

Pollock, Meaghan Elizabeth

From: @Dal.Ca>
Sent: April 13, 2023 9:58 PM
To: Environment Assessment Web Account
Subject: Response to EA Report on the Higgins Mountain Wind Farm - Geophysical Impact

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Dear Minister Holman,

As a property owner and someone who enjoys the outdoors and activities available in the Wentworth area I want to express my concerns about this windmill project. I am very concerned about many of the environmental impacts on the community.

The blasting and heavy construction that will take place on Higgins Mountain for this large industrial scale wind project could cause the release of toxic chemicals, like uranium and arsenic that could affect rivers, brooks and wells. Geological surveys and water testing in the surrounding area have indicated high levels of these chemicals.

The amount of trees that will be cut for the expanding of roads and placement of pads for the turbines will increase run off from rain and melting snow causing more erosion. Silting of the Wallace River occurred at the time of previous forestry activity on Higgins Mountain shows this is likely to happen again. At a time when our environment is so fragile this would not be good.

The windmills themselves are another environmental issue. They require a huge amount of resources to produce, the lifespan of the windmills is not long enough to neutralize the production and the materials are not recyclable.

Sincerely,

Wentworth

Sent from my iPad

Pollock, Meaghan Elizabeth

From: @hotmail.com
Sent: April 13, 2023 10:36 PM
To: Environment Assessment Web Account
Subject: Proposed Project Comments

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

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Project: higgins-mountain-wind-farm Comments: When I was small, I used to come to Wentworth Valley every weekend with my family. I grew up here enjoying the beauty and peace of the forests, rivers, and waterfalls. I spent my growing years biking, hiking, fishing and learning about the land. I am 39 now and have children of my own. I have settled in the valley area and want to preserve this beauty for my future and the future of my children so they may continue to enjoy our province, our home. I want us and future generations to understand why we love Nova Scotia, and one of the first steps is protecting our beautiful areas of our province.. Wentworth Valley is an important one of them. Wentworth valley is picture perfect, the area has just recently started to gain momentum in tourism and people coming to the area to enjoy the four seasons. Every year of my life we traditionally take family photos in October with the backdrop of the mountains and the vibrant colors of the trees in the distance. In the past few years I have seen this backdrop begin to diminish due to clear cutting. I dont know much about the politics and Northern Pulp but I know that in my 39 years of being here and enjoying Wentworth Valley I have seen tragic loss of woodlands, Due to clear cutting, What used to be colourful mountains in the autumn are greyed out with bald patches of clear cut land. The animals have lost their home, We lose our home piece by piece. Im sure there have been many comments already made regarding what a clear cut of this size, industrial construction, and increased trucking on our roads here will do to the habitat of moose, deer, birds and Bats - Bats eat ticks and they are just beginning to rebuild their populationâ?;! and Im sure I dont need to mention the noise and the pollution this type of construction will bring to a peaceful area where beauty and tranquility is its main feature. It goes without saying that this project will destroy one of the most beautiful, precious parts of our small province. I love the idea of reducing fossil fuel consumption but in the right placesâ?;! you wouldnt put it in Blomidon or Peggys Cove.. the same beauty lies in Wentworth. Wentworth Valley is just starting to bring some money to the area in advertising its beauty for all seasons.. This money helps the actual residents of Nova Scotia, not for Ontario energy companies 3G that couldnt even be bothered to send a representative to the meeting regarding the project. Nova Scotia is one of the small poorer provinces in Canada, we are able to offer tourism to attract investment- people travel here for our beauty. The pandemic has helped people from all over, to be attracted to Nova Scotia increasing their consumption here and helping us to grow. Wentworth Valley has become a tight knit community after everything that has taken place here in the past few years and I think it should be left alone. Let the community grow, let the forests grow back, allow the animals to live in natural habitat.. allow people to enjoy what we used to be like. Nova Scotians will not see a decrease in costing in their power bills, or anything power related. This does not benefit Nova Scotians, except maybe by Northern Pulp repaying money that it has borrowed from the poor province by leasing out this landâ?;! . I read this on the Halifax Examiner - link posted at the bottom â?oAnd now it turns out that Northern Pulp also stands to do nicely for itself from the land it purchased in Wentworth Valley with that generous loan it received from the province, because it is leasing out the land on Higgins Mountain to the proponents of the proposed wind farm in Wentworthâ? Please read about Greed, and how it is trying to destroy what we have: <https://www.halifaxexaminer.ca/environment/proposed-wentworth-valley-wind-farm-gets-blowback/> Name: Email: @hotmail.com Address:

Municipality: Wellington email_message: Privacy-Statement: agree x: 63 y: 28

Pollock, Meaghan Elizabeth

From: @hotmail.com
Sent: April 13, 2023 10:43 PM
To: Environment Assessment Web Account
Subject: Proposed Project Comments

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

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Project: higgins-mountain-wind-farm Comments: The windmills will just be left there to rot like the last ones - put it somewhere else All the pollution in the air with the trucks coming and installing and machines going all the time and all the forests being cut down please dont allow this in Wentworth It doesnt help Nova Scotians. its going to ruin Wentworth and it just became recognized as a place for people to visit. TIDAL ENERGY?-- windmills can go in a less populated area or an area less of a tourist area... Name: Email: @hotmail.com Address:

Municipality: Wellington email_message: Privacy-Statement: agree x: 74 y: 16

Pollock, Meaghan Elizabeth

From: @Dal.Ca>
Sent: April 13, 2023 10:46 PM
To: Minister, Natural Resources and Renewables; Minister, Env; Environment Assessment Web Account; Minister of Communities, Culture, Tourism and Heritage
Subject: Letter of Opposition to Environmental Assessment Registration Document for the Higgins Mountain Wind Farm (March 2023)
Attachments: FINAL EA Letter of objection Health and welfare April 13.pdf

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Hello Minister Halman and Members of the EA Assessment

Please find attached a letter of objection to Higgins Mountain environmental assessment registration document. I hope that you will reflect on the concerns I outline in my letter in your deliberations as to whether to permit this project to move forward.

April 13, 2023

Honourable Timothy Halman
Minister of Environment and Climate Change
PO Box 441
Halifax, Nova Scotia
B3J 2P8

Dr Minister Halman and Members of EA Review Committee

I am submitting this letter in response to the Environmental Assessment Registration Document provided for the Higgins Mountain Wind Farm Project. I have significant concerns regarding this project and the proposed location in the Wentworth Valley area. I am opposed to granting conditional environmental assessment approval by the Minister of Environment and Climate Change.

I am a longstanding, multi-generational community member of the Wentworth area. My parents invested in a cottage 50 years ago and my husband and I built our current home on Folly Lake over 20 years ago. We've enjoyed lake along with its rugged surroundings since. We feel blessed to have access to pristine wilderness areas as well as the clear waters of the lake for swimming and boating in the summer, skating, and x-country skiing in winter. We have travelled extensively and remain committed to the idea the Wentworth Valley is a unique and beautiful area that we feel should be preserved.

As homeowners we are invested in and support the of the community by way of long term, ongoing financial investment. We contribute to the county's revenue through annual property taxes, we employ local trades people for property upgrades and maintenance, and we shop locally for food, equipment, and supplies. We've purchased ski passes annually for over 40 years, and we support local initiatives including building mountain bike trails, commemorative benches at the provincial park, and supporting local young Olympic potentials.

Over time, and especially in the last 4 years, we've observed a significant increase to the number of visitors to the area and have watched as others have built homes in the Valley. The number of permanent residents, as well as the number of families who've built or purchased second homes, has grown. This investment will result in consistent, reliable, and sustainable revenue to the community/counties so long as the current vistas, wild spaces, trails, and peace that people come here for is preserved.

I will highlight areas of the EA that I feel particularly strongly to emphasize why I am opposed to the Higgins Mountain Wind Farm Project. I will conclude with my rationale why conditional environmental assessment should not be approved.

Comments regarding Section 10: Other considerations:

The EA report concludes there is little to no risk of illness from light flicker, sound, or visual impact. This is a very limited and traditional ideology, where health is defined as the absence of disease. The World Health Organization (WHO) endorses a broader view of health, that it is not simply the absence of disease, it is a state of emotional and physical well-being,

While a wind turbine syndrome hasn't been identified, there are many reports of people experiencing higher levels of annoyance, irritability, and sleeplessness due to the impact of disturbance to visual site lines, light flicker, and sounds emitted from operating turbines. Locally, there is lived experience of local community members such as who've reported deterioration in their quality of life because of turbine noise and light flicker from having lived near the Millbrook turbine project.

Jeffrey et. al. (CFP Journal. Vol 59: MAY • MAI 2013 | Canadian Family Physician) states reports of health-related complaints can be expected as more industrial wind turbine projects are built.

Section 10.3: Light Flicker

Strumm Consulting conducted the EA for the Millbrook in 2013 as well as the Higgins Mountain EA in 2023. The software used in 2013- Wind Pro 2.8, and the 3.5.552 version are similar. The descriptions in these two reports are very similar. We have heard from _____, a resident in the community near the Millbrook project, that the expected outcomes of the 2013 EA study have not match lived experience. Given that similar technology and process were used to for the 2023 EA, so we do not have confidence the flicker effect won't be significant, nor do we believe the potential effects from sound will be mitigated.

The estimation of daylight hours stated in the EA for the area was based on average daily hours from the Kentville weather station (Table 10.4) when use of worst-case scenarios resulted in the light flicker exceeding the 30 min/day, 30 hours per year limit (Table 10.5) for at least 3 receptors. This methodology underestimates our lived experience of sunlight hours in this area for much of the year, and especially through fall and winter months. The study doesn't account for topography, the height of the turbines themselves, or the unique environment in the area and only accounts for cloudless, fogless days rather than days with intermittent sun. Assumptions are made based on modelling that doesn't relate well to the topography, turbine size, or conditions in the project and surrounding areas.

With similar testing processes and equipment, and with conclusions being drawn from assumptions that don't reflect lived experience, the conclusion that light flicker effect is "low magnitude, within LAA, medium duration, intermittent, reversible and not significant" is not reasonable. The consultants haven't proven no harm and furthermore, the conclusion that monitoring and mitigation isn't required is not accurate. Again, lived experience of those troubled by light flicker in other jurisdictions, most notably nearby by _____ at Millbrook, has demonstrated that rigorous monitoring and mitigation strategies are required to hold operators accountable to maintaining operations within expected levels and standards.

Section 10.4 Visual Impact:

From their studies, the authors conclude the insignificant visual impact on the community. I would challenge this for several reasons. The locations chosen for the study, along with the technology are inadequate in capturing the full impact on the valley's current landscape vistas.

This area attracts significant numbers of visitors for outdoor pursuits, and many others have invested in properties that capitalize on the view planes. Visual impact studies need to be of the highest quality given the catastrophic impact on tourism and property value if view planes are impacted. The EA has employed inadequate technology and has not adequately sampled areas of the valley to conclude such a low degree of impact. In section 8.4.3 the authors speak of the impact of turbines on tourism. Their conclusion that wind turbine farms could be a draw for tourism is inaccurate and presumptive. There is significant potential for harm to socio-economic environment. The visual impact studies need to be re-done with widespread input from local community stakeholders as to the view planes to consider.

Section 10.5 Sound:

The conclusions regarding sound impact are based on assumptions that haven't been tested locally or validated under local conditions (i.e., consultation with community members). For example, as noted in the EA, residents in the area are currently exposed to industrial and recreational noise from Lafarge gravel pit, the railway, ATVs, and snowmobiles, from which they conclude that community members would accept the noise generated by the turbine project. However, the EA disregards the intermittent and episodic nature of existing sounds. Snowmobiles noise is intermittent and limited to daylight hours during winter months, and only when snow conditions allow. The train passes through the area infrequently; again, with each pass-through lasting minutes. The gravel pit is a localized operation that is impactful weekdays at certain times of the year. The turbines erected in 2004 had limited operational time after construction.

The authors assume the community will be tolerant of more sound having accepted the existing noise. Without having tested this hypothesis with community members, one cannot accept this as fact. In fact, we do not accept that more sound is acceptable, nor do we believe that additional sound won't result in increasing levels of annoyance which negatively impacts quality of life and sense of well-being.

The authors presented data on the expected noise level (dBL) from construction as well as during operations. The consultants '*anticipate*' construction noise to last two years (2023-2025) and predict sound levels to range from 78

dB- 115 dB, exceeding NSECC standards (Table 10.9). The EA neglects to include noise from blasting that should be anticipated during road and turbine construction. Even without the noise of blasting, sound thresholds exceed levels for causing hearing damage, sleeplessness, and annoyance.

The study is inadequate; it doesn't consider the noise of blasting during construction, the modelling doesn't reflect the impact of local topography on sound transmission, and there is no evidence of public engagement to test the community's acceptability of or tolerance for the degree of annoyance, disruption, and potential for impact on hearing. This is unacceptable, especially as construction is expected to be carried out over 2+ years. We should expect that industrial initiatives will not cause harm. This conclusion can't be drawn from the current EA as it stands.

The EA must demonstrate the Higgins Mountain Turbine Project will not cause harm to environment and eco-systems. The evidence presented does not meet this threshold and there is a very real risk if this EA is approved, of significant harm to biodiversity, socio-economic viability, health and welfare of community members, and the sustainability of local and connected eco-systems. I do not believe the EA submitted by the Higgins Mountain Turbine project meets the threshold of acceptability for assessment of risk and potential for harm. This EA should be rejected on grounds that it does not meet the acceptable threshold for guarantee of limited or no risk.

Sincerely,

Pollock, Meaghan Elizabeth

From: @Dal.Ca>
Sent: April 13, 2023 11:26 PM
To: Environment Assessment Web Account; Minister, Env; Minister, Natural Resources and Renewables; Minister of Communities, Culture, Tourism and Heritage
Subject: Letter of Opposition to Environmental Assessment Registration Document for the Higgins Mountain Wind Farm (March 2023)
Attachments: Endangered Moose letter of Objection.pdf

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Hello

Please find attached letter of objection to the Environmental Assessment Registration for the Higgins Mountain wind Turbine Project (March2023)

Respectfully submitted,

April 13, 2023

Honourable Timothy Halman
Minister of Environment and Climate Change
PO Box 441
Halifax, Nova Scotia
B3J 2P8

Letter of Opposition to Environmental Assessment Registration Document for the Higgins Mountain Wind Farm
(March 2023)

The Higgins Mountain Wind Farm is to be in areas of significant habitat for the endangered mainland moose in the province. The NS government has committed to preservation and restoration of the NS mainland moose population. In 2019 the NS Government commissioned a team of scientists to develop the mainland moose recovery plan and in 2021 with the press release on the final report Natural Resources and Renewables Minister Tory Rushton stated *“Moose are an important part of our province’s natural and cultural identity. We now have an evidence-based recovery plan, which sets priorities and timelines for further action to help save this important species.”*

The plan outlines the requirements for meeting the promise rebuilding the mainland moose population to a sustainable level for years to come.

The area proposed for the wind turbine project is expansive and encroaches on key areas of core and essential habitat and connectivity not only for the moose, but the endangered fisher. Construction of roads, deforestation, dust production, erosion, impact on wetlands, stress from noise and other human effects, along with loss of connectivity are all noted as threats to these and other key flora and fauna.

Dr Karen Beazley, main scientific contributor to the NS Mainland Moose Recovery program has recommended the following for supporting moose population recovery:

Re roads, fences, lighting and other linear infrastructure.

1. Orient and clump them together in ways that do not sever or intersect intact forest or other natural habitat linkages through the site.
2. Plan in a spatial way that retains wide (300 m minimum; 1000 m ideal) habitat linkages/corridors through the site in multiple directions, especially to connect with intact habitat beyond the site.
3. Retain both hardwood and softwood and access to water to provide summer and winter security and thermal cover and forage.
4. Include mechanisms to deter motorized human access beyond that necessary to service the site.
5. Retain and enhance natural cover for moose and other SAR habitat delineated as core habitat in Recovery Plans.
6. Retain and enhance natural cover for moose and other SAR habitat modeled as high habitat suitability or high likelihood of presence as delineated in Recovery Plans.
7. Avoid new road construction/expansion/enhancement in areas delineated as unroaded/low road density in Recovery Plans.
8. Retain as much natural cover as possible to favour moose habitat over deer habitat to minimize incursion of deer and associated *P. tenuis* (brain worm fatal to moose and carried by deer).

None of these have been considered in the EA. And as well, the study doesn’t even consider such risks as wildfire, or the additive impact of Hurricane Fiona on habitat loss.

The EA does not provide substantive evidence of no harm or risk to endangered species as well as other species that support the ecosystems. As in other sections of the EA, assumptions are used to draw conclusions about the degree of impact, with a default conclusion of low-level impact without high quality evidence this is a legitimate conclusion. One cannot conclude without doubt, there won’t be significant or irrevocable harm the moose

population if this project goes ahead. The risk that the mainland moose population will be decimated by this project is a reality.

Responsibility for protection of this mainland moose and other endangered species falls squarely on government. The province has recognized the importance of this species to the province's cultural history as well as to biodiversity by committing to operationalizing the Mainland Moose Recovery program. This should not be approved EA based on vague and non-committal statements regarding potential for harm.

Loss of this species through lack of due diligence is not a legacy we want to be known for by future generations. Without substantive irrefutable evidence of no harm to Mainland Moose recovery this EA and the Higgins project should be disqualified.

Sincerely,

Pollock, Meaghan Elizabeth

From: @gmail.com
Sent: April 14, 2023 3:49 AM
To: Environment Assessment Web Account
Subject: Proposed Project Comments

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

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Project: higgins-mountain-wind-farm Comments: Very much in support of this project. Name: Email:
@gmail.com Address: Municipality: Dartmouth email_message: Privacy-Statement:
agree x: 70 y: 21

Pollock, Meaghan Elizabeth

From: @gmail.com
Sent: April 14, 2023 8:37 AM
To: Environment Assessment Web Account
Subject: Proposed Project Comments

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

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Project: higgins-mountain-wind-farm Comments: Please put the brakes on this project. I've spent the past 34 years on the trails in the Wentworth Valley. The irreversible risks associated with this project should not be overlooked. More protection for this natural wilderness is required. Name: Email: @gmail.com Address: Municipality: Wentworth email_message: Privacy-Statement: agree x: 68 y: 28

Pollock, Meaghan Elizabeth

From: @bellaliant.net
Sent: April 14, 2023 8:55 AM
To: Environment Assessment Web Account
Subject: Proposed Project Comments

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

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Project: higgins-mountain-wind-farm Comments: I support this project! Name: Email:
@bellaliant.net Address: . Municipality: Halifax email_message: Privacy-Statement: agree x: 54
y: 18

Pollock, Meaghan Elizabeth

From: @gmail.com
Sent: April 14, 2023 9:00 AM
To: Environment Assessment Web Account
Subject: Proposed Project Comments

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

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Project: higgins-mountain-wind-farm Comments: No to Higgins Mountain Wind Farm. Please take this opportunity to take the long view here and protect this unique wilderness area for enjoyment by present future generations. It is a burgeoning tourist area providing recreation opportunities for a rapidly growing urban population who crave the outdoors. We need to protect natural areas - once gone they cant be replaced. Please do the right thing for the generations to come and halt this project. Name: Email: @gmail.com Address: 7
Municipality: Wentworth email_message: Privacy-Statement: agree x: 58 y: 20

Pollock, Meaghan Elizabeth

From: gmail.com>
Sent: April 14, 2023 9:30 AM
To: Environment Assessment Web Account
Subject: Higgins Mountain Wind Farm Project

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**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

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Hello - I am writing to express my concern over the Higgins Mountain Windfarm Project.

It is my understanding that the area is unique in it's biodiversity

Many endangered and protected species including birds, bats, lichens, moose, fishers, salmon, etc... have made this area their home. They have provincial and/or federal Species Recovery but most are not mentioned in the EA.

I understand the need and applaud our government for seeking out Renewable Energy sources, however moving quickly without due diligence is part of why our environment is in the state it is in. We are smarter than previous generations and have the tools available to us to make better decisions to protect the future of our planet. I would ask that we use those tools to do a fair and accurate assessment of the true potential impact on our future environment and not one solely focused on carbon reduction. The unintended consequences are usually the worst ones.

Thank you for your time

NS Resident since 1994

Pollock, Meaghan Elizabeth

From:
Sent: April 14, 2023 9:33 AM
To: Environment Assessment Web Account
Subject: Proposed Project Comments

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

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Project: higgins-mountain-wind-farm Comments: Alternate power sources are required other than coal and oil. I support the Higgins Mountain Wind Farm.. Name: Email: Address:
Avenue Municipality: Dartmouth email_message: Privacy-Statement: agree x: 62 y: 16

Pollock, Meaghan Elizabeth

From: @klmdconsulting.com
Sent: April 14, 2023 9:38 AM
To: Environment Assessment Web Account
Subject: Proposed Project Comments

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

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Project: higgins-mountain-wind-farm Comments: My family has been vacationing in the Wentworth Valley at Folly Lake for 6 generations. We have enjoyed sitting out and looking over the south western sky above Higgins mountain every summer, watching the setting sun so that we can enjoy a late dinner and look forward to an evening of fun and games. The wind turbine project currently proposed by the Higgins Mountain Wind Farm Limited Partnership for Higgins mountain will disturb this wonderful experience. The construction and erection of the largest and tallest wind turbines currently deployed will dominate our south western horizon. In reviewing the Environment Assessment document and based on the location maps and models images therein three turbines 15, 16 and 17 will seriously impact our visual landscape. These 3 will dominate our view and should be moved further back or eliminated completely! Not only are we concerned about the visual pollution of these turbines, we are also concerned about the impact of infra-sound or low frequency sound waves. European studies indicate that the larger the turbine the stronger the infra-sound. Infra-sound from large turbines in Germany were found to penetrate buildings and could be picked up as far as 20 km away . Infra-sound is known to cause health and sleep issues in up to 3 out of 10 people. 4 out of 10 people were at risk of Covid related illness How will the province mitigate any long term health issues associated with the completion of a project of this magnitude with a technology and turbine size that has never been erected or monitored? Regards

Name: Email: @klmdconsulting.com Address: Municipality: Folly
Lake email_message: Privacy-Statement: agree x: 58 y: 23

Pollock, Meaghan Elizabeth

From: @gmail.com>
Sent: April 14, 2023 9:51 AM
To: Environment Assessment Web Account
Cc: Minister, Env; Minister, Natural Resources and Renewables
Subject: Higgins Mountain Wind Farm Environmental Assessment

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April 14, 2023

Minister Halman

Department of the Environment and Climate Change

1894 Barrington St, Suite 1800

PO Box 442,

Halifax, NS, B3J2P8

Dear Minister Halman,

I am writing to express my strong opposition to the Higgins Mountain Wind Farm Environmental Assessment. As Minister of the Environment and Climate Change, it is your responsibility to insure the protection of the environment and the conservation of "species at risk" like the Nova Scotia Mainland Moose as well as honour Canada's commitment to biodiversity.

I am a long-time resident of the Wentworth Valley/Folly Lake area and I am very concerned that the Higgins Mountain Wind Farm and other industrial projects proposed for this area pose a significant threat to the Nova Scotia Mainland Moose and other species at risk who also rely on the same forested habitat. This project would also dramatically impact a rural community which chooses to live in this unique environment, through visual impact, noise, construction, and the economic fallout from damage to ecotourism.

The Nova Scotia Mainland Moose is a species that is already at-risk due habitat loss and fragmentation. A network of new or widened roads and the destruction of the forests which provide a natural cover proposed by the Proponent would only exacerbate the problem. Further, these new and widen roads would only serve to introduce more deer to the area potentially carrying the brain worm lethal to the mainland moose. The Nova Scotia government has developed the Nova Scotia Mainland Moose Recovery Plan "to address threats, protect and enhance habitat, improve connectivity and ensure regular monitoring and assessment of population health". The Proponent has failed to provide a mitigation plan to address the risks to the mainland moose. In fact, the EA indicates that the mainland moose is "Not Significant", and no monitoring is required. I fail to see how this is acceptable.

The unique biodiversity of this area would be threatened by the intensive construction and ongoing operations of a wind farm. This area is home to wetlands and protected species including birds, bats, lichens, moose, fishers, and salmon but most are not mentioned in the EA and if they are, they are deemed to be "Not Significant" thereby no monitoring and in many cases, no mitigation efforts required. The loss of valuable wildlife habitats and the reduction of biodiversity fails to live up to Canada's commitment at the Montreal UN Biodiversity Conference in 2022 (COP 15) to protect biodiversity.

The cumulative effects of current industry, a quarry, a defunct wind farm, forestry, railroad and a newly approved wind farm in the vicinity as well as the proposed Higgins Mountain Wind Farm will only exacerbate the negative implications for wildlife and the local community. There are as well, 2 wind farms, RES and SWEB, which would also be in the near vicinity, who are currently preparing for the next RFP. The Minister should consider the cumulative effects of all this industry on such a fragile ecosystem which supports such valuable wildlife, flora and fauna.

In conclusion, the Higgins Mountain Wind Farm Environmental Assessment fails to prove that their mitigation efforts will protect this unique natural environment. In fact, they indicate that the effects on wildlife are "Not Significant" and any mitigation efforts required need not be monitored.

I strongly urge that the Higgins Mountain Wind Farm Environmental Assessment be rejected.

Sincerely,

Folly Lake, NS

Pollock, Meaghan Elizabeth

From: @gmail.com
Sent: April 14, 2023 10:15 AM
To: Environment Assessment Web Account
Subject: Proposed Project Comments

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

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Project: higgins-mountain-wind-farm Comments: reducing our greenhouse gas emissions and transitioning to clean, renewable and affordable electricity is critical to our future! Name: Email: @gmail.com Address: Municipality: Dartmouth, NS email_message: Privacy-Statement: agree x: 67 y: 22

Pollock, Meaghan Elizabeth

From: @gmail.com
Sent: April 14, 2023 10:27 AM
To: Environment Assessment Web Account
Subject: Proposed Project Comments

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

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Project: higgins-mountain-wind-farm Comments: I fully support this project and projects like this. Climate change is the issue of our time but also the opportunity of our time. Let's move forward on renewables as soon as possible. Name:
Email: @gmail.com Address: Municipality: Dartmouth email_message:
Privacy-Statement: agree x: 1220 y: 701

Pollock, Meaghan Elizabeth

From:
Sent: April 14, 2023 10:35 AM
To: Environment Assessment Web Account
Subject: Proposed Project Comments

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Project: higgins-mountain-wind-farm Comments: Totally supporting - we need these projects and research has proven there is no negative environmental impact. Don't let a few negative and vocal detractors interfere with what most Nova Scotians favor. Name: Email: Address: Municipality:
Dartmouth email_message: Privacy-Statement: agree x: 81 y: 23

Pollock, Meaghan Elizabeth

From: @klmdconsulting.com
Sent: April 14, 2023 10:46 AM
To: Environment Assessment Web Account
Subject: Proposed Project Comments

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

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Project: higgins-mountain-wind-farm Comments: My great grandfather built a family compound at Folly Lake in the late 1800. At each end of the great room in his residence were the heads of Mainland Moose that he and his brothers hunted in the Folly and Wentworth Valley area and mounted as memories of a great day and to provide stories passed down through generations. My family would be amazed and thrilled to see a moose swimming across Folly Lake to get to our land and gardens or walking up the cottage road. They are such a huge and magnificent animal. The Wind turbine project currently proposed for Higgins mountain by the Higgins Mountain Wind Farm Limited partnership has the potential to destroy or harm the habitat of these moose. The province funded and released in November 2021 a revised study Mainland Moose Recovery Plan to outline the importance of a recovery plan for the endangered Mainland Moose. In it it identified key areas that need to be protected and monitored of which the Wentworth Valley was one. This area is a very important location for the migration of these animals. The height of the mountain range and forest density provides the temperature ranges in both winter and summer as well as snow levels preferred by the Nova Scotia Mainland Moose. The Environmental Assessment Study outlines that the proposed Wind Turbine project area is ranked suitable to high based on a weighted model as shown in Section 7.4.3.3. under the heading Mainland Moose Suitability Modeling. However, how does the proponent and province plan to monitor, report and mitigate the impact to these Location Sensitive Mainland Moose during the lengthy construction phase of this project? Regards Name: Email: @klmdconsulting.com Address:

Municipality: Folly Lake email_message: Privacy-Statement: agree x: 46 y: 27

Pollock, Meaghan Elizabeth

From: @kerrcontrols.ca>
Sent: April 14, 2023 10:50 AM
To: Environment Assessment Web Account
Subject: Higgins Wind Turbine EA response

You don't often get email from [redacted]@kerrcontrols.ca. [Learn why this is important](#)

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To Whom it may concern,

I am writing as a homeowner in Wentworth, [redacted]. My family has owned a home here for two generations. I am very concerned about the scale, visual impact and continual noise pollution the proposed wind turbine facility will potentially have on the beautiful, scenic Wentworth Valley.

