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April 17, 2013

DELIVERED BY EMAIL

Ms. Kirsten Walli
Board Secretary
Ontario Energy Board
2300 Yonge Street
P.O. Box 2319, Suite 2700
Toronto ON M4P 1E4

Dear Ms. Walli:

Re: EB-2012-0365 - Dufferin Wind Power Inc.

Late last week, the County of Dufferin (the "**County**") resolved to cease negotiations with Dufferin Wind Power Inc. ("**DWPI**") in relation to the grant of an easement (the "**Easement**") over the County's former railway lands. DWPI relied on the grant of the Easement in making the above-noted application for leave to construct (the "**Application**"). It is CORE's position that confirmation of DWPI's failure to obtain the Easement represents a material change to the Application, about which the Board should be aware. We therefore enclose, for the Board's file, copies of the County Staff Report, which was considered by County Council in making its decision to cease negotiations, our correspondence on behalf of CORE to the County regarding the Staff Report, and e-mail correspondence from the County's Deputy Clerk advising of the County's course of action.

Yours truly,
DAVIS LLP

Per:



Laura K. Bisset
LKB/sxo

Encl.

cc: Applicant and Intervenors

THE CORPORATION OF THE COUNTY OF DUFFERIN



REPORT TO COUNTY COUNCIL



To: Warden Ryan and Members of County Council

From: Sonya Pritchard, Chief Administrative Officer

Meeting Date: April 11, 2013

Subject: Request for Easement from Dufferin Wind Power Inc. - Update

Purpose

The purpose of this report is to provide Council with updated information regarding the request from Dufferin Wind Power Inc. (DWPI) for an easement to house a 230 kV transmission line along the vacant rail corridor and to seek direction with respect to a response to this request.

Background & Discussion

DWPI continues to move through the regulatory approval process for both the wind farm and transmission line portions of the project. Both the renewable energy approval and Ontario Energy Board reviews are ongoing.

As directed through a motion of Council at the February 7, 2013 meeting, a submission consisting of the following items: resident comments, staff concerns, issues raised by the MMM group, a request for a moratorium on wind energy projects until the completion of ongoing health studies, and a request for transmission lines associated with wind projects to be buried and to avoid the Town of Shelburne was forwarded through the renewable energy approval comment process. A letter containing the motion was also forwarded to the Ontario Energy Board. There has been no response with respect to the comments submitted. As a follow up, the Warden sent a letter (via email and regular mail) to the Minister of the Environment on April 3, 2013 asking for his assistance with a response. There has been no response at the time of writing of this report.

With respect to some of the items raised by the MMM Group, DWPI has provided responses. An Environmental Management Plan has been submitted. In addition, DWPI has completed the attached report which addresses concerns and questions about the 230 kV power line.

The Ontario Energy Board's review of the Leave to Construct application appears to be proceeding in a manner that will see approval in the short term. A request from DWPI to

amend the transmission line route has resulted in a slight extension to the comment period for intervenors. However, the OEB has stated that comments must pertain to the amendment only and must remain within the OEB's scope. As per the Ontario Energy Board Act; in determining whether the construction, expansion or reinforcement of the electricity transmission line or interconnection is in the public interest, the Board shall only consider the following:

- the interests of consumers with respect to prices and the reliability and quality of electricity service;
- where applicable and in a manner consistent with the policies of the Government of Ontario, the promotion of the use of renewable energy sources.

The amendment to the proposed transmission line route impacts two sections along the rail corridor. It proposes being granted approval for both the current configuration through the Town of Shelburne and a configuration where the line would be buried for the entire length within the Town. The second change proposes to have a longer section of buried line in the south portion before the transfer station. Final arguments with respect to the Leave to Construct application from intervenors and Board staff are now due April 25, 2013. A decision is expected soon after. It should be noted that issuing a Leave to Construct order will be conditional on successful renewable energy project approval.

On April 4, 2013 Mr. Jeff Hammond of DWPI contacted the undersigned. Mr. Hammond has asked that Council be advised that DWPI is still very interested in reaching an agreement with the County of Dufferin for an easement along the rail corridor. This agreement would detail terms and conditions such as the compensation for the County which could include multi-use trail development along the corridor. Mr. Hammond stated that if Council is not interested in proceeding with an agreement at this time, DWPI will file for expropriation through the Ontario Energy Board immediately after the approval of the leave to construct application. Further, he explained that expropriation process will cause delays that translate into financial costs. This will significantly reduce the amount of money available for a negotiated settlement.

Discussions with the County of Dufferin legal counsel indicates that the expropriation process will take several months.

In light of this most recent communication with DWPI, staff requires direction with respect to how to proceed and how to respond to Dufferin Wind Power. At this point in time it appears that only two basic options exist:

1. Staff be directed to resume negotiations for an agreement to grant an easement.
2. DWPI be notified that the County of Dufferin is not willing to grant an easement and is not interested in further discussions with respect to an agreement.

Local Municipal Impact

The proposed project and transmission line would run from Melancthon through a private easement, along the rail corridor to Shelburne and Amaranth ending at the existing Orangeville transformer station.

Financial, Staffing, Legal, or IT Considerations

Dufferin Wind Power is interested in finalizing an agreement in the near future that provides a benefit to the community such as a multi-use trail. The Dufferin County Active Transportation plan approved in 2010, estimated the cost of a multi-use trail along the rail corridor at approximately \$1 million.

Recommendation

THAT, the report of Sonya Pritchard, Chief Administrative Officer dated April 11, 2013 titled Request for Easement from Dufferin Wind Power Inc. - Update be received;

AND THAT, staff be directed to _____.

Respectfully submitted,

Sonya Pritchard, CMA
Chief Administrative Officer

This document addresses concerns and questions about the proposed 230kV power line that would connect the Dufferin Wind Power project substation to the existing Orangeville transformer station.

