
APPENDIX A

Environmental Effects Mitigation and Monitoring Plan

Appendix A: Environmental Effects Mitigation and Monitoring Plan

Potential Effect	Affected Feature(s) or Environmental Component	Likelihood	Magnitude	Performance Objective	Mitigation Measures	Monitoring ¹		Contingency Measures
						Monitoring Location	Frequency and Duration	
CONSTRUCTION PHASE								
Cultural Heritage and Archaeological Resources								
Disruption or destruction of cultural or archaeological materials.	Cultural heritage resources. Archaeological resources.	Low Low	Low Low	N/A Minimize impacts to archaeological resources	It is recommended that cultural heritage features be avoided by placing a 50 m buffer around them during construction. If construction must occur within 50 m of cultural heritage resources, a vibration impact assessment will be completed prior to construction by a Professional Engineer. Mitigation for archaeological resources will be implemented as outlined by the Stage 3 and Stage 4 Assessments, if required.	N/A	N/A	Should a previously undocumented cultural heritage or archaeological resource be discovered, alteration of the site will immediately cease, and additional fieldwork will be undertaken by a heritage professional or licensed archaeologist in accordance with Section 48(1) of the <i>Ontario Heritage Act</i> . Should human remains be found, the police or regional coroner's office, the Registrar of Cemeteries and any applicable Aboriginal Communities will be contacted in accordance with the <i>Cemeteries Act</i> .
Natural Heritage Features								
<u>Direct/ Physical Impact</u> Permanent removal of 0.88 ha of Woodland A and Significant	(Assumed) Provincially Significant Wetlands 4, 6, 7, 9, 11, 13, 14, 17, 18, 20,	High. Permanent removal of 0.88 ha of Woodland A and	Low	N/A Continued use of the natural feature by	Cleared lands to be vegetated as soon as practical following construction activities.	ESC measures to be monitored where implemented	Monitor ESC measures regularly during	Repair deficiencies in ESC structures as soon as possible upon

¹ Please refer to the *Natural Heritage Assessment Environmental Impact Study* for additional monitoring information for natural features and to the *Water Bodies Report* for additional monitoring information for water bodies

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<p>Amphibian Breeding (Woodland) Habitat ABHWO1 and Deer Winter Congregation Area Habitat (DWCA1)</p> <p>Potential for removal of 0.1 ha of Treated as Significant Hill's Pondweed Habitat (HP5* and HP6*)</p> <p><u>Indirect/Disturbance Effects</u></p> <p>Change in surface water run-off volumes/ patterns</p> <p>Potential changes to water quality</p> <p>Reduction in quality of habitat</p> <p><u>Incidental</u></p> <p>Mortality to wildlife species from project activities.</p> <p>Obstacle to wildlife movement after construction of the fence.</p> <p>*Denotes features to be treated as significant until pre-construction surveys can be completed.</p>	<p>21, 22, 23 ,26, 29, 30, 32</p> <p>Colonially- Nesting Bird Breeding Habitat (Tree/Shrub) CNTS5*, CNTS6*</p> <p>Turtle Nesting Areas TNA1*</p> <p>Significant and Treated as Significant Amphibian Breeding (Wetland) Habitat ABHWE1*, ABHWE2*, ABHWE5*, ABHWE6*, ABHWE7*, ABHWE8*, ABHWE9*, ABHWE11, ABHWE12*, ABHWE13*, ABHWE14*, ABHWE15*</p> <p>Significant Amphibian Breeding (Woodland) Habitat ABHWO 1, ABHWO 2, ABHWO 3</p> <p>Treated as Significant Hill's Pondweed Habitat HP1*, HP3*, HP4*, H 5*, HP6*</p> <p>Treated as Significant Harlequin Darner Habitat HD 5*, HD6*, HD10*</p> <p>Generalized Candidate Significant Wildlife Habitat</p> <p>*Denotes features to be treated as significant until pre-construction surveys can be completed.</p>	<p>ABHWO1 and DWCA1 habitat.</p> <p>Low likelihood for indirect/disturbance effects to wetlands, woodlands and wildlife habitats.</p>		<p>wildlife where habitat will persist post-construction and to minimize temporary impacts.</p>	<p>Internal project access roads to be constructed at or near grade and the use of impermeable materials</p> <p>Maintain a clearly demarcated boundary where no works occur within 30 m of a wetland boundary.</p> <p>Maximize the distance of all construction equipment used from wetlands; operate machinery in the areas disturbed for construction only, if applicable.</p> <p>A spill contingency plan will be in place for the Project. Spills are to be reported to the Ontario Spills Action Centre (1-800-268-6060).</p> <p>Storage of materials for the Project should not occur within 30 m of a wetland boundary.</p> <p>Secondary containment is to be used for hazardous substances stored in the Project Location.</p> <p><u>Setbacks</u></p> <p>Setbacks between significant woodlands and the project perimeter fence to follow ISA Arborist standards.</p> <p>A minimum 5 m setback to be applied to significant wildlife habitat within the Project Location within areas of operational flexibility.</p> <p><u>Erosion and Sediment Control</u></p> <p>Minimize soil exposure.</p>	<p>according to the ESC plan.</p> <p>Monitor for surface water quality at locations identified in the SWM Plan and/or REA issued by the MOECC</p> <p>Monitoring location for significant natural features in the same location as pre-construction surveys (see Appendix B of the <i>NHA Evaluation of Significance Report</i> and Appendix A of the <i>NHA EIS</i>).</p>	<p>construction.</p> <p>ESC monitoring to occur monthly or after rain events 10 mm or greater (within 24 hrs) until vegetation is re-established.</p> <p>Monitor for surface water quality at a frequency and duration identified in the SWM Plan and/or REA issued by the MOECC</p> <p>One-year of post-construction monitoring for significant wildlife habitat, with the exception of TNA1*.</p> <p>Post-construction monitoring at TNA1* should occur during the first two nesting seasons following the completion of construction to determine if turtles are isolated within feature.</p>	<p>notification of breach in ESC structure and buffer fencing.</p> <p>Health assessment by a qualified biologist if visual evidence suggests loss of significant species from habitats during construction phase.</p>