I feel the proponents have been glossing over the visual impact the large turbines will have in Wentworth Valley from various view points on my property and my neighbours.

I am concerned the large scale of the project will negatively affect property values in Wentworth, which is seeing a four season renaissance of sorts with the growing mountain bike community and a growing number of year round residents and young families.

Please consider the impact this large scale power generating facility will have on a small rural Nova Scotia community that is now a growing tourism destination because of its natural state and beauty.

Best regards,

Get [Outlook for iOS](#)

Pollock, Meaghan Elizabeth

From:
Sent: April 14, 2023 10:53 AM
To: Environment Assessment Web Account
Subject: Concerns about the Higgins Mountain. Wind Project

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<https://aka.ms/LearnAboutSenderIdentification>]

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Minister Tim Hayman

Sent from my iPhone

Pollock, Meaghan Elizabeth

From:
Sent: April 14, 2023 11:14 AM
To: Environment Assessment Web Account
Subject: Re Higgins Mountain

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Dear Minister Hallam and to whom it may concern:

I am writing to express my concerns regarding the proposed Higgins Mountain Wind Farm. As a former land owner in the Wentworth Valley I have a true appreciation for the beauty and appeal of this area . To my mind the the Wentworth Valley is the iconic heart of Northern Nova Scotia.

The proposed Higgins Mountain wind farm can not help but destroy the aesthetic appeal of this peaceful valley to the detriment of residents and the potential development of this area as a destination for tourists and outdoor enthusiasts .

Wind power is great, but this is not the right place. This proposed project is way to close to one of our environmental treasures.

Thank you for your attention.

Sincerely

Sent from my iPhone

Pollock, Meaghan Elizabeth

From: @gmail.com
Sent: April 14, 2023 11:20 AM
To: Environment Assessment Web Account
Subject: Proposed Project Comments

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

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Project: higgins-mountain-wind-farm Comments: Greetings. Wind turbine development on the Higgins Mountain is ecologically destructive to old growth forest and wildlife passages, mainland moose core habitat, destructive to the community as a nature preserve destination and destructive to headwaters for numerous watersheds and sensitive ecological landscapes within the proposed development site. As I have seen after the roads, clear-cuts and tree harvesting on the mountain summits that border my familys property on Higgins Mountain, this development has desecrated the thriving ecology of 100s of acres some of our last Acadian forests left in this province. Sediment regimes have been altered and silt is seen in our valley brooks that has never been seen before. My entire family is firmly opposed to this wind farms development. Please take this into consideration because this wind turbine proposed development will be an ecologically devastating thing to bring to our peaceful mountain community. Name:

Email: @gmail.com Address:

NS BOM 1Z0

Municipality: Wentworth email_message: Privacy-Statement: agree x: 86 y: 19

Pollock, Meaghan Elizabeth

From: @gmail.com>
Sent: April 14, 2023 12:48 PM
To: Environment Assessment Web Account
Cc:
Subject: Comments re Higgins Mountain Wind Farm Project

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Dear Sir/Madame

I am submitting to you my Comments re the Higgins Mountain Wind Farm Project Environmental Assessment
The NS Minister of Environment, Tim Halman should REJECT this project for many reasons.

There is a lack of evidence that harm is unlikely on various factors related to the Proponents EA Document and therefore the Minister should reject this Environmental Assessment. The Proponent has not shown how adverse effects and environmental impacts will be mitigated by the Project.

There is concern that mainland moose will be effected.

There is an essential ecological corridor in the Higgins Project area that must be protected.

There is unique biodiversity throughout the Project Area

There will be serious harm to the natural scenic beauty which supports nature based tourism of the area

Socio- economic impacts - The community and local business leaders requested and were promised a comprehensive **Socio-Economic Impact Study** but received about five pages of very incomplete tourism considerations.

The large scale of the Project impacts three major watersheds

For these reasons, the NS Minister of Environment, Tim Halman should REJECT this project

Thank you Please take these concerns seriously.

Tatamaquoche, NS,

Pollock, Meaghan Elizabeth

From: @eastlink.ca>
Sent: April 14, 2023 1:04 PM
To: Environment Assessment Web Account
Subject: Comments Higgins Mountain Wind Farm

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April 14 2023

Dear Department of Environment and Climate Change:

The Higgins Wind Farm Project does not have a social license.

The local community does not want it.

The concept of social license is the direct result of indigenous rights advocacy and has become an indispensable aspect of business "best practices" in Canada to such an extent it has been enshrined in Federal Law under Bill C69 .

The Sipekne'katik First Nation is a proponent partner of the Higgins Wind Farm Project , were they the local residents and opposed to the project it would not gain Government approval for its lack of social license.

Profit, not environmental stewardship for Nova Scotia's atmosphere is the driving force behind the Higgins Wind Farm Project.

The history of the project has been to provide power to the U.S. market and there are no assurances that will not be the case in future which would make a mockery of this as a Nova Scotian greenhouse gas reduction initiative. Has Massachusetts no wind or do they have no desire to have Wind Farms but would happily impose them on Nova Scotians?

The Environmental Assessment is hundreds of pages , a disjointed patchwork cobbled together from previous proposal designs. There are so many anachronisms throughout that it is often unclear whether or not any particular passage within is still relevant to the actual proposal covered by the Environmental Assessment. The public is left sorting through this morass and given less than a month to respond and do so with no financial support to consult with needed experts for a fact based response to this E.A. Public comments are given an unrealistic time constraint without the Proponent or the Government providing financial support to allow the community a comprehensive review of the documents. This in effect is stifling of dissent and predisposes the project to a successful outcome. By definition the proposal is biased, supportive studies are selectively chosen and unsupportive studies excluded . Nova Scotians deserve that a project of these far reaching consequences should be professionally vetted by an independent body and not rely entirely on a set of facts assembled by paid consultants.

The Environmental Assessment does not do a comprehensive review of the underlying bedrock geology , the possibilities of acid rock drainage, uranium or arsenic exposure, their infiltration in to water wells or the disruption of the water supply on surrounding properties' wells.

The Environmental Assessment does not include any historic environmental monitoring of existing Wind Turbines Farms on the environment. What effect will the project have on flora, fauna and residents? Known problems with Wind Turbines are simply dismissed throughout the document as of no real consequence. Habitat loss, bird kills, loss of property values, damage to human health destruction of a natural landscape are of consequence. Impact mediation efforts appear to be no more than the routing of roads and pads away from watercourses and documenting damage, such as maintaining a dead bird count registry. There are no remediation plans. Once built and operating any deleterious effects on the environment, the residents, property values, failure to meet legally prescribed operating standards, will not stop the Higgins Wind Farm from operating with ongoing damages. The Study area documents a complex and rich ecosystem of multiple watercourses supporting a wide area of flora and fauna, many of which fall under vulnerable, threatened or endangered species.

It is reasonable to assume that those deleterious health effects experienced by humans would be shared by the fauna within range. Where are Environmental Assessment studies documenting the effects of Wind Turbine Farms on fauna? Evidence of effects on animal migration patterns, cumulative effects on population counts, fish and amphibian populations, den occupancy levels and birth rates, changes in fish counts, bird counts, bat counts are not documented. What evidence is there that moose are impervious to the imposition of a wind farm in their territory? There is no evidence within this Environmental Assessment that documents a benign impact of massive industrial turbines, rather it assumes there will be damages but simply downplays them as insignificant.

The proponents would have you believe that there are no ill health effects associated with wind farms. However, that science is far from conclusive and there is a great deal of evidence to indicate there are serious human health concerns associated with wind turbines.

Regarding the effect of sound downplayed within the E.A infrasound misrepresented and Massive Wind Turbines which are not household appliances :

Despite the well-documented effects of infrasound on animals and humans, the vast majority of studies of sound from wind turbines ignore the effects of infrasound; they instead compare wind turbine sounds to audible sounds coming from benign appliances such as refrigerators, say Alec Salt and Jeffery Lichtenhan of Washington University's School of Medicine, authorities in the field of acoustics. The failure to take infrasound seriously, they state, is "quite astounding ... Given the knowledge that the ear responds to low frequency sounds and infrasound, we knew that **comparisons with benign sources were invalid and the logic [of relying on audible] sound measurements was deeply flawed scientifically.**"

Salt and Lichtenhan have documented the many ways that wind turbine noise can affect the ear, concluding that it is "highly unlikely" that wind turbines don't present a danger. "Given the present evidence, it seems risky at best to continue the current gamble that infrasound stimulation of the ear stays confined to the ear and has no other effects on the body."

Their view, and that of other experts in the acoustics field such as Harvard Medical School's Steven D. Rauch, is that, in the absence of other explanations, it is preposterous to dismiss wind turbines as a cause of wind turbine syndrome (WTS) "The patients deserve the benefit of the doubt," says Rauch, who believes that wind turbine syndrome is real. "It's clear from the documents that come out of the industry that they're trying very hard to suppress the notion of WTS and they've done it in a way that [involves] a lot of blaming the victim."

<https://financialpost.com/opinion/lawrence-solomon-ill-winds-blow-from-wind-turbines>

The Wind Farm Project computer model does not measure infrasound dismisses microseismicity and relies on studies that are contradicted by many notable scientific papers.

[Scientific Reports](#) volume 11, Article number: 3190 (2021) [Cite this article](#)

- [Published: 04 February 2021](#)
- IS exposure relates to grey matter decline in brain areas that are associated with somatomotor- and cognitive functions such as working memory (bilateral cerebellum VIIIa) and higher auditory processing (angular gyrus, BA39), comprising functions such as speech intelligibility/production or semantic/lexical processing and reading

Studies have widely affirmed that exposure to LFN can have adverse health effects on humans, including annoyance, stress, sleep disturbance, headache, tinnitus, irritation, exhaustion, anxiety, as well as hearing loss, impaired concentration, and in some cases chronic fatigue [1, 9–15]. LFN from wind turbines may cause vibroacoustic disease, characterized by an increased risk of epilepsy, cardiovascular effects, and coronary artery disease [16, 17]. The percentage of people suffering ill effects of LFN increases with increasing noise levels [18–20]

The often quoted Health Canada study on wind turbines used simulated noise and did not include microseismicity levels. Health Canada's conclusions are not supported in the extensive review of that the EA incorrectly dismisses noise transmitted through the ground is undetectable by humans. Presumably they have never heard the approach of a train through the ground. What is the cumulative effect of 18 Giant Turbines on both infrasound and microseismicity?:

Open Access Library Journal
2018, Volume 5, e5046
ISSN Online: 2333-9721
ISSN Print: 2333-9705

Health Canada's Wind Turbine Noise and Health Study—A Review Exploring Research Challenges, Methods, Limitations and Uncertainties of Some of the Findings

".....The most important conclusions here are 1) the microseismicity creates higher levels of noise inside a house than that of the airborne noise radiated by a WT and 2) bedrock being in low depths underneath the soil has an additional contribution to the generated acoustic noise by the induced microseismicity [52]....."

".....actual field noise measurements indicate the occurrence of LFN/infrasound [52] [57] [58]. Four firms which cooperatively conducted actual WT noise measurements commented they were of "the opinion that enough evidence and hypotheses have been given herein to classify LFN and infrasound as a serious issue, possibly affecting the future of the industry....."

"Given Health Canada's advisories, the unresolved research and knowledge gaps, the limitations and uncertainties presented in this paper, reliance of Health

Canada Study results to support the safety of WT in literature and during judicial processes should be considered with caution in predicting or understanding the health risks of WT noise."

<https://puc.sd.gov/commission/dockets/electric/2018/EL18-053/prefiledexhibits/intervenors/kilby/K7.pdf>

The science of wind turbine noise is not resolved and the literature is often entirely unrelated to current turbine sizes and designs .

The Proponents quote the outdated Ontario Ministry of Health's study that did not find a causal link between WT noise and health. That study involved some turbines that were 100kw vs Higgins Wind Farm proposed use of 6,6 megawatt designs, many multiples of difference in size.

Canadian Audiologist Vol 10 issue2 2023

Adverse Health Effects of Industrial Wind Turbine Noise: How the Ear and Brain Process Infrasound

We know that things we cannot see, touch, taste, or smell can hurt us, so why is it unreasonable also to believe that what we can't hear might also hurt us?

Dr. Nina Pierpont, in describing Wind Turbine Syndrome (WTS), has expressed her belief that many of the symptoms comprising WTS are mediated by overstimulation of the vestibular system of the inner ear by ILFN.

<https://canadianaudiologist.ca/opi/adverse-health-effects-of-industrial-wind-turbine-noise-how-the-ear-and-brain-process-infrasound/>

Altered cortical and subcortical connectivity due to infrasound administered near the hearing threshold – Evidence from fMRI

Also, since the brain's response to prolonged near-threshold IS involves the activation of brains areas, which are known to play a crucial role in emotional and autonomic control, a potential link between IS-induced changes of brain activity and the emergence of various physiological as well as psychological health effects can be established. Transient upregulation of these brain areas in response to below- or near threshold IS may thus reflect an initial stress response of the body, eventually promoting symptom formation as stimulation occurs repeatedly and additional risk factor come into play

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0174420>

Summary:

The Wentworth Valley is renown for its beauty and the access to nature it provides to substantial numbers of Nova

Scotians as well as significant numbers of tourists. I suggest that a large Wind Turbine Farm will reduce its appeal as a destination for nature lovers and there will be attendant negative economic consequences in the local economy due to that effect.

Direct damage to the environment and to human health must be the preeminent concerns. This E.A fails to substantially address both of these areas of concern.

The modest financial benefits to the local economy do not offset the damage to the area's natural attraction and the undeniable destruction of a complex rich and unique local ecosystem. It is a bad trade off.

Any contribution to the reduction of carbon in the world's atmosphere by this project is so minimal as to be incalculable given the changes that take place in energy usage worldwide on a daily basis. Nova Scotia should not approve this project with its attendant damages for the benefit of virtue signalling. Rather it should take the time for it to be located in a more suitable location. The project is designed to fulfill an energy production target mandated by the Province. The Province then, with millions of acres of uninhabited land should proactively be directly involved in achieving its set goals by establishing criteria and assembling a land bank of locations with access to power transmission and lease that land to Wind Farm Proponents. Municipalities cannot legally zone this type of development the Province can.

The Higgins Wind Farm location is attractive to the Proponent not because it is an exceptional wind location but because of the limited number of owners to permit the needed land base and because of its proximity to a transmission line. These profit factors dictated the choice of Higgins Mountain, the sensitive underlying ecosystem is not a site specific consideration and thus becomes collateral damage in the race to more wind power.

I chose to invest in a rural home in order to enjoy the privacy and beauty of nature while avoiding the noise of industrialized urban life. My house abuts the Study area. Watercourses in the study area flow through my property. I enjoy the wildlife around me, deer, foxes, bears, fishers, coyotes, skunks, porcupines bats, bobcats, hares, flying squirrels and moose. I have enormous varieties of birds including, songbirds, ravens, eagles, woodpeckers, hawks owls, even turkey vultures. Local rumours and purportedly photographic evidence of the endangered Eastern Cougar persist. Bob Bancroft wildlife expert has stated publicly the the cougars are here and that they share a corridor from New Brunswick through our Cobequid mountains as does our threatened mainland moose. I do not, the community does not, **and the Province should not want** a wind farm denuding the wildlife that abounds in this fertile habitat.

In the October 2021 community meeting the Proponents were not even aware of my house at that stage after years of work and yet had already submitted a prior completed wind farm proposal in 2017 that placed a turbine directly behind my house. Thankfully that proposal was rejected. There had been no community outreach to me from that 2017 proposal, I knew nothing of it, I was also unaware of plans for this current Higgins Mountain Wind Farm proposal until I received a leaflet notice of the October 2021 meeting in my mailbox from Protect Wentworth.

I am concerned that the erection of these monstrosities will destroy the viewscape around my home (and those of others) and immediately impact the value of both my residence and my 36 acres of land. As a retiree much of my net worth is held in the equity of my home. I do not want my options of residence compromised by this development because my investment has been diminished.

My house is a 3 story rectangle facing due south, my bedroom is on the 3rd floor. Around 2007 with the head of my bed against the west wall I would frequently but not consistently experience a strange heartbeat echoing noise in my ears as though behind the eardrum. There was no noise in my room. I of course assumed it was my physiology but had no idea what medical condition it might be causing this which was very disconcerting. I then by caprice moved my bed to the south wall and never again experienced those bizarre feelings again after going to bed. I had no idea there were wind turbines in operation. I cannot say unequivocally that this was INFRA sound from turbines but I strongly suspect it was. The prospect of 18 turbines sending their combined noise effluent to wash over me and my residence is not appealing.

This Environmental Assessment provides no assurance its effect on the environment will be a benign. To the contrary it either acknowledges damage or simply plays it down. one. sold assurance of a benign effect to the environment. The dozens and dozens of pages indexing the many species of flora and fauna only serve to emphasize the uniqueness of the habitat within the study area.

There is no discussion of remediation in this E.A. To presuppose in the study that there will be no adverse effects that will need to be addressed is illogical and patronizing .No reduction in area real estate values,. No damage to wildlife. No contingency if the Turbines fail to meet specifications and legal limits. No impact on human health. I think not.

It is my fervent wish that this project does not receive approval. It is not wanted ,does not have a social license. There are a vast number of better locations.

Sincerely yours,

Folly Mountain

Pollock, Meaghan Elizabeth

From:
Sent: April 14, 2023 1:18 PM
To: Environment Assessment Web Account
Subject: Higgins Mountain Wind Farm EARD
Attachments: MAARS Higgins Mountain EA Commentary.pdf

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

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To Whom It May Concern,

Attached is the written submission, provided on behalf of the Maritime Aboriginal Aquatic Resources Secretariate and the Native Council of Nova Scotia, as it relates to the Higgins Mountain Wind Farm Project.

Thank you,

Habitat Impact Advisor
Maritime Aboriginal Aquatic Resources Secretariate
80 Walker Street, Suite 3
Truro, Nova Scotia, B2N 4A7



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Maritime Aboriginal Peoples Council



The Maritime Regional Aboriginal Leaders
Intergovernmental Council of Aboriginal Peoples
Continuing to Reside on Traditional Ancestral Homelands

Forums

- Leaders Congress
- MAPC Commissions/Projects
- MAARS Secretariate
- IKANAWTIKET SARA
- MAPC Administration

MAPC Regional
Administrative Office
80 Walker Street, Suite 3
Truro, Nova Scotia
B2N 4A7

Tel: 902-895-2982
Fax: 902-895-3844
Toll Free: 1-855-858-7240
Email: frontdesk@mapcorg.ca

Governmental
APRO Councils

Native Council of
Nova Scotia
P.O. Box 1320
Truro, Nova Scotia
B2N 5N2

Tel: 902-895-1523
Fax: 902-895-0024
Email: chiefaugustine@ncns.ca

New Brunswick Aboriginal
Peoples Council
320 St. Mary's Street
Fredericton, New Brunswick
E3A 2S4

Tel: 506-458-8422
Fax: 506-451-6130
Email: chief@nbapc.org

Native Council of
Prince Edward Island
6 F.J. McAuley Court
Charlottetown
Prince Edward Island
C1A 9M7

Tel: 902-892-5314
Fax: 902-368-7464
Email: chief@ncpei.com

April 14th, 2023

Environmental Assessment Branch
P.O. Box 442
Halifax, Nova Scotia
B3J 2P8

RE: Higgins Mountain Wind Farm

To Whom It May Concern,

On behalf of the Native Council of Nova Scotia (NCNS), the Maritime Aboriginal Aquatic Resources Secretariate (MAARS) is providing comments to the Environmental Assessment Branch of the Nova Scotia Department of Environment and Climate Change regarding the Environmental Assessment Application for the Higgins Mountain Wind Farm. Our comments primarily relate to the matters of endangered inner Bay of Fundy Atlantic Salmon (*Salmo salar*) habitat, Mainland Moose impacts, and the cumulative effects assessment.

Based on information gathered through the Salmon Comparative Assessment Project under the Maritime Aboriginal Peoples Council (MAPC), there have been positive environmental DNA (eDNA) detections of Inner Bay of Fundy Atlantic Salmon (iBoF) (*Salmo salar*) in Tunnel Brook, which is one of the watercourse crossings noted in Drawing 7.14 of the Environmental Assessment Registration Document (EARD) and is also in close proximity to the proposed turbine locations of turbines 15, 16, and 17. This finding of a positive eDNA detection on this tributary is significant given that the iBoF release program has never released any fish within a 6 kilometre radius upstream of these positive detections. The detected presence of iBoF salmon could indicate the presence of a wild population, or that Tunnel Brook is being used by one or more life stage of the salmon. As well, the access road for the above-mentioned turbines also crosses Tunnel Brook giving a vector for sedimentation, erosion, and water quality impacts. Given the highly sensitive nature of this species, and these positive detections of endangered iBoF salmon MAARS has significant concerns with this level of development along Tunnel Brook.

The Mainland Moose Recovery Plan indicates that Core Habitat overlaps with the Study Area for this project. It was also stated in the EARD that the majority of Mainland Moose habitat within the study area is considered to be of high quality. Given the potential for Mainland Moose to use this area and the wetland areas within the project footprint, the claim that the direct impacts on moose habitat ‘are expected to be low’ seems presumptuous given the sensitivity of this species and its cultural significance to Mi’kmaq people.

Lastly, in Section 14.3, the Cumulative Effects Assessment, there is no mention of the approved Westchester Wind Project being undertaken by Natural Forces Developments Limited, which is taking place approximately 7 kilometres away from this proposed site. Furthermore, within the Valued Components assessment of this section, there are statements in Table 14.2 on page 265 and 266 that the nearest wind development is 24 kilometres away despite the Westchester Wind project taking place within 7 kilometres of this development. The cumulative effects of this development need to be further explored given the potential effects on the valued components of bats, avifauna, shadow flicker, visual aesthetics, and sound. MAARS feels there needs to be further exploration of the potential cumulative effects that this development could have.

We would like to take this opportunity to reiterate that it is important for all proponents of projects to understand that the Off-Reserve Aboriginal Community represented by the NCNS is included within the definition of the word “Indian” of Section 91(24) of the *Constitution Act*, 1982. The Supreme Court of Canada in a landmark decision in *Daniels v. Canada (Indian Affairs and Northern Development)*, 2016 SCC 12, declared that “the exclusive Legislative Authority of the Parliament of Canada extends to all Indian, and Lands reserved for the Indians” and that the “word Indians’ in s.91(24) includes Métis and non-Status Indians”¹. Since 2004, in multiple decisions passed by the Supreme Court of Canada: *Haida Nation*², *Taku River Tlingit First Nation*³, and *Mikisew Cree First Nation*⁴, has established that,

Where accommodation is required in decision making that may adversely affect as yet unproven Aboriginal Rights and title claims, the Crown must balance Aboriginal concerns reasonably with the potential impact of the decision on the asserted right or title and with other societal interests.

Further, both the Government of Nova Scotia and the Government of Canada are aware that the “Made in Nova Scotia Process” and the *Mi’kmaq-Nova Scotia-Canada Consultation Terms of Reference* does not circumvent the Provincial Government’s responsibility to hold consultations with other organizations in Nova Scotia that represent Indigenous Peoples of Nova Scotia. While the proponent may have to engage with the thirteen Mi’kmaq First Nations through the Assembly of Nova Scotia Mi’kmaq Chiefs, represented by the Kwilmu’kw Maw-klusuaqn Negotiation Office (KMKNO), the KMKNO does not represent the Off-Reserve Aboriginal Community who have elected to be represented by the NCNS since 1974.

¹ *Daniels v. Canada (Indian Affairs and Northern Development)*, 2016 SCC 12, [2016] 1 S.C.R. 99

² *Haida Nation v. British Columbia (Minister of Forests)*, (2004), 2 S.C.R. 511

³ *Taku River Tlingit First Nation v. British Columbia (Project Assessment Director)*, (2004), 3 S.C.R. 550

⁴ *Mikisew Cree First Nations v. Canada (Minister of Canadian Heritage)*, (2005), 3 S.C.R. 388

We assert that the Off-Reserve Aboriginal Communities, as 91(24) Indians, are undeniably heirs to Treaty Rights and beneficiaries of Aboriginal Rights as substantiated by Canada's own Supreme Court jurisprudence. As such, there is absolutely an obligation to consult with the Off-Reserve Community through their elected representative body of the NCNS. The Crown's duty to consult with all Indians extends beyond that only with Indian Act Bands, or as through the truncated Terms of Reference for a Mi'kmaq Nova Scotia Canada Consultation Process.

For contextual purposes, for over forty years, the three Native Council partners of the Maritime Aboriginal People's Council (MAPC) have continued to be the Aboriginal Peoples Representative Organizations representing and advocating for the Rights and issues of the Mi'kmaq/Wolastoqiyik/Peskotomuhkati/Section 91 (24) Indians, both Status and non-Status, continuing to reside on their unceded Traditional Ancestral Homelands. In the early 1970s, the communities recognized the need for representation and advocacy for the Rights and Interests of the off-Reserve community of Aboriginal Peoples, "the forgotten Indian". Women and men self-organized themselves to be the "voice to the councils of government" for tens of thousands of community members left unrepresented by Indian Act-created Band Councils and Chiefs. Based on the Aboriginal Identity question, Statistics Canada (2016 Census - 25% sample) enumerate 21,915 off-Reserve Aboriginal Persons in New Brunswick, 42,145 in Nova Scotia, and 2,210 in Prince Edward Island.

Each Native Council in their respective province asserts Treaty Rights, Aboriginal Rights, with Interest in Other Rights confirmed in court decisions, recognized as existing Aboriginal and Treaty Rights of the Aboriginal Peoples of Canada in Part II of the Constitution Act of Canada, 1982. Each Native Council has established and maintains Natural Harvesting Regimes, and each have a co-management arrangement with DFO for Food, Social, and Ceremonial use of aquatic species, through the: Najiwsgetaq Nomehs (NBAPC), the Netukulimkewe'l Commission (NCNS), and the Kelewatl Commission (NCPEI).

The Native Council of Nova Scotia was organized in 1974 and represents the interests, needs, and rights of Off-Reserve Status and Non-Status Section 91(24) Indians/Mi'kmaq/Aboriginal Peoples continuing on our Traditional Ancestral Homelands throughout Nova Scotia as Heirs to Treaty Rights, Beneficiaries of Aboriginal Rights, with Interests to Other Rights, including Land Claim Rights.

The Native Council of Nova Scotia (NCNS) Community of Off-Reserve Status and Non-Status Indians/Mi'kmaq/Aboriginal Peoples supports projects, works, activities and undertakings which do not significantly alter, destroy, impact, or affect the sustainable natural life ecosystems or natural eco-scapes formed as hills, mountains, wetlands, meadows, woodlands, shores, beaches, coasts, brooks, streams, rivers, lakes, bays, inland waters, and the near-shore, mid-shore and off-shore waters, to list a few, with their multitude of in-situ biodiversity. Our NCNS Community has continued to access and use the natural life within those ecosystems and eco-scapes where the equitable sharing of benefits arising from projects and undertakings serve a beneficial purpose towards progress in general and demonstrate the sustainable use of the natural wealth of Mother Earth, with respect for the Constitutional Treaty Rights, Aboriginal Rights, and Other Rights of the Native Council of Nova Scotia Community continuing throughout our Traditional Ancestral Homeland in the part of the Mi'kma'ki now known as Nova Scotia.

Pollock, Meaghan Elizabeth

From: @gmail.com>
Sent: April 14, 2023 1:21 PM
To: Environment Assessment Web Account
Cc: ; Rushton, Tory; Halman, Tim
Subject: Re: Higgins Mountain Wind EA

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Thank you for the work you have done in identifying the "sloppy?" work on this very important Community Concern.

I wish to address the following comments to the Environmental Assessment organization considering this project.

As the former Municipal Councillor I represented the Municipality of Colchester on the Higgins Mountain Community Liaison committee. Additionally, I am the current Member of the Nova Scotia Legislature representing the Colchester County Residents impacted by this project.

To give some background, I served 12 years as the Councillor for Municipality of Colchester. All 12 of those years I served on the Planning Advisory Committee, the last 8 as chair. During my time as chair I led Colchester County Planning Advisory committee through a very extensive Community consultation process that eventually led the Municipality of Colchester to passed , what at the time was considered modern guidelines. I believe more recently that the Municipality reviewed those guidelines with consideration for the increase in size and height. Certainly the industry and turbines have grown significantly in recent years

I have always considered myself a proud supporter of wind and green energy.

