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Regarding Part II order request re: Cambridge West Master Environmental Servicing Plan (MESP) to request that a Class EA planning process be bumped up to a Schedule D Class EA due to overwhelming ecological constraints with the presence of multiple threatened and endangered species at risk.

Why A Ministerial Order is Warranted:

I respectfully request that the Minister initiate an order ensuring that the following strategies are implemented:

- reclassification of the project from a Schedule C to a Schedule D process to address the complex nature of this proposal.
- that required studies for all Species At Risk in the area are carried out appropriately
- Require the Region to conduct a “detailed receiving water assessment”, for the purpose of ‘avoiding adverse impacts’ to nearby water users, municipal drinking water supplies, aquatic habitats, fish spawning and fish migration routes.
- that mapping of protected zones includes reasonable delineation of known dispersal areas.
- that the data of the EA be peer and publicly reviewed
- that a salt mitigation strategy is created to restore the water quality of this area to protect Species At Risk, fresh water fish, water intakes and wells.
- that the proper authorization is secured for all the Species At Risk adversely impacted by this proposal
- that the technical requirements for the proposed road expansion be finally determined only after these steps so the final design can take the studies fully into account in order to reasonably mitigate risks and costs.

These Environmental Assessments are required for the following reasons:

Issue 1: Road Salt Impacts

Issue 2: Endangered Species CONFIRMED in the area.

Issue 3: Waterloo Region and the Guelph MNR's history of flawed data regarding Jefferson Salamanders

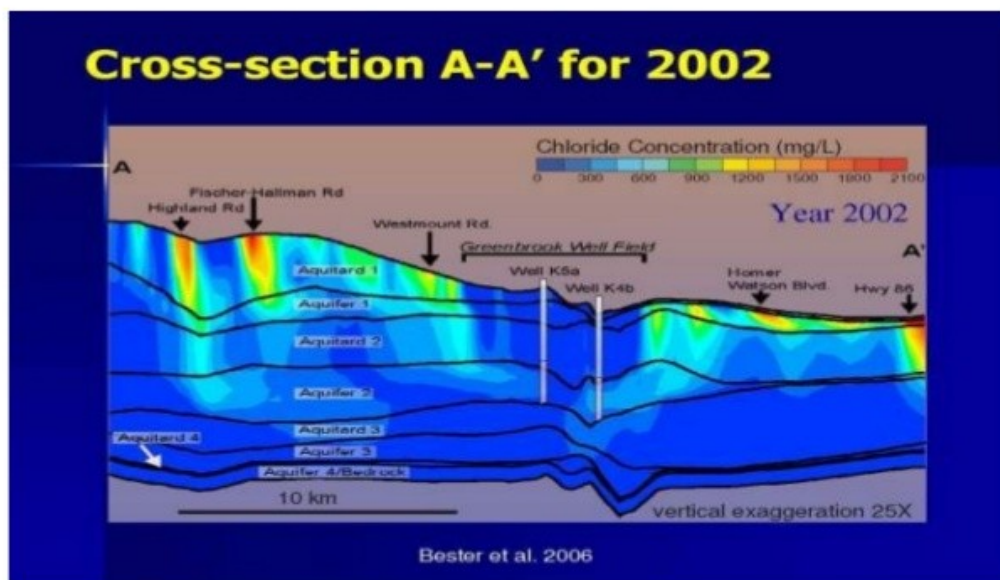
Issue 4: Non-compliance with Species At Risk Act and Endangered Species Act

Issue 1: ROAD SALT & NON SALT DE-ICER IMPACTS

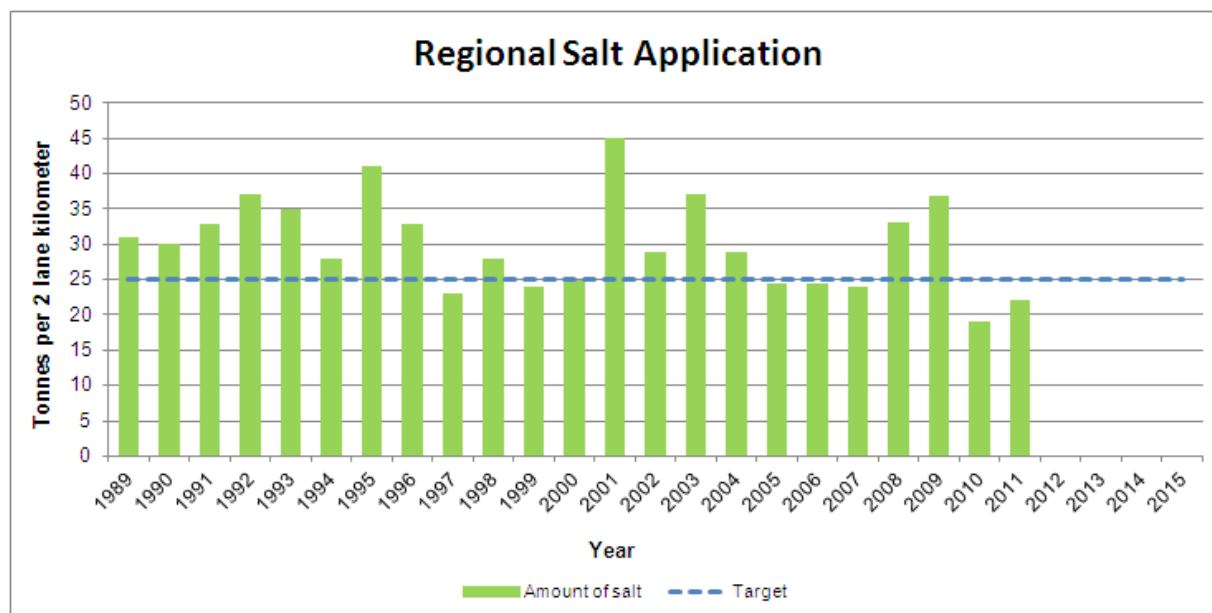
In the City of Kitchener, an assessment is currently underway on four well fields where chloride levels are the highest. This assessment will evaluate the cost effectiveness of different de-icing application techniques and/or water supply treatment option should sodium and chloride levels rise above the Ontario Drinking Water Standards.

Attachment 1 features an article about the high salt levels in our wells and how it poses a risk to animals and **Attachment 2** notes that people with high blood pressure or congestive heart failure should check with their doctors before drinking local tap water due to the high salt content.

What goes in the ground will head to wells with draw down effects regardless of topography. Professor Mike Stone: chloride loadings to Waterloo Regional wells reveals this fact.



Most wells in Waterloo Region already have high salt levels and show increasing trends. The highest levels show up in the urban core where road density is high. Levels that are very high (several thousand mg/L) have been found in snow pipes removed from by the Region of Waterloo and in shallow groundwater adjacent to the roadways. Approximately 10% of Regional wells are exceeding 250mg/L as mandated by the Ontario Drinking Water Standards. See **Attachment 3**.



