

**Exhibit X**  
**Ice Throw Risk Assessment**

# Ice Throw Risk Assessment

**Project:** Greenwich Wind Facility

**Location:** Greenwich, Huron County, OH

**Commercial-in-Confidence**



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## Revision History

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20130614_Greenwich_IceThrow_MEB - DRAFT2-1.docx	DO	Updated for turbine Rev U	2013/07/12

## Referenced Documents

Ref	Document ID	Location or Link	Date
1			
2			

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# 1 Executive Summary

Windlab Systems Pty Ltd carried out an assessment of the risk of ice fragments being shed from wind turbines proposed for the Greenwich Wind Facility and striking areas where there may be members of the public or infrastructure. On behalf of the Applicant, Windlab Systems Pty Ltd (Windlab) has prepared this report in satisfaction of the requirements set forth in Section 4906-17-08(A)(4) of the Ohio Administrative Code (OAC).

6011 Greenwich Windpark, LLC (the Applicant), is proposing to develop a wind-powered electric generating facility in Huron County, Ohio (Appendix, Figure A-1). The Greenwich Wind Facility is anticipated to include 25 wind turbines (Section A - Appendix, Figure A-2) with a maximum rated power output of 2.4 megawatts (MW) each, for a total generating capacity of 60 MW. While the exact turbine model to be used at the Facility has not yet been determined, this report assumes use of the Nordex N117-2400.

The results of the modeling analysis indicate that there is no threat to the general public or infrastructure from ice fragments being thrown from operating turbines within the Greenwich Wind Facility. The typical range (90% of events) of ice being thrown from a turbine is less than 190m from the turbine base. Almost 50% of these events may occur within the length of a turbine blade (<~60m). The maximum throw distance, defined as the exceptional range (impact probability of 10%) is 260m from a turbine base. There are no homes, dwellings, roads, or publicly accessible land located within the maximum throw distance of any proposed turbine location.

Threat exists for wind farm operational staff and landowners, as they work within areas closer than the typical range of 190m. Mitigation measures recommended to reduce the risk of injury include: educating staff/landowners on specific weather conditions leading to icing, implementing established safety procedures, and installation of the warning signage.

In addition, the Nordex N117 is configured with an anti-icing system. The system consists of one ice sensor and heating elements on parts of the leading edge of each rotor blade. The sensor continuously monitors ambient conditions and reports the status to the turbine's operation management system. If data indicate the presence of conditions liable to cause icing, the heating elements are automatically activated. Energy-efficient heating prevents ice from accumulating on the rotor blades.

## 2 Context

Under certain weather conditions, for example near freezing temperatures combined with high humidity, ice can accumulate on the turbine nacelle and rotor blades<sup>1</sup>. Any accumulated ice may be shed from the turbine structure once it reaches either critical mass (gravity) or is thrown off by blade rotation (mechanical force). Alternately, warming of the ambient temperature may result in any accumulated ice becoming loose and falling from the blades and structure.

Turbines generally operate in wind speeds between 3 m/s to 20 m/s, if icing conditions exist, ice may be dropped directly off blades or possibly be propelled into areas which may be occupied by participating land owners, work-site personnel, structures or vehicles.

The risk of ice being shed from a turbine blade depends on the following conditions<sup>2</sup>:

- The probability of the turbine having ice accumulated on the blades;
- The probability of the ice becoming detached from the blades (a function of the radial position of the blade, blade RPM, blade pitch and blade design properties); and
- The probability of the propelled ice fragment landing in an area that is occupied by a person or structure.

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<sup>1</sup> State-of-the-Art of Wind Energy in Cold Climates: produced by the International Energy Agency, IEA, 2003.

<sup>2</sup> Assessment of Safety Risks Arising From Wind Turbine Icing: Colin Morgan and Ervin Bossanyi of Garrad Hassan, and Henry Seifert of DEWI, 1998.

### 3 Ice Throw Methodology

#### 3.1 SITE LOCATION

The Facility will be sited on privately-owned leased land in the southeastern portion of Huron County, in Greenwich Township. The Facility is generally intersected by State Route 224 and State Route 13; bound by Alpha Road to the north, Ninevah Road to the east, Plymouth Road to the west and Richland County to the south. (Refer to Figure A-1 and Figure A-2 provided in Appendix A.)

The Facility is located in an area that is primarily developed, with farms and rural residences interspersed along area roadways. Land use within the project area includes agriculture, with scattered woodlots and tree lines used for wind breaks. The land elevations are in the range of 950 to 1,200 feet above mean sea level (AMSL). More concentrated development occurs within the nearby Village of Greenwich.

#### 3.2 PROPOSED WIND FACILITY LAYOUT

The Greenwich Wind Facility is anticipated to include 25 wind turbines with a maximum rated power output of 2.4 megawatts (MW) each, for a total generating capacity of 60 MW. This report assumes use of the Nordex N117-2400, as this turbine has been selected for the interconnection for the site; however, this is subject to change. The key parameters of the wind turbine model are summarized in Table 3-1.

**Table 3-1: Wind turbine parameters**

<b>Turbine Model</b>	<b>N117-2400</b>
Rated Power	2.4 MW
Rotor Diameter	116.8 m
Hub Height	91 m
Cut-in Wind Speed	3 m/s
Cut-out Wind Speed	20 m/s
Nominal rotor speed	13.2
Nominal tip speed	80.9 m/s

Turbine coordinates are presented in Table B-1 in Appendix B and proposed turbine locations are depicted in Figure A-2, Section A. This assessment focuses primarily on the area surrounding each turbine as presented in Figure A-2.

#### 3.3 METHODOLOGY

This report has been prepared to satisfy the requirements set forth in OAC Section 4906-17-08 (A)(4), which requires *“The applicant shall evaluate and describe the potential impact from ice throw at the nearest property boundary, including its plans to minimize potential impacts if warranted.”*

To satisfy this requirement, Windlab conducted ice throw modeling analysis for the proposed Greenwich Wind Facility.

Input variables used for ice throw modeling calculations for the proposed Facility include:

- Eastings and Northing coordinates of 25 proposed wind turbine locations;
- Wind turbine parameters (stated in Section 3.2);
- Site air density ( $1.198\text{kg/m}^3$ );
- Ice frontal area of  $0.01\text{m}^2$ , Ice drag coefficient ( $C_D$ ) of 1, Ice mass of 1kg;
- 10,000 ice throw events per year;
- Wind speed and directional statistics for the months November through March collected from the long term record mast within the proposed wind farm facility (Appendix C, Table C-1). The matrix of speed and directional statistics were used to determine the directional frequency of rotor orientation and the percent of time that the turbine was operating between cut-in and cut-out wind speeds during the months when potential icing events are likely to occur;

In addition to the assumptions above, the following modeling assumptions were also used:

- Ice forms uniformly along the blade;
- Ice is equally likely to fall off any part of the blade (i.e. at the end, or near the hub);
- Ice is equally likely to fall off any point of the rotor cycle (i.e., at the top, side or bottom);
- The model assumes that the wind rose data obtained from monitoring mast location represents the same atmospheric conditions are experienced at each turbine location; Wind speed is assumed constant with altitude, and during throw time (no gusting).
- The model assumes ice fragments mass of 1kg. The international WECO study<sup>3</sup> indicates that the fragments are likely to be much less;
- It assumes 10,000 ice throw events per year. Other studies conducted by industry specialists Garrad Hassan modeled between 3,600 – 4,200 ice throw events for wind farms in areas considered more likely to experience icing conditions;
- Ice fragments do not experience any lift as they are propelled, nor do they continue to skip, bounce or slide once they have hit the ground;
- No consideration is given to the presence of vegetation that may provide shelter from ice fragments; and
- The model does not consider influences from terrain; however, this is expected to be minimal at this site given the topography is relatively flat.

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<sup>3</sup> C Morgan et al, "Wind energy production in cold climate (WECO)", ETSU contractor's report W/11/00452/REP, UK DTI, 1999.



Of particular note, the assumption of heavy 1kg ice fragments is conservative, as lighter fragments will be generally be thrown smaller distances. The assumption of 10,000 ice throw events per year is also conservative.

Furthermore, in an effort to fully describe potential impacts, each turbine location was assessed on two criteria: 1) nearest property boundary adjoining to participating landowners, 2) nearest property boundary adjoin a non-participating landowner.

## 4 Modeling Results

Windlab's ice-throw model makes predictions for the following data:

- Modeled distance range of ice impacts from the turbine center;
- Probability of ice impacts (risk level) per year per square meter that occur throw landing specific distances from the center of the turbine;
- Map showing the probability of ice throw over the entire wind facility.

Recognized industry specialists, Garrad Hassan, establish that the typical range of ice thrown is taken to be the distance within which 90% of the ice throw events would be expected to occur. Table 4-1 indicates that a typical range that ice fragments are propelled from a turbine will fall less than 190m from the turbine center, or less than 131m from the end of a turbine blade.

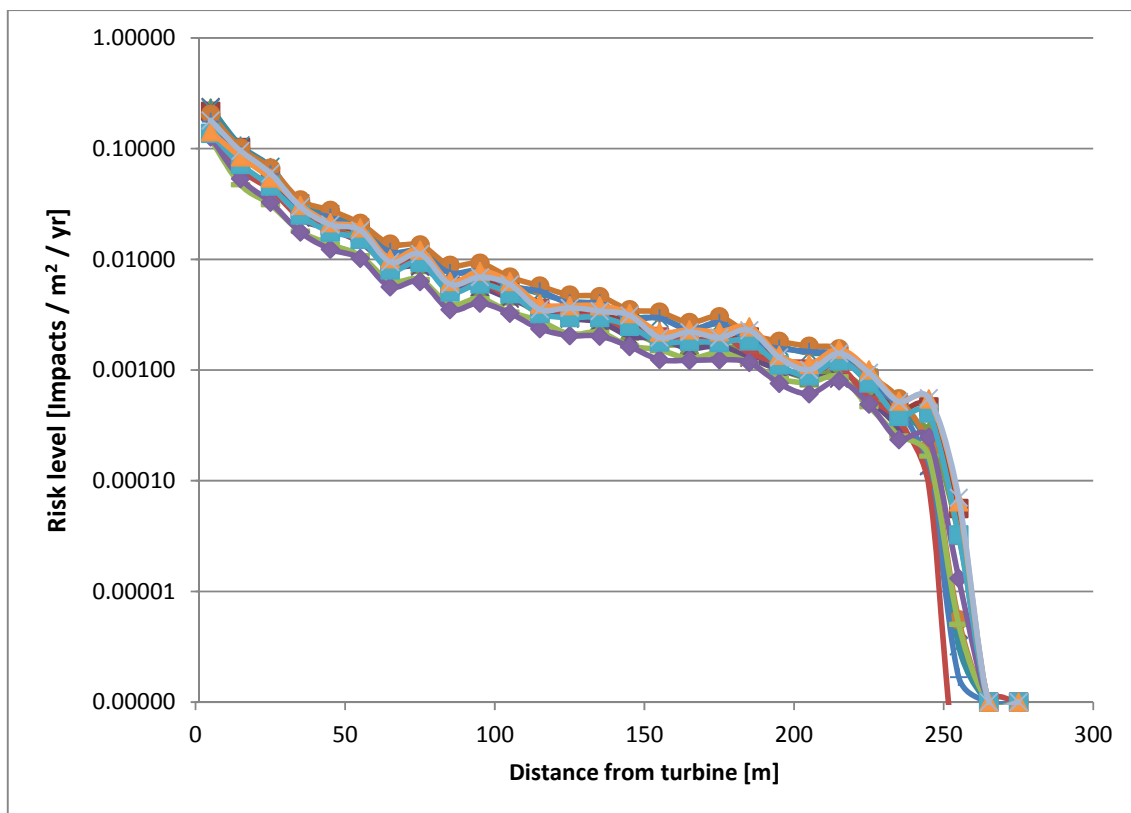
The exceptional range (impact probability of 10%) is modeled to be between 190m to 260m. Almost 46% of the impacts would fall within the area directly beneath the swept area of the blades (<~60m).

**Table 4-1: Modeled 1kg ice fragment throw distances from all turbines.**

<b>Distance from turbine (m)</b>	<b>Number of ice impacts</b>	<b>Cumulative, %</b>
0-10	679	6.8%
10-20	957	16.4%
20-30	991	26.3%
30-40	700	33.3%
40-50	678	40.1%
50-60	669	46.7%
60-70	462	51.4%
70-80	564	57.0%
80-90	385	60.9%
90-100	466	65.5%
100-110	406	69.6%
110-120	332	72.9%
120-130	313	76.0%
130-140	329	79.3%
140-150	281	82.1%
150-160	250	84.6%

Distance from turbine (m)	Number of ice impacts	Cumulative, %
160-170	240	87.0%
170-180	265	89.7%
180-190	245	92.1%
190-200	181	93.9%
200-210	164	95.6%
210-220	192	97.5%
220-230	123	98.7%
230-240	71	99.4%
240-250	52	100.0%
250+	5	100.0%

The results from the analysis are shown in Figure 4-1 for 1 kg ice fragments for each 30 degree direction sector. Figure 4-1 represents the probabilities, given an ice fragment has been released, that any one ice fragment lands in one square meter of ground area. This is given as a function of distance and direction from the turbine center.



**Figure 4-1: Probability of ice fragment impacts per square meter per year. Note that each line represents a 30 degree directional sector.**

The risk level of an ice fragment being thrown as a function of direction and distance from the turbine is shown in

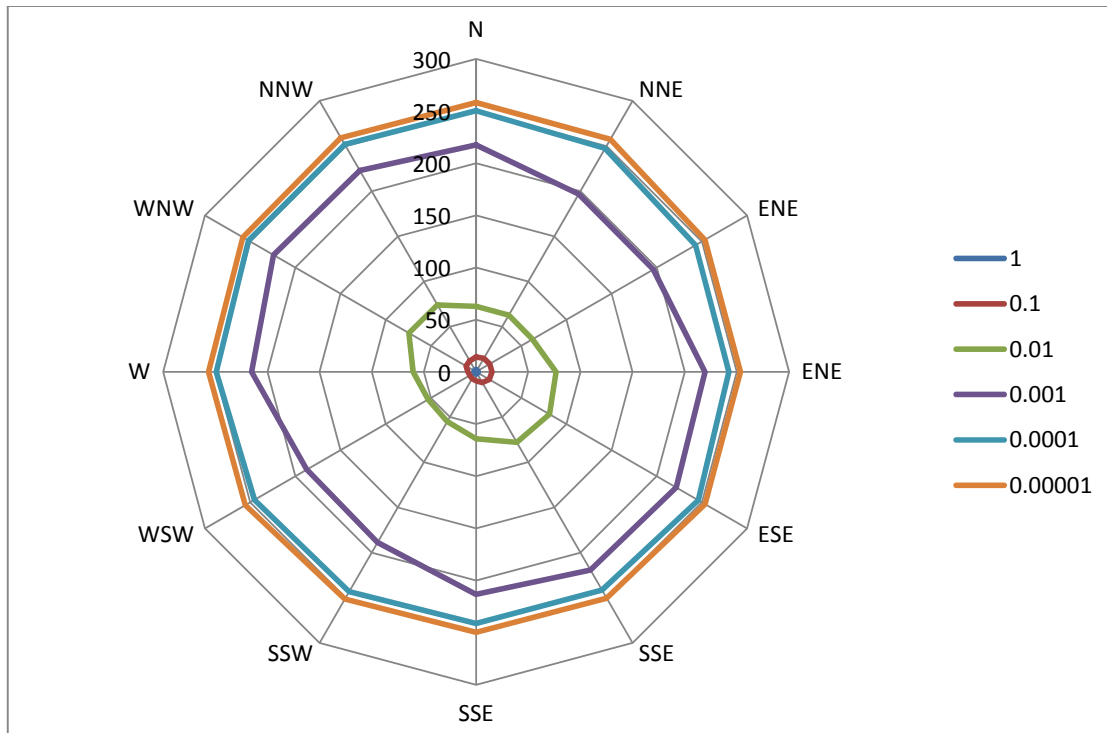
Figure 4-2. It should be noted that ice fragment trajectories are biased towards the directions perpendicular to the dominant wind directions, shown in the wind rose in Figure 4-3. The dominant wind direction is from the SSW sector and, therefore, for

the majority of the wind farm operation the turbine blades will be facing towards this direction and throw ice perpendicular to this direction.

