Part II Order Request

concerning the

Environmental Study Report

for the

Midhurst Secondary Plan

by

Midhurst Ratepayers' Association

September 18, 2018

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1. INTRODUCTION

The proposal to build a new city the size of Orillia from scratch on lands where the only water source is groundwater, and the only receptor for the effluent from 30,000 people is a small, slow-moving creek, requires an unusual amount of scrutiny. In addition to concerns about the availability of an adequate supply of source water, one must also consider the effects on the environment of discharging such a huge amount of treated effluent into the local creek. Finally, there is the impact on the quality of life of and financial burden on the residents - current and future.

It is also appropriate to question the need for such a huge residential undertaking in an area like Midhurst, so far from any major industrial or commercial demand for housing. The pie graph in ***Appendix 1***, is taken from the extensive IGAP reports of 2005/2006. It clearly shows that, in 2006, there was more than enough land already approved for development to meet the Province's 2031 population target for Simcoe County of 667,000. As Midhurst is very close to Barrie and Barrie is on-track to meet its provincial target of another 70,000 people by 2031, it is obvious that there is no need for yet another large development, especially in an unserviced rural area less than 1 km north of Barrie and 30 minutes southwest of Orillia.

The Midhurst Secondary Plan (MSP) was adopted in 2008 by Springwater Township, despite contravening the clear objectives of the *2005 Places to Grow Act*, the *2005 Provincial Policy Statement*, the *2006 Intergovernmental Action Plan* for Simcoe County and the 2006 *Growth Plan for the Greater Golden Horseshoe*. It is well-known that these plans were intended to protect agricultural and natural heritage lands and, as quoted in the Growth Plan, to "direct growth to built-up areas where the capacity exists to best accommodate the expected population and employment growth." The aforementioned bedrock plans resulted from numerous multimillion dollar studies of population trends, housing needs, best infrastructure practices and environmental and financial sustainability. Nevertheless, in 2012, a ministerial order - the so called "Special Rule" - was created to allow, not mandate, the non-compliant Midhurst Secondary Plan to proceed.

The Midhurst Ratepayers' Association (MRA) has been active for many years. It was incorporated in March 2009 to more effectively represent the interests of the residents of Midhurst. Over the years, we have participated in many planning, environmental and council meetings to add to and share our knowledge of urban development in rural Ontario at large and, specifically, in Midhurst. We have had continuous dialogue with the Township's consultant Ainley and Associates Limited and the developers directly, in small and large meetings, by mail and by actively participating in the Township's Residents Liaison Group, which was established for the MSP process.

As well, we have continuously educated and lobbied local residents and the broader public on the issues at hand. In fact, we collected 1,476 signatures against the MSP from Midhurst itself [pop. 3,500]. And nearly 46,000 people have signed our online petition to stop the MSP. We have benefitted from the influence, advice and patronage of several well-known Canadians, including Margaret Atwood, Maude Barlow and David Crombie.

We have serious concerns about the projected traffic, air quality and other issues which would be caused by the MSP. Our resources, however, are such that we have chosen here to focus on what we consider to be the most fundamental issues - legality and water. In this regard, we have benefitted from the expertise and experience of MRA's legal counsel, renowned environmental lawyer Rod Northey of Gowlings WLG and hydrogeologist Tim Lotimer FGC. P. Geo. (***See Appendix 2)***.

Specifically our concerns are:

- The non-compliance of the EA with Provincial laws and policies.
- the availability over time of the amount of groundwater required to service this mega-development.
- the long-term effects on residents of Midhurst and Oro-Medonte; farmers; Willow Creek; and the Minesing Wetlands of drawing the proposed **19 million litres of water per day** from the deep aquifers under Midhurst and discharging the resulting sewage effluent into downstream Willow Creek close to the unique and fragile Minesing Wetlands.

2. NON-COMPLIANCE WITH PROVINCIAL LAWS, PLANS & POLICIES

It is essential to recognise that the **Provincial Policy Statement 2014 (PPS**) is legally the most senior policy which must be adhered to in environmental matters. Other key Provincial planning laws and policies such as the Places to Grow Act (2005) and the Planning Act, R.S.O 1990, while important, **must** defer to the PPS in any conflict regarding the primacy of the environment, public health and public safety.

Key Quotes:

- **Planning Act – Section 3 (5)**

A decision of the council of a municipality ….a minister of the Crown and a ministry, board, commission or agency of the government in respect of the exercise of any authority that affects a planning matter,

*(a) shall be **consistent with the policy statements** …. that are **in effect on the date of the decision and***

*(b) shall **conform with the provincial plans** that are in effect on that date, or at least shall **not conflict with them** as the case may be. 2006, c. 23, s. 5*

- **Provincial Policy Statement 2014**

1. 1. 1 *- Healthy, liveable and safe communities are sustained by:*

*c) **Avoiding development and land use patterns which may cause environmental or public health and safety concerns***

- **Places to Grow Act 2005**

14 (4) ***Despite any Act**, but subject to a regulation made under clause 18 (1) (b), c) or (d), **if there is a conflict** between a direction in a growth plan and a direction in a plan or policy that is mentioned in subsection (5) with respect to a matter relating to the natural environment or human health, **the direction that provides more protection to the natural environment or human health prevails**.*

14 (5) T*he plans and policies to which subsection (4) refers are*

(a) a policy statement issued under section 3 of the Planning Act

Eminent environmental lawyer, Rod Northey, lays this out unequivocally and succinctly in his presentation to Springwater Council [May 2017]. ***See Appendix 3 which contains his oral presentation, slides and draft by-law.***

The MSP's Environmental Assessment [EA] does not meet this standard and is therefore non-compliant.