There are a couple of very important points I wish to address with you.

Firstly during my time on the Higgins Mountain Community Liaison Committee, I can attest to the concern that the sight lines and the visual impact that these large turbines will have on this Community. I will say that during public open houses these same concerns were the raised by the Community.

Having made these comments and having attended the Community Liaison meetings, I was conflicted in my desire for green energy and opposing the turbines in support of the residents.

In the Fall of 2021 having just the week prior spent 3 days travelling the White Mountains of New Hampshire along with thousands of others enjoying the fall colors. On this Saturday morning I was traveling through the Wentworth Valley on my way to an appointment in Tatamagouche. I travel through this beautiful valley regularly and I guess take its beauty for granted. Regardless on that morning, the mid morning sunlight shining upon the Valley Foliage was breath-taking.

At that time my decision was very clear, support the residents and protect this valley. My absolute first choice would be NO TURBINES !

Understanding the need and my desire for green energy, if the developers, were willing to COOPERATE with the community, I could see that as possibly a reasonably resolution.

However, I would say that during my time attending meetings of the Higgins Mountain Community Liaison Committee, there appeared to be

little real appetite by the developers to really try and appease the community, more of a sense that they had to get that box checked.

After viewing presentation with respect to the photographic sightlines, it appears that there is no Genuine effort by the Developers to consider the Community.

In closing, I cannot help but think about where this project would fit along the Cabot Trail! Would the public outcry or the Community concerns carry more weight??

Thank you in advance for taking the time to consider my comments.

Tom

Tom Taggart, MLA
Colchester North
(O) - 902-641-2335
[@gmail.com](mailto:tomtaggart@gmail.com)

On Tue, Apr 4, 2023 at 4:33 PM

[@mmfi.ca](mailto:tomtaggart@gmail.com)> wrote:

This is my first submission specific to EA conclusion that the “Visual impacts are low” ...how would one know from the sloppy work in the EA?

Regards

MacLellan and Moffatt Group of Companies

18 Willow St., Suite 201

Truro NS B2N 4Z4

(o) 902 893 0508

www.mmfi.ca

www.mmgc.ca

www.mmhi.ca

Pollock, Meaghan Elizabeth

From: @gmail.com>
Sent: April 14, 2023 2:15 PM
To: Environment Assessment Web Account
Cc: ProtectedAreas
Subject: Conservation and ecological planning maps for the Wentworth area

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Hello,

Please include the following maps for Higgins Mountain Wind Farm EA Registration Document.

From EA Table 6.2 it seems the Proponent did not reach out to private land conservation organizations involved in the local conservation work which seems like an obvious miss for an EA. I've Cc'ed the Protected Areas division of NSE for their Higgins Mountain Wind Farm EA consideration.

A few months after the Wentworth Valley Wilderness Area was protected, the Nova Scotia Nature Trust protected three properties in the Wentworth Valley shown in red on the maps. I was fortunate I was able to donate two Wallace River floodplain properties and my father was kind to donate a mountainside forest property directly above Wallace River. About 200 acres protected with over 2km shared border with the WVWA and two kms of Wallace River protected.

I am now working to put conservation easements on more than 60% of the land in Blue marked "Potential Conservation Easements". I plan to continue to permit free public access to the much beloved Higgins Brook Falls (also known as the Wentworth Falls) and trails, and make infrastructure upgrades such as off-highway parking, wheelchair access, Blue Route access, restroom facilities, trail upgrades, etc... These properties share a kilometre long border with the a most recent addition to the WVWA that sits on a large upper area of Higgins Brook.

The first three attached maps are related to the Conservation Area of Interest as related to my corporately held properties.

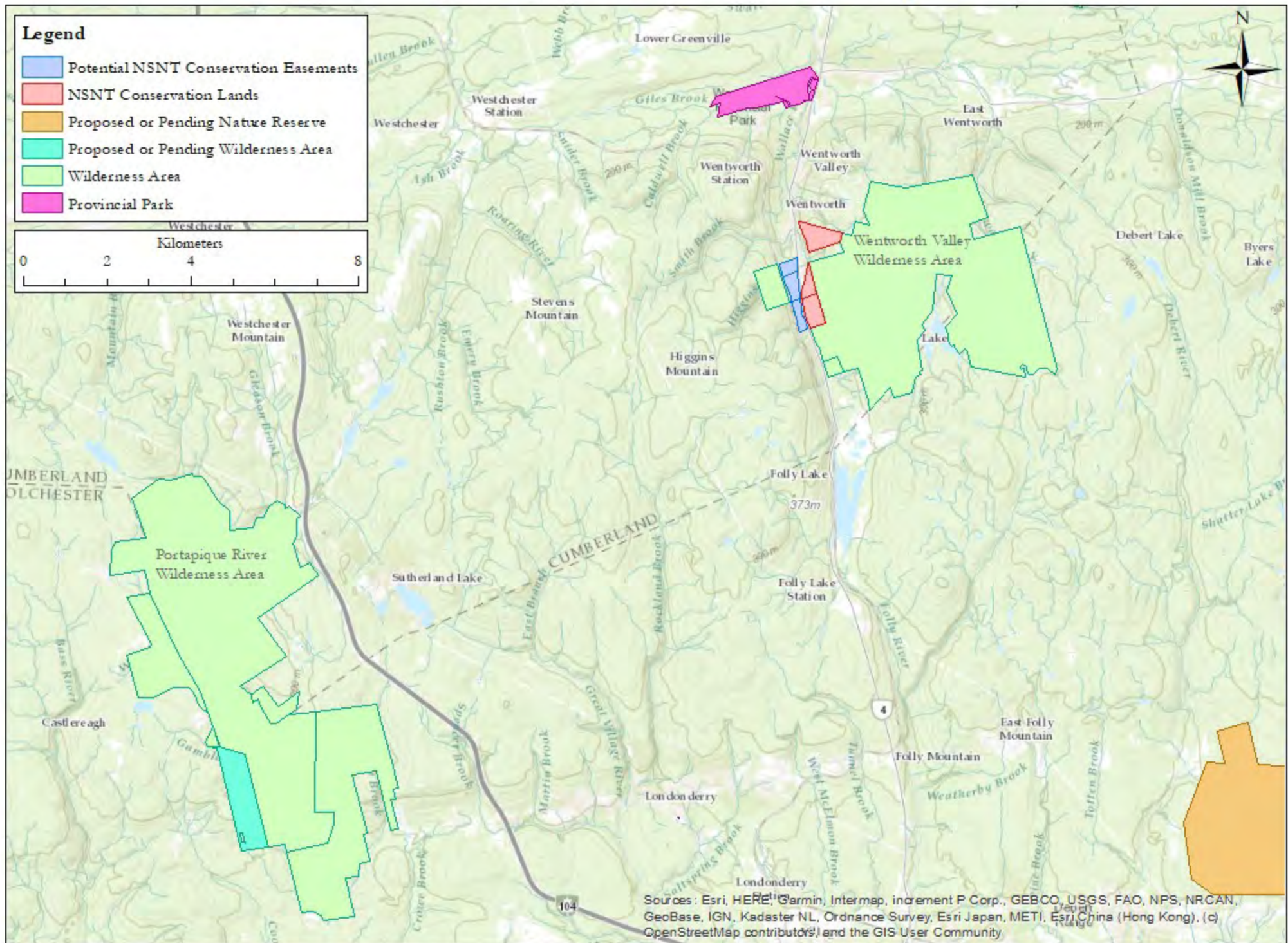
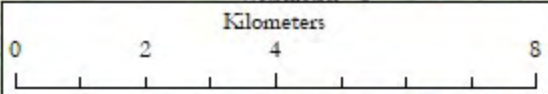
Related, see 4th attachment, it is worth noting the Nature Conservancy of Canada also has an interest in the Wentworth area and the Wallace River.

Thank you,

Cobequid Highlands Protected Areas Map

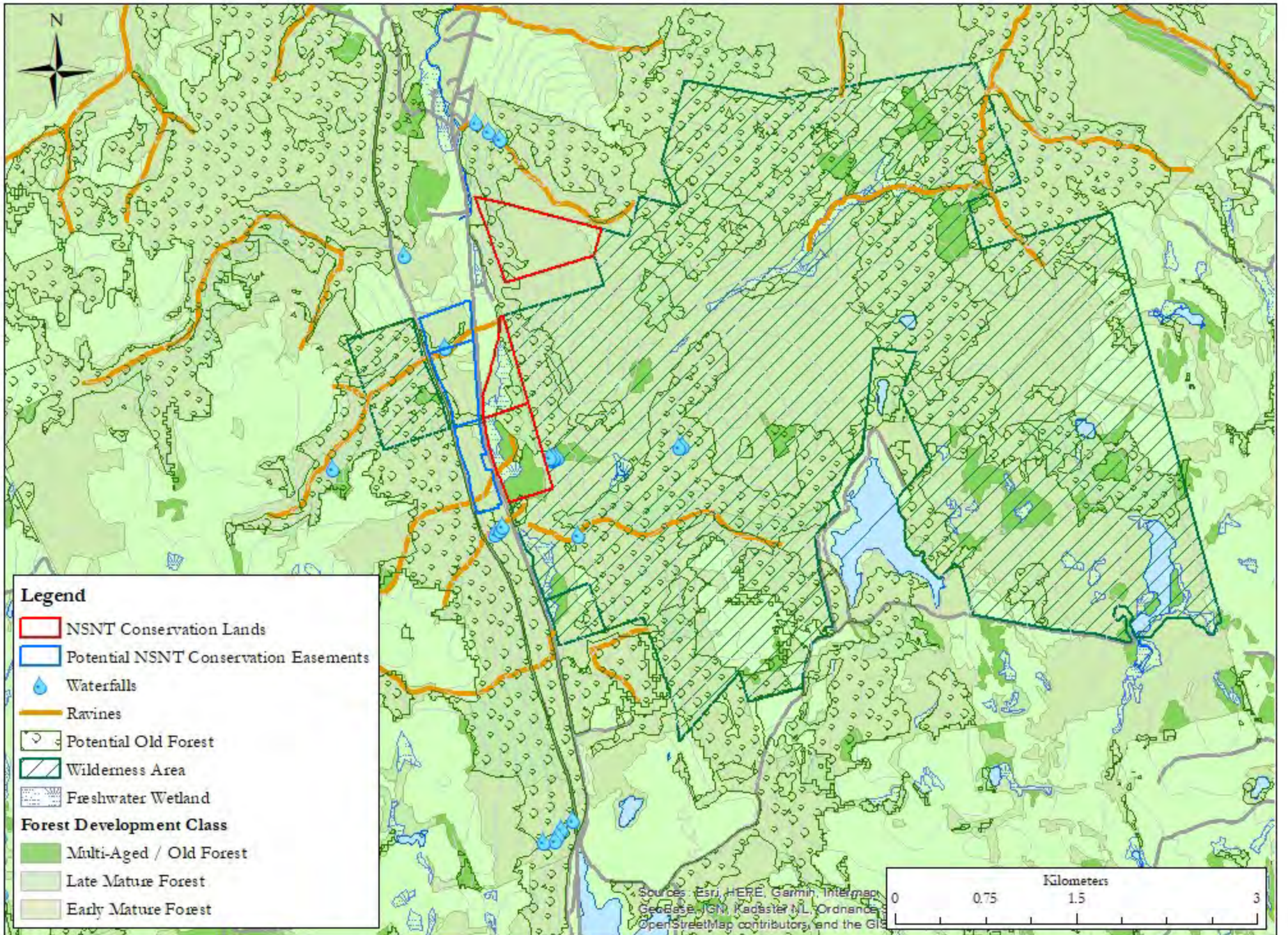
Legend

- Potential NSNT Conservation Easements
- NSNT Conservation Lands
- Proposed or Pending Nature Reserve
- Proposed or Pending Wilderness Area
- Wilderness Area
- Provincial Park

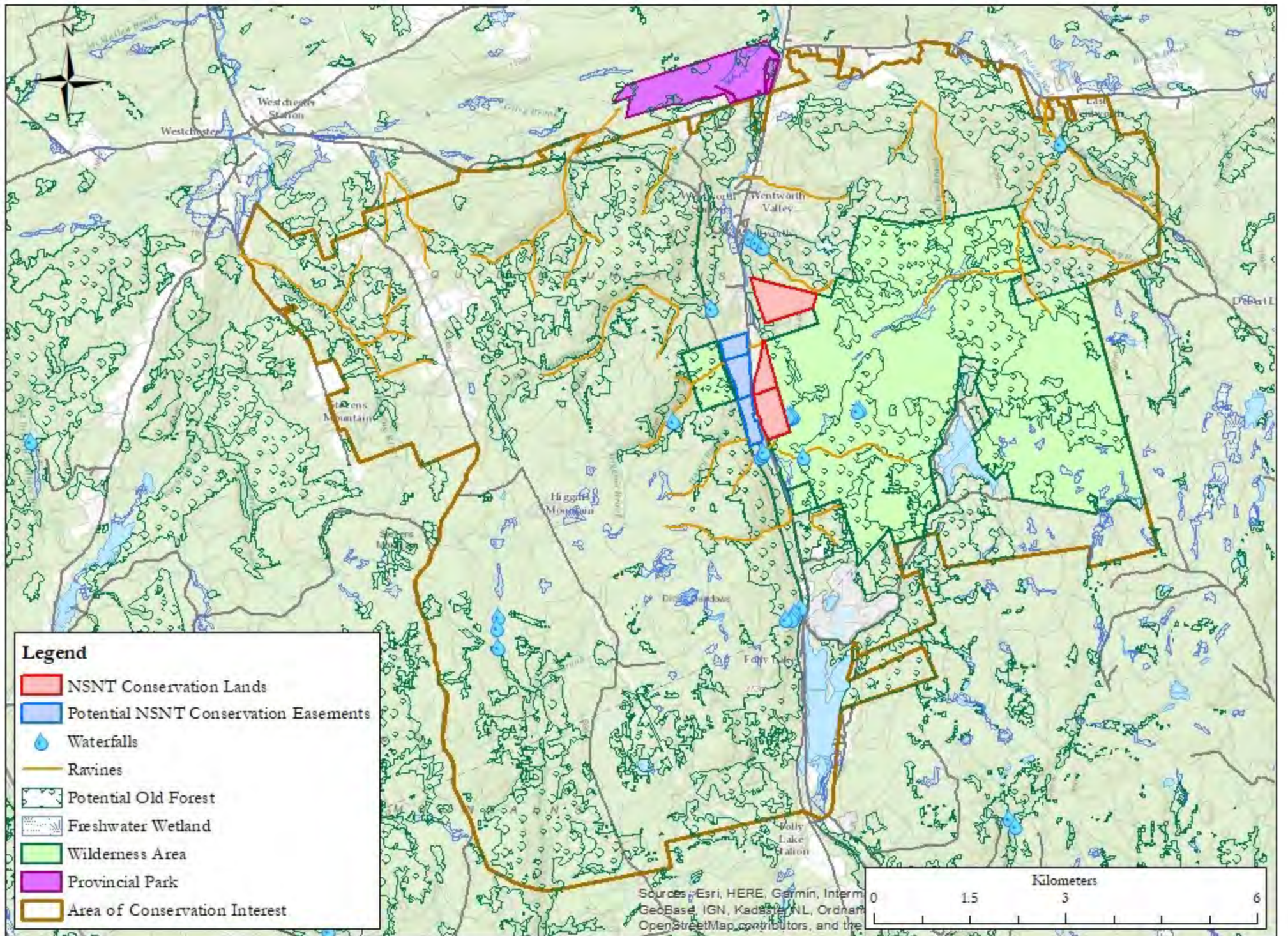


Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri (China (Hong Kong)), (c) OpenStreetMap contributors, and the GIS User Community

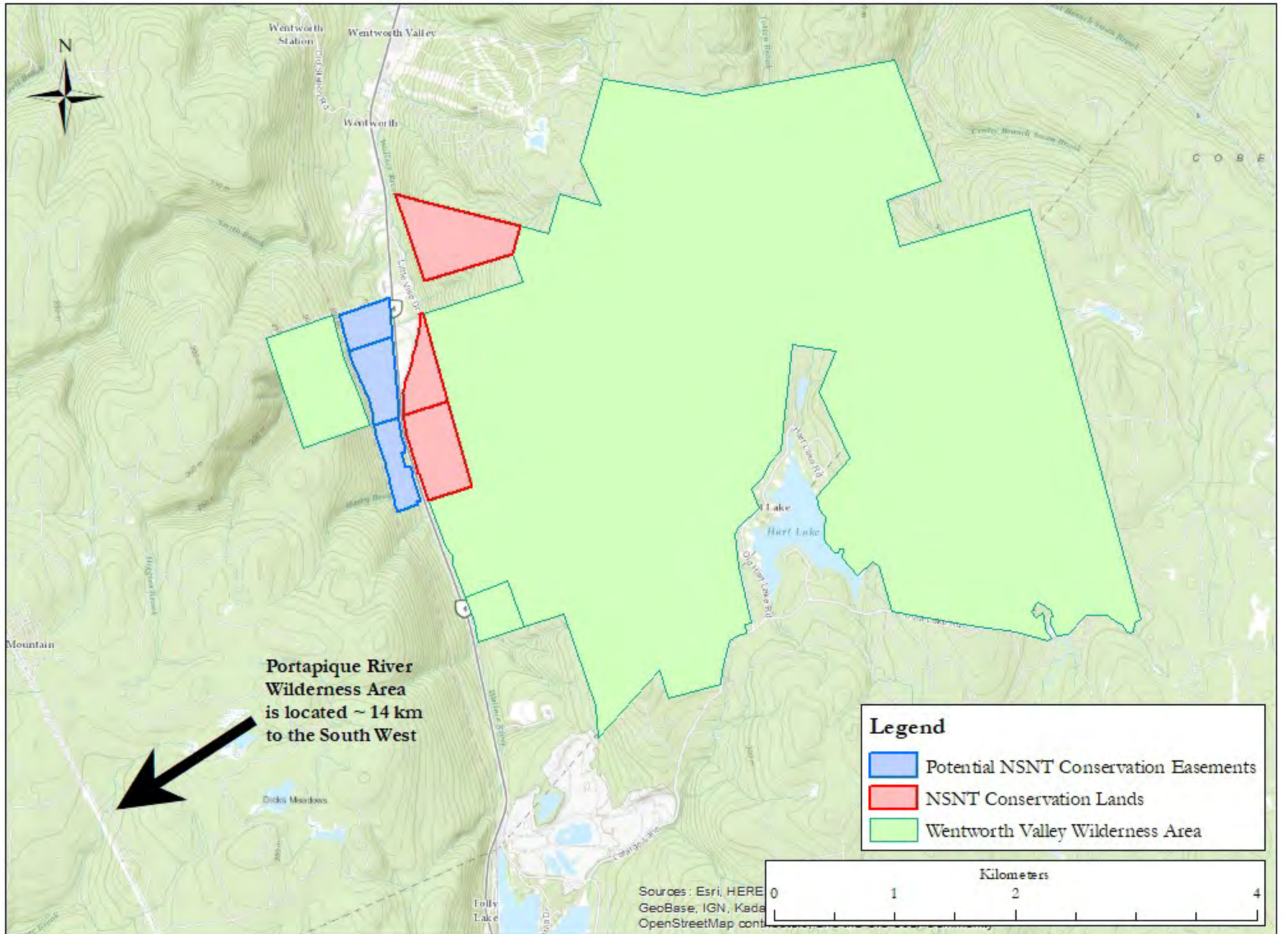
Wentworth Valley - Ecological Features



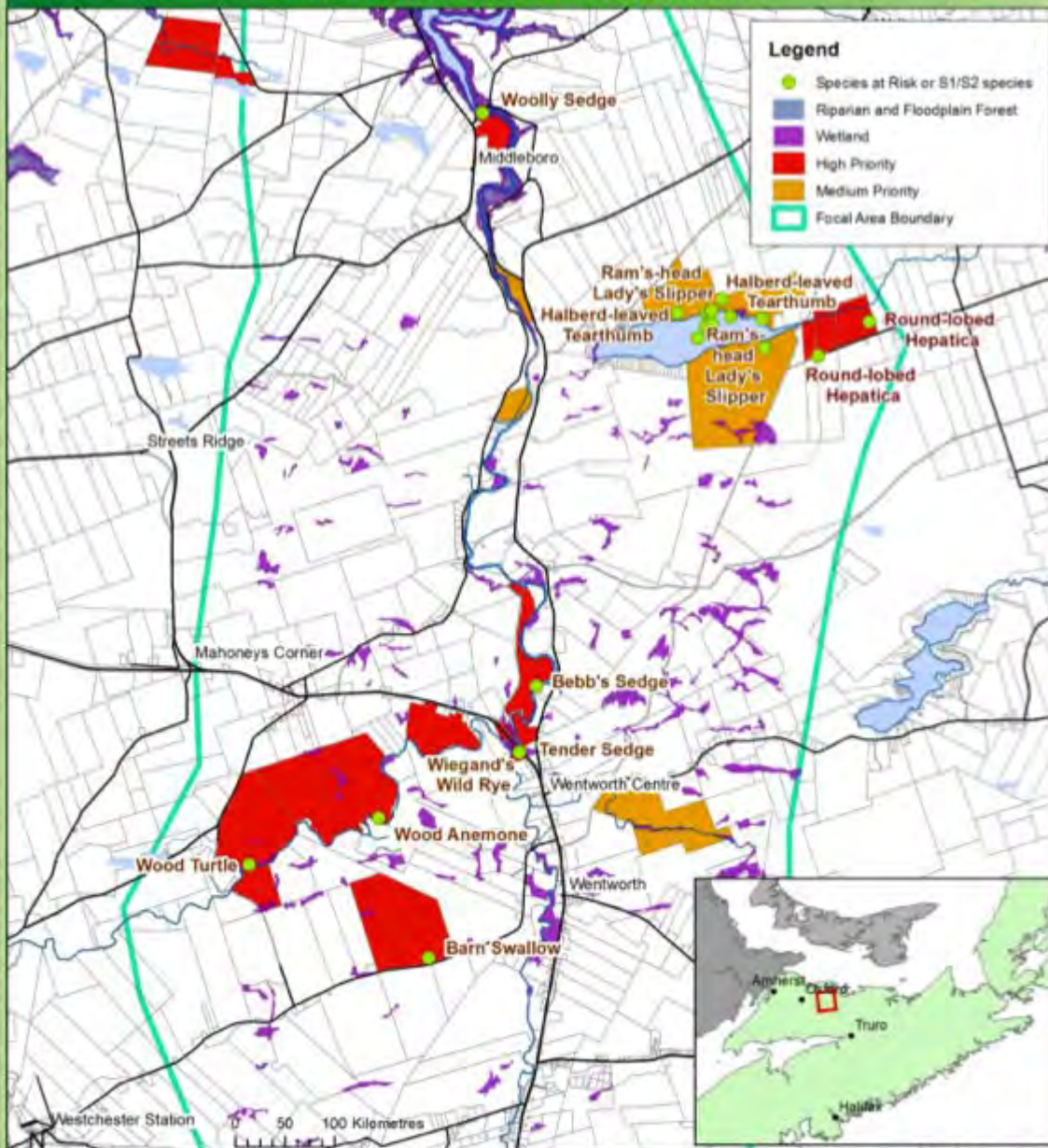
Wentworth Valley - Area of Conservation Interest



Wentworth Valley Protected Areas Map



Property Prioritization for Conservation along the Wallace River in Nova Scotia



Pollock, Meaghan Elizabeth

From: @gmail.com
Sent: April 14, 2023 3:19 PM
To: Environment Assessment Web Account
Subject: Proposed Project Comments

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Project: higgins-mountain-wind-farm Comments: Honourable Timothy Halman Minister of Environment and Climate Change PO Box 441 Halifax, Nova Scotia B3J 2P8 Letter of Opposition to Environmental Assessment Registration Document for Higgins Mountain Wind Farm. This submission of written comments is in response to the Environmental Assessment Registration Document provided for the Higgins Mountain Wind Farm Project. I am a citizen of Colchester County with a seasonal property in the Wentworth Valley as well as an avid skier, hiker and mountain bike enthusiast who has enjoyed the many recreational benefits of this unique ecosystem for over 40 years. I also have a graduate degree in Environmental Science as well as graduate training in environmental planning and landscape ecology and use this area as an educational tool for courses I teach at a post secondary level. After reading the Environmental Assessment report I have significant concerns regarding this project and the proposed location in the Wentworth Valley area and stand in firm opposition to granting conditional environmental assessment approval by the Minister of Environment and Climate Change. The Minister should reject this Environmental Assessment EA for the Higgins Mountain Wind Farm because it fails to adequately address many adverse environmental impacts that cannot be mitigated by the proponent. More specifically, the report does not adequately define the potential impacts related to biodiversity and landscape level connectivity related to site construction and ongoing management of this industrial development proposal in the following ways: 1. The extend of road construction both in distance and width are not adequately defined in the document. This makes it extremely difficult to determine the extend of damage and fragmentation that will result from this project. 2. A 25m buffer from the center of the road to be cleared for construction purposes far exceeds what should be allowed for any development. This represents significantly more damage to natural ecosystems than forestry roads or recreational trails. 3. There is no water management plan for surface water, ground water, storm water, drainage, erosion, sediment control. There are 21 lakes/ponds, 277 watercourse feature segments, and 1203 feature segments within 5 kilometres of the Study Area. Further study is required. 4. Reference to vegetation management is made- but no specifics are mentioned. Herbicide and pesticide spray could be impactful on water quality and not target organisms. 5. Migratory bird populations, bats and other species at risk have not been adequately identified and there is a distinct lack of peer reviewed scientific studies to support claims that these species will not be negatively impacted by turbine development. 6. The turbine sites are defined to be 100 meters x 100 meters but the radius of the yet untested turbine blades is 170 meters across. The impact will extend far beyond the site. The general area for this industrial development represents a significant zone of landscape connectivity between protected areas of Northern Nova Scotia that should be preserved and managed as such. The importance of this core habitat area has been emphasized in the Mainland Moose Recovery Plan published by the Department of Natural Resource and Renewables Nova Scotia Department of Natural Resources and Renewables. 2021. Recovery Plan for the Moose Alces alces Americana in Mainland Nova Scotia. Nova Scotia Endangered Species Act Recovery Plan Series. 96pp. , Co-author of the Nova Scotia Mainland Moose Recovery Plan, provided key guidelines/advice in conversations with the proponent that were omitted in the Higgins Mountain Wind Farm Project's Environmental Assessment including: • Minimize roads, fences, lighting and other linear infrastructure. • Orient and clump them together in ways that do not sever or intersect intact forest or other natural habitat linkages through the site. • Plan in a spatial way that retains wide 300 m minimum 1000 m ideal habitat linkages/corridors through the site in multiple directions, especially to connect with intact habitat beyond the site. • Retain both hardwood and softwood and access to water in order to provide summer and winter security and thermal cover and forage. • Include mechanisms to deter motorized human access beyond that necessary to service the site. • Retain

and enhance natural cover for moose and other SAR habitat delineated as core habitat in Recovery Plans. Retain and enhance natural cover for moose and other SAR habitat modeled as high habitat suitability or high likelihood of presence as delineated in Recovery Plans. Avoid new road construction/expansion/enhancement in areas delineated as unroaded/low road density in Recovery Plans. Retain as much natural cover as possible to favour moose habitat over deer habitat to minimize incursion of deer and associated P. tenuis brainworm fatal to moose and carried by deer. The importance of biodiversity, protected areas and ecosystem-based planning and development have not gone unnoticed by you and other members of our legislative assembly: Nova Scotias protected areas are critical for our economic growth, the health of our environment, and quality of life. They help us adapt to climate change while providing healthy ecosystems for many diverse species. Weve committed to protecting 20 percent of our land and waters by 2030, which will contribute toward the national goal of protecting 30 percent of Canadas land and water mass by 2030. Together, this will help ensure a sustainable, cleaner, and healthier future." The Honourable Timothy Halman, Nova Scotia Minister of Environment and Climate Change In addition to all that we enjoy about nature, protecting more land in Nova Scotia is critically important for our sustainable and prosperous future. It supports biodiversity and helps with carbon capture which are key as our climate changes. That's why we're committed to reaching our protected area goals and grateful to all our partners for helping us achieve them. - Tory Rushton, Minister of Natural Resources and Renewables While this project may be able to contribute to meeting NS's renewable energy goals, so could many of the other projects that have been proposed in areas that do not threaten such valuable ecological systems. I ask that the Minister or designated staff from the Department of Environment and Climate Change consider these comments before granting approval of the environmental assessment document provided by the proponent. Respectfully Submitted. Colchester County Name:

Email: @gmail.com Address:

ive,

Colchester County Municipality: Bible Hill email_message: Privacy-Statement: agree x: 57 y: 21

Pollock, Meaghan Elizabeth

From: Environment
Sent: April 14, 2023 3:20 PM
To: Environment Assessment Web Account
Subject: Proposed Project Comments

Project: higgins-mountain-wind-farm Comments: My family have lived in Wentworth valley for five generations We dont want windmills clear cuts environmental damage noise and destruction. Name: Email: Address:
Wentworth Valley Municipality: email_message: Privacy-Statement: agree x: 62 y: 28

Pollock, Meaghan Elizabeth

From:
Sent: April 14, 2023 3:41 PM
To: Environment Assessment Web Account
Subject: Higgins Mountain Environmental Assessment Public Input -
Attachments: Higgins Mtn EA Public Input Submission - 2023-04-14.pdf; (2015-02-13,
) Evidence of problems in noise computer modeling sent to Floyd.txt;
(2015-05-08, Geddes) NSE responds to computer modeling issues.txt

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To whom it may concern:

Please accept the attached documents as my submission to the public input phase of the Environmental Assessment for the Higgins Mountain Wind Project.