230kV Power Line



DUFFERIN WIND POWER

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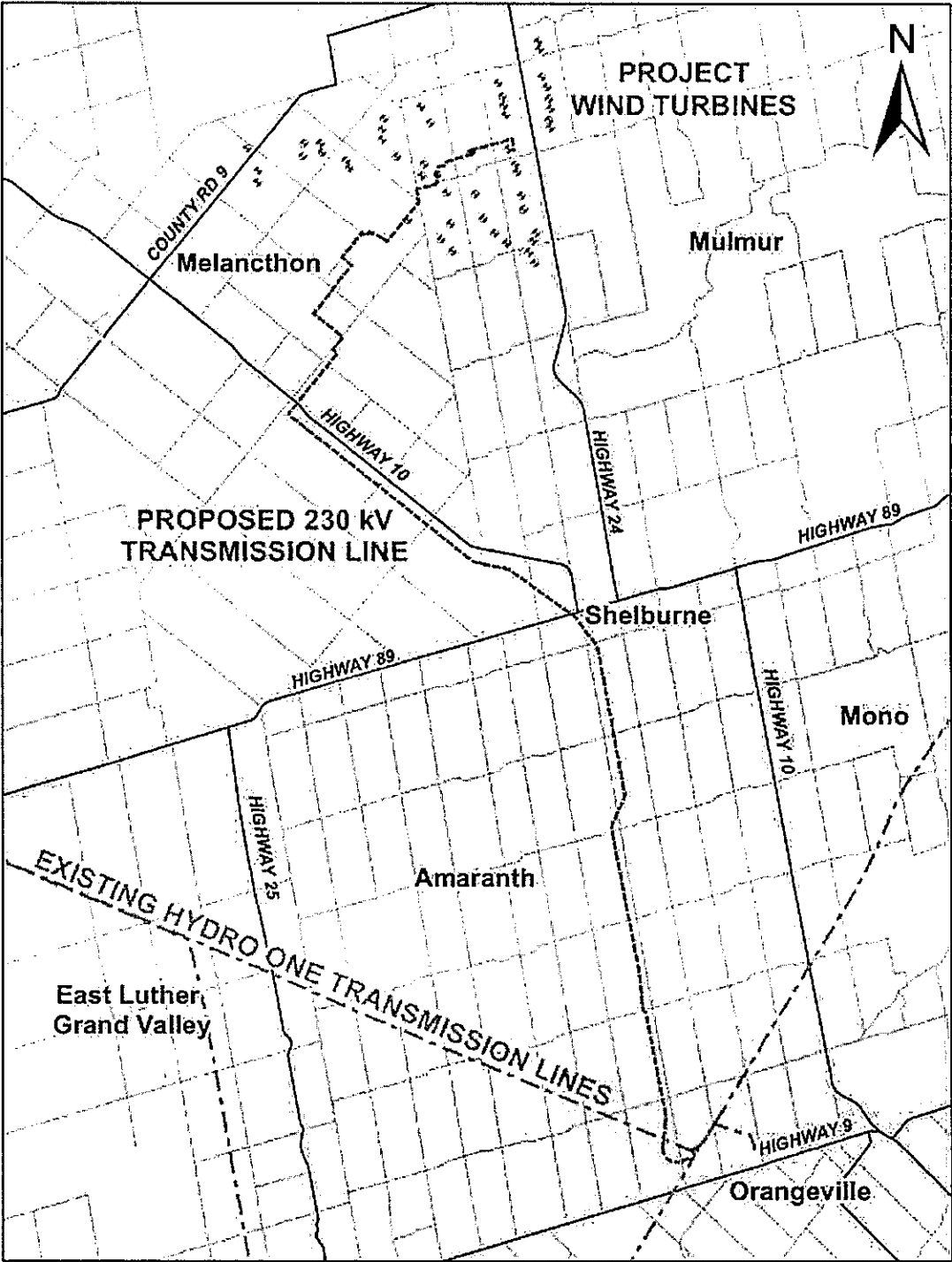
230 kV POWER LINE

Dufferin Wind Power Inc.

Description

DWPI is proposing to construct a wind project in the township of Melancthon, Ontario under the Green Energy Act and Ontario Power Authority's Feed in Tariff (FIT) program. The wind farm will consist of 49 turbines with a 99.1 MW nameplate capacity. DWPI is currently in the process of permitting its preferred power line route through the Ontario Renewable Energy Approvals (REA) process and the Ontario Energy Board (OEB) Leave to Construct process. The 230kV power line would connect the Project substation, located in the Township of Melancthon to Hydro One's existing Orangeville Transformer Station, located in the Township of Amaranth. The 230kV power line would be constructed on a single wood pole line, with some steel monopoles on angles and dead end locations, in order to eliminate the need for anchors and guy wires.

The power line will generally run southwest from the Project Substation for 15.6 km along private lands in the Township of Melancthon to a former railway corridor (the "Rail Corridor") that is now owned by the County of Dufferin. From a point along the Rail Corridor that is immediately to the west of Highway 10 and south of Sideroad 260, the power line will run southeast along the Rail Corridor towards the Town of Shelburne (generally alongside Highway 10) and, after passing underground through the west side of the Town of Shelburne, will enter into the Township of Amaranth and run in a southward direction (generally alongside County Road 11) before turning briefly to the east and terminating at the Switching Station.



Why the 230kV Power Line?

The location and route of the Power Line was selected based on a number of factors and considerations, including feedback received by members of the local community at 11 Public Information Centres (PICs) that were held between April, 2012 and October, 2012, and through consultations with municipal staff and officials.

The PICs are a very important part of the public consultation process. At the PICs members of the public get to see what is planned, examine the evidence and then use that education to help guide us (DWPI) to address real issues. The PICs provide a venue to talk about the project one on one with the developers and their consultants. It also provides a venue for the public and stakeholders to submit comments that will become a part of the public record. Every comment received is considered in the layout and design of the project and is ultimately included in the Consultation Report that is submitted to the Ministry of the Environment (MOE) during their review of the final REA documents.

Why a 230kV Power Line?

A 230kV power line is being used because Hydro One requires DWPI to utilize a 230kV power line to connect into the Orangeville Transformer Station, located in the Township of Amaranth. The 230kV power line is oversized and will only ever be used at just under one half of its capacity. The maximum power production of the wind farm (i.e., when all the wind turbines are rotating and producing maximum power) will utilize less than 50% of the capacity of the power line.

Could the power line's capacity increase from 230kV to 500kV or greater?

DWPI will own and operate the power line. The draft easement agreement that DWPI has provided to Dufferin County states that the easement is meant for the 230kV power line proposed for the Dufferin Wind Farm only. No further cables could be placed on the poles to increase the transmission capacity.