The annual target for road salt applications in the Region of Waterloo is 25 tonnes per 2 lane kilometre of road (established in 2003/2004).

Attachment 4: Cambridge West MESP Natural Environment Study November 2013 by Ecoplans states:

9.3.1.3

Water Quality Chlorides

Dissolved chlorides are not removed through stormwater treatment and there is potential for increased salt loading in features within / adjacent to urban areas. Existing chloride levels were measured as part of the current study (MTE, LVM), with key results summarized in Section 5.4.2.2. Groundwater concentrations (as reported by LVM) were generally consistent with surface water chloride measurements (as reported by MTE) with increased concentrations near Blenheim Road, likely due to salt loading from the road. A conservative chloride impact assessment was undertaken (MTE 2013) to assess potential salt-loading concerns with respect to Reasonable Use Criteria (MOE) for groundwater. In assessing potential impacts under post-development conditions, MTE considered 2 scenarios:

1. A winter by-pass whereby winter runoff from SWM ponds 1 and 2 will by-pass the receiving wetlands through redirection to an existing storm sewer (Princess Street) or to Devil's Creek at Blenheim Road.
2. No winter by-pass, winter runoff will enter wetland features. The winter by-pass is intended to divert the high salt runoff from winter salt application periods from the wetland features.

Within the DSA, increased chloride concentrations are anticipated in Pond 3 and Pond 2 due to increased road area and associated salting – with direct loading via SWM discharge (scenario 2) and/or saltspray from adjacent road areas (scenario 1 and 2). Potential impacts to wetlands from increased salt loading can include: increased monotype coverage of more salt-tolerant species (Zedler and Kercher 2004); decreased amphibian diversity and abundance (Sadowski 2000; Hecnar and M'Closkey 2012; Collins and Russel 2009; Sanzo and Hecnar 2006); decreased reproductive success of amphibians (Snodgrass et al 2008; Turtle 2000; Karraker et al 2008); and in extreme cases of acute chloride concentrations, mortality (Snodgrass et al 2008; Sanzo and Hecnar 2006; Collins and Russel 2009). Chloride concentrations at which impacts to amphibian diversity, breeding and success may occur vary in literature; however as a conservative indication, a persistent concentration of >200mg/L may have some impact on amphibians. Proposed groundwater concentrations, based on the chloride impact assessment undertaken by MTE, fall below reported Reasonable Use Criteria (RUC) of 126 mg/L for the study area and below persistent concentrations with potential impacts to amphibian species for both Scenario 1 and 2 (winter bypass and no winter bypass). However, further consideration of potential impacts under both scenarios, such as localized salt-loading at outlet locations and specific consideration of feature sensitivity should be considered at future detailed planning levels. Concentrations immediately adjacent to Blenheim Road where salt spray and existing road-side run-off is high under existing conditions, will remain so under proposed conditions. Other areas adjacent to proposed collector roads within the development area will experience increased salt inputs.

To mitigate, chloride impact assessments and mitigation plans should be prepared in support of future planning applications.

The final plan admits there currently is no chloride impact assessment or mitigation plan.

The plan admits they intend to capture and divert runoff to Barrie's Lake and this will augment water flow and flow rates, water quality including pH balance, water volumes and temperatures of the receiving waters. This will impact the biodiversity within Barrie's Lake and the connecting trout fisheries.

Area residents and land owners of the Barrie's Lake area oppose this project. See **Attachment 5**, letter from Sue Stubleby and Bernice Beal of 1145 Roseville Road Cambridge. These two citizens are part of a larger community group known as CRAND: Concerned Residents Association of North Dumfries who are raising awareness about the Barrie's Lake issues. They are also very active in securing the protection of turtles in this area. To read about this group see **Attachment 6**.

The need is there to secure the establishment of appropriate runoff criteria grounded in the assimilative capacity of these waters to prevent deleterious impacts on the aquatic and herptofaunal communities. For example, the EA process is intended to identify, assess and mitigate potential environmental impacts during the planning stages of a project. The proponents cannot assess and mitigate what they have not identified nor can we secure a reasonable judiciary review with the absence of that data.

The Regions' failure to carry out an appropriate baseline receiving water study along with a clear mitigation strategy is a violation of various MOE policies and guidelines including Water Management Policies, Guidelines & Provincial Water Quality Objectives, July 1994.

There appears to be a violation of sections 6.1 (2) (iii) of the Environmental Assessment Act. The Class EA process depends upon proponent self-policing. If proponents are allowed to ignore the Municipal Class EA Act requirements, the class EA process becomes a meaningless exercise.

Supporting Legislation

Regional Official Plan, as approved, with modifications on Dec. 22, 2010

Source Water Protection

Waterloo Region is unique in Ontario in that it is the largest urban municipality to rely almost exclusively on groundwater supplies for its drinking-water. Approximately three quarters of all the region's drinking-water comes from over one hundred municipal wells, many of which tap into rich aquifers sustained by the Waterloo Moraine. The remaining quarter of the region's drinking-water is drawn from the Grand River. Protecting these valuable water resources from contamination and from land uses that could hinder groundwater recharge is essential to maintaining human health, economic prosperity and a high quality of life in the Region.

CHAPTER 8

Overall Goal – Protect, maintain and wherever feasible, enhance surface water and groundwater resources to ensure that a municipal drinking-water supply system continues to provide a sufficient quantity and quality of drinking-water.

Objectives:

8.1 Protect existing and future sources of drinking water from incompatible land uses.

8.2 Maintain and, wherever feasible, enhance the quantity and quality of water infiltration and recharge to groundwater aquifers.

8.3 Minimize the potential for contamination, including potential contamination from de-icing salts, on sources of municipal drinking-water.

8.4 Promote informed stewardship of Source Water Protection Areas in collaboration with the Province, Area Municipalities and Grand River Conservation Authority.

Provincial Policy Statement 2005

2.1 Natural Heritage

2.1.1 Natural features and areas shall be protected for the long term.

2.1.2 The diversity and connectivity of natural features in an area, and the long-term *ecological function* and biodiversity of *natural heritage systems*, should be maintained, restored or, where possible, improved, recognizing

linkages between and among *natural heritage features* and *areas*, *surface water features* and *ground water features*.

2.1.3 *Development and site alteration* shall not be permitted in:

- 1 a *significant habitat of endangered species and threatened species;*
- 2 b *significant wetlands in Ecoregions 5E, 6E and 7E1; and*
- 3 c *significant coastal wetlands.*

2.1.4 *Development and site alteration* shall not be permitted in:

- 1 *significant wetlands in the Canadian Shield north of Ecoregions 5E, 6E and 7E1;*
- 2 *significant woodlands south and east of the Canadian Shield2 ;*
- 3 *significant valleylands south and east of the Canadian Shield2;*
- 4 *significant wildlife habitat; and*
- 5 *significant areas of natural and scientific interest*

unless it has been demonstrated that there will be no *negative impacts* on the natural features or their *ecological functions*.

