WHAT WE *DON'T* KNOW ABOUT THE BULL HILL WIND PROJECT

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-
- TRUE VISUAL IMPACT OF THE TURBINES, TURBINE PADS, ROADS AND OTHER ASSOCIATED FACILITIES.

WHAT WE *DON'T* KNOW ABOUT THE BULL HILL WIND PROJECT

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- In a memorandum prior to beginning his project review, James Palmer requested that Terry DeWan provide him with “digital drawings (e.g.CAD) of the proposed road locations and profiles showing the extent of cut and fill). Memorandum dated February 10, 2011 at page 2.

WHAT WE *DON'T* KNOW ABOUT THE BULL HILL WIND PROJECT

- On February 22, 2011, James Palmer made multiple comments about missing information in the Application ("the viewshed maps only appear to show the visibility of the turbines, not the access roads...." "From where will the presence of the access roads, transmission line, or other associated facilities be visible?" Memo from James Palmer to Terry DeWan, Febuary 22, 2011 at page 2.

WHAT WE *DON'T* KNOW ABOUT THE BULL HILL WIND PROJECT

"There are no scaled drawings of the turbines or other project elements, such as the extent of cut and fill associated with the roads." Palmer Report, dated March 21, 2011, at page 2.

WHAT WE *DON'T* KNOW ABOUT THE BULL HILL WIND PROJECT

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- “Assumptions made about vegetation height significantly affect a visibility analysis. The VIA chose to assign heights to certain wetlands and harvested areas that could have few canopy trees to screen views. As a result, the visibility analysis may indicate that areas are screened, when they are not.” Palmer at page 42.

WHAT WE *DON'T* KNOW ABOUT THE BULL HILL WIND PROJECT

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- On May 5, 2011, counsel for CCRHC asked staff if the material requested by James Palmer had been received.
- On May 6, 2011, staff responded as follows:

  “....Jim Palmer's scenic report speak[s] for [itself].”

WHAT WE DON'T KNOW ABOUT THE BULL HILL PROJECT

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- The project's impacts on vernal pools in the project area.
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WHAT WE *DON'T* KNOW ABOUT THE BULL HILL WIND PROJECT

- "...we still have not received all of the information we need to fully assess the potential impacts to vernal pools from this project. For example, on March 8, I requested a breakdown of pre- and post-construction impacts to the vernal pool buffers on all potenially Significant Vernal Pools. On April 22, I repeated that request. On May 4, we received a table that was incomplete."
  Richard Bard, Biologist, Maine Dept. of Inland Fisheries and Wildlife, May 12, 2011.

WHAT WE *DON'T* KNOW ABOUT THE BULL HILL WIND PROJECT

-
- "...the applicant states "no vernal pools..are impacted by this project." A minimum of 55 vernal pools were indentified within the project area....The percent proposed impact for each SVP/PVP was not calculated to take into account the change in land-use from strictly forestry....to development use...." Richard Bard, May 12, 2011

WHAT WE *DON'T* KNOW ABOUT THE BULL HILL PROJECT

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- The project's impact on raptors, migratory birds and bats

WHAT WE *DON'T* KNOW ABOUT THE BULL HILL WIND PROJECT

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- “First Wind “prefer[s] to finalize the plan [for post-construction monitoring] after permits are issued....MDIFW would prefer to have an acceptable plan in place before any permits are issued....” Richard Bard, MDIFW, May 9, 2011.

WHAT WE *DON'T* KNOW ABOUT THE BULL HILL WIND PROJECT

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- "Estimates of post-construction mortality for bats provide estimates of mortality that are likely lower than actual mortality.....Therefore drawing conclusions regarding impact of mortality is difficult, if not inappropriate." Richard Bard, MDIFW, May 9, 2011.

WHAT WE *DON'T* KNOW ABOUT THE BULL HILL PROJECT

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- Detailed plans for erosion and sediment control.

WHAT WE *DON'T* KNOW ABOUT THE BULL HILL WIND PROJECT

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- “Volume I of the application includes a single paragraph discussing erosion and sediment control....The erosion and sediment control narrative should be expanded to discuss the drawings and plans where erosion and sediment control measures can be found.” David Rocque, State Soil Scientist, February 16, 2011.

WHAT WE *DON'T* KNOW ABOUT THE BULL HILL PROJECT

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- Whether there are unusual natural features at the site that may be harmed by the project.

WHAT WE *DON'T* KNOW ABOUT THE BULL HILL WIND FARM

- "...the Maine Natural Areas Program cannot provide a definitive statement on the presence or absence of unusual natural features at this site. You may want to have the site inventoried by a qualified field biologist to ensure that no undocumented rare features are inadvertently harmed." Don Cameron, Ecologist, Maine Natural Areas Program, February 11, 2011.

WHAT WE *DO* KNOW ABOUT THE BULL HILL WIND PROJECT

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- “The burden is upon the applicant to demonstrate by substantial evidence that the criteria for approval are satisfied, and that the public's health, safety and general welfare will be adequately protected.” Chapter 10.24, LURC Land Use Standards.

Site Location of Development
TECHNICAL REVIEW MEMORANDUM
Bureau of Land and Water Quality

TO: **Donald Murphy, Project Manager, LURC**
FROM: **David A. Waddell -- Division of Watershed Management i**
DATE: **May 5, 2011**
RE: **T16MD – Bull Hill Wind Project**

I have reviewed the additional information that was submitted by the applicant in response to my memo of 3/9/11. I have found that this response has addressed all of my concerns with this project at this time and that the project appears to meet the standards set forth in the Chapter 500 rules. I recommend approval of the project in its current form.

