August 23, 2013

Mr. Danny Splettstosser
Pockwock Wind GP, Ltd.
4845 Pearl East Circle,
Suite 200, Boulder, Colorado 80301, USA

Dear Mr. Splettstosser,

Re: Environmental Assessment Addendum
Chebucto Pockwock Community Wind Project

INTRODUCTION

Pockwock Wind Limited Partnership has proposed to develop a 10.0 megawatt project in the community of Upper Hammonds Plains, Nova Scotia. The proponent is Pockwock Wind Limited Partnership, a partnership that is being formed between Chebucto Pockwock Lake Wind Field Limited (CPL) and juwi Wind Canada Ltd. (juwi). The partnership is also utilizing Community Wind Farms Inc. (CWFI) to lead aspects of local development services and community engagement.

The proposed Project location (i.e. the Project site) is approximately 25 km northwest of Halifax, Nova Scotia in the Halifax Regional Municipality (HRM) (44°46'7.88"N, 63°50'10.87"W), and will consist of leased land owned by the Halifax Regional Water Commission (PIDs 330985, 423657, and 425348). The Project will provide power to 3,300 homes.

The Chebucto Pockwock Community Wind Project (the Project) Environmental Assessment (EA) Registration Document was registered with Nova Scotia Environment (NSE) on May 13, 2013. On July 2, 2013 the Minister of the Environment determined that the information provided was insufficient to make a decision. Specifically, it was requested that information related to the potential impacts to wetlands and site optimization be provided. Follow up correspondence from the EA Branch on August 7, 2013 also expressed concern related to maintaining sufficient wetland setbacks to prevent adverse effects to two bird species at risk.

To address the items raised in the Minister's decision, the following information is provided:

- Constraints analysis and site optimization information regarding the Project layout; and
- Additional commentary regarding potential impacts to wetland habitat and bird species, including an updated site layout.

CONSTRAINTS ANALYSIS

As described in Section 6.4 of the EA, a detailed constraints analysis was completed as part of the Project planning process to ensure that potential effects to the environment and neighboring residents were minimized. This analysis was continually updated and refined based on the results of Project specific desktop studies, modeling, and field assessments. Specifically, layout and turbine model modifications were incorporated into the planning process in consideration of the following:

- Siting within an optimal wind regime;
- Where possible, avoidance of field identified watercourses, and maintenance of a vegetated buffer;
- Avoidance of lakes, or other visible open water bodies as identified in 1:50,000 provincial mapping;
- Where possible, avoidance of field identified wetlands, and maintenance of a vegetated buffer;
- Avoidance of field identified archaeological resources, significant habitats, wildlife sites, provincial parks or reserves;
- Avoidance of Mi'kmaq resources;
- Maintenance of a minimum 1,000 m setback (HRM setback) between turbines and occupied dwellings;
- Predictive sound modeling results to meet NSE standards (i.e. 40 dBA for dwellings, cottages, camps, daycares, hospitals, and schools);
- Predictive shadow flicker modeling results to meet NSE standards (i.e. no more than 30 hours of flicker per year and no more than 30 minutes of flicker on the worst day for dwellings, cottages, camps, daycares, hospitals, and schools);
- Maintenance of 1.0 times the tower height setback from property boundaries, in accordance with HRM by-laws (Note: a setback of 1.1 times the tower height setback was initially applied for the constraints analysis. The HRM setback of 1.0 times the tower height was subsequently applied during the micro-siting phase to increase the wetland buffer);
- Maintenance of a 1.1 times the tower height setback from public roads and 50 m setback from Halifax Water private roads.
- Maintenance of 50 m setback (blade length from edge of Fresnel zone) from Halifax Water wireless communication infrastructure;
- Maintenance of appropriate downwind turbine spacing (approximately 600 m separation);
- Maintenance of 160 m setback (total height + 10 m) from Nova Scotia Power Inc. (NSPI) infrastructure; and
- Maintenance of 165 m setback (1.1 times the total height) from Halifax Water critical infrastructure.

As a result, several layout iterations were reviewed to reflect a growing knowledge of the Project site and surrounding community. Part 1 of the Site Optimization Presentation (attached) visually presents how the various constraints were applied to the Project site through the EA process (as the information became available) and depicts the resulting impact to available land. Through this process, turbine locations were selected to provide a balanced approach to minimize disturbance to surrounding land uses, local residents and environmental features.

IMPACTS TO WETLAND HABITAT

As detailed in the EA, extensive wetland assessment was undertaken as part of the planning process. This included a desktop review, as well as a rigorous field assessment, as our experience has shown that desktop resources significantly underestimate the presence and extent of treed and shrub swamps.

Although avoidance of wetland habitat was achieved for all turbine locations presented in the EA, NSE and NSDNR indicated concern that wetland habitat within 80 m of a turbine may experience indirect effects. Therefore, additional micro-siting was completed to further optimize the site and reduce the area of wetland habitat within 80 m of each turbine, as presented in Part 2 of the Site Optimization Presentation (attached). Table 1 provides a comparison between the EA layout and the two proposed alternative layouts.

Table 1: Project Layout Comparison

Scenario	Wetland within 80 m buffer (m^2)	Wetland (+/-) within 80 m buffer vs. EA layout (m^2)	Road disturbance to turbine (m^2)	Road disturbance (+/-) to turbine vs. EA layout (m^2)	Disturbed wetland area for access road (m^2)
EA Layout	8,950	NA	8,099	NA	332
Alternative Layout #1	482	(8,468)	7,525	(574)	0
Alternate Layout #2	0	(8,950)	11,292	3,193	0

As shown above, the area of wetland within the 80 m turbine buffer has been reduced by 95% and 100% when compared to the alternative layouts. For alternative layout #1, only very small areas of wetlands edges at turbines 3 and 4 (ranging in size from 0.0026 ha to 0.04 ha) fall within this buffer zone. This represents less than 0.05% of the wetlands delineated within the Project site boundary. No wetlands fall within the buffer zone for alternative layout #2.

Mitigation measures regarding sediment and erosion control, waste management, and dangerous goods are provided in Section 4 of the EA. Furthermore, a detailed Environmental Protection Plan (EPP) has been completed for the construction phase of the Project. This EPP has been completed in consultation with Halifax Water and is consistent with the Pockwock Lake Watershed Protected Water Area (PWA) Regulations (NS Reg 12/95) and Best Management Practices prescribed in the *Halifax Regional Water Commission Act* (2007). As the steward for water quality protection within the Pockwock PWA and on all Halifax Water lands, Halifax Water has been, and will continue to be, consulted extensively regarding the placement of turbines and construction methods.

The province recently released and implemented the Nova Scotia Wetland Policy, which is a comprehensive policy that provides direction and a framework for the conservation and management of wetlands in Nova Scotia. It represents a commitment to managing Nova Scotia's wetlands in a consistent manner and to maintaining a high level of wetland integrity for future

generations, while allowing for sustainable economic development in our communities. The policy promotes a process for achieving wetland conservation through the application of a hierarchical progression of alternatives to alterations. These alternatives include:

- Avoidance of adverse effects;
- Minimization of unavoidable adverse effects;
- Compensation for adverse effects that cannot be avoided.

Project development with respect to wetlands was completed by incorporating planning principles that are consistent with this Policy. The discussion above clearly demonstrates an avoidance of wetland habitat through the application of the constraints analysis, detailed field delineation, and an evaluation of alternative turbine locations. Furthermore, detailed mitigation measures have already been developed as part of Project planning through the EA registration document and the EPP to minimize any potential indirect impacts to wetlands. Where wetland alteration is unavoidable, the Nova Scotia Wetland Policy provides a process to apply for an approval to alter wetland habitat pursuant to the Activities Designation Regulations (Section 5(a)) under the *Environment Act*. Wetland alteration approvals are not expected to be required for this Project due to the extensive planning completed to avoid wetland habitat.

Based on the work completed to date and Strum's extensive experience working in and adjacent to wetland habitat, this site closely resembles numerous sites across the province, both in terms of composition (treed and shrub swamps), as well as its connective nature. Direct impacts to wetlands habitat has been avoided and no indirect impacts to wetland function are expected.

Concern was expressed during the August 14, 2013 meeting with NSE and NSDNR regarding the protection of potential wetlands of special significance (WSS).

Under the Nova Scotia Wetland Policy, WSS (which cannot be altered) include:

1. All salt marshes;
2. Wetlands that are within or partially within a designated Ramsar site, Provincial Wildlife Management Area (Crown and Provincial lands only), Provincial Park, Nature Reserve, Wilderness Area or lands owned or legally protected by non-government charitable conservation land trusts;
3. Intact or restored wetlands that are project sites under the North American Waterfowl Management Plan and secured for conservation through the NS–East Habitat Joint Venture;
4. Wetlands known to support at-risk species as designated under the federal *Species At Risk Act* (*SARA*) or the Nova Scotia *Endangered Species Act* (NS *ESA*); and
5. Wetlands in designated protected water areas (PWA) as described within Section 106 of the *Environment Act*.

None of the wetlands identified at the Project site meet any aspect of criteria 1-3, above.

No wildlife species protected under *SARA* or the NS *ESA* were identified during several field surveys completed from January 2012 to March 2013.

During the pre-construction bird surveys, the following species that are listed under *SARA* or the NS *ESA* were identified:

- Rusty Blackbird (*Euphagus carolinus*) and
- Canada Warbler (*Wilsonia canadensis*).