Sincerely,

Environmental Assessment Branch
Nova Scotia Environment and Climate Change
Halifax, NS B3J 2P8

EA@gov.ns.ca

April 14, 2023

Attn: The Honourable Tim Halman, Minister of the Environment and Climate Change

Re: Public Input for Higgins Mountain Wind Power Project Registration – Appendix P: Noise

Dear Sir,

Request

The Higgins Mountain wind power project noise analysis (Appendix P Sound) uses the ISO:9613-2 model. Based on Health Canada's assessment of this model's accuracy and the model results reported in Appendix P, it *cannot* be stated with 95% confidence that the actual wind turbine noise levels at receptor sites ER, EL, and EM will fall within a range that excludes and therefore complies with the Nova Scotia Environment (NSE) 40 dB(A) noise limit.

With respect, I request that you return the Higgins Mountain Appendix P and require that the proponent clearly identify those receptor sites in jeopardy of experiencing noise levels exceeding the NSE 40 dB(A) limit and relocate wind turbine generators in the project design to prevent said exceedance. This may require the repositioning of only two turbines in the project design.

Evidence and Discussion

In a February 13, 2015, email¹ to Trevor Floyd, assistant to the then Minister of Environment Randy Delorey, I summarized the problems with the ISO:9613-2 noise model which contains the assumptions and calculations implemented in the noise modeling software used by most proponents (including Higgins Mountain) when submitting their Environmental Assessment (EA) registration documents. I had previously raised these same issues in more detail with NSE on multiple occasions during the EA public submissions period for the Glen Dhu, Digby, and Hillside Boulardarie wind projects. In response to my email summary, Mr. Floyd forwarded Health Canada's (HC) response² to my critique. HC largely agreed with the points I raised and further stated that in their opinion the 95% confidence interval for the ISO:9613-2 algorithm is +/-8 dB(A). In other words, if the ISO:9613-2 computer model calculates 40 dB(A) at a receptor site, it can be stated with 95% confidence that the *actual* noise level falls within the range 32 dB(A) to 48 dB(A). Because this range includes noise levels above the NSE 40 dB(A) limit, this receptor site *cannot* be deemed compliant with NSE noise requirements. It should be emphasized that I have emails from several Nova Scotia Environment Ministers stating that they act on the advice of Health Canada.

¹ Attached (2015-02-13, Evidence of problems in noise computer modeling sent to Floyd.txt

² Attached (2015-05-08, Geddes) NSE responds to computer modeling issues.txt

Historically, wind proponents (now including Higgins Mountain) have nonetheless treated noise modeling results as if they were perfectly accurate, that is, the results have a 95% confidence interval equal to zero; this is both wrong and naïve. Consequently, wind project proponents routinely report residences with a 40 dB(A) calculated sound level as compliant despite the actual sound level possibly being as high as 48 dB(A) based on the HC 95% confidence interval. For a project proponent to tell the inhabitants of a receptor site that the noise level range predicted for their residence does not include (and hence possibly exceed) the NSE 40 dB(A) limit, the value calculated by the noise model cannot exceed 32 dB(A). Therefore, based on the Strum sound level results (Appendix P) for the three receptor sites ER, EL, and EM which have calculated sound levels of 36.1, 34.4 and 33.6 dB(A) respectively, it cannot be stated with 95% confidence that the *actual* levels at these sites will fall within a range that excludes and therefore complies with the NSE 40 dB(A) limit.

Remedy

To remedy the foregoing noise modeling deficiencies in the Higgins Mountain noise analysis, I request that you return the Higgins Mountain EA Appendix P and require that the proponent takes the actions that follow:

- 1) Clearly identify receptor sites ER, EL, and EM as non-compliant based on NSE's 40 dB(A) noise limit and HC's 95% confidence interval.
- 2) Amend the project design such that no receptor site has an ISO:9613-2 calculated noise level that exceeds 32 dB(A). Please note that this may only require the relocation of the two northern most wind turbines 5 and 8 to the south side of the project area.
- 3) Provide the amended noise analysis results for the relocated wind turbines design demonstrating that no receptor site exceeds 32 dB(A).

Granting this request could go a long way to showing your commitment to protecting the health and well being of those Nova Scotians who by fate find themselves living in proximity to a wind power plant.

Sincerely,

From:
Sent: February-13-15 5:55 PM
To: 'trevor.floyd@novascotia.ca'
Subject: Misuse of computer noise models in EA assessments
Attachments: Hillside Boularderie EA - EAS Main.pdf; Hillside Boularderie EA - EAS Att 1 - ISO 1996.pdf; Hillside Boularderie EA - EAS Att 2 - E-92 2012.pdf; Hillside Boularderie EA - EAS Att 3 - Pubnico.pdf; Solaya letter to Falmouth MA Noting 110dB versus 103p2dB total sound power.pdf

Dear Mr. Floyd,

Thank you for taking time to listen this afternoon. I do appreciate that you receive a lot of "input" from the public some of which is emotionally charged and much of which I'm sure lacks any evidential basis. However, I understand from our conversation that you do not consider me to simply be a malcontent and I further hope you realize that the evidence and research I've conducted over the past five years can be of material benefit to your department's goals if only given the opportunity to be heard and comprehended.

Regarding the misuse of computer models in providing evidence of meeting EA noise requirements, I've attached my public input submission to the Hillside Boulardarie wind project in May 2013. It repeats and adds to issues presented in submissions to the prior Digby and Glen Dhu EAs. To summarize:

- 1) The acoustical computer analyses presented in the EAs are based on the ISO 9613-2 acoustical model. The EAs repeatedly use this model outside of its prescribed parameter limits. Specifically, they exceed distance, wind velocity, and mean height and in violating these limitations render the models stated accuracy of +/- 3dB(A) indeterminate. Additionally, they offer no data or evidence for quantifying the model's accuracy under the conditions for which they have used the model.
- 2) The principle piece of input, the wind turbine's total sound power as tested under IEC 61400-11, is not warranted to be the maximum possible for the wind turbine. This is explicitly stated to be the case on page 3, item 6 of the test document attached (... Att 2 -E92 ...) wherein it

states:

“The sound power level of a wind turbine depends on several factors such as but not limited to regular maintenance and day-to-day operation in compliance with the manufacturer’s operating instructions. Therefore, this data sheet can not, and is not intended to, constitute an express or implied warranty towards the customer that the E-92 WEC will meet the exact sound power level values as shown in this document at any project specific site.”

Indeed, the value provided by the testing protocol is measured under far less extreme conditions than those in which the turbines often operate. As evidence of the discrepancy between tested and operational values, please see the attached letter from Solaya wherein the manufacturer acknowledges a total sound power level of 110 dB(A) for their 82 meter diameter turbine while the test results only indicate 103.2 dB(A); this is a substantial difference and sufficient to push any receptor site showing 35 dB(A) or greater in an EA report over the NSE 40 dB(A) limit as stated in EA condition letters of approval.

Further, in response to noise complaints, we have now measured and presented in a detailed sound study noise levels of 43 dB(A) at receptor site 18 which was calculated to not exceed 37.0 dB(A) according to the final noise analysis performed for Glen Dhu by Helimax. It is noteworthy that the measurements were taken on a day the resident described the wind turbine noise levels as a 1 on a scale of 1 to 5; 5 being the loudest he had experienced. We would like to submit this sound study to you as well for your review and action.

I hope that we both agree that the EA process should adhere to the principle of making “evidence-based” decisions. In this regard, I look forward to an informed and continuing dialog with you and your department in our mutual interest of getting at the truth of this matter.

Most sincerely,

(902) 945-2499

From: Geddes, Peter [Peter.Geddes@novascotia.ca]
Sent: May-08-15 4:00 PM
To:
Cc: MacPhail, Helen
Subject: Re: Misuse of computer noise models in environmental assessments

Dear Mr. :

Re: Misuse of computer noise models in environmental assessments

Thank you for your correspondence of March 30, 2015, regarding your concern with the use of computer models in wind farm environmental assessments. I am responding on behalf of the Minister's office.

As you may know, during wind environmental assessments the Environmental Assessment Branch looks to Health Canada to provide comments on the adequacy of the noise modeling information presented. We did, therefore, send your latest correspondence to Health Canada for their review and they provided the following comments which they have agreed to let us share with you:

"1) Mr. is correct in that the ISO standard that is being applied to wind turbines (ISO9613-2) was not specifically designed to evaluate wind turbine noise. According to ISO9613-2, "the method described in this part of ISO 9613 is general in the sense that it may be applied to a wide variety of noise sources, and covers most of the major mechanisms of attenuation".

The ISO 9613-2 standard is intended for use in prediction of long-term average sound pressure levels under generally favourable sound propagation conditions from the source (i.e. the wind turbine) to the receptor (i.e. a dwelling). With regard to wind turbine noise (WTN) several studies have investigated the agreement between predicted and measured sound pressure level at distances up to 2 km and generally found that during intervals when measurements were downwind of wind turbines the measured levels exceeded predictions. Plovsing and Søndergaard (2011)[1] found differences of less than 1 dB at distances up to 1.5 km for several arrangements of wind turbines. Larsson and Öhlund (2014)[2] found measured levels

to be 3 dB higher than predicted for two wind turbines at 400 m and 550 m, and 3-5 dB for a wind turbine installation with the closest turbine at 1100 m. Van den Berg (2004)[3] found similar results (3 dB higher measurement results) for distances of 1-2 km but good agreement at a distance of 400 m from the closest turbine in a large wind facility. Forssen et al. (2010)[4] also found good agreement for a wind turbine at 530 m. Thus, the model appears to typically underpredict wind turbine noise levels at nearby receptors assuming favourable propagation conditions but is reasonably accurate up to a distance of 1 to 1.5 km from wind turbines, based on a review of the literature.

2) Although ISO9613-2 tends to underestimate wind turbine noise levels slightly, at distances of less than 1 km, the standard indicates its accuracy is +/- 3 dB, however, beyond 1 km, this accuracy cannot be guaranteed. Given that many windfarms in other jurisdictions are located less than 1 km from the nearest receptor (which would be the most exposed receptor) the model can provide reasonably accurate predictions and mitigation can be implemented to be protective of the nearest receptor(s) (and by default any receptors located farther away). Predictions become less accurate at greater distances, which present challenges in developing appropriate mitigation at distances greater than 1 km.

3) The ISO9613-2 standard is based on long-term favourable propagation conditions, not necessarily the "most favourable" short-term conditions, and as such, there can be uncertainty and possible underestimation of sound pressure levels depending on the conditions present when sound measurements are taken (and in consideration of the duration of the measurements themselves).

4) In order to compensate for the potential underestimation of sound pressure level results from ISO9613-2, Ontario regulations recommend using a modified ground absorption factor which can result in increased modelled sound levels (~1-2 dB)[5].

5) ISO and the World Health Organization both favour using yearly average noise

levels instead of looking at peak one-hour measurements or even peak discrete measurements, whereas Ontario compares their standards to the peak one-hour measurement. Thus, depending on the interpretation of the standard (in the case of Nova Scotia, 40 dBA), it can be defined as a single exceedance of the standard, an exceedance of 40 dBA over a period of one hour, or an exceedance of 40 dBA on an averaged annual basis. (Nova Scotia uses an exceedance of 40 dBA over a period of one hour).

6) In terms of noise measurement, even directly below the wind turbine it can be difficult to separate the wind turbine noise from wind induced noise and other background noise sources when measuring noise levels. One way to evaluate wind turbine noise directly would be to measure noise levels with the turbines on and off and compare the results.

7) With respect to the wind turbine sound power output curve provided by the manufacturer, it is based on measurements under controlled conditions using IEC 61400-11 (IEC61400-11:2002[6] has been shown to have an uncertainty of up to 3.7 dB at <150 m from the source), and as such there can be uncertainty about whether these maximum levels may be exceeded in real-life situations. The sound levels from the manufacturer also do not account for additional noise that may be produced if the turbine is not operating properly (e.g. grinding noises if gears aren't properly oiled or maintained).

All of these uncertainties exist due to the predictive nature of modeling, and all assumptions and inputs into these models make the predictions less accurate than real-life conditions. That is the challenge with any model, including groundwater models, air dispersion models, etc. because all of them are based on predictions with uncertainty in every calculation simply because the project hasn't been built and there is no real-time data. As such, the overall uncertainty with any model prediction based on ISO 9613-2 can be a standard deviation of +/- 4 dB (with a 95% confidence interval of +/- 8 dB).

Nonetheless, modeling is considered more accurate in representing long term average wind

turbine noise levels compared to short term measurements, which are sensitive to fluctuating variables and do not easily discern between wind turbine noise and residual sources of sound.

For example, the uncertainty in short-term environmental measurements according to ISO1996-2:2007 is at least 3.6 dB at 1 km from the source (ISO1996-2:2007)[7]. Furthermore, wind turbine noise levels are not easily obtained experimentally because the sound pressure level due to wind turbines at typical set-back distances from dwellings can be low enough to make it difficult to distinguish and recognize wind turbine noise signatures from the sound due to other noise sources such as wind, road traffic and other ambient noises. “

Your request to meet with the Minister or NSE staff on these issues is acknowledged. Given that our department relies on the technical advice of Health Canada with respect to wind turbine noise issues, I would recommend that if you feel further detailed discussions on these issues is warranted than a meeting with Health Canada officials would be more appropriate.

Sincerely,

Peter Geddes
Director of Policy and Planning
Nova Scotia Environment
902-424-6250
peter.geddes@novascotia.ca

[1] Plovsing, B., and Søndergaard, B. (2011). "Wind turbine noise propagation: Comparison of measurements and predictions by a method based on geometrical ray theory", *Noise Control Engr.* J. 59(1), 10-22.

[2] Larsson C, and Öhlund O. (2014). "Amplitude modulation of sound from wind turbines under various meteorological conditions", *J. Acoust Soc Am.* Jan; 135(1):67-73. doi: 10.1121/1.4836135. “

[3] van den Berg, G.P. (2004). "Effects of the wind profile at night on wind turbine sound," *J. of Sound Vibrat.*, 277(4-5): pp. 955-970.

[4] Forssén, J., Schiff, M., Pedersen, E., and Persson Waye, K. P. (2010). "Wind turbine noise

propagation over flat ground: measurements and predictions,” Acta Acustica united with Acustica, 96(4): pp. 753-760.

[5] Ontario Ministry of the Environment. (2008). Noise Guidelines for Wind Farms: Interpretation for Applying MOE NPC Publications to Wind Power Generation Facilities. Queen’s Printer for Ontario. PIBS 4709e. Available at: <https://dr6j45jk9xcmk.cloudfront.net/documents/1683/164-noise-guidelines-for-wind-farms-en.pdf>

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Pollock, Meaghan Elizabeth

From: @gmail.com>
Sent: April 14, 2023 3:45 PM
To: Environment Assessment Web Account
Subject: Higgins Mountain Wind Farm EA comments
Attachments: missing EA comments 1 - 7.4 +.docx

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

Exercise caution when opening attachments or clicking on links / Faites preuve de prudence si vous ouvrez une pièce jointe ou cliquez sur un lien

Dear EA office staff,

I have spent thirty days reviewing the 2023 Higgins Mountain Wind Farm Environmental Assessment Document. I could easily use another 30 days to feel my work is close to complete. Pardon the editing errors as I'm now scrambling to complete submissions.

The following points were completed too late to be submitted with other work so I am collectively sharing them here as a stand alone document.

This work may include points related to EA document sections 1, 2, 4, 6, parts of Section 7, 8, 9, 10, 12, and 14.

General

The Proponents EA does not demonstrate the Project is unlikely to cause adverse or environmental effects that cannot be mitigated.

The Project should be rejected because of the likelihood that it will cause adverse effects that cannot be mitigated.

Lack of evidence of no harm. The Proponent has not provided evidence there will be no adverse effects that cannot be mitigated to mainland moose, biodiversity, ecological connectivity corridor, significant wetlands ecosystem area and a landscape level, climate change mitigation hotspot.

Mainland Moose Recovery Plan. The Proponent has not provided evidence Mainland Moose Recovery Plan efforts will not be adversely affect regional recovery efforts. The Proponent has done little to mitigate negative effects on the mainland moose and the Mainland Moose Recovery Plan. Much of the Project Area including new roads, upgraded roads, laydown areas, turbine site, crane pad area, etc is considered 'Essential moose habitat.

Biodiversity & connectivity. The Project Area is a unique, high elevation area full of wetlands that is regional connectivity corridor between Portapique River Wilderness Area and the Wentworth Valley Wilderness Area.

Socio-economic report inadequately expresses the real nature of the local and regional economies and should have been a more extensive Socio-Economic Impact Study as was promised by the Proponent.

The EA is full of errors and omissions.

Cumulative effects were barely addressed.

Visual Impacts were not fairly represented in terms of professional quality of the report, methods used, or even the locations chosen to be used.

1.0

The Higgins Mountain Wind Farm Limited Partnership (Higgins Wind, the Proponent) or related partners carrying on business of Higgins Mountain Wind Farm (the Project) were recently under a NSE non-compliance directive related to decommissioning their 2006 Higgins Mountain Road wind project without submitting a decommissioning plan to Nova Scotia Environment and Climate Change.

2.2 p4

The Project may contribute to meeting Nova Scotia's renewable energy needs. But this statement is also true for the long list of proposed projects also looking to help NS meet those needs.

No proof of claims of long-term economic opportunities for local community. No Community Benefit plan was cited.

4.0

Site sensitivity the Proponents Higgins Mountain wind project has a Category 4 or VERY HIGH risk rating by size default. Proponent has little to say about this and its impact potential and later in the EA suggests project size would be a Medium Risk rating.

About 6km of new roads, upgraded road, cleared areas follows the divide between three watersheds, potentially doubling risk factors. Effects of siltation, ARD, etc could be twice as bad. EA doesn't appear to assess this risk factor.

6.1.1 (see also Table 6.4)

Proponent implies they worked to mitigate negative effects and community concerns but there is no evidence of this. Cumberland and Colchester both upgraded their wind by-laws and restrictions after learning details of Higgins Mountain wind project from the community. Proponent repeats this misleading notion

Table 6.2

- p42, Dr. _____, see 7.4.1, 7.4.3 below
-
- Proponent reference Feb 2022 Ecology Action Centre meeting. Later on August 24th, 2022 EAC made a statement about the Project on their Social Media channels...

' EAC is concerned that the proposed location of the Higgins Mountain project is in an area deemed essential habitat for the endangered moose.'

Table 6.4

Proponents property value research is out of date and only represented industry promoted material.

Proponent suggests tourism in highly compatible with tourism, but does not consider the nature and natural landscape is the driver of the tourism market, especially as the Wentworth Valley transitions to four-season tourism model. Healthy forests, rivers, moose, and intact, historic scenic views are important to future nature and eco-tourism plans in the Wentworth area.

Visual Impacts. Proponents suggest they removed 10 turbines for visual impact purposes but the RFP they were awarded was for 100MW not the 150MW project they applied for, that coupled with a 3.2km Restricted Wind Overlay and their project was quickly reduced by ten turbines.

Decommissioning. The defunct 2006 Higgins Mountain Road wind project was in non-compliance with Cumberland County by-laws for three or more years. This resulted in Cumberland County updating their wind by-laws with careful emphasis on beefing up county wind energy decommissioning rules and helping convince other counties to upgrade their wind by-laws.

More recently, the Proponents of the 2006 Higgins Mountain Road wind project forgot to submit their decommissioning plan before felling a 100M tall turbine.

7.4.1 & 7.4.3 &

The Proponent received key guidelines/advice from co-author of Mainland Moose Recovery Plan. The Proponent omitted the following key guidelines in their 2023 Higgins Mountain Wind Farm EA:

1. Minimize roads, fences, lighting and other linear infrastructure.
2. Orient and clump them together in ways that do not sever or intersect intact forest or other natural habitat linkages through the site.
3. Plan in a spatial way that retains wide (300 m minimum; 1000 m ideal) habitat linkages/corridors through the site in multiple directions, especially to connect with intact habitat beyond the site.
4. Retain both hardwood and softwood and access to water in order to provide summer and winter security and thermal cover and forage.
5. Include mechanisms to deter motorized human access beyond that necessary to service the site.
6. Retain and enhance natural cover for moose and other SAR habitat delineated as core habitat in Recovery Plans.

7. Retain and enhance natural cover for moose and other SAR habitat modeled as high habitat suitability or high likelihood of presence as delineated in Recovery Plans.
8. Avoid new road construction/expansion/enhancement in areas delineated as unroaded/low road density in Recovery Plans.
9. Retain as much natural cover as possible to favour moose habitat over deer habitat to minimize incursion of deer and associated P. tenuis (brainworm fatal to moose and carried by deer).

Table 7.1, 7.2

While Debert may be the closest Meteorological Station it should be noted Debert and Higgins Mountain have very different meteorological conditions. Higgins Mountain gets more snow, ice, rain and clouds than Debert that sits on the lower southern slopes of the Cobequid Mountains. Snowpack season lasts weeks to months longer on Higgins Mountain than the majority of Nova Scotia. April 12, 2023 Folly Lake is still snow & ice covered as is most of the land 600' elevation and above while on the same date there is almost no snow in Debert or Lower Wentworth, or the majority of the rest of mainland. It does not appear that weather data from Proponents weather station was shared.

7.1.1.5

Nature.com Scientific report 2021 [Wind Plants Can Impact long-term local atmospheric conditions.](#)

Has the Proponent done any research into wind plants inducing a wind deficit aloft and a wind speed acceleration near the surface which can extend 30km downwind of the plant? Did the Proponents EA consider this in relation to SOCI, SAR birds, bats, moose, ice, freezing rain, snow and impacts on nearby destination ski area.

The Proponent does not address the unique topographic conditions found on Higgins Mountain and how the project may be influenced by significant and worsening ice storms. Proponent never stated if turbine blades are heated.

7.4.5

Nature.com Scientific report 2021 [Wind Plants Can Impact long-term local atmospheric conditions.](#)

The Proponent doesn't discuss effects wind turbines may cause to induce a wind deficit aloft, wind speed accelerations and increased air turbulence which can extend 30km downwind of the project area. Increased turbulence appears related to nocturnal temperature inversions. The Proponent doesn't address whether there will be no harm to moose, birds, bats or other SOCI.

Section 8

p.216 Research by _____ referenced 2018 study in Amherst and Sackville, residents generally favorable to wind energy.

The Proponent appears to be falsing suggesting correlations in the study between the older, smaller Amherst wind project down on the marsh and Higgins Mountain project that sits on top of the second highest mountain on the NS mainland?

The study referenced Amherst and Sackville survey results but the Proponent did not share well known, widespread negative views towards the Higgins Mountain Wind Farm.

The Proponent has not proven there is

Amherst turbines total height 140m, Amherst turbines base 17m **BELOW** nearest home.
123m from home to top of turbine

Higgins Mountain turbine total height 195m, Higgins turbines bases 167m **ABOVE** nearest homes.
362m from home to top of turbine

Nearly a 260m or 785' difference in vertical impact dominance.

Section 9

Archaeological Resources

The MEKS report Appendix B page 22 suggests via recorded oral history and LiDAR mapping of Mi'kmaw burial grounds less than 4km north of the Project Area.

... the small field had several low mounds in a row formation that included two small mounds. Believed to be Mi'kmaq burials, haying was only done by hand and the landowner never ploughed nor operated machinery over the site. The general area described appears to be covered in forest today but LiDAR - Hill shade imagery does show a row of three prominent mounds. (17)

Section 10.5 Sound

Dr. _____ 1.5 km adverse health effects: Doctor _____ published a case series some years ago that reported a constellation of adverse health effects (e.g., vertigo, tinnitus, sleep deprivation, etc.) for those living within 1.5 km of a wind power facility. Based on the Strum data, three receptor sites (ER, EL, & EM) within 1.5 km of a wind turbine and are therefore at risk of experiencing one or more symptoms described in that case series.

Health Canada noise modeling error: There are noise modeling deficiencies with ISO:9613-2 (commonly used in wind turbine noise modeling including the Higgins Mountain project). If the ISO:9613-2 computer model calculates 40 dB(A) (the NSE limit) at a receptor site, it can be stated with 95% confidence that the actual noise level falls in the range 32 dB(A) to 48 dB(A). Since this range includes levels above the NSE limit, the proponent to tell the inhabitants of a receptor site that the proponent is 95% confident that the noise **will not exceed** the NSE 40 dB(A) limit at their home, the value calculated by the noise model **cannot exceed 32 dB(A)**. Therefore, based on the attached Strum sound level data, for the same three receptor sites (ER, EL, & EM), it appears the Proponent **cannot** state with 95% confidence that the levels at these homes will not exceed the NSE 40 dB(A) limit.

UK Noise Association: Page 15 of the UK Noise Association (a professional acoustical engineering noise association) reports ([Microsoft Word - Wind Farm report.doc \(wind-watch.org\)](#)) audible levels of wind turbine low frequency noise (LFN) were measured inside a farmhouse over 3 km from 3 Nordex 1.3 MW turbines; each having ~101 dB(A) total sound power (TSP). Based on the Strum data, there are 44 homes within 3 km of a turbine. Depending on other factors such as topography, house construction, etc., anyone living within 3 km is at risk of exposure to LFN inside their homes. Also based on the Strum data, the TSP for the turbines at Higgins Mountain is 106 dB(A). This is a significant increase compared to the turbines in the UK report. Consequently, all other factors being equal to the UK situation, based on the increase in the Higgins Mtn turbines TSP, its conceivable that homes as far away as 5 km could experience similar conditions.

The EA must provide evidence that harm is unlikely, not state there is no evidence that harm is likely.

Section 12

Temperature

Areas cleared for turbine/infrastructure, new roads and widened roads will increase localized heating and drying.

Flooding

Infilling wetlands and road widening will decrease the amount of water naturally retained in the project area.

Severe weather events

Ongoing and historic industrial logging on Higgins Mountain make the siltation related to extreme weather events worse as logging practices reduce the landscapes ability to slow and filter rain and snowmelt events. Rivers use to rise and fall over days and weeks, but heavy logging across the region means rivers flood in one or two days now. And now brooks regularly turn brown from industrial logging siltation after wet events.

Turbine Icing

The upper elevations of the Cobequid Mountains are well known to experience significant more snow and ice events than most of Nova Scotia. In fact, in recent years ice storm damage has been dramatically getting worse. Recent icing storm damage can be seen in broken Higgins Mountain Wind Farm infrastructure such as their power transmission lines dangerously hanging across Higgins Mountain Road or the Proponents collapsed weather tower beside the Project Area Wetlands of Special Significance..

Wildfire

Wider roads, new roads, new cleared areas for infrastructure will create heat sinks and will increase forest fire potential.

14 Cumulative Effects

It seems odd the Ski Wentworth is noted as a Nearby Industrial Activities Table 14.1 but in the Tourism section of the EA, Ski Wentworth is sometimes presented as a ski hill for local residents and cottage owners.

Pollock, Meaghan Elizabeth

From: @gmail.com>
Sent: April 14, 2023 3:49 PM
To: Environment Assessment Web Account
Cc: @gmail.com
Subject: Higgins Mountain Wind Farm Environmental Assessment Comments
Attachments: Higgins Mountain Wind Farm Environmental Assessment ver 3.pdf

You don't often get email from [redacted]@gmail.com. [Learn why this is important](#)

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

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Hi
Please find attached my comments regarding the Higgins Mountain Windfarm Proposal.