Note that the PPS has been around a long time - 22 years. In fact, it was the Progressive Conservative government which introduced it in 1996. Section 2.1.1 stated, "*Prime agricultural areas will be protected for agriculture*". Clearly, the PC government was well aware of the need to protect agriculture, natural heritage and water resources. In keeping with this philosophy, they followed with the *Oak Ridges Moraine Conservation Act (2001),* which recognised the importance of a key natural resource to the overall health of southern Ontario. Subsequent iterations of the PPS in 2005 and 2014 strengthened its environmental protections and supremacy as relentless development pressure increased.

Appendix 3.4 provides a comprehensive list of violations in the MSP which ignores Provincial law and core policies.

See also MPP Garfield Dunlop's comments regarding the MSP in the Ontario Legislature ***(Appendix 4)***.

3. SOURCE WATER

The MRA continues to have grave concerns about the quantity of source water required for this mega- development – 10,000 housing units at full buildout – and its potentially serious impacts on:

- the many private wells already in Midhurst
- the coldwater Willow Creek fishery upstream of the sewage treatment plant
- Willow Creek's short distance between the sewage treatment plant and the ecologically unique and internationally renowned Minesing Wetlands, a biologically diverse habitat for many threatened and endangered flora and fauna.
- the amount of **groundwater** available for the Minesing Wetlands due to large-scale water-takings "upstream" for the new "city" and the impact on the shallower wells.
- home owners, farms and businesses located within the *future extended* Well Head Protection Areas (WHPAs), yet outside the area serviced by the water-takings. The WHPAs must be enlarged in proportion to the projected water-takings.
- the sustainability of the groundwater supply considering that this large-scale groundwater-taking will be the largest ever in Simcoe County.

The proponent's consultants have relied extensively on models which lack the reliability of extensive field-measured data, which is required for such a massive housing development, one set in a unique and ecologically sensitive location.

They have not incorporated recent Ontario Geological Survey (OGS) findings, which dispute their claim that the shallower aquifers currently servicing Midhurst and the Minesing Wetlands are hydraulically separate from the deeper aquifers which will service the proposed development.

Their field testing has been insufficient for the magnitude of the proposed water-taking; and they have relied on extrapolations from it to make questionable projections.

They contradict themselves as to whether the proposed groundwater extraction will or won't affect the amount of groundwater reaching Willow Creek upstream of the sewage treatment plant.

Some clarifying notes:

a. Throughout MOECC's response to the Draft ESR, one finds comments referencing the questionable, or inadequate, or preliminary nature of the findings presented by the proponent. MOECC repeatedly states that more studies will be, or will likely be, required at the Permit To Take Water (PTTW) or Environmental Compliance Approvals (ECA) stages.

b. Golder undertook NO field monitoring of stream flow etc. This is not the norm when a large groundwater-taking is required. Note that Waterloo and Halton Regions both insisted on this practice as due diligence when assessing the water impacts of large-scale developments. With no field monitoring, it is impossible to confirm the predictions made from models. This is a very risky approach.

c. New wells for the development were only tested ***individually*** and for a brief period. There was no combined testing of the ***11 new wells*** for a time sufficiently lengthy to show **reliably** the impact on the shallower wells, which currently supply Willow Creek and the Minesing Wetlands.

d. Golder's updated groundwater model (Jan. 2017) affirms our contention that the proposed water-taking will result in a reduced flow of groundwater into Willow Creek and the Minesing Wetlands approximately equal to the amount of water pumped from the aquifers. Yet, their earlier study states that the proposed groundwater-taking will NOT mean a corresponding drop in Willow Creek. How reliable are models as the major tool when they can produce conflicting results?

e. Models can be flawed: the quality of data produced is directly related to the quality of the model itself and any tweakings it may have received. Or as has often been said of software: "garbage in, garbage out". The track record of using large-scale groundwater models to predict stream flow reductions does not inspire confidence.

f. Well Head Protection Areas (WHPA) will have to be extended well beyond Springwater boundaries due to the enormous volume of proposed groundwater-taking. This means residents, farmers, and businesses in Oro-Medonte – not serviced by the proposed water-taking - may well be negatively impacted. They may face land use restrictions.

g. Large-scale groundwater pumping often negatively affects private wells. That issue needs to be fully explored now to prevent lawsuits to the township later, should these wells be affected by the immense drawdown. Note that even the inadequate, individual pumping tests of the deep aquifers showed drawdown in the shallow aquifers. It is reasonable to conclude that ALL wells within the zone of influence may be affected.

h. How much groundwater loss is acceptable for a healthy, but sensitive coldwater fishery and other valuable ecological features in both Willow Creek and the Minesing Wetlands? Golder and the MOECC have different views on the acceptable percentage. We contend that, with severe weather changes in recent years causing much longer and more frequent droughts, and more intense, more sustained rainstorms and floods, the extreme fluctuations will only increase to the detriment of our natural heritage.