Constructing the 230kV Power Line

Constructing a Safe and Reliable Power Line

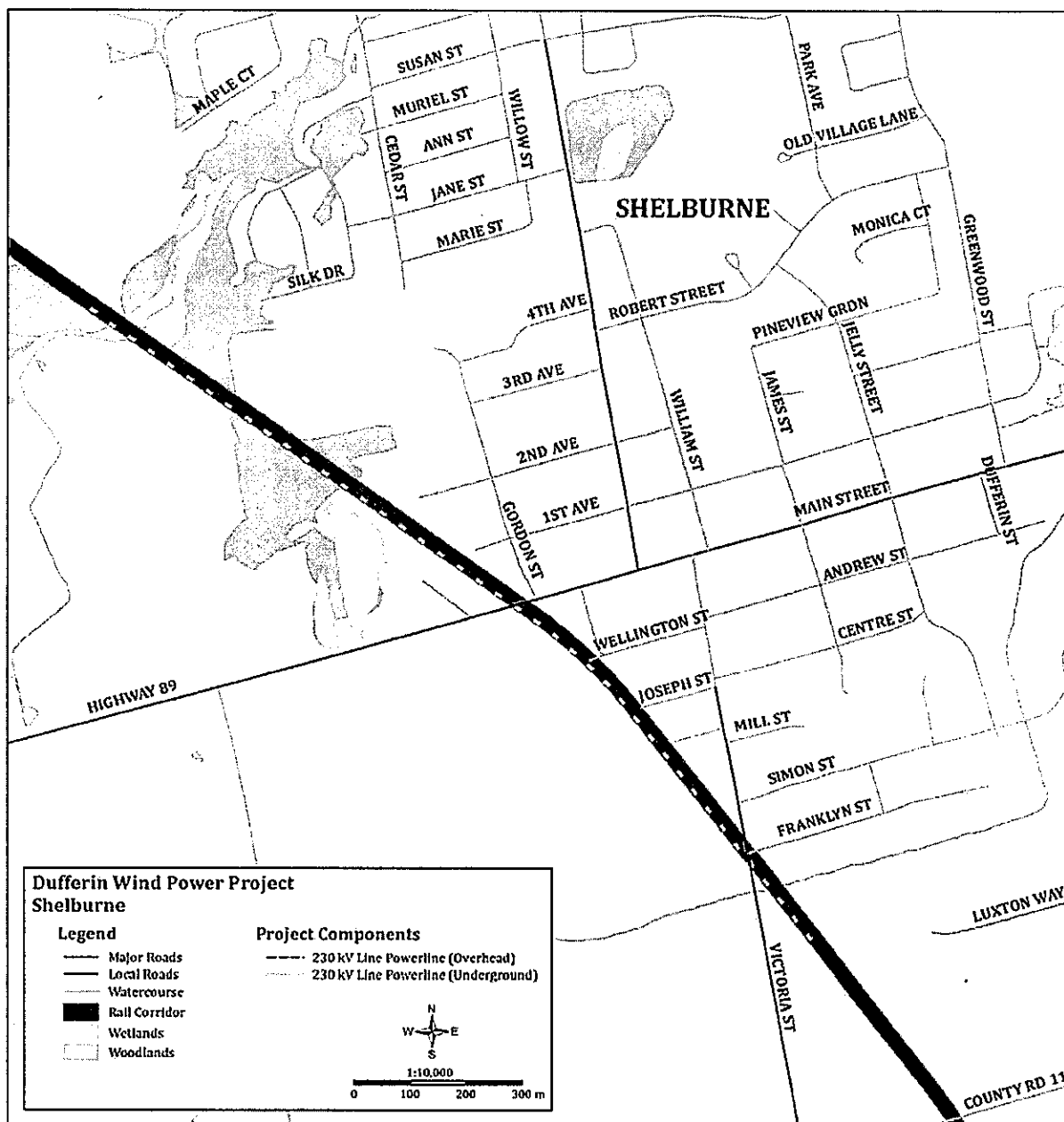
DWPI has selected an Ontario-based contractor to design and build the Transmission Project. The selected contractor is a leading, Ontario-based electrical contractor with over 45 years of experience in the construction, maintenance, and repair of power transmission and distribution lines for electric utilities, municipalities and private enterprise throughout Ontario and Canada. The selected contractor has built major electrical components including collection systems and/or power lines for four Ontario wind farms and as well as transmission systems for a licensed electricity transmitter in Ontario. The selected contractor employs over 400 personnel in Ontario and across Canada, has built and maintained thousands of kilometres of distribution and power lines both domestically and around the world, and currently maintains one of the largest fleets of electrical construction vehicles in Ontario.