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					<p>Install erosion and sediment control measures prior to vegetation clearing, grubbing and grading to prevent mobilization of sediment and other contaminants from the Project Location into the surrounding landscape.</p> <p>Restrict vegetation clearing to lands within Project Location identified for development.</p> <p>Where exposed soils occur between wetland features and the Project (relict areas that were agricultural fields), these areas to be monitored to ensure vegetation establishes to add to the wetland buffer where possible.</p> <p>Minimize activities with potential for dust releases, especially during windy and prolonged dry periods.</p> <p>Restore disturbed areas as soon as possible to minimize the duration of soil exposure.</p> <p>Stabilize areas of stockpiled or exposed soils when construction activities are not active (i.e., no works within 30 days scheduled).</p> <p>Minimize vehicle traffic adjacent to wetlands, or exposed soils. All traffic to use designated areas.</p> <p><u>Stormwater Management</u></p> <p>Develop and implement a stormwater management plan to ensure drainage patterns are not significantly altered from existing conditions due to road drainage, reduction in surface permeability, etc.</p>			

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					<p>A plan to address/mitigate soil compaction throughout the Project Location to be developed as part of the detailed design to promote infiltration.</p> <p>Flow retention features may be used in access road ditches to mitigate increases in surface water runoff (e.g., straw bales, or rock check dams).</p> <p>Soil stabilization to occur as soon as practical upon completion of work activities to attenuate runoff,</p> <p>Internal project access roads to be constructed at or near grade and the use of impermeable materials avoided to promote infiltration and surface roughness.</p> <p><u>Vegetation Considerations</u></p> <p>If construction occurs within 5 m of significant habitat during the growing season, the habitat will be searched for the target plant species and each located target plant flagged to increase awareness of its location to avoid incidental trampling.</p> <p><u>Wildlife Considerations</u></p> <p>Construct perimeter fencing prior to installing core project components to prevent entry of larger wildlife within construction area.</p> <p>After perimeter fencing is constructed, a visual search of the Project Location to be undertaken to identify wildlife that may be within fencing.</p>			

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					<p>Limits of construction works to be staked in the field in order to minimize disturbance to the wildlife. Construction envelope to be clearly demarcated and kept as small as possible.</p> <p>Utilize fencing (e.g. Perimeter fencing and/or silt fencing) to deter wildlife from entering the construction site during construction and decommissioning.</p> <p>The construction workforce will be educated on local wildlife that may be encountered on the Project Location and will be instructed to take measures for avoiding wildlife. A protocol will be provided to contractors to follow in the event wildlife is encountered. This protocol will include specific measures for dealing with turtles, breeding birds and other wildlife.</p> <p>Wildlife located within the Project Location will be re-located to an area outside the Project Location (and into an area of appropriate habitat) as necessary.</p> <p>Relocate turtles observed within Wetland 21 to suitable habitat within the general area (i.e., within 1 km).</p> <p>Use of galvanized fencing with chain links large enough for turtle hatchlings to move through following the construction phase. Prevent movement of turtle hatchlings through the perimeter fence during the construction phase to reduce potential for mortality.</p> <p>Minimize impacts to any breeding</p>			

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					<p>birds (April 1 to August 31) by clearing naturalized vegetation outside of the breeding bird season. Should any clearing be required during the breeding bird season, nest searches conducted by a qualified person must be completed 48 hours prior to clearing activities. If nests are found, works within 10 m will cease until nest has fledged. If no nests are present, clearing can occur. This is in accordance with the federal <i>Migratory Bird Convention Act</i>.</p> <p>The area of ABHWO1 habitat associated with Woodland A is to be removed outside of the amphibian breeding season (i.e., April 1- June 30) if seasonal vernal pools are observed prior to clearing activities. A visual inspection of the breeding habitat (i.e., wetland pockets/ pools) will be undertaken prior to removal to verify if 1) habitat occurs and 2) if breeding amphibians are observed. If observed, construction within 30 m of the breeding pool will be delayed until a subsequent site visit confirms no visual evidence of amphibian breeding.</p> <p>Vehicle speeds to be restricted to 15 km/hr or less on the Project site and speed limit signage posted.</p> <p><u>Generalized Candidate Significant Wildlife Habitat</u></p> <p>No access roads are to be constructed or operated within 50 m of the boundaries of generalized habitat for plant species of special concern or amphibian breeding habitat in accordance with Appendix</p>			