i. Models designed for Source Water Protection purposes are unsuitable for deeper aquifers. They are not designed to accurately determine with sufficient spatial range the effects of wells from deep aquifers on sensitive ecological features such as Willow Creek and the Minesing Wetlands.

j. The geological model and the numerical groundwater flow models cannot deliver an accurate assessment of the situation because the recent findings of the OGS, which show a complex stratigraphy under Midhurst, have been ignored. In other words, they are not up to date. The most recent OGS results must be incorporated to draw accurate conclusions.

k. The presence of nitrate in the deeper aquifers proves that they are connected to the shallow aquifers due to infiltration and/or recharge. When land use categories have changed in other areas e.g. Waterloo Region and Oxford County, it has been shown that the contamination may take decades to be eliminated.

l. the proposed new water supply for Midhurst will be **larger than the groundwater used by Midland, Penetanguishene and Elmvale *COMBINED***. In fact, this will be ***the LARGEST municipal drinking water system relying solely on groundwater in all of Simcoe County***. Note that Barrie and Alliston have to use a combined surface water/groundwater system because they found there wasn't enough groundwater to service and sustain growth.

In summary, the above supports our contention that:

- there is **insufficient sustainable groundwater** for current users, traditional village growth and the proposed city of 30,000 over the long-term as stipulated in the MSP *and*
- the effects of such massive new groundwater-takings on our local environment and natural heritage - Willow Creek, Minesing Wetlands, their flora and fauna - are **not negligible** *and*
- **much more intensive study is needed now**, not later, to answer these seminal issues *and*

- it is irresponsible to postpone answering such far-reaching and elemental questions about source water until the WTTP phase, when some disturbance of the natural environment will already have occurred *and*
- the financial and environmental costs of not doing so could be catastrophic.

See Appendix 5

- *5.1 expert hydrogeologist TIM LOTIMER's presentation to Council and residents (March 2017)*
- *5.2 Lotimer's comments on Golder's response*
- *5.3 Lotimer's comments on MOECC's comments on the Draft ESR.*

4. WATER VOLUME IN WILLOW CREEK AND THE MINESING WETLANDS

Summary of Key Points

- Currently, shallow aquifers 1 and 2 supply groundwater to Willow Creek in addition to servicing Midhurst's private wells.
- The groundwater in deeper aquifers 3 and 4, now proposed to be pumped from 11 wells to supply the new Midhurst "city", currently discharges *directly* into the Minesing Wetlands.
- None of these aquifers flows into Nottawasaga Bay.
- All this groundwater sustains the ecological health of both Willow Creek and the Minesing Wetlands.
- the most recent Ontario Geological Study reports (Mulligan 2017) of this area show a complicated stratigraphy in the area of Aquifers 1, 2, 3 and 4 This confirms that the shallow and deeper wells are connected; therefore, pumping wells from the deeper aquifers of 3 and 4 will cause drawdown in the shallower wells of 1 and 2 on which Willow Creek depends for its cold, clean groundwater.
- the proposed diversion of groundwater from 3 and 4 to service up to 30,000 people *AND* the flow interruption from 1 and 2 to Willow Creek upstream of the WTTP, due to such a mammoth groundwater-taking from a complex and hydraulically connected aquifer/aquatard system, will combine to upset this delicate ecological balance.
- Hutchison's May 18, 2018 report quotes increased modelled baseflow losses of **9.6%** in August. More details follow.

4.1 Willow Creek

To service the 30,000 people expected to occupy the MSP area at full build-out, the proponent proposes to build a large Wastewater Treatment Plant (WWTP) at the corner of Snow Valley Road and Wilson Road and to pipe the treated effluent to a discharge point near Highway 26 and Golf Course Road. This WWTP, at full build-out, will discharge 143L/s into Willow Creek (Hutchinson, Willow Creek Assimilative Capacity Study, May 2018) some 4Km upstream of the Minesing Swamp. This translates into 12 million litres per day, equivalent to 8 Olympic- sized swimming pools, every day of the year. This effluent will be pumped through roughly 5 km of pipe before being released into the slow-moving and shallow Willow Creek. See attached photographs.

Water levels of Willow Creek fluctuate wildly depending on such un-controllable weather factors as extended dry spells, heavy spring run-off and flash floods.

(Photo Sept. 9, 2018)

Proposed effluent discharge site within Willow Creek just upstream from the Minesing Wetlands in summer. The depth of the creek in this picture is roughly 13” at its centre.

4.2 Willow Creek water flow - conflicting reports and threats to wildlife

Golder Associates' reports describe four aquifers running under the Midhurst area: A1, A2, A3 and A4. Aquifers A1 and A2 are described as shallow aquifers from which local residential wells derive their water. These aquifers provide cold water to Willow Creek.

The proponent proposes to tap into the deeper aquifers A3 and A4 for their new developments, ***on the assumption*** that these are separated from the upper aquifers by impermeable soil structures.