A single Rusty Blackbird was observed adjacent to Pockwock Lake and Hamilton Pond, located 338 m from the nearest turbine, during the spring migration survey. No other observations of the Rusty Blackbird were noted. In eastern Canada, the Rusty Blackbird uses scrub riparian habitats of islands, lakes, rivers and streams, as well as alder and willow thickets and favours edges over the forest interior (COSEWIC 2006); habitat which is more prevalent near Pockwock Lake and Hamilton's Pond, where the single observation was made than near turbine locations which have more dense forest cover. Given the single observation during spring migration (i.e. not during breeding season), distance of the sighting from Project infrastructure, the absence (or minimal presence) of wetland habitat within 80 m of each turbine (alternative layout #1 and #2), and abundance of treed swamp in the general Project area, the data does not suggest the Project footprint provides unique or sensitive habitat for the Rusty Blackbird.

Several individual sightings of the Canada Warbler and one sighting of two individuals were noted during pre-construction surveys (spring migration and breeding surveys). No evidence of probable or confirmed breeding activities were noted for the Canada Warbler by the expert birder for the Project. These sightings were exclusively limited to locations southeast of the Project footprint and were located an average distance of 672 m from the nearest turbine. The sightings were primarily noted within or directly adjacent to black spruce swamps that support a dense shrub understory. Though treed swamps are located throughout the Project site, treed swamps in central portions of the Project site typically have a fern and sedge understory, compared with the dense shrub understory located in southeastern portions of the Project site that are favoured by the Canada Warbler. In addition, little to no wetland habitat is located within 80 m of any turbine for alternative layout #1 and #2.

Based on the data collected, the evidence does not suggest that wetlands at the Project site are known to support at-risk species as designated under *SARA* or the NS *ESA*. Furthermore, there is no wetland habitat present within the Project footprint. Therefore, wetlands do not meet criteria 4, above.

A small portion (<25%) of the Project site (i.e. the property boundary), including one turbine location (T1) is located within the Pockwock Lake PWA, but is outside of the Pockwock Lake drainage area. Portions of wetlands 1 and 4, as identified in the EA are located within the PWA and are therefore classified as WSS. No wetland alteration is required for either of these wetlands and turbine locations are a minimum of 144 m from the respective wetland boundaries. Therefore, no impacts to wetlands within the PWA are expected and the WSS designation of wetlands 1 and 4 is not relevant to further Project planning as wetland avoidance has already been incorporated into the Project design.

IMPACTS TO BIRD SPECIES

Concern regarding maintaining sufficient setback from wetlands to prevent adverse effects to two species at risk (Rusty Blackbird and Canada Warbler) listed under *SARA* and the NS *ESA* was expressed in email correspondence from the EA Branch on August 7, 2013. As discussed in the previous sections, additional micro-siting has been completed to significantly reduce (and in many cases eliminate) the amount of wetland habitat within 80 m of each turbine. Furthermore, the discussion also notes that the distance of the observations from Project infrastructure and abundance of available habitat in the general Project area indicates that the Project footprint does not provide (and the Project will not disturb) unique or sensitive habitat for these species.

The EA evaluates potential impacts to bird species at length in Section 14, including a discussion regarding habitat loss/alteration. Literature referred to in the EA indicates that avoidance of sensitive or unique habitats should be maximized and the availability of nearby alternative habitat considered in Project planning. To minimize potential impact to bird species, including the Rusty Blackbird and the Canada Warbler, the following mitigation has been incorporated into Project planning:

- Minimization of the Project footprint through planning, commitment to post-construction reclamation, and maximization of existing infrastructure to reduce new clearing requirements.
- Avoidance of sensitive or unique habitats (no habitats supporting rare plants were identified during the rare plant survey and no unique habitats were identified during field surveys).
- Avoidance of mature forest and standing deadwood.
- Avoidance of wetland habitat.
- Commitment to clear vegetation outside of breeding and nesting season for birds.
- Confirmation that extensive similar habitat exists throughout and adjacent to the Project site.

It is not uncommon for a federal or provincial listed bird species to be identified during pre-construction surveys completed for wind projects in Nova Scotia. The following previously approved EAs (within approximately the past year) have identified at least one federally and/or provincially listed bird species:

- Martock Community Wind Project;
- Millbrook Community Wind Project;
- Truro Heights Community Wind Project;
- South Canoe Wind Project;
- Kaizer Meadow Wind Project;
- Hillside Wind Energy Project;
- McLellans Brook Wind Energy Project; and
- Sable Wind Project.

In addition, all of the above noted projects identified “red” and “yellow” listed species during pre-construction bird surveys (i.e. 3-31 species, average of 13 species/project).

Project planning with respect to bird species has followed an approach that is consistent with industry standards and other projects that have received EA approval from the province.

EVALUATION OF ALTERNATIVE LAYOUTS

Due to the industrialized nature of the site (i.e. presence of transmission line, road network, lagoons, water treatment facility, etc.), the ability to use existing infrastructure, as well as locate Project infrastructure in close proximity to existing infrastructure was viewed as a significant opportunity to reduce the overall environmental footprint of the Project. Taking advantage of this site feature allows for considerable reduction in the amount of clearing and construction required and focuses the Project development in areas that have previously been disturbed, to the extent possible. This was a key planning principle as part of the EA process, as well as the additional micro-siting that has been completed.

Part 2 of the Site Optimization Presentation (attached) provides detailed mapping and analysis for the original layout in the EA, alternative layout #1 and alternative layout #2. Based on a review of the EA data analysis, as well as the attached presentation, Strum recommends proceeding with alternative layout #1 for the following reasons:

- Turbine locations are located significantly closer to the existing road for alternative layout #1, and therefore, require less road construction than alternative layout #2.
- Alternative layout #1 requires significantly less clearing than alternative #2, particularly in undisturbed areas.
- Alternative layout #1 allows a greater setback from habitable dwellings than alternative layout #2.
- The area of wetland within the 80 m turbine buffer for alternative layout #1 has been reduced by 95% from the EA layout, resulting only in very small areas of wetland edges within the buffer zone. No direct or indirect impacts are expected to wetlands or associated species.
- Extensive consultation with Halifax Water indicates a strong preference to move forward with alternative layout #1 (letter attached).

SUMMARY

Extensive planning and research was completed for this Project in advance of EA submission, including a detailed constraints analysis, a rigorous field program, and comprehensive evaluation of environmental features. Based on advice from NSE and NSDNR, additional micro-siting was completed to produce two alternative layouts to reduce the area of wetland habitat within 80 m of each turbine, while still meeting other relevant setback requirements. This objective was achieved with the area of wetland within the 80 m turbine buffer reduced by 95% and 100% for the alternative layouts. No direct or indirect impacts to wetlands or associated species are expected for either alternative layout #1 or #2.

Once you have had an opportunity to review this correspondence, please contact us to address any questions you may have.

Thank you,

Melanie Smith, MES
Environmental Specialist
msmith@strum.com

Shawn Duncan, BSc.
Vice President
sduncan@strum.com

Pockwock Site Optimization- Part 1: Site Selection & Setback Analysis

Supplemental Information Related To Pockwock Community Wind EA

2013.08.21

Purpose & Overview

Purpose of Presentation:

To provide geographic information and rationale to show why the original proposed project footprint was selected

Overview:

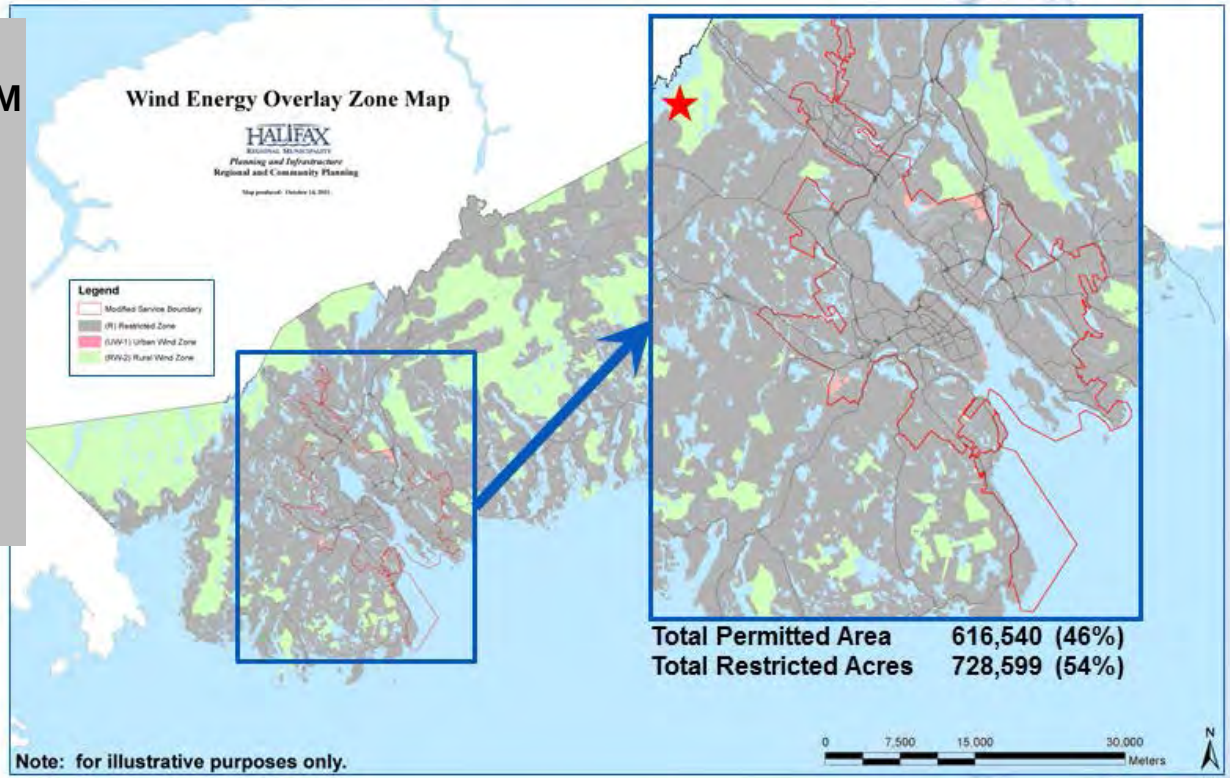
- Site Selection
- Setback Analysis

Site Selection 1

Wind Energy in HRM – 1 km Setback

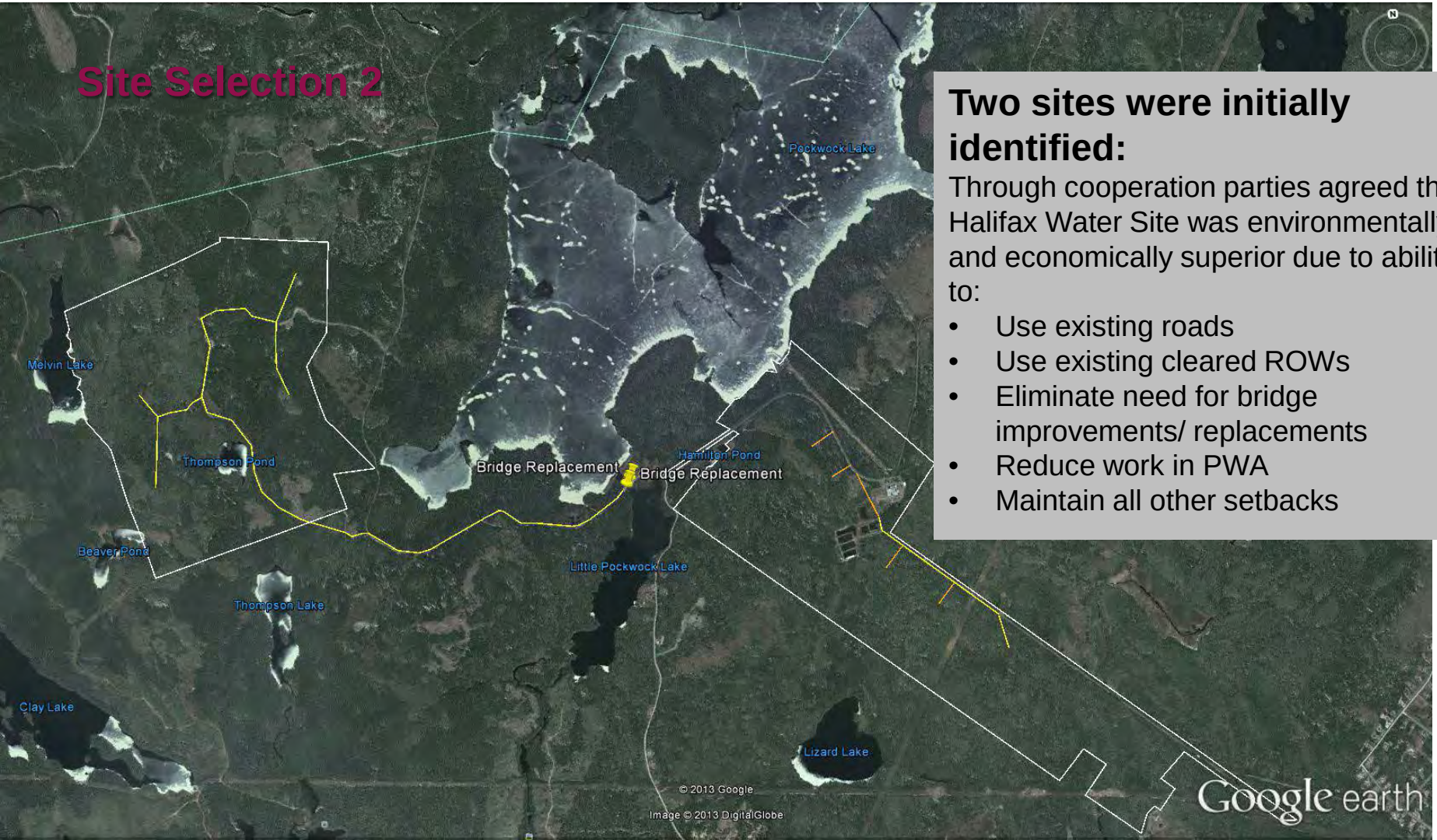
When selecting suitable wind energy generation sites in HRM <u>VERY FEW</u> sites are suitable:

- **In Rural Wind Zone**
- **>1km from residences**
- **<15km from distribution substations with available COMFIT capacity**



Halifax Water

Site Selection 2



Two sites were initially identified:

Through cooperation parties agreed that Halifax Water Site was environmentally and economically superior due to ability to:

- Use existing roads
- Use existing cleared ROWs
- Eliminate need for bridge improvements/ replacements
- Reduce work in PWA
- Maintain all other setbacks

Site Optimization Process

- **Iterative process –learn more about site through:**
  - Aerial Surveys
  - Site walks
  - Existing Infrastructure, planned infrastructure
  - Current homes, planned homes
  - Discussions with landowner
  - Archaeological surveys
  - Biological surveys
  - Wetlands surveys

- **Goal of process is to understand where not to put turbines and then place turbines in the remaining “developable area” in a manner which minimizes impacts & costs.**

Setback Analysis

Setback	Source	Distance
From Parcel Boundary	HRM land use bylaw	1.0 WTG Height (150m)
From Parcel Boundary	Industry BMP	1.1WTG Height (165m)
From Habitable Residence	HRM land use bylaw	1,000m
From NSPI T&D infrastructure	NSPI requirement	WTG Height +10m (160m)
From Halifax Water Wireless Communication Infrastructure	Industry BMP	Blade length from edge of Fresnel zone (50m)
From Halifax Water Existing Critical Infrastructure	Industry BMP	1.1WTG Height (165m)
From Halifax Water Planned Critical Infrastructure	Industry BMP	Beyond planned area
Wetlands & Watercourses	HRM land use bylaw	10m from Watercourses 20m from Wetlands
Downwind Turbine Spacing	Industry BMP	6x rotor diameter (600m)

Project: Pockwock Wind Farm

Site Elevation AMSL

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Map:	Map-No.:
General Layout	1

	Date	Name
edited	7/8/2013	RB
signed	7/8/2013	RB
approved		

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juwi

Scale *(if printed undistorted in A3)*:

0 125 250 500 750 1,000

Meters

å Proposed Turbine Layout

Existing Roads

Proposed Access Road

Surveyed Project Boundary

Parcel Lines

Elevation

meters AMSL

High : 175

Low : 98

Project:

Parcel Line Setback 1.1 x Total Turbine Height (165 m)

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Map: General Layout

Map-No.: 1

	Date	Name
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Meters

- å Proposed Turbine Layout
- Existing Roads
- Proposed Access Road
- Surveyed Project Boundary
- Parcel Lines
- Parcel Line Setback Area (165 m)

Project: Pockwock Wind Farm

Habitable Residence Setback (1000 m)

Map:	Map-No.:
General Layout	1

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Meters

- Proposed Turbine Layout
- Existing Roads
- Proposed Access Road
- Surveyed Project Boundary
- Habitable Buildings
- Habitable Buildings Setback (1000 m)
- Parcel Lines

Project: Pockwock Wind Farm

Transmission Infrastructure Setback (50m)