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					D of the Natural Heritage Assessment Guide for Renewable Energy Projects (MNR 2012).			
<p><u>Direct/ Physical Impact</u></p> <p>Permanent removal of 0.88 ha of Woodland A and Amphibian Breeding Habitat (Woodland) (ABHWO 1)</p> <p>Permanent removal of 0.88 ha of Deer Winter Congregation Areas DWCA1</p> <p>Permanent removal of 0.88 ha of Woodland Area-sensitive Bird Breeding Habitat (ASBB1)</p> <p><u>Indirect/Disturbance Effects</u></p> <p>Change in surface water run-off volumes/ patterns.</p> <p>Potential changes to water quality.</p> <p>Reduction in quality of habitat.</p> <p><u>Incidental</u></p> <p>Mortality to wildlife species from project activities.</p> <p>Obstacle to wildlife movement after construction of the fence.</p>	<p>Significant Woodlands A, C, D, E, I</p> <p>Deer Winter Congregation Areas DWCA1</p> <p>Amphibian Breeding Habitat (Woodland) ABHWO1, ABHWO2, ABHWO3</p> <p>Woodland Area-sensitive Bird Breeding Habitat ASBB1</p> <p>Treated as Significant Colonially- Nesting Bird Breeding Habitat (Tree/ Shrub) CNTS5*, CNTS6*</p> <p>Treated as Significant Habitat for American Gromwell AG2*</p> <p>Treated as Significant Habitat for Soft-Hairy False Gromwell SHFG4*, SHFG5*, SHFG6*</p> <p>Significant Redheaded Woodpecker Habitat RHW1</p> <p>Generalized Candidate Significant Wildlife Habitat</p>	<p>Permanent removal of 0.88 ha of Woodland A and ABHWO1* habitat. Low likelihood for indirect/disturbance effects to woodlands and wildlife habitats.</p>	<p>High.</p> <p>Low.</p>	<p>Continued use of the natural feature by wildlife and minimized temporary impacts.</p>	<p>Cleared lands to be vegetated as soon as practical following construction activities.</p> <p>Internal project access roads to be constructed at or near grade and the use of impermeable materials</p> <p>A spill contingency plan will be in place for the Project. Spills are to be reported to the Ontario Spills Action Centre (1-800-268-6060).</p> <p>Secondary containment is to be used for hazardous substances stored in the Project Location.</p> <p>Setbacks</p> <ul style="list-style-type: none"> • Setbacks between significant woodlands and the project perimeter fence to follow ISA Arborist standards. • A minimum 5 m setback to be applied to significant wildlife habitat within the Project Location within areas of operational flexibility. <p>Erosion and Sediment Control</p> <p>Minimize soil exposure.</p> <p>Install erosion and sediment control measures prior to vegetation clearing, grubbing and grading to prevent mobilization of sediment and other contaminants from the Project Location into the surrounding landscape.</p> <p>Restrict vegetation clearing to lands within Project Location identified for development.</p>	<p>Staked vegetation Clearing boundary. Around the perimeter of project location where ESC measures implemented.</p> <p>Monitor for surface water run-off flow and evidence of erosion to the wetland area.</p>	<p>Monitoring of woodland clearing boundary to occur when vegetation is being cleared.</p> <p>Monitor ESC measures regularly during construction.</p>	<p>Repair deficiencies in ESC structures as soon as possible upon notification of breach in ESC structure and buffer fencing.</p> <p>Health assessment by a qualified biologist if visual evidence suggests loss of significant species from habitats during construction phase.</p>

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						Monitoring Location	Frequency and Duration	
					<p>Where exposed soils occur between wetland features and the Project (relict areas that were agricultural fields), these areas to be monitored to ensure vegetation establishes to add to the wetland buffer where possible.</p> <p>Minimize activities with potential for dust releases, especially during windy and prolonged dry periods.</p> <p>Restore disturbed areas as soon as possible to minimize the duration of soil exposure.</p> <p>Stabilize areas of stockpiled or exposed soils when construction activities are not active (i.e., no works within 30 days scheduled).</p> <p>At detailed design, efforts will be made to keep the elevation of overhead cable below the height of the trees or on the road opposite the habitats.</p> <p>Stormwater Management</p> <p>Develop and implement a stormwater management plan to ensure drainage patterns are not significantly altered from existing conditions due to road drainage, reduction in surface permeability, etc.</p> <p>A plan to address/mitigate soil compaction throughout the Project Location to be developed as part of the detailed design to promote infiltration.</p> <p>Flow retention features may be used in access road ditches to mitigate increases in surface water runoff</p>			

