

EVALUATION

Following the assessment, it was determined that no protected properties or cultural heritage landscapes with heritage value or interest are situated at the Project Location or beside the Project Location (the Heritage Assessment Report defines Project Location as the participating parcels within the Study Area where project components are proposed to be located).

The study indicated that 47 structures were identified to be greater than 40 years old, of which 42 (27 houses and 15 barns) were determined to have general historical significance. In summary, none of the structures that were identified on participating parcels with proposed turbines and infrastructure for this Project have been determined to have cultural value or interest. Although these buildings are considered Heritage Resources, they are not significant enough to warrant designation or further investigation, and finally, no Protected Properties were identified by this report.



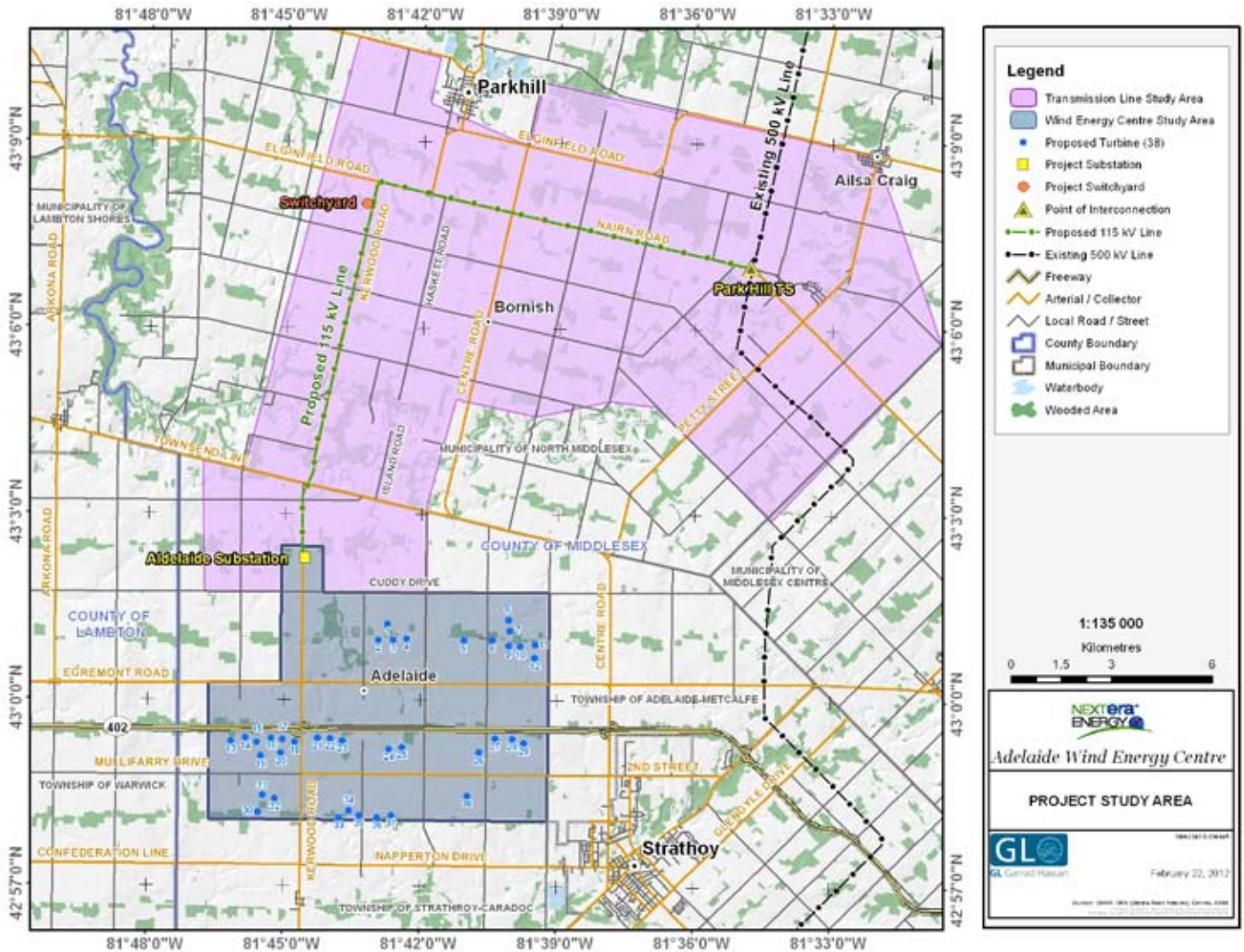
ADELAIDE WIND ENERGY CENTRE

Heritage Assessment Report Summary



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Heritage Assessment Report Summary



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ADELAIDE WIND ENERGY CENTRE

Natural Heritage Assessment Report Summary

APRIL 2012

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The purpose of the Natural Heritage Assessment Report is to first identify ecologically significant natural features (for example, important wildlife habitat) within 120 metres (m) of the proposed Project Location (the Project Location is defined as the outer limit of where disturbance may occur due to construction or operation of the Project), and then to determine potential effects, mitigation measures and residual effects, if any. Residual effects are "left over" effects once mitigation measures have been applied for these natural features.



ADELAIDE WIND ENERGY CENTRE

Natural Heritage Assessment Report Summary

RECORDS REVIEW

Information gathered during this stage of the process was used to determine if there are any of the following natural features within the Study Area:

- ✦ Provincial Parks and Conservation Reserves;
- ✦ Wetlands;
- ✦ Woodlands;
- ✦ Valleylands;
- ✦ Rare species and significant wildlife habitats; and,
- ✦ Areas of Natural and Scientific Interest (ANSIs).

This involved contacting the Ministry of Natural Resources (MNR), the Ministry of the Environment (MOE), the local Conservation Authority and the Municipalities to obtain any records they keep of these natural features within the Study Area.

SITE INVESTIGATION

After the Records Review, Site Investigations were conducted to confirm that the findings of the Records Review were correct, to identify any additional natural features not documented in the Records Review, and finally to define the boundaries and characteristics of the features (for example, what types of plants and animals live in a particular woodland).

The results of the Site Investigation revealed:

- ✦ 5 wetlands
- ✦ 57 woodlands;
- ✦ 2 valleylands; and,
- ✦ 31 Candidate Significant Wildlife Habitats, including important habitats for bats, snakes, weasels, frogs, birds and terrestrial crayfish.

These natural features were carried forward to the Evaluation of Significance stage.

EVALUATION OF SIGNIFICANCE

At this stage, natural features are evaluated to determine if they are significant according to provincial criteria. If a feature is determined to be significant, an Environmental Impact Study (EIS) must be conducted to identify potential effects, propose mitigation measures and described how the potential effects will be addressed through the environmental effects monitoring plan.

Of the natural features identified through the Site Investigation, the following were determined to be significant and therefore will be addressed in the EIS:

- ✦ 5 wetland;
- ✦ 42 woodlands;
- ✦ 2 valleylands; and,
- ✦ 26 Candidate Significant Wildlife Habitats, as well as generalized candidate significant wildlife habitats.

ENVIRONMENTAL IMPACT STUDY

For each natural heritage feature identified as significant, potential effects were assessed and mitigation measures/monitoring commitments were proposed depending on the type of project infrastructure affecting the feature.

Below is a summary of some of the potential effects, mitigation measures and monitoring commitments from the effects assessment. For the full effects assessment, please refer to the Natural Heritage Assessment Report.

ADELAIDE WIND ENERGY CENTRE

Natural Heritage Assessment Report Summary

POTENTIAL EFFECTS FROM CONSTRUCTION/DECOMMISSIONING:

- ✦ Increased erosion, sedimentation and turbidity (i.e. an increase in soil in wetlands, water bodies and other significant features) from clearing vegetation for construction of access roads, temporary crane paths, etc. To avoid or lessen these effects, erosion control fencing will be used and kept in place until the disturbed areas are stabilized, all stockpiled materials will be kept away from the features and periodic monitoring will occur during construction to ensure compliance with these mitigation measures.
- ✦ Damage to vegetation while operating construction equipment. To avoid or lessen these effects, protective fencing will be installed around construction areas to ensure that no work occurs outside the identified zones, and periodic monitoring will occur during construction to ensure compliance.
- ✦ Soil and water contamination from accidental spills of oils, gasoline or grease. To avoid or lessen these effects, a spill response plan will be developed to outline steps to be taken to contain any chemicals and avoid contamination of features. The Design and Operations Report contains an Emergency Response and Communication Plan which outlines action to be taken should a spill occur; including notifying the MOE's spills Action Centre, if required, and the local municipalities.