DWPI's Commitment to Post-Construction Safety

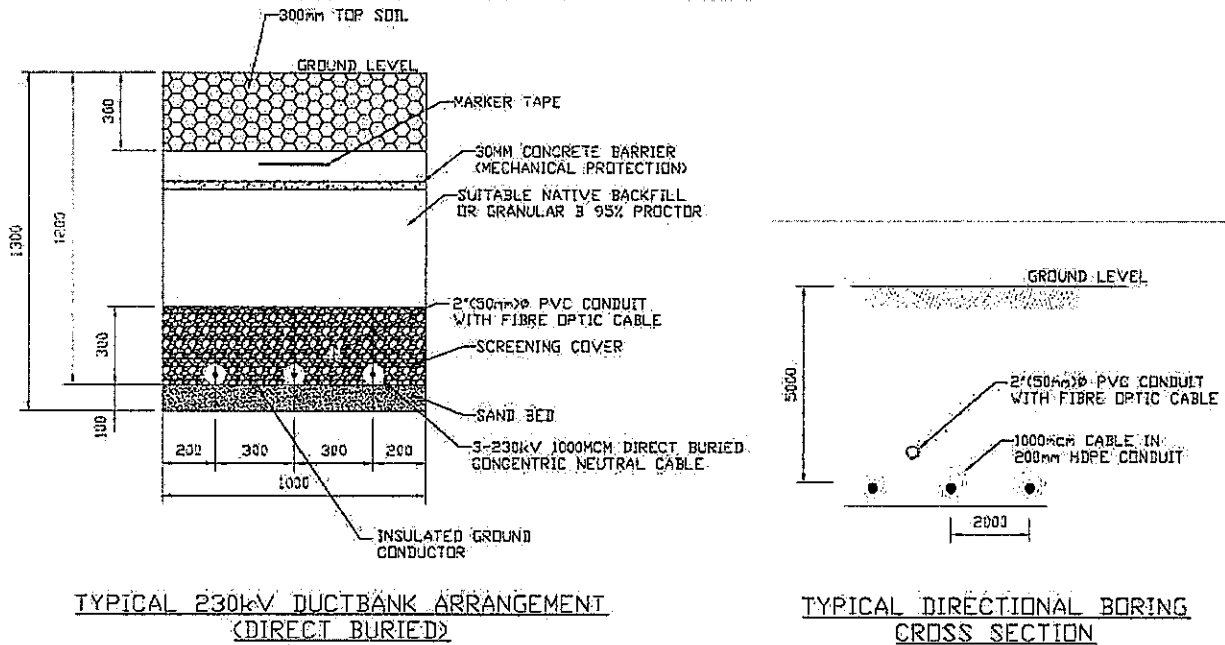
During final design of the proposed power line, induction studies will be conducted to verify there are no impacts on existing utility services (i.e., pipelines, underground cables, etc.) and conformance to CSA C22.3 No.3 "Electrical Coordination" and CSA C22.3 No.6 "Principles and Practices of Electrical Coordination Between Pipelines and Electric Supply Lines." Grounding design during final design of the proposed power line will also address the electro-chemical corrosion of underground metallic structure as per CSA C22.3 No.4 "Control of Electrochemical Corrosion of Underground Metallic Structures." Remediation options for compliance are also provided within the above listed standards.

Underground Power Line through the Town of Shelburne

As it is currently proposed; the power line for the Dufferin Wind Farm will run UNDERGROUND in Shelburne from Silk Drive north of Hyland Heights Elementary School, through the Town of Shelburne to Victoria Street.



The above image shows the route for the 230kV power line through the Town of Shelburne as it is currently proposed.



ALL UNDERGROUND CROSS SECTIONS ARE SUBJECT TO FINAL DESIGN INCLUDING ANY REQUISITE STUDIES

The above image shows a cross section of the proposed configuration of the underground section of the power line.

Sharing the Rail Corridor

The power line has been designed to allow for future rail development and for continued use of the Rail Corridor for recreational activities such as horseback riding, hiking, ATV use, and snowmobiling. DWPI is committed to working with local recreational associations to ensure the safety of all Rail Corridor users. DWPI has initiated a consultation program for those who use the rail corridor for recreational use: if we haven't heard from you please [contact us](#). Your input is important!

In general, the power line requires a 10m easement within the 25m rail corridor. The power line would be situated between the Rail Corridors' western property line and the rail bed, leaving the rail bed open for continued recreational enjoyment.



These images are a visualization of the proposed DWPI 230kV power line on the former rail corridor



Environmental Responsibility

An Environmental Management Plan (EMP) and a Spills Prevention Control Plan (SPCP) are being submitted to Dufferin County to identify key project environmental information, instructions, and mitigation measures specific to the 230kV power line for the construction of the power line.

The EMP will establish the environmental mitigation and enhancement measures needed to meet relevant permitting conditions and agreements made during the Renewable Energy Approvals (REA) process and to gain approvals for construction and operations/maintenance of the 230kV power line along the railway corridor, but is also applicable to the private easement area. The SPCP will address procedures in case of spills, failures, and accidents.

These plans are applicable to DWPI employees and contractors working on the pre-construction, construction, operation and maintenance phases of the Project.

In order to ensure the preservation of natural features and habitat along the length of the power line, a third party environmental monitor will be appointed to observe all aspects of work throughout the Project.

The Environmental Construction Monitor will ensure that the commitments made through the Renewable Energy Approvals, the EMP and the SPCS are being observed and will ensure compliance with site permits and mitigations measures required by local, provincial or national law or applicable contracts.

General environmental protection measures:

- Environmentally sensitive areas (i.e., wetlands, woodlands, water bodies, and wildlife habitats) within recommended distances will be staked out prior to work operations so that these areas are protected
- Work will comply with conditions outlined in the Leave to Construct and any associated permits/approvals
- A buffer zone will be maintained on each side of a wetland/watercourse
- Work conducted in the vicinity of wetlands/watercourses will be conducted in a manner which ensures that erosion and sedimentation of wetlands/watercourses is minimized
- Erodible soils will not remain exposed for longer than necessary. In areas where extensive erosion occurs (e.g., along steep slopes) or in environmentally sensitive areas, an active re-vegetation program based on a vegetation management plan will be implemented as soon as possible following disturbance to ensure rapid re-vegetation
- Appropriate erosion control measures will be installed prior to conducting the work. Work will be completed as soon as possible, and will be suspended during and immediately after intense rainstorms and during periods of high runoff

- The area of disturbance will be limited to that which is necessary to conduct the work
- Necessary means will be undertaken to ensure that work does not intrude on property outside the project boundary
- This may include staking out private property prior to work operations
- Construction will occur outside of the Department of Fisheries and Oceans defined timing windows for the protection of spawning fish

Health, Safety and the 230kV Power Line

What is Stray or Tingle Voltage?

Stray voltage, also referred to as tingle voltage, is a low-level electrical current or shock (typically under 10 volts) that results primarily from an improperly grounded or, in some cases an ungrounded, electrical distribution system.

Stray voltage can be found in any electrical system and is strictly a power distribution issue – improper grounding causes low voltage current to travel along a neutral wire. An electrical wiring system is grounded in order to keep voltage potential differences between the neutral wire and the ground and below levels that could be considered harmful.

While potential exists for stray voltage in residential areas, it is most commonly found at agricultural operations and is often attributed to poor grounding of the neutral wiring system in an environment where the presence of water increases conductivity between points of contact. The effects of stray voltage on various livestock have been well characterized over the last 40 years. A review of this body of literature was prepared for the Ontario Energy Board by Reinemann (2008). Overall, studies have shown that the effects of stray voltage on livestock are mainly mediated indirectly through behavioural responses (e.g., food or water avoidance) rather than direct effects of electricity exposure.

People are less likely to be affected by stray voltage than livestock as a result of the increased electrical resistance offered by the human body in comparison to livestock (Hydro One 2007). There does not appear to be any evidence to suggest that exposure to stray voltage has any other direct effect on humans other than inducing unpleasant sensations or shocks.