References supporting their assumption follow:

a) Golder Associates Hydrogeological Study - Midhurst Water Supply, May 18, 2018, Appendix J, Section 3.3 Groundwater Recharge and Flow, states;

*"The valleys of Willow Creek and Matheson Creek are right bank tributaries to the Nottawasaga River. These streams receive discharge from Aquifers A1 and A2 along their length, while **Aquifers A3 and A4 remain confined** and ultimately discharge to Nottawasaga Bay".*

b) In Golder's criticism of the Lotimer report, Golder explains that A1 and A2 are isolated from A3 and A4 as follows:

*"Slide 6 shows the drawdown cone for Aquifer 3, however, almost all of the private wells in the area are completed within shallower Aquifer A1 or Aquifer A2, which is **hydraulically separated** from direct drawdown from wells operating in Aquifer A3 or A4."*

However, according to Hutchinson in Section 5 of its "7Q20 Flow and Ecological Low Flow Assessment," *there **is** connection between these aquifers, "The municipal servicing of water to the Midhurst Secondary Plan Area (SPA) will draw water from regional aquifers A3 and A4. There **is some connection** between these aquifers and the shallow aquifers A2 and A1 that provide groundwater to local area creeks which support cold water fisheries".*

This means that the upper aquifers are ***not*** isolated from the deeper aquifers, as had been claimed by Golder and water taking from A3 and A4 would result in some loss of water in A1 and A2, as well as affecting the volume of water flowing into Willow Creek.

In its response to concerns from Midhurst resident and hydrogeology student Michael Thorn, (his letter of March 7, 2017, see Appendix BB of the ESR), Hutchinson wrote, *"Mr. Thorn has raised concerns that "any reductions in the base flow/ground water*

discharge could have several major ecological consequences." Mr. Thorn was referencing the Golder (2016) prediction *"that groundwater taking for the Midhurst Secondary Plan Area "may lead to maximum losses of* ***8.7%*** *in the late summer (August) baseflow to Willow Creek in the area of Midhurst and that assessment of risk on the basis of a proportional reduction in baseflow* ***may not be protective of cold water fisheries****".*

Just this year, Hutchinson submitted a report to Ainley which ***increased*** the modelled baseflow losses to ***9.6%*** in August, as quoted below:

"Modelling completed by Golder established that monthly volumetric baseflow losses as a result of proposed Midhurst Secondary Plan Area pumping at full build out are estimated to range from 985 m3/day in Willow Creek at Midhurst in August to 2595 m3/day in April, while percent losses range from 2.5% in Matheson Creek in February to ***9.6% in Willow Creek at Midhurst in August*** *(Golder 2016). Modelled baseflow losses are less than the maximum loss guidelines presented in peer-reviewed and regulator-based literature, indicating no threats to aquatic life related to the water takings".*

Golder claims that this is acceptable. ***MOECC disagrees***.

The following is a quote form MOECC's comments of April 18, 2018:

"The groundwater modeling work (March 2015) attached to the hydrogeological study report and the subsequent hydrological modeling work (January 2017), imply some impact to stream baseflows under full build out scenarios. In these reports, the evaluation of potential effects on surface waters is largely based on model predictions which indicated that the long term, cumulative effect of the taking on baseflow in Willow Creek would be ***no more than 10%****. The reports suggest that this amount of baseflow loss would be insignificant.* ***The ministry does not agree that a 10% loss in baseflow would be insignificant****. The modeling results and how they should be interpreted may need to be revisited.* ***Experience has shown that predictions of streamflow losses in specific reaches based on these kinds of large scale modeling may be inaccurate****. The uncertainties are often larger than the predicted effects and prediction results could change significantly by altering model input parameters (many of which also have very large uncertainties). Therefore, while the modeling may be useful in developing an understanding of general trends in groundwater level that may develop over extended use, results should not be relied upon to provide quantitative estimates of potential baseflow reductions and* ***should not be used as the basis to determine if the proposed water taking is acceptable or not*** *(from a surface water perspective).* ***The ministry also strongly disagrees with the comments in the various documents that up to 20% reduction in the amount of groundwater contribution to a cold water stream would be considered acceptable.*** *This is variously reported as an MNRF and/or Fisheries and*

Oceans Canada (DFO) threshold, but the sources for this are not provided. It is recommended that the discussions on modeling results be revised".

[Underlines and bold added by MRA]

One must also keep in mind that the Doran Road location is some 6 to 7km upstream from the WWTP so the reduced volume in the creek will have plenty of time to warm up under the summer sun before being diluted by effluent from the plant. This could have serious consequences for fish and other wildlife in the creek.

Willow Creek is home to a a coldwater brown trout fishery, thanks to the groundwater seepage from aquifers A1 and A2, which mitigates seasonal water temperature changes throughout the year. When Willow Creek becomes shallower from groundwater loss due to pumping A3 and A4, these conditions will change. Temperature balancing provided by groundwater will be sharply reduced. Willow Creek's environmental value as a coldwater fishery must not be diminished.

Discrepancies in the proponent's reports and the severe consequences of making a mistake, leave plenty of room to question the accuracy of the predicted effects of water-taking on the wildlife of Willow Creek and the Minesing Wetlands.

4.3 Aquifers A3 and A4 and their potential to increase flooding in MSP

There are conflicting views as to the discharge points for aquifers A3 and A4.