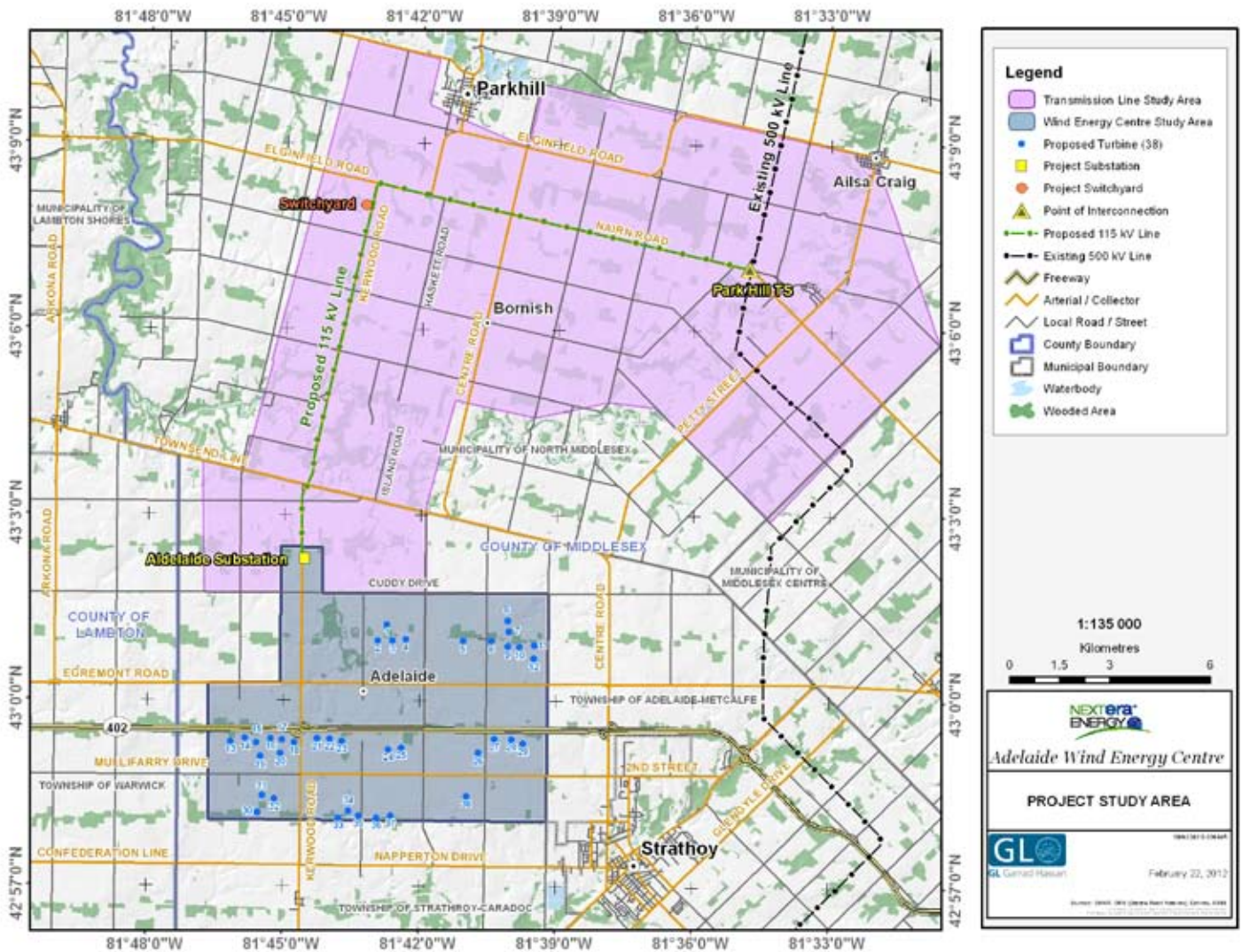
POTENTIAL EFFECTS FROM OPERATION:

- ✦ Disturbance or mortality to wildlife (e.g. birds and bats) from collisions with turbines. To avoid or mitigate these effects, operational mitigation techniques will be implemented if impacts are observed to be above provincial thresholds. Monitoring will consist of three year post-construction mortality surveys for birds and bats which will be submitted to the MNR.

The overall conclusion of the Natural Heritage Assessment Report is that this Project can be constructed and operated without any remaining effects that could harm the environment. Post-construction monitoring related to effects on wildlife, including birds and bats, will be undertaken to confirm this conclusion.

ADELAIDE WIND ENERGY CENTRE

Natural Heritage Assessment Report Summary



Have A Question?

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ADELAIDE WIND ENERGY CENTRE

Noise Assessment Report Summary

APRIL 2012

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The purpose of the Noise Assessment Report is to ensure that sound produced from the operating wind turbines and the transformer substations remain within Provincial guidelines at certain Points of Reception (Points of Reception are defined on page 2).



ADELAIDE WIND ENERGY CENTRE

Noise Assessment Report Summary

STUDY PROCESS

According to Ontario Regulation 359/09, the regulation governing renewable energy approvals in the Province, turbines must be sited at least 550 metres (m) from non-participating Points of Reception. In addition, sound levels at non-participating points of reception cannot exceed 40 decibels (dBA) once the turbines and transformer substations are in operation. The Ministry of Environment (MOE) also requires that the sound effects from existing wind turbines are included in the analysis. There is one wind farm within 5 kilometres of the Adelaide Wind Energy Centre. It is called The Napier Wind Farm and consists of two wind turbines.

POINTS OF RECEPTION

A Point of Reception, or noise receptor, is a location where sound created by the Project is received. The following table describes the number and type of Points of Reception that were included in the noise analysis and whether MOE guidelines apply.

Number of Points of Reception	Description	Remarks
100	Non-participating	MOE guidelines apply
36	Participating	MOE guidelines do not apply
86	Vacant Lot Receptors	MOE guidelines apply

Points of Reception include buildings used for overnight stay, such as houses or apartments, in addition to schools, day care centres, churches, etc. Note that the noise analysis also considers potential Points of Reception on vacant lands where there are currently no buildings or structures. These are referred to as Vacant Lot Points of Reception.

Any Point of Reception classified as non-participating is subject to noise level limits outlined in the MOE guidelines. Participating Points of Reception are not subject to noise level limits because the parcels of land host infrastructure associate with the Project.



ADELAIDE WIND ENERGY CENTRE

Noise Assessment Report Summary

RESULTS

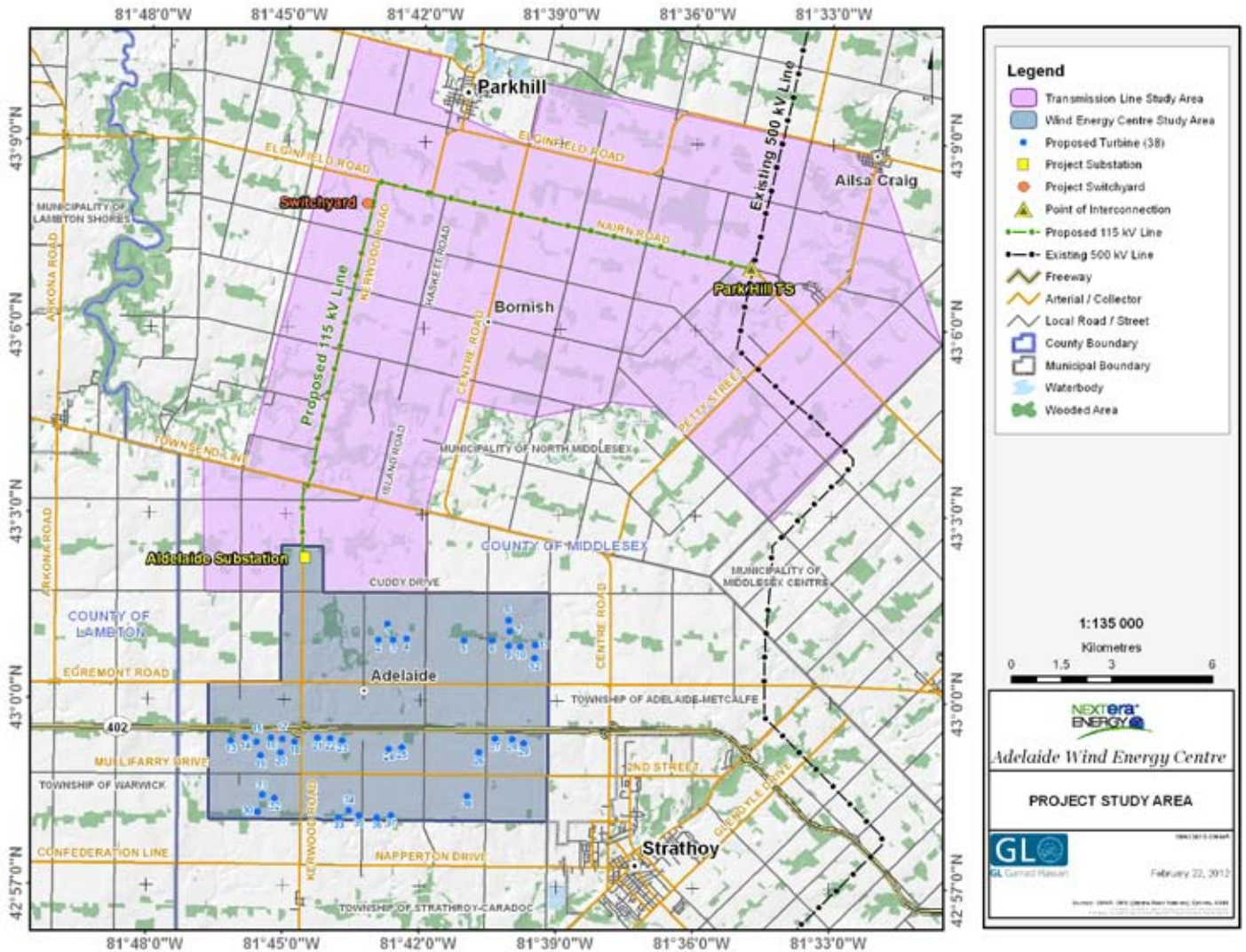
After modelling predicted noise levels from the proposed turbines, transformer substations and the proposed Napier Wind Farm, it was concluded that:

- All Non-Participating Points of Reception comply with MOE guidelines for wind turbines meaning that they are predicted to be below the 40 dBA noise threshold and are greater than 550 m from the nearest wind turbine.
- All Non-Participating Vacant Lot Points of Reception comply with MOE guidelines for wind turbines meaning that they are predicted to be below the 40 dBA noise threshold and are greater than 550 m from the nearest wind turbine.