HIGGINS MOUNTAIN WIND FARM ENVIRONMENTAL ASSESSMENT Visual Impact Assessment Review and Comments

A review of the Higgins Wind submission as part of the Province of Nova Scotia Environmental Assessment Process

Higgins Mountain Wind Farm Environmental Assessment Review

This submission is concerned with the registration documents for the Higgins Wind Farm Development and particularly Section 10.4 Visual Impacts and its associated figures. I am professionally versed in visual analysis having utilized methods of visual simulation and analysis in addressing the impact of development upon communities and the natural environment for over 35 years. Unfortunately, I find some issues with the material presented. I believe there may be errors in some of the simulations and the representations do not demonstrate the impact of the wind farm development on the surrounding communities. The Environmental Assessment process must allow the public to give comment. Public comment will be based on the material the proponent submits for review. Therefore, its accuracy is important. The community has worked hard over the last four years in its endeavor to protect the scenic values that are in this area. Unfortunately, I don't feel enough attention was paid by the proponent to this aspect of the project. Following is my take on the important visual elements and where there are concerns which arise from the submission.

Area Description

The development sits atop the Higgins Mountain plateau in the Cobequid Mountains. The Cobequids run between Cape Chignecto and Pictou. Higgins is pretty much the highest area in mainland Nova Scotia (approx. 360m). The Folly Gap on the eastern side of the proposal is a geologic cut that transects across these mountains with the Folly River flowing south through a gorge to Cobequid Bay and the Wallace River flowing to the north through the Wentworth Valley and the Northumberland Strait. The high point of the gap is Folly Lake. The mountains are incised with deep gorges and small steep brooks.

The proposed wind farm sits on the west side of the Wentworth Valley stretching 8 km from Folly Lake (190 m) to Wentworth Provincial Park (44m). To the north is the community of Westchester which sits at the base of the north slope of Higgins Mountain on a rise in the peneplain that runs to the Northumberland Strait. To the west are the communities of Isaac Lake and Sutherlands Lake which sit on the plateau and to the south is Londonderry which is on the south slope of Folly Mountain. The Folly Gap hosts the mainline of the Canadian National Railway, Highway 4 and electric transmission lines connecting to other areas of the province and New Brunswick. The Valley is also the home to 5500 residential homes and, on a rural scale, is moderately dense and compact. It continues to be a place of residential growth mainly owing to the attractiveness of the area and its opportunities for outdoor recreation. The hills host the largest ski hill in Nova Scotia and as well as a number of wilderness trails, a mountain bike facility, XC ski facility, a hostel, designated snowmobile and ATV routes, Blue Route road bike route and numerous fishing opportunities at Folly Lake, Wallace River and the brooks and ponds on the plateau. It receives an average of 58 days of snow with an average accumulation of 140 inches. Owing to the elevation and colder temperatures, it is one of few places that enjoys reliable snow. Therefore, it is one of the few outdoor places where summer and winter are equally active.

With the advent of rural internet, the number of people working from this area on a full time and a part time basis has greatly increased. This can be seen in the 8% population growth, reversing the rural outmigration of the last several decades. A substantial number of new builds have appeared for an area of its size. The area is host to Wentworth provincial park, the Wentworth Valley Wilderness protected area and the Portapique River Wilderness Protected Area. The area is crisscrossed with publicly accessible trails across both public and private lands. Active community organizations involved in multiuse trails and user groups work to maintain and grow access to the natural areas of area.

In the early 1990s plans to upgrade the TransCanada through the Folly Gap were redirected owing to the difficulty in routing it through the valley and realization that it would mean the destruction of the community and scenic landscape. A recent clearcut which extended over the ridge top resulted in a protest in the community. There is a sensitivity to the natural landscape. The businesses and residences that associate themselves with the scenic quality and outdoor activity are a huge economic benefit to the Counties as are the service and construction industries who service the population of the area who choose an outdoor lifestyle.



1 Wentworth Scenic Loop - Four Seasons of Adventure, Highway 104

Visual Resources

The Wentworth Valley is an area of high scenic value. It is considered as a Scenic Loop by the Province of Nova Scotia and recognized for its nature based outdoor recreation. “Wentworth Valley Scenic Loop – Four Seasons of Adventure”. This natural scenic landscape helps to drive economic and social well-being for Cumberland and Colchester County. To protect that resource, the Cumberland municipal council placed a special overlay within its land-use by-law prohibiting wind turbines from being placed within 3.2 km of Highway # 4 for the Cumberland County portion of the valley. The purpose of this restriction is to protect the natural visual resource and the benefits that it brings.

This year, Colchester Council debated a similar setback but were told by their legal council that, as they did not have a land-use by-law for their portion of the valley, they did not have the ability to follow Cumberland’s lead. They were advised that they could re-open the matter in their upcoming land-use by-law process.

Key Scenic Elements

Scenic landscapes are always made up of elements. The elements which combine to make this place an area of high scenic value are;

- Topography - Steep valley walls (200 m high on average) and a narrow valley bottom (average of 600 m wide) creates a narrow, well-defined U-shaped valley. High points, 300 m above the valley floor, create a strong, feeling of enclosure.
- Borrowed Landscapes – Lookoffs from the heights present general views of 30 to 40 km to the Bay of Fundy to the south and to the Northumberland Strait to the north. The vantages also provide views along the length of Cobequids. Clear day views of up to 65 km are not uncommon allowing visibility to PEI and New Brunswick. Scenic views from the valley floor towards the plateau heights and along the valley average 5 to 8 km. Long views of 10 km to the uplands and the valley exist at Westchester and approaching from the north on Highway 4
- Acadian Upland Forested Slopes — Owing to steep valley slopes, tree harvesting is difficult. This has led to an abundance of late-successional temperate Acadian Forest species such as sugar maple, red spruce, eastern hemlock, yellow birch, and beech populating the slopes. This rich forest mix is not often found in other areas which are so visibly accessible. Forestry practices hold much of the forest lands in the province at an early successional stage favouring species such as white birch red maple, balsam fir and white spruce. The rich late successional mix carries a strong, distinctive, and beautiful visual character. The seasonal variation makes the area ever changing and visually interesting. The fall colours are especially recognized for their outstanding beauty with a festival and yearly pilgrimages by visitors to view them.
- Water - Lakes/Steams/ Waterfalls – Water is always a scenic attraction. Folly Lake and the Wallace River provide this to the scenic landscape. Folly Lake is a deep glacier formed lake surrounded by mountains. The Wallace River moves through the valley offering a glimpse into the glaciated nature of the land (tills and gravels) and a ribbon of water and vegetation.

- Incised Gorges and Ravines – Trails tend to find their way to and along the topographic cuts created by the brooks which flow off the plateau. The ravines tend to be steep with 26 waterfalls to be found in a relatively small area.
- Cultural Landscape – The area was settled in the 19 and 20th century and many farmsteads (buildings and fields) still dot the valley floor.
- Sky – Scenic natural landscapes include both land and sky. The ridge line creates definition for the sky. The topography makes for very long sunrises and sunsets especially at Folly Lake and the north end of the valley, Westchester Isaac Lake and Sutherland Lake. The topography blocks artificial light from urban areas of Truro and Oxford Springhill/Amherst making for incredible starry skies not normally seen in other areas of the province. The Dark Sky rating for the area on the Bortle scale is Class 2 which is described as “truly dark sky”. Only the Keji and Yarmouth areas of the province have darker Class 1 skies on the mainland.
- Winter Landscape – Owing to height, colder temperatures, and the moisture from the Northumberland Strait to the north and Bay of Fundy to the south, the area receives a higher frequency and accumulation of snow fall than most other areas of the mainland. The snow comes earlier and stays for a longer duration (Nov to May). Such big winters in a rural/wilderness area make this a place of bucolic winter beauty when many other areas are Nova Scotia winter grey.

The combination of these elements come together to make a landscape ideal for residents and visitors who enjoy the beauty of nature and outdoor activities.





The Proposed Development

The Higgins Mountain Wind Farm will consist of seventeen wind turbines producing between 5.2 and 7.2 mw of power each. These are the largest land turbines currently produced and are significantly larger than the +/- 2mw turbines that communities see nearby in Turo and Amherst. The general elevation of the area is between 310m and 360m above sea level with the turbines sitting on those heights being approximately 195m tall from base to blade tip. The turbines will be on the Higgins Mountain plateau and will be surrounded by the residential communities mentioned above. A good deal of the controversy associated with Wind Farms is their impact on the visual landscape. This development has the potential to have substantial impact on the scenic qualities of the area.

Visual Assessment for Wind Farm Developments in Nova Scotia

Nova Scotia's Proponent's Guide to Wind Power Projects: A Guide for Preparing an Environmental Assessment Registration Document is clear, "The visual effect of the development is likely to be one of the more significant issues in the assessment of the proposal...A landscape analysis is likely to be required particularly in locations of high landscape quality. The existing landscape should be described, and the potential visual impacts of the proposal assessed."

While the province is not prescriptive in the "how", it does suggest that the proponent take into account ";

- 1) The various perspectives of the 'visual user' groups represented in the local community,
- 2) The degree to which turbines modify landscapes
- 3) The visibility of the proposal from public viewpoints
- 4) The proximity to sites of significance such as conservation areas and national parks,
- 5) The provincial significance of the landscape in question".

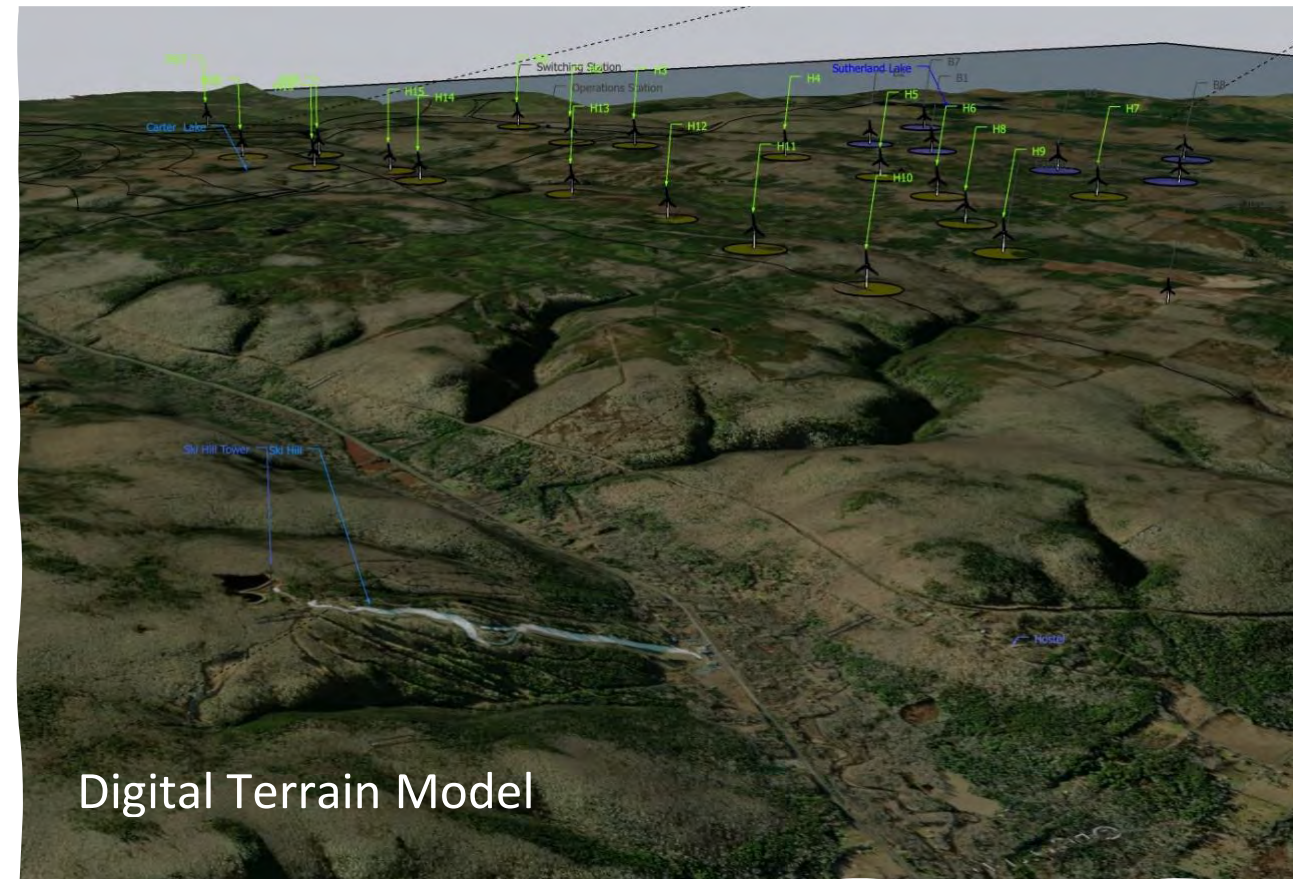
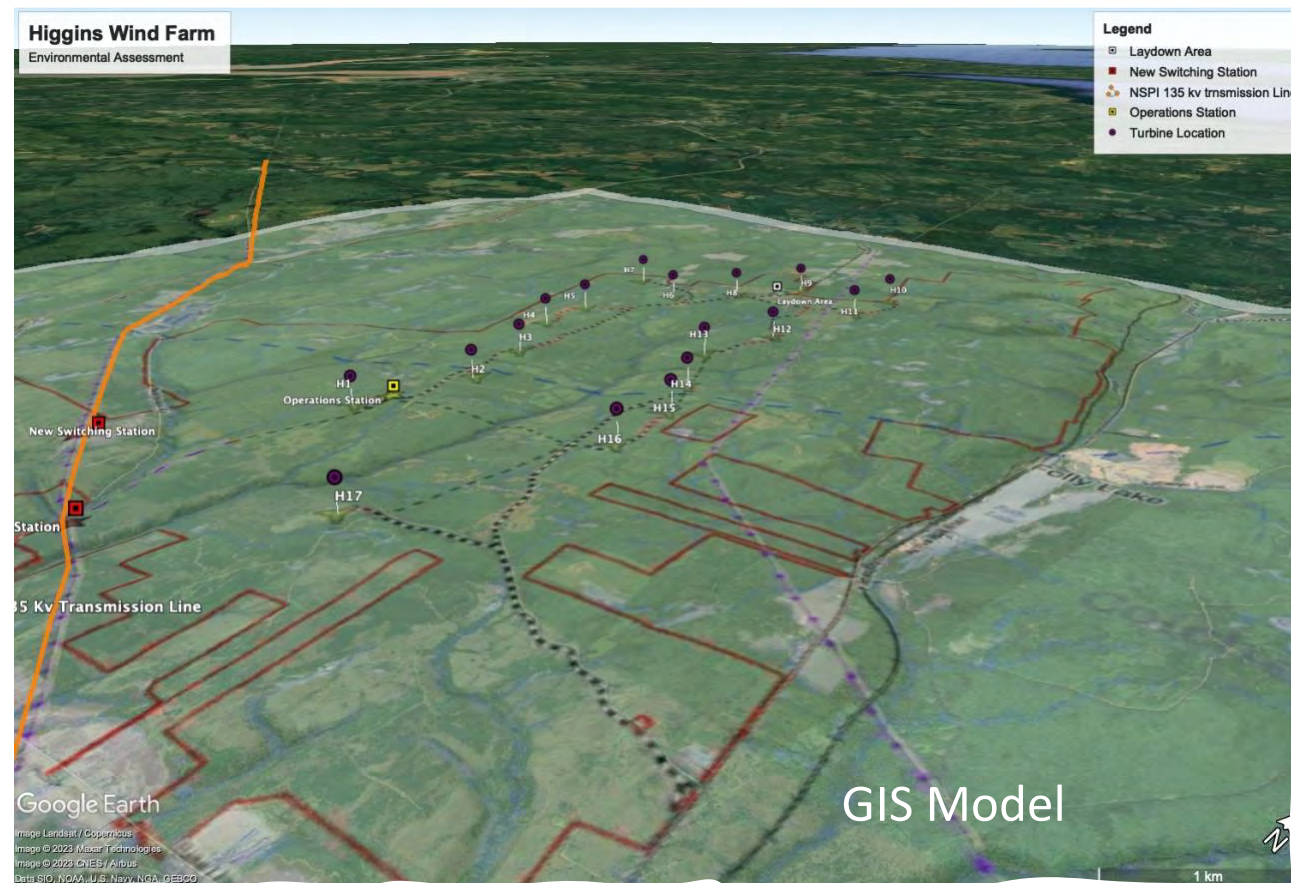
The "Proponent needs to describe the visual effect of the proposed wind turbine/s on the locality". This may include illustrations, photographs, and other graphic representations of the appearance of the wind projects and transmission lines (where applicable) from all significant vantage points including views from both the land, the beach and the sea, where relevant. It also indicates that a landscape analysis is likely to be required particularly in locations of high landscape quality. The existing landscape should be described, and the potential visual impacts of the proposal assessed.

Owing to the potential for major impact on the visual resource and arising conflict, there has been a good deal of work conducted in how to predict and assess the potential future impact of wind turbines prior to approvals. Europe, Maine, and British Columbia all have advanced visual assessment approaches specifically for proposed wind turbine installations. In reviewing these a few key principles emerge.

- Accurate simulations are a must.
- Using several mapping and modeling tools is the most comprehensive means to understand/evaluate the potential impact and understand possible mitigations.
- Representing and evaluating present and potential conditions must be done with technical care. Key to this is an understanding of how people see and perceive the landscape. The concepts of contrasting elements (i.e. manmade elements in natural landscapes) and understanding how movement draws the human eye are two good examples.
- Employ technology and techniques that best replicate human vision.
- Topography is the preferred means to mitigate visual impact and is superior to vegetation. The changing nature of vegetation (harvesting, storm damage, limited life span) must be taken into account. Understanding that vegetation cannot be relied on as a primary screen is especially true as turbines get larger.
- Selected simulation locations must have a clear view to the turbines to be useful. Humans are not static in the landscape, so it is best to demonstrate where there is visual access up front.
- Panoramic views with proper depth of field must be used to approach mimicking the human eye.
- As turbines rotate 360 degrees to capture the wind and their appearance (colour, reflectivity, visual weight, and mass) changes in different weather conditions, unless all conditions are to be presented, the worst-case conditions should be modeled with turbines directly facing the receiver and turbines rendered to make it clearly visible. Distance and perspective should be factored into visibility with closer turbines having greater visual weight than far away turbines. It can also be explained that this is a "worst case scenario" and that at other times the turbine would be less visually intrusive. Generic illustrations can be used to illustrate how turbines change visually in different conditions.
- Public presentation of visual material must be reproduced and presented in a manner that represents what a person would see in that location. Small presentation images do not tell people how large a turbine will be in the landscape. Setting a controlled environment for the simulation viewer as well as references for scaling digital and printed material is helpful. Material to be used for review and evaluation without direct supervision should come with instructions on how to properly use.
- An evaluation criterion should be used to describe and classify the impact of turbines. That criterion often is based on size, proximity and how it dominates the landscape. Often the cumulation of visual factors of a turbine in a scene is described as visual weight.
- Visual impact analysis is subjective. It needs to be adjudicated by experts but also needs to be considered and informed by those who will be using the visual resource.

Community Models

The communities around the proposed Higgins Wind Farm organized themselves so that they could better understand the development, associated process, potential benefits and impacts and determine a community direction. As visual impact was one of the key concerns for the community, mapping and visual simulation models were developed to reliably reproduce the proposal as it progressed. This allowed people to visualize and stay informed on the potential community impacts. This information was provided to the general community, the Community Liason Committee and Protect Wentworth Valley, as well as elected officials. From a visual perspective these models consisted of a GIS mapping system and a Digital Terrain Model.



GIS Model

Turbines were located according to coordinates and mapping supplied in public sessions by the proponent. The purpose of the GIS Model is to;

- 1) Determine viewsheds of each turbine in relation to settled areas, sensitive areas and areas of scenic or recreation importance.
- 2) Overlay the landscape with the turbine development mapping as well as other mapping of social and natural factors.
- 3) Explore possible changes in location for turbines to mitigate their impact.

Digital Terrain Model

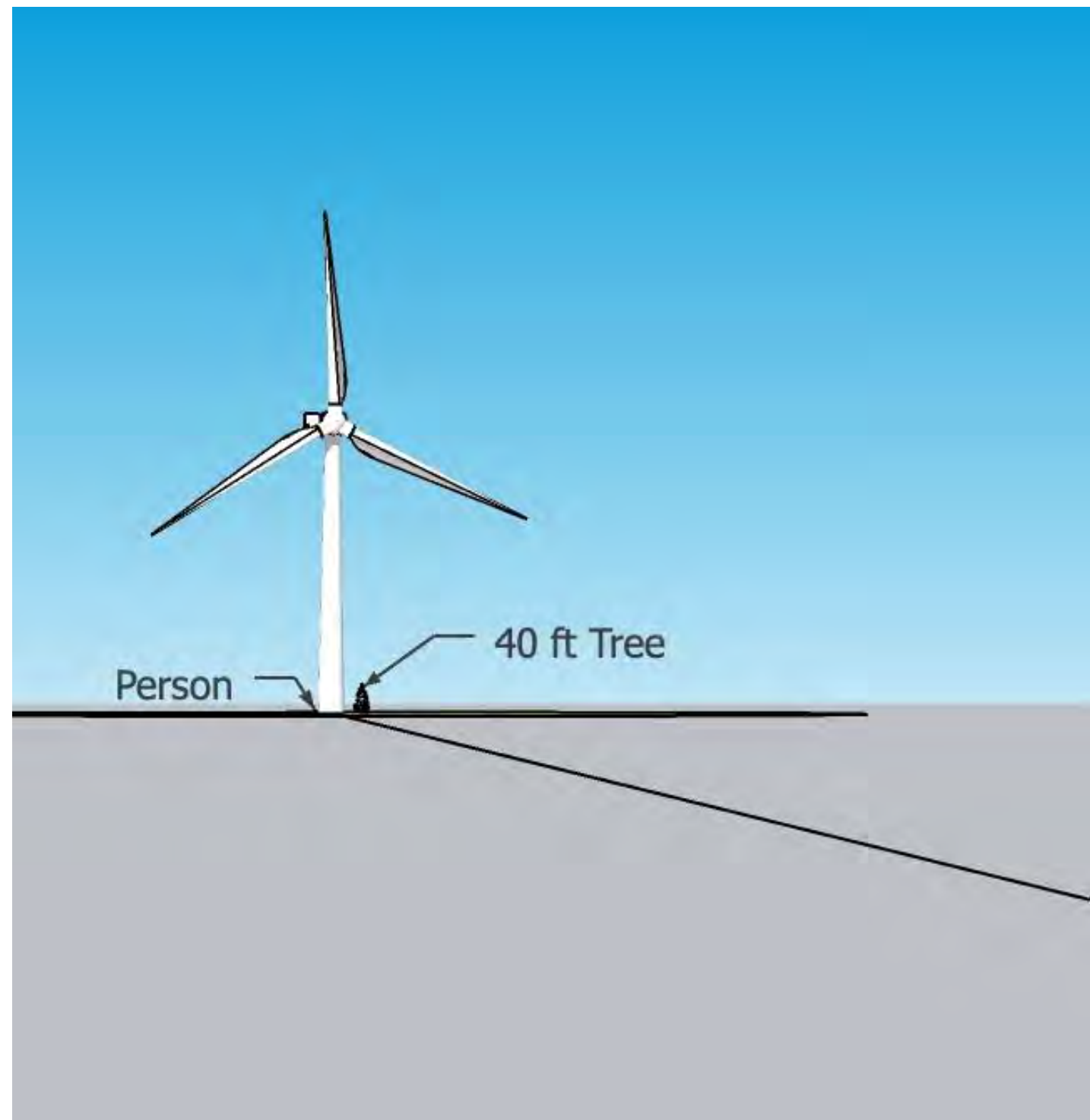
A three-dimensional digital terrain model generated from satellite-based data from DigitalGlobe was populated with a CAD model of a 195 m turbine based on the Vestas 7.2 Mw Turbine. The turbines were placed in the locations identified by the proponent by overlaying mapping using coordinates, verifying locations with satellite imagery. The purpose of the Digital Terrain Model was to:

- 1) Provide a 3-dimensional visual simulation to allow people to assess visual access to the turbines for themselves in real-time rather than simply a static 2d map or a photoshop image.
- 2) Assess the turbines from any location within the model.
- 3) More accurately represent the field of view and depth of field that would be experienced by a viewer over camera generated simulations. This was done by using a large-scale computer monitor with a 16x9 aspect ratio and an 80 mm depth of view. The computer model afforded the ability to pan, giving a better simulation of what a human would see across a 130 to 180 degree field of view.
- 4) Assess the dominance of visible turbines from any location through visibility and measured distance from the receptor site.
- 5) Explore options for mitigating turbine visual impact through elimination or moving turbine locations.
- 6) Have the means to compare community findings against visual simulations provided by the proponent in the Environmental Assessment

Both models were assessed for accuracy by checking elevations and distances against known points in the field and against the elevations provided by the proponent. Both models were found to be within +/-2m vertical and 4m horizontal accuracy which is acceptable for this scale of work.

Additional Modeling

As the proposed Higgins Mountain turbines are much larger than anything currently built in the province and the community is unfamiliar with the scale and therefore has nothing to compare it with. A model was developed of a 7.2 mw turbine to scale the degree the turbine would occupy in a vertical field of view at various distances and to assist with assigning a visual weighting for evaluation purposes.



2 - Turbine from 1 km occupies 11.5 deg of Vertical Field of View

Comparison of Community Modeling Simulation and Analysis and Higgins Mountain Wind Farm Environment Assessment Registered Submission

General Issues with the Proponent's Visual Analysis Submission

Comparing the community generated simulations with the proponents' simulations there are some noticeable differences. Visual comparisons follow.

- 1) Turbine Locations – In most of the wider view simulations (10.2D, 10.2E, 10.2G, 10.2L, 10.2N) the proponent's turbine locations appear to be inaccurate and do not reflect the turbine locations as shown in the mapping and subsequently placed in the community model.
- 2) Proponent's Simulation Selection – Two concerns arise;
 - a. The proponent's view selection for some simulations is of low value areas instead of focusing on areas which potentially might be affected by the development. Some of these areas were never in question by the community. The effort would be better spent illustrating sensitive sites which the community put forward for simulations. Simulations 10.2 B, 10.2 L and 10.2 M are examples of this. Further all three of these simulations are from the same general location with 10.2L and 10.2M being immediately beside each other albeit from different heights. One would have sufficed.
 - b. In some simulations, visually dominant turbines are just out of the camera's field of view. The practice in visual simulation is to use a panorama to better represent the 130 to 180 degree field of view that a person would see. The proponent chose to only show a narrow field of view instead of digitally stitching together multiple photographs as industry practice recommends. This leaves out a significant part of the view where turbines are clearly present. Examples of this occur in simulations 10.2D, 10.2G, 10.2H, 10.2I, 10.2K.
- 3) Quality of Photographic Representation – The proponent's simulation does not adequately represent the actual visual impact. In some instances.
 - a. Turbines are hidden within a tree even when that tree is no longer there. The practice in visual analysis is to seek vantages which allow the assessment "from the viewpoints that provide the best view of the landform or unit on which the wind energy project is proposed." (A Visual Effects Assessment Guidebook for Wind Energy Developments in British Columbia - BC Ministry of Forests, Lands and Natural Resource Operations). In areas of vegetation, it is fine to portray this a part of the nature of the landscape however where there is a mix of open and vegetated vantages you should seek the open view. This occurs in 10.2K and 10.2J and 10.2N
 - b. In many representations the turbine is somewhat lightened "ghosted" to blend it with sky or vegetation and reduce its visibility and visual weight. Turbines cannot disappear like this.
 - c. In some simulations the turbine appears to be thinned to reduce its mass when the recommendation and practice is to demonstrate the turbine face on and feathered flat in order to demonstrate the worst-case scenario owing that the turbine can face in any direction and its blades can be feathered.
- 4) Use of camera focal depth of view - The proponent frequently did not use the 80 mm focal length which they discussed with the CLC and community members, to mimic human depth of field. Nor did they stitch together multiple photos to illustrate human field of view. Instead, they used a variety of focal lengths and limited field of view which in some instances places turbines to appear further away (and thus less visually impactful or were out of frame). This makes it hard for the Minister, provincial staff, and the community a true idea of the potential impact on the visual resource.
- 5) Dependence on Vegetation for Visual Mitigation – Some areas are heavily treed however much of the land is also heavily harvested by Northern pulp and private woodlot owners. The area is historically subject to significant loss of tree cover owing to storm events having been hard hit by three successive hurricanes, Nor-easters and ice storms. The community has come to realize that trees are not long term and cannot be relied upon to screen from undesirable developments especially when the proponent has no control over the vegetation. The most dependable means of screening is topography which must be the first tool in the drawer and should be weighted much higher as a mitigative means. This concept is not presented in the submission.
- 6) We did find that there was general accuracy in the stated location of the photograph and in the distance from the viewpoint to the nearest turbine.
- 7) I could not find any description of the scenic resource nor any endeavor during the community engagement to find out what matters from a landscape perspective. This is not at all what is described in the provincial guide under visual assessment.