The term 'stray voltage' is often misused due to poor understanding of its cause. Stray voltage has incorrectly been called 'dirty electricity', implying that some forms of electricity are better or cleaner than others. Electricity from all sources is equally 'clean'. Stray voltage has also been confused with electromagnetic fields (EMF), grounding systems or even naturally-occurring currents found in the earth. (CanWEA, 2008).

Post-Construction Testing for Stray Voltage

During final design of the proposed power line, induction studies will be conducted to verify impacts on existing utility services (i.e., pipelines, underground cables, etc.) and conformance to CSA C22.3 No.3 "Electrical Coordination" and CSA C22.3 No.6 "Principles and Practices of Electrical Coordination between Pipelines and Electric Supply Lines". The final grounding design of the proposed power line will also address the electro-chemical corrosion of underground metallic structure as per CSA C22.3 No.4 "Control of Electrochemical Corrosion of Underground Metallic Structures". Remediation options for compliance are also provided within the above listed standards.

What are Electromagnetic Fields (EMF)?

Electromagnetic Fields (EMF) are invisible lines of forces that you cannot see or feel that surround electrical equipment, power cords and wires that carry electricity, including outdoor power lines. EMF, radio waves, microwaves, visible light and x-rays are all forms of electromagnetic energy. Each one of these forms of energy travels in waves and the strength of their energy is related to their wavelength. EMF associated with electricity is called extremely low frequency (ELF) because it is found below 300 Hz (300 waves per second). In Canada, EMF associated with electricity travels at 60 Hz. ELF EMF has very little energy. In comparison, microwaves can travel at several billion waves per second and have enough energy to heat tissues.

Electric and magnetic fields can occur together or separately and are a function of voltage and current. Electric fields are commonly represented in units of volts per metre (V/m). Magnetic fields are represented by two common units: microTesla (μT) and milliGauss (mG).

Magnetic fields in everyday life

On a daily basis people around the world are exposed to ELF EMF as a result of using electricity in their homes, offices and schools. Most Canadians are exposed to EMF generated by household wiring, lighting, and any electrical appliance that plugs into the wall, including hair dryers, vacuum cleaners and toasters. In the workplace, common sources of EMF include: computers, air purifiers, photocopiers, fax machines, fluorescent lights, electric heaters, and electric tools in machine shops, such as drills, power saws, lathes and welding machines (Health Canada, 2012).

The World Health Organization reviewed the findings of 12 studies conducted in Belgium, Canada, Germany, Japan, Korea, the UK and the USA between 1993 and 2006. These studies showed that the average magnetic field in homes was less than or equal to 3 mG for 96% of people assessed (based on 10230 people and for measurements conducted between 24-hrs and 7 days) (WHO 2007).

Health Canada (2012) states: *"When you are inside your home, the magnetic fields from high voltage power lines and transformer boxes are often weaker than those from household electrical appliances."*



The following graph (in three parts) shows how EMF occurs in typical situations in various rooms around our homes. We have all become regular users of electricity and as a result these fields are all around us. The chart shows measurements in milligauss: mG. You will see how magnetic fields decrease as the distance from their source increases.

Sources of Magnetic Fields (mG)*									
Distance from source					Distance from source				
6" 1' 2' 4'					6" 1' 2' 4'				
Office Sources					Workshop Sources				
AIR CLEANERS					BATTERY CHARGERS				
Lowest	110	20	3	—	Lowest	3	2	—	—
Median	180	35	5	1	Median	30	3	—	—
Highest	250	50	8	2	Highest	50	4	—	—
COPY MACHINES					DRILLS				
Lowest	4	2	1	—	Lowest	100	20	3	—
Median	90	20	7	1	Median	150	30	4	—
Highest	200	40	13	4	Highest	200	40	6	—
FAX MACHINES					POWER SAWS				
Lowest	4	—	—	—	Lowest	50	9	1	—
Median	6	—	—	—	Median	200	40	5	—
Highest	9	2	—	—	Highest	1000	300	40	4
FLUORESCENT LIGHTS					ELECTRIC SCREWDRIVERS (while charging)				
Lowest	20	—	—	—	Lowest	—	—	—	—
Median	40	6	2	—	Median	—	—	—	—
Highest	100	30	8	4	Highest	—	—	—	—
ELECTRIC PENCIL SHARPENERS									
Lowest	20	8	5	—	Distance from source				
Median	200	70	20	2	1' 2' 4'				
Highest	300	90	30	30					
VIDEO DISPLAY TERMINALS (see page 48) (PCs with color monitors)**					Living/Family Room Sources				
Lowest	7	2	1	—	CEILING FANS				
Median	14	5	2	—	Lowest	—	—	—	—
Highest	20	6	3	—	Median	3	—	—	—
Bathroom Sources					Highest	50	6	1	—
HAIR DRYERS					WINDOW AIR CONDITIONERS				
Lowest	1	—	—	—	Lowest	—	—	—	—
Median	300	1	—	—	Median	3	1	—	—
Highest	700	70	10	1	Highest	20	6	4	—
ELECTRIC SHAVERS					COLOR TELEVISIONS**				
Lowest	4	—	—	—	Lowest	—	—	—	—
Median	100	20	—	—	Median	7	2	—	—
Highest	600	100	10	1	Highest	20	8	4	—