2.1.5 *Development and site alteration* shall not be permitted in *fish habitat* except in accordance with *provincial and federal requirements*.

2.1.6 *Development and site alteration* shall not be permitted on *adjacent lands* to the *natural heritage features and areas* identified in policies 2.1.3, 2.1.4 and 2.1.5 unless the *ecological function* of the *adjacent lands* has been evaluated and it has been demonstrated that there will be no *negative impacts* on the natural features or on their *ecological functions*.

2.2 Water

2.2.1 Planning authorities shall protect, improve or restore the *quality and quantity of water* by:

- 4 a using the *watershed* as the ecologically meaningful scale for planning;
- 5 b minimizing potential *negative impacts*, including cross-jurisdictional and cross-*watershed* impacts;
- 6 c identifying *surface water features, ground water features, hydrologic functions and natural heritage features and areas* which are necessary for the ecological and hydrological integrity of the *watershed*;
- 7 d implementing necessary restrictions on *development and site alteration* to:
 1. protect all municipal drinking water supplies and *designated vulnerable areas*; and
 2. protect, improve or restore *vulnerable* surface and ground water, *sensitive surface water features and sensitive ground water features*, and their *hydrologic functions*;
- 8 e maintaining linkages and related functions among *surface water features, ground water features, hydrologic functions and natural heritage features and areas*;
- f promoting efficient and sustainable use of water resources, including practices for water conservation and sustaining water quality; and
- 9 g ensuring stormwater management practices minimize stormwater volumes and contaminant loads, and maintain or increase the extent of vegetative and pervious surfaces.

2.2.2 *Development and site alteration* shall be restricted in or near *sensitive surface water features* and *sensitive ground water features* such that these features and their related *hydrologic functions* will be protected, improved or restored.

Mitigative measures and/or alternative development approaches may be required in order to protect, improve or restore *sensitive surface water features, sensitive ground water features*, and their *hydrologic functions*.

Federal Fisheries Act

36. (4), no person shall deposit or permit the deposit of a deleterious substance of any type in water frequented by fish or in any place under any conditions where the deleterious substance or any other deleterious substance that results from the deposit of the deleterious substance may enter any such water.

37. (1) If a person carries on or proposes to carry on any work, undertaking or activity that results or is likely to result in serious harm to fish that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery, or in the deposit of a deleterious substance in water frequented by fish or in any place under any conditions where that deleterious substance or any other deleterious substance that results from the deposit of that deleterious substance may enter any such waters, the person shall, on the request of the Minister — or without request in the manner and circumstances prescribed by regulations made under paragraph (3)(a) — provide the Minister with any plans, specifications, studies, procedures, schedules, analyses, samples, evaluations and other

information relating to the work, undertaking or activity, or to the water, place or fish habitat that is or is likely to be affected by the work, undertaking or activity, that will enable the Minister to determine

(a) whether the work, undertaking or activity results or is likely to result in any serious harm to fish that are part of a commercial, recreational or Aboriginal fishery, or to fish that support such a fishery, that constitutes or would constitute an offence under subsection 40(1) and what measures, if any, would prevent that result or mitigate its effects; or

(b) whether there is or is likely to be a deposit of a deleterious substance by reason of the work, undertaking or activity that constitutes or would constitute an offence under subsection 40(2) and what measures, if any, would prevent that deposit or mitigate its effects.

In Waterloo Region, road salts close wells, we have legacy contamination issues to deal with and 13 sewage treatment plants are dumping partially treated sewage into the Grand River. Taxpayers are paying 100's of millions to clean this up but to make things cheaper, we need clean water going into the ground to dilute water treatment costs.

Jefferson salamanders are an indicator species of excellent water quality recharge areas. Adding road salts and near these habitats contaminates our wells and the Grand River and increases costs for taxpayers. To date there is no proposed salt mitigation strategy. There are no measures to replace lost water volumes equal to the current volumes or water quality infiltrating on site currently.

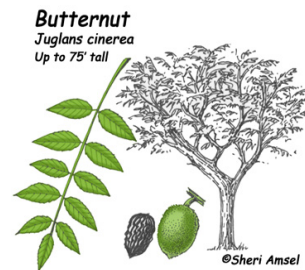
Issue 2: Endangered Species CONFIRMED in the area.

Attachment 4: Cambridge West MESP Natural Environment Study November 2013

5.15.2

Species-at-Risk Recorded in the DSA

As part of the current study, and as discussed in the relevant sections of this report, six Species-at-risk (SAR) were recorded. Commentary on Recovery Strategies, type of ESA habitat protection (general vs. regulated) and protected ESA habitat for these species is provided below. Determination of ESA "protected habitat" is based on the definitions in the ESA 2007, *Categorizing and Protecting Habitat under the Endangered Species Act, 2007* (MNR Species at Risk Branch, 2011), COSEWIC Status reports and personal communication with MNR Species-at-risk Biologists. For 'General Habitat', this is "an area on which a species depends directly or indirectly to carry on its life processes such as reproduction, rearing, hibernation, migration or feeding" (ESA 2007; 2.(1)(b)). As noted on the MNR website 14, "These areas may include dens and nests, wetlands, forests and other areas essential for breeding, rearing, feeding, hibernation and migration".



Butternut (Endangered)

- Recovery Strategy: not available
- ESA Habitat Protection Type: General
- ESA Protected Habitat: 25m buffer from 'retainable' trees; potential for reduced buffer based on site-specific attributes and rationale supported by MNR.



Least Bittern (Threatened)

- Recovery Strategy: not available
- ESA Habitat Protection Type: General
- ESA Protected Habitat: marshes dominated by emergent vegetation (e.g., Cattails) surrounded by areas of open water; other important habitat elements are clear water (for foraging), large marshes with stable water levels during the nesting period and presence of suitable prey (e.g., amphibians, fish, small vertebrates, insects, crayfish).



Chimney Swift (Threatened)

- Recovery Strategy: not available
- ESA Habitat Protection Type: General

- *ESA Protected Habitat: active roosting or nesting sites (e.g., chimneys) and essential foraging areas. No active nesting or roosting sites are present in the DSA. Foraging areas are not habitat-specific, though Chimney Swift is typically found near wetlands, due to the abundance of insects. Suitable foraging areas within the DSA (i.e., wetlands and future buffer areas) will be retained with the recommended Natural Heritage System (NHS).*



Barn Swallow (Threatened)

- *Recovery Strategy: not available*
- *ESA Habitat Protection Type: General*
- *ESA Protected Habitat: active nesting sites (e.g., bridges, barns, other artificial structures) and essential foraging areas. No targeted nest searches were undertaken therefore the presence of breeding habitat cannot be confirmed. Note that numerous suitable nesting areas are present in the GSA. Foraging areas are not habitat-specific, though areas near water or wetlands are preferred as a source of mud for nest-building. Suitable foraging areas within the DSA (i.e., wetlands and future buffer areas) will be retained with the recommended NHS.*



Canada Warbler (Special Concern)