ADELAIDE WIND ENERGY CENTRE

Noise Assessment Report Summary



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ADELAIDE WIND ENERGY CENTRE

Water Assessment and Waterbody Report Summary

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The purpose of the Water Assessment and Water Body Report is to first identify water bodies within 120 metres (m) of the proposed Project Location (the Project Location is defined as outer limit of where disturbance will occur due to construction or operation of the Project), and then to identify potential effects, mitigation measures and residual effects, if any. Residual effects are "left over" effects once mitigation measures have been applied for these water bodies.



ADELAIDE WIND ENERGY CENTRE

Water Assessment and Waterbody Report Summary

RECORDS REVIEW

Information gathered under this stage of the process was used to determine if there are any water bodies in the Project Location or within 120 m of the Project Location. This involved contacting the Ministry of Natural Resources, the Ministry of the Environment, the local Conservation Authority and the Municipalities to obtain any records they keep of water bodies within the Study Area.

The results of the Records Review identified 44 potential water body crossings and 13 potential water bodies present within 120 m of the high water mark of a permanent or intermittent stream (excluding those indicated as crossings).

SITE INVESTIGATION

Following the Records Review, Site Investigations were conducted to confirm that the findings of the Records Review were correct, to identify any additional water bodies not documented in the Records Review, and finally to define the boundaries of the water bodies.

During the Site Investigations, an overall assessment of the water body was conducted based on a number of criteria including stream measurements, quality of fish habitat and the surrounding land uses (for example agriculture uses and any type of livestock, adjacent houses, roads, meadows or wetlands, etc.). Findings of the Site Investigations confirmed the presence of 19 water body features within the Project area. A total of 28 sites within these features were identified as occurring within 120 m of a project component. No lakes, Lake Trout lakes, or seepage areas were identified within 120 m of the Adelaide Wind Energy Centre project location.

DESCRIPTION OF ENVIRONMENTAL EFFECTS

For each water body identified through the Site Investigation, potential effects were assessed and mitigation measures proposed depending on the type of project infrastructure affecting the feature.

Below is a summary of some of the potential effects, mitigation measures and monitoring commitments from the effects assessment. For the full effects assessment, please refer to the Water Assessment and Water Body Report.

POTENTIAL EFFECTS FROM CONSTRUCTION/DECOMMISSIONING

- ✦ Erosion and sedimentation (i.e. increase in soil in watercourse) from clearing vegetation. To avoid or mitigate these effects, an erosion and sediment control plan will be developed before construction. Erosion blankets, erosion control fencing and straw bales will be used, where necessary to control erosion and prevent soil from entering the watercourse.



ADELAIDE WIND ENERGY CENTRE

Water Assessment and Waterbody Report Summary

- ✦ Degradation of fish habitat from access roads crossing water courses. To avoid or mitigate these effects, culverts will be designed and installed in a way that prevents barriers to fish movement, the culverts will be embedded below the stream bed to maintain water flow and the culverts will be regularly maintained to ensure debris does not build-up.
- ✦ Soil compaction which could increase water runoff into watercourses. To avoid or mitigate these effects, changes in land contours and natural drainage will be minimized and temporary storage basins will be installed to allow water to infiltrate, or permanent stormwater management facilities will be used as necessary. Prior to construction a Stormwater Pollution Prevention study will be conducted and submitted to the municipalities.

POTENTIAL EFFECTS FROM OPERATION

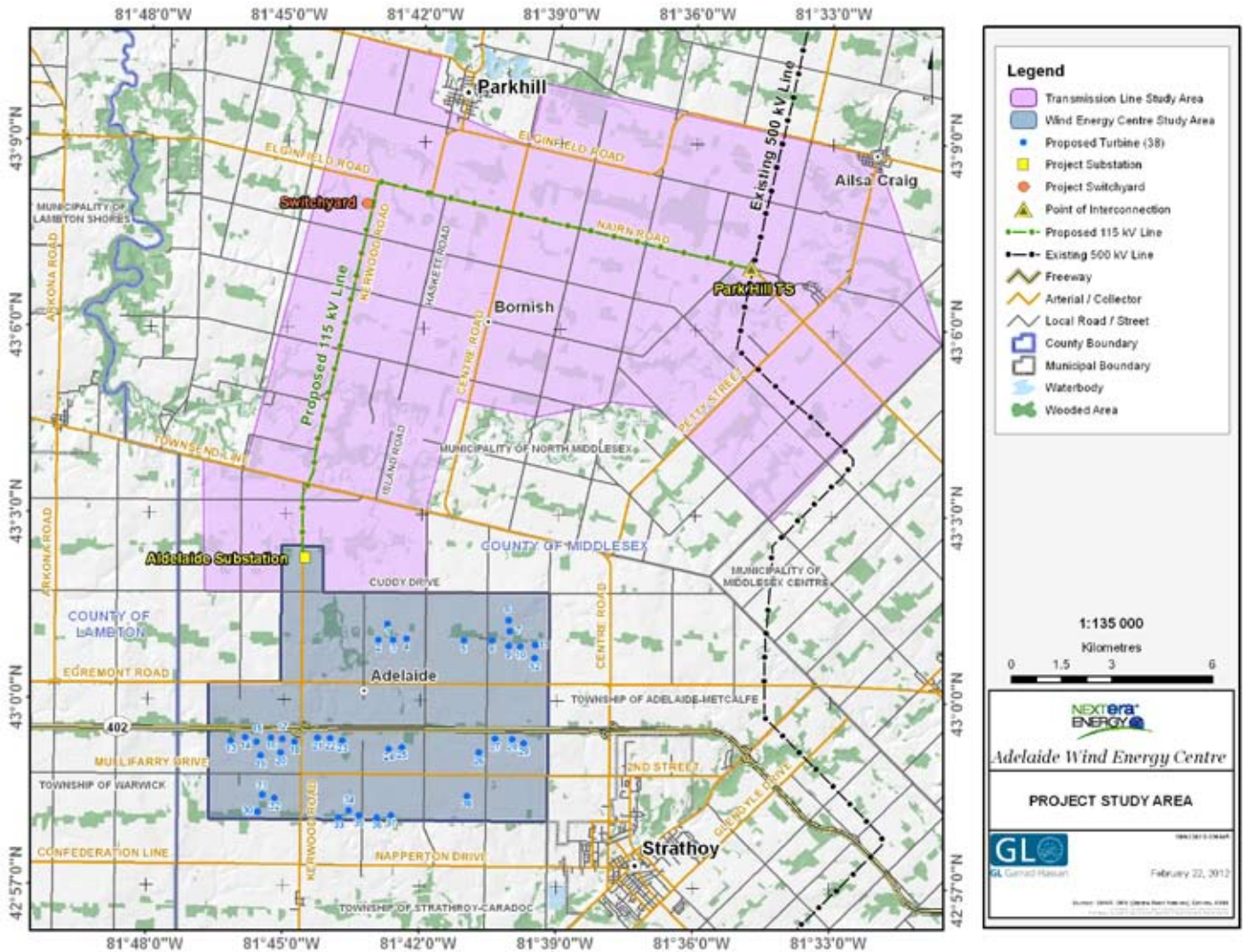
- ✦ Water contamination is possible, although unlikely, due to accidental spills associated with maintenance activities. A spill response plan will be developed and an emergency spill kit will be kept on site. In addition, the Ministry of the Environment and the local municipalities will be notified of any spills.

The overall conclusion of the Water Assessment and Water Body Report is that this Project can be constructed and operated without any remaining effects that could harm the environment.



ADELAIDE WIND ENERGY CENTRE

Water Assessment and Waterbody Report Summary



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ADELAIDE WIND ENERGY CENTRE

Construction Plan Report Summary

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The purpose of the Construction Plan Report is to describe all activities that are part of the Project's construction phase so that possible negative environmental effects can be identified. The report also presents mitigation measures/monitoring commitments and residual effects, if any. Residual effects are "left over" effects once mitigation measures have been applied.



ADELAIDE WIND ENERGY CENTRE

Construction Plan Report Summary

DESCRIPTION OF CONSTRUCTION AND INSTALLATION ACTIVITIES

The table below presents the anticipated construction schedule and approximate order of construction activities for the proposed Project; although some construction activities will overlap. The construction phase of the Project is anticipated to begin in late summer/early fall 2013 and last 6 months.