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					<p>(e.g., straw bales, or rock check dams).</p> <p>Soil stabilization to occur as soon as practical upon completion of work activities to attenuate runoff.</p> <p>Internal project access roads to be constructed at or near grade and the use of impermeable materials avoided to promote infiltration and surface roughness.</p> <p>Vegetation Considerations</p> <p>If construction occurs within 5 m of significant habitat during the growing season, the habitat will be searched for the target plant species and each located target plant flagged to increase awareness of its location to avoid incidental trampling.</p> <p>No woodland removal is proposed for Woodland C, D, E or I. According to the ISA Arborists' Certification Study Guide (2010), a general tree protection zone should be 0.3 m diameter for each 2.5 cm of trunk diameter. Given to dominant size class of trees in the Woodlands is approximately 24 cm DBH, the minimum tree protection distance will be the greater of the drip line or 2.9 m from the trunk.</p> <p>Wildlife Considerations</p> <p>Construct perimeter fencing prior to installing core project components to prevent entry of larger wildlife within construction area.</p> <p>After perimeter fencing is constructed, a visual search of the Project Location to be undertaken to identify wildlife that may be within</p>			

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					<p>fencing.</p> <p>Limits of construction works to be staked in the field in order to minimize disturbance to the wildlife. Construction envelope to be clearly demarcated and kept as small as possible.</p> <p>If possible, avoid clearing vegetation during the breeding bird season to minimize impacts on breeding birds. Should clearing be required during the breeding bird season, nest searches conducted by a qualified person must be completed 48 hours in advance of clearing. If nests are found and the species protected by the Migratory Bird Convention Act, work within 10 m of the nest will cease until the nest has fledged.</p> <p>If there are no nests, then clearing can occur. Construction may occur on cleared lands during the breeding season once vegetation has been removed (if applicable). The majority of the Project Location consists of agricultural fields that were in production in 2014.</p> <p>Utilize fencing (e.g. Perimeter fencing and/or silt fencing) to deter wildlife from entering the construction site during construction and decommissioning.</p> <p>The construction workforce will be educated on local wildlife that may be encountered on the Project Location and will be instructed to take measures for avoiding wildlife. A protocol will be provided to</p>			

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					<p>contractors to follow in the event wildlife is encountered. This protocol will include specific measures for dealing with turtles, breeding birds and other wildlife.</p> <p>Wildlife located within the Project Location will be re-located to an area outside the Project Location (and into an area of appropriate habitat) as necessary.</p> <p>Minimize impacts to breeding birds (April 1 to August 31) by clearing naturalized vegetation outside of the breeding bird season. Should any clearing be required during the breeding bird season, nest searches conducted by a qualified person must be completed 48 hours prior to clearing activities. If nests are found, works within 10 m will cease until nest has fledged. If no nests are present, clearing can occur. This is in accordance with the federal <i>Migratory Bird Convention Act</i>.</p> <p>The area of ABHWO1 habitat associated with Woodland A is to be removed outside of the amphibian breeding season (i.e., April 1- June 30) if seasonal vernal pools are observed prior to clearing activities. A visual inspection of the breeding habitat (i.e., wetland pockets/ pools) will be undertaken prior to removal to verify if 1) habitat occurs and 2) if breeding amphibians are observed. If observed, construction within 30 m of the breeding pool will be delayed until a subsequent site visit confirms no visual evidence of amphibian breeding.</p>			

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					Vehicle speeds to be restricted to 15 km/hr or less on the Project site and speed limit signage posted. Generalized Candidate Significant Wildlife Habitat No access roads are to be constructed or operated within 50 m of the boundaries of generalized habitat for plant species of special concern or amphibian breeding habitat in accordance with Appendix D of the Natural Heritage Assessment Guide for Renewable Energy Projects (MNRF 2012).			
Water Bodies								
Vegetation clearing and grading may cause soil erosion and mobilization resulting in increased sedimentation, turbidity and inputs of nutrients and/or contaminants in adjacent water bodies, which may affect fish habitat (e.g., spawning areas, food sources, benthic composition).	Tributary 1 Tributary 2 Stream 1 Stream 2 Stream 3 Stream 5 Seepage Area 1 Seepage Area 2 Seepage Area 3	Low	Low	Minimization of surface runoff and soil mobilization to receiving water bodies.	<ul style="list-style-type: none"> • Appropriate grading techniques will be used to prevent increased run-off potential, and to maintain positive drainage. Changes to land contours will be minimized; physical land alterations (i.e., grading, cut and fill, etc.) required will be designed to remain consistent with the pre-existing drainage patterns. • Mitigation measures from the ESC plan will be implemented, including: • Identifying and protecting all trees and plants not shown for removal that are contained within the construction area; • Maintaining existing riparian vegetation buffers around water bodies. With the exception of Stream 3 and Seepage Area 2, all 	At areas where ESC measures are constructed.	Checks to occur monthly and/or after rain events greater than 10 mm until vegetative cover is established.	Breaches to ESC measures will be repaired within 24 hours of identification.