Distance from source					Distance from source				
6" 1' 2' 4'					6" 1' 2' 4'				
Kitchen Sources					Kitchen Sources				
BLENDERS					ELECTRIC OVENS				
Lowest	30	5	—	—	Lowest	4	1	—	—
Median	70	10	2	—	Median	9	4	—	—
Highest	100	20	3	—	Highest	20	5	1	—
CAN OPENERS					ELECTRIC RANGES				
Lowest	500	40	3	—	Lowest	20	—	—	—
Median	600	150	20	2	Median	30	8	2	—
Highest	1500	300	30	4	Highest	200	30	9	6
COFFEE MAKERS					REFRIGERATORS				
Lowest	4	—	—	—	Lowest	—	—	—	—
Median	7	—	—	—	Median	2	2	1	—
Highest	10	1	—	—	Highest	40	20	10	10
DISHWASHERS					TOASTERS				
Lowest	10	6	2	—	Lowest	5	—	—	—
Median	20	10	4	—	Median	10	3	—	—
Highest	100	30	7	1	Highest	20	7	—	—
FOOD PROCESSORS					Bedroom Sources				
Lowest	20	5	—	—	DIGITAL CLOCK****				
Median	30	6	2	—	Lowest	—	—	—	—
Highest	130	20	3	—	Median	1	—	—	—
GARBAGE DISPOSALS					High	8	2	1	—
Lowest	60	8	1	—	ANALOG CLOCKS				
Median	80	10	2	—	(conventional clockface)****				
Highest	100	20	3	—	Lowest	1	—	—	—
MICROWAVE OVENS***					Median	15	2	—	—
Lowest	100	1	1	—	Highest	30	5	3	—
Median	200	4	10	2	BABY MONITOR (unit nearest child)				
Highest	300	200	30	20	Lowest	4	—	—	—
MIXERS					Median	6	1	—	—
Lowest	30	5	—	—	Highest	15	2	—	—
Median	100	10	1	—					
Highest	600	100	10	—					



Distance from source					Distance from source				
6" 1' 2' 4'					6" 1' 2' 4'				
Laundry/Utility Sources					Laundry/Utility Sources				
ELECTRIC CLOTHES DRYERS					PORTABLE HEATERS				
Lowest	2	—	—	—	Lowest	5	1	—	—
Median	3	2	—	—	Median	100	20	4	—
Highest	10	3	—	—	Highest	150	40	8	1
WASHING MACHINES					VACUUM CLEANERS				
Lowest	4	1	—	—	Lowest	100	20	4	—
Median	20	7	1	—	Median	300	60	10	1
Highest	100	30	6	—	Highest	700	200	50	10
IRONS					SEWING MACHINES				
Lowest	6	1	—	—	Home sewing machines can produce magnetic fields of 12 mG at chest level and 5 mG at head level. Magnetic fields as high as 35 mG at chest level and 215 mG at knee level have been measured from industrial sewing machine models (Sobel, 1994).				
Median	8	1	—	—					
Highest	20	3	—	—					

Source: EMF In Your Environment, U.S. Environmental Protection Agency, 1992.

* Dash (—) means that the magnetic field at this distance from the operating appliance could not be distinguished from background measurements taken before the appliance had been turned on.

** Some appliances produce both 60-Hz and higher frequency fields. For example, televisions and computer screens produce fields at 10,000-30,000 Hz (10-30 kHz) as well as 60-Hz fields.

*** Microwave ovens produce 60-Hz fields of several hundred milligauss, but they also create microwave energy inside the appliance that is at a much higher frequency (about 2.45 billion hertz). We are shielded from the higher frequency fields but not from the 60-Hz fields.

**** Most digital clocks have low magnetic fields. In some analog clocks, however, higher magnetic fields are produced by the motor that drives the hands. In the above table, the clocks are electrically powered using alternating current, as are all the appliances described in these tables.

June 2002 <http://www.niehs.nih.gov/emfrapid>

State of Knowledge on the Health Effects of EMF

Concerns about the ever-present nature of ELF EMF and possible health concerns have been raised by some in the global community. The science around EMF and possible health concerns has been extensively researched over the last 30 years. Government and medical agencies including Health Canada, the World Health Organization (WHO), the International Commission on Non-Ionizing Radiation Protection (ICNIRP), the International Agency for Research on Cancer (IARC) and the US National Institute of Health (NIH) and National Institute of Environmental Health Sciences (NIEHS) have all thoroughly reviewed the available information.

Concerns with respect to potential human health effects from ELF EMF have focused on the magnetic field component rather than the electric field component. Simply put, Health Canada has stated that “...the intensity of [electric] currents is too low to cause any known health effects” (Health Canada 2012).

In terms of short term exposure to EMF (magnetic fields) at high levels, EMF is known to cause nerve and muscle stimulation in the central nervous system. Based on this information, the International Commission on Non-Ionizing Radiation Protection (ICNIRP), a group recognized by the World Health Organization (WHO) as the international independent advisory body for non-ionizing radiation protection, established a guideline of 2000 mG for the general public (ICNIRP 2010). This is a revised guideline and is almost 2.5 times higher than the ICNIRP value of 833 mG set in 1998.

In terms of long term and low level exposure, Health Canada (2012) stated that: “*Health Canada does not consider that any precautionary measures are needed regarding daily exposures to EMFs at ELFs. There is no conclusive evidence of any harm caused by exposures at levels found in Canadian homes and schools, including those located just outside the boundaries of power line corridors*”.

It needs to be acknowledged that the International Agency for Research on Cancer (IARC) and WHO have categorized EMF as a Class 2B possible human carcinogen, based on a weak association of childhood leukemia and chronic exposure to magnetic field strength above 3-4mG (IARC 2002). This means there is limited evidence of carcinogenicity in humans and less than sufficient evidence of carcinogenicity in experimental animals. These human studies are weakened by various methodological problems that the WHO has identified as a combination of selection bias, some degree of confounding and chance (WHO 2007). There are also no globally accepted mechanisms that would suggest that low-level exposures are involved in cancer development (The Toronto Hospital for Sick Kids has written: “*So far, no one can explain convincingly how these photons, carrying less energy than visible light, could hurt the body’s cells*”) and animal studies have been largely negative (WHO 2007). **Thus, on balance, the WHO has stated (based on approximately 25,000 articles published over the past 30 years) that the evidence related to childhood leukemia is not strong enough to be considered causal (WHO 2012).**

EMF from the Proposed Underground Power Line

Kinectrics Inc., an independent firm specializing in testing, inspection and certification for power generation, transmission and distribution, conducted an EMF study of the underground section of the power line through the Town of Shelburne. The maximum value of EMF on the ground surface above the buried line was less than 50% of the 1998 guideline for the general public established by the ICNIRP, a group recognized by the World Health Organization (WHO) as the international independent advisory body for non-ionizing radiation protection. Furthermore, the EMF value was measured at less than 20% of the revised 2010 ICNIRP guideline (the revised ICNIRP guideline allows for a greater level of EMF exposure than the value set in 1998).

The full study can be found on the DWPI website:

<http://www.dufferinwindpower.ca/ReportsApplications.aspx>.