CONSTRUCTION SCHEDULE

(Activity)	MO	M1	M2	M3	M4	M5	M6
Surveying (prior to construction)	●						
Geotechnical Sampling (prior to construction)	●						
Land Clearing and Construction of Access Roads		●	●				
Temporary Crane Paths			●				
Installation of Culverts		●					
Construction of Laydown Area			●				
Turbine Site and Crane Pad Construction		●	●	●			
Delivery of Equipment		●	●	●	●	●	●
Construction of Turbine Foundations				●			
Wind Turbine Assembly and Installation				●	●	●	●
Construction of Electrical Collector System						●	●
Construction of Transformer Substation					●	●	●
Construction of Operations Building						●	●
Land clean up and Reclamation		●	●	●	●	●	●
Turbine Commissioning							●

ADELAIDE WIND ENERGY CENTRE

Construction Plan Report Summary

CONSTRUCTION ACTIVITIES

SURVEYING AND GEOTECHNICAL STUDIES

- ✦ Surveys are required to identify locations of major Project components; this involves surveyors walking around the sites and marking locations using stakes.
- ✦ Geotechnical sampling is required to locate turbine foundations; this involves drilling boreholes (i.e. holes about 5 centimetres (cm) wide and 1 metre (m) deep drilled in the ground) to collect information on the type of soil below ground

LAND CLEARING AND CONSTRUCTION OF ACCESS ROADS

- ✦ Access roads and crane paths will be 11 m wide during the construction phase and are required to transport equipment to the turbine location construction sites.
 - First, the land is cleared and the topsoil is removed, stored for later use and replaced with a layer of gravel.
 - Following construction, the gravel will be removed and replaced with topsoil; some access roads will remain in place for maintenance activities.

CONSTRUCTION OF LAYDOWN AREAS

- ✦ Construction laydown areas are approximately 4 hectares (ha) in size and are used to temporarily store construction equipment.
 - First, the land is cleared and topsoil is removed, stored for later use and replaced with a layer of gravel.
 - Following construction, the gravel will be removed and the topsoil returned.



ADELAIDE WIND ENERGY CENTRE

Construction Plan Reports Summary

CONSTRUCTION OF TURBINE SITES AND CRANE PADS

- ✦ Turbine laydown areas are approximately 122 m by 122 m and are used to store wind turbine components during construction.
 - First, the turbine site is cleared and levelled and topsoil is removed, stored for later use.
- ✦ Crane pads are approximately 15 m by 35 m and are used to support the large cranes during construction, particularly when they lift the nacelle into place.
 - First, the topsoil is removed, stored for later use and replaced with a layer of gravel.
 - Following construction, the crane pad will be restored to pre-construction condition.

CONSTRUCTION OF TURBINE FOUNDATIONS

- ✦ Turbine foundations are approximately 400 m².
 - First, an area approximately 3 m deep x 20 m x 20 m is dug and the earth is stored for later use.
 - The foundations are shaped like an upside-down mushroom and made of a wooden frame, poured concrete and steel rebar to provide strength, with only a small portion of the 'stem' visible once construction is complete
- ✦ After construction, the subsoil and topsoil will be returned and the area can be farmed to within a few metres of the turbine.



WIND TURBINE ASSEMBLY AND INSTALLATION

- ✦ Once turbine foundations are complete and the concrete has set, the turbines will be constructed, usually in five lifts (three for the towers, one for the nacelle - which houses the main components of the wind turbine such as the rotor shaft, control panel, generator, etc. - and one for the rotor with the blades already mounted).

CONSTRUCTION OF ELECTRICAL COLLECTOR SYSTEM (INCLUDING PAD MOUNTED TRANSFORMERS AND UNDERGROUND COLLECTION LINES)

- ✦ Pad Mounted Transformers are approximately 2.2 m by 2.5 m in size and are used to “step-up” the electricity generated by the turbine to 34.5 kV.

ADELAIDE WIND ENERGY CENTRE

Construction Plan Reports Summary

- First, soil in the area is removed and stored for later use.
 - Once the grounding equipment, concrete pad and transformer are in place, the electrical connectors are installed.
- ✦ Collection lines are electrical cables that are used to connect each turbine to the Adelaide Substation.
- First, soil in the area is removed and stored for later use.
 - The collection lines are generally buried 0.9 m below ground.
 - Some collection lines will be tunnelled below woodlots or watercourses to avoid effects to natural areas.
 - In these cases, entrance and exit points will be created on each side of the natural area to be crossed, the tunnel between the two points will be excavated, and the electrical cable will be fed from the entrance to the exit point.

CONSTRUCTION OF TRANSFORMER SUBSTATION

- ✦ The Adelaide Substation is approximately 2-3 ha in size and is used to “step-up” electricity from the collection lines (34.5 kV) to 115 kV for transmission to the Parkhill Substation which will increase the voltage to 500 kV.
- First, soil in the area is removed and stored for later use and replaced with a layer of gravel, if needed.
 - A containment system will be constructed around the transformer to prevent soil contamination in the event there is an oil leak.

CONSTRUCTION OF ELECTRICAL TRANSMISSION LINE

- ✦ The 115 kV electrical transmission line will connect the electricity generated by the wind Project from the Adelaide Substation to the Parkhill Substation where it will be fed into the Provincial electricity grid.
- ✦ The transmission line will be mounted on existing poles or on new poles, to be determined during the engineering and design phase and with Hydro One Networks Inc.
- ✦ New poles will be constructed of wood, concrete or steel and will be 18 – 30 m tall with the poles buried 1 to 2 m below ground.
- ✦ Once poles are in place, the cables will be strung between the poles.



ADELAIDE WIND ENERGY CENTRE

Construction Plan Reports Summary

CONSTRUCTION OF OPERATION AND MAINTENANCE BUILDING

- ✦ An operations building will be built for the Project or an existing building will be purchased/leased. The operations building is approximately 30 m by 15 m in size and is used to monitor the daily operations of the wind energy centre.
- ✦ Drinking water will be supplied by a well or through the municipal water system and if required, a septic bed will be constructed for the disposal of sewage.

CONSTRUCTION OF PERMANENT METEOROLOGICAL TOWER(S)

- ✦ The meteorological tower(s) are approximately 80 m high and used to monitor wind conditions at the Project site.
- ✦ They will either be monopole (a single pole) or lattice structure (a framework tower) and will be secured with three guy wires.

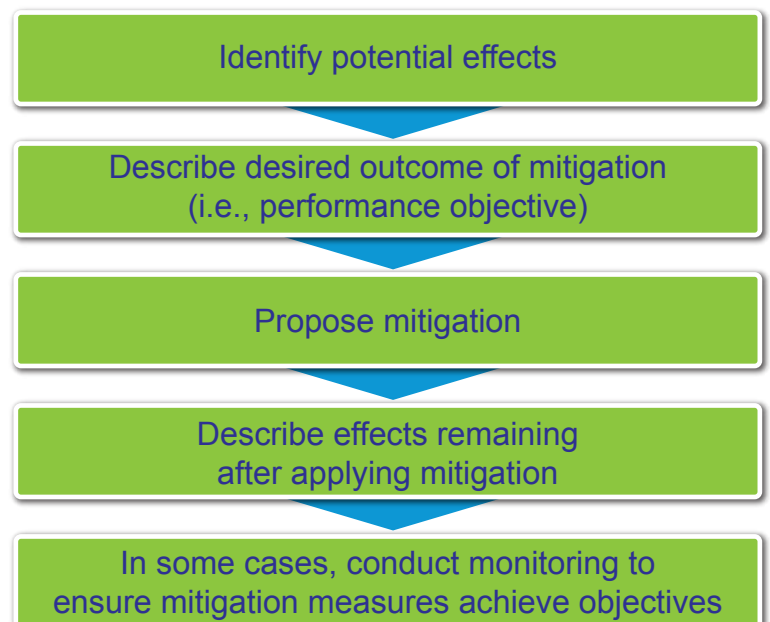
CLEAN UP AND SITE RECLAMATION

- ✦ Site clean-up will occur throughout the construction phase and site reclamation will occur after construction has been completed.
- ✦ Materials will be recycled as much as possible and waste will be removed from the site and disposed of at an appropriate facility.
- ✦ All disturbed areas will be restored with the stockpiled soil and reseeded, as appropriate.

Effects Assessment

The following flow chart describes the effects assessment process from the first stage of identifying potential effects through to describing residual effects (i.e. effects remaining after mitigation measures are applied) and conducting monitoring.

This section provides a summary of some of the potential effects, mitigation measures and monitoring commitments from the effects assessment. For the full effects assessment, please refer to the Construction Plan Report.



ADELAIDE WIND ENERGY CENTRE

Construction Plan Reports Summary

CULTURAL HERITAGE

Construction activities could disturb archaeological resource identified through the archaeological assessments. Thirteen sites have been recommended for a Stage 3 Assessment. To date, 6 of the 13 have been completed, of which, 1 has been recommended for a Stage 4 Archaeological Assessment. To avoid or lessen these effects, protective fencing will be installed around the archaeological site boundary or further archaeological studies will be conducted.

NATURAL HERITAGE RESOURCES (SUCH AS WETLANDS AND FORESTS)

Although Project components were sited to avoid or leave a separation distance between significant natural heritage features (i.e. significant wetlands and woodlands, etc), some vegetation removal will be required.

Vegetation removal could disturb wildlife and affect wildlife movement in the area. To avoid or lessen these effects, all temporary construction areas will be reseeded, as appropriate, and construction will be avoided, to the extent possible, when sensitive wildlife are breeding to reduce the potential for disturbance.