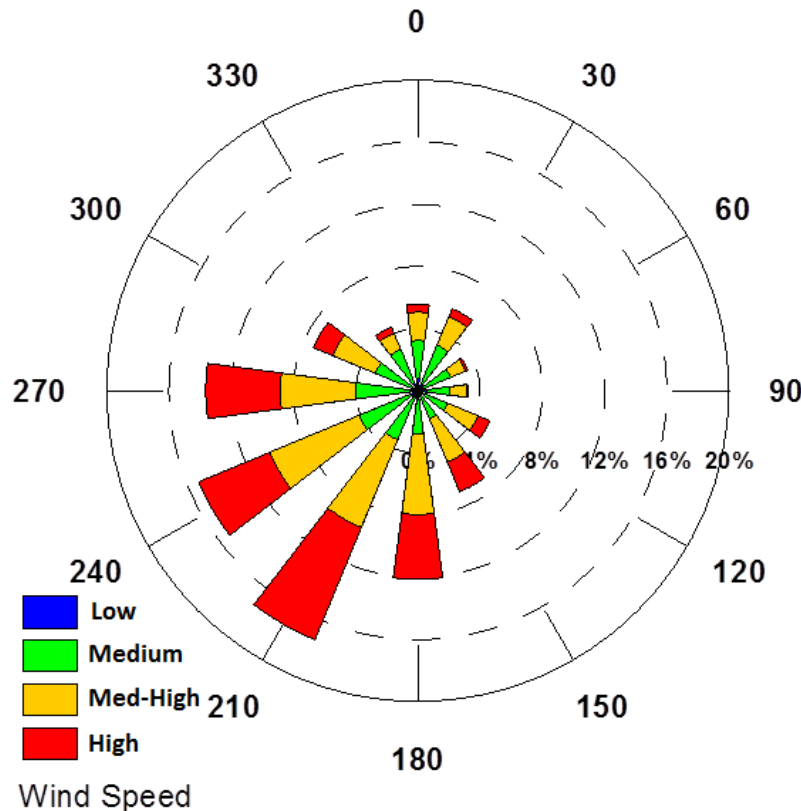
The risk level, or probability, can be broken down by one strike per X year:

<b>Risk Level</b>	<b>1 ice fragment strike every ...</b>
0.1	1 year
0.01	10 years
0.001	100 years
0.0001	1,000 years
0.00001	10,000 years

Considering the risk of falling ice fragments from a stationary turbine, the level of risk by distance from the turbine and direction is presented in Figure 4-2.



**Figure 4-2: Risk level of 1kg ice fragment per meter square by direction and distance from the turbine center. Note that a risk level of “1” represents the tower diameter.**



**Figure 4-3: Wind rose measured at the 60m mast within the Greenwich Wind Facility.**

#### **4.1 MODELED RISK TO THE PUBLIC AND INFRASTRUCTURE**

The results of the analysis indicate that the typical distance range (90% of time) of ice throw from the turbine center is approximately 190m (623 feet). The maximum throw distance is 260m (855 ft). As there are no dwellings, homes, roads or public areas located within 260m of each proposed turbine location, the probability of a building or person being struck by an ice throw projectile is negligible.

Furthermore, in an effort to fully evaluate the potential impacts from ice throw, each turbine location was assessed on two criteria: 1) nearest property boundary adjoining to participating landowners, 2) nearest property boundary adjoining a non-participating landowner. The nearest adjacent property boundary to each proposed turbine location is presented below in Table 4-2.

Proposed turbine locations 11 and 25 are located 164 meters from a property boundary adjoining a non-participating landowner. However, the distance from turbines 11 and 25 to the nearest non-participating dwelling are 702 meters and 685 meters respectively.

Proposed turbine locations 6 and 13 are located nearest to a property boundary adjoining a participating landowner at a distance of less than 1 meter. However, at each of these proposed locations, the same participating landowner owns both the parcel where the proposed turbine is to be located and the adjoining land parcel. In

addition, as these distances are calculated to property boundaries, rather than to residential dwellings, there appears to be no eminent threat.

**Table 4-2: Nearest Adjacent Property Boundary to Proposed Turbine Locations**

Turbine #	Participating Landowner			Non-Participating Landowner			
	Property Line Direction from Turbine	Distance to adjacent property boundary (Participating Landowner)	Other factor	Property Line Direction from Turbine	Distance to adjacent property boundary (Non-Participating Landowner)	Other factor	Distance to Nearest Dwelling (Non-Participating Landowner)
1	East	163 meters	Woodlots to the West and Northeast	South of East	165 meters		771 meters
2	South	281 meters		East	221 meters		494 meters
3	East	114 meters		South	166 meters		582 meters
4	East	88 meters	Woodlot to the East	North	168 meters	Woodlot to the North	613 meters
5	South	8 meters	Woodlot to the West and North	South of East	256 meters		434 meters
6	North	< 1 meter	Adjacent parcel is owned by the same participating landowner.	South	276 meters		440 meters
7	North	78 meters		West	168 meters	Tree row along property line	705 meters
8	South	370 meters	Woodlot to the South	Northeast	273 meters		602 meters
9	West	158 meters	Tree row along property line	Southwest	423 meters		521 meters
10	South	109 meters	Surrounded by a woodlot except to the North	Southwest	195 meters	Surrounded by a woodlot except to the North	651 meters
11	North	296 meters		South	164 meters	Tree row along property line	702 meters
12	South	9 meters	Woodlot to the West	North	239 meters		440 meters
13	East	< 1 meter	Adjacent parcel is owned by the same participating landowner.	South	316 meters		731 meters
14	East	86 meters		West	165 meters	Woodlot to the West	620 meters
15	North	87 meters	Woodlot to the West	South	277 meters		449 meters
16	West	234 meters		South	170 meters	Woodlot to the West	561 meters

Participating Landowner				Non-Participating Landowner			
Turbine #	Property Line Direction from Turbine	Distance to adjacent property boundary (Participating Landowner)	Other factor	Property Line Direction from Turbine	Distance to adjacent property boundary (Non-Participating Landowner)	Other factor	Distance to Nearest Dwelling (Non-Participating Landowner)
17	East	98 meters		Northwest	219 meters		440 meters
18	North	182 meters		Southwest	257 meters		439 meters
19	South	246 meters		North	254 meters		439 meters
20	East	322 meters		East of North	369 meters		439 meters
21	East	88 meters	Woodlot to the North	West of North	458 meters		937 meters
22	South	34 meters		West of North	341 meters		471 meters
23	West	192 meters	Tree row and woodlot to the east	South of West	194 meters	Tree row along property line	450 meters
24	Northwest	310 meters		West	211 meters		625 meters
25	East	101 meters	Small woodlot to the Southwest	West	164 meters		685 meters

## 5 Mitigation

Study results indicate a very low risk of ice throw for the Greenwich Wind Facility; however, it is prudent to eliminate all risk in exceptional cases.

As wind farm operations staff and participating landowners could potentially be within the range of injury (under specific climate conditions), there are mitigation techniques that could be implemented to reduce this risk. These are as follows:

- Educate operational staff on the risks associated with ice throw. In instances where icing is imminent, implement proper safety measures.
- Educate landowners, prior to commercial operations, regarding ice throw.
- If icing conditions are present, operations staff to contact landowners to apprise of risk.
- Installation of warning signs on turbine access roads and property boundaries.
- Use of anti-icing technology offered by turbine manufacturer.
- In adverse weather conditions, monitor turbine blades for ice accumulation.

## 6 Blade Throw

Publicly available information on wind turbine blade throw due to rotor failures is severely limited. In 2007, Garad Hassan was contracted by the Canadian Wind Energy Association (CanWEA) to provide a literature review of such events<sup>4</sup>. Their report indicated that full or partial rotor failures leading to blade throw events are extremely rare. Most information came from a Dutch Handbook<sup>5</sup> which covers turbine operation from Denmark and Germany during the years 1980-2001. The following risk values were described:

- Full blade failure at nominal rotor speed – 1 in 2,400 turbines per year
- Full blade failure at mechanical breaking (~1.25 times nominal rotor speed): 1 in 2,400 turbines per year
- Full blade failure at mechanical breaking (~2.0 time nominal rotor speed): 1 in 20,000 turbines per year
- Failure of tip or piece of blade: 1 in 4,000 turbines per year

Maximum reported throw distances were also reported to be 150m for an entire blade, and 500m for a blade fragment.

The GH report considered that the failure rate values from the Dutch Handbook were very conservative compared to more modern turbines. Continuous testing and optimization of blade design, mean that a modern turbine has virtually eliminated blade design as a root cause of failures. This is reflected in the IEC standards with which all current large wind turbines must comply. GH concludes:

*“It is considered that the above developments have substantially reduced the probabilities of blade failure from those represented in the Dutch Handbook. This has been necessitated by the increasing trend of locating wind turbines in very close proximity to population – most notably in Northern Europe. GHC is not aware of any member of the public having been injured by a blade or blade fragment from a wind turbine.”*

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<sup>4</sup> Recommendations for risk assessments of ice throw and blade failure in Ontario, Document # 38079/OR/01

<sup>5</sup> H Braam et al., “Hanboek Risicozonering Windturbines”, 2<sup>nd</sup> Edition, January 2005.

## 7 Conclusion

On behalf of the Applicant, Windlab Systems Pty Ltd (Windlab) has prepared this report in satisfaction of the requirements set forth in Section 4906-17-08(A)(4) of the Ohio Administrative Code (OAC). An assessment was undertaken into the potential risk of ice fragments being shed from wind turbines and striking members of the public and nearby infrastructure in the vicinity of turbines.

6011 Greenwich Windpark LLC (the Applicant) is proposing to develop a wind-powered electric generating facility in Huron County, Ohio. The Greenwich Wind Facility is anticipated to include 25 wind turbines for a total generating capacity of 60 MW.

For the analysis, this report assumes use of the Nordex N117-2400 wind generation turbine.

The modeled typical range (occurring in 90% of events) of ice being thrown from a turbine is less than 190m from the turbine base. Almost 50% of the ice fragments will land in the area directly beneath the swept area of the blades (<~60m). The maximum throw distance (10% impact probability) is 260m. As there are no homes, dwellings, roads or public areas located within the maximum ice throw distance (206m), the risk to the public is considered very low.

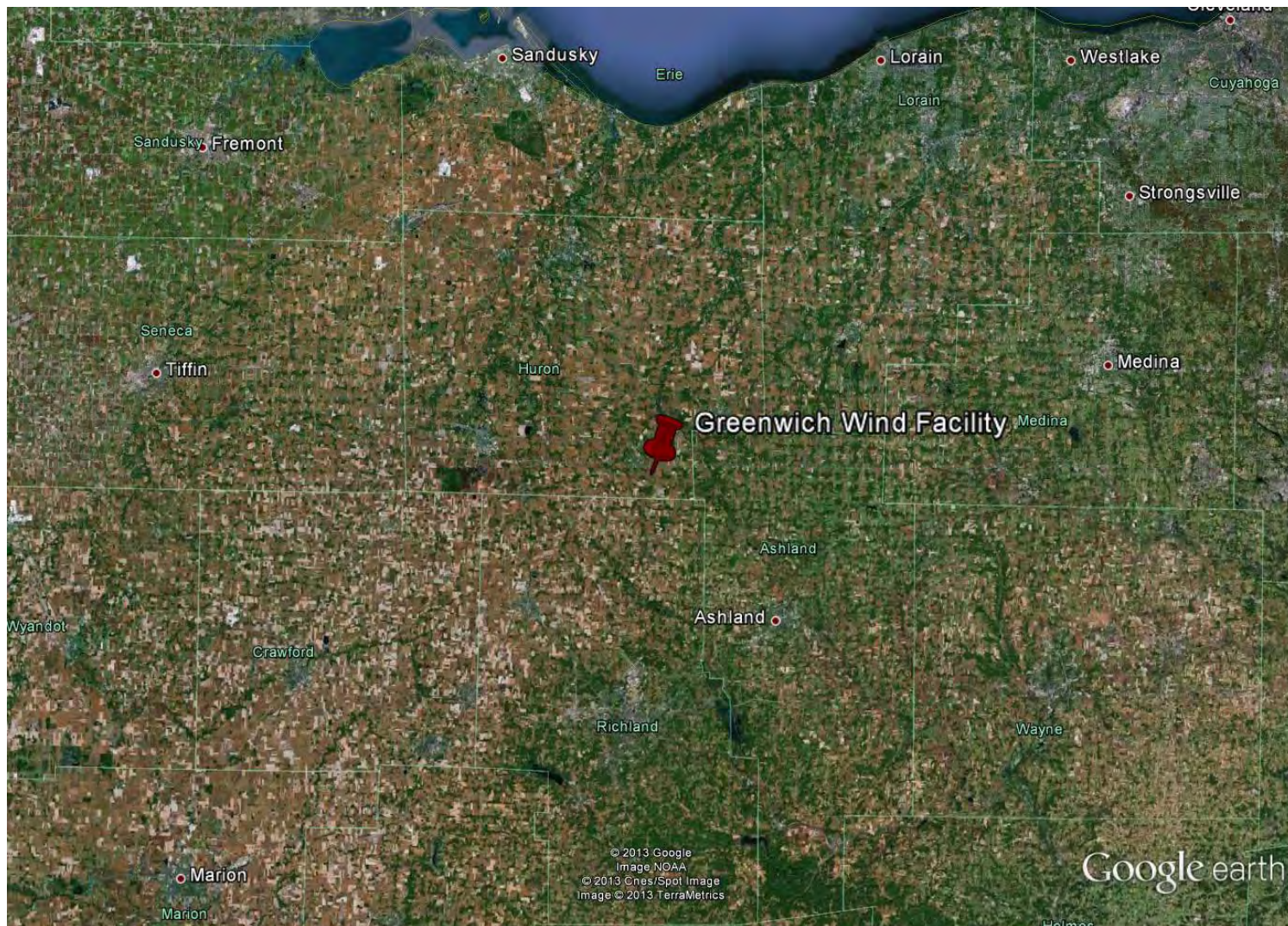
The relative risk to wind farm operational staff and landowners is minimal. However, in order to further reduce this minimal risk, implementation of mitigation and safety measures should be employed prior to commercial operation. Possible mitigations measures include: safety training, education and warning signage.

Additionally, the weather conditions present when ice accumulation on a turbine blade is likely to occur are not conducive to outdoor activities or farming practices. Therefore, there is a further reduced probability that landowners/farmers will be working within the immediate vicinity of a turbine during adverse weather conditions.

The modeling is considered to be conservative due to several assumptions within the model.