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					<p>project components are a minimum of 30 m away from a water body. For Stream 3 and Seepage Area 2, the water bodies are no within 30 m of a solar panel; the closest project component is an access road 22 m from the water body. This is similar to pre—construction conditions as there is a laneway currently in place; and,</p> <ul style="list-style-type: none"> Installing silt fences (placed at the downslope side of proposed grading activities, proposed stockpile areas, and the site limits) and necessary erosion control measures prior to commencing construction activities. 			
Construction of access roads and soil compaction may cause decreased surface permeability and redirection of runoff, and/or soil erosion and mobilization resulting in increased sedimentation, turbidity and inputs of nutrients and/or contaminants into adjacent water bodies, potentially impacting water quality and fish habitat (e.g., spawning areas, food sources, benthic composition).	Stream 1 Stream 2 Stream 3 Stream 5 Seepage Area 1 Seepage Area 2 Seepage Area 3	Low	Low	Maintenance of surface infiltration and minimization of surface runoff and soil mobilization to receiving water bodies.	<ul style="list-style-type: none"> Access roads will be designed to promote infiltration; roadways within the Project Location will be constructed to promote water infiltration. Mitigation measures from the ESC plan may be implemented, including: Maintaining existing riparian vegetation buffers around water bodies; Installing silt fences (placed at the downslope side of proposed grading activities, proposed stockpile areas, and the site limits) and all necessary erosion control measures prior to commencing construction activities; and Reducing soil compaction by 	At access roads and areas where ESC measures are constructed.	Checks to occur monthly and/or after rain events greater than 10 mm until vegetative cover is established.	Breaches to ESC measures will be repaired within 24 hours of notification.

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					scarifying land (or by other appropriate means) following the construction phase.			
Temporary water takings during installation of underground project components may affect local hydrological regime (groundwater), and overland dispersal of water during temporary water takings may increase surface runoff and increase erosion and sedimentation to adjacent water bodies.	Tributary 1 Stream 1 Stream 2 Stream 5 Seepage Area 1 Seepage Area 3	Low	Low	Minimization of impacts to hydrological regime. Maintenance of surface runoff volume.	The rate and timing of water pumping will be controlled. Water will be pumped onto vegetated surfaces if possible or into a temporary retention basin, ensuring pumped water re-infiltrates the ground without causing increased run-off or significant changes to local hydrological regime. Water takings will be restricted to less than 50,000 litres per day. Temporary water taking is not anticipated in appreciable volumes for this Project. Temporary water takings activities may be required after significant rainfall events, etc. ESC measures will be implemented and monitored as indicated above.	Where installation requires temporary water takings.	Once during construction/during installation of project components.	If temporary water takings cause increased soil mobilization or surface run-off in areas of exposed soil, temporary water taking activities will be stopped until additional ESC measures can be implemented. If water taking needs to exceed 50,000 L/day, the MOECC will be consulted.
Storage and use of construction materials and equipment may cause contamination of soils and/or water bodies from accidental spills, from surface runoff, from wind, or from the transport of materials by equipment and machinery onto paved public roads and subsequent surface runoff or wind.	Beatty Saugeen River Tributary 1 Tributary 2 Stream 1 Stream 2 Stream 4 Stream 3 Stream 5 Seepage Area 1 Seepage Area 2 Seepage Area 3	Low	Low	Ensure equipment and materials are stored more than 30 m from a water body, with surrounding silt fencing. Ensure mud mats are in place and preventing off-site transport. Ensure any materials transported off-site are washed away from water bodies. Keep public roads	Construction equipment and materials will be primarily stored in construction laydown area(s), protected by silt fencing. No equipment or materials will be stored within 30 m of a water body. Utilize best management practices to reduce the transport of materials (e.g. Soil, vegetation, etc.) off site. This may include installing construction entrance (mud mat) at vehicle access points adjacent to paved roads or as otherwise agreed to with the municipality.	Main facility entrance points (on Grey Road 9, Side Road 39 Southgate, Side Road 41 Southgate, and Southgate Road 22) and in the construction laydown areas.	Regularly, during the construction phase.	If soil is mobilized onto paved public roads by equipment, clearing activities to avoid moving soil into nearby water bodies

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				clear of construction debris.	Following the construction phase and prior to vegetation establishment, areas of soil compaction will be rectified by methods such as scarification, etc. A spill response plan and spill kits will be developed and kept on-site during construction.			
Air, Odour and Dust								
Deposition of dust on adjacent lands.	Neighbouring land uses.	Low	Low	Minimize dust and odour resulting from construction activities.	Vehicle idling will be limited where possible. Equipment will be maintained in good working order. Vehicular traffic will be minimized in areas of exposed soils and high traffic areas will be stabilized with fresh gravel. Gravel roads will be watered down during construction as needed to reduce dust. Construction activities causing increased odour or dust will be carried out in accordance with applicable regulations and standards.	N/A	N/A	N/A
Odour nuisance.	Neighbouring landowners.							
Noise								
Increased noise disturbance due to construction activities such as compacting and grading, and driving of foundation piles for solar panel supports.	Neighbouring landowners	Moderate	Low	Minimization of noise resulting from construction.	Vehicle idling will be prohibited, where possible. Noise levels within the Township of Southgate are governed by Bylaw 25-2006. Noise as a result of construction will not be permitted within the hours of 9PM to 7AM, except in the case of an emergency.	N/A	N/A	Documentation of any complaints as outlined in the Design and Operations Report (Section 8.3.2) and follow up as required.