SURFACE WATER AND GROUNDWATER

Construction activities close to streams could cause erosion and result in soil entering the watercourses. An erosion and sediment control plan will be developed and implemented to control potential erosion and protect the watercourses. In addition, areas where vegetation was removed will be replanted.

EMISSIONS TO AIR

The increase of heavy truck traffic on local roads during construction could create dust and increase emissions to air. Road surfaces will be sprayed with water or an environmentally friendly dust suppressant to reduce the amount of dust created.

NOISE

Construction activities will increase noise levels in the Project area. All construction equipment will be maintained in good working condition and construction activities will abide by local by-laws regarding hours of operation.

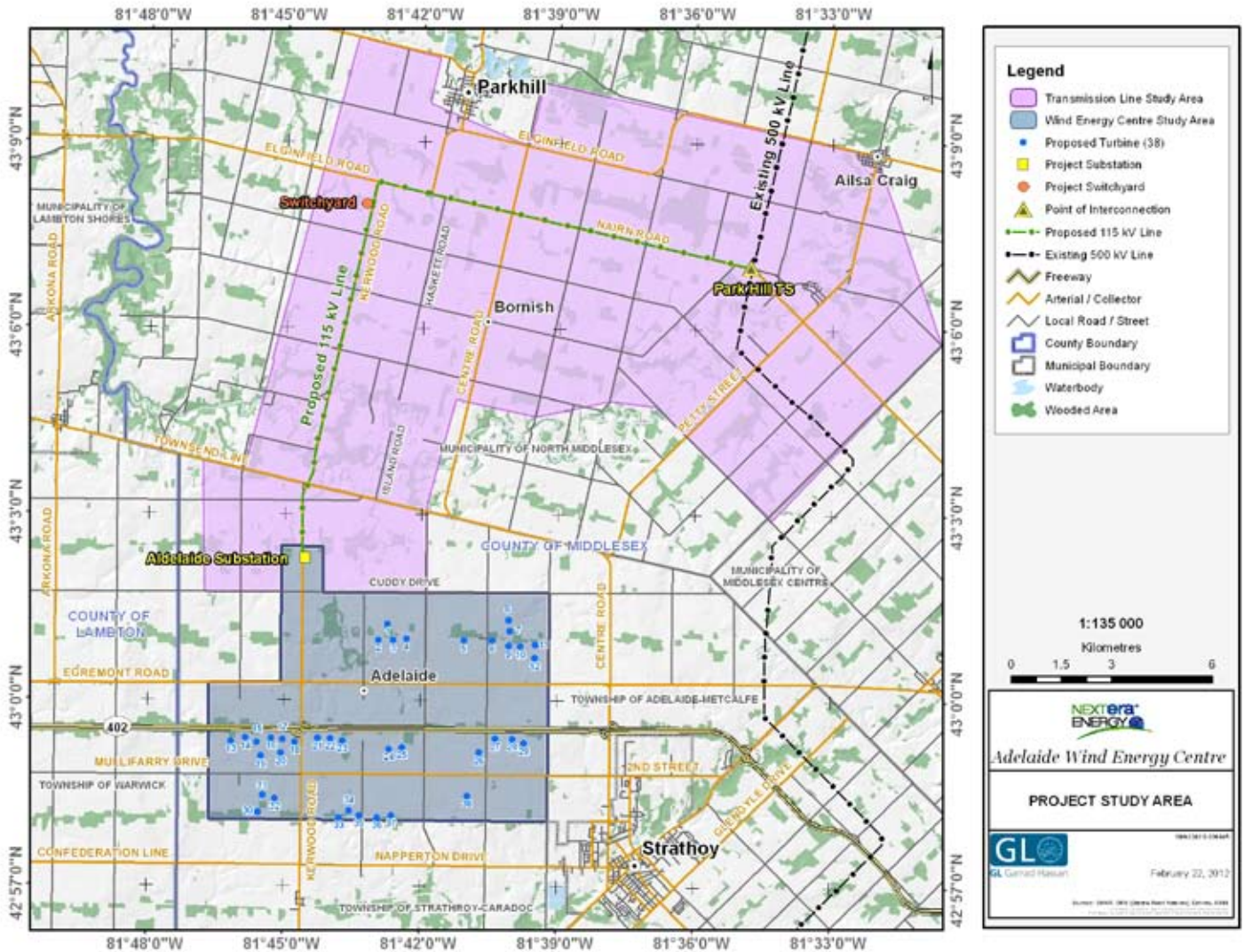
LOCAL INTERESTS, LAND USE AND INFRASTRUCTURE

The increase in construction traffic could cause traffic congestion or damage to local roads. A Traffic Management Plan will be prepared prior to beginning construction activities. Finally, any damage to local infrastructure caused by construction activities will be repaired to original (or better) condition.

The overall conclusion of the Construction Plan Report is that this Project can be constructed and installed without any remaining effects that could harm the environment.

ADELAIDE WIND ENERGY CENTRE

Construction Plan Report Summary



Have A Question?

We hope you find this Plain Language Summary helpful. In case you would like additional information or have any questions, please contact us directly:

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ADELAIDE WIND ENERGY CENTRE

Design and Operations Report Summary

APRIL 2012

Kerwood Wind, Inc. is proposing to develop the Adelaide Wind Energy Centre (the "Project"). Kerwood Wind, Inc. is a wholly-owned subsidiary of NextEra Energy Canada, ULC (NextEra). The parent company of NextEra Energy Canada, ULC is NextEra Energy Resources, LLC, with a current portfolio of nearly 8,500 operating wind turbines across North America. The Project is located in the Township of Adelaide-Metcalfe and North Middlesex and is proposed to consist of 37, 1.62 MW turbines with a total nameplate capacity of up to 59.9 MW, though 38 turbine positions will be permitted.

The purpose of the Design and Operations Report is to provide specific details on how the Project is designed, the equipment used and operated and how emergencies and ongoing communication will be managed. The report also presents mitigation measures/monitoring commitments and residual effects, if any. Residual effects are "left over" effects once mitigation measures have been applied.



ADELAIDE WIND ENERGY CENTRE

Design and Operations Report Summary

SITE PLAN

This Site Plan, shown on Figure on back page, was designed to meet Provincial “setback distances” outlined in the following table.

ONTARIO REGULATION 359/09 SETBACK DISTANCES

Setback	Distance (metres (m))	Details
Noise Receptors	550	To be measured from the centre of a turbine’s base to a non-participating receptor.
Property Line	Hub height (80)	Setback can be reduced to blade length plus 10 m (60 m total) measured from the centre of the turbine’s base to the nearest property boundary if a Property Line Setback Assessment Report shows that siting turbines closer will not cause adverse effects.
Roads and Railway	Blade length plus 10 m	Blade length plus 10 m (60 m total) measured from the centre of the turbine’s base to the boundary of the right-of-way.
Significant Natural Heritage Features	120	Measured from the project location boundary to the nearest point of the natural features. Project components may be sited closer than the prescribed setback if an Environmental Impact Study is prepared.
Water Bodies	120	Measured from the average annual high water mark of a lake, or permanent / intermittent stream (Project components may be sited closer than 120 m if a Water Body Report is prepared - note that turbines and transformers may not be sited closer than 30 m to these features).
Petroleum Resources	75	Setback may be reduced with the submission of a Petroleum Engineer’s Report to the MNR.

FACILITY DESIGN PLAN

WIND TURBINES

- ✦ 37 1.62 megawatt (MW) GE model wind turbines, 80 m tall tower with 50 m long blades.

ACCESS ROADS

- ✦ 11 m wide during construction. Provides access to properties for equipment during construction and for maintenance during operations.

COLLECTION LINES

- ✦ 34.5 kilovolt (kV) electrical collection lines to be buried on private property next to access roads, where possible. Connects electricity generated by each turbine to the Adelaide Substation.



ADELAIDE WIND ENERGY CENTRE

Design and Operations Report Summary

ELECTRICAL TRANSMISSION

- ✦ Energy generated by the Project will be collected via 34.5 kV underground cabling to the Adelaide Substation where it will step up the voltage from 34.5 kV to 115 kV. A project-owned 115-kV transmission line will then link to a switchyard and from there will connect to the Parkhill Substation where the voltage will be stepped up to 500 kV.

TRANSFORMER SUBSTATION

- ✦ A total footprint of approximately 2-3 ha in size, the Adelaide Substation increases voltage of electricity from collection lines (34.5 kV) to 115 kV for transmission to the Parkhill Substation which will increase the voltage to 500 kV.

OPERATIONS AND MAINTENANCE BUILDING

- ✦ Approximately 30 m by 15 m in size, will be constructed on privately held lands or an existing building will be purchased/leased. Will be used to monitor day-to-day operations of the wind energy centre.

PERMANENT METEOROLOGICAL TOWER(S)

- ✦ Typically 80 m in height, up to two MET towers are proposed to be constructed. MET towers are used to monitor weather conditions at the site.

FACILITY OPERATION PLAN

WIND TURBINE OPERATION

- ✦ 5-10 workers will carry out day to day activities associated with turbine operation.



ADELAIDE WIND ENERGY CENTRE

Design and Operations Report Summary

- ✦ A communication line connects each turbine to the Operations Centre, which closely monitors and can control the operation of each turbine.