Unfortunately, this work does not serve to alleviate community concerns. Instead people have voice concerns that it is "selective". I do not understand why a large company with an endeavor like this would not want to put forward an irrefutable representation of what the proposed turbines would look like related to what the values are in the community. This is the best means to allow a good review and end with the most beneficial layout overall. Unfortunately, I feel the work needs to be re-done properly and with the community involved.

Review of Proponent's Visual Submissions



Comments

- Low Value Simulation. Not many turbines, as described in the EA, could appear visible in this simulation and still be compliant with Colchester and Cumberland turbine setback regulations and other siting restrictions. Therefore, this is a waste of a simulation.
- This is in an a known unimpacted area which the community was not concerned with. If the Proponent felt this area was important, they would only have to move back up the road a short distance where turbines would be clearly visible for assessment. A more important location should be substituted for this simulation.

Notes:
 1. Data Sources: GeoNova, Client
 2. Basemaps: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
 3. Projection: NAD83 UTM Zone 20

Legend	
	Camera Locations
	Camera Bearing
	Proposed Turbine Location
	Turbines Visible
	Turbines Hidden by Topography
	Turbines Hidden by Foliage



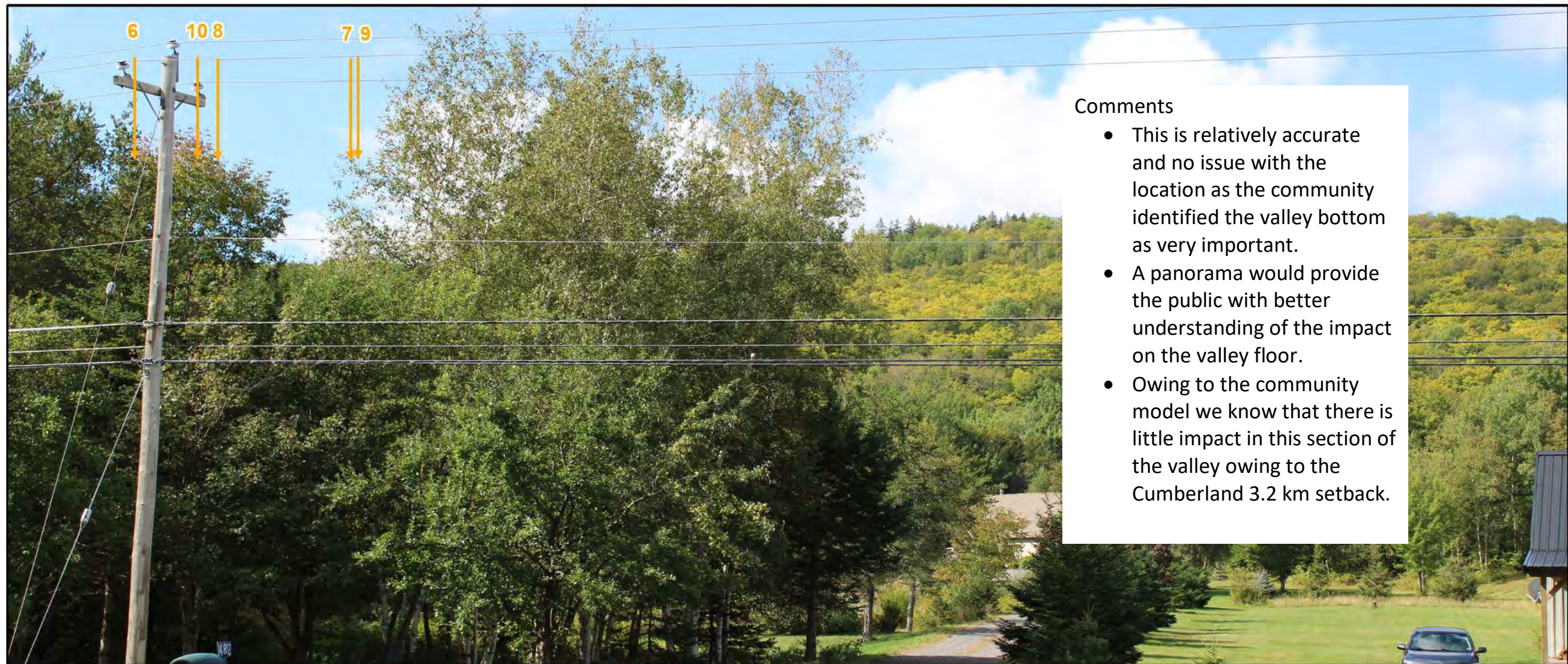
TECHNICAL INFORMATION	
Visual Simulation Location:	North of Folly Lake
View Coordinates:	Latitude: 45° 32' 56.000" N Longitude: 63° 32' 40.000" W Easting: 457501.14 m Northing: 5044072.08 m
Distance to Nearest Turbine:	3.8 km
Direction of View:	Northwest, Heading 280°
Camera Make/ Model:	Canon EOS REBEL T7
Lens:	33 mm
Image Resolution:	6000x4000
Weather Conditions:	Clear Sky
Date of Photo:	2021/09/20
Time of Photo:	11:01
Photo Credit:	Eric Johnson, Strum Consulting

Higgins Mountain Wind Farm - Visual Simulation Folly Lake

Date:	Project #:
March 2023	20-7376
Scale:	Drawing #:
1:200,000	10.2B
Drawn By:	
M. Savelle	

!0.2 B – Issue – Simulation Location - Low Value Location – the Road and position this shot was taken from is low from a Landscape and Community sensitivity point as it is Lafarge Road next to the quarry. Not sure why this would be of value. Accuracy is good but no Value in terms of impact upon community Value. To be of any value this should have been taken further east where the the road mounts the hill. However, the Community did not identify this as a high value location. This is one of a series of Low Value simulations in including 10.2 M and 10.2N

Simulation 10.2B – Folly Lake



Comments

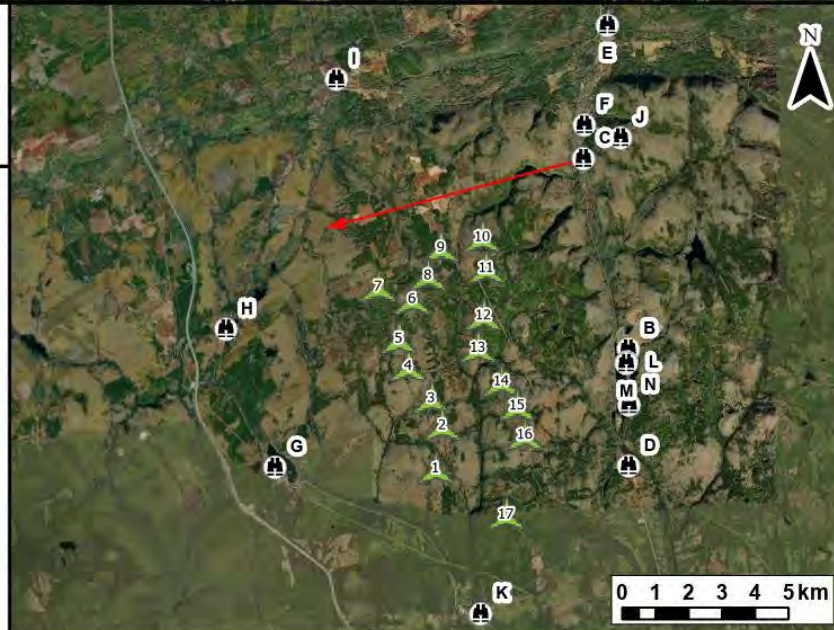
- This is relatively accurate and no issue with the location as the community identified the valley bottom as very important.
- A panorama would provide the public with better understanding of the impact on the valley floor.
- Owing to the community model we know that there is little impact in this section of the valley owing to the Cumberland 3.2 km setback.

Notes:

1. Data Sources: GeoNova, Client
2. Basemaps: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
3. Projection: NAD83 UTM Zone 20

Legend

- Camera Locations
- Camera Bearing
- Proposed Turbine Location
- Turbines Visible
- Turbines Hidden by Topography
- Turbines Hidden by Foliage



TECHNICAL INFORMATION

Visual Simulation Location: Highway 4
 View Coordinates: Latitude: 45° 36' 1.000" N
 Longitude: 63° 33' 44.000" W
 Easting: 456153.42 m
 Northing: 5049790.88 m
 Distance to Nearest Turbine: 3.8 km
 Direction of View: Southwest, Heading 255°
 Camera Make/ Model: Canon EOS REBEL T7
 Lens: 33 mm
 Image Resolution: 6000 x 4000
 Weather Conditions: Clear Sky
 Date of Photo: 2021/09/20
 Time of Photo: 11:17
 Photo Credit: Eric Johnson, Strum Consulting

**Higgins Mountain
 Wind Farm -
 Visual Simulation
 Highway 4**



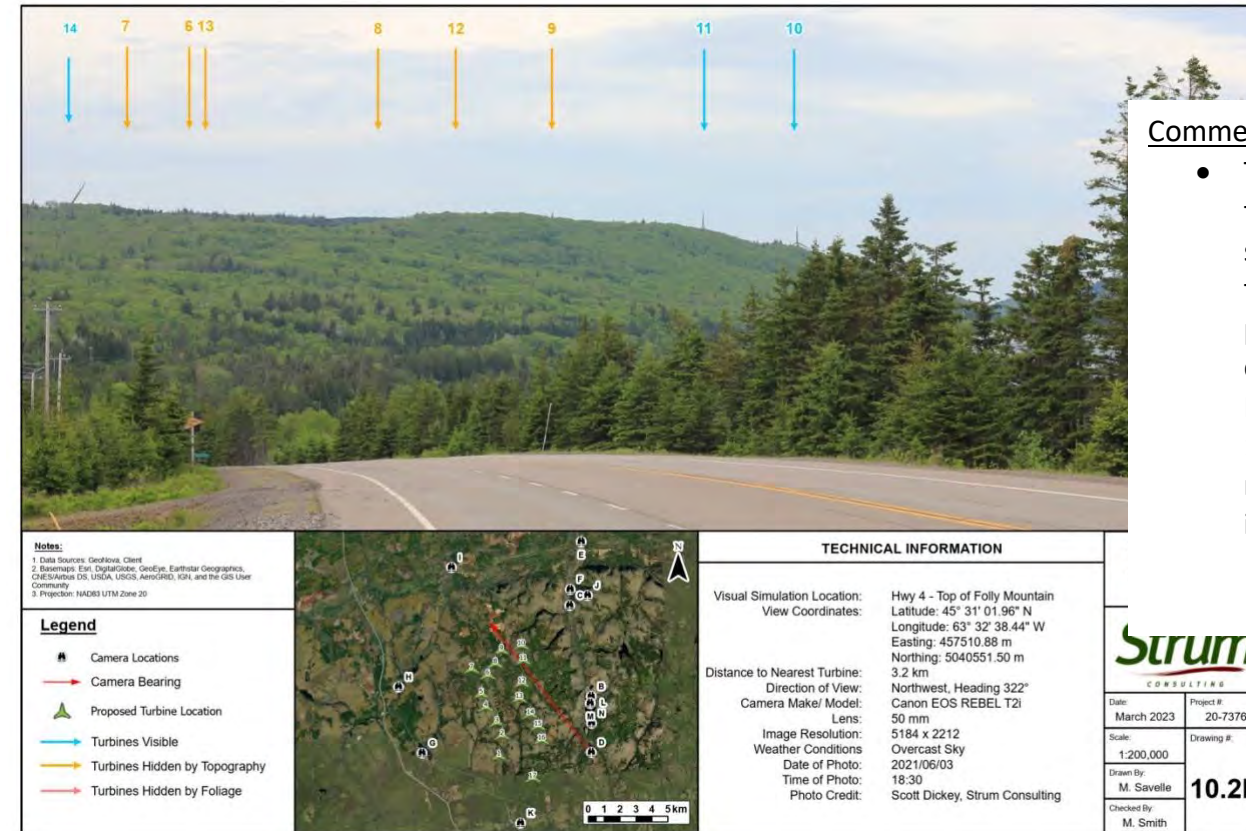
Date: March 2023	Project #: 20-7376
Scale: 1:200,000	Drawing #: 10.2C
Drawn By: M. Savelle	
Checked By: M. Smith	

Simulation 10.2C – Highway 4

10.2 B – Issue – Simulation Location - Low Value Location – the Road and position this shot was taken from is low from a Landscape and Community sensitivity point as it is Lafarge Road next to the quarry. Not sure why this would be of value. Accuracy is good but no Value in terms of impact upon community Value. To be of any value this should have been taken further east where the the road mounts the hill. However, the Community did not identify this as a high value location. This is one of a series of Low Value simulations in including 10.2 M and 10.2N

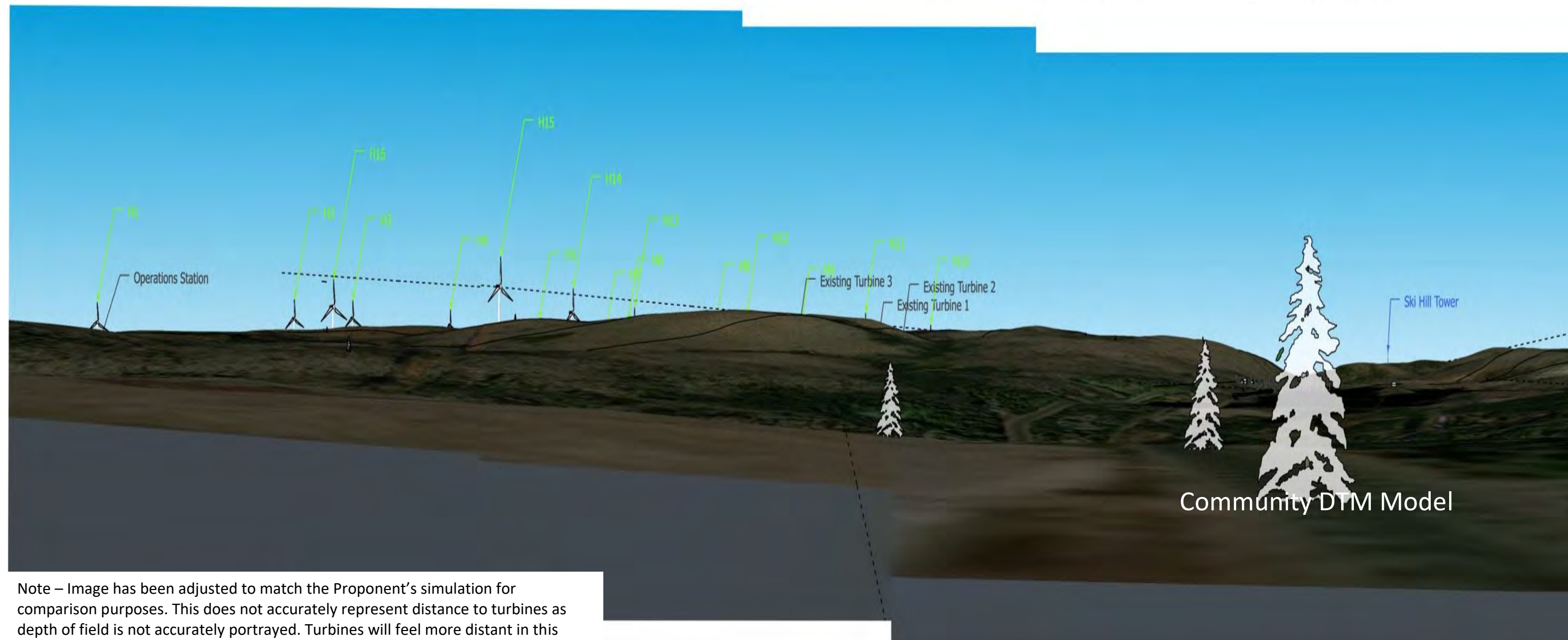
Comment

- Significant turbines to the left (west) are not shown as they are outside the camera's view.
- Field of view represented here appears to be 40% of what a human would see from this location and what is represented. A wider more human field of view is presented below.



Comment

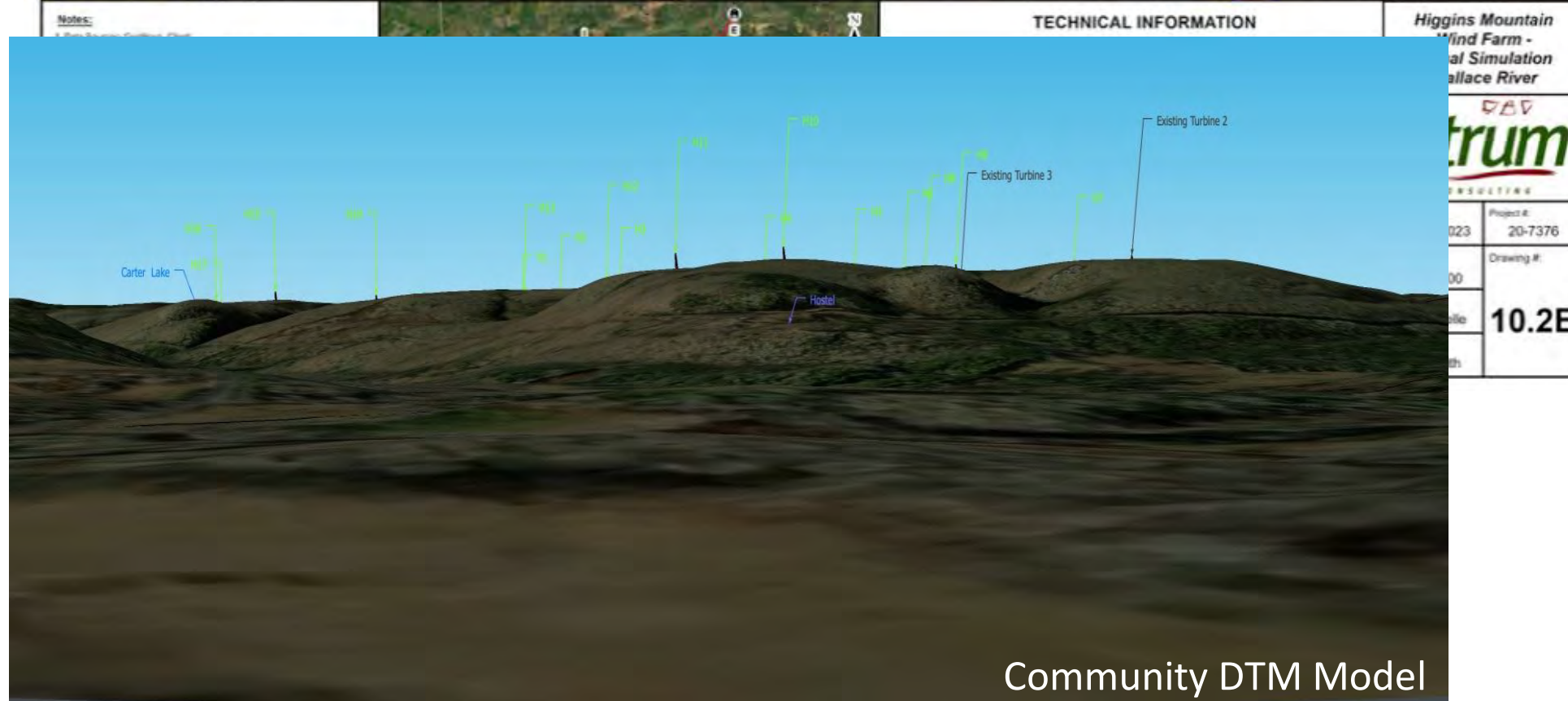
- Turbine locations appear to be incorrect and are shifted further north than they appear on the proponent's mapping and community DTM model. Note how close turbines 10 and 11 are to the notch beyond Folly Lake in comparison to the DTM



Community DTM Model

Note – Image has been adjusted to match the Proponent's simulation for comparison purposes. This does not accurately represent distance to turbines as depth of field is not accurately portrayed. Turbines will feel more distant in this image than in the field

Simulation 10.2D – Folly Mountain



Community DTM Model

Note – Image has been adjusted to match the Proponent’s simulation for comparison purposes. This does not accurately represent distance to turbines as depth of field is not accurately portrayed. Turbines will feel more distant in this image than in the field.

Comment

- Turbine locations appear to be incorrect and are shown to be in a very tight array, whereas the Community DTM shows the turbines much more spread out along the valley even though the topography is the same in the Proponent’s photo and the Community’s DTM Model
- The turbine blades are slightly ghosted

Simulation 10.2E – Wallace River



Comment

- No concerns with accuracy, or location. Proponent and Community simulations are congruent.
- Panoramic view and proper depth of field would be better, but the area is not impacted from visible turbines owing to Cumberland by-law setback. The turbine blade tips are represented lighter than they would normally be in the field.

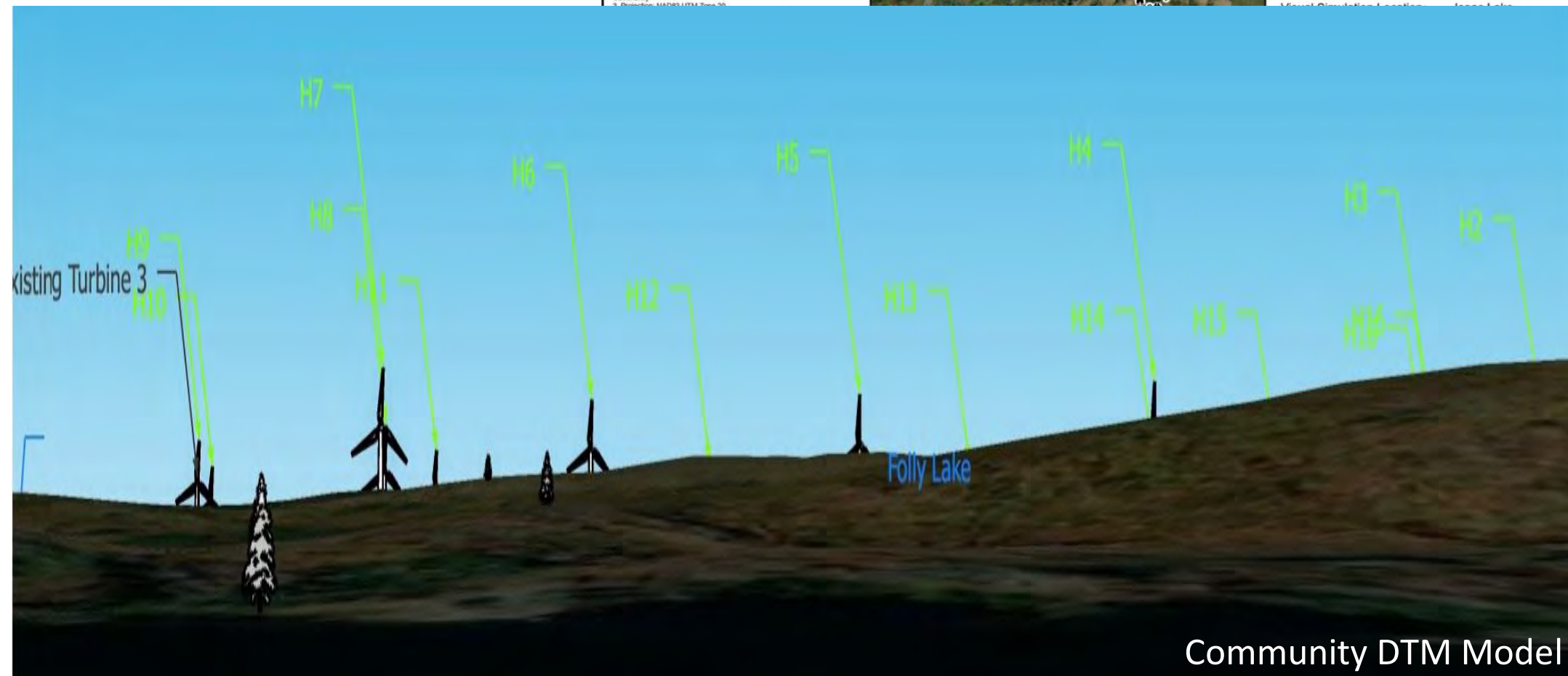
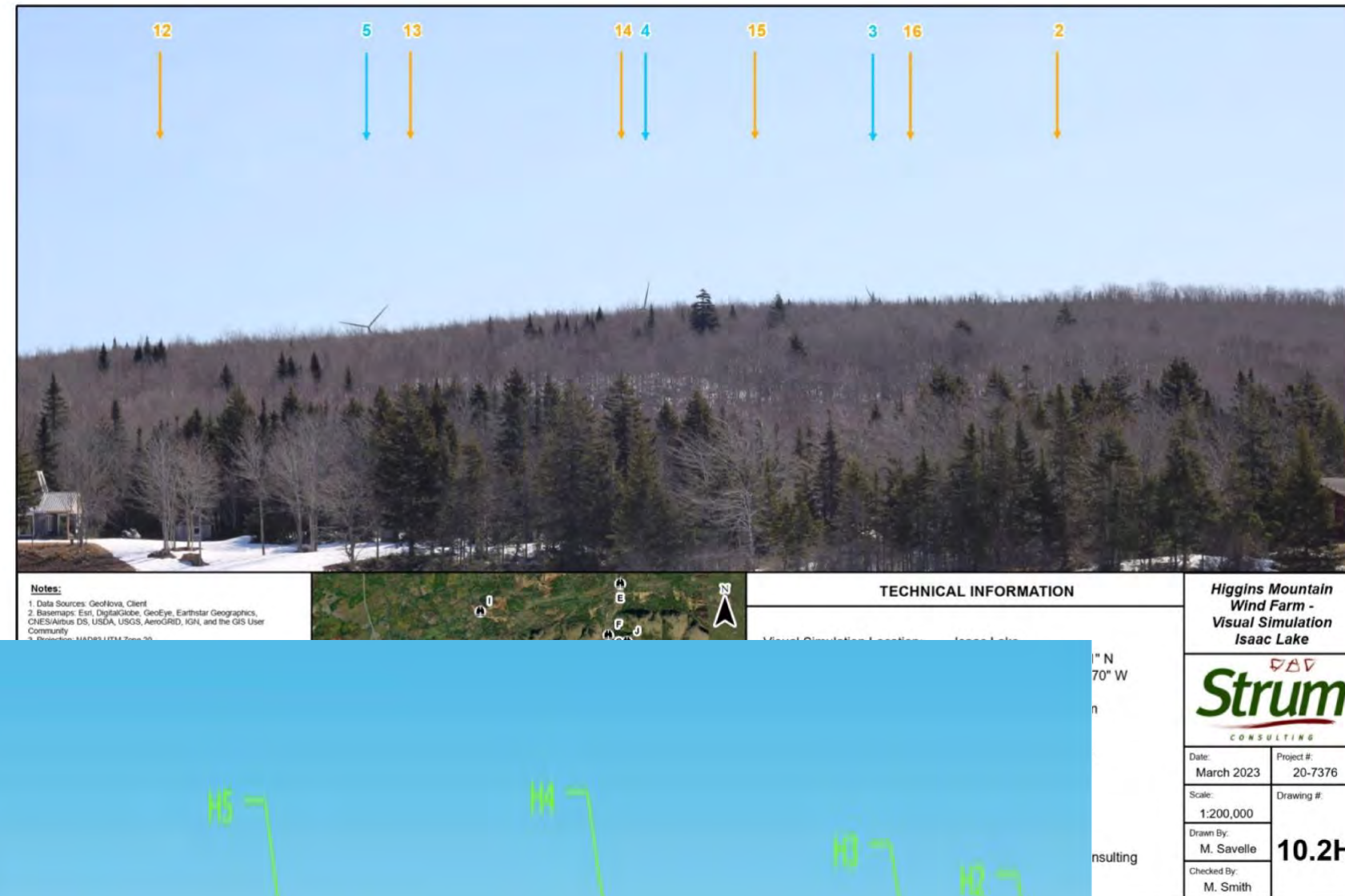


Note – Image has been adjusted to match Proponent’s simulation for comparison purposes. This does not accurately represent distance to turbines as depth of field is not accurately portrayed. Turbines will feel more distant in the image than in the field.

Simulation 10.2F – Ski Wentworth Patio

Comments

- Significant turbines to the left (west) are not shown as they are outside camera field of view.
- Field of view represented here appears to be 30% of what a human would see from this location and what is represented.
- Panoramic view and proper depth of field would create a better representation.