- *Recovery Strategy: not available*
- *ESA Habitat Protection Type: not applicable (for Special Concern species)*
- *ESA Protected Habitat: none. Preferred habitat is wet, mixed deciduous-coniferous forest with a well-developed shrub layer.*



Monarch (Special Concern)

- *Recovery Strategy: not available*
- *ESA Habitat Protection Type: not applicable (for Special Concern species)*
- *ESA Protected Habitat: none. Habitat in Ontario includes breeding (sites with Milkweed (*Asclepias* spp.) for larvae), staging (north shores of the Great Lakes) and nectaring (sites with wildflowers such as Goldenrods, Asters, Purple Loosestrife and clovers).*



Snapping Turtle (*Chelydra serpentina*)

- *Recovery Strategy: not available*
- *ESA Habitat Protection Type: not applicable (for Special Concern species)*
- *ESA Protected Habitat: none. Habitat in Ontario includes breeding sites, basking sites, feeding sites, nesting sites, and hibernation sites. This covers a wide range of freshwater habitat (almost every type), but they prefer slow-moving water with a soft mud bottom and dense aquatic vegetation. Nesting is generally on sand and gravel banks, both natural and artificial. Hibernacula include aquatic / terrestrial mud, sticks, stumps, logs, floating mats of vegetation and overhanging banks.*

Section 5.10.2.3 of the report notes that suitable habitat exists for the following species:



Bobolink (Threatened)



Eastern Meadowlark (Threatened)

Section 5.10.2.3 states:

Some are potential breeders in the local landscape but suitable breeding habitat does not appear to be present or is very limited in the DSA, though possibly present in portions of the GSA (e.g., Bobolink, Eastern Meadowlark, Northern Harrier, Pine Warbler).

Section 5.10.2.4 confirms suitable habitats for Barn Owl (Endangered). It states:



While suitable habitat may be present for Barn Owl (Endangered in Ontario) within the study Evidence of confirmed breeding during the last Ontario Breeding Bird Atlas was restricted to the Chatham-Kent area of Ontario (2001-2005). There have been no breeding records of Barn Owl in Waterloo Region for more than 30 years (OBBA 2001-2005). In addition, there are no records from NHIC available for this species in the general study area (2011). Therefore, in our opinion, this species is not breeding within the DSA.

There has been no scientific evidence produced to show any burden of proof to support this statement of opinion. It is not possible for any person, or group of people or society at large to prove or disprove the statement because all the documentation for this process is controlled by the applicant. Statements of opinion unsupported by science are in my view, part of a marketing plan and should be dismissed outright.

Section 5.12.1.4 Confirms:



Eastern Milk Snake (Special Concern),



Eastern Ribbon Snake (Special Concern)



and Queen Snake (Endangered)

Suitable habitat for two species of SAR snake species listed under the ESA is present within the DSA: Eastern Milksnake and Eastern Ribbon Snake. There are records for an additional SAR snake species (Queen Snake) in the Region of Waterloo; however no suitable habitat is present within the DSA.

On page 93, Table 15. Cover Board Survey Summary 2010-2011 it confirms the presence of



Meadow Vole (Species of Special Concern)

Table 15. Cover Board Survey Summary 2010-2011

Species	Cover Board Group								
	1	2	3	4	5	6	7	8*	9*
Blue-Spotted Salamander / Blue-spotted dominant polyploid				2					
Dekay's BrownSnake		2							
Eastern GarterSnake	6	12	2	1	5		20		2
Meadow Vole							9		
Mouse (White-footed and Deer Mice)	3			8					
Shrew sp.	2			1		1			
Group Totals	11	14	2	12	5	1	29	0	2

*Cover Board groups 8 and 9 were installed and surveyed from June 2011.

5.13.2.2 notes the discovery of 27 dens for American Badger (Endangered)



American badger habitat

Ontario Regulation 437/09 provides the regulatory definition of American Badger Habitat. For the purposes of assessing presence / absence of American Badger within the DSA and adjacent natural heritage features, subsection 24.1 was used to assess 'activity'. The following is an excerpt from Ontario Regulation 437/09:

1. Ontario Regulation 242/08 is amended by adding the following sections after the heading "Habitat":

For the purpose of clause (a) of the definition of "habitat" in subsection 2 (1) of the Act, the following areas are prescribed as the habitat of the American badger:

24.

1. An American badger den that is being used by an American badger or was used by an
2. American badger at any time during the previous 12 months.
3. 2. The area within five metres of the entrance of a den described in paragraph 1.
4. 3. A woodchuck burrow or Franklin's ground squirrel burrow that,
 - i. is being used by a woodchuck or Franklin's ground squirrel or was used by a woodchuck or Franklin's ground squirrel at any time in the past, and
 - ii. is within 850 metres of a den described in paragraph 1.

Results

Based on the definition of 'active' in subsection 24.1 above, results from Ecoplans' targeted searches for American Badger / habitat yielded the following results.

In total, 27 burrows were recorded. Most were located between Blenheim Road and the CPR line (field edge abutting Veg. Unit 23 and along the Blenheim Road berm). Several were found in Veg. Unit 14A and a few were found along other forest/wetland – field interfaces. Further down the report in the same section it states:

Although some burrows observed on site did exhibit a characteristic 'D' shape, we observed no other Badger sign that meets criteria identified in discussions with MNR staff, as listed above. Therefore, based on field surveys conducted in 2010, and 2011, it is Ecoplans' assessment that there is no evidence of Badger use in the DSA.

Conclusion: no Badger habitat is present within the DSA / portions of the GSA where field surveys were undertaken.

Just because there is no evidence of "Badger use" in the DSA, (how does one actually "use" a badger?) it does not negate the fact these animals are likely present in this area.

Waterloo Region and the surrounding areas have confirmed Badgers as noted by the following sources:

Attachment 7: Draft Recovery Strategy for the American Badger in Ontario page 6, Table 1. Summary of confirmed sighting records of the American Badger in Ontario. Confirmed sightings in Waterloo Region and Brant.

Attachment 8: Habitat Characteristics and Distribution of the American Badger (*Taxidea taxus jacksoni*) in Southwestern Ontario R. T. Dong¹ and P.F. Eagles²

On page 2 of this PDF report It states:

Study Area

Only the largest known badger distribution range in Ontario was used in our study area. Other smaller badger habitats in Grey-Bruce, Quetico, and Rainy River were excluded. **This research mostly encompassed the 'tobacco belt region'; from approximately London to Nanticoke, Turkey Point to Cambridge.** This area was formerly a lake bed, so the area is fertile and sandy. The tobacco belt region contains a matrix of landuse patterns including a mixture of rural and urban centres. This landscape also contains one of the richest areas of tall- grass prairies, significant wetlands, and Carolinian forests in Ontario (Nelson et al. 2004).

Attachment 9: Grand River Conservation Authority Species At Risk Poster.