MAINTENANCE

- ✦ Approximately every 6 months, routine maintenance will be carried out by 2-3 workers over a full day at each turbine.
- ✦ The substations will receive periodic protective relay maintenance and the collection lines will receive periodic assessments of their condition.
- ✦ Unplanned maintenance can include failure of small components and may be addressed by a technician over several hours.
- ✦ Events involving the replacement of major components such as gearboxes are not typical; however, this could require the use of large equipment.

WASTE MANAGEMENT

- ✦ Waste generated during operations will be removed from the operations and maintenance building by a licensed operator and disposed of at an approved facility. Recycling services will be used to the extent available.

EMERGENCY RESPONSE AND COMMUNICATION PLAN

The Emergency Response and Communication Plan, which will be filed with the Ministry of the Environment, the Township of Adlaide-Metcalf and North Middlesex, Middlesex County, include details on:



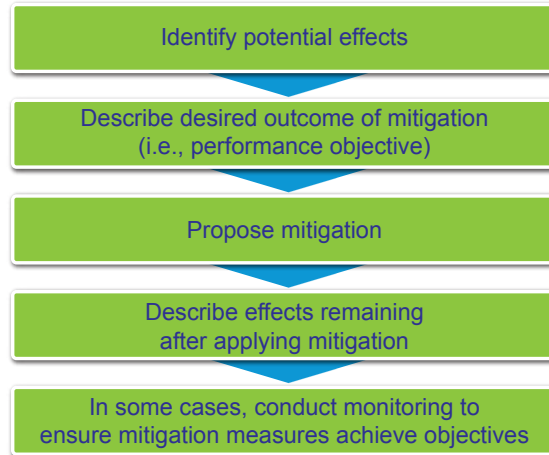
ADELAIDE WIND ENERGY CENTRE

Design and Operations Report Summary

- ✦ Emergency Action Plans for outlining steps to be taken in the event of an on-site emergency;
- ✦ Ongoing Communication to update the community throughout the construction and operations phase; and,
- ✦ Complaints Resolution Process for dealing with any questions or concerns.

ENVIRONMENTAL EFFECTS MONITORING PLAN

The following flow chart describes the effects assessment process from the first stage of identifying potential effects through to describing residual effects (i.e. effects remaining after mitigation measures are applied) and conducting monitoring.



ADELAIDE WIND ENERGY CENTRE

Design and Operations Report Summary



This section provides a summary of some of the potential effects, mitigation measures and monitoring commitments from the effects assessment. For the full effects assessment, please refer to the Design and Operations Report.

CULTURAL HERITAGE

No effects to cultural heritage are anticipated during the operations phase.

NATURAL HERITAGE RESOURCES (SUCH AS WETLANDS AND FORESTS)

Disturbance or mortality to wildlife (e.g. birds and bats) may occur due to collisions with turbines. To avoid or lessen these effects, operational mitigation techniques will be implemented if impacts are observed to be above provincial thresholds. Monitoring will consist of three years of post-construction mortality surveys for birds and bats which will be submitted to the Ministry of Natural Resources.

SURFACE WATER AND GROUNDWATER

Water contamination is possible, although unlikely, due to accidental spills associated with maintenance activities. A spill response plan will be developed and an emergency spill kit will be kept on site. In addition, the Ministry of the Environment and the local municipalities will be notified of any spills, as required.

EMISSIONS TO AIR

Maintenance vehicles may create dust and increase emissions to air. To reduce the amount of dust generated, the speed of maintenance vehicles will be limited. All construction vehicles will meet provincial emissions regulations.

ADELAIDE WIND ENERGY CENTRE

Design and Operations Report Summary

NOISE

The operation of turbines and the substations may increase noise levels experienced by some residents. Turbines will be set back at least 550 m from all residents who are not leasing their land for the Project to avoid or lessen the effects. Noise modelling was also conducted to predict and ensure that noise levels from the operating turbines and substations will not be greater than limits set by the Ministry of Environment. Any noise-related complaints will be tracked and follow-up monitoring will occur as required.

LOCAL INTERESTS, LAND USE AND INFRASTRUCTURE

Turbines, access roads, and the substations will result in a minor reduction in usable agricultural land. To avoid or lessen these effects, the length of access roads will be minimized where possible.

PUBLIC HEALTH AND SAFETY

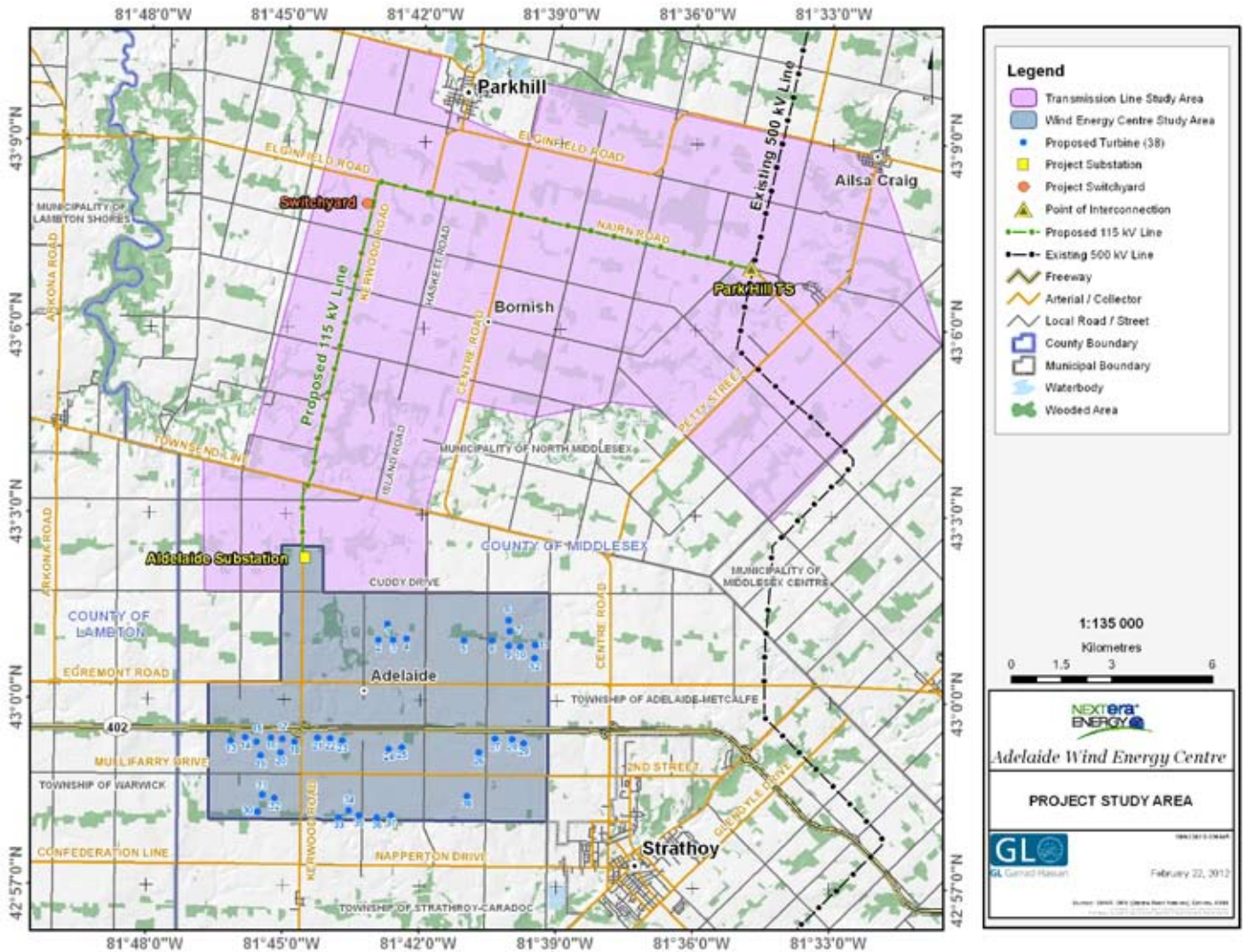
Potential effects on human health and safety could occur from ice shed (ice falling from turbine blades) and/or shadow flicker (a “flicker” caused when rotating turbine blades are directly between a viewer and the sun). To avoid or mitigate these effects, all setback distances will be adhered to. Any safety complaints will be tracked and follow-up monitoring will occur as required.

The overall conclusion of the Design and Operations Report is that this Project can be operated without any remaining effects that could harm the environment. Post-construction monitoring related to effects on wildlife, including birds and bats, will be undertaken to confirm this conclusion.



ADELAIDE WIND ENERGY CENTRE

Design and Operations Report Summary



Have A Question?

We hope you find this Plain Language Summary helpful. In case you would like additional information or have any questions, please contact us directly:

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ADELAIDE WIND ENERGY CENTRE

Project Description Report Summary

APRIL 2012

Kerwood Wind, Inc. is proposing to develop the Adelaide Wind Energy Centre (the "Project"). Kerwood Wind, Inc. is a wholly-owned subsidiary of NextEra Energy Canada, ULC (NextEra). The parent company of NextEra Energy Canada, ULC is NextEra Energy Resources, LLC, with a current portfolio of nearly 8,500 operating wind turbines across North America. The Project is located in the Township of Adelaide-Metcalf and North Middlesex and is proposed to consist of 37, 1.62 MW turbines with a total nameplate capacity of up to 59.9 MW, though 38 turbine positions will be permitted.