In paragraph 2.3 ii of its comments on Ainley's ESR, MOECC quotes the Golder report as follows: *"The target regional aquifers are believed to discharge directly into the Nottawasaga Bay (e.g. see section 3.3 of the June 2016 report in Appendix J).*

Also, in Golder's comments on Lotimer's Slide 11 they state:
"The groundwater flow lines shown on drawing (Slide 11) neglect to recognize the regional groundwater movement, which includes flow under the Minesing Wetland with ultimate discharge to Georgian Bay and the thick confining layer (Lake Algonquin varves) over the aquifers in the Minesing Wetland basin".

It is important to note that Lotimer disagrees completely with the view that A3/A4 discharge directly into Notawassaga Bay. His presentation as well as recent OGS studies, show that all four aquifers naturally flow into the Minesing Wetlands.

The proposal to vastly increase the volume of water being drawn from A3 for the new development, will have the following severe consequences:

- It will further deprive the wetlands of a source of cold groundwater needed to sustain its health.
- The diversion of this cold groundwater from A3, through the new homes and WWTP into Willow Creek, will increase it's temperature.
- The cold, clean groundwater currently flowing into the wetlands, will be replaced by warmer water laced with treated effluent and flowing from a *different* upstream source.
- This is tantamount to pumping water from its downstream outflow point in the wetlands to a point *upstream* in Willow Creek - a point *already the source of flooding*. This will add 12 million litres of water per day, every day of the year, exacerbating the chronic springtime flooding in the area where the creek enters the wetlands. (See Section 6, "Flooding and Drainage").

Interestingly, the proponent's contention that A3/A4 flow under the Minesing Wetlands and directly into Nottawasaga Bay, would further exacerbate flooding. Rather than diverting water from *within* the wetlands back upstream into the creek, it would be *adding* much more water to the Minesing Wetlands system - water which according to them, would have bypassed the wetlands altogether.

The conflicting views described above - even among the proponent's consultants - clearly demonstrates that a PTTW should not even be contemplated until the feasibility of such a huge project in this area is fully assessed.

Also, as the Ontario Geological Survey is currently conducting a hydrogeological mapping project of south and central Simcoe County, it is important to take into consideration the results of their ongoing field studies before pursuing any further action on the MSP. ***Appendix 5.4***

4.4 Minesing Wetlands

The Minesing Wetlands is a **Ramsar boreal wetland**. The Ramsar Convention (United Nations) developed a **List of Wetlands of International Importance,** which list is defined as being for *"the conservation and sustainable use of wetlands, recognising the fundamental ecological functions of wetlands and their economic, cultural, scientific and recreational value"*. It is renowned for its biodiversity and ranks on a par with the Florida everglades.

It is also a Class 1 provincially significant wetland, an area of natural and scientific interest; and is southern Ontario's largest and most diverse wetland. It is home to a wide range of sensitive, threatened and endangered plants, trees and animals which benefit from its diverse ecology.

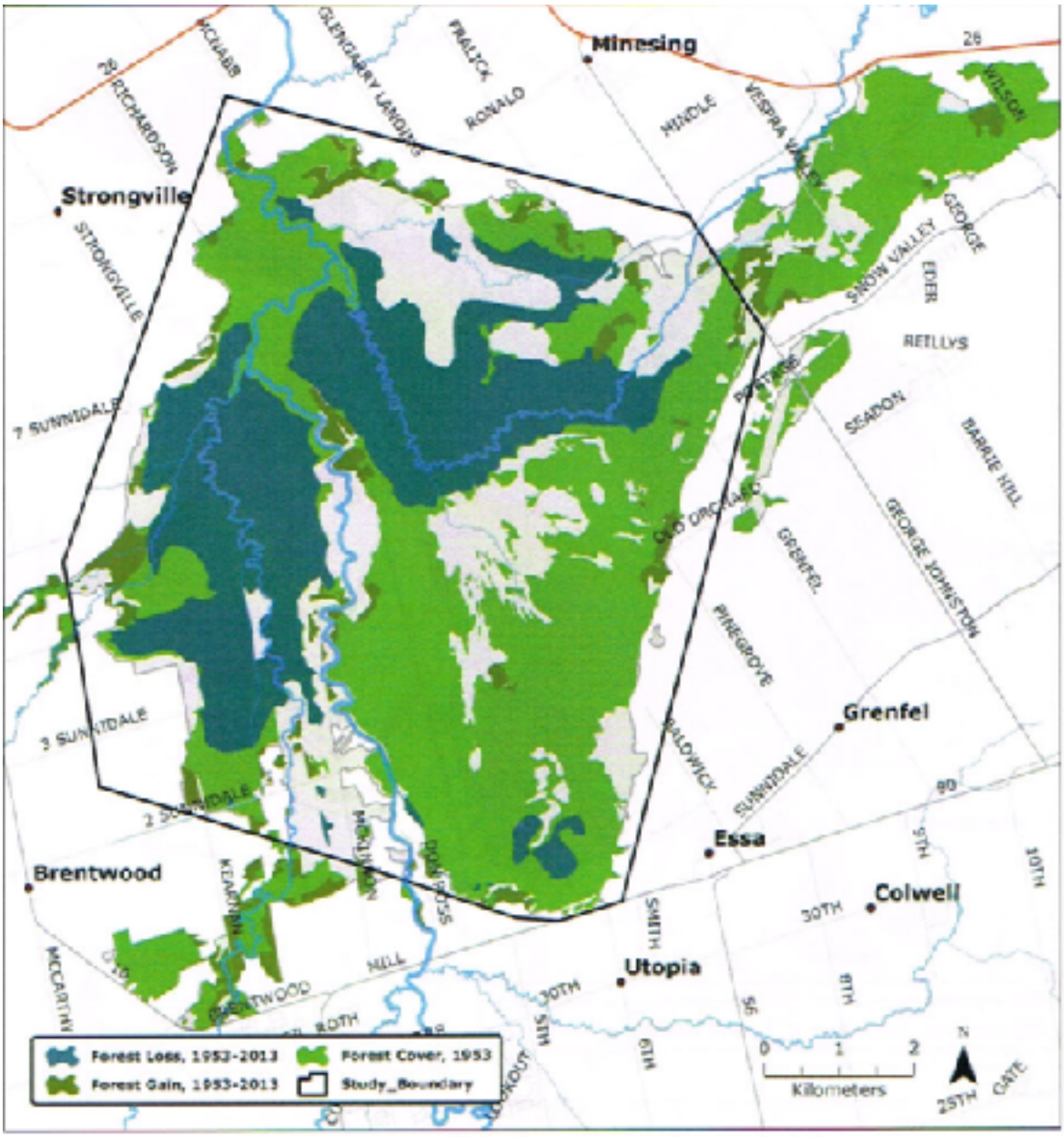
According to the NVCA, "The marsh complex where the creek and the effluent would enter into the Minesing Wetlands supports a number of significant fish and wildlife functions including:

- Northern pike spawning/rearing/adult habitat
- Spawning habitat for unique population of wetland spawning walleye
- Habitat for painted turtle and snapping turtle (special concern)
- Significant staging/stopover habitat for waterfowl and shorebirds
- Significant breeding habitat for sensitive marsh birds and waterfowl
- Foraging habitat for black tern (special concern), common nighthawk (special concern), black crowned night heron, great blue heron and great egret"

The NVCA and others have stated on several occasions that the Minesing Wetlands has been under threat for many years. Although local authorities have attempted to mitigate the flooding problems using everything from bulldozers to dynamite to keep the creeks and drains clear of silt and debris, no permanent solution is in sight. One of the most illuminating reports, *"60 years of forest change in the Minesing Wetlands,"* was written by NVCA staff. It describes the die-off of the deciduous trees in the Wetlands, its causes and some suggestions for remedial action. This will be discussed in more detail in Section 6, "*Flooding and Drainage*". Additional extracts from the publication are included in ***Appendix 6.1*** and the full paper can be found at:

https://minesingwetlandsfriends.files.wordpress.com/2013/12/minesing_forestloss_may8_14_final.pdf

As can be seen in the following illustration (taken from the above paper) most of the forest loss has occurred along the Mad River and Willow Creek, two water courses bordered by increasing levels of development.



Willow Creek flows through the middle of the larger of the two blue areas. These blue areas show forest loss in the Minesing Wetlands from 1953 to 2013. The proposed point of effluent discharge into Willow Creek is in the top right of the picture, just north of Highway 26.

5. HINE'S EMERALD DRAGONFLY - ONE ENDANGERED SPECIES

Discovered here in 2007, the globally rare **Hine's Emerald dragonfly (HED)** lives **only** in the Minesing Wetlands in all of Canada. Within the wetlands, its only known habitat comprises the stretch of Willow Creek adjacent to the Minesing Wetlands and the border area of the Minesing Wetlands into which it flows. This location is not far from the mixing zone. Its rarity derives from the fact it cannot tolerate any environmental changes, especially in water quality/ temperature or lesser/greater water volume than it is accustomed to. Unfortunately, it's ONE known habitat in Canada is right in the path of 12 million litres of treated sewage water every day.

The HIne's Emerald dragonfly was evaluated by the Committee on the Status of Species at Risk in Ontario (COSSARO) and subsequently listed as endangered on January 13, 2012. The federal Committee on the Status of Endangered Wildlife in Canada (COSEWIC) also listed it as endangered.

In 2013, the Ministry of Natural Resources and Forestry (MNRF) commissioned an expert panel, including discoverer Chris Evans of Midhurst, to recommend a habitat recovery strategy for this highly sensitive animal. After considerable research, the committee recommended that the Snow Valley Uplands be included in its protected habitat + a protection zone of 500 metres into Willow Creek. ***(Appendix 6.2)***

Although MNRF included the 500 metre protection zone in its Dec. 2014 *HED Habitat Recovery Strategy,* it did not include the Snow Valley Uplands area as had been recommended ***(Appendix 6.3)***. In its 2014/2015 annual report, the *Environmental Commissioner of Ontario* was noticeably critical of the Minister's rejection of that specific recommendation. ***(Appendix 6.4)***

Note that in its final brochure, MNRF does clearly describe the types of activities which are **"generally incompatible" with *preserving* the HED's habitat** including:

- **"alteration of aquatic or wetland habitat such as altering water quality, flows, levels, vegetation characteristics or increasing sediment deposition**
- **Large-scale construction, such as housing developments** or roads**"** (bolding by MRA)

The Nature Conservancy of Canada (NCC) has been concerned about the health of the Minesing Wetlands for a long time. In recent years, their concerns have expanded to include the fragile habitat of the Hine's Emerald Dragonfly. In spring 2018, they acquired another 43 hectares in the Minesing Wetlands specifically to protect this sensitive creature. ***(Appendix 6.5)***.