Map:	Map-No.:
General Layout	1

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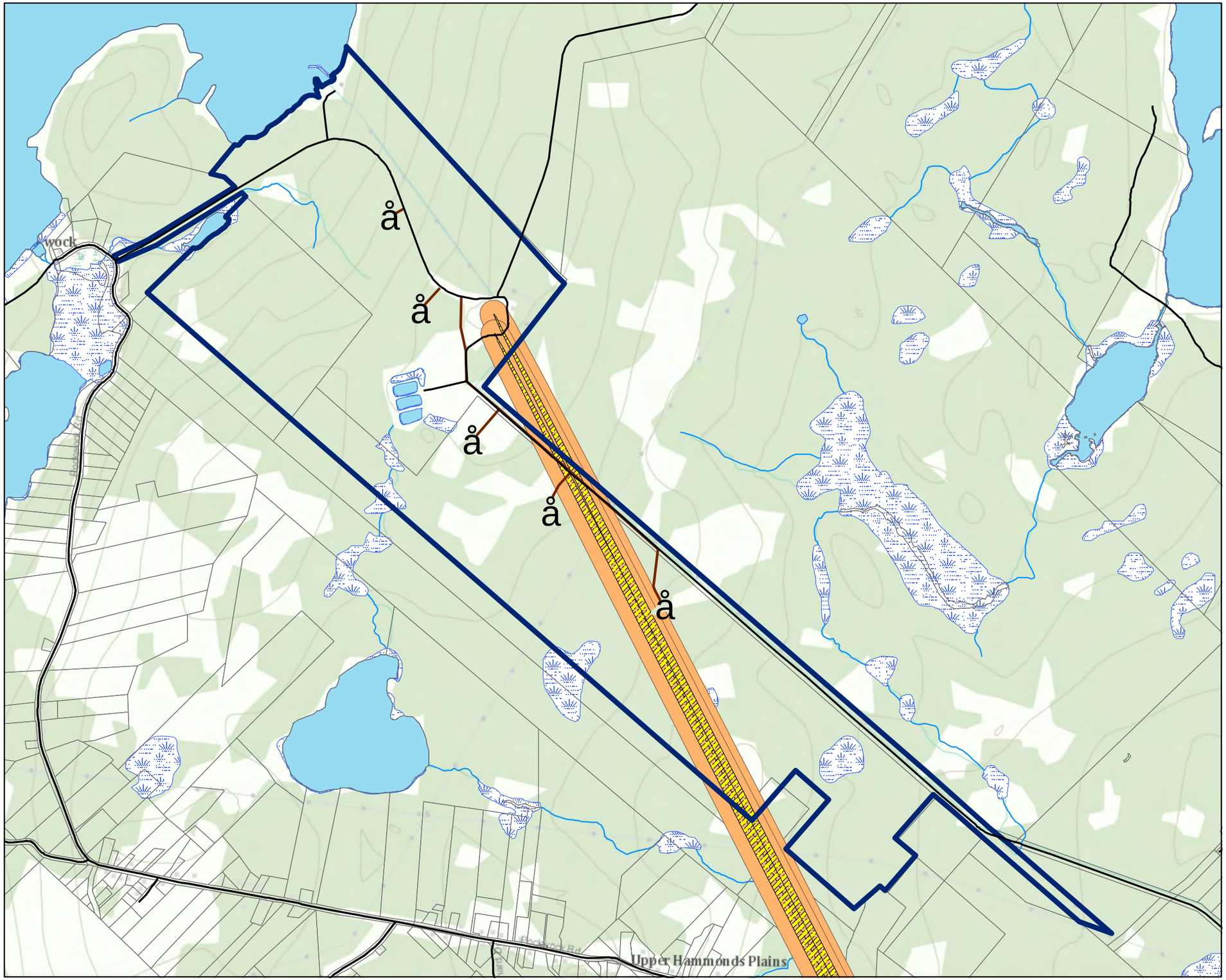
Meters

- å Proposed Turbine Layout
- Existing Roads
- Proposed Access Road
- Surveyed Project Boundary
- NSPI Transmission Line (Surveyed Segment)
- Halifax Over Head Transmission Line (Surveyed)
- Transmisison ROW (Surveyed Segment)
- Halifax Transmission Setback (50 m)
- NSPI Transmission Line ROW Setback (50m)
- Parcel Lines

Upper Hammonds Plains



Project: Pockwock Wind Farm

Fresnel Zones Setback (50m)

Map:	Map-No.:
General Layout	1

	Date	Name
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Scale *(if printed undistorted in A3)*:

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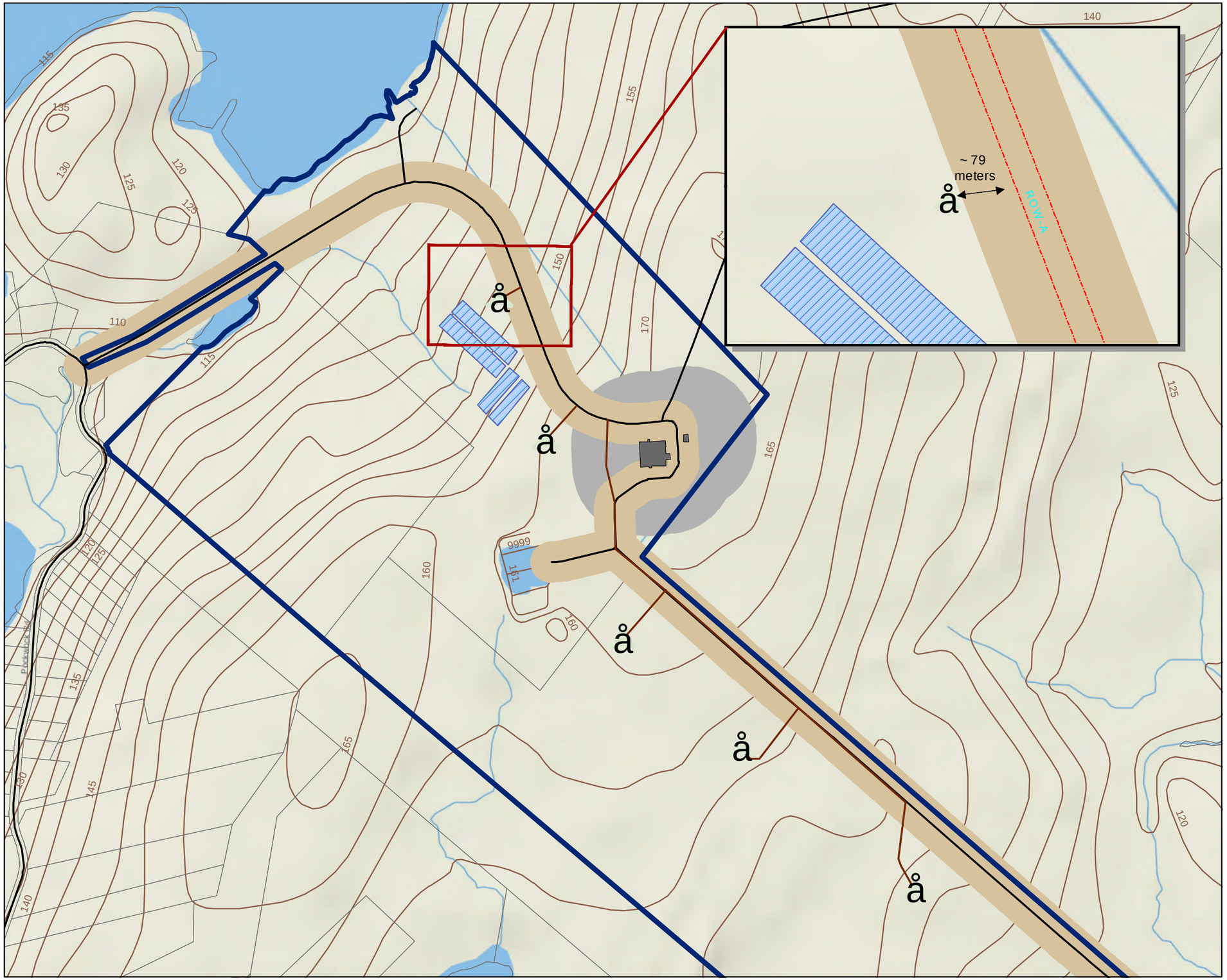
Meters

- Proposed Turbine Layout
- Existing Roads
- Proposed Access Road
- Surveyed Project Boundary
- Fresnel Zones
- Fresnel Zones Setback (50m)
- Parcel Lines



Project: Pockwock Wind Farm

Halifax Water Critical Infrastructure

Map:	Map-No.:
General Layout	1

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Scale *(if printed undistorted in A3)*:
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Meters

- Proposed Turbine Layout
- Proposed Access Road
- Existing Roads
- Surveyed Project Boundary
- JD Kline Water Treatment Facility
- Halifax Water Private Road Setback (50m)
- JD Kline Water Treatment Facility Safety Setback (165m)
- Halifax Planned Engineered Wetlands
- Parcel Lines

Project: Pockwock Wind Farm

Surveyed Wetlands and Watercourse HRM Setbacks (20m)

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Map:	Map-No.:
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Meters

- å Proposed Turbine Layout
- Existing Roads
- Proposed Access Road
- Surveyed Project Boundary
- Surveyed Watercourses
- Surveyed Wetlands
- Surveyed Halifax Holding Ponds
- HRM Wetland and Watercourse Setback (20m)
- Parcel Lines

Project: Pockwock Wind Farm

Downwind Turbine Spacing Requirements (600m)

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Map:	Map-No.:
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Scale *(if printed undistorted in A3)*:

0 125 250 500 750 1,000

Meters

å Proposed Turbine Layout

Existing Roads

Proposed Access Road

Surveyed Project Boundary

Turbine Spacing Requirements

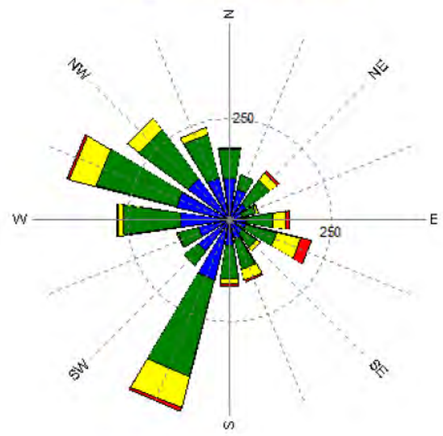
Main Wind Dir SSW Downwind Setback (600 m)

Main Wind Dir WNW Downwind Setback (600 m)

Saftey Setback circle (165 m)

Parcel Lines

Energy Rose (kWh/m²/year)



Project: Pockwock Wind Farm

Developable Area

Map: General Layout

Map-No.: 1

	Date	Name
edited	7/8/2013	RB
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approved		

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Boulder, CO 80301

Scale *(if printed undistorted in A3)*:

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Meters

- Proposed Turbine Layout
- Existing Roads
- Proposed Access Road
- Surveyed Project Boundary
- Surveyed Watercourses
- Surveyed Wetlands
- Surveyed Halifax Holding Ponds
- Area Eliminated by Setbacks
- Parcel Lines
- Developable Area

Pockwock Site Optimization – Part 2: Alternative Layouts

Supplemental Information Related to Pockwock Community Wind EA

2013.08.23

Summary

Upon discussions with NSE & DNR related to Pockwock turbine placement, Pockwock project proponents re-examined the original proposed project layout, and created two additional alternative layouts:

- **Alternative #1 (Recommended):** designed to minimize environmental impacts by: (i) utilizing HRM setbacks over more restrictive industry standards (ii) moving turbines to less economic locations; (iii) moving turbines closer to landowners in some cases
- **Alternative #2:** designed to have no wetlands within recommended 80m buffer by: (i) utilizing all the tools in Alternative #1; (ii) significantly increasing road lengths and associated clearing

Scenario	Wetland within 80m buffer (m^2)	Wetland (+ / -) within 80m buffer vs. original (m^2)	Road disturbance to turbine (m^2)	Road disturbance (+ / -) to turbine vs. original (m^2)	Disturbed wetland area for road to turbine (m^2)	Proximity to nearest receptor (m)
Original Layout	8,950	N/A	8,099	N/A	332	Average = 1,280
Alternative #1	482	(8,468)	7,525	(574)	0	Average = 1,271
Alternative #2	0	(8,950)	11,292	3,193	0	Average = 1,214

Project proponents recommend and request approval of 5 turbine project utilizing Alternative #1

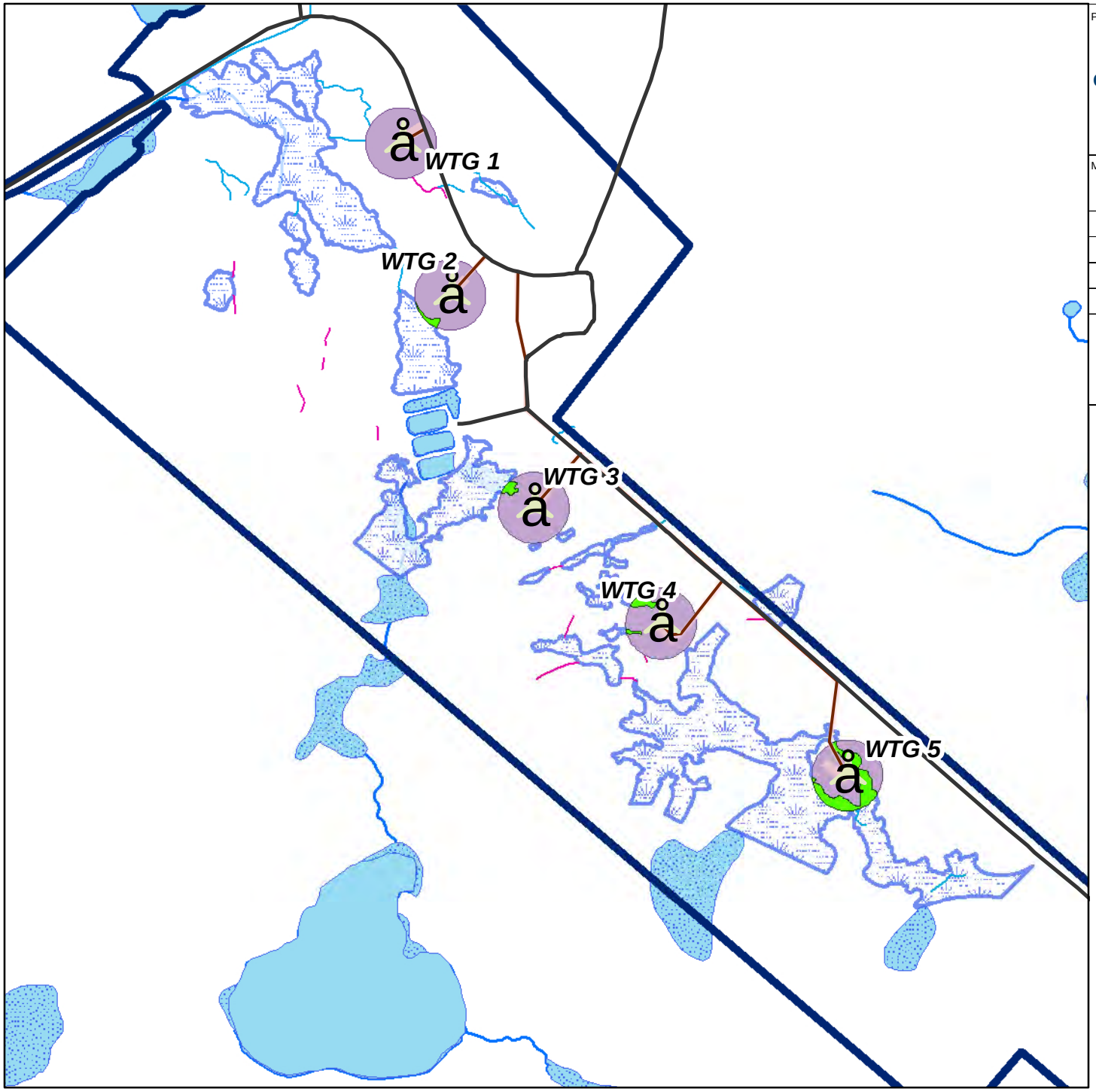
The remainder of this presentation provides backup to the analysis of this recommendation.

Original Layout Characteristics

Original Scenario	Wetland within 80m buffer (m^2)	Road disturbance to turbine (m^2)	Disturbed wetland area for road to turbine (m^2)	Proximity to nearest receptor (m)
#1	0	635	0	1,356
#2	617	1,256	0	1,207
#3	694	1,701	0	1,198
#4	1,539	2,174	0	1,436
#5	6,101	2,332	332	1,205
TOTAL	**8,950**	**8,099**	**332**	**Average = 1,280**

- Setbacks from property boundary set to 1.1x turbine height, which is industry standard, and greater than HRM Land Use Bylaw Requirement (1.0x turbine height)
- Turbine #2 tried to avoid current location of meteorological tower installed nearby
- Set to minimize additional road construction
- Set to maximize elevation at each turbine location and maximize turbine performance
- Set as far from receptors as possible

Original Layout



Project: Pockwock Wind Limited Partnership

Chebucto Pockwock Community Wind Farm: Wetlands Inside 80m Buffer Area

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Map:	Map-No.:
General Layout	1

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juwi

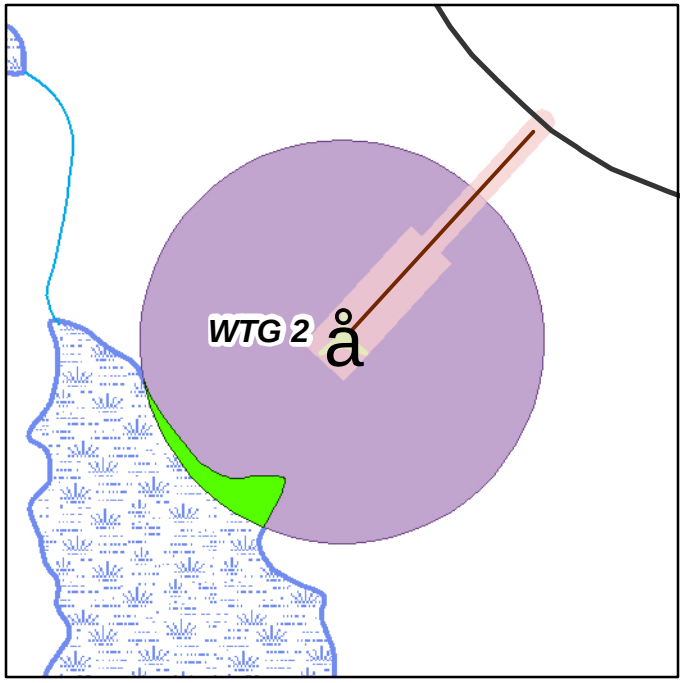
Scale *(if printed undistorted in A3)*:

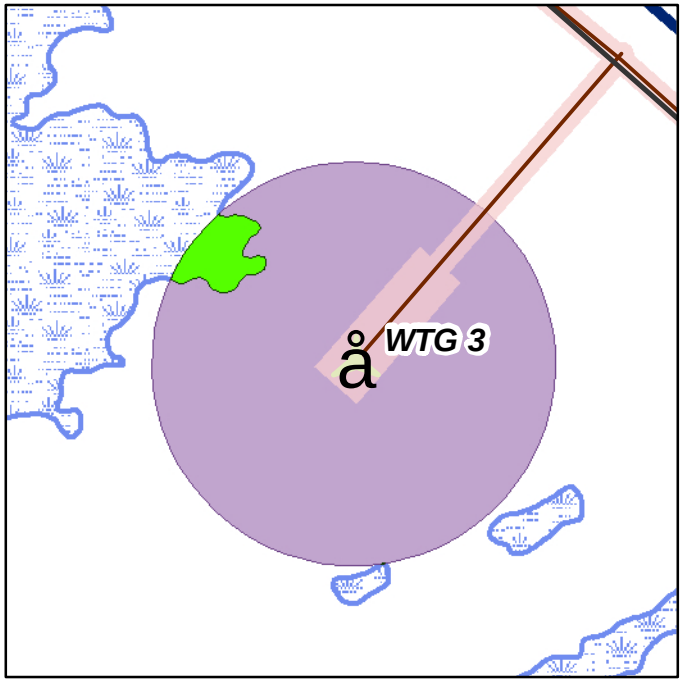
0 50100 200 300 400

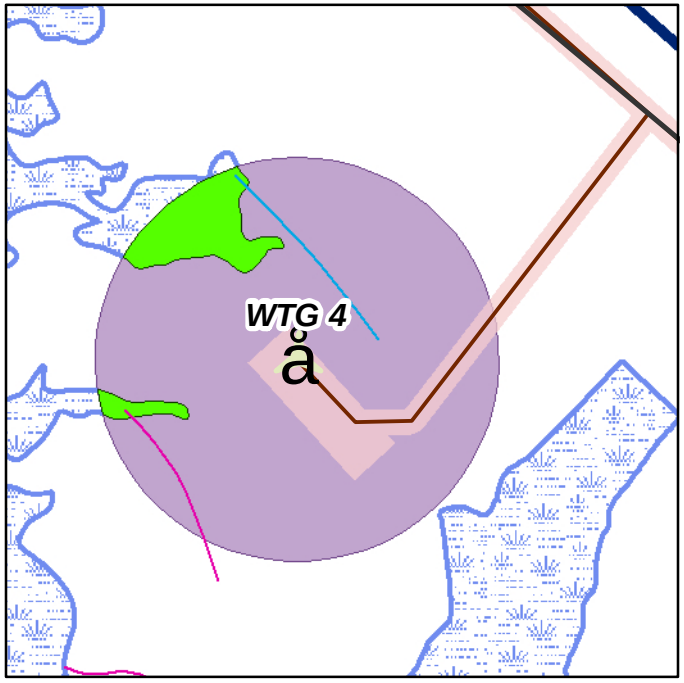
Meters

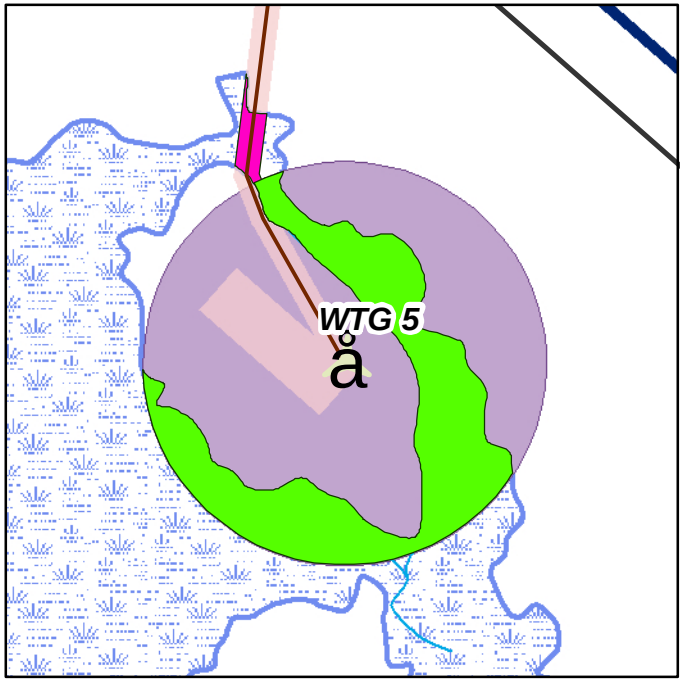
- Proposed Turbine Location
- Existing Roads
- Proposed Access Road
- Permanent Disturbance Area
- Project Boundary
- Wetland Area Inside by 80m Buffer
- WTG 80m Buffer Area
- Drainage Channel
- Watercourse
- Field Delineated Wetlands
- Nova Scotia Hydrographic Network Lake
- Nova Scotia Hydrographic Network Wetlands
- Nova Scotia Hydrographic Network Watercourses

Original Layout: wetlands inside 80m buffer









Project: Pockwock Wind Limited Partnership

Chebucto Pockwock Community Wind Farm: Wetlands Inside 80m Buffer Area

±

Map:	Map-No.:
General Layout	1

	Date	Name
edited	7/17/2013	RB
signed	7/17/2013	RB
approved		

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Scale *(if printed undistorted in A3)*:

0 1020 40 60 80

Meters

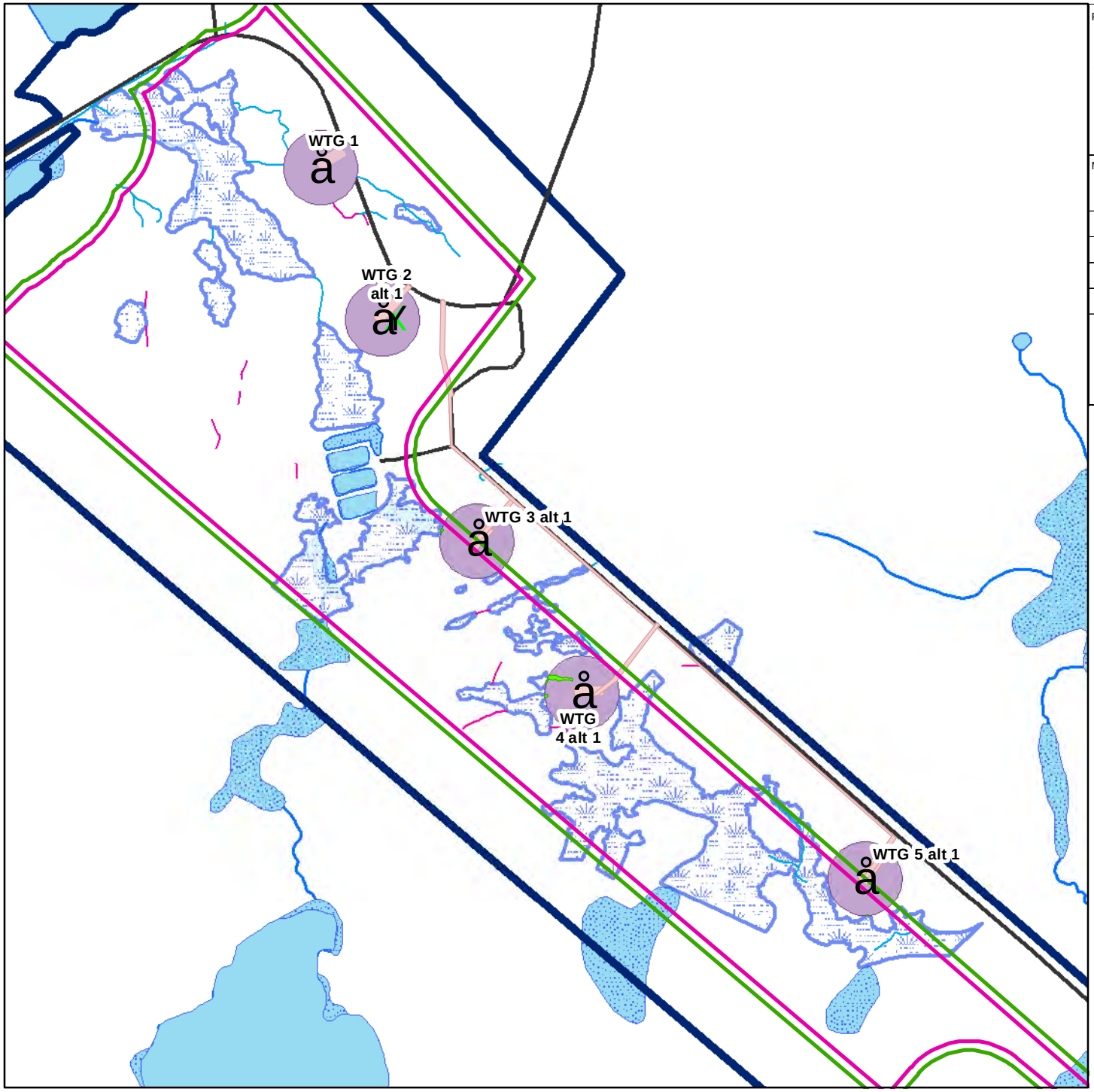
- Proposed Turbine Location
- Existing Roads
- Proposed Access Road
- Wetland Alteration Area
- Permanent Disturbance Area
- Project Boundary
- Drainage Channel
- Watercourse
- Wetland Area Inside by 80m Buffer
- WTG 80m Buffer Area
- Field Delineated Wetlands

Alternative #1 (Recommended)

Alternative #1	Wetland within 80m buffer (m^2)	Wetland (+ / -) within 80m buffer vs. original (m^2)	Road disturbance to turbine (m^2)	Road disturbance (+ / -) to turbine vs. original (m^2)	Disturbed wetland area for road to turbine (m^2)	Proximity to nearest receptor (m)
#1	0	0	635	0	0	1,356
#2 Alt 1	0	(617)	940	(317)	0	1,234
#3 Alt 1	26	(668)	1,288	(413)	0	1,238
#4 Alt 1	456	(1,083)	2,362	188	0	1,386
#5 Alt 1	0	(6,101)	2,300	(32)	0	1,144
TOTAL	**482**	**(8,468)**	**7,525**	**(574)**	**0**	**Average = 1,271**