The purpose of the Project Description Report (PDR) is to summarize the content of the REA reports; it is a key document for consultation. The PDR is prepared early in the planning process and is provided to the public, municipalities and Aboriginal communities and it is updated as the Project develops.



ADELAIDE WIND ENERGY CENTRE

Project Description Report Summary

NEXTERA ENERGY CANADA

The Project will be owned and operated by Kerwood Wind, Inc. a wholly owned subsidiary of NextEra Energy Canada, as previously noted. NextEra's parent company is NextEra Energy Resources, LLC, a global leader in wind energy generation with a current operating portfolio of over 85 wind energy projects in North America. In Canada, wind energy centres currently owned and operated by NextEra include: Mount Copper and Mount Miller, (both 54 megawatts (MW)) located in Murdochville, Quebec; Pubnico Point, (31 MW) located near Yarmouth, Nova Scotia; and Ghost Pine (82 MW), located in Kneehill County, Alberta.

PROJECT INFORMATION

PROJECT COMPONENTS

The major components of the Project are anticipated to include:

- 37 1.62 MW GE model wind turbine generator locations and pad mounted step-up transformers, though 38 turbine locations will be permitted;
- Laydown and storage areas (including temporary staging areas, crane pads and turnaround areas surrounding each wind turbine);
- Approximately 48 kilometres (km) of 34.5 kilovolt (kV) underground electrical collection lines to connect the turbines to the proposed Adelaide Substation;
- A transformer substation to increase the voltage of electricity from the electrical collection lines (34.5 kV) to 115 kV;
- Approximately 23 km of 115 kV overhead transmission line proposed along Kerwood Road and Nairn Road from the proposed Adelaide Substation to the Parkhill Substation;
- Approximately 27 km of turbine access roads; and,
- An operations and maintenance building.

PROJECT TIMING

Construction for the Adelaide Wind Energy Centre is expected to begin in late summer/early fall 2013 (dependent on receiving the required approvals), and last for approximately 6 months. The operations phase is anticipated to start in late winter/early spring 2014, and the Project will operate for approximately 30 years, after which point the Project may be decommissioned.



ADELAIDE WIND ENERGY CENTRE

Project Description Report Summary

CONSTRUCTION ACTIVITIES

SURVEYING AND GEOTECHNICAL STUDIES

- ✦ Surveys are required to identify locations of major Project components; this involves surveyors walking around the sites and marking locations using stakes.
- ✦ Geotechnical sampling is required to locate turbine foundations; this involves drilling boreholes (i.e. holes about 5 centimetres (cm) wide and 1 metre (m) deep drilled in the ground) to collect information on the type of soil below ground.

LAND CLEARING AND CONSTRUCTION OF ACCESS ROADS

- ✦ Access roads and crane paths will be 11 m wide during the construction phase and are required to transport equipment to the turbine location construction sites.
 - First, the land is cleared and the topsoil is removed, stored for later use and replaced with a layer of gravel.
 - Following construction, the gravel will be removed and replaced with topsoil; some access roads will remain in place for maintenance activities.

CONSTRUCTION OF LAYDOWN AREAS

- ✦ Construction laydown areas are approximately 4 hectares (ha) in size and are used to temporarily store construction equipment.
 - First, the land is cleared and topsoil is removed, stored for later use and replaced with a layer of gravel.
 - Following construction, the gravel will be removed and the topsoil returned.

CONSTRUCTION OF TURBINE SITES AND CRANE PADS

- ✦ Turbine laydown areas are approximately 122 m by 122 m and are used to store wind turbine components during construction.



ADELAIDE WIND ENERGY CENTRE

Project Description Report Summary

- First, the turbine site is cleared, levelled and topsoil is removed and stored for later use.
- ✦ Crane pads are approximately 15 m by 35 m and are used to support the large cranes during construction, particularly when they lift the nacelle into place.
 - First, the topsoil is removed, stored for later use and replaced with a layer of gravel.
 - Following construction, the crane pad will be restored to pre-construction condition.

CONSTRUCTION OF TURBINE FOUNDATIONS

- ✦ Turbine foundations are approximately 400 m².
 - First, an area approximately 3 m deep x 20 m x 20 m is dug and the earth is stored for later use.
 - The foundations are shaped like an upside-down mushroom and made of a wooden frame, poured concrete and steel rebar to provide strength, with only a small portion of the ‘stem’ visible once construction is complete.
- ✦ After construction, the subsoil and topsoil will be returned and the area can be farmed to within a few metres of the turbine.



WIND TURBINE ASSEMBLY AND INSTALLATION

- ✦ Once turbine foundations are complete and the concrete has set, the turbines will be constructed, usually in five lifts (three for the towers, one for the nacelle - which houses the main components of the wind turbine such as the rotor shaft, control panel, generator, etc. - and one for the rotor with the blades already mounted).

CONSTRUCTION OF ELECTRICAL COLLECTOR SYSTEM (INCLUDING PAD MOUNTED TRANSFORMERS AND UNDERGROUND COLLECTION LINES)

- ✦ Pad Mounted Transformers are approximately 2.2 m by 2.5 m in size and are used to “step-up” the electricity generated by the turbine to 34.5 kV.

ADELAIDE WIND ENERGY CENTRE

Project Description Report Summary

- First, soil in the area is removed and stored for later use.
 - Once the grounding equipment, concrete pad and transformer are in place, the electrical connectors are installed.
- ✦ Collection lines are electrical cables that are used to connect each turbine to the Adelaide Substation.
- First, soil in the area is removed and stored for later use.
 - The collection lines are generally buried 0.9 m below ground.
 - Some collection lines will be tunnelled below woodlots or watercourses to avoid effects to natural areas.
 - In these cases, entrance and exit points will be created on each side of the natural area to be crossed, the tunnel between the two points will be excavated, and the electrical cable will be fed from the entrance to the exit point.

CONSTRUCTION OF TRANSFORMER SUBSTATION

A total footprint of approximately 2-3 ha in size, the Adelaide Substation increases voltage of electricity from collection lines (34.5 kV) to 115 kV for transmission to the Parkhill Substation.

- First, soil in the area is removed, stored for later use and replaced with a layer of gravel, if needed.
- A containment system will be constructed around the transformer to prevent soil contamination in the event there is an oil leak.



ADELAIDE WIND ENERGY CENTRE

Project Description Report Summary

CONSTRUCTION OF ELECTRICAL TRANSMISSION LINE

- ✦ The 115 kV electrical transmission line will connect the electricity generated by the wind Project from the Adelaide Substation to the Parkhill Substation where it will be fed into the Provincial electricity grid.
- ✦ The transmission line will be mounted on existing poles or on new poles, to be determined during the engineering and design phase and with Hydro One Networks Inc.
- ✦ New poles will be constructed of wood, concrete or steel and will be 18 – 30 m tall with the poles buried 1 to 2 m below ground.
- ✦ Once poles are in place, the cables will be strung between the poles.

CONSTRUCTION OF OPERATION AND MAINTENANCE BUILDING

- ✦ An operations building will be built for the Project or an existing building will be purchased/leased. The operations building is approximately 30 m by 15 m in size and is used to monitor the daily operations of the wind energy centre.
- ✦ Drinking water will be supplied by a well or through the municipal water system and if required, a septic bed will be constructed for the disposal of sewage.

CONSTRUCTION OF PERMANENT METEOROLOGICAL TOWER(S)

- ✦ The meteorological tower(s) are approximately 80 m high and used to monitor wind conditions at the Project site.
- ✦ They will either be monopole (a single pole) or lattice structure (a framework tower) and will be secured with three guy wires.

CLEAN UP AND SITE RECLAMATION

- ✦ Site clean-up will occur throughout the construction phase and site reclamation will occur after construction has been completed.



ADELAIDE WIND ENERGY CENTRE

Project Description Report Summary

- ✦ Materials will be recycled as much as possible and waste will be removed from the site and disposed of at an appropriate facility.
- ✦ All disturbed areas will be restored with the stockpiled soil and reseeded, as appropriate.

OPERATION AND MAINTENANCE

Wind Turbine Operation:

- ✦ 5-10 workers will carry out day to day activities associated with turbine operation.
- ✦ A communication line connects each turbine to the Operations Centre, which closely monitors and can control the operation of each turbine.

MAINTENANCE

- ✦ Approximately every 6 months, routine maintenance will be carried out by 2-3 workers over a full day at each turbine.
- ✦ The substations will receive periodic protective relay maintenance and the collection lines will receive periodic assessments of their condition.
- ✦ Unplanned maintenance can include failure of small components and may be addressed by a technician over several hours.
- ✦ Events involving the replacement of major components such as gearboxes are not typical; however, this could require the use of large equipment.



ADELAIDE WIND ENERGY CENTRE

Project Description Report Summary

WASTE MANAGEMENT

- Waste generated during operations will be removed from the operations and maintenance building by a licensed operator and disposed of at an approved facility. Recycling services will be used to the extent available.

DECOMMISSIONING

At the end of the Project life, the wind turbines may be 're-powered', meaning turbine components could be replaced to extend the life of the Project and delay decommissioning activities. Alternatively, the wind turbines may be decommissioned. Decommissioning procedures will be similar to the construction phase, but in reverse order. The decommissioning process is described in the Decommissioning Plan Report Plain Language Summary and will follow the Ontario Health and Safety Act along with any applicable municipal, provincial and federal regulations and standards.