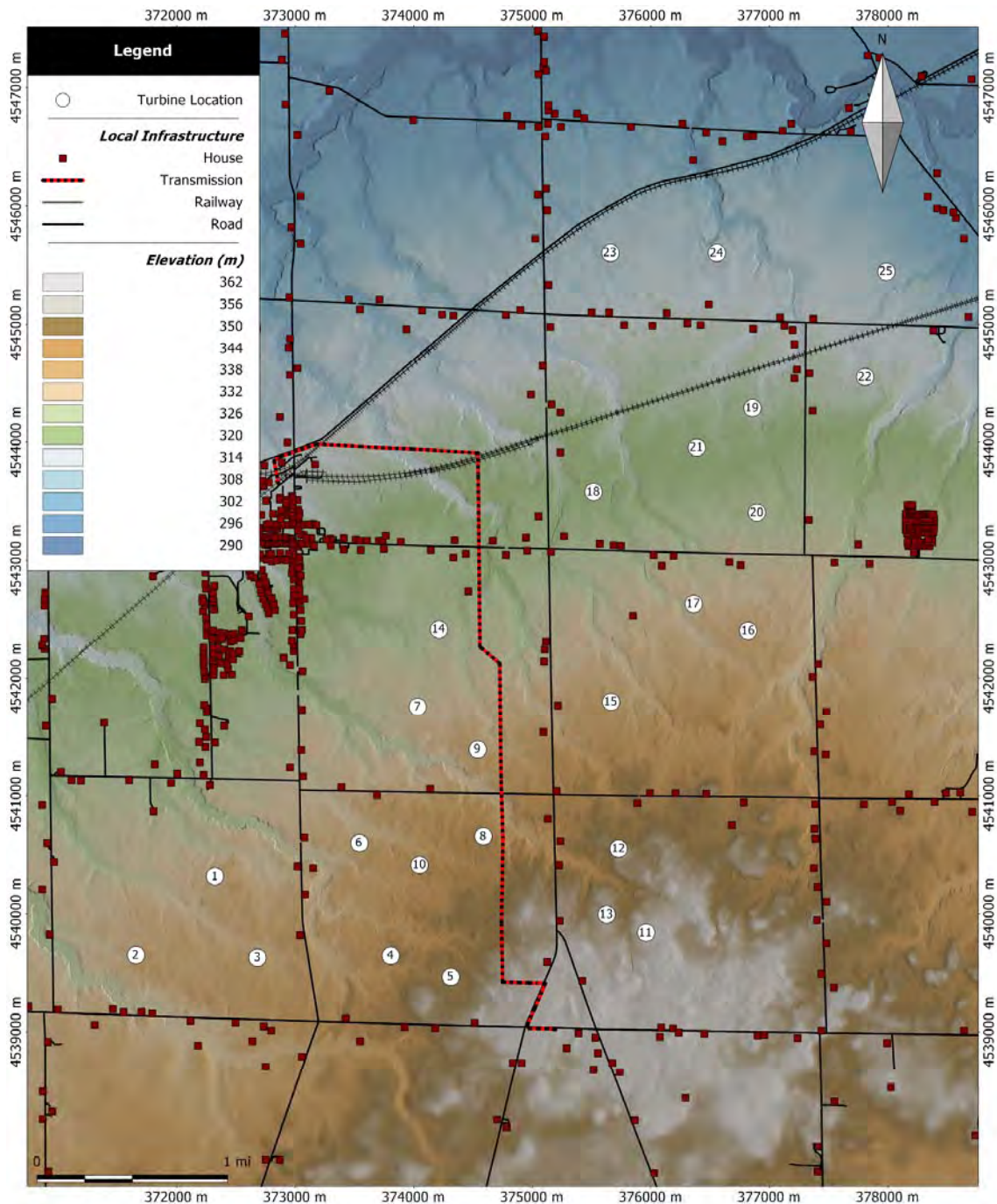


## **A Appendix – Figures**



**Figure A-1: Location of the Greenwich Wind Facility, proposed by Greenwich Wind LLC.**



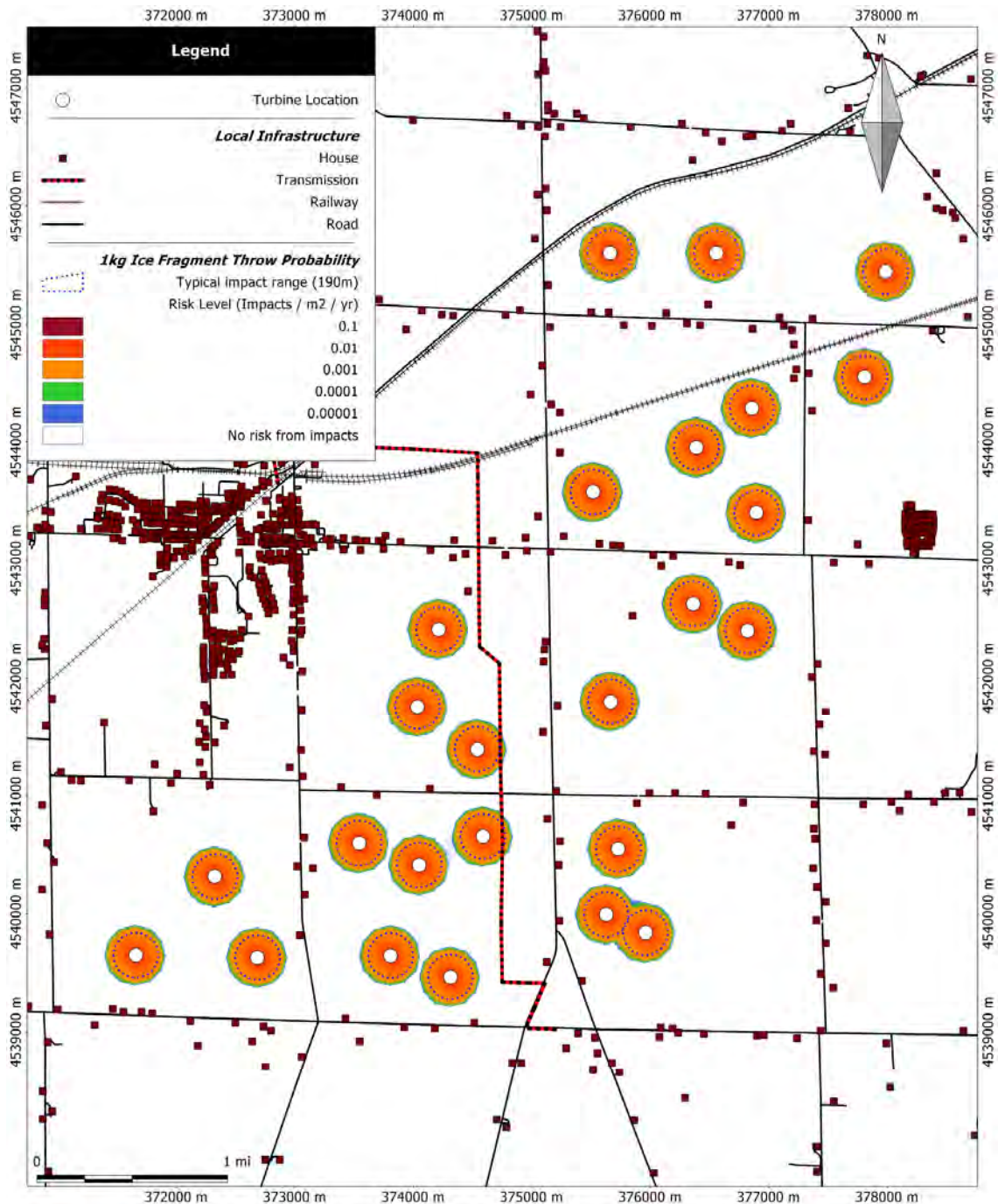


## Greenwich Wind LLC Ice Throw Risk Assessment

Universal Transverse Mercator - Zone 17 (N) World Geodetic 1984 (WGS84)  
 Lon: -82.4898 Lat: 41.0250  
 Created By : 20/05/2013 Windlab Systems Pty Ltd  
 Turbine: Nordex N117-2400

- NOT FOR CONSTRUCTION - This map shows preliminary turbine locations and infrastructure. Actual turbine count and locations are subject to change and shall not be considered final. Roads, lines and turbines are not to scale - COMMERCIAL IN CONFIDENCE -

**Figure A-2: The Greenwich Wind Facility and location of houses within 10D (1170m) of turbine locations. The map also provides the elevations of the site area at 1m resolution.**



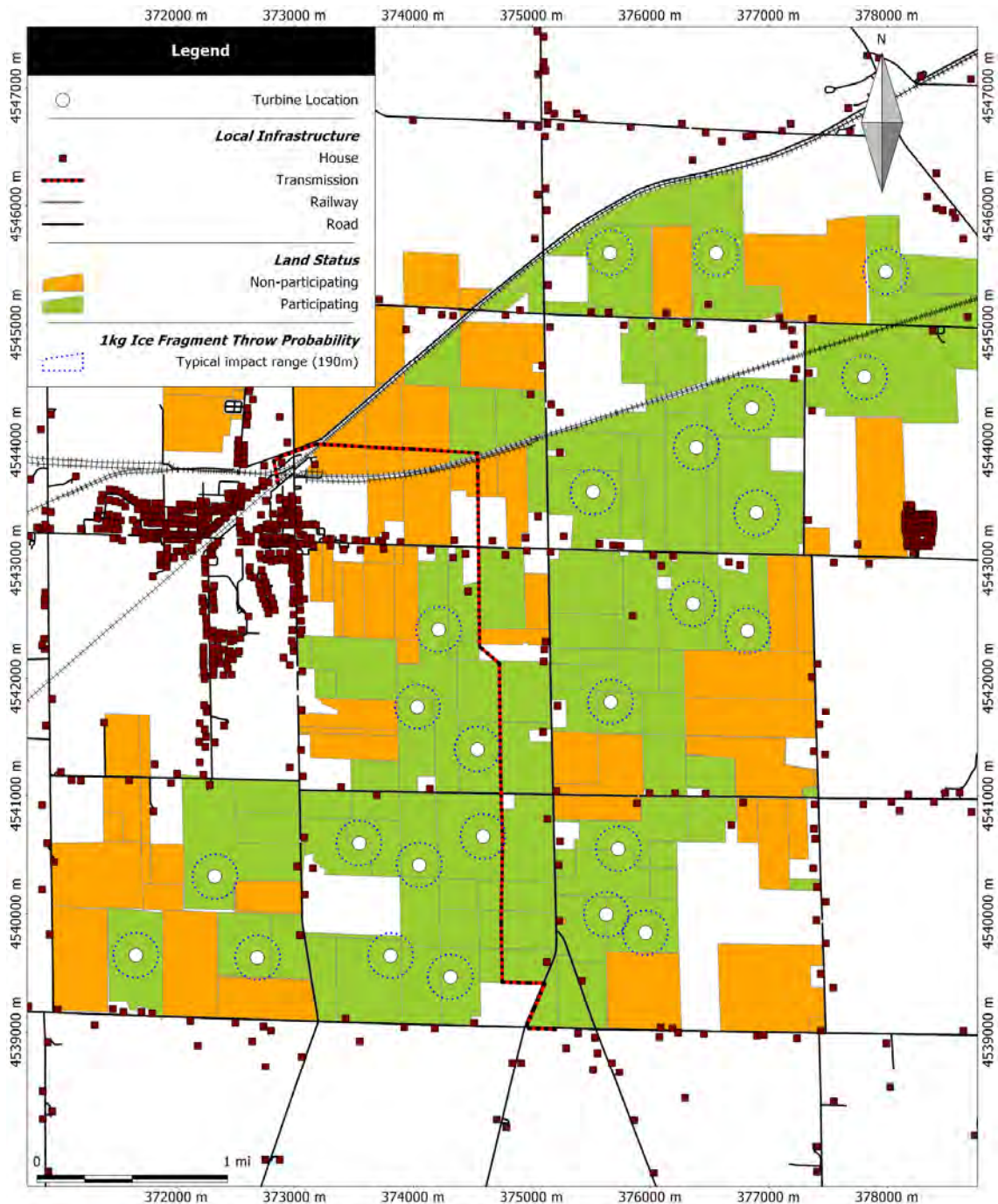
## Greenwich Wind LLC Ice Throw Risk Assessment

Universal Transverse Mercator - Zone 17 (N) World Geodetic 1984 (WGS84)  
 Lon: -82.4898 Lat: 41.0250  
 Created By : 20/05/2013 Windlab Systems Pty Ltd  
 Turbine: Nordex N117-2400

- NOT FOR CONSTRUCTION - This map shows preliminary turbine locations and infrastructure. Actual turbine count and locations are subject to change and shall not be considered final. Roads, lines and turbines are not to scale - COMMERCIAL IN CONFIDENCE -

**Figure A-3: Results of the Ice Throw Assessment.**





## Greenwich Wind LLC Ice Throw Risk Assessment

Universal Transverse Mercator - Zone 17 (N) World Geodetic 1984 (WGS84)  
 Lon: -82.4898 Lat: 41.0250  
 Created By : 20/05/2013 Windlab Systems Pty Ltd  
 Turbine: Nordex N117-2400

- NOT FOR CONSTRUCTION - This map shows preliminary turbine locations and infrastructure. Actual turbine count and locations are subject to change and shall not be considered final. Roads, lines and turbines are not to scale - COMMERCIAL IN CONFIDENCE -

**Figure A-4: Land status map relative to the typical range of ice throw distances.**

## B Appendix –Turbine Locations

**Table B-1: Proposed turbine locations for Greenwich Wind Facility (turbine Rev U)**

<b>Turbine Identifier</b>	<b>Easting (m)</b>	<b>Northing (m)</b>	<b>Elevation (ft)</b>
1	372324	4540316	1099
2	371655	4539651	1105
3	372683	4539631	1105
4	373807	4539648	1135
5	374310	4539469	1145
6	373539	4540600	1105
7	374034	4541757	1086
8	374586	4540656	1138
9	374538	4541395	1102
10	374049	4540415	1128
11	375957	4539840	1178
12	375729	4540552	1151
13	375627	4539996	1155
14	374211	4542416	1069
15	375663	4541801	1105
16	376822	4542403	1112
17	376359	4542631	1089
18	375516	4543576	1053
19	376855	4544287	1039
20	376896	4543402	1066
21	376387	4543955	1049
22	377808	4544549	1036
23	375657	4545607	1016
24	376557	4545603	1013
25	377986	4545448	1013

## C Appendix – Wind Rose Data

**Table C-1: Winter (Nov – Mar) Wind rose data as measured at a 60m mast within the Greenwich Wind Facility.**

Sector	0	30	60	90	120	150	180	210	240	270	300	330	All
<b>Freq, %</b>	5.62	5.72	3.47	3.21	5.01	6.98	12.09	17.32	15.24	13.66	7.27	4.40	100.0
<b>Operating, %</b>	84.9	91.5	88.6	83.3	93.0	95.5	96.6	97.0	96.8	96.4	94.1	87.8	94.2

**Exhibit Y**

**Decommissioning Plan**

**6011 Greenwich Windpark, LLC**



**6011 Greenwich Windpark, LLC  
Decommissioning Plan**

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## **1.0 INTRODUCTION/PURPOSE**

The Greenwich Wind Farm is a wind farm project proposed to be constructed in Greenwich Township, Ohio by 6011 Greenwich Windpark, LLC a wholly owned subsidiary of Windlab Developments USA, Ltd. The project includes the construction and operation of up to 25 wind turbines, access roads, substation, the installation and operation of associated underground collection lines, an operations and maintenance building, and related facilities (the "Project").

## **2.0 ANTICIPATED LIFE OF WTG**

Megawatt-scale wind turbine generators available on the market today have a life expectancy of more than 20 years. The tubular steel towers supporting the generators are of simple design and with basic routine maintenance will serve many years beyond the life expectancy of the generators.