Silvery Salamander: (JJL hybrid)



Jefferson Salamander

Attachment 10 is a report called the Status of Herptofauna in Waterloo Region. It confirms the presence of Jefferson Salamanders *Ambystoma jeffersonianum* and Jefferson dominant Silvery hybrids (LJJ) *Ambystoma platineum* in E.S.P.A. 59.

Attachment 11: EEAC-13-0116 dated December 17, 2013 regarding Proposed Highland Ridge West Plan of Subdivision, City of Cambridge, Gilholm Marsh (E.S.P.A 58) and Barrie's Lake (E.S.P.A 57) states on the page 5 of the pdf attachment, (page number 32 on the document) the following:

It is understood that groundwater recharging on the subject property flows to the kettle lakes(considered to be surface expressions of the local water table) and Provincially Significant Wetlands within E.S.P.A.s 57 and 58, indicating that there may be a groundwater 'divide' on the subject lands. For these reasons, the subject lands are considered "contiguous" to E.S.P.A. 57, E.S.P.A. 58 and E.S.P.A. 59 according to the definition in the Glossary of Terms (ROPP).

Rye and Weller mapped confirmed findings of Jefferson and Jefferson dominant hybrids in Waterloo Region as noted in Cosewic 2010 assessment and status report on the Jefferson Salamander *Ambystoma jeffersonianum* in Canada in **Attachment 12.**

With Blue spotted, yellow spotted confirmed in ESPA 57 I find it highly improbable that this area would NOT contain Jefferson's or their hybrids seeing that they were already previously identified in the area. Both Jefferson salamanders and Silvery have the same Endangered status and habitat regulation (s. 28 of Regulation 242/08).

Attachment 4 section 5.12.1.3 states:

Ambystomid Salamander Surveys

Based on the following, Ambystoma salamander surveys were identified and undertaken in the DSA/GSA (portions): historic records of Blue-Spotted Salamander Complex salamanders (Ecoplans 1977); a Jefferson Complex Salamander (not confirmed as Jefferson or Jefferson- dominant polyploids) found under a log in the forest southwest of the SWMP off Devil's Creek Drive (Gore & Storrie 1994); earlier records of Ambystoma salamanders (Cumming Cockburn Limited 1990); and presence of potentially suitable breeding ponds in the DSA. All surveys were completed under MNR-issued Scientific Collector's Authorizations (No. 1046014, No. 1050761, No. 1056313, No. 1062029), ESA Permit 17(2)(b) (No. GU-B-020-10) and approved Wildlife Animal Care Committee Protocols (No. 09-169, No. 10-169, No. 11-169).

On **Attachment 4** Page 85 it states:

Visual habitat assessments were conducted in 2008, 2009, 2010, and 2011. Surveys conducted in 2008 were used to inform future study requirements; surveys in 2009, 2010 and 2011 were conducted in conjunction with other types of survey (minnow trapping surveys) to provide ongoing assessment habitat suitability and change over the course of the study.

Minnow traps often feature holes just large enough for a salamander to partially escape and drown and minnow traps can kill Jefferson salamanders if fully submerged during fish studies. This is why this particular method of testing is usually NOT recommended, particularly in known habitats for Jefferson salamanders.

On **Attachment 4** Page 87 it features the results of the pond trapping surveys. Note the alarming decline of Ambystomid salamanders during the testing years.

2009

Key results:

- In total, ten species were captured during 2009 pond trapping surveys.
- In total, 169 Ambystomid salamanders were captured in 2009 (this represents the highest abundance among the three years of survey)
- 159 Blue-spotted / Blue-spotted dominant polyploids salamanders and 10 Spotted salamanders.
- Ambystomid salamanders were captured in four of six sampled ponds: Pond 1, Pond 2, Pond 4, Pond 5). Pond 1 had the vast majority of salamander captures (162 individuals).
- A fairly large diversity and abundance of frogs and toads (including large numbers of tadpoles) were also captured:
- Six species were recorded. Only two species recorded during 'calling' surveys were not captured during pond trapping: American Toad and Bullfrog.
- Northern Leopard Frog was the most abundant in 2009 (41 individuals).
- While frog and toad captures were distributed between ponds, Pond 1 produced the bulk of captures (42). Only one species was captured in Pond 6, a single Northern Leopard Frog individual.

2010

- Overall, diversity and abundance of captures were smaller in 2010.
- In total, eight species were captured during 2010 pond trapping surveys.
- **In total, 16 Ambystomid salamanders were captured; all were Blue-spotted / Blue-spotted dominant polyploids (no Spotted salamanders were captured during 2010 pond trapping surveys).**
- Pond 1 again produced the largest number of salamander captures with 11 of 16 captures from this pond. Salamanders were also captured in Pond 4 and Pond 5.
- Frogs were not as well represented in 2010 minnow trapping results compared to 2009.
- Five species were captured, in lower abundances for most species. Frog captures were fairly well distributed between all ponds surveyed in 2010.

2011

- Only Pond 1 was surveyed using minnow trapping during the 2011 survey year.
- In 2011, substantially smaller numbers were recorded (relative to 2009).
- In total, four species were captured during 2011 pond trapping surveys.
- In total, 12 Ambystomid salamanders were captured. Blue-spotted / Blue-spotted dominant polyploids and Spotted salamanders were captured in 2011.
- Diversity of frog species captured through minnow trapping was lower than 2010 and 2009; only two frog species were captured in 2011.

On **Attachment 4** Page 91 Ambystomid Salamander DNA Results it states:

Detailed DNA results for each year are presented in Appendix I, Table I-1. Results are summarized below. Overall, we had large sample size which enables conclusive assessment of Jefferson Salamander / Jefferson Salamander Complex presence or absence.

2009

In total, 106 tail clip samples were submitted for analysis in 2009. All samples came from pond trapping-captured individuals as no pitfall trapping was conducted in 2009. DNA results from the 2009 samples found:

- No pure Jefferson Salamander [*Ambystoma jeffersonianum* (JJ)];
- No Jefferson-dominated complex individuals (e.g., JJJ);
- 102 A. laterale (Blue-spotted) dominant complex individuals of various genotypes (diploid, triploid, tetraploid);

- Two pure Blue-spotted Salamander [*A. Laterale* (LL)];
- Two samples could not be conclusively identified.
-

2010

In total, 100 tail clip samples were submitted for DNA analysis (the majority from pitfall trap captures, along with some pond captures). DNA results from the 2010 samples found:

- No pure Jefferson Salamander [*Ambystoma jeffersonianum* (JJ)];
- No Jefferson-dominated complex individuals;
- 80 *A. laterale* (Blue-spotted) dominant complex individuals of various genotypes (diploid, triploid, tetraploid);
- 20 pure Blue-spotted Salamander [*A. Laterale* (LL)].

Variability in the genotypes of samples taken in both 2009 and 2010 are not indicative of a clonal population, indicating that they are actively breeding with 'pure' individuals of Blue-spotted Salamanders (Dr. J. Bogart, pers. comm.). This assessment is supported by the presence of Blue-spotted Salamanders (*A. laterale*) within the sampled population.