- **Setbacks from property boundary set to 1.0x turbine height (HRM requirement), allowing for additional flexibility to avoid wetlands**
- **Turbine #2 disregards meteorological tower, which will be taken down under this scenario prior to construction**
- **Set to minimize additional road construction, which means turbines #3 and #4 still have very minor area of wetlands within 80m buffer**
- **Set as far from receptors as possible**
- **Turbine #5 set to avoid any wetland disturbance, but in less optimal location for turbine performance, and closer to receptors**

Alternative #1 Layout



Project: Pockwock Wind Limited Partnership

Chebucto Pockwock Community Wind Farm: Alternate 1 Layout Wetlands Inside 80m Buffer Area

Map:	Map-No.:
General Layout	1

	Date	Name
edited	7/17/2013	RB
signed	7/17/2013	RB
approved		

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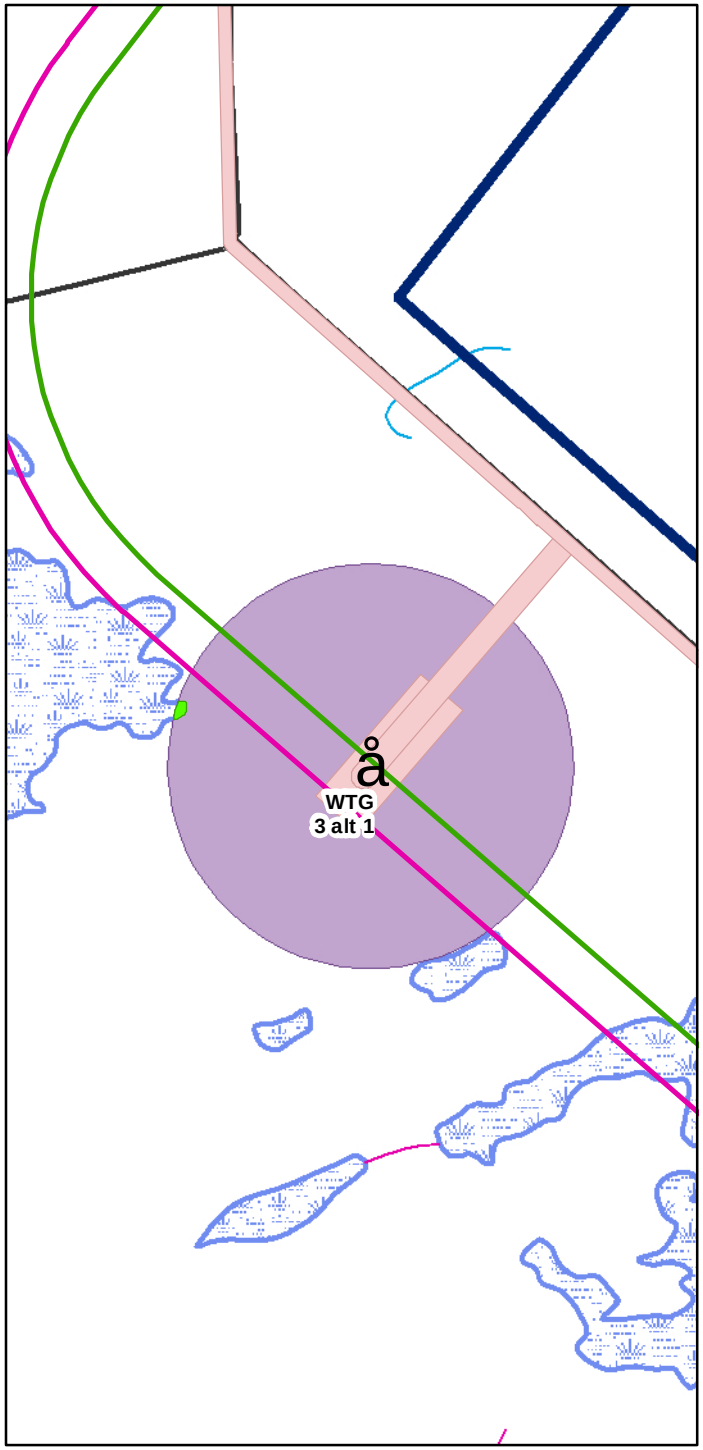
Scale *(if printed undistorted in A3)*:

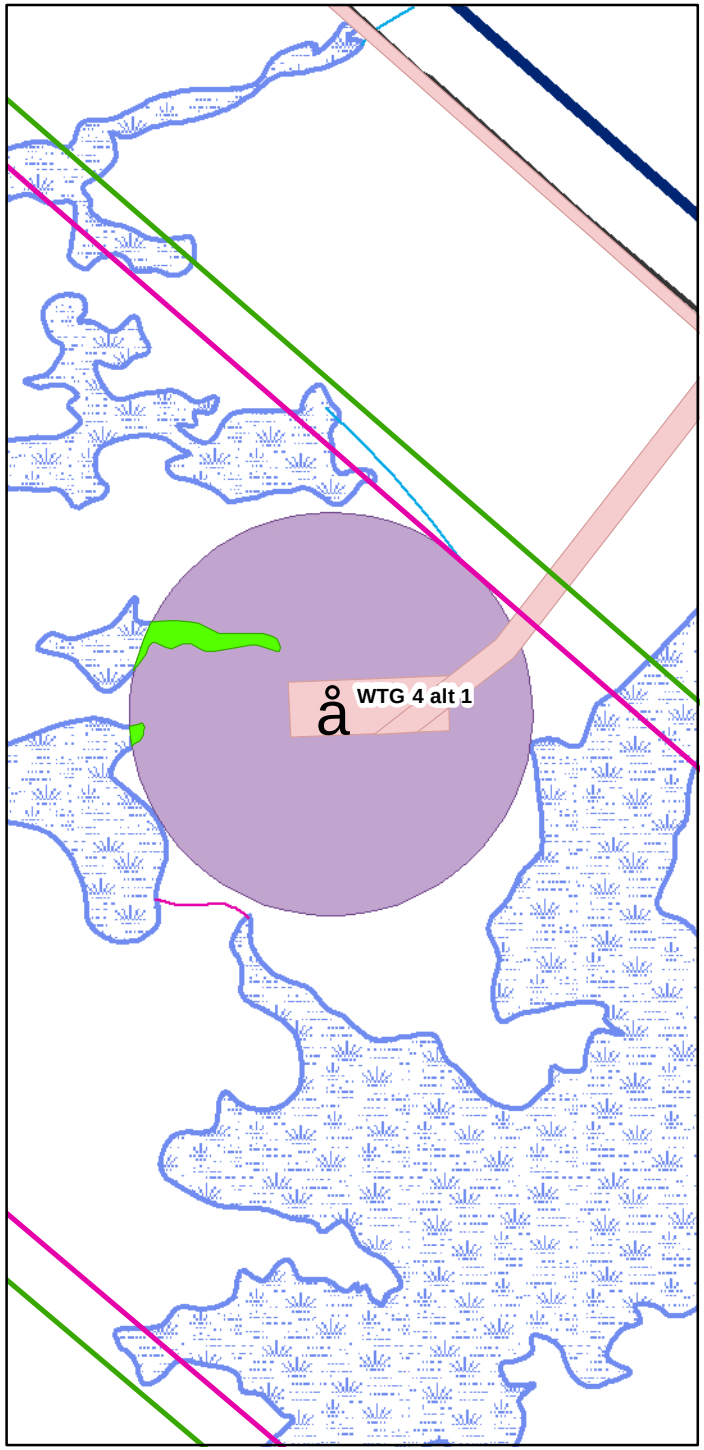
0 50100 200 300 400

Meters

- Alternate 1 WTG Locations
- MET Tower
- Alternate 1 WTG Layout Permanent Disturbance Area
- Alternate 1 WTG Layout Wetlands Impact Area
- Alternate 1 WTG 80m Buffer Area
- Wind Energy Industry Standard Project Boundary Setback (1.1 x TTH)
- HRM Mandated Project Boundary Setback (1 x TTH)
- Existing Roads
- Project Boundary
- Drainage Channel
- Watercourse
- Field Delineated Wetlands
- Nova Scotia Hydrographic Network Lake
- Nova Scotia Hydrographic Network Wetlands
- Nova Scotia Hydrographic Network Watercourses

Alternative #1 Layout: remaining wetlands inside 80m buffer





Project: Pockwock Wind Limited Partnership

Chebucto Pockwock Community Wind Farm: Alternate 1 Layout Wetlands Inside 80m Buffer Area

Map:	Map-No.:
General Layout	1

	Date	Name
edited	7/17/2013	RB
signed	7/17/2013	RB
approved		

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Scale *(if printed undistorted in A3)*:

0 10 20 40 60 80

Meters

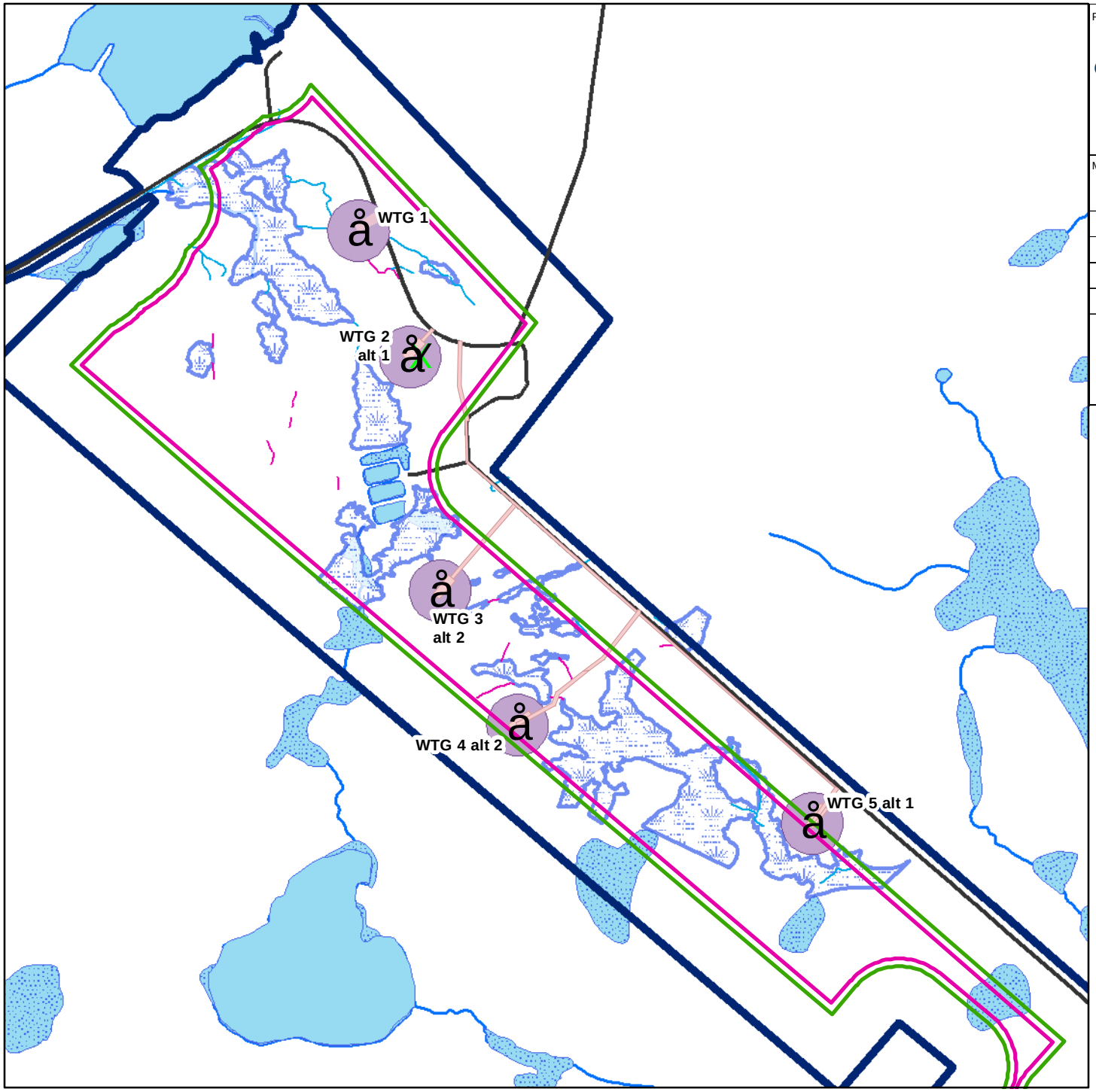
- Alternate 1 WTG Locations
- MET Tower
- Alternate 1 WTG Layout Permanent Disturbance Area
- Alternate 1 WTG Layout Wetlands Impact Area
- Alternate 1 WTG 80m Buffer Area
- Wind Energy Industry Standard Project Boundary Setback (1.1 x TTH)
- HRM Mandated Project Boundary Setback (1 x TTH)
- Existing Roads
- Project Boundary
- Drainage Channel
- Watercourse
- Field Delineated Wetlands

Alternative #2

Alternative #2	Wetland within 80m buffer (m^2)	Wetland (+ / -) within 80m buffer vs. original (m^2)	Road disturbance to turbine (m^2)	Road disturbance (+ / -) to turbine vs. original (m^2)	Disturbed wetland area for road to turbine (m^2)	Proximity to nearest receptor (m)
#1	0	0	635	0	0	1,356
#2 Alt 1	0	(617)	940	(317)	0	1,234
#3 Alt 2	0	(694)	2,977	1,276	0	1,095
#4 Alt 2	0	(1,539)	4,440	2,266	0	1,242
#5 Alt 1	0	(6,101)	2,300	(32)	0	1,144
TOTAL	**0**	**(8,950)**	**11,292**	**3,193**	**0**	**Average = 1,214**

- **Setbacks from property boundary set to 1.0x turbine height (HRM requirement), allowing for additional flexibility to avoid wetlands**
- **Turbine #2 disregards meteorological tower, which will be taken down under this scenario prior to construction**
- **Set to have no wetlands within 80m buffer, which means turbines #3 and #4 have longer roads and more area cleared to get to turbine locations, and are set closer to receptors**
- **Turbine #5 set to avoid any wetland disturbance, but in less optimal location for turbine performance, and set closer to receptors**

Alternative #2 Layout



Project: Pockwock Wind Limited Partnership

Chebucto Pockwock Community Wind Farm: Alternate 2 Layout Wetlands Inside 80m Buffer Area

±

Map:	Map-No.:
General Layout	1

	Date	Name
edited	7/17/2013	RB
signed	7/17/2013	RB
approved		

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juwi

Scale *(if printed undistorted in A3)*:

0 50 100 200 300 400

Meters

- Alternate 1 WTG Locations
- MET Tower
- Alternate 1 WTG Layout Permanent Disturbance Area
- Alternate 2 WTG 80m Buffer Area
- Wind Energy Industry Standard Project Boundary Setback (1.1 x TTH)
- HRM Mandated Project Boundary Setback (1 x TTH)
- Existing Roads
- Project Boundary
- Drainage Channel
- Watercourse
- Field Delineated Wetlands
- Nova Scotia Hydrographic Network Lake
- Nova Scotia Hydrographic Network Wetlands
- Nova Scotia Hydrographic Network Watercourses

Reference Table:
Pockwock Turbine Location Characteristics

Turbine ID	Lat	Long	Wetland within 80m buffer (m^2)	Wetland (+ / -) within 80m buffer vs. original (m^2)	Road disturbance to turbine (m^2)	Road disturbance (+ / -) to turbine vs. original (m^2)	Disturbed wetland area for road to turbine (m^2)	Proximity to nearest receptor (m)
#1	4958650	433347	0	0	635	0	0	1,356
#2	4958260	433469	617	0	1,256	0	0	1,207
#2 Alt 1	4958270	433491	0	(617)	940	(317)	0	1,234
#3	4957780	433657	694	0	1,701	0	0	1,198
#3 Alt 1	4957790	433695	26	(668)	1,288	(413)	0	1,238
#3 Alt 2	4957660	433568	0	(694)	2,977	1,276	0	1,095
#4	4957510	433944	1,539	0	2,174	0	0	1,436
#4 Alt 1	4957470	433921	456	(1,083)	2,362	188	0	1,386
#4 Alt 2	4957320	433770	0	(1,539)	4,440	2,266	0	1,242
#5	4957170	434365	6,101	0	2,332	0	332	1,205
#5 Alt 1	4957070	434532	0	(6,101)	2,300	(32)	0	1,144

NAD 83 UTM Zone 20 N (meters)

Halifax Water
Halifax Regional Water Commission
450 Cowie Hill Road, P.O. Box 8388 RPO CSC, Halifax, Nova Scotia B3K 5M1 phone 902 490-4820 fax 902 490-4808

August 22, 2013

Sterling Belliveau, Minister
Nova Scotia Environment
PO Box 442
Halifax, NS B3J 2P8

Minister Belliveau:

Re: Pockwock Community Wind Project

We are writing you concerning the Pockwock Community Wind Project, which is currently under extended review by Nova Scotia Environment's (NSE) Environmental Assessment (EA) Branch. The Halifax Regional Water Commission (Halifax Water), as the land owner of the Pockwock Project site, would like to express our support for the project, specifically for "*Alternative Layout #1*" as described in the document "*Pockwock Community Wind EA – Pockwock Site Optimization – Part 2: Alternative Layouts*" which is included in the supplemental information submitted to NSE on August 24 2013. We believe the project delivers great value from existing Halifax Water facilities, and reflects our commitment to environmental stewardship.

As you are aware, Halifax Water has a specific mandate for the protection of the lands to which it has been entrusted. Over the course of the past two years, a team of Halifax Water professionals, including our energy and watershed protection mangers, have worked with the proponents of the Pockwock Community Wind Project to identify environmentally responsible locations for their turbines. Further we have worked closely with the proponents and their consultants to optimize these locations to those shown in "*Alternative Layout #1*", and develop an extensive Environmental Protection Plan which recognizes the protection of wetlands as a priority.

As it is always our intention to be a good neighbor, our collaboration has extended to multiple community meetings with the residences of Upper Hammonds Plains held by the proponents concerning the project. Through those meetings we have found strong local support, in part due to the local community receiving 1% of direct economic benefits of the project through the Community Sustainability Fund.

It is our hope that Nova Scotia Environment will expedite approval of the EA for the Pockwock Community Wind Project. We believe that the process to develop the project has been exhaustive in its level of protection, the project will provide significant benefits to Halifax Water's ratepayers, and the community at large will enjoy economic as well as environmental benefits from this project.

Respectfully submitted,

Carl D. Yates, M.A.Sc., P.Eng.
General Manager
Halifax Water