As the turbine generators to be installed for the Greenwich Wind Farm (Project) approach the end of their expected life, technological advances should make available more efficient and cost-effective generators that will economically drive the replacement of the existing generators and thus prolong the economic life of the Project. In the event that this does not happen and the Wind Turbine Generators need to be decommissioned, the following provides an outline description of the decommissioning work.

## **3.0 INTENDED FUTURE LAND USE**

Prior to the Greenwich Wind Farm development, the existing land use was primarily farm land/ agricultural land (85% of the project area) with a lesser extent of the area consisting of woodlots. Once the project areas are decommissioned, the areas will be returned to the predevelopment condition of farming and agricultural land uses.

## **4.0 ENGINEERING TECHNIQUES**

Decommission of the wind farm includes multiple phases and activities, such as:

- Widening of turning radii (and removal) for transporting turbine components off site
- Grading of crane pads for removal of turbine components
- Removal of above ground components (turbines, transformers, substation, and operations and maintenance facility)
- Removal of turbine foundations to a depth of 60 inches
- Removal of access roads (unless the landowners request the roads to remain)
- Re-grading and restoration of disturbed areas
- Application of necessary sediment and erosion controls during and following decommissioning activities

During decommissioning the landowners will be consulted to identify the extent and type of work to be completed. Some project infrastructure, such as the access roads may be left in place upon request of the landowner. Underground utility lines if deeper than four (4) feet below the ground surface elevation may be left in place to minimize land disturbance and associated impact to future land use. All dismantling and removal/recycling of materials will comply with rules, regulations and prevailing always at the time of decommissioning using approved disposal or recycling sites.

## 5.0 DECOMMISSIONING PROCESS

All decommissioning and restoration activities will adhere to the requirements of appropriate governing authorities, and will be in accordance with all applicable federal, state, and local permits. At least 30 days prior to the preconstruction conference, the Applicant will provide the final decommissioning plan to Staff and the County Engineer(s) for review and confirmation of compliance.

The decommissioning and restoration process comprises removal of above-ground structures; removal of below-ground structures to a depth of 36 inches (turbine foundations to a depth of 60 inches); and restoration of topsoil, re-vegetation and seeding. Access roads, fencing and residual minor improvements will not be removed unless the underlying landowner requests that they be removed. The process of removing structures involves evaluating and categorizing all components and materials into categories of recondition and reuse, salvage, recycling, and disposal. In the interest of increased efficiency and minimal transportation impacts, components and material may be stored on-site in a pre-approved location until the bulk of similar components or materials are ready for transport. The components and material will be transported to the appropriate facilities for reconditioning, salvage, recycling, or disposal.

### *Turning Radius and Access Road Modifications and Removal*

Turning radius modifications will be needed to allow for transportation of the turbine components off-site. The turning radii will be reconstructed at intersections where necessary, approximately at the same intersections as proposed for the initial construction of the facility. In addition, access roads to turbines will be temporarily expanded from the operational width of 16 feet to approximately 35 feet wide to allow crane access. Following removal of the turbine components the turning radius modifications will be removed and disturbed areas restored to preconstruction farmed condition with thorough de-compaction techniques and re-application of topsoil.

### *Crane Pad Grading and Removal*

Crane pad grading and area modification will be necessary to use a crane to remove the above-ground turbine components. Stripping and isolation of topsoil will take place to preserve the soil integrity for future land use. The turbine components will be temporarily stored in the area of the crane pad prior to transport. Following removal of the turbine components, the crane pad area will be removed and disturbed areas restored to preconstruction farmed condition with thorough de-compaction techniques and re-application of topsoil.

### *Wind Turbine Removal*

Each wind turbine consists of four steel tower segments, a nacelle, a rotor hub, and three blades which are modular components and can be disassembled. The turbine disassembly will be accomplished using large industrial cranes. The components of the wind turbines will be refurbished and reused where feasible, or sold for scrap material value. The components will be reduced to shippable dimensions, placed on tractor-trailers, and removed from the site to a prearranged receiving location /facility. Control cabinets, electronic components, and internal cables will be removed. The blades, hub and nacelle will be lowered to grade for disassembly. The tower sections will be lowered to the ground where they will be further disassembled into transportable sections. The blades, hub, nacelle, and tower sections will either be transported whole for reconditioning and reuse or disassembled into salvageable, recyclable, or disposable components. If the turbines are to be sold for scrap value, the handling of the turbine

components would be less delicate, and perhaps even might use other non-crane methods to lower the towers. The towers may be reduced in size on-site to allow for transportation with standard truck sizes. The area will be thoroughly cleaned and all debris removed.

#### *Pad Mount Transformer Removal*

The pad mount transformers at the base of each turbine would have little wear and could be valuable for reuse. The transformers could be unbolted from the foundations, removed from the site, refurbished, and resold.

#### *Foundation Removal*

The turbine foundation consists of concrete and rebar. Topsoil will be removed from an area surrounding the foundation pedestal and pad-mount transformer foundation and relocated to a proper temporary storage pile for reapplication during restoration. The foundation will be exposed using backhoes, bulldozers and other heavy earth moving equipment. Turbine foundations will be excavated to a depth sufficient to remove all anchor bolts, rebar, conduits, cable, and concrete to a depth of 60 inches below grade. The concrete and rebar, broken into manageable sized pieces, will be contained and hauled off site to be recycled or disposed.

After removal of all noted foundation materials, the resulting hole will be backfilled with clean sub-grade material of quality comparable to the immediate surrounding area. The sub-grade material will be compacted to a density similar to surrounding sub-grade material. Topsoil would then be replaced. All unexcavated areas compacted by equipment used in decommissioning shall be de-compacted in a manner to adequately restore the topsoil and sub-grade material to the proper density consistent and compatible with the surrounding area. The disturbed areas would be seeded with a utility mix of native grasses and mulched. The mix and method would depend upon surrounding land use or vegetation. Any drainage tile lines which were damaged during removal and restoration of the turbine foundation area will be repaired to maintain drainage. The area will be thoroughly cleaned and all debris removed.

#### *Access Roads / Turbine Foundation Area Removal and Restoration*

Access roads to be removed based on request from the landowner will be removed including the road base, sub-base and geotextile fabric. During removal, the topsoil along the access roads will be stripped and stockpiled in a windrow along the road. The road base materials will be removed by bulldozer and backhoe and hauled using dump trucks from the project area to be recycled or disposed at an off-site facility. The geotextile fabric will be recycled if recoverable or disposed of in a landfill off site. The access road removal will proceed from the turbine area to the township / county roads to limit tracking and provide a stable access during the removal activity and process. Following removal, topsoil will be reapplied and graded to match surrounding grade to promote existing drainage patterns. The topsoil will be de-compacted and tilled to a farmable condition or re-vegetated depending upon location and land use at the time of decommissioning.

#### *Underground electrical collection system*

The electrical cables and fiber optic conduits that are installed at a depth of four (4) feet contain no material known to be harmful to the environment and will be left in place and nonfunctional. Any cable at a depth of less than 4 feet, such as cable entering and exiting the turbine foundations or any substations, will be removed. Following any necessary removal, the area will

be restored by reapplication of topsoil to match the surrounding grade and promote existing drainage patterns. The topsoil will be de-compacted and tilled to a farmable condition or re-vegetated depending upon location and land use at the time of decommissioning.

#### *Overhead collection lines*

It is not currently anticipated that the Greenwich Windpark will utilize overhead collection systems. However, in the event these lines are installed within the Project Area, the conductors will be removed and stored in a pre-approved location. Switches and other hardware will be removed and delivered to a processing company for recycling. The supporting poles will be removed and the holes filled in with compatible sub-grade material. In areas where environmental damage from complete removal may outweigh the benefits, the poles will be sawed flush with the surrounding grade (determined by appropriate governing authority). The poles will be stored in a pre-approved location. Stored conductors and poles will be later removed and transported to appropriate facilities for salvage or disposal. The area will be thoroughly cleaned and all debris removed.

#### *Substation*

Disassembly of the substation(s) will include only the areas owned by the Applicant. Any System Upgrades made by the Applicant and conveyed to the transmission owner or any improvements made to the local distribution system will remain in place. Any steel, conductors, switches, transformers, and other components of the substation will be reconditioned and reused, sold as scrap, recycled, or disposed of appropriately depending upon market value. Foundations and underground components will be removed to a depth of at least 36 inches and the excavation filled, contoured, and re-vegetated. All unexcavated areas compacted by equipment used in decommissioning shall be de-compacted in a manner to adequately restore the topsoil and sub-grade material to the proper density consistent and compatible with the surrounding area. The area will be thoroughly cleaned and all debris removed. Improvements to Town and County roads that were not removed after construction at the request of the Town or County will likely remain in place.

#### *Operations and Maintenance Building*

The O&M Building will be a sturdy, general purpose steel building, similar to many of the agricultural buildings in the area that are used for storing farming/agricultural equipment. At this time, the property where this structure will be sited has not been fully executed for lease or sale. Therefore, final disposition of the O&M Building, with regard to lease or sale, at the end of the facility term is unknown. If the building can be leased or sold, the terms will be between Windlab and the potential lease/owner. The final decommissioning plan will be tailored to address the type of agreement (lease or purchase) at the end of the Facility's life cycle. In the event the O&M building is not leased or sold to a third-party, decommissioning of the building will include: the demolition of the building structure, foundation and rock base parking lot and associated vegetated / stormwater treatment facilities. All associated materials, concrete and rock will be removed from site using backhoes, bulldozers and hauled off site in dump trucks. All materials which are able to be recycled will be brought to appropriate facilities; the remaining materials will be disposed of at an approved landfill facility. Topsoil will be reapplied at the site and graded to match surrounding grade to promote existing drainage patterns. The topsoil will be de-compacted to a minimum depth of 18 inches and tilled to a farmable condition or re-vegetated depending upon location and land use at the time of decommissioning.

## **5.1 RECLAMATION**

To the extent necessary, topsoil will be removed and isolated prior to removal of structures and facilities for reapplication to promote future land use activities. Prior to topsoil replacement, all rocks four (4) inches or greater will be removed from the surface of the subsoil. The topsoil will be de-compacted to match the density and consistency of the immediate surrounding area. The topsoil will be replaced to original depth, and original surface contours reestablished where possible. All rocks four (4) inches or larger will be removed from the surface of the topsoil. Any topsoil deficiency and trench settling shall be mitigated with imported topsoil consistent with the quality of the affected site. Following decommissioning activities, the sub-grade material and topsoil from all affected agricultural areas will be de-compacted and restored to a density and depth consistent with the surrounding fields or to a depth of 18 inches. The affected areas will be inspected, thoroughly cleaned, and all debris removed.

All disturbed soil surfaces within agricultural fields will be seeded with a seed mix agreed upon with the landowner in order to maintain consistency with the surrounding agricultural uses. All other disturbed areas will be restored to a condition and forage density reasonably similar to original condition. In all areas restoration shall include, as reasonably required, leveling, terracing, mulching, and other necessary steps to prevent soil erosion, to ensure establishment of suitable grasses and forbs, and to control noxious weeds and pests.

Throughout decommissioning activities, all recyclable materials, salvaged and non-salvaged, will be recycled to the furthest extent possible. All other non-recyclable waste materials will be disposed of properly and in accordance with state and federal laws.

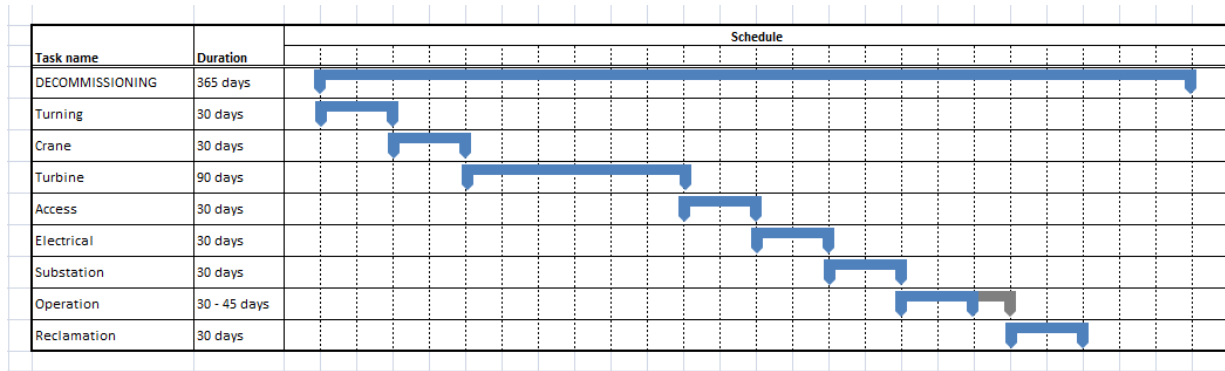
In accordance with the Ohio EPA and U.S. Army Corp of Engineers, the Applicant will implement best practices to control impacts to surface and ground water resources, similar to those implemented during construction. If required, a surface water drainage plan will be developed that will address any proposed impacts that may occur to surface and ground water resources and wetlands. In addition, in accordance with all local, state, and federal statutes, the Applicant will comply with applicable air and water quality laws and regulations and will obtain any necessary permits before decommissioning activities begin.

## **5.2 TIMELINE**

Decommissioning of the wind farm will be initiated at the Ohio Power Siting Board's notice if the project has not produced electricity for a continuous period of 12 months, unless other mitigating circumstances prevail. The following sections outline a timetable for the decommissioning plan; steps towards compliance with applicable air and water quality laws and regulations; and steps for compliance with health and safety standards.

### *Decommissioning Timeframe*

If the project does not produce electricity for a period of 12 months, the wind farm components will be removed within the next 12 month period at the Applicant's expense.



NOTE: Some tasks may be completed concurrently depending upon scheduling and methods of the contractor.

## 6.0 COMPLIANCE

### *Air Quality / Water Regulatory Compliance*

Water Quality: NPDES permitting may include the following steps for compliance.

1. If required, 6011 Greenwich Windpark will complete a Storm Water Pollution Prevention Plan to comply with the requirements of the Ohio EPA NPDES General Construction Permit.
2. If required, 6011 Greenwich Windpark will submit a Notice of Intent prior to starting construction activity associated with the decommissioning phase.
3. Once notification of permit coverage is received the decommissioning activity will commence.
4. During decommissioning activities, compliance with the NPDES permit (applicable at the time of decommissioning) will be adhered to including inspections, documentation, maintenance of BMPs, record keeping, amendments to the plan and implementation of the SWPPP.
5. Upon completion of the decommissioning activities and restoration, (if required) a Notice of Termination (NOT) will be submitted to the Ohio EPA to terminate coverage of the NPDES permit.

Water Quality: Section 404 Discharge of dredged and fill material may include the following steps for compliance.

1. Notification to the Corp of Engineers of expected activities such as crossing removals.
2. Verification of necessary permits (if any).
3. 6011 Greenwich Windpark will apply for any necessary Section 404 permits prior to commencing work within waterways / wetlands.
4. As applicable, plans will be developed to comply with necessary permit regulations.
5. Once receipt of applicable permits, decommissioning work will commence adhering to rules, timelines and requirements stated in applicable permits.

### *Solid Waste Laws and Regulations*

Decommissioning work on the site will be conducted in strict accordance with the operator's existing solid waste laws and regulations. The construction contractor hired to perform the decommissioning work will be required to prepare site-specific waste disposal plans that adhere

to waste disposal guidelines. All site workers, including subcontractors, will be required to read, understand, and abide by the plan.