Based on the large sample size and DNA results, MNR determined that Jefferson Salamander were not present in the salamander population within the sampled ponds (pers. comm. MNR; March 8, 2010 and March 12, 2010). Hence, no DNA testing was undertaken in 2011.

So basically, there was only 2 years of salamander monitoring that took place in regards to the area of Barrie's Lake and the reports stated no Jefferson salamanders were found.

On **Attachment 4** page 89 is table 13 and on page 91 is table 14. Note the failure to give an actual number for the amount of Ambystomid egg masses taken. Why is that?

Species	2009		2010		2011	
	Survived	Incidental	Survived	Incidental	Survived	Incidental
Salamanders						
Blue-spotted Salamander / Blue-spotted dominant polyloids	159		16		12	
Spotted Salamander	10				7	
Frogs & Toads						
American Toad						
Bullfrog						
Chorus Frog	2	3	2	✓		✓
Green Frog	11		1			
Gray Treefrog	2	3				
Northern Leopard Frog	41		5	✓		
Spring Peeper	7	✓	6	✓	3	✓
Wood Frog	5	✓	5	✓	6	✓
Larvae & Egg Masses						
Tadpole spp.	302		67			
Frog Egg Mass					✓	
Ambystomid Egg Mass	✓		✓			
Turtles						
Midland Painted Turtle		1				
Snapping Turtle						
Species Richness	10	5	6	4	4	3
Total # Recorded	539	7+	102	1	28	0

*Ponds surveyed varied by survey year:
 2009 – Pond 1, Pond 2 Pond 3, Pond 4 Pond 5, Pond 6 surveyed
 2010 – Pond 1, Pond 2, Pond 3, Pond 4, Pond 5 surveyed
 2011 – Pond 1

Table 14. Summary of pitfall trap captures / observations by year.

Species	2010		2011	
	Survived	Incidental	Survived	Incidental
Salamanders				
Blue-spotted Salamander / Blue-spotted dominant polyloids	109	2	67	
Spotted Salamander	1			
Frogs & Toads				
American Toad	104		187	
Bullfrog	1		1	
Chorus Frog	1			
Green Frog	38	1	15	
Gray Treefrog			2	
Northern Leopard Frog	231	54	169	17
Spring Peeper	3		26	1
Wood Frog	2		14	2
Larvae & Egg Masses				
Ambystomid Egg Mass			✓	
Turtles				
Midland Painted Turtle	2	1	2	4
Snapping Turtle	1	2	1	2
Snakes				
Eastern Gartersnake	2	21	10	7
DeKay's Brownsnake			1	3
Species Richness	13	6	12	7
Total # Observations	495	81	495	36

So why would Ambystoma egg masses be taken? Destruction of egg masses is not reasonable since it results in the loss of specimens, especially in KNOWN HABITATS.

Exactly how many specimens died during these studies?

How many specimens were allowed to be destroyed by way of the permits?

On page 194 of the report under the category: "Recommended biological monitoring components" it has the following passage specific to the need to secure further Herpetofauna studies. Note the test times and methods.

Herpetofauna – Spring Amphibian Breeding Surveys

- *Location.* Eight monitoring stations (i.e., AM1 through AM8 on Figure 18).
- *Timing.* Three rounds of spring survey (April to June).

- *Methodology. Spring amphibian breeding activity is assessed using the Marsh Monitoring Program (MMP) amphibian calling survey protocol (Bird Studies Canada 2003). Three rounds of survey are undertaken during the spring and early summer, generally at least 10 days apart, with suitability of timing confirmed by referencing other local sites with known amphibian populations and/or liaison with other researchers. Following guidelines of the MMP, night time air temperatures are ideally greater than 5°C for the first survey, 10°C for the second survey, and 17°C for the third survey. Each calling station is surveyed for three minutes, between one half hour after sunset and midnight. Using the MMP, amphibian calling activity is rated using three levels: Level 1 (individual calls can be counted with no overlap), Level 2 (some calls can be counted or estimated, some overlap) or Level 3 (calls continuous and overlapping, individuals not distinguishable).*

Salamanders do not make calls since they don't have lungs. They breathe through their skin. Jefferson salamanders do not appear in the month of April because they only show up in March during the first warm rains of spring. The recommended testing is insufficient to monitor for Jefferson salamanders because it does not follow with best practices.

Blue spotted, Triploid and Yellow spotted are confirmed in E.S.P.A. 57 and Silvery and Jefferson Salamanders confirmed in E.S.P.A 59, I find it highly improbable that this area would NOT contain Jefferson's or their hybrids seeing that they were already identified. It should also be noted that Jefferson dominated polyploids (LJJ) have the same Endangered status and habitat regulation as do Jefferson salamanders (s. 28 of Regulation 242/08). To date there has been no habitat delineation for any of the endangered species in the area.

Issue 3: Waterloo Region and the Guelph MNR's history of flawed data regarding Jefferson Salamanders

Concerns of this nature were addressed with MNR staff and the Region of Waterloo previously during OMB appeal PL071044 regarding a proposal known as the West Side lands. I initiated the OMB appeal, and won concessions based on the fact the salamander studies were highly flawed and the plan as approved violated Regional Official Policies Plan, Policy 4.3.15,. My expert provided an affidavit outlining his concerns and it can be viewed in **Attachment 13**. Guelph MNR's Mr. Ken Cornelisse was at the expert's meeting and signed off on the concessions as seen in **Attachment 14**.

These concerns were addressed with the Region once again in regards to an area known as Hidden Valley in Kitchener. In that case, studies were conducted on non viable egg masses. Dr. Bogart from the University of Guelph stated that there were no Jeffersons in this location, but we contested the findings, secured retests and Jeffersons and Jefferson dominated hybrids were confirmed on site after we shared our concerns with MNR Guelph office's Ken Cornelisse as well as Regional Staff. **View Attachment 15, 16 and 17** for a correspondence outlining the concerns we had with the flawed Jefferson salamander studies of Hidden Valley. The Region of Waterloo and the Guelph MNR have no plausible deniability. They know how to properly study for these animals yet non compliant practices which results in the destruction of specimens are still ongoing as seen with the Barrie's Lake proposal.

The only data that were used for seeking the presence of Jefferson Salamanders and their hybrids was based on breeding pond surveys. **How is it possible to predict that an overall benefit for Jefferson salamanders can be achieved if the only available data are derived from a few breeding ponds in a complex of many possible ponds?**

What salamanders do and where they move in the 50 or 51 weeks of the year when they are not breeding is not known for this area. Juveniles are inherently difficult to find and have never been observed on this site so there are no data that could provide some insight about the three or four years of pre-breeding juvenile life.

Because of a lack of information and limited data, the precautionary principle provided in the ESA is applicable. "where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimize such a threat. ESA 2007, c. 6, s. 11 (3)."

Issue 4: Non-compliance with Species At Risk Act and Endangered Species Act

The Species At Risk Act requires that critical habitat be identified, protected, maintained or restored. Yet the majority of Recovery Strategies do not identify and map critical habitat as required by SARA (Section 41). As a result there are 162 recovery strategies for threatened or endangered species well past their legal due date.