6. FLOODING AND DRAINAGE

Every spring there are floods where Willow Creek intersects George Johnston Road. The area can be seen on the Minesing Wetlands illustration above at the northeast corner of the Wetlands. This is where Willow Creek runs parallel to the Swaley Drain, both passing under George Johnson Road about 2 or 3 km downstream of the WWTP discharge point.

According to a report from the Director of Public Works for the Township of Springwater dated March 17, 2014, *"A 2013 survey by the Township Drainage Superintendent survey suggests that the grade in this area is on the order of 0.06% as there is a fall of approximately 2.5 meters over a length of approximately 4,500 meters. For context the minimum ditch grade the Township will consider in a new development is 0.5%".* ***(Appendix 7.1)***. Clearly, a gradient **10 times more gradual** than the minimum the township needs for a development will not be able to handle such a vast quantity of wastewater.

It is unclear how any development proposal could have even been considered with such a gradual gradient available to handle the wastewater. The annual flooding event will be exacerbated if a wastewater treatment plant is permitted to add millions of litres of water per day for 365 days of the year, to the creek only a few kilometres upstream of the Wetlands.

Mr. Harold Parker of 1839 George Johnston Rd and Mr. Bill Haight of 2117 George Johnston Rd (whose farm floods every spring), appeared independently at the April 21, 2017 Township meeting to express concern about drainage and suggest that a municipal drain is needed to alleviate the flooding.

The response from Ainley was to say,

"The request to turn Willow Creek and Matheson Creek into Municipal Drains is outside the scope of the Midhurst Class EA".

Ainley did not acknowledge the problem, or that the development might exacerbate the problem. They did not suggest a solution.

The proponent aims to mitigate the effects of these damaging consequences from their proposed new development by employing LID technologies. LID means Low Impact, ***NOT*** No Impact. There *will be* more run-off, more sand and siltation and more flooding after the development. The additional run-off will be added to the net increase in water from the WWTP as explained in section 4.3 above.

7. WASTEWATER QUALITY - TOTAL PHOSPHORUS

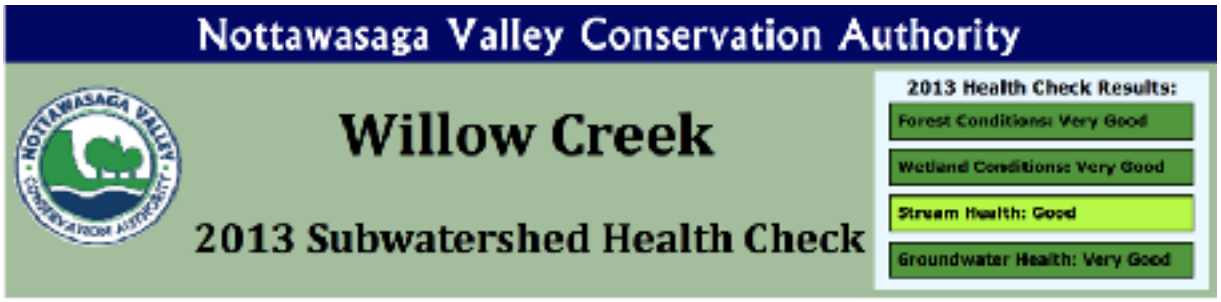
Of the many pollutants that affect water quality, including e-coli, nitrates and pharmaceuticals, we would like to focus on phosphorus. This is because the proponent's stated *objective* for Phase 1 of their developments will *break their commitment to the NVC*A.

The Provincial Water Quality Objective (PWQO) for total Phosphorus is **0.03mg/L.** The proponent, however, states that the treated effluent from the WWTP for Phase 1 of the development will be **0.05mg/L**. ***This is 67% higher than permitted***. The proponent implies that this is not an issue because, at full build out, the phosphorus will be reduced to comply with PWQO. Note that this approach would likely defer compliance for 10 years of more.

Willow Creek and the Minesing Wetlands are thus expected to maintain a healthy ecology while enduring highly elevated phosphorus over an injurious period of time.

How can this be acceptable?

The chart below shows measurements taken in Willow Creek by the NVCA in 2013. 0.018mg/L phosphorus is well within the PWQO. But, note also that NVCA states "*levels greater than 0.03mg/L result in unhealthy stream conditions*" and that *"our healthiest streams have levels less than 0.01 mg/l during low flow conditions*.