#### *Health and Safety Standards*

Work on the site will be conducted in strict accordance with the operator's health and safety plan. The construction contractor hired to perform the decommissioning work will also be required to prepare a site-specific health and safety plan. All site workers, including subcontractors, will be required to read, understand, and abide by the plan. A site safety office shall be designated by the construction contractor to ensure compliance. This official shall have stop-work authority over all activities on the site should unsafe conditions or lapses in the safety plan be observed.

### **7.0 ESTIMATED COST OF DECOMMISSIONING**

Seven days prior to the preconstruction conference, an independent, registered Professional Engineer, licensed to practice engineering in the state of Ohio, shall be retained by the Applicant to estimate the total cost of decommissioning in current dollars, without regard to salvage value of the equipment. This estimate shall include: (1) identification and analysis of the activities necessary to implement the most recent approved decommissioning plan including, but not limited to, physical construction and demolition costs assuming good industry practice and based upon ODOT's *Procedure for Budget Estimating and RS Means* material and labor cost indices or any other publication/guidelines approved by Staff; (2) the cost to perform each of the activities; (3) an amount to cover contingency costs, not to exceed 10 percent of the above calculated reclamation costs. Estimate will be converted to a per-turbine basis (the "Decommissioning Costs"), calculated as the total cost of decommissioning of all facilities as estimated by the Professional Engineer divided by the number of turbines in the most recent facility engineering drawings. This estimate shall be reevaluated every fifth year by a licensed engineer for changes in costs of decommissioning and restoration, as well as adjusted for inflation.

### **8.0 REVISIONS TO DECOMMISSIONING PLAN**

Every five (5) years from the commencement of construction, the Applicant shall file a revised decommissioning plan to the Staff and County Engineer(s). This revised plan will reflect advancements in engineering techniques and reclamation equipment and standards, if applicable. This plan will be applied to each five-year decommissioning cost estimate. Prior to implementation, this plan and any revisions will be reviewed by Staff confirm compliance with this condition.

### **9.0 ENSURING DECOMMISSIONING AND SITE RESTORATION FUNDS**

The Applicant will post and continuously maintain for decommission, at its election, funds, a surety bond, or similar financial assurance in an amount equal to the per-turbine Decommissioning Costs multiplied by the sum of the number of turbines constructed and under construction. The funds, surety bond, or financial assurance need not be posted separately for each turbine so long as the total amount reflects the aggregate of the Decommissioning Costs for all turbines constructed or under construction. For purposes of this condition, a turbine is considered to be under construction at the commencement of excavation for the turbine foundation. The form of financial assurance or surety bond shall be a financial instrument mutually agreed upon by the Board and the Applicant. The financial assurance shall ensure the faithful performance of all requirements and reclamation conditions of the most recently filed and approved decommissioning and reclamation plan. At least 30 days prior to the preconstruction conference, the Applicant will provide an estimated timeline for the posting of decommissioning funds



based on the construction schedule for each turbine. Prior to commencement of construction, the Applicant will provide a statement from the holder of the financial assurance demonstrating that adequate funds have been posted for the scheduled construction. Once the financial assurance is provided, the Applicant will maintain such funds or assurance throughout the remainder of the applicable term and will adjust the amount of the assurance, if necessary, to offset any increase or decrease in the decommissioning costs.

**Exhibit Z**

**Huron County Road Agreement – DRAFT DOCUMENT**

**6011 Greenwich Windpark, LLC**

## COUNTY ROADS AGREEMENT

**THIS AGREEMENT** (the “Agreement”) is made and entered into as of \_\_\_\_\_, 2013 by and between Huron County, Ohio (the “County”) and 0611 Greenwich Windpark, LLC (the “Vendor”). The County and Vendor may each be referred to herein as a “Party” and together, the “Parties.”

### RECITALS

A. **WHEREAS**, Vendor is in the process of developing a wind energy generating facility consisting of up to 25 wind turbines in the County and, in connection therewith, submitted an Ohio Power Siting Board permit application for the Project to the State of Ohio; and

B. **WHEREAS**, Vendor will also construct an electrical substation to transmit electrical energy generated by the wind turbines located in the County at the point of interconnection (the construction of the turbines, transmission line and related facilities are referred to herein as the “Project”); and

C. (Reserved.)

D. (Reserved.)

E. **WHEREAS**, the Parties may desire to make pre-construction improvements to the County roads to minimize the damage caused to the County roads so that complete reconstruction of the roads is limited, post-construction repairs and improvement will be in the nature of surface treatments, the cost to repair and improve the the County roads following construction of the Project is lessened and the inconvenience, delays and hazards for the traveling public which may be associated with road construction are decreased; and

F. **WHEREAS**, the County is directed and authorized pursuant to Ohio law to construct, administer, operate and maintain highways in Huron County, Ohio, acting by and through its County Engineer (the “County Engineer”); and

G. **WHEREAS**, Ohio law grants to the County the authority to impose reasonable rules, regulations and specifications for the use of County roads by public and private utilities; and

H. (Reserved.)

I. **WHEREAS**, in connection with the construction of the Project, the Parties desire to address certain issues related to certain roads owned, operated and maintained by the County and the County Engineer (the “County Roads”) over which it will be necessary for Vendor and its respective agents, contractors, subcontractors, material suppliers, vendors, employees, and designees (collectively the “Vendor’s Parties”) to, among other things, (i) transport heavy equipment and materials over the County Roads, which may in certain cases be in excess of the design limits of the County Roads; (ii) transport certain locally sourced materials, such as concrete and gravel, on such County Roads and (iii) widen the County Roads and make certain modifications and improvements (both temporary and permanent) to the County Roads (including to certain culverts, road shoulders and other related fixtures) to permit such equipment and materials to pass; and

J. **WHEREAS**, Vendor has provided to the County Engineer a preliminary site layout

plan for the Project, a copy of which is attached hereto and incorporated herein as Exhibit “A” (the “Site Layout Plan”), which identifies all site access road entrances and all underground collection system cable crossings; and

K. **WHEREAS**, prior to and during construction of the Project and during the post-construction road repair phase, the Parties may employ or consult with independent civil engineering firms with respect to the evaluation of the County roads and the scope of road repairs and the Parties agree that whenever the phrase “independent civil engineering firm” is used in this Agreement it shall mean an engineering firm which regularly practices; and

L. **WHEREAS**, the County, the County Engineer and Vendor wish to set forth their understanding and agreement as to the road issues relating to the construction of the Project in this Agreement which the Parties intend to satisfy the requirements of OPSB Section 4906-17-08 (E)(5).

**NOW, THEREFORE**, in consideration of the mutual promises and covenants herein set forth, the Parties, intending to be legally bound, agree as follows:

**Section 1. County Approvals.** The County and the County Engineer hereby agree to permit, without additional applications, notices, or permissions:

- (a) project site access road entrances to the County Roads that conform to existing County standards;
- (b) underground collection system cable crossings under the County Roads, and within the County Road right of ways; and
- (c) the widening of existing County road radii within the public rights of way to accommodate the delivery of turbine component(s), main transformer and transmission lines, and other equipment and materials.

**Section 2. Pre-Construction Evaluation of Roads and Road Improvements.**

(a) At least \_\_\_\_ months prior to the proposed start of Project construction, Vendor shall provide to the County Engineer the names of all County Roads and roadway appurtenances that Vendor and Vendor’s Parties intend to use during the construction of the Project (the “**Affected Roads**”). The list of Affected Roads shall also include all anticipated material delivery routes. As of the execution of this Agreement, Vendor anticipates the Affected Roads will be the roads set forth on Exhibit B hereto.

(b) At least \_\_\_\_ months prior to the proposed start of Project construction, Vendor shall deliver to the County Engineer a Pre-Construction Road Evaluation of the Affected Roads (the “**Pre-Construction Road Evaluation**”), which will be signed and sealed by a professional engineer licensed in the State of Ohio. The Existing Pavement Evaluation shall:

- (i) identify the structural makeup, road prism, and condition of the subject roadways, bridges, and underlying culverts;
- (ii) document conditions with field notes, site photographs and videography;
- (iii) identify any preexisting deficiencies that Vendor determines, at its sole and reasonable discretion may interfere with its construction activities;

- (iv) include an executive summary supported by methodology, appendices, maps and other information.

(c) At least \_\_\_\_ months prior to the proposed start of Project construction, Vendor shall deliver to the County Engineer a “**Construction Traffic Impact Analysis**”. The Construction Traffic Impact Analysis shall include:

- (i) a map indicating the locations of turbines, the substations and the construction laydown yard(s);
- (ii) a map indicating the location of the transmission line;
- (iii) information about the weights and sizes of the turbine, substation and transmission line components;
- (iv) information as to the number of equipment and material loads, per axle weight of each load and type of equipment that will be used to transport each load and the inter-Project equipment movements;
- (v) other information concerning construction vehicles, equipment and activities relevant to Vendor’s use of the Affected Roads;
- (vi) a map of the haul routes and exit routes to be used by construction vehicles setting forth ingress and egress routes to and from the footprint of the Project for all material deliveries;
- (vii) the plan for any pre-construction improvements to be made to the Affected Roads to provide structural capacity for the duration of Project construction;
- (viii) identification of post construction road corners that will remain in place inside the existing County Road rights of way.
- (ix) the projected scope of repairs and estimated repair costs for the Affected Roads following Project construction (the “**Projected Scope of Repairs**”).

(d) Before construction on the Project may proceed, the County Engineer must approve the Construction Traffic Impact Analysis, including the estimated costs and plan for pre-construction road improvements and the estimated cost and plan for the post-construction Projected Scope of Repairs. Within 20 business days, County Engineer shall comment or approve the Construction Traffic Impact Analysis. If after 20 business days the County Engineer has not provided written comments or formally approved the Construction Traffic Impact Analysis, it shall be deemed approved. Approval shall not be unreasonably withheld or delayed.

### **Section 3. Undertakings.**

Vendor hereby agrees, and shall cause Vendor’s Parties to agree, to undertake the following in connection with the development of the Project:

- (a) Vendor represents and warrants that the Project plans have been prepared by a qualified professional engineer.
- (b) Permanent markers/stakes meeting the requirements of State and Federal regulations and good utility practice shall be installed at the edge of the road right-of-ways to identify where the collection system cables are buried and/or cross the roads.
- (c) Iridescent marker tape shall be buried in the trench twelve inches (12”) above the collection system cables where they are buried or cross the road right-of-ways.

(d) Prior to the start of construction on the Project, Vendor shall memorialize by GPS location and/or above ground signage the locations where the underground cables are buried and/or cross the road right-of-ways. Vendor shall preserve and protect all properties of public utility companies, such as lines, conduits, gas or water pipes, sewers and tile lines which run over, through or under any part of the County Roads used by Vendor. It shall be Vendor's responsibility to contact the various public utility companies and locate their properties before any construction shall start and Vendor shall assume full responsibility for reimbursing owners for any damage or injury to such properties which may be caused by Vendor or Vendor's operations.

(e) Prior to the start of construction on the Project, Vendor shall identify all proposed heavy lift crawler crane road crossings at locations to be coordinated with, and approved by, the County Engineer. Within 10 business days, County Engineer shall comment or approve the crane road crossings. If after 10 business days the County Engineer has not provided written comments or formally approved the crane road crossings, they shall be deemed approved. Approval shall not be unreasonably withheld or delayed.

(f) Horizontal/directional boring shall be used where the collection system cables cross under the roads such that the road surface shall not be cut, and such cables shall be installed in steel conduit or Schedule 80 conduit used in public right-of-way locations in accordance with good utility practice.

(g) All culverts needing replaced as a result of construction of the Project or repair to the County Roads shall be replaced by new pre-coated, corrugated metal culvert pipes or concrete pipe of equal diameter, except that in no case shall the diameter be less than 15-inches. All culverts needing constructed as a result of construction of the Project or repair to the County Roads shall be new pre-coated, corrugated metal culvert pipes or concrete pipe of at least 15-inches in diameter.

(h) In the event that County Road corners are widened for truck navigation in connection with the development of the Project, such road corner modifications shall be designed by an engineer and shall satisfy County Road standards. The widened road corners shall remain in place inside the existing County Road rights-of-way after construction of the Project unless the County Engineer specifically requests that such widening be removed. If the widened corners are removed, Vendor shall repair all damage and ensure proper drainage.

(i) While the Project is under construction, transport schedules shall be provided regularly (and in any event, no less than \_\_\_\_\_) by Vendor to the County Engineer to indicate when heavy traffic will be in the area of the Project site.

(j) Vendor shall provide the County Engineer with a copy of each overweight and oversize permit issued by the Ohio Department of Transportation ("ODOT") to Vendor within one week (timeframe) upon receipt thereof.

(k) Vendor shall, upon request, provide copies to the County Engineer of any delivery ticket bound for or delivered to the Project site so that the County Engineer may monitor the actual weights of construction vehicles which do not require permits for overweight loads. Delivery tickets shall identify destinations by turbine number.

(l) Project traffic shall be scheduled in a way to reasonably minimize the adverse impact on local agricultural truck transport. In the event of traffic conflicts, priority shall be given to emergency response vehicles, rural mail delivery, transportation of children to and from school, and the

transportation of agricultural commodities and implements of husbandry. Vendor agrees to coordinate with the County Engineer scheduling of Project construction traffic in any meetings so requested by the County Engineer; meetings shall include all affected parties (including school bus transporters) and shall be held at the offices of the County Engineer. The County may, but shall not be obligated to, have representatives participate in such meetings.

(m) If the County Roads degrade (by way of example and not limitation, “degrade” means to show signs of bleeding, rolling, breaking or pumping) while construction of the Project is ongoing due to construction activities or the volume of construction traffic related to the Project, Vendor, at the reasonable request of the County Engineer, shall cause necessary remedies to be implemented to ensure safe passage of the motoring public within a reasonable time and, in any event, if an immediate hazard exist, in which case, Vendor shall take immediate action to make the County Roads safe for the motoring public. If Vendor fails to act, the County Engineer may take remedial action and may close the road until the road is made safe.

(n) If, during the course of construction of the Project, the County Engineer notifies Vendor of significant potholes or other conditions caused by the construction traffic or construction activities which make travel on the County Roads hazardous, Vendor shall remediate the hazard prior to dusk on the day it receives notice of the hazardous condition from the County Engineer (or place illuminated or night condition warning signs pending the remediation of the hazard. If Vendor fails to act, the County Engineer may take remedial action and may close the road until the road is made safe.

(o) At all times during the construction of the Project and Repair Work performed on the County Roads, Vendor and Vendor’s Parties shall ensure that construction areas and routes are free and clear of debris, garbage, obstructions or hazards. Upon the reasonable request of the County Engineer, Vendor shall clear any mud, dirt, debris, garbage, obstructions or hazards from a County Road, culvert or ditch caused by Vendor.

(p) If work during the construction phase of the Project or the post-construction road repair phase is suspended for an extended period, due to seasonal conditions or other cause, Vendor at Vendor’s expense, shall take such measures as laying additional gravel, installing barriers, posting signs and providing interim repairs or protections, as may be reasonably required to render the County Roads safe for vehicular traffic during the period such work is suspended.

(q) Representatives of Vendor shall meet with the school bus operator(s) and the relevant school officials to ensure suitable arrangements are put into place for the safe transport of children to and from school via the normal services for such transport. At least thirty (30) days prior to Vendor’s use of the County Roads, Vendor shall deliver written confirmation of such arrangements to the County Engineer.

(r) Heavy lift crawler cranes shall only cross the County roads in low traffic periods. Vendor shall advise the Huron County Emergency Services, local law enforcement and fire protection, and ambulance service providers of such crane crossings.

(s) While traveling on gravel roads, delivery trucks shall limit their speed to \_\_\_\_ miles per hour.