Is the 230kV power line dangerous for children at Hyland Heights Elementary School?

The simple answer is no. It is important to emphasize that Health Canada has stated that *"There is no conclusive evidence of any harm caused by exposures at levels found in Canadian homes and schools, including those located just outside the boundaries of power line corridors"*.

DWPI also looked to the State of California where the Office of Environmental Health and Safety has established distance setbacks between schools and power lines. California will not allow a new school building or new addition to a school to be within 11.4 m of an underground 230kV power line. The Hyland Heights Elementary School building is approximately 160 m away from the proposed underground power line, about 14x the minimum distance allowed by the State of California. (State of California, 2007. Office of Environmental Health and Safety. Criteria for School Siting in Proximity to High Voltage Power Lines.)

Kinectrics Inc., an independent firm specializing in testing, inspection and certification for power generation, transmission and distribution, conducted an EMF study of the underground section of the power line through the Town of Shelburne. The figure below, taken from the Kinectrics Report, shows that the level of EMF decreases quickly with the distance away from the buried line.

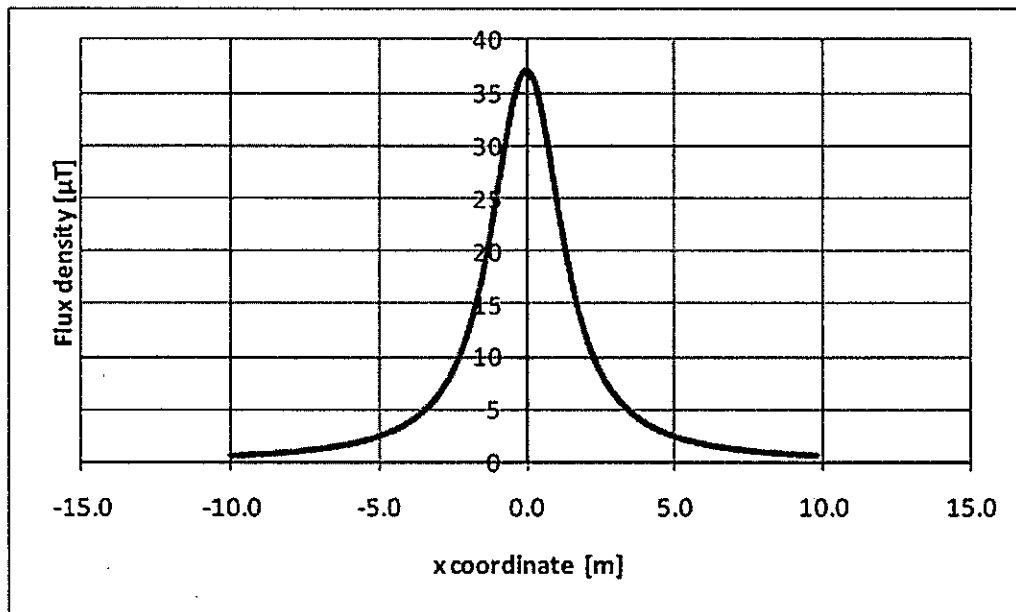
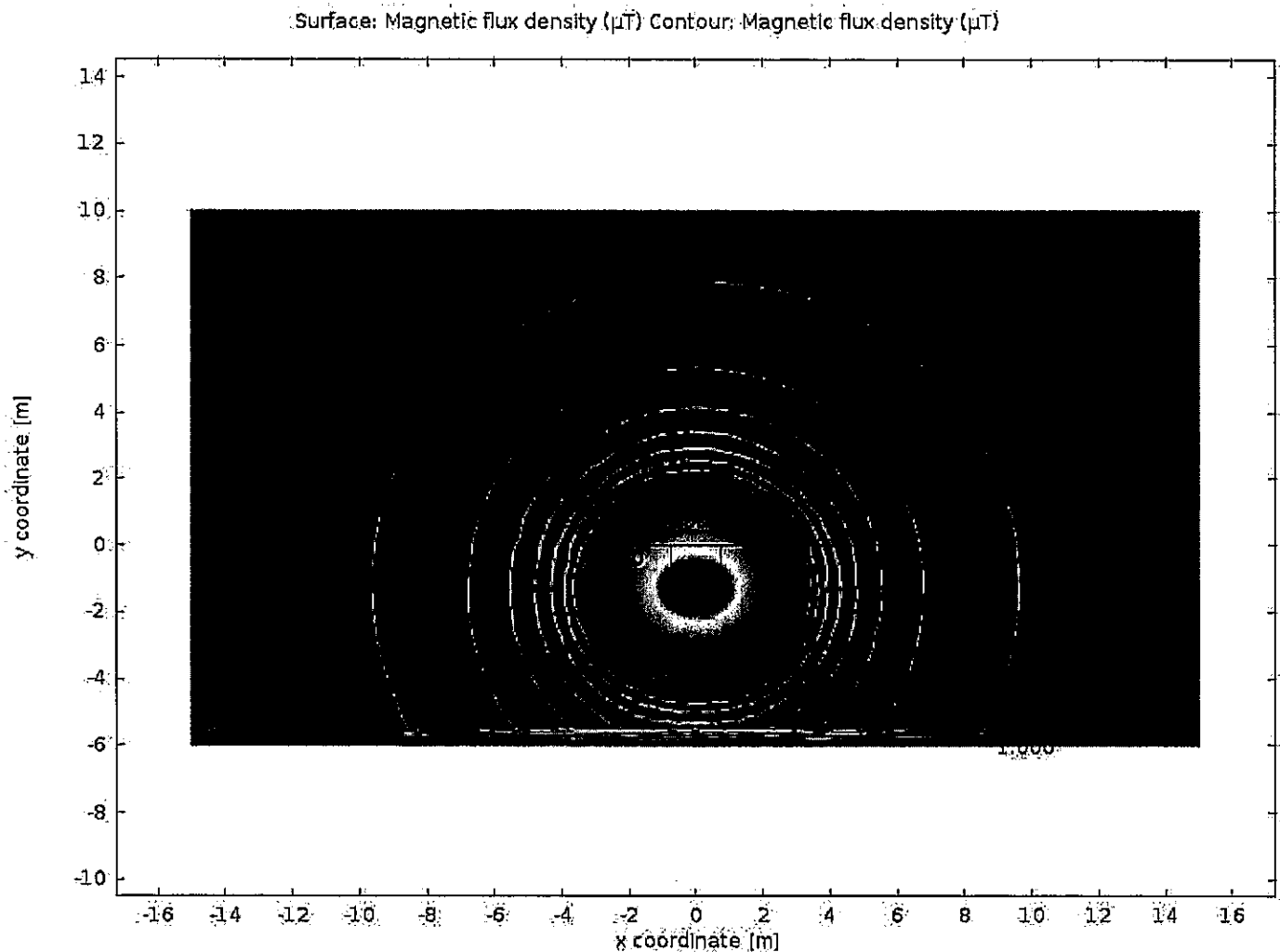