Indicators	Willow Creek Subwatershed	Indicator Description	Trend (2007-2012)
Benthic Grade	**2.33**	Insects and other "bugs" that inhabit the streambed are excellent indicators of stream health. Healthy streams receive a score of "3" while unhealthy streams receive a score of "1".	⟷
Total Phosphorus (low flow; mg/L)	**0.018**	Total phosphorus indicates nutrient levels within a stream. Our healthiest streams have levels less than 0.01 mg/L during low flow conditions. During storm events NVCA streams often exceed 0.03 mg/L (Willow Creek range: 0.007—0.105 mg/L). Provincial Water Quality Guidelines suggest that **levels greater than 0.03 mg/L result in unhealthy stream conditions.**	⟷
E. coli (low flow; coliform-forming units/100mL)	**112**	*Escherichia coli* bacteria are found in human and animal waste. They naturally occur in our streams but higher levels may indicate fecal contamination. Ontario Recreational Water Quality Guidelines suggest that waters with less than 100 CFU's/100 mL are safe for swimming. *E. coli* is not closely tied to stream health. *This data is presented for general public information only.*	Insufficient Data

Ratings:	very good	good	fair	poor	very poor

The MOECC stressed that, in its opinion, *"the EA should clearly stipulate the kind of SWM that should apply for the new/expanded roads and what criteria should be used (as a minimum, achieving enhanced level of water quality control; addressing the need for peak flow control; would road works also be required to meet the 25 mm infiltration target discussed in the phosphorus budget work? etc.)"*

Ainley's response was alarming:

"The NVCA's requirement for a net zero increase in phosphorus loading is specifically related to the new development lands (approx. 756 ha) within the Midhurst Secondary Plan (MSP). Therefore, the Phosphorous Budget that has been developed, only accessed the Pre & Post conditions for the proposed development lands. As the transportation improvements associated with this Class EA are external to the new developments (they are within the existing community) they are not bound by the requirements by the NVCA's conditions and in particular the Phosphorous Budget".

If not for the Midhurst Secondary Plan, there would be no reason to widen or upgrade any roads within Midhurst's existing built-boundary. Any additional pollution resulting from road works made necessary by the MSP, must be included in any commitment made by the proponent for a zero phosphorus increase.

Furthermore, misleading statements have been made to Midhurst residents. Springwater Council passed a resolution stating that Midhurst residents will not be required to decommission their septic system and hook up to a new wastewater treatment plant. However, in its letter to NVCA dated April 5, 2018, responding to NVCA comments of June 30, 2017 and a meeting with NVCA staff in October 2017, Ainley writes the following:

"The Environmental Study Report (ESR) that is prepared at the completion of the Class EA, includes a cumulative assessment of the phosphorus loading (from stormwater and wastewater) associated with the development of the MSP and identifies the net difference, between the pre-development condition and the post-development condition for the Phase 1 (300ha) approved lands and for full build out of the MSP. This analysis currently shows a small increase in the phosphorus loading, and the ESR will identify, at a high level, phosphorus offsetting methods such as; ***the elimination of residential septic systems in Midhurst****, watercourse improvements, and/or agricultural improvements and then confirm that it would be possible to implement a phosphorus offset strategy to achieve a net-zero increase. However, the phosphorus offset strategy cannot be developed until after the finalization and acceptance of the Class EA, at which time the net difference in the phosphorus loading will be known (currently estimated at in 93 kg/year for Phase 1 and 66 kg/ year for full build out of the MSP)".*

The above paragraphs demonstrate clearly that the proponent is prepared to:

i) break their commitment to NVCA by exceeding a zero phosphorus increase commitment by 93Kg/year in Phase 1 of the development and 66 Kg/year at full build-out.

ii) mislead the NVCA by failing to point out that any phosphorus resulting from road works in support of the development, but inside the existing community, would be excluded from the Phosphorus Budget

(iii) force the municipality to break its commitments to the residents by forcing them to abandon their investment in septic systems and hook up to a new and otherwise unnecessary WWTP. Who will compensate residents for this expense?

iv) postpone consideration of a phosphorus offset strategy until after "the acceptance of the Class EA, at which time the net difference in phosphorus loading will be known".

As stated earlier, we have focused on phosphorus, but there are many more concerns which should have been addressed early in negotiations with the developers. For example, with the wetlands losing forest canopy to flooding at such an alarming rate, a commitment to ***no net increase*** in the volume of water being added to the Minesing Wetlands is clearly essential.

8. CONCLUSIONS

The MRA, Lotimer & Associates and MRA environmental lawyer Rod Northey remain **unconvinced** that

1. ***the EA is even legal***

2. ***the health and safety of residents will be preserved. This is paramount.***

3. ***groundwater-takings large enough to provide 19 million litres daily for a potable water system bigger than any other groundwater-based system in all of Simcoe County are sustainable for the long term***

4. ***private wells will not experience water shortages from the drawdown caused by pumping deeper inter-connected aquifers***

5. ***Willow Creek's coldwater fishery will not be adversely affected***

6. ***a sewage treatment plant discharging 12 million litres daily of treated effluent can do so with "negligible" harm to its receptors and the rare and sensitive inhabitants, both fauna and flora, of the fragile, unique Minesing Wetlands***

7. ***there will be no increased silting or bank erosion in Willow Creek due to lower or higher water levels, which would further harm the diminishing forest canopy***

8. ***a "net zero increase" in phosphorus loading can be achieved WITHOUT forcing over 1,000 Midhurst homes to hook up to the new wastewater treatment system and excluding run-off from new and expanded roads within the existing village***

Even though we have not discussed here the many financial, transportation, political and other environmental problems, it is still clear to us that the Midhurst Secondary Plan actually deserves a Ministerial Zoning Order to stop it altogether, and thus avoid "environmental and health and safety concerns".

At the very least, such a huge housing development, faced with so many unique, complex and consequential challenges, requires an Individual Environmental Assessment.

Note: Please also review the significant supplementary information in Appendix 7.

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on behalf of our members and many supporters throughout Canada