(t) Except as otherwise specifically provided for in this Agreement, Vendor shall ensure that its contractors, subcontractors, material suppliers and their respective transport providers transporting oversize and overwidth loads use the County Roads during daylight hours.

(u) Road and intersection closures shall be marked and signed in accordance with the Ohio Manual of Uniform Traffic Control Devices in effect at that time, and any other applicable requirements set forth in State statute or regulation or County ordinance.

(v) In the event that Vendor or Vendor's Parties move a traffic control device to accommodate its construction traffic, such sign shall be immediately replaced by Vendor in accordance with ODOT current standards at its expense.

(w) Vendor, upon the request of the County Engineer, shall obtain and post traffic signs, including signs advising "No Wind Farm Construction Traffic." This exclusion shall apply to all vehicles, at various locations, as an aid to traffic management. All such signage or postings shall comply with ODOT current standards.

(x) In accordance with permits issued by State and County authorities and as otherwise required by the Ohio Vehicle Code (and regulations promulgated thereunder), oversize and/or overweight vehicles shall display slow moving vehicle emblems and provide escort vehicles and related signage and lighting, to the end of protecting public safety and property.

(y) Vendor shall obtain permits from ODOT to transporting overweight and/or oversize loads over any bridges under ODOT's jurisdiction, as required by ODOT and, promptly upon receipt thereof, shall provide copies of such permits to the County Engineer.

(z) Unless Construction Traffic Impact Analysis plan is modified or approval is gained prior to usage; all construction traffic related to the Project shall use exclusively routes as designated in the Construction Traffic Impact Analysis and shall not use any other County roads and routes. In the event this provision is violated by Vendor or Vendor's Parties, the County Engineer may impose a fine of Five Hundred Dollars (\$500.00) per occurrence on Vendor. The Parties recognize that Project traffic may, either through mistake or with the consent of the County Engineer, use County roads other than those designated in the Construction Traffic Impact Analysis. Repairs for damage caused by Vendor or any of Vendor's Parties during:

(i) permitted use shall be made by Vendor in accordance with Section 4 of this Agreement and the burden of proving such incidental road damage was not caused by Vendor or Vendor's Parties shall be on Vendor.

(ii) mistaken use shall be made by Vendor in accordance with Section 4 of this Agreement provided the road damage is apparent at the time the mistaken use occurs.

(aa) Vendor shall comply with the time limits established by the County Engineer with respect to any requested closures of County roads. In any event, no such road closures shall exceed two (2) hours and the exact time of such closures shall be approved by the County Engineer, such approval shall not be unreasonably withheld. Vendor shall provide reasonable notice to the Huron County Emergency Services, local law enforcement agencies, affected rural mail providers, affected school districts and fire protection and ambulance service providers of road closings prior to closing any roads, portion of roads or intersections. In the event this provision is violated by Vendor or Vendor's



Parties, the County Engineer may impose a fine of \$500.00 for each fifteen (15) minute increment that the approved road closure period is exceeded.

(bb) The County Engineer, or his designee, shall have unfettered access to the County Roads to inspect the roads, culverts and adjacent ditches.

(cc) Vendor shall reimburse the County and/or the County Engineer for all reasonable inspection, observation and coordination costs, including, but not limited to, engineer fees, incurred in connection with any and all road issues relating to the construction of the Project and repairs to the County roads and all roadway appurtenances, including costs incurred during the Road Warranty Period, up to a maximum limit of \$20,000.00. Payment shall be made within thirty (30) days of receipt of such engineering bills.

(dd) (Reserved.)

(ee) All materials used on the County Roads in connection with the construction of the Project shall be ODOT procured from an approved ODOT supplier.

(ff) With regard to work performed on the County Roads in connection with construction of the Project, Vendor's Parties shall, upon request, provide to the County Engineer, documents establishing that a contractor or subcontractor's is qualified to perform work on the County Roads.

(gg) With regard to work performed on County roads in connection with construction of the Project, Vendor, its contractors and subcontractors shall pay wages in accordance with the Ohio Prevailing Laws.

(hh) Vendor shall provide to the County Engineer any "As-Built" drawings of improvements to the County Roads or road rights-of-way that Vendor, its engineers, contractors or subcontractors may possess.

(ii) Vendor shall provide written notice to the County Engineer identifying the name, address and both regular and emergency contact information of Vendor's on-site representative for communication purposes regarding this Agreement. Vendor's on-site representative may be changed and any such change and change in contact information shall be communicated to the County Engineer in writing.

#### **Section 4. Vendor Obligation to Repair County Roads.**

(a) Vendor hereby agrees that, at its expense, repair, or cause to be repaired, any damage to County Roads caused by the construction of the Project whether such damage is caused by Vendor or Vendor's Parties (the "Repair Work") to roads listed in Exhibit A. Roads listed in Exhibit A that are not used will not be repaired. However, additional roads may be added to Exhibit A, by amendment, during the course of construction, whereas, those roads would be included in Repair Work if damaged. "Damage" shall include, but not be limited to, damage to the road surface, subsurface, culverts, bridges, drainage tiles, signs and adjacent ditches. All repair and/or restoration of County Roads shall be repaired to the same or improved conditions as detailed in the Pre-Construction Road Evaluation.

(b) Upon substantial construction of the wind turbines which comprise the Project, Vendor shall provide to the County Engineer an updated Projected Scope of Repairs and cost estimates for the work reflecting the actual damage caused by construction of the Project. This updated Projected Scope of Repairs, once approved by the County Engineer, also shall be used as the basis for determining the amount of the Performance Security during the post-construction road repair phase as provided for in Section 7 of this Agreement. Vendor's post-construction road Repair Work shall begin as soon as practicable upon the County Engineer's approval of the updated Projected Scope of Repairs.

(c) After completing the Repair Work and prior to delivering the Completion Notice to the County Engineer (as required by Section 4(g), Vendor shall obtain a Post Construction Evaluation, (the "**Post Construction Evaluation**") of the County Roads identified in the Pre-Construction Evaluation, to include any additional roads actually used for Project construction. The Post Construction Evaluation will confirm the County Roads are equal to or greater than which existed prior to Vendor's use of the County Roads for construction of the Project. In the event that the County Roads (or portions thereof) are less than that which existed prior to construction of the Project, then the County may, in direct Vendor to have additional road repairs performed to bring roads to equal to or greater than that which existed prior to construction of the Project.

(d) The Parties acknowledge that farm drainage tiles may be located under roads to be used by Vendor for construction of the Project. In the event that these drainage tiles are damaged, Vendor shall replace said tiles, within the entire road right-of-way, with double-walled plastic pipes approved by ODOT, unless otherwise directed by the County Engineer.

(e) All road resurfacing shall be completed so as to provide a smooth, gradual integration with an existing road surface, even if such resurfacing requires improvements to County Roads not affected by the construction traffic.

(f) All post-construction Repair Work shall be completed within six (6) months of the date the Performance Security is adjusted, in accordance with the terms of this Agreement, to provide security for the post-construction Repair Work. If the post-construction Repair Work cannot be completed due to winter weather conditions setting in or spring thaw restrictions, then (i) the six (6) month repair period shall be extended pending the resumption of the Repair Work when weather conditions permit and (ii) Vendor shall, at its expense, lay additional gravel, install barriers, post signs and take all actions necessary to make County Roads damaged by the Vendor's construction activities safe for vehicular traffic until such time that construction of the Project and the post-construction Repair Work is completed. All such actions undertaken by Vendor shall be subject to the supervision and approval of the County Engineer.

(g) Vendor shall provide written notice to the County Engineer when Vendor has completed the Repair Work (the "Completion Notice").

(h) Upon receipt of the Completion Notice by the County Engineer, the County Engineer shall have thirty (30) days to inspect the Repair Work and provide written notice to Vendor of rejection of the Repair Work in whole or in part (the "Rejection Notice").

i. If no Rejection Notice is tendered by the County Engineer within the 30-day period, then the Performance Security shall be adjusted to provide security for the Road Warranty Period as provided for in Section 7(e) of this Agreement.

ii. If a Rejection Notice is tendered by the County Engineer, then:

a. Vendor shall make repairs as identified in the Rejection Notice. Upon completion of such additional repair work, Vendor shall serve the County Engineer with a supplemental Completion Notice and the notice procedures set forth herein shall apply;

or

b. Within ten (10) days of receipt of the Rejection Notice, Vendor shall provide written demand to the County Engineer requesting that the County Engineer and Vendor select an independent engineering firm to inspect the Repair Work and determine if additional repairs, as demanded by the County Engineer in a Rejection Notice, are required. The Parties shall select an independent engineering firm within twenty-one (21) days of Vendor's written demand. The independent engineering firm shall complete its inspection within thirty (30) days and issue its report. The determination of said independent engineering firm shall be binding upon the Parties hereto. The cost of the engineering firm for such inspection and report shall be divided evenly among the Parties hereto.

(i) The "Date of Final Acceptance" of all road repairs shall be the later of the following:

i. The date of the delivery of the Completion Notice to the County Engineer if no Rejection Notice is given by the County Engineer to Vendor; or

ii. If a Rejection Notice is given by the County Engineer to Vendor, then either:

a. date the identified repairs are completed to the reasonable satisfaction of the County Engineer (but no later than thirty (30) days after a Supplemental Completion Notice is submitted); or

b. the date of the written report by the independent engineering firm showing no further repairs are necessary or reasonably required.

(j) If any County Road used by Vendor shall require any repairs in the opinion of the County Engineer as a result of damage, caused by Vendor or Vendor's Parties, or Repair Work is defective or proves to be insufficient and additional repairs are required during the two (2) year period following construction of the Project (the "Road Warranty Period"), Vendor shall, upon notification by the County Engineer of the necessity for the repair, make repairs at its own cost and expense. Should Vendor fail to make the repairs within a reasonable time, (barring weather or load restrictions), the County Engineer may cause the work to be done and the County may draw upon the Performance Security as provided for in Section 7 to pay the entire cost or expense of the repair, including, but not limited to, engineer, attorney and consultant's fees and costs. Should the cost or expense exceed the amount set forth in the Performance Security, Vendor shall remain liable for any additional cost or expense incurred.

**Section 5. County Undertakings.** In consideration for the obligations of Vendor under this Agreement, the County agrees as follows:

(a) (Reserved.)

(b) The County Engineer shall permit time-sensitive, essential turbine and/or transformer component parts to be transported on County Roads, notwithstanding other applicable County ordinances.

(c) The County Engineer will coordinate and cooperate with Vendor and Vendor's Parties to minimize the impact of their use of the roads on normal local traffic.

**Section 6. Insurance.** Vendor shall furnish the County and the County Engineer with evidence of commercial general liability insurance in the amount of at least Five Million Dollars (\$5,000,000.00) of combined single limit-limit coverage, covering the construction activities of Vendor and road Repair Work contemplated by this Agreement. The insurance shall be written by a company rated by Standard & Poor's rating group as B+ or better. The Certificate of Insurance shall be provided to the County and County Engineer before the commencement of any work by Vendor or Vendor's Parties. The insurance policy shall provide for a thirty (30) day "prior notice of termination" provision in favor of the County and the County Engineer. Should Vendor allow such liability insurance to terminate prior to the completion of the construction activities and road Repair Work contemplated by this Agreement, the County and the County Engineer shall have recourse against Performance Security provided for in Section 7 for funds sufficient to cause the liability insurance to be reinstated until the completion of the road Repair Work. The County, County Board members, County Zoning Administrator and the County Engineer shall be named as additional insureds on the Certificate of Insurance.

#### **Section 7. Performance Security.**

(a) Not less than ten (10) days prior to the start of construction of the Project, Vendor shall provide the County with an irrevocable Performance Security.

(b) The Performance Security shall provide security to the County and the County Engineer for the following phases of the Project:

- (i) the construction of the Project,
- (ii) the post-construction road Repair Work, and
- (iii) the Road Warranty Period.

(c) During the construction of the Project, the Performance Security shall be the cost of the estimated post-construction Repair Work as determined in the Construction Traffic Impact Analysis and approved by the County Engineer, not to exceed \$200,000 in any case.

(d) Notwithstanding any writing on the Performance Security to the contrary, during the post-construction road Repair Work phase, the Performance Security shall not be less than one hundred twenty-five percent (125%) of the cost of the Repair Work as agreed upon by the Parties in accordance with Section 4, not to exceed \$200,000 in any case.

(e) Notwithstanding any writing on the Performance Security to the contrary, during the Road Warranty Period, the Performance Security shall not be less than twenty-five percent (25%) of the actual cost of the post-construction road Repair Work as agreed upon by the Parties when the post-

construction road Repair Work is accepted by the County Engineer and the County, not to exceed \$100,000 in any case.

(f) A reduction in the Performance Security shall not amount to acceptance by the County and/or the County Engineer of improvements or repairs to County Roads by Vendor.

(g) The County and/or the County Engineer shall not draw on the Performance Security until thirty (30) days after the delivery of written notice to Vendor, specifying a default hereunder by Vendor, during which thirty (30) days Vendor may cure such default and, in the event Vendor so cures, or is actively pursuing a cure which would be acceptable to the County in its reasonable discretion, the County and/or the County Engineer shall not draw on the Performance Security on account of such default.

(h) The Performance Security may be used by the County and/or the County Engineer, to cure any uncured defaults of any kind or nature with respect to the improvement and/or repair of County Roads by Vendor, including, but not limited to:

(i) providing payment for any of Vendor's obligations under this Agreement which remain unpaid for thirty (30) days after such obligations have been incurred and documented, which obligations shall include, without limitation, modification and repairs of the County Roads during construction of the Project, the Interim Period (if any), and post-construction road Repair Work;

(ii) keeping the liability insurance policy pursuant to Section 6 in force and effect;

(iii) reimbursement for emergency actions by the County and/or the County Engineer to protect public health and safety as a result of the activities of Vendor or Vendor's Parties; and

(iv) reimbursement for such other actions (erection of traffic control signs, payment for outside consultants and advisors, *etc.*) as are provided for under this Agreement.

(j) Upon the expiration of the Road Warranty Period, Vendor shall have no further obligation to maintain the Performance Security and the Performance Security shall be cancelled and returned to Vendor.

(k) The form of the Performance Security shall be determined in the sole discretion of the Vendor from the following choices:

1. An irrevocable Letter of Credit issued by a sound financial institution located in the State of Ohio in a form reasonably acceptable to the County and the County Engineer, and with a draw request substantially in the form of Exhibit "C" attached hereto. The Parties acknowledge that the exact terms of the Letter of Credit may be subject to terms requested by the financial institution issuing the Letter of Credit.;
2. A performance bond which substantially complies with the form prescribed by Ohio Revised Code Section 153.54(C)(2); or
3. An interest bearing escrow account funded by Vendor, at a mutually acceptable financial institution.

**Section 8. Future Work by Vendor.** This Agreement is limited to the construction of the Project as described in the recitals to this Agreement and as depicted in Exhibit “A”. In the event that Vendor desires use of County Roads following the expiration of the Road Warranty Period for future maintenance work on the Project, for demolition of the Project or for the development of another project, another roads agreement with the County shall be required.

**Section 9. Miscellaneous.**

(a) Recitals. The Recitals set forth above are hereby incorporated herein and made a part of this Agreement.