Fig. 5. *RMS magnetic flux density on the ground within the range of ± 10 meters from the central cable (in the direction perpendicular to the cable route).*

At a distance of between 10 and 15 m from the buried line (shown on the horizontal x coordinate), the level of EMF (shown on the vertical as Flux density [μT]) is negligible and approaches zero μT . Since the Hyland Heights Elementary School building is approximately 160 m away from the proposed underground power line, the contribution of EMF from the line to the school is essentially none.



The following image is another graph showing the calculated magnetic flux density from the buried 230kV line as calculated by Kinectrics Inc., at both vertical and horizontal distances from the line. The diagram shows the result for the extreme case, if the line were operating at full capacity and generating the highest magnetic flux. It is important to note that the proposed buried 230kV power line will be underutilized. The maximum power production of the wind farm (i.e., when all the wind turbines are rotating and producing maximum power) will utilize less than 50% of the capacity of the power line.



Note also that EMF from other sources has been measured in schools and homes, and was found at levels greater than what is expected to exist from the power line at a distance of between 10 and 15 m away. For example, a survey of magnetic field levels in 79 schools (elementary, intermediate, and secondary) was carried out in Eastern Ontario managed by the Carleton Board of Education (Sun et al., 1995). A total of more than 43,000 measurements were taken and almost 8% of measurements exceeded 2.0 mG. In a similar study magnetic field levels in public schools were measured in the late 1990s in California (California Electric and Magnetic Fields Program, 2001). Over 5400 school areas measurements were taken, including 3193 classrooms. Similar to the Carleton Board of Education study almost 7% of all school areas had magnetic field values greater than 2 mG. In addition, as part of the California EMF Program, the California Department of Health Services measured magnetic fields in 700 homes in the San Francisco Bay Area. Results revealed that magnetic field values from bedrooms, family rooms, kitchens, and at front doors, was similar if not slightly higher, than the school averages.

In other words, schools and homes have pre-existing levels of magnetic fields that are higher than what is expected between 10 and 15 m from the proposed buried DWPI power line.

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FROM THE OFFICE OF Laura K. Bisset
DIRECT LINE 416.941.5400
DIRECT FAX 416.777.7432
E-MAIL lbisset@davis.ca

FILE NUMBER: 81310-00002

April 11, 2013

DELIVERED BY EMAIL

Dufferin County
55 Zina Street
Orangeville, ON L9W 1E5

Attention: Ms. Pam Hillcock

Dear Ms. Hillcock:

Re: Request for Easement from Dufferin Wind Power Inc.

We are counsel for Conserve Our Rural Environment ("**CORE**") an incorporated residents' group in the Township of Mulmur who have an interest in the wind farm proposed (the "**Proposed Wind Farm**") by Dufferin Wind Power Inc. ("**DWPI**"), and whose members can be impacted by it. We write further to our receipt, yesterday, of the Report (the "**Report**") to County Council by Chief Administrative Officer Sonya Pritchard about the status of the Proposed Wind Farm and DWPI's request for an easement over the County's rail corridor lands (the "**Rail Corridor**"). We request that this correspondence be received by County Council for information as it makes a determination as to how to proceed on the Report's recommendations.


We write to express CORE's support for the second option outlined by Ms. Pritchard on page 2 of the Report. In other words, CORE supports the County notifying DWPI that the County is not willing to grant an easement over the Rail Corridor, and is not interested in further discussions about it. The County's voters do not support the Proposed Wind Farm, or any action by the County that would assist in allowing the Proposed Wind Farm to be approved or constructed.

We write also to remind Council of the way in which compensation for expropriated land is determined. The County has a right to fair compensation for the Railway Corridor, even in the event that the Ontario Energy Board grants DWPI the right to expropriate it, and DWPI pursues the expropriation option. Compensation is determined based on an assessment of the fair market value of the land. Where the parties are not able to agree as to the compensation payable, the matter may be determined by the Ontario Municipal Board on the basis of expert appraisal reports. Mr. Hammond's suggestion that the compensation payable relates to the amount of money available in DWPI's coffers, and that this amount will be determined by Council's willingness to give DWPI what it seeks, is therefore a hollow threat.

Council should not allow itself to be intimidated by DWPI; the County has rights in these circumstances.

Sincerely,
DAVIS LLP

Per:

A handwritten signature in black ink, appearing to read 'LKB', written over the printed name 'Laura K. Bisset'.

Laura K. Bisset
LKB/sxo

cc.: Laura Ryan, Warden Dufferin County
Paul Mills, Mayor Township of Mulmur
Sonya Pritchard, Chief Administrative Officer Dufferin County
Jane Pepino, CORE

Bisset, Laura K.

From: Michelle Dunne <mdunne@dufferincounty.ca>
Sent: April-16-2013 10:57 AM
To: Bisset, Laura K.
Subject: County of Dufferin - Request for Easement from Dufferin Wind Power Inc.

Good morning Ms. Bisset,

Further to your letter dated April 11, 2013 with respect to the request for Easement from Dufferin Wind Power Inc., the Council of the County of Dufferin at its regular meeting held on April 11, 2013 received your correspondence and the report from Ms. Sonya Pritchard, Chief Administrative Officer and decided not to take further action at this time.

Kindest regards,

Michelle Dunne | Deputy Clerk | Corporate Services
County of Dufferin | Phone: 519-941-2816 Ext. 2504 | mdunne@dufferincounty.ca | 55 Zina Street,
Orangeville, ON L9W 1E5

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The Corporation of the County of Dufferin, 55 Zina Street, Orangeville. Ontario.

www.dufferincounty.ca