Such is the case for the animals at Barrie's Lake including:

Barn Swallow: Draft Plan yet to be finalized. **Attachment 17**
 Chimney Swifts: To be completed.
 Least Bittern: To be completed **Attachment 18**

Loss of habitat is the key cause of decline for more than 80 per cent of Canada's species at risk. In order to survive and recover, at-risk animals and plants need protection of their critical habitat. Once listed under SARA, the federal government is required by law to produce a recovery strategy that identifies the species' critical habitat based on the best available scientific information and Aboriginal traditional knowledge.

There are recovery strategies in place for the following species: Bobolink and Meadowlark **Attachment 19**, Butternut Trees **Attachment 20**, Barn Owl **Attachment 21**, Queen Snake **Attachment 22**, American Badger **Attachment 23** and Jefferson Salamander **Attachment 24**.

It appears that the Cambridge West MESP Natural Environment Study November 2013 by Ecoplans overlooked that fact. It states that there is no habitat recovery in place for Butternut even though the data for it was published in June 2013. Enough time to mention it in the November report.

Why has there been no critical habitat delineation mapping completed for any of the threatened and endangered species in E.S.P.A. 57 or E.S.P.A. 59 to date, even with the completion of the recovery strategies?

Why was the plan approved with the absence of this data when Ecoplans was working with the Ontario MNR the whole time?

What impact would it have on the known habitat of these rare species if Barrie's Lake was turned into a storm water management pond?

In Attachment 25 the Ontario MNR state:

By the early 1980s, about 68% of these southern wetlands had been destroyed. In parts of southwestern Ontario, over 90% of the area's original wetlands are gone. These rates of loss are among the highest recorded anywhere on Earth.

Here is a videotape I took in Waterloo Regional Council where staff was advising council that "We don't need permits" for the destruction of habitat or rare species because it would cause delay. I took the video in Regional Council on October 4 2011. I posted it on Youtube at this link to inform the ministries and police.
<https://www.youtube.com/watch?v=EdRuYRIQdJk>

*In a David Suzuki Report: Road To Extinction, it has a map that shows Waterloo Region is a hotspot for turtle mortalities. What are the implications of this on Herpetofaunal, snakes, American Badgers and other creatures? See **Attachment 26** for the report.*

The fact that only 10% of Ontario's original wetlands remain in Southwestern Ontario and the fact that mortalities are still occurring at such a high rate indicates a failure of policy.

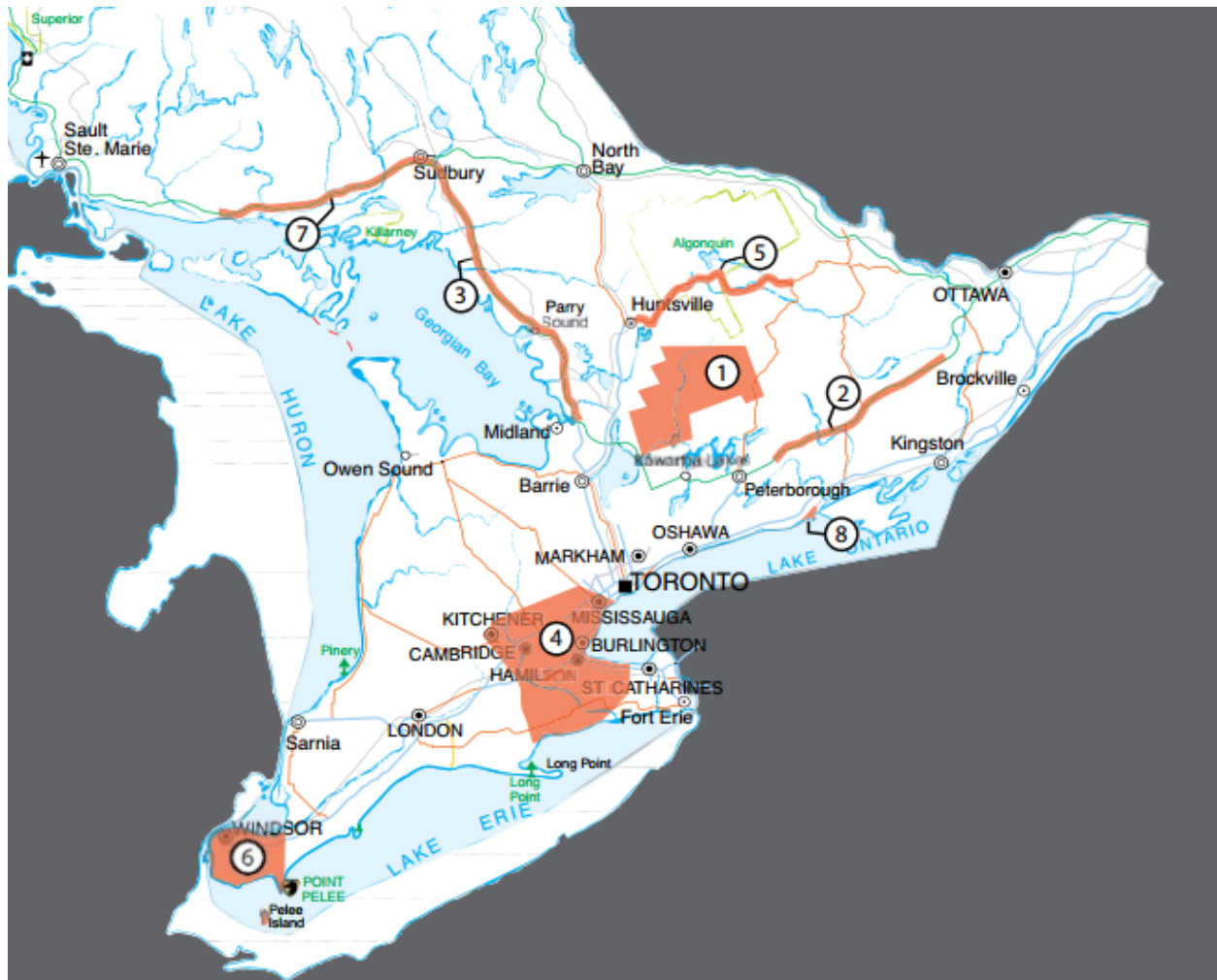


Figure 2: Hotspots for turtle mortality on roads in southern Ontario, listed from most turtles observed on roads to least. A tiny fraction of turtles on roads are actually reported to turtle monitoring groups so many unknown road mortality hotspots likely exist.