(b) Remedies and Enforcement. Each of the Parties hereto, their successors and assigns, covenant and agree that in the event of default of any of the terms, provisions or conditions of this Agreement by any party or their successors or assigns, which default is not cured for a period of ten (10) days after written notice to the defaulting party of such default, the party seeking to enforce said provisions shall thereafter have the right to file a breach of contract claim, an action for a declaratory relief and/or to seek the remedies of specific performance or injunctive relief, as well as any other remedy available at law or in equity. Notwithstanding the foregoing, the County Engineer may, without notice, take remedial action if immediate hazards exist and Vendor is unable to or fails to take immediate action to make the County Roads safe for the motoring public and any costs reasonably incurred by the County Engineer in such a circumstance shall be reimbursed by Vendor.

(c) Due Authorization. Vendor hereby represents and warrants that this Agreement has been duly authorized, executed and delivered on behalf of Vendor. The County and County Engineer hereby represent and warrant that this Agreement has been duly authorized, executed and delivered on behalf of the County.

(d) Severability. If any provision of this Agreement is held invalid under any applicable law, such invalidity shall not affect any other provision of this Agreement that can be given effect without the invalid provision and, to this end, the provisions hereof are severable.

(e) Entire Agreement. This Agreement contains the entire understanding of the Parties as to the matters set forth herein, and this Agreement supersedes any prior agreements or understandings by and between the Parties including but not limited to the County Roads Agreement entered into by the County and Vendor dated\_\_\_\_\_.

(f) Amendments. No amendment or modification to this Agreement or waiver of a Party’s rights hereunder shall be binding unless it shall be in writing and signed by the Party against whom enforcement is sought.

(g) Notices. All notices shall be in writing. Any notice shall be deemed to be sufficiently given (i) on the date, if delivered in person; (ii) five (5) days after being sent by United States registered or certified mail, postage prepaid, return receipt requested; or (iii) on the next business day if sent by overnight delivery service (*e.g.* Federal Express) to the notified Party at its address set forth below. Notice may be sent via e-mail, however, notice sent via e-mail shall be followed by notice delivered by personal service or via registered or certified mail, return receipt requested, postage prepaid or by overnight delivery. Notices shall be addressed as follows:

If to \_\_\_\_\_:

with a copy to:

If to the County:

**County Engineer**

with copies to:

or to such other Party or address as any Party hereto may from time to time designate in a written notice to the other Party.

(h) Counterparts. This Agreement may be executed in any number of counterparts, each of which shall be deemed an original, with the same effect as if the signatures thereto and hereto were upon the same instrument. Delivery of an executed counterpart of a signature page to this Agreement by telecopier shall be as effective as delivery of a manually signed counterpart to this Agreement.

(i) Governing Law. This Agreement shall be governed by and interpreted in accordance with the laws of the State of Ohio, (the state in which this Agreement is deemed to have been executed and delivered), irrespective of any conflict of law provisions.

(j) Forum Selection. The Parties agree that any disputes arising out of, related to, or connected with this Agreement shall be litigated, if at all, solely in the Court of Common Pleas for Huron County, Ohio.

(k) Commencement of Project Construction. This Agreement shall be void if substantial construction of the Project is not commenced within two (2) year(s) of the date of this Agreement.

(l) Successors and Assigns. This Agreement shall inure to the benefit of and shall be binding upon the Parties hereto, their respective successors, assignees and legal representatives.

(i) Assignment Requiring Consent. This Agreement may not be assigned without the written consent of the other Party and such consent shall not be unreasonably withheld or delayed.

(ii) Permitted Assignment. Notwithstanding subparagraph (i) above, Vendor shall be entitled to assign this Agreement, in whole or in part, without the prior written consent of the County or the County Engineer, to any affiliate of Vendor or to any person or entity providing financing to Vendor or any such affiliate or any collateral agent or security trustee acting on behalf of any such person or entity. Any such collateral assignment for financing purposes will not relieve Vendor of its obligations under this Agreement. In the event of a permitted assignment, Vendor shall, seven (7) days prior to such assignment, provide written notice to the County and the County Engineer of the name, address, entity type and state of incorporation of the assignee, as well as the name and address of the assignee's registered agent in the State of Ohio.

(m) No Waiver or Relinquishment of Right to Enforce Agreement. Failure of any Party to this

Agreement to insist upon the strict and prompt performance of the terms, covenants, agreements and conditions herein contained or any of them, upon any other Party imposed, shall not constitute or be construed as a waiver or relinquishment of any Party's right thereafter to enforce any such term, covenant, agreement or condition, but the same shall continue in full force and effect.

(n) Reimbursement of Costs. Vendor shall reimburse the County for the expenses of any special meetings that may be held related to the adoption or amendment of this Agreement, including but not limited to the cost of publishing notice of such meetings in local newspapers and payment to the members of the County Board and support staff for attendance at such meetings. Such reimbursement payments shall be made within thirty (30) days of such meeting and shall be deposited in the County Corporate Fund.

(o) Preparation of Agreement. This Agreement shall be deemed to have been prepared by Vendor and shall be construed against Vendor as the drafter, preparer and producer of the language herein.

(p) Memorandum. A Memorandum of this Agreement, substantially in the form of Exhibit "D" hereto, shall be recorded with the Huron County Recorder of Deeds by Vendor within thirty (30) days after the execution of this Agreement.

**SIGNATURES ON FOLLOWING PAGE**



**EXHIBIT A**

**SITE LAYOUT PLAN**

TO BE PROVIDED BY VENDOR)

**EXHIBIT B**

**LIST OF AFFECTED ROADS**

(TO BE PROVIDED BY VENDOR)

**EXHIBIT C**

**LETTER OF CREDIT FORM**

TO BE PROVIDED BY VENDOR)

**Exhibit AA**  
**Ohio University System Internship Agreement (DRAFT)**

**6011 Greenwich Windpark, LLC**

**6011 Greenwich Windpark LLC  
Renewable Energy Internship Program**

**I. Overview**

Internship education agreements between institutions of higher learning and private industry are innovative in design and effective in practice. An internship agreement between Stark State College's Department of Mechanical Engineering Technology and 6011 Greenwich Windpark, LLC will provide students with an opportunity to augment their classroom instruction with on-site experience in the field of renewable energy.

**II. Purpose & Objectives**

The purpose of this agreement is to provide students of Stark State College an opportunity to gain real world experience in the field of renewable energy technologies. This work experience will augment knowledge students have attained in the classroom, thereby enhancing their professional development.

The primary objectives of the Internship Agreement between Stark State College's Department of Mechanical Engineering Technology and 6011 Greenwich Windpark, LLC are to:

- a) Provide select students an opportunity to obtain substantial practical experience and on-site instruction in the field of renewable energy.
- b) Through practical experience and on-site instruction, enhance the student's ability to successfully penetrate the renewable energy job market.
- c) Provide a source of qualified candidates for employment in the field of renewable energy.
- d) Create and foster a closer relationship between both parties of this agreement.

**III. Internship/Co-op Program**

6011 Greenwich Windpark, LLC seeks a student/students who is/are currently pursuing a degree or certification and has/have an interest in the renewable energy field. Student(s) will have an opportunity to gain technical and hands on experience on the Greenwich Windpark site, located in Greenwich, Ohio.

This internship/co-op opportunity is expected to run concurrent with the academic year. Internship/co-op days/hours will be determined on a mutually agreed upon schedule between the student and wind farm operations & maintenance staff, in accordance with Stark State College course requirements.

Interns/Co-op position will be compensated at minimum \$15.00 /hour, adjusted by previous year's consumer price index CPI across all categories. Reimbursement for transportation expenses to and from the project area may be funded through a per diem or other type arrangement (Department of Labor Funding through school support programs).

**IV. Eligibility**

Students must be enrolled during the current quarter/semester/academic year at Stark State College and pursuing a degree or certification in the renewable energy field. Students are required to be 18 years or older.

**V. Program Administration and Contact Person**

- Susan Shearer, Director, Fuel Cell and Alternative Energy Technologies, Stark State College, (330) 494-6170.
- Monica Jensen, VP Development, Windlab North America, (734) 335-6219.

VI. Terms of the Agreement

This agreement becomes effective upon signature by all parties and shall continue for the agreed term. Implementation of this agreement will begin during the calendar/academic year in which commercial operation of the wind farm commences.

This agreement will remain in effect for the life of the wind-energy generating project (estimated 20+ years). Every calendar year, on the anniversary of commencement of commercial operations, both parties will review the Renewable Energy Internship Program to ensure internship opportunity remains relevant to academic course work and meets the objectives of both parties of this agreement.

This Agreement is entered into as of the 17 day of December 2013.

STARK STATE COLLEGE

6011 Greenwich Windpark LLC

\_\_\_\_\_  
Name (Please print)

Monica Jensen  
Name (Please print)

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Title

VP Development,  
Windlab Developments USA, Ltd  
Title

\_\_\_\_\_  
Date

12/17/2013  
Date

Stark State College  
Dept. of Mechanical Engineering Technology  
6200 Frank Avenue NW  
North Canton, OH 44720

6011 Greenwich Windpark, LLC  
c/o Windlab Developments USA Ltd.  
927 Wing Street  
Plymouth, MI 48170

**Exhibit BB**  
**CSX Railroad Facility Permit Template**

**6011 Greenwich Windpark, LLC**



## Permitting

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## Information Packet

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Version 2.0  
2012.02.14

Presented by:  
Corridor Occupancy Services

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# Permitting

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# Introduction

## Corridor Occupancy Services

The Corridor Occupancy Services Group is responsible for the review and approval of all requests for facility encroachments and permits for rights of entry within and on CSX property encompassing 22 states, the District of Columbia and a portion of eastern Canada (see appendix for system map). The team is structured with three key service roles:

- Customer Accounts: permit requests; permit/contract negotiations
- Engineering: review/approval of permit facility design plans
- Construction: scheduling of permitted facility installations

## Contact Us

For permitting questions:

- **Permitting Contacts:** See Appendix, Page 13

Other questions involving CSX:

- Call during business hours (7:30 AM to 5:30 PM): 1-877-TellCSX (1-877-835-5279)
- Email inquiries: [www.csx.com](http://www.csx.com);
  - Select: About CSX
  - Select: Contact Us
  - Select: Category of your choice in the TellCSX form field
- Headquarters: CSX Transportation, Inc.  
500 Water Street  
Jacksonville, FL 32202  
Attn: TellCSX, C420
- Corridor Occupancy Services Offices:  
CSX Transportation, Inc.  
6737 Southpoint Drive S,  
Building 1  
Jacksonville, FL 32216  
Attn: Corridor Occupancy Services (J180)

To report a **railroad emergency**, please contact the **CSX Public Safety Coordination Center** at **1-800-232-0144** immediately.



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# Summary of Services

## Encroachments

Typical encroachments reviewed by CSX on a case-by-case basis include:

- Wirelines (electric, fiber, cable, etc.)
- Pipelines (water, sewer, gas, culverts, etc.)
- Towers (cellular/co-location)
- Right of Entry (Temporary)
  - Access (surveys, soil borings, inspections, oversized equipment, etc.)
  - Environmental (soil sampling, monitoring wells, remediation, etc.)

Upon review and approval of the project proposal, CSX will prepare an agreement to document access to the railroad property for the approved project. See “Submitting a Request” for additional information on how to facilitate review and approval of the project.

Facilities that should be designed to be located off the CSX system due to negative impact on railroad operations include:

- Manholes
- Catch Basins
- Headwalls

For any encroachment request not referenced above, please contact CSX (see *Contact Us*) to discuss feasibility of the project.

## Design and Construction

### Design Requirements

Please carefully review CSX’s Design and Construction Standard Specifications prior to designing an encroachment proposal. These specifications can be found on the CSX website by clicking the link below or: following the instructions outlined below.

- [www.csx.com](http://www.csx.com)
- Go to [www.csx.com](http://www.csx.com) Type “permitting” in the search box located at the top right hand corner of the page
- Select “Permitting: Utility Installations and Rights of Entry

All efforts should be made to comply with CSX’s standard specifications. You may request CSX to review a design that does not meet the specification criteria by submitting a variance proposal; however, additional review fees are required for variance requests (see page 7) and approval is not guaranteed.

The American Railway of Engineering and Maintenance of Way Association (AREMA) is also a resource that could prove helpful in designing your project. The AREMA website is [www.arema.org](http://www.arema.org).

All occupancies should be designed and constructed so that rail operations and facilities are not interfered with, interrupted, or endangered. In addition, proposed facilities should be located to minimize encumbrance to the corridor so that the railroad will have unrestricted use of its corridor for current and future operations.

To assist you with preparing drawings, CSX has developed samples and templates identifying the information required for our staff to complete a review. See "Drawing Guidelines" in the Appendix for details. The drawings contain tables requesting specific information. While this information may not be necessary for your particular operation or industry, it is required for CSX to properly consider the proposal.

### Construction Activities

The safety and integrity of CSX rail operations is of paramount importance to CSX. Each project is reviewed by CSX independently to determine, in its sole discretion, the need for flagmen and/or inspection services and/or On-Track Worker Safety Training. If required for the project, the project owner will be invoiced for the services provided during the project.

- **Flagmen:** This service cannot be provided by any personnel other than an authorized CSX employee. Daily costs can be estimated at:
  - \$1,000.00 per day per flagman
  - \$1,000.00 per day if a signal locate is needed
    - Any signal locate performed by CSX is for CSX facilities only – the project owner is responsible for contacting State "Call Before You Dig" programs or the nationally designated number - 811
- **Inspectors:** Current policy and daily cost estimates include:
  - Subgrade: inspectors required for any project activity on CSX
  - Aerial: inspectors required for project set-up and final inspection
  - \$1,200.00 to \$1,500.00 per day, per inspector
    - Depending on the nature of the project, additional experts may be required
- **Safety Training:** On-Track Worker Safety Training is required for all project owner personnel and/or project owner contractor personnel requiring access to the railroad corridor. This training can occur prior to scheduling the project or the day of beginning installation. Components and estimated costs include:
  - Training duration: four hours
    - Photographic identification required
    - Requires successfully completing a test questionnaire
    - Safety certification remains in effect for that individual for one year from the date of the testing
  - \$200 per person, plus inspector travel expenses

Entering any railroad right of way or other railroad property without the permission of the railroad is trespassing and illegal. Violators will be prosecuted, and they risk the possibility of serious, even fatal, injury.



## Railroad Valuation Maps

Railroad valuation maps (commonly referred to as “val maps”) are available for informational purposes to assist with your project references. These maps provide the width of the railroad corridor as well as other railroad nomenclature such as the milepost reference and GIS#. To obtain a copy of a valuation map, please complete the Valuation Map Reproduction Request Form which can be obtained via the following:

RAILROAD VALUATION MAPS	
<b>Web:</b>	<a href="http://www.csx.com">www.csx.com</a> (type in “Val Maps” in the site search box and select “Val Maps” from list)
<b>Email:</b>	<a href="mailto:valmaps@csx.com">valmaps@csx.com</a>
<b>Phone:</b>	904.633.4571
<b>Fax:</b>	904.633.4545
<b>Mail:</b>	CSX Real Property, Inc. Val Map Request Coordinator, J915 301 West Bay Street, Suite 800 Jacksonville, FL 32202
<b>Fees:</b>	
First Map	\$ 75.00
Each Additional Map	\$ 50.00
U.S. Mail Shipping ( <i>per map</i> )	\$ 2.00
Overnight Mail	\$ 12.00

Upon receipt of the Valuation Map Reproduction Request Form, the Val Map Request Coordinator will contact the customer within three business days to discuss payment options.

## Agreements/Permits

All work activities within the CSX operating rail corridor and/or other CSX property must be reviewed and approved, including installations within public road rights-of-way. For installation of utilities or requests to access CSX property for surveying, an agreement/permit will be provided upon completion and acceptance of the proposal review.