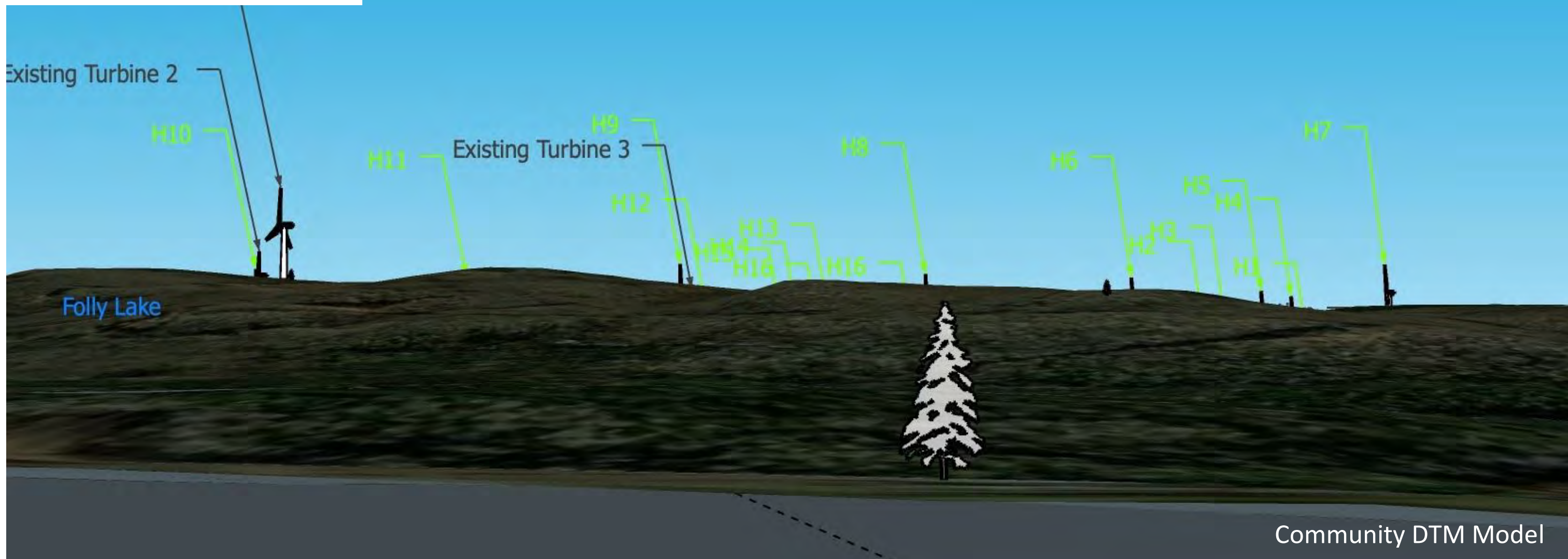
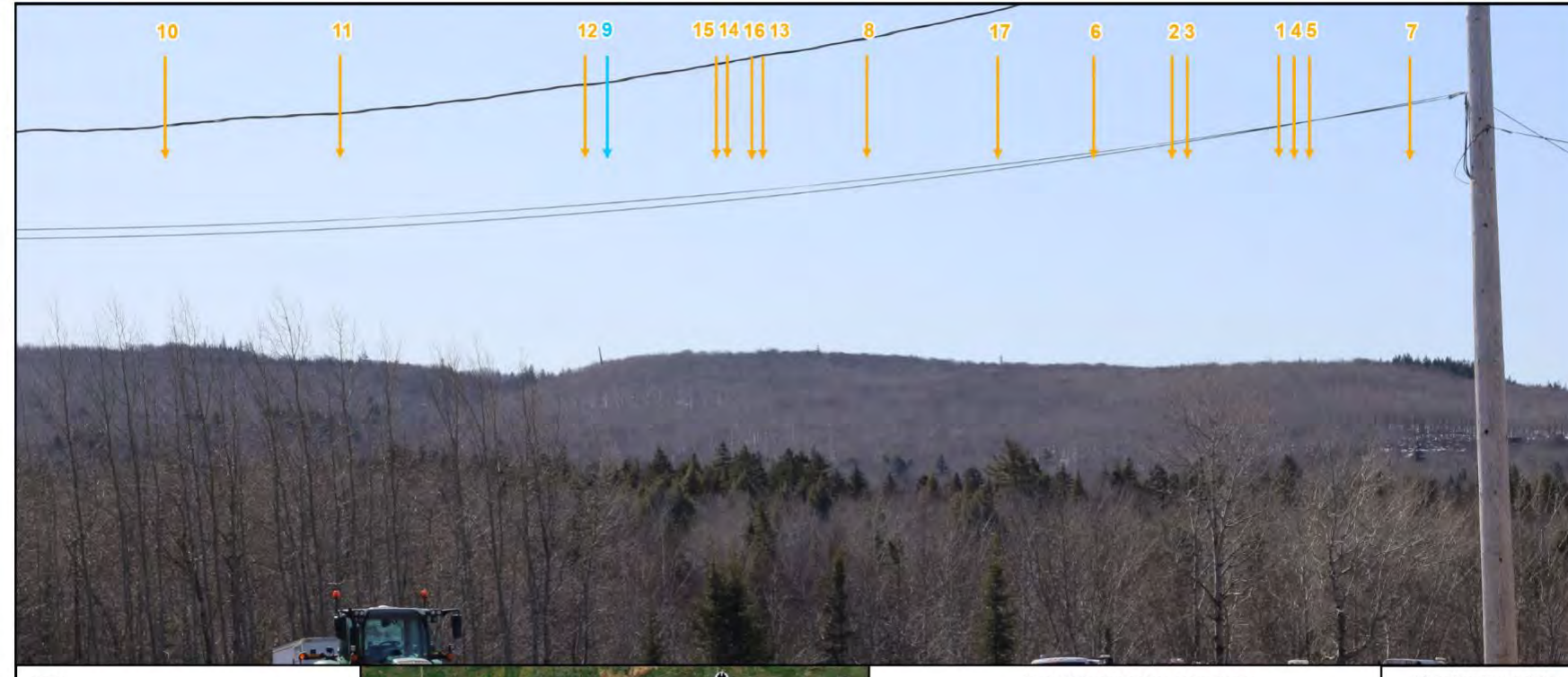


Note – Image has been adjusted to match Proponent’s simulation for comparison purposes. This does not accurately represent distance to turbines as depth of field is not accurately portrayed. Turbines will feel more distant in the image than in the field

Simulation 10.2H - Issac Lake

Comments

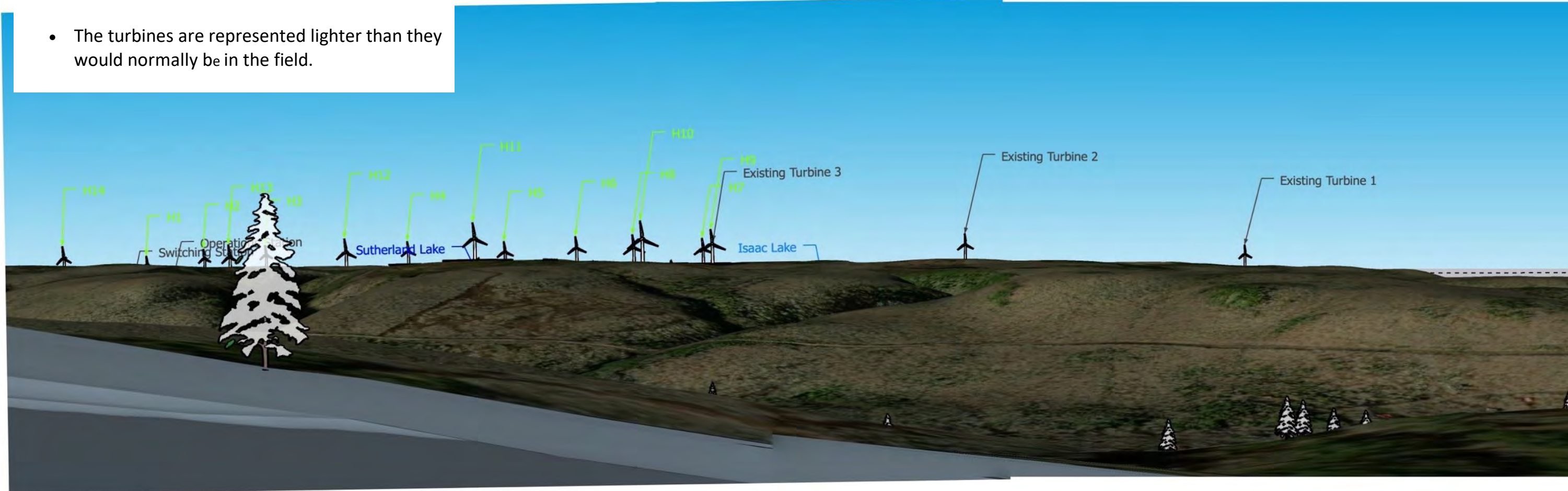
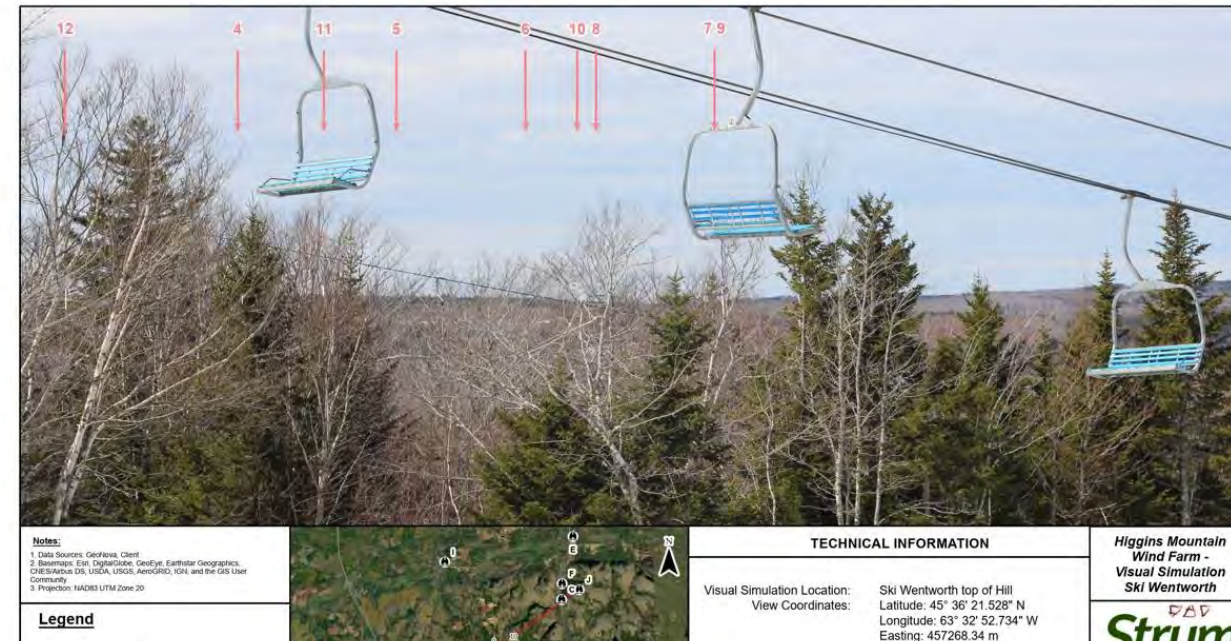
- The Turbine array appears to be compressed when compared with the Community model.
- Existing turbines are not represented. This is not a good practice as visual impact is cumulative.
- Panoramic view and proper depth of field would create a more accurate representation and visual weight of the turbines.
- The turbine blade tips are represented lighter than they would normally be in the field.



Note – Image has been adjusted to match Proponent’s simulation for comparison purposes. This does not accurately represent distance to turbines as depth of field is not accurately portrayed. Turbines will feel more distant in the image than in the field.

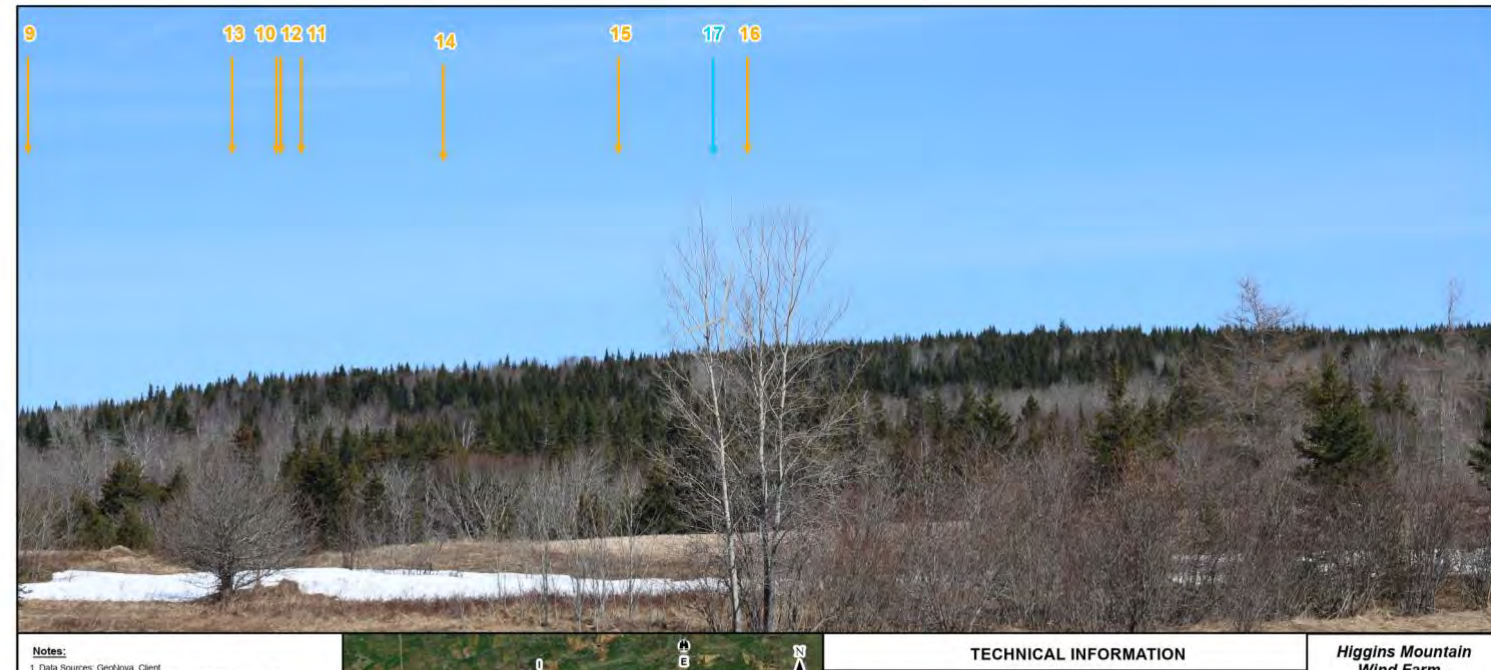
Comments

- The practice is to take the photo from areas where you can get an idea of visual access to the turbines. There is an open area a few meters away where there is a panoramic view of the opposite plateau.
- Turbines to the left (west) are not shown as they are outside camera field of view.
- Field of view represented here appears to be 40% of what a human would see from this location and what is represented.
- Panoramic view and proper depth of field should be employed.
- The turbines are represented lighter than they would normally be in the field.



Comments

- Significant turbines to the left (west) are not shown as they are outside camera field of view.
- Field of view represented here appears to be 40% of what a human would see from this location.
- Panoramic view and proper depth of field would create be better.
- The turbine blade tips are represented lighter than they would normally be in the field.
- Dominant Turbine is ghosted in the small tree.



Note – Image has been adjusted to match Proponent’s simulation for comparison purposes. This does not accurately represent distance to turbines as depth of field is not accurately portrayed. Turbines will feel more distant in the image than in the field.

Comments

- Not sure of the purpose of this simulation
- They did use an 80 mm lens which illustrates how focal length can mimic the human eye.
- Best practice is to stitch this focal length into a panorama to more accurately represent how this landscape would feel in the field.

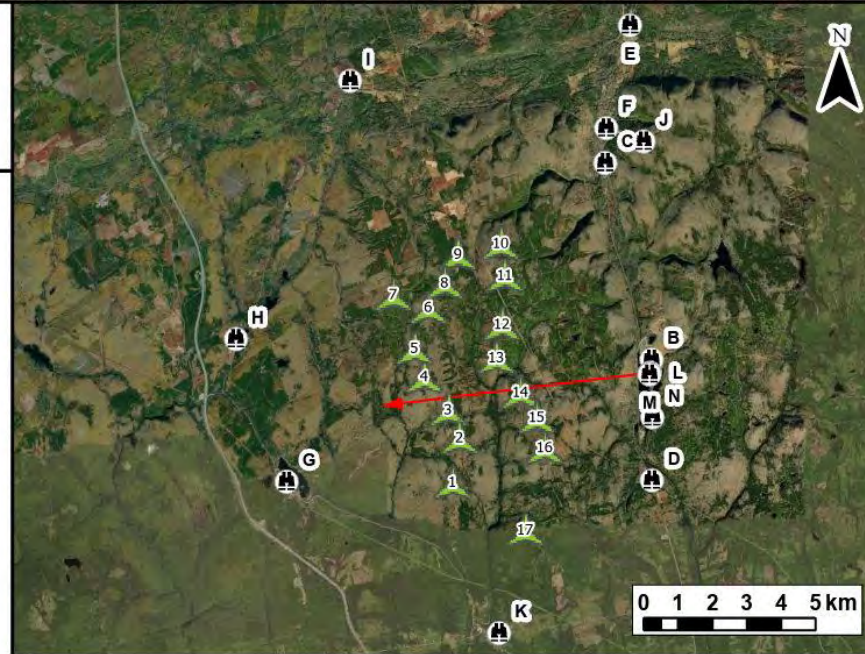


Notes:

1. Data Sources: GeoNova, Client
2. Basemaps: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
3. Projection: NAD83 UTM Zone 20

Legend

- Camera Locations
- Camera Bearing
- Proposed Turbine Location
- Turbines Visible
- Turbines Hidden by Topography
- Turbines Hidden by Foliage



TECHNICAL INFORMATION

Visual Simulation Location: North of Folly Lake
 View Coordinates: Latitude: 45° 32' 43.465" N
 Longitude: 63° 32' 42.000" W
 Easting: 457455.14 m
 Northing: 5043685.55 m

Distance to Nearest Turbine: 3.6 km
 Direction of View: West, Heading 263°
 Camera Make/ Model: Canon EOS REBEL T7
 Lens: 80 mm
 Image Resolution: 6000x4000
 Weather Conditions: Clear Sky
 Date of Photo: 2021/11/27
 Time of Photo: 11:01
 Photo Credit: Maryam Baksh, Elemental Energy

*Higgins Mountain
 Wind Farm -
 Visual Simulation
 Folly Lake*

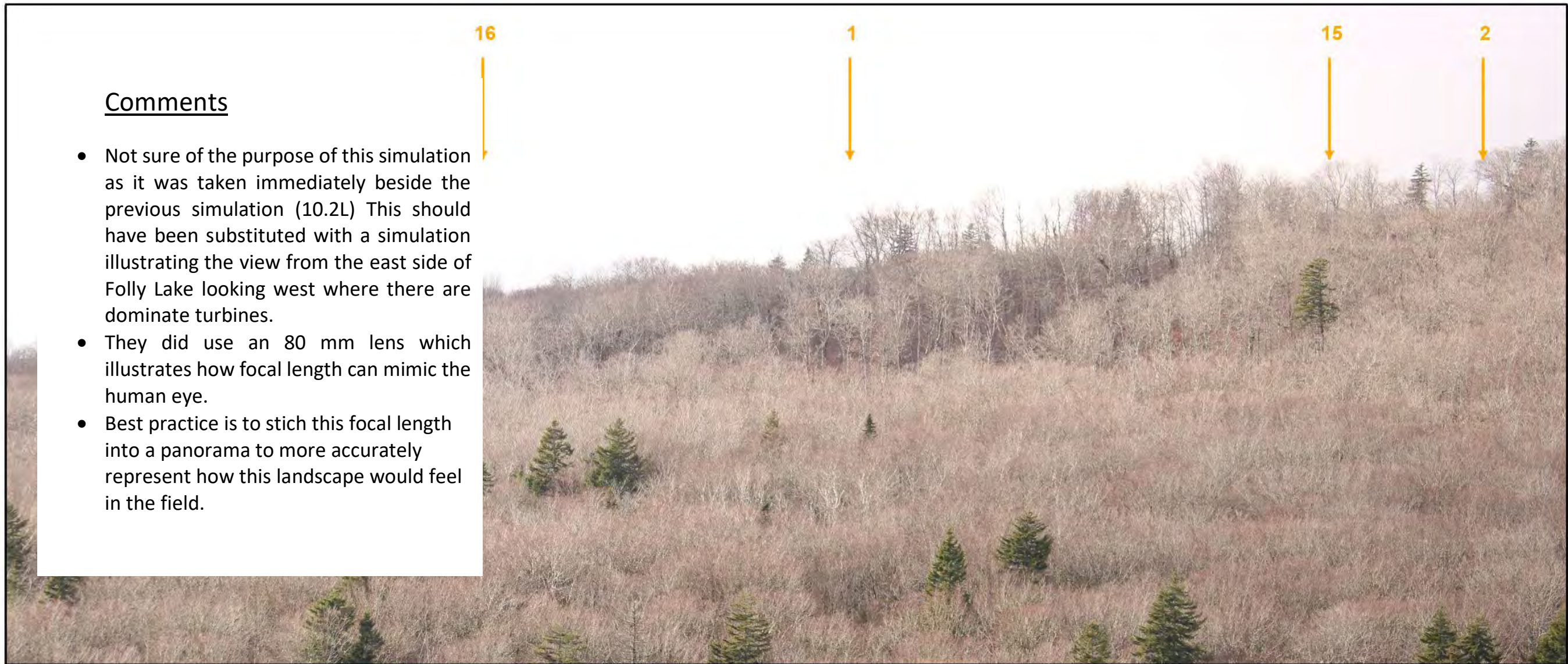


Date: March 2023	Project #: 20-7376
Scale: 1:200,000	Drawing #: 10.2L
Drawn By: M. Savelle	
Checked By: M. Smith	

Simulation 10.2L – Folly Lake

Comments

- Not sure of the purpose of this simulation as it was taken immediately beside the previous simulation (10.2L) This should have been substituted with a simulation illustrating the view from the east side of Folly Lake looking west where there are dominate turbines.
- They did use an 80 mm lens which illustrates how focal length can mimic the human eye.
- Best practice is to stich this focal length into a panorama to more accurately represent how this landscape would feel in the field.

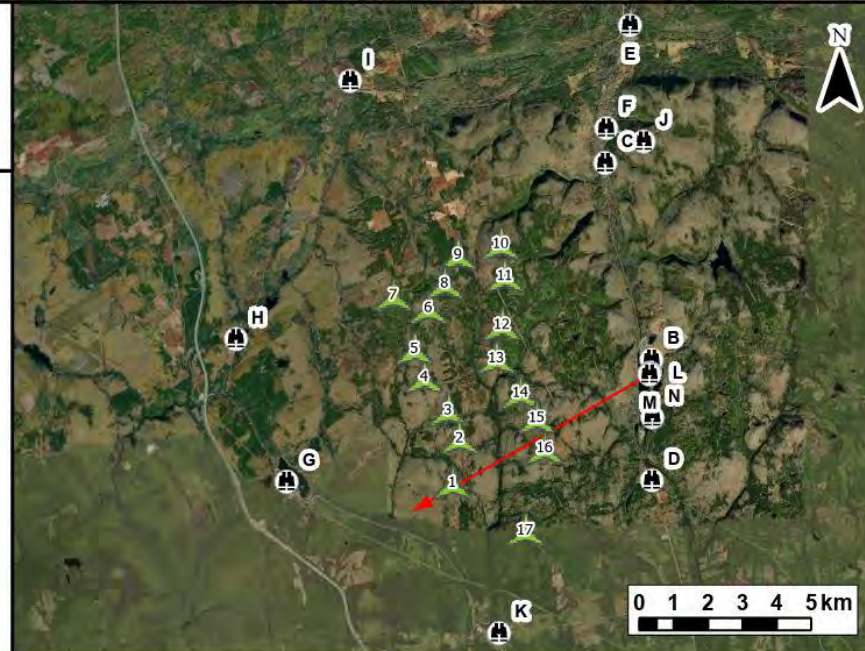


Notes:

1. Data Sources: GeoNova, Client
2. Basemaps: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
3. Projection: NAD83 UTM Zone 20

Legend

- Camera Locations
- Camera Bearing
- Proposed Turbine Location
- Turbines Visible
- Turbines Hidden by Topography
- Turbines Hidden by Foliage



TECHNICAL INFORMATION

Visual Simulation Location: Folly Lake - Peninsula Drive
 View Coordinates: Latitude: 45° 32' 42.000" N
 Longitude: 63° 32' 42.634" W
 Easting: 457441.10 m
 Northing: 5043640.42 m

Distance to Nearest Turbine: 3.6 km
 Direction of View: Southwest, Heading 240°
 Camera Make/ Model: Canon EOS REBEL T7
 Lens: 80 mm
 Image Resolution: 6000 x 4000
 Weather Conditions: Clear Sky
 Date of Photo: 2021/11/27
 Time of Photo: 12:42
 Photo Credit: Maryam Baksh, Elemental Energy

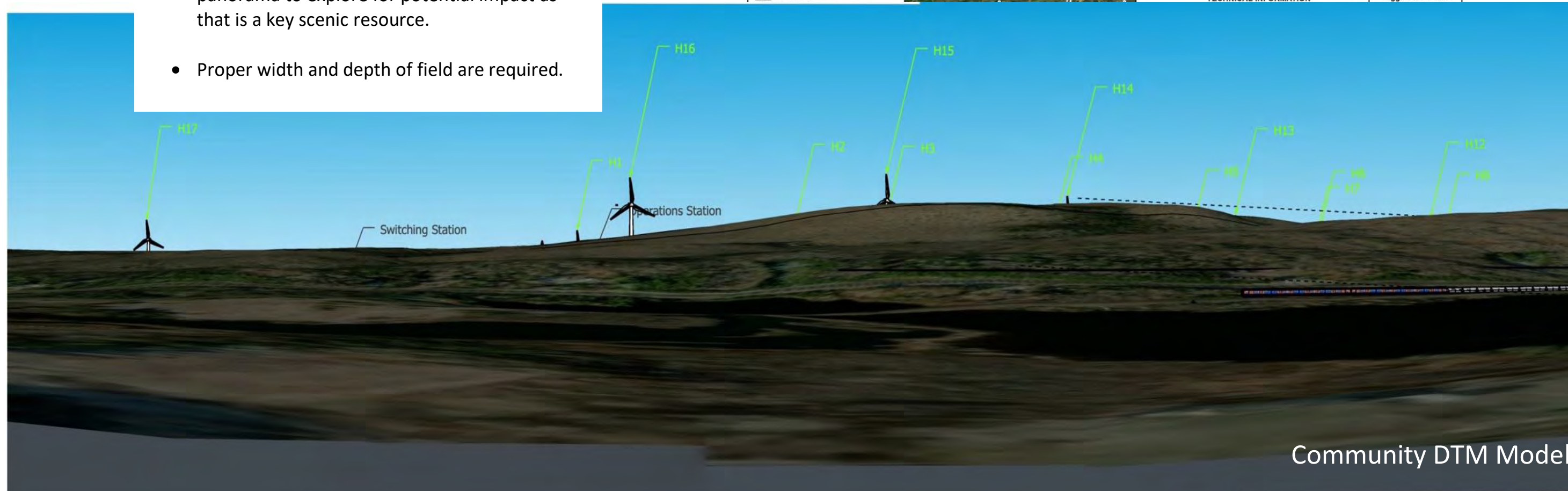
Higgins Mountain
 Wind Farm -
 Visual Simulation
 Folly Lake



Date: March 2023	Project #: 20-7376
Scale: 1:200,000	Drawing #: 10.2M
Drawn By: M. Savelle	
Checked By: M. Smith	

Comment

- Turbine locations appear to be incorrect and are shifted further north than they appear on the Proponent's mapping and community DTM model. Note how Turbine 16 is on top of the ridge when it should be in the saddle to the left, out of frame.
- Clear views of turbine locations are available just a few meters away to the left and to the right.
- A view from the lake shore is an important panorama to explore for potential impact as that is a key scenic resource.
- Proper width and depth of field are required.