1. County of Haliburton and northern City of Kawartha Lakes
2. Highway 7 from Norwood to Maberly
3. Highway 69/400 from Port Severn to Sudbury
4. Greater Golden Horseshoe
5. Highway 60, especially through Algonquin Provincial Park
6. Essex County, especially Pelee Island
7. Highway 17 west of Sudbury
8. Presqu'ile Provincial Park and surrounding area

Seeing that ESPA 57, 58 and 59 are contiguous, that the constraints are many this entire system should be protected as one entity within an extended ESL delineation as an expansion of the RARE Charitable Research Reserve. The Provincially Significant Wetland Area should reasonably protect the entire area of Barrie's Lake and the associated wetlands in close proximity to allow for dispersal and habitat expansion areas.

Local Policy supports the inclusion:

4. REGION OF WATERLOO POLICIES

Regional Official Plan, as approved, with modifications on Dec. 22, 2010

7. The Greenlands Network

The Greenlands Network is defined as environmental features and the linkages among them. The Greenlands Network, and the ecological functions it provides, contributes to maintaining the environmental health of Waterloo Region and the Grand River watershed. This Plan contains policies to maintain, enhance or, wherever feasible, restore the Greenlands Network. Such action is necessary to counteract the negative effects of fragmentation which can result in a loss of ecological integrity and the degradation of natural biodiversity. Such action is also necessary to maintain biological and geological diversity, viable population of native species and ecosystems, and make possible adaptation in the response to actual or expected effects of climate change.

7.B.5 To qualify for designation as an Environmentally Sensitive Landscape, an area will:

a) fulfill all of the following:

- i) be geographically and ecologically definable landscape;
- ii) contain natural features that are contiguous, linked or sufficiently close to allow for movement of flora or fauna through the area.
- lii) not be bisected by major highways; and
- iv) be located primarily outside areas designated for fully serviced urban development and/or established Rural Settlement Areas; and

b) contain any two of the following designated natural features:

- i) Significant Habitat of Endangered or Threatened Species;
- ii) Environmental Sensitive Policy Area;
- iii) Provincially Significant Wetland;
- iv) Regionally significant Earth Science Area of Natural and Scientific Interest;
- v) Significant Valleys; or
- vi) Significant Woodlands; and

c) contain any two of the following associated natural features:

- i) rivers, major stream valleys, floodplains and associated hazard lands
- ii) woodlands greater than four hectares in extent;
- iii) forest interior habitat;
- iv) other wetlands;
- v) significant landforms such as moraines, kettle lakes, kames eskers and drumlines;
- vi) significant wildlife habitats such as: winter habitat for deer or wild turkeys; colonial bird nesting areas; raptor roosting, feeding and nesting areas; hibernaculæ or herptofauna breeding areas; and significant migratory stop over areas; or
- vii) specialized habitats such as but not limited to: savannas; tallgrass prairies; rare woodland types; cliff; alvars; sandbarrens; marl seeps; bogs; and fens; and

d) sustain any two of the following ecological functions:

- i) provide significant groundwater storage, recharge or discharge;
- ii) sustain a fishery resource;
- iii) provide diverse natural habitats;
- iv) provide habitat for provincially or regionally significant species; or
- v) serve as a linkage.

Source Water Protection

Waterloo Region is unique in Ontario in that it is the largest urban municipality to rely almost exclusively on groundwater supplies for its drinking-water. Approximately three quarters of all the region's drinking-water comes from over one hundred municipal wells, many of which tap into rich aquifers sustained by the Waterloo Moraine. The remaining quarter of the region's drinking-water is drawn from the Grand River.

Protecting these valuable water resources from contamination and from land uses that could hinder groundwater recharge is essential to maintaining human health, economic prosperity and a high quality of life in the Region.

CHAPTER 8

Overall Goal – Protect, maintain and wherever feasible, enhance surface water and groundwater resources to ensure that a municipal drinking-water supply system continues to provide a sufficient quantity and quality of drinking-water.

Objectives:

8.1 Protect existing and future sources of drinking water from incompatible land uses.

8.2 Maintain and, wherever feasible, enhance the quantity and quality of water infiltration and recharge to groundwater aquifers.

8.3 Minimize the potential for contamination, including potential contamination from de-icing salts, on sources of municipal drinking-water.

8.4 Promote informed stewardship of Source Water Protection Areas in collaboration with the Province, Area Municipalities and Grand River Conservation Authority.

The Region of Waterloo's Environmental Sustainability Strategy

The focus of the Environmental Sustainability area is primarily on ensuring a healthy natural environment - clean air, water and land as well as the protection of green spaces and sensitive environmental features. This in turn overlaps and supports other Focus Areas such as Infrastructure and Growth Management and Healthy and Safe Communities. The need for a balanced interrelationship among all six elements is recognized in this plan as well as an integrated approach to achieve its Vision and related Strategic Objectives.

Region of Waterloo Past and Present Environmental Initiatives (May 2008)

2.6.1 Community Development

iv. Healthy Growth Initiative (Community)

As part of the robust collaboration between the Planning Housing and Community Services and Public Health departments associated with the RGMS, the Region is promoting a wider understanding of the ways in which the built environment can affect health. In 2007, Public Health released "Healthy Growth: Health and the Built Environment", a report which describes the ways in which elements of community planning (i.e.: urban design, reurbanization, transportation, housing and rural land use) interact with the socio-economic environment to support community health.⁵⁷ This initiative looks at the integrative links between urban design and transportation infrastructure improvements for example, and potential air quality, fitness and local food systems benefits to be realized.

Region of Waterloo Past and Present Environmental Initiatives (May 2008)

2.6.2 Environmental Preservation

viii. Environmental Designations (Community)

Within the authority of the Region's Planning department, there are a number of mechanisms that can be used to protect natural areas from development. Significant wetlands, Environmentally Sensitive Policy Areas (ESPA's) and Environmentally Sensitive Landscapes (ESL's) are all examples of innovative land designations pioneered by the Region that help preserve local natural areas and Regional biodiversity, and in the process, these land designations also benefit water and air quality and contribute to the character and quality of life of the region.

In Conclusion:

As it stands, the Class EA has failed to generate the design measures necessary to protect the natural environment. I find preliminary data remains incomplete with a lack of reasonable compliance towards the Species At Risk Act, Endangered Species Act, Source Water protection legislation, fisheries laws and other policies.

In light of these concerns, I respectfully request that the Minister initiate an order ensuring that the following strategies are implemented:

- reclassification of the project from a Class EA to a Schedule D process to address the complex nature of this proposal.
- that required studies for all Species At Risk in the area are carried out appropriately
- Require the Region to conduct a "detailed receiving water assessment", for the purpose of 'avoiding adverse impacts' to nearby water users, municipal drinking water supplies, aquatic habitats, fish spawning and fish migration routes.
- that mapping of protected zones includes reasonable delineation of known dispersal areas.
- that the data of the EA be peer and publicly reviewed
- that a salt mitigation strategy is created to restore the water quality of this area to protect Species At Risk, fresh water fish, water intakes and wells.
- that the proper authorization is secured for all the Species At Risk adversely impacted by this proposal
- that the technical requirements for the proposed road expansion be finally determined only after these steps so the final design can take the studies fully into account in order to reasonably mitigate risks and costs.

Yours Sincerely,

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