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					Construction activities resulting in noise emissions will typically take place during normal business hours. Should work need to be conducted on weekends, this work will be done in accordance with local regulations and policies to minimize disturbance to the surrounding community. All equipment will be maintained in good working order, with muffler devices, where appropriate. Any noise complaints will be investigated as discussed in the Communications Plan (see the Design and Operations Report).			
Land Use and Resources								
Removal of land from agricultural production.	Land use at the Project Location.	High	Moderate	N/A	N/A	N/A	N/A	Lands could be restored to their pre-construction condition, or a similar state at the time of decommissioning and adjacent lands will most likely continue to be used for agriculture.
Visual impact.	Neighbouring landowners.	Low	Low	N/A	Required setbacks from all neighbouring landowners have been applied. Visual impacts during construction will be temporary in nature and may be mitigated through the installation of visual screenings.	N/A	N/A	N/A
Provincial and Local Infrastructure								
Periodic traffic disruption.	Grey Road 9, Southgate Sideroad 39, Southgate Sideroad 41, Southgate	Moderate	Low	Limit traffic flow disruption.	If necessary a Traffic Management Plan will be prepared during detailed design in consultation with the	N/A	N/A	N/A

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	Road 22				Township and County.			
Damage to local roads.	Grey Road 9, Southgate Sideroad 39, Southgate Sideroad 41, Southgate Road 22	Moderate	Low	N/A	Roads will be returned to or maintained at pre-construction condition in accordance with consultation with the Township of Southgate.	N/A	N/A	N/A
Temporary power outages to local customers during commissioning of the facility.	Neighbouring landowners and local community.	Low	Low	N/A	Any mitigation measures to minimize outages will be undertaken by Hydro One.	N/A	N/A	N/A
Public Health and Safety								
Noise, vibration and equipment emissions.	Neighbouring landowners and other members of the community.	Low	Low	N/A	The Project will comply with the Occupational Health and Safety Act regulation requirements during the construction phase. All equipment will be operated by licensed contractors. All construction activities will be conducted by licensed contractors in accordance with required standards and codes. All activities will abide by local laws and regulations. The contractor will create a site-specific health and safety plan. The contractor will also provide job safety assessment information prior to construction start up. All equipment will be maintained in good working order. The Project Location will be under surveillance during construction and a fence with locked gates will be installed to ensure public safety. Restricted areas will also be flagged, as appropriate. Southgate Solar LP will work with the	N/A	N/A	N/A
Injury or death to construction workers or members of the public due to accidents related to construction equipment or traffic.	Construction workers. Neighbouring landowners and other members of the community.	Low	High	No injuries or deaths		N/A	N/A	Implementation of a site-specific health and safety plan Emergency Response and Communications Plans.
Fires (electrical, wildfire, etc.) at the Project Location during construction.	Construction workers. Neighbouring landowners and other members of the community. Municipal firefighters.	Low Low Low	Moderate Low Moderate	Minimize fire potential at Project Location.		N/A	N/A	Implementation of Emergency Response and Communications Plans.

Potential Effect	Affected Feature(s) or Environmental Component	Likelihood	Magnitude	Performance Objective	Mitigation Measures	Monitoring ¹		Contingency Measures
						Monitoring Location	Frequency and Duration	
					<p>Township of Southgate fire department to develop an emergency response plan for the Project Location that includes the construction phase. This plan will be outlined in the Emergency Response and Communications Plans. (See the Design and Operations Report).</p> <p>An Emergency Response and Communications Plan will be prepared in the event of an emergency on the site and will provide key contact information for relevant responders, regulators, landowners and other stakeholders.</p>			
Areas Protected Under Provincial Plans and Policies								
No potential negative effects are anticipated to the Greenbelt Protected Countryside, Greenbelt Natural Heritage System, Oak Ridges Moraine and/or Lake Simcoe Watershed.								
OPERATIONS PHASE								
Natural Heritage Features								
In addition to the potential effects listed below, unanticipated <u>major</u> maintenance activities have the potential to cause negative environmental effects as described for the construction phase of the Project and the same mitigation and monitoring activities would apply.								
Leakage/Spill of Transformer Oil Release of dust, vehicle emissions and soil particles into adjacent woodlands, wetlands, and wildlife habitats.	All	Low.	Low.	Avoidance of deleterious materials entering significant natural heritage features.	<p>A spill contingency plan will be in place for the Project. Spills are to be reported to the Ontario Spills Action Centre (1-800-268-6060).</p> <p>Secondary containment is to be used for hazardous substances stored in the Project Location.</p> <p>All vehicles, machinery and equipment must be maintained and</p>	<p>Transformer locations (MV stations and substation).</p> <p>Vehicles entering and working at the site.</p>	Throughout project lifespan at regular intervals.	<p>The Emergency Response and Communication Plan will be followed should a spill occur (as outlined in the Design and Operations Report).</p> <p>In the event of a spill from a transformer the area of the spill will be remediated.</p> <p>Notification of MOECC (Spills</p>

Potential Effect	Affected Feature(s) or Environmental Component	Likelihood	Magnitude	Performance Objective	Mitigation Measures	Monitoring ¹		Contingency Measures
						Monitoring Location	Frequency and Duration	
					<p>equipped with emission controls, as applicable by provincial standards.</p> <p>Construction work shall be carried out as according to CEPA, and applicable air emission regulations and by-laws.</p> <p>Implement best management practices (BMP's) and establish an emergency spill plan.</p> <p>Ensure that emergency spill kit is available at the Project Location at all times in the even that a spill occurs. All spills and leaks of deleterious substances must be immediately contained and cleaned up in accordance with provincial regulatory requirements and reported immediately to the Ontario Spills Action Centre (1-800-268-6060).</p> <p>Excess material will be removed from the site.</p> <p>No refuelling or maintenance of vehicles within 30 m of natural features.</p> <p>Maintain log book of any spills and mitigation measures.</p> <p>A crushed stone track pad, or similar, will be installed at the site access to reduce tracking of sediment into adjacent roadways during construction activities. Street sweeping and cleaning may be scheduled if necessary.</p>			Action Centre) and Saugeen Valley Conservation Authority in the event of a spill.