The following components will be removed during dismantling:

1. Turbines;
2. Overhead lines and poles; and,
3. Transformer substation.

POTENTIAL ENVIRONMENTAL EFFECTS

An assessment for the construction, operation and decommissioning phases of the Project was completed to identify potential effects. This is done so that mitigation or corrective actions can be proposed to eliminate or minimize potential effects.

This section provides examples of some potential effects and mitigation measures of each phase for specific environmental components. For further details on mitigation measures and monitoring plans, please refer to the Construction Plan Report and the Design and Operations Report. Note that effects from construction are anticipated to be similar to those from decommissioning, as such, they are shown together below.



ADELAIDE WIND ENERGY CENTRE

Project Description Report Summary

CULTURAL HERITAGE

- ✦ Construction and decommissioning: Construction activities could disturb archaeological resources identified through the archaeological assessments.
- ✦ Mitigation measures: Protective fencing will be installed around the archaeological site boundary or further archaeological studies will be conducted.
- ✦ Operation: No effects anticipated.

NATURAL HERITAGE RESOURCES (SUCH AS WETLANDS AND FORESTS)

- ✦ Construction and decommissioning: Vegetation removal could disturb wildlife and affect wildlife movement in the area.
- ✦ Mitigation measures: All temporary construction areas will be reseeded, as appropriate, and construction will be avoided, to the extent possible, when sensitive wildlife are breeding to reduce the potential for disturbance.
- ✦ Operation: Disturbance or mortality to wildlife (e.g. birds and bats) may occur due to collisions with turbines.
- ✦ Mitigation measures: Operational mitigation techniques will be implemented if impacts are observed to be above provincial thresholds. Monitoring will consist of three years of post-construction mortality surveys for birds and bats which will be submitted to the Ministry of Natural Resources.

SURFACE WATER AND GROUNDWATER

- ✦ Construction and decommissioning: Construction activities close to streams could cause erosion and result in soil entering the watercourses.
- ✦ Mitigation measures: An erosion and sediment control plan will be developed and implemented to control potential erosion and protect the watercourses. In addition, areas where vegetation was removed will be replanted.



ADELAIDE WIND ENERGY CENTRE

Project Description Report Summary

- ✦ Operation: Water contamination is possible, although unlikely, due to accidental spills associated with maintenance activities.
- ✦ Mitigation measures: A spill response plan will be developed and an emergency spill kit will be kept on site. In addition, the Ministry of the Environment and the local municipalities will be notified of any spills, as appropriate.

EMISSIONS TO AIR

- ✦ Construction and decommissioning: The increase of heavy truck traffic on local roads during construction could create dust and increase emissions to air.
- ✦ Mitigation measures: Road surfaces will be sprayed with water or an environmentally friendly dust suppressant to reduce the amount of dust created.
- ✦ Operation: Maintenance vehicles may create dust and increase emissions to air.
- ✦ Mitigation measures: To reduce the amount of dust generated, the speed of maintenance vehicles will be limited. All construction vehicles will meet provincial emissions regulations.

NOISE

- ✦ Construction and decommissioning: Construction activities will increase noise levels in the Project area.
- ✦ Mitigation measures: All construction equipment will be maintained in good working condition and construction activities will abide by local by-laws regarding hours of operation.
- ✦ Operation: The operating turbines and substations may increase noise levels experienced by some residents.
- ✦ Mitigation measures: Turbines will be set back at least 550 m from all residents who are not leasing their land for the Project



ADELAIDE WIND ENERGY CENTRE

Project Description Report Summary

to avoid or lessen the effects. Noise modelling was also conducted to predict and ensure that noise levels from the operating turbines and substations will not be greater than limits set by the Ministry of Environment. Any noise-related complaints will be tracked and follow-up monitoring will occur as required.

LOCAL INTERESTS, LAND USE AND INFRASTRUCTURE

- ✦ Construction and decommissioning: The increase in construction traffic could cause traffic congestion or damage to local roads.
- ✦ Mitigation measures: A Traffic Management Plan will be prepared prior to beginning construction activities. Finally, any damage to local infrastructure caused by construction activities will be repaired to original (or better) condition.
- ✦ Operation: Turbines, access roads, and the substations will result in a minor reduction in usable agricultural land.
- ✦ Mitigation measures: The length of access roads will be minimized where possible.

OTHER RESOURCES (SUCH AS AGGREGATE AND PETROLEUM RESOURCES)

- ✦ No effects anticipated.

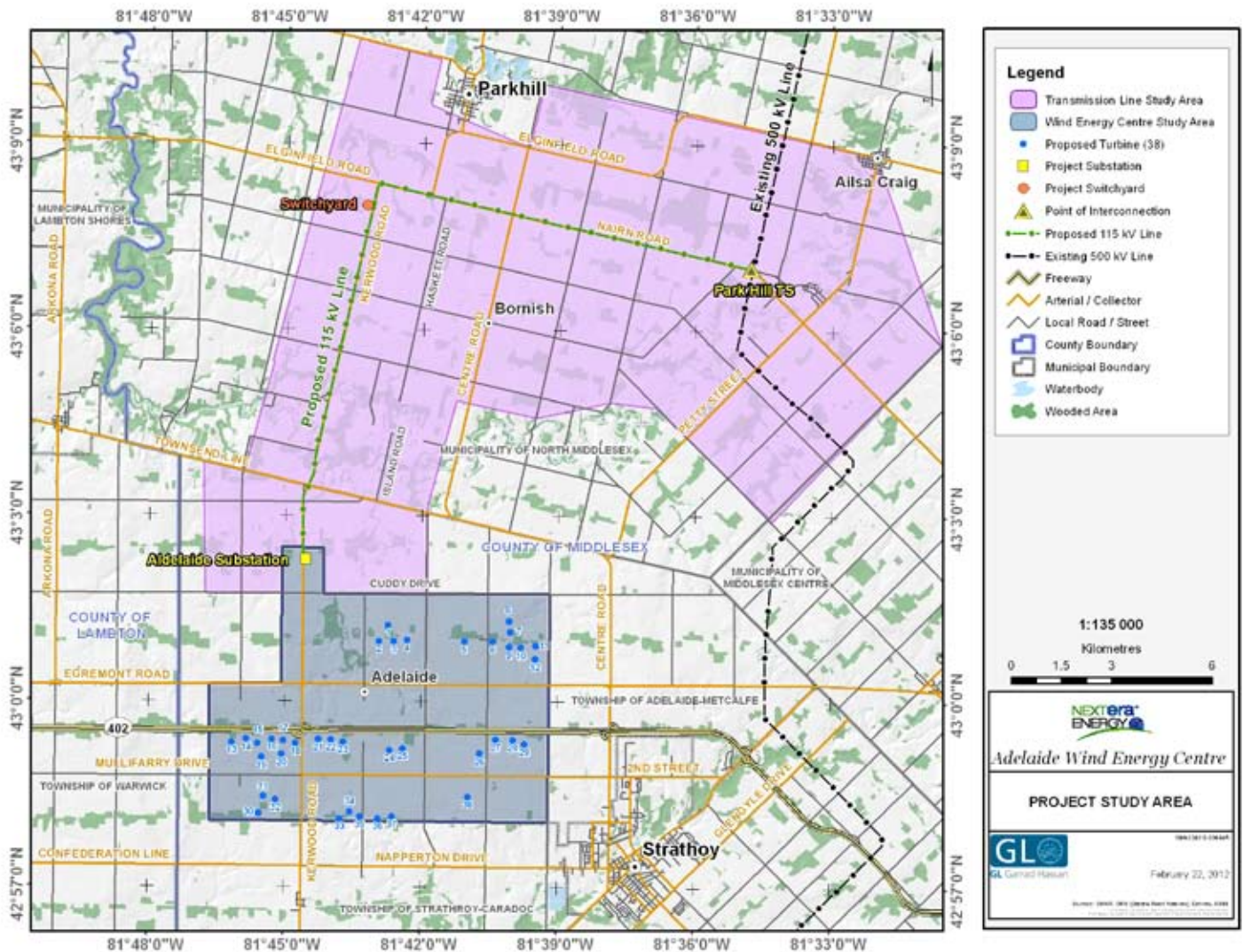
PUBLIC HEALTH AND SAFETY

- ✦ Construction and decommissioning: Similar effects to those identified under Emissions to Air, Noise, Local Interest and Land Use and Infrastructure.
- ✦ Operation: Effects on human health and safety could occur from ice shed and/or shadow flicker.
- ✦ Mitigation measures: All setback distances will be adhered to. Any safety complaints will be tracked and follow-up monitoring will occur as required.

After applying the mitigation measures presented in the Construction Plan and Design and Operations Reports, the overall conclusion is that this Project can be constructed, installed and operated without any remaining effects that could harm the environment. Post-construction monitoring related to effects on wildlife, including birds and bats, will be undertaken to confirm this conclusion.

ADELAIDE WIND ENERGY CENTRE

Project Description Report Summary



Have A Question?

We hope you find this Plain Language Summary helpful. In case you would like additional information or have any questions, please contact us directly:

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