Note – Image has been adjusted to match Proponent's simulation for comparison purposes. This does not accurately represent distance to turbines as depth of field is not accurately portrayed. Turbines will feel more distant in the image than in the field.

Community Model Visual Assessment

Owing to concerns with the submission, I am providing an analysis of the proposal based on the community modelling. The purpose of this is to illustrate where the layout works from a visual resource perspective and where the layout needs work better from a scenic landscape perspective.

While of limited means and sophistication in terms of software and reproduction, I conducted my analysis by;

- Using the DTM and GIS models produced for the community.
- Generating panoramic computer images on a large monitor mimicking the human eye (depth of field 80 mm, Field of view 130 to 150 degrees)
- Employing a classification system and methods for evaluating visual impact based on British Columbia Visual Assessment Guidelines for Wind Turbines and tools from Europe.
- Using the simulation vantage points employed by the proponent as well as several other key vantage points identified by the community.
- Using a model of a 195 m turbine, as described by the proponent, to establish ranges for vertical view angles and the effect of distance on visual impact to inform the classifications.
- Unfortunately, I did not have time to figure how to represent the impact of atmospheric fade to represent the visual weight difference between near and more distant turbines in the images. So, I had to rely solely on measured distances to help in assigning a classification.

This is the same method (although with minor refinements) that was used to inform CLC discussions with the proponent, discussions with the Counties as they amended their respective by-laws and served to help flag concerns for the community. This is not meant to be a substitute for the submission by the proponent but is supplied as it might help to demonstrate where issues presently might be, from my perspective, with the hope of bringing some focus to the matter.

The Visual Impact Classification used is as follows;

Dominant – Turbine dominates the landscape, blade movement is a prevalent motion, the turbine is understood as being well beyond human scale, unit occupies a significant aspect of the vertical visual domain (2.5 - 5 degrees). Generally, a large-scale turbine is closer than 4.6 km

Sub Dominant – Turbine size is visually diminished owing to increased distance and occupying less than 2.5 degrees of vertical visual domain, turbine is becoming part of the larger landscape and does not command as much attention
Distance to a fully visible large-scale turbine is above 4.6 km

Noticeable – Turbines are clearly visible but owing to distance and/or screening topography do not occupy a significant part of the viewed landscape. The visible elements of the turbine occupies less than 1 degree or less of vertical field of view.

Hardly Noticeable – This classification reflects the reality that some turbines will show as Noticeable in the simulation but are unlikely to draw much or any attention.

Remote – Turbines are viewed from a great distance where they occupy a very limited place in the landscape. They are not perceived to be of that location/place. Remote turbines of the proposed size are over 8 km away

Not Visible – The Turbine is not visible in the Digital Terrain Model and does not show as visible in the GIS based Viewshed Analysis.

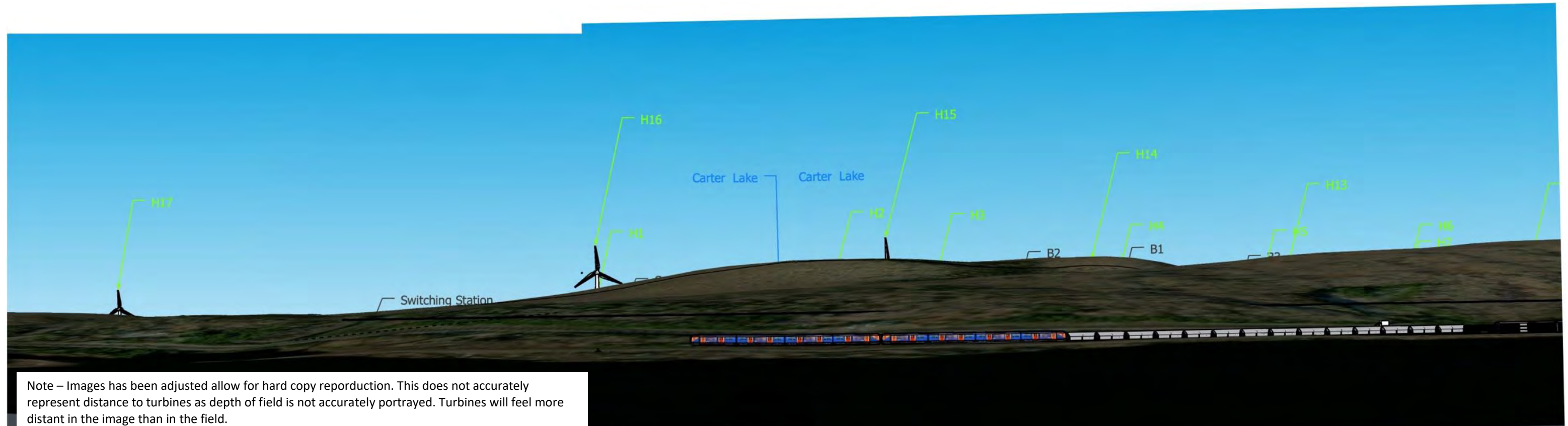
A table was created which represented the analysis. This table is presented below.

Turbine Visual Impact Analysis Table

Turbine	Vantage Location								
	Folly Lake 10.2B	Highway 4 – 10.2C	Folly Mountain – 10.2D	Wallace River – 10.2E	Ski Wentworth Patio- 10.2F	Isaac Lake – 10.2H	Westchester Station – 10.2I	Ski Wentworth - 10.2J	Londonderry – 10.2K
1	Not Visible	Not Visible	Noticeable	Not Visible	Not Visible	Not Visible	Not Visible	Remote	Dominant
2	Not Visible	Not Visible	Sub-Dominant	Not Visible	Not Visible	Not Visible	Not Visible	Remote	Sub-Dominant
3	Not Visible	Not Visible	Sub Dominant	Not Visible	Not Visible	Noticeable	Not Visible	Remote	Remote
4	Not Visible	Not Visible	Remote	Not Visible	Not Visible	Noticeable	Noticeable	Remote	Hardly Noticeable
5	Not Visible	Not Visible	Not Visible	Not Visible	Not Visible	Sub-Dominant	Noticeable	Remote	Hardly Noticeable
6	Not Visible	Not Visible	Not Visible	Not Visible	Not Visible	Noticeable	Noticeable	Noticeable	Not Visible
7	Not Visible	Not Visible	Not Visible	Not Visible	Not Visible	Dominant	Sub-Dominant	Sub-Dominant	Not Visible
8	Not Visible	Not Visible	Not Visible	Not Visible	Not Visible	Sub-Dominant	Noticeable	Sub-Dominant	Not Visible
9	Not Visible	Not Visible	Not Visible	Not Visible	Not Visible	Noticeable	Not Visible	Sub-Dominant	Not Visible
10	Not Visible	Not Visible	Remote	Noticeable	Noticeable	Noticeable	Noticeable	Dominant	Not Visible
11	Not Visible	Not Visible	Remote	Noticeable	Hardly Noticeable	Noticeable	Not Visible	Sub-Dominant	Not Visible
12	Not Visible	Not Visible	Not Visible	Not Visible	Not Visible	Not Visible	Not Visible	Sub-Dominant	Not Visible
13	Not Visible	Not Visible	Sub-Dominant	Not Visible	Not Visible	Not Visible	Not Visible	Sub-Dominant	Not Visible
14	Not Visible	Not Visible	Dominant	Remote	Not Visible	Not Visible	Not Visible	Remote	Not Visible
15	Not Visible	Not Visible	Dominant	Remote	Not Visible	Not Visible	Not Visible	Remote	Hardly Noticeable
16	Not Visible	Not Visible	Dominant	Not Visible	Not Visible	Not Visible	Not Visible	Remote	Hardly Noticeable
17	Not Visible	Not Visible	Dominant	Not Visible	Not Visible	Not Visible	Not Visible	Hardly Noticeable	Dominant

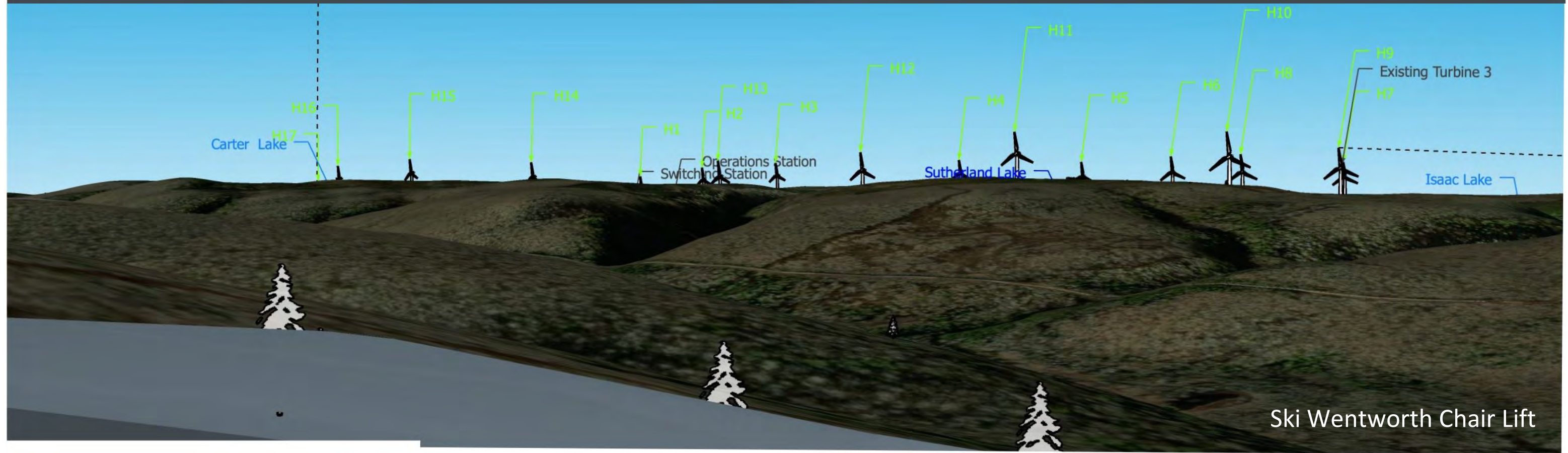
Turbine	Vantage Location				
	Folly Lake 10.2L	Folly Lake 10.2N	Folly Lake East Shore – Substitution for 10.2M	Ski Wentworth Chairlift	Hostel Lookoff
1	Not Visible	Noticeable	Not Visible	Remote	Not Visible
2	Not Visible	Not Visible	Not Visible	Remote	Not Visible
3	Not Visible	Not Visible	Not Visible	Remote	Not Visible
4	Not Visible	Not Visible	Not Visible	Remote	Not Visible
5	Not Visible	Not Visible	Not Visible	Remote	Not Visible
6	Not Visible	Not Visible	Not Visible	Sub-Dominant	Not Visible
7	Not Visible	Not Visible	Not Visible	Sub-Dominant	Not Visible
8	Not Visible	Not Visible	Not Visible	Sub-Dominant	Not Visible
9	Not Visible	Not Visible	Not Visible	Sub-Dominant	Not Visible
10	Not Visible	Not Visible	Not Visible	Dominant	Noticeable
11	Not Visible	Not Visible	Not Visible	Sub-Dominant	Noticeable
12	Not Visible	Not Visible	Not Visible	Sub-Dominant	Not Visible
13	Not Visible	Not Visible	Not Visible	Sub-Dominant	Not Visible
14	Not Visible	Noticeable	Not Visible	Remote	Noticeable
15	Not Visible	Dominant	Dominant	Remote	Noticeable
16	Noticeable	Dominant	Dominant	Remote	Noticeable
17	Noticeable	Sub-Dominant	Sub-Dominant	Hardly Noticeable	Not Visible

Additional Vantage Points Found in the Impact Analysis Table

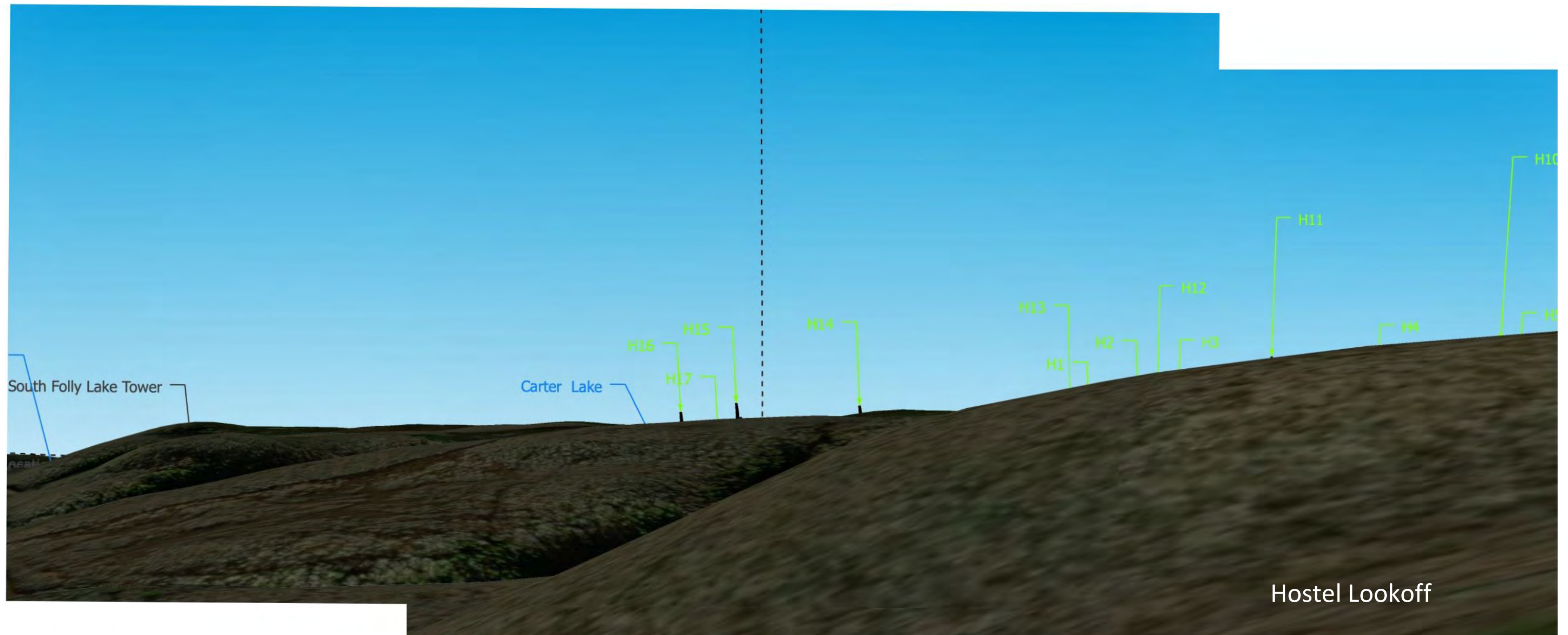


Note – Images has been adjusted allow for hard copy reporduction. This does not accurately represent distance to turbines as depth of field is not accurately portrayed. Turbines will feel more distant in the image than in the field.

Folly Lake East Shore



Ski Wentworth Chair Lift



Conclusion

From a visual standpoint the setbacks Cumberland County adopted to preserve the scenic views from the floor of the Cumberland portion of the Wentworth Valley are very effective. Only a portion of the blades of a few turbines are visible and these would be classed as noticeable and would be acceptable by most. However, in the Colchester portion of the Wentworth Valley, where Colchester has yet to develop a land use by-law, turbines 16 and 15 are clearly dominant at the valley bottom. They should be eliminated or moved to a non-visible location. Turbine 17 while plainly visible would be classed as sub-dominant as it is more than 5 km from most valley receptors diminishing its visual impact. The impact from high points such as the ski hill and Folly Mountain is difficult to alter owing to full visual access across the plateau. Ensuring that most turbines fall into the less impactful classifications and putting a severe limitation on the number of turbines in the more visually impactful classifications would be necessary. Further, limiting the duration when a person conducting outdoor activity would be exposed to the more dominant turbines would also help to mitigate their impact. A similar strategy could work for Isaac Lake, Sutherland Lake and Westchester.

It should be realized that should the recently approved Westchester Wind Farm move ahead there will be additional visual impact to Westchester. The province needs to ensure that the impact of other visually impactful projects are considered in the EA.

Pollock, Meaghan Elizabeth

From: @gmail.com>
Sent: April 14, 2023 3:52 PM
To: Environment Assessment Web Account
Cc: Minister of Communities, Culture, Tourism and Heritage
Subject: Higgins Wind Table 6.2

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

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Hello,

The Higgins Mountain Wind Farm 2023 EA Registration Document should be rejected by the Minister. There are hundreds of reasons why, here are a number of other reasons why..

EA Section 6.1.1, Table 6.2 (pages 42/43) don't translate well into positive community engagement by the Proponent.

I see NO mention of any the following local organizations, or organizations working in the Wentworth Area.

Wentworth Community Recreation Centre- a very popular centre that voted to be an official supporter of Protect Wentworth Valley. Broad views of the Project Area and current smaller defunct turbines visible from property.

Wentworth Learning Centre- a very popular daycare, library, CAP site, small business centre. Less than five years ago they started with five children, today they have thirty children in their care not including summer camps. Broad views of the Project Area and current smaller defunct turbines visible from property. Supporter of Protect Wentworth Valley.

Bicycle Nova Scotia - Operates the Blue Route through the Wentworth Valley. First Blue Route in NS. Views from much of the 15-20 km of the Route through the area. Not consulted.

Wentworth Mountain Bike Association

Mountain Bike Atlantic

Hike Nova Scotia - regular Hike NS events held in Wentworth

Nova Scotia Salmon Association

Folly Lake Landowners Association

Hart Lake Landowners Association

Sutherland Lake groups

Londonderry groups

Westchester groups

Wentworth Community Development Council, on temporary pause as members were required to shift efforts to Protect Wentworth Valley.

Wentworth Trails Association

Wentworth Trail Runners Association - hosts two Wentworth Trail running events per year

Nova Scotia Trail Runners - often hosts one or two events in Wentworth per year

Wentworth International Hostel

Mountain Serenity Retreat

RAS Navy Vets Retreat

Tiny Changes Disc Golf

Arctic Fox X-C Ski Club. They use to host an annual nordic ski marathon event on Higgins Mountain dating back to the 1970's. Unfortunately much of the trail network was lost to industrial forestry operations on Higgins Mountain.

And most other businesses located in the communities surrounding the Project Area.

And the following Table 6.2 groups do not support the Higgins Wind Project

Dr _____ recently noted the Proponent did not mention nine guidelines she recommended to them. I believe she shared this with the EA office.

Protect Wentworth Valley is 100% against the Higgins Mountain wind project.

Individuals- of the hundreds of locals from Londonderry, Wentworth, Westchester, Isaac Lake, Sutherlands Lake, Folly Lake and Folly Mountain I have spoken only two have said they support the project, and the association they are affiliated with rely on Northern Pulp (Project Area) lands. Hundreds of locals got very vocal and mad at the Proponent during their two Open Houses.

ClimaAtlantic- never heard of them

Ecology Action Centre -posted online and submitted EA comments that were clearly in opposition to the Proponents project.

NCS - I believe will make a submission and I expect it will be in opposition to the project

Cumberland Climate Hub - the group was split over the project when they first learned about it. Some folks believed all wind energy is a good idea and the others support the conservation values, natural climate change mitigation value and ecological services the area provides.

Community meeting- everyone on that virtual meeting was against the Higgins Wind Project Area except the Proponents themselves.

Thank you,

Pollock, Meaghan Elizabeth

From:
Sent: April 14, 2023 3:53 PM
To: Environment Assessment Web Account
Subject: Proposed Project Comments

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

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Project: higgins-mountain-wind-farm Comments: I am against this project for the following reasons: There is no evidence that harm is unlikely to the various factors and Valued Ecosystem Components including but not limited to - the mainland moose and its Recovery Plan - essential ecological corridor through the Higgins Mountain Project Area. See next Conservation Value. - High Conservation Value Area. The Project Area occupies most of the land between the Project Portapique River Wilderness Area, the Wentworth Valley Wilderness Area, the Wentworth Provincial Park, and several Nova Scotia Nature Trust properties. - unique biodiversity throughout the Project Area. Many endangered and protected species in the area including birds, bats, lichens, moose, fishers, salmon, etcâ?| have provincial and/or federal Species Recovery but most are not mentioned in the EA. Species-at-risk and Species of Special Interest, such as moose, fishers, native and migratory bats, birds, lichens, plants and their related habitats such as Wetlands of Special Concern, forested wetlands, fens, bogs, talus slopes, old growth forests that are found throughout the Project Area. - Socio-economic impacts. The community and local business leaders requested and were promised a comprehensive Socio-Economic Impact Study but received about five pages of very incomplete tourism considerations. The proponent did not recognize the historic, inter-provincial tourism destination status of the beautiful Wentworth Valley, current expansion into four-season tourism model based, the value the Wentworth brings to municipal, regional and the provincial economy. - Visual Impact. There will be serious harm to the natural scenic beauty which supports nature based tourism of the area. The Proponents Visual Assessment was misleading, omitted many significant views of the area and did not give a true picture of project impacts. Impact differences are shocking from Proponent Visual Simulations compared to Visual Simulation work by professional planning friends of Protect Wentworth Valley. Please see attached visual analysis. - Cumulative effects are supposed to be an important part of EAâ?Ts but Proponent dedicates two pages to in in the EA Document. Big projects stacked on big projects are harmful. Currently there is - Northern Pulps ongoing, intensive, industrial logging of the Wentworth area - a defunct 3MW wind project owned by Proponent partners - Natural Forces Westchester Wind Project was recently approved and only a few km away from Higgins Mountain Wind Project - two more proposed wind projects waiting for next round of Wind Energy RFPâ?Ts in NS. One project borders Higgins Mountain wind project on neighbouring property, and second project a couple of kilometres west of Higgins Wind project. - three quarries bordering project area - 265 mineral rights claims in the Project Area that owners will try to develop into hard rock mines. - The large scale of the Project impacts three major watersheds Name:

Email: Address: : Wentworth

email_message: Privacy-Statement: agree x: 60 y: 23

Pollock, Meaghan Elizabeth

From: @tourism.ca >
Sent: April 14, 2023 3:54 PM
To: Environment Assessment Web Account
Cc:
Subject: Re: Proposed Higgins Mountain Wind Farm Project

You don't often get email from [redacted]@tourism.ca. [Learn why this is important](#)

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

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Good afternoon,

Please be advised that the Tourism Industry Association of Nova Scotia (TIANS) will be sending a statement early next week regarding our position as it relates to the proposed Higgins Mountain Wind Farm Project.

We appreciate your consideration of the forthcoming correspondence.

Regards,

Industry Relations & Professional Development

TIANS/NSTHRC
6589 Chebucto Road, Suite 201
Halifax, NS B3L 1L9

Check out TIANS feature in the December Edition of Business in Focus!

[View Article Here](#)

Skeir, Tina

From:
Sent: April 14, 2023 3:54 PM
To: Environment Assessment Web Account
Subject: Concern regarding the Higgins Mountain Wind Project.

You don't often get email from [redacted] . [Learn why this is important](#)

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

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To whom it may concern,

I am writing to express my concern about—and disagreement with—the Higgins Mountain Wind Project.

I help trail organizations, communities, and not-for-profits leverage superior natural environments to help reach board audiences to appreciate and experience the environment. I have worked from coast to coast to coast. In particular, my work for trail organizations like the East Coast Trail and Trans Canada Trail only underscores my grave concerns about the negative impact of large-scale industrial wind turbine project in the Wentworth Valley and Folly Lake area.

Wentworth is one of the few areas in Nova Scotia not visibly touched by clearcutting (though some damage has occurred), development, and industry. As a professional, I work with Ski Wentworth, the Wentworth Mountain Bike Association, and the Wentworth Trails Association. As part of our work, we have promoted the natural beauty of this place. While we are not against wind power, the placement of the wind project will leave a permanent scar on the landscape and damage their ability to promote the scenic terrain as natural and pristine. The visibility of the wind turbines goes against their goals to present the Valley as a place of outstanding natural beauty.

Working with the ski hill and trail (hiking and biking organizations), we are focussing on the historical/cultural/natural significance of the area to promote four seasons of recreational activity in this reasonably untouched natural landscape. I have attached a couple of posters depicting the work we recently completed for the ski hill celebrating 90 years of outdoor recreation.

One of the projects we proposed for the ski hill is sponsoring an international architectural competition to develop environmentally friendling viewing towers to exploit the views of the region's untouched natural beauty. The Higgins Mountain Wind Project would detract terribly from its goals of helping the public experience the region's natural beauty.

It is difficult to fathom why the province is allowing the project to move forward when it only recently (2018–2022) designated the Wentworth Valley Wilderness Area as a place to protect the scenic portion of the Cobequid Mountains at Wentworth Valley. How can the government want to protect this area while allowing the Higgins Mountain Wind Project to move forward? In my humble opinion, it feels like the government says one thing but then caves into industry, allowing them to do something contradictory.

I am writing purely from the perspective of helping organizations best promote great four-season recreational and cultural experiences in places of beauty. However, I suspect there are other great cultural reasons—like the importance of this area of *Mi'kma'ki* like neighbours at Debert—the unique biodiversity throughout the area, and many other environmental and conservation concerns that questions decisions to support the Higgins Mountain Wind Project.

I strongly believe that industrial development is NOT appropriate for the Wentworth Valley area.

Sincerely,

MID BDES. CGD RGD

- **Project no. 16:** Trinity College—An institution as a catalyst for change (<https://www.dewolf.design/52-for-52/trinity-college>)

| www.dewolf.design

Wentworth

NOVA SCOTIA



Valley of Dreams



In the beginning, just getting to Wentworth was an adventure. Snow-covered roads meant arriving by train was the only option, and without lifts, every run meant a tough climb. Among those pioneers was George Wilson, whose family owns Wentworth today. The Second World War saw skiers replaced by soldiers, as the site was used for training soldiers from Camp Debart.



In honour of
David Wilson
Dave Wilson

Marketing

Wentworth
Marketing

Design: Ely

Wentworth
Corporate Communications
December 2011

LEARN TO SKI



Wentworth NOVA SCOTIA



The 1950s and 60s saw skiing explode in popularity. New amenities—although basic by today's standards—and better roads brought a whole new generation to learn to ski at the newly founded Wentworth Valley Ski School.



In honour of
David Wilson
Dave Wilson

Printed by

Alexander MacRae
Newport

Design by

Magnificent
Creative Environments Inc.
Toronto 2007

Wentworth

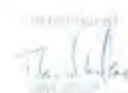
NOVA SCOTIA



Play all year long



New in its 100th year, Wentworth is a year-round destination ready to welcome a new generation. From humble beginnings, Wentworth has become a destination that would make its founders proud. A four season journey has just begun.



100th

Wentworth
Nova Scotia

100th

Wentworth
Nova Scotia

Pollock, Meaghan Elizabeth

From: @gmail.com
Sent: April 14, 2023 4:39 PM
To: Environment Assessment Web Account
Subject: Proposed Project Comments

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

Exercise caution when opening attachments or clicking on links / Faites preuve de prudence si vous ouvrez une pièce jointe ou cliquez sur un lien

Project: higgins-mountain-wind-farm Comments: I think that this project may have a significantly negative impact on mainland moose. Approving this project goes against our governments commitment to protecting mainland moose. The following information is posted by the Nova Scotia Government regarding the New Mainland Moose Recovery Plan: Moose are an important part of our province's natural and cultural identity and the government added mainland moose to the endangered species list in 2003 and has said they will protect moose habitat not harm it. 1. The recovery plan identifies areas to be considered for designation as core habitat, which are specific areas essential for recovery and long-term survival. 2. The Province will continue to require special management practices to ensure that habitat for shelter and transit corridors remain in place. 3. Ecological forestry supports the recovery needs of species at risk. The Department will ensure that the ongoing implementation of these practices on Crown land are aligned with the moose recovery plan. The government has approved other wind farms with similar concerns such as moose habitat, infilling of carbon absorbing bogs, and trails for hiking, biking and snowmobiling. So I think it would be smart to hold off on approving this project and wait to see how the others that have already been approved turn out. Once a wetland is infilled, it cannot be recovered. Northern Pulp the land owners are benefiting from this project, and yet they owe the government money so that means northern pulp is making money off our government and at the expense of Nova Scotians both in terms of money and quality of life ie. losing our natural spaces. In school my teacher and I were talking about the word interconnectedness. I think this is a very good example for this word because we are interconnected with earth and have to work together with our planet, not destroy it. Sincerely, Name: Email: gmail.com Address: d. Municipality: Wentworth email_message: Privacy-Statement: agree x: 50 y: 26