Potential Effect	Affected Feature(s) or Environmental Component	Likelihood	Magnitude	Performance Objective	Mitigation Measures	Monitoring ¹		Contingency Measures
						Monitoring Location	Frequency and Duration	
Water Bodies								
In addition to the potential effects listed below, unanticipated <u>major</u> maintenance activities have the potential to cause negative environmental effects as described for the construction phase of the Project and the same mitigation and monitoring activities would apply.								
Facility operations may cause an overall decrease in permeability of Project Location due to the impervious surfaces of the solar panels and soil compaction from construction activities. A decrease in site permeability may lead to an increase in surface runoff, potentially contributing to increased erosion, sedimentation, and turbidity to receiving waters.	Beatty Saugeen River Tributary 1 Tributary 2 Stream 1 Stream 2 Stream 3 Stream 4 Stream 5 Seepage Area 1 Seepage Area 2 Seepage Area 3	Moderate	Low	Re-establishment of vegetation providing minimization of surface runoff and soil mobilization to receiving water bodies.	Each solar panel will be elevated, tilted and mounted to a rack. The area below the panels will be vegetated with low-growing vegetation, either through seeding or natural re-vegetation. Following the construction phase and prior to vegetation establishment, areas of soil compaction should be rectified by methods such as scarification, etc. ESC controls will remain in place until soils are stabilized by vegetative growth.	Throughout the Project Location.	Periodically during growing season (May 1 to August 30) until evidence of growth is observed, then monthly until all areas are vegetated or re-vegetated.	If the performance measures are not met, areas with no growth will be vegetated using a native seed mix. ESC measures will be implemented and maintained until vegetation is observed to be established and thriving.
Operations may cause contamination of soils with transformer fluids by accidental spills, and/or contamination of water bodies from surface runoff of fluids or of contaminated soils, potentially impacting water quality and fish habitat.	Tributary 1	Low	Moderate	Avoidance of deleterious materials entering a water body.	Transformers are to be located more than 30 m from water bodies. Spill containment structures will be constructed in association with the transformer substation. The Emergency Response and Communication Plan will be followed should a spill occur (as outlined in the Design and Operations Report). The MOECC (Spills Action Centre) will be notified in the event of a spill.	Transformer locations (inverters and substation)	Throughout Project lifespan.	The Emergency Response and Communication Plan will be followed should a spill occur (as outlined in the Design and Operations Report). Notification of MOECC (Spills Action Centre) in the event of a spill.
Air, Odour and Dust								
Operation of the facility will have no impact on air, odour or dust with the exception of unanticipated <u>major</u> maintenance activities, which have the potential to cause negative environmental effects as described for the construction phase of the Project. The same mitigation and monitoring activities would apply.								

Potential Effect	Affected Feature(s) or Environmental Component	Likelihood	Magnitude	Performance Objective	Mitigation Measures	Monitoring ¹		Contingency Measures
						Monitoring Location	Frequency and Duration	
Noise								
In addition to the effect listed below, unanticipated <u>major</u> maintenance activities have the potential to cause negative environmental effects as described for the construction phase of the project and the same mitigation and monitoring activities would apply.								
Increased noise disturbance due to operation of the solar facility	Neighbouring landowners.	Low	Low	Minimize the amount of noise caused by the inverters and substation to comply with the MOECC publication NPC-232.	Perform a noise audit in accordance with the requirements of the MOECC publication NPC-233, if necessary. No mitigation measures are required to comply with the MOECC publication NPC-232 requirements.	N/A	N/A	On-site noise testing and re-modelling, if required. Construction of noise barriers, if required.
Land Use and Resources								
There are no potential negative effects anticipated to land use and resources during the operations phase of the Project.								
Provincial and Local Infrastructure								
There are no potential negative effects anticipated to provincial and local infrastructure during the operations phase of the Project.								
Public Health and Safety								
In addition to the effects listed below, unanticipated major maintenance activities have the potential to cause negative environmental effects as described for the construction phase and the same mitigation and monitoring activities would apply.								
Electrocution or other injury from operating components.	Maintenance employees. Members of the public.	Low Low	Moderate Low	Minimize potential for electrocution or injury to public and employees. N/A	The Project will comply with the Occupational Health and Safety Act regulation requirements during maintenance activities. The Project Location will be fenced as per Electrical Safety Authority (ESA) requirements to prevent unauthorized access.	N/A	N/A	Implementation of Emergency Response and Communications Plans, should an injury occur.