To access CSX property to perform activities relative to an existing facility, please review the existing agreement verbiage to determine (a) if the activity is permissible and (b) which form to submit for the request (see: “Submitting a Request,” page 6). If you do not have a copy of the agreement, CSX may be able to provide a copy to you for your records. Please email [CustomerRel@csx.com](mailto:CustomerRel@csx.com) to make a request. Research fees are as follows:

AGREEMENT COPIES	
<b>Contact:</b>	<a href="mailto:CustomerRel@csx.com">CustomerRel@csx.com</a>
<b>Fee:</b>	\$ 50.00 per agreement

## Insurance

CSX requires that insurance coverage be provided prior to any entry and/or work activity within the railroad corridor. The agreement will define the requirement in greater detail but for summary purposes, the following identifies the components:

INSURANCE COVERAGE			
<b>COMMERCIAL GENERAL LIABILITY</b>		<b>(CGL)</b>	
<b>Coverage:</b>			
Per Occurrence		\$	5,000,000
<b>Insured:</b>			Facility Owner
<b>Additional Insured</b> <i>(unless otherwise advised):</i>			CSX Transportation, Inc.
<b>Duration:</b>			Encroachment Lifetime
<b>RAILROAD PROTECTIVE LIABILITY</b>		<b>(RPL)</b>	
<b>Coverage:</b>			
Per Occurrence		\$	5,000,000
Aggregate		\$	10,000,000
<b>Insured:</b>			CSX Transportation, Inc.
<b>Duration:</b>			Encroachment Construction Activity

Depending on the nature of the project, CSX may offer the option of paying a risk fee to cover the cost of adding the work activity to CSX's Railroad Protective Liability (RPL) Policy for the period of actual construction. The fees, if approved, can generally be estimated as noted below but are subject to change depending on the specific project parameters:

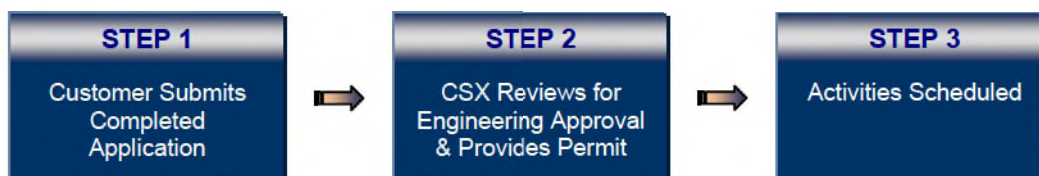
RPL RISK FEE					
<u>FACILITY CROSSING INSTALLATION – PER TRACK</u>			<u>ACCESS ONLY</u>		
<u>Aerial</u>	<u>Sub-Grade</u>		<u>Right of Entry</u>		
	<u>(Casing Diameter Size - Inches)</u>				
\$ 700	From 0 to less than 30	\$ 750	Surveys	\$	500
	30 to less than 45	\$ 1,500	Inspections/Access (no equipment)	\$	500
	45 to less than 75	\$ 3,000	Inspections/Access/ Soil Borings (w/ equipment)	\$	3,000
	75 to less than 100	\$ 6,000	Grading	\$	3,000
	100 to less than 120	\$ 12,000	Environmental (investigations)	\$	3,000
<b><u>FACILITY PARALLEL INSTALLATION: CONTACT CSX</u></b>					

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# Submitting a Request

## Application

Consideration of your proposal follows three primary steps:



The application package consists of the following:

- Application Form
- Plans/Drawings
- Review Fee

It is important that your request be as complete and accurate as possible to prevent delay or rejection. Upon receipt of the completed application form and related documents, CSX will provide the project contact noted on the application form an email acknowledging receipt and the current estimated time for review of the proposal. Due to the variation in the number and complexity of proposals received by CSX during the course of the year, timeframes for review can vary from 15 to 60 days. If the nature of the project requires a variance approval, site assessment or resources outside of the CSX organization, timeframes for review would increase dependent on availability of the resources.

Application forms (*and templates and sample forms*) can be found on the CSX website at:



Guidelines for form selection include:

- **Facility (Utility) Encroachment Form** (new installations, upgrade/modification to existing facilities)
  - Pipelines
  - Wirelines
  - Culverts
- **Tower Encroachment Form** (new installations, upgrade/modification to existing facilities)
  - Cellular/Wireless
  - Co-location requests



- **Right of Entry Form** (temporary purpose only)
  - Surveys
  - Environmental Investigation
  - Ingress/Egress (short-term over non-operating operating)
  - Inspection (bridges, roads, ect.)
  - Monitoring wells
  - Soil boring or sampling
  - Oversized equipment move over operating track and/or property
  - Property remediation
- **Outside Party Request Form**
  - Schedule an approved activity within/on CSX property
    - Existing Facilities with executed Permit/Agreement
      - Minor inspection/maintenance activities
      - Replacement of existing facility with like kind
    - New Facilities
      - Form will be provided with permit/agreement
- **Design and Construction Specifications**
  - Wirelines
    - If subgrade, and casing is greater than six (6) inches, use pipeline specifications for pipe details
  - Pipelines

## Plans and Drawings

Plans/drawings are required for review and approval of encroachment and access requests. The plans should be clear, concise, and accurately reflect design scope of the project and the impact to the CSX rail corridor or property. The nature of the project prescribes the information required for CSX to complete a review. Please note that review of your project will be delayed if the necessary information is not provided.

- **Facility Encroachment Forms** must be submitted with design plans that indicate the following:
  - See “Drawing Guidelines” in Appendix, Pages 10 and/or 11, for more details
- **Tower Encroachment Forms** must be submitted with design plans that indicate the following:
  - Dimensions of Land space requirements
  - Equipment/shelter location
  - CSX property lines
  - Approximate distance to nearest railroad track, if any
- **Right of Entry Forms** must be submitted with location maps that indicate the following:
  - Area of access on CSX property
  - Nearest public road
  - If environmental investigation also include maps that indicate:
    - Ground water flow
    - Distribution of contaminants and soil
    - Distribution of contaminants and ground water

## Review Fees

All requests require a non-refundable review fee payable to CSX Transportation, Inc. Below is the schedule of fees. A “**standard**” proposal meets CSX’s specifications, i.e., no design or construction method variation. A “**variance**” proposal does not meet CSX’s specifications. Horizontal directional drilling is not a standard approved method of installation and considered a variance.

REVIEW FEE SCHEDULE: UTILITY ENCROACHMENTS		
Per Location		
Aerial Proposals	Standard	Variance
<b><u>Crossings</u></b>		
Wireline	\$ 1,250	\$ 3,750
Pipeline: Overhead pipe structures not accepted	Contact CSX	Contact CSX
<b><u>Parallel</u></b>		
0 to less than 500 lineal feet	\$ 1,250	\$ 3,750
500 feet to less than 1,000 lineal feet	\$ 2,500	\$ 4,750
Greater than 1,000 lineal feet	Contact CSX	Contact CSX
Sub-Grade Proposals	Standard	Variance
Per Location - Based on Casing diameter Size		
<b><u>Crossings</u></b>		
0 to less than 10 inches	\$ 1,450	\$ 3,950
10 inches to less than 24 inches	\$ 1,950	\$ 5,450
24 inches to less than 30 inches	\$ 2,500	\$ 6,000
30 inches to less than 42 inches	\$ 3,500	\$ 7,000
42 inches to less than 66 inches	\$ 4,000	\$ 7,500
66 inches to less than 96 inches*	\$ 6,000	\$ 9,500
Greater than 96 inches*	Contact CSX	Contact CSX
<b><u>Parallel - 0 to less than 500 lineal feet</u></b>		
0 to less than 10 inches	\$ 1,450	\$ 3,950
10 inches to less than 24 inches	\$ 1,950	\$ 5,450
24 inches to less than 30 inches	\$ 2,500	\$ 6,000
30 inches to less than 42 inches	\$ 3,500	\$ 7,000
42 inches to less than 66 inches	\$ 4,000	\$ 7,500
66 inches to less than 96 inches*	\$ 6,000	\$ 9,500
Greater than 96 inches*	Contact CSX	Contact CSX
<b><u>Parallel – 500 to less than 1,000 lineal feet</u></b>		
0 to less than 10 inches	\$ 2,150	\$ 4,650
10 inches to less than 24 inches	\$ 2,650	\$ 6,150
24 inches to less than 30 inches	\$ 3,200	\$ 6,700
30 inches to less than 42 inches	\$ 4,200	\$ 7,700
42 inches to less than 66 inches	\$ 4,700	\$ 8,200
66 inches to less than 96 inches*	\$ 6,700	\$ 10,250
Greater than 96 inches*	Contact CSX	Contact CSX
<b><u>Parallel – 1,000 lineal feet or greater</u></b>	Contact CSX	Contact CSX
REVIEW FEE SCHEDULE: OTHER ACTIVITIES		



Towers		Standard	Variance
Tower*	\$	1,750	Contact CSX
Tower Co-location	\$	1,250	Contact CSX
Rights of Entry		Standard	Variance
General Access	\$	950	Contact CSX
Environmental Investigation	\$	3,500	Contact CSX
Site Assessments		Standard	Variance
Site Assessment	\$	2,500	Contact CSX
Project Activities		Standard	Variance
Project Coordination/Scheduling	\$	150	N/A
* Indicates transactions that may require a site assessment or additional fees for consultant services			

## Review

CSX reviews each request independently for safety, specification compliance, and both short-term and long-term impacts to railroad operations and property usage. The contact identified on the application will receive:

- **Receipt Notification**
  - Advises request received by CSX
  - Provides estimated timeframe to complete review
- **Engineering Notification**
  - Advises request either:
    - Approved and permit forthcoming
    - Requires additional information for approval
    - Declined – CSX will endeavor to assist you with alternatives to any proposal that is declined
- **Permit Notification**
  - Provides permit/agreement for facility occupation
  - Instructions for scheduling work activity

## Scheduling Activity

The Outside Party Request Form (OP Form) is utilized for scheduling all work activities on CSX property.

- **New Installations**
  - Form is provided with permit/agreement
- **Existing Facilities w/ approved Permit/Agreement**
  - Complete the OP Form for maintenance activities (see Appendix: Forms)
  - Provide scheduling fee
  - Provide evidence of insurances (see “Insurance” on page 5)

If you require a copy of the permit/agreement for an existing facility, see “Agreements/Permits” on page 4 for additional information on how to obtain a copy.



# Appendix

## News You Can Use

### PERMITTING LINKS

<b>CSX Website:</b>	<a href="http://www.csx.com">www.csx.com</a>
Permit Information Location:	Type "Permits" in site search box (top right hand corner) and select "Permits: Real Estate" from list
<b>Forms:</b>	
Information:	
Permitting Instructions:	<a href="#">Information Packet</a>
Specifications:	<a href="#">Pipeline: CSXT Design Construction Standards</a> <a href="#">Wireline: CSXT Design Construction Standards</a> <a href="#">Interim Guidelines for Horizontal Directional Drilling</a> <a href="#">Sample Fraction Mitigation Plan for Horizontal Directional Drilling</a>
Drawings:	<a href="#">Drawing Guidelines (Utility Installations)</a> <a href="#">Sample Drawings (Utility Installations)</a> <a href="#">Blank Canvas Drawings (Utility Installations)</a>
Applications:	
Facility Encroachment:	<a href="#">Facility Application</a>
Tower/Co-location:	<a href="#">Tower Application</a>
Right of Entry:	<a href="#">Right of Entry Application</a>
Scheduling Activity:	
Request:	<a href="#">Outside Party Request Form</a>

### OTHER LINKS

<b>CSX Emergency Hotline:</b>	<b>1-800-232-0144</b>
<b>Railroad Valuation Map Request:</b>	<a href="mailto:Valmaps@csx.com">Valmaps@csx.com</a>
<b>Existing Contract Information:</b>	<a href="mailto:CustomerRel@csx.com">CustomerRel@csx.com</a>
<b>Request Copy of Agreements:</b>	<a href="mailto:CustomerRel@csx.com">CustomerRel@csx.com</a>
TelICSX: 1-877-TelICSX (1-877-835-5279)	
<b>CSX Track Maintenance Schedule:</b>	<a href="http://www.csx.com/?fuseaction=customers.curfew_news">http://www.csx.com/?fuseaction=customers.curfew_news</a>
<b>American Railway Engineering Maintenance of Way Association:</b>	<a href="http://www.arema.org">www.arema.org</a>

## Drawing Guidelines

### Drawings

Each application submitted to CSX must include drawings/plans for the proposed project. The drawings should be no larger than 11 x 17 (inches) in size.

### Plan and Profile

CSX has developed plan and profile drawings illustrating **required** data as outlined in CSX's Design & Construction Standard Specifications for both pipeline and wireline occupancies. The tables in the drawings identify the information that is **required** for CSX to complete a review of your proposal. Drawings for your use include:

- **Instructional:** identifies information **required** for submittal
  - *Plan View*
  - *Pipeline Profile View*
  - *Sub-grade Wireline Profile View*
  - *Aerial Wireline Profile View*
- **Canvases:** templates which can be saved and information inserted electronically
  - *Plan View*
  - *Pipeline Profile View*
  - *Sub-grade Wireline Profile View*
  - *Aerial Wireline Profile View*

Please review the instructional drawings prior to completing your proposal drawings. The drawings contain tables requesting specific information. While this information may not be necessary for your particular operation or industry, it is **required** for CSX to properly consider the proposal. Requests submitted that do not include the required information will be declined. The instructional and canvas drawings can be found on the CSX website:

- [www.csx.com](http://www.csx.com)
- Type "permits" in the search box located at the top right hand corner of the page
- Select "Permits: Real Estate" from the list provided
- Select "Drawing Guidelines"

When using the blank canvas templates, please note the following:

- A current version of Adobe Reader (or use of Adobe Acrobat Version 8 to current) is required. To download a current version of Adobe Reader, please click [here](#).
- Once the blank canvas template is open and selected, click on the "Highlight Fields" button in the top right section of the screen. All fields that can be completed electronically will appear in a light blue color. For easier navigation, you may also press the tab key on your keyboard to move the cursor from field to field.
- Ensure that **all** applicable fields in the table(s) are completed and in compliance with CSXT's current Design & Construction Standard Specifications for both Pipeline and Wireline occupancies.
- Once the tables are completed, click in the large image area to upload the plan or profile view of the drawing. If desired, click in the small image area to upload your company log. **Please Note:** Before loading the drawing and company logo, ensure you save a copy of them as an image file (file extensions of: \*.jpg, \*.gif, \*.png, or \*.tif). All other file types, including PDF files, will not load into the image fields.

## CSX SYSTEM MAP





## **CORRIDOR OCCUPANCY SERVICES GROUP (COS) TERRITORY & CONTACT LIST**

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Dawn Davis-Carpenter – CANADA, CT, DC, DE, MA, MD, NJ, NY, OH & VA

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### **UTILITY RELOCATIONS FOR CSXT OWNED PROJECTS:**

Vic Arceneaux – SYSTEM WIDE

Phone: 904.279.3812 Fax: 904.357.7640 Email: [Vic\\_Arceneaux@csx.com](mailto:Vic_Arceneaux@csx.com)

### **RIGHTS OF ENTRY – ENVIRONMENTAL & NON-ENVIRONMENTAL:**

Non-Environmental – SYSTEM WIDE

Phone: 904.279.3841 Fax: 904.279.3841 Email: [Corridor\\_Development@csx.com](mailto:Corridor_Development@csx.com)

Environmental: – SYSTEM WIDE

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**in**

**Case No(s). 13-0990-EL-BGN**

Summary: Application Of 6011 Greenwich Windpark, LLC - Exhibit X electronically filed by  
Teresa Orahod on behalf of Sally Bloomfield