Potential Effect	Affected Feature(s) or Environmental Component	Likelihood	Magnitude	Performance Objective	Mitigation Measures	Monitoring ¹		Contingency Measures
						Monitoring Location	Frequency and Duration	
Fire (e.g., electrical or wildfires) at the Project Location during operation.	Neighbouring landowners and other members of the community.	Low	Low	Minimize potential for fires at the Project Location	Southgate Solar LP will work with the local fire department to develop an emergency response plan for the Project Location, which will outline the Emergency Response and Communications Plans. (See the Design and Operations Report). This plan will include measures such as regular maintenance of vegetation and electrical equipment. The Emergency Response and Communications Plans will outline key contact information for emergency responders, landowners, contractors and stakeholders.	Project Location.	Ongoing (remotely)	Implementation of Emergency Response and Communications Plans.
	Maintenance workers.	Low	Low					
	Municipal firefighters.	Low	Moderate					
Provincial Plans and Policies								
No potential negative effects are anticipated to the Greenbelt Protected Countryside, Greenbelt Natural Heritage System, Oak Ridges Moraine and/or Lake Simcoe Watershed.								
DECOMMISSIONING PHASE								
Natural Heritage Features								
Decommissioning activities have the potential to cause negative environmental effects as described for the construction phase and the same mitigation and monitoring activities would apply with the exception that the final site restoration activities will be returned to a functional state. See Table 10 in the Natural Heritage Assessment Environmental Impact Study for a list of all potential environmental effects that may occur during decommissioning and mitigation measures for significant/provincially significant natural features.								
Water Bodies								
In addition to the effect listed below, decommissioning activities have the potential to cause negative environmental effects similar to those described for the construction phase and the same mitigation and monitoring activities would apply.								
Removal of above-ground project components may cause increased erosion, sedimentation, and turbidity to receiving water bodies, potentially	Beatty Saugeen River Tributary 1 Tributary 2 Stream 1	Low	Low	Minimization of surface runoff and soil mobilization to receiving water	An erosion and sediment control (ESC) plan will be developed for the site and implemented prior to decommissioning activities.	Areas where ESC measures are implemented.	Monthly and/or after rain events greater than 10 mm until vegetative cover is established (if required).	If it is determined during the routine checks, that ESC measures are not sufficient, work will stop until

Potential Effect	Affected Feature(s) or Environmental Component	Likelihood	Magnitude	Performance Objective	Mitigation Measures	Monitoring ¹		Contingency Measures
						Monitoring Location	Frequency and Duration	
impacting water quality and fish habitat.	Stream 2 Stream 3 Stream 4 Stream 5 Seepage Area 1 Seepage Area 2 Seepage Area 3			bodies.				appropriate ESC measures can be established. If exposed soil shows signs of mobilization, appropriate corrective actions will be taken to prevent entry of soil into a water body.
Removal of access roads may cause increased sedimentation and turbidity in receiving water bodies due to potential temporary changes in surface runoff regimes, potentially impacting water quality and fish habitat.	Stream 1 Stream 2 Stream 3 Stream 5 Seepage Area 1 Seepage Area 2 Seepage Area 3	Low	Low	Minimization of surface runoff and soil mobilization to receiving water bodies. Restoration of surface runoff regimes.	An erosion and sediment control plan will be developed for the site and installed prior to decommissioning activities. Access roads will be graded (at the discretion of the landowner) to match the surrounding landform. The gravel road base will be removed (at the discretion of the landowner) and replaced with native soils. Land will be allowed to re-vegetate naturally or will be seeded to stabilize soils.	Areas where ESC measures are implemented and along access roads.	Monthly and/or after rain events greater than 10 mm until vegetative cover is established (if required).	If it is determined during the routine checks, that ESC measures are not sufficient, work will stop until appropriate ESC measures can be established. If exposed soil shows signs of mobilization, appropriate corrective actions will be taken to prevent entry of soil into a water body.
Air, Odour and Dust								
Decommissioning activities have the potential to cause negative environmental effects similar to those described for the construction phase and the same mitigation and monitoring activities would apply.								
Noise								
Decommissioning activities have the potential to cause negative environmental effects similar to those described for the construction phase and the same mitigation and monitoring activities would apply.								
Land Use and Resources								
There are no anticipated negative environmental effects to land use and resources during the decommissioning phase of the Project. At the time of decommissioning, the land will be restored to its pre-construction condition or a similar state as determined through consultation with the landowners and in accordance with zoning requirements. All project components will be removed and the Project Location lands will be restored through the spreading of topsoil, re-vegetation and seeding, or appropriate methods dependant								

Potential Effect	Affected Feature(s) or Environmental Component	Likelihood	Magnitude	Performance Objective	Mitigation Measures	Monitoring ¹		Contingency Measures
						Monitoring Location	Frequency and Duration	
on the anticipated land use. Materials will be reused and recycled where available. See Section 5 of the <i>Decommissioning Plan Report</i> .								
Public Health and Safety								
In addition to the effect listed below, decommissioning activities have the potential to cause negative environmental effects similar to those described for the construction phase and the same mitigation and monitoring activities would apply.								
Hazards and health impacts from debris left on-site.	Project Location lands Neighbouring lands Persons encountering hazards.	Low	Low	N/A	The site will be cleared of debris and hazards and will be returned to a functional state.	N/A	N/A	N/A
Provincial Plans and Policies								
No potential negative effects are anticipated to the Greenbelt Protected Countryside, Greenbelt Natural Heritage System, Oak Ridges Moraine and/or Lake Simcoe Watershed.								

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