The following information may be useful to your process:

PLANS USED FOR REVIEW:

Pre-development: Plan Sheet C-701, "Pre Development Drainage Plan," dated 11/12/2010, revised 4/15/11.
Post-development: Plan Sheet C-702, "Post Development Drainage Plan," dated 11/12/2010, revised 4/15/11.
Erosion and Sediment Control Plans: Plan Sheets C-601 thru C-608, "Erosion Sedimentation Control Plan," dated 11/12/2010, revised 4/15/11.
Note: Other plans may have been reviewed that are not noted here.

STORMWATER MANAGEMENT

The applicant is proposing a 19 turbine windfarm on Bull Hill and Heifer Hill in T16MD and called Bull Hill Wind Project. This project lies within the watersheds of Narraguagus River, Narraguagus Lake, Spectacle Pond and Graham Lake. This proposed project will create 25.44 acres of developed area and 24.24 acres of impervious area. This project has been required to meet the "Stormwater Law" rules and as such must meet the Basic, General, and Flooding Standards. Under the General Standards the applicant is applying the phosphorus methodology to address impacts to Narraguagus Lake and Spectacle Pond. As such, the applicant is required to use the Phosphorous Methodology outlined in "Phosphorous Control in Lake Watersheds: A Technical Guide to Evaluating New Development" to assess the development.
This project is being reviewed under the 2006 Stormwater Management rules and the design and sizing of the proposed BMPs for this project are based on the "Stormwater Management for Maine" January 2006.
Stormwater quality treatment will be achieved with numerous buffers.
Stormwater flooding mitigation will be achieved with disconnected impervious area and lengthening of flow paths.

The following comments need to be addressed:

BASIC STANDARDS:

Note: *As always the applicant's erosion control plan is a good starting point for providing protection during construction. However, based on site and weather conditions during construction, additional erosion and sediment control measures may necessary to stop soil from leaving the site. In addition, other measures may be necessary for winter construction. All areas of instability and erosion must be repaired immediately during construction and need to be maintained until the site is fully stabilized or vegetation is established. Approval of this plan does not authorize discharges from the site.*

Proposed Condition: Due to the level of disturbance, steep slopes, and its close proximity to on site water resources, an independent third party site inspector reviewing erosion and sedimentation control is

suggested for this project. The applicant will retain the services of an approved site inspector to inspect the erosion and sedimentation controls on the site. Inspections shall consist of weekly visits to the site to inspect erosion and sedimentation controls from initial ground disturbance to final stabilization. If necessary, the inspecting engineer will interpret the erosion and sedimentation control plans and notes for the contractor. Once the site has reached final stabilization, the inspector will notify the department in writing within 14 days to state that the construction has been completed. Accompanying the engineer's notification must be a log of the engineer's inspections giving the date of each inspection, the time of each inspection, and the items inspected on each visit.

Approval recommended for this section.

GENERAL STANDARDS

Non-linear Portion

Percent of Impervious Treated: 100% (95% required)
Percent of Developed Treated: 86.12% (80% required)

Linear Portion

Percent of Impervious Treated: 76.54% (75% required)
Percent of Developed Treated: 76.54% (50% required) **

** Due to the lack of landscaped and lawn area associated with the road system the developed area and the impervious area are the same.

Phosphorus to Spectacle Pond

Per Acre Phosphorus Budget (PAPB):	0.062	lbs / acre / yr
Project Acreage (eligible for allocation)(A):	22.49	acres
Project Phosphorus Budget (PPB):	1.394	lbs / yr
Total Phosphorous Mitigation Credit (SEC + STC):	0.00	lbs / yr
Total Pre-treatment Phosphorus Export (Pre-PPE:	2.589	lbs / yr
Total Post-treatment Phosphorous Export (Post-PPE):	1.372	lbs / yr
Project Phosphorus Export:	1.372	lbs / yr
Level of Control:	adequate	

Phosphorus to Narraguagas Lake

Per Acre Phosphorus Budget (PAPB):	0.041	lbs / acre / yr
Project Acreage (eligible for allocation)(A):	2.48	acres
Project Phosphorus Budget (PPB):	0.102	lbs / yr
Total Phosphorous Mitigation Credit (SEC + STC):	0.00	lbs / yr
Total Pre-treatment Phosphorus Export (Pre-PPE:	0.201	lbs / yr
Total Post-treatment Phosphorous Export (Post-PPE):	0.0804	lbs / yr
Project Phosphorus Export:	0.0804	lbs / yr
Level of Control:	adequate	

Approval recommended for this section.

Proposed Condition: The applicant will retain the services of a professional engineer to provide "as-built" plans that detail any portions of the project that significantly deviate form the approved plans. Any changes in layout, grading, stormwater system, impervious area, or other changes that affect the stormwater quality need to be located and addressed as to how these changes have been treated and

meet the general standard. Significant changes in the proposed project may trigger the need for an amendment of the approved department order. This requirement is for the portion of the project constructed as common property. The applicant's agent will notify the department in writing within 14 days of final acceptance of the project to state that the project has been completed. Accompanying the engineer's notification must be updated project plan sheets (if necessary), a report on the changes in treatment and how they meet standard (if necessary), and a copy of the Notice of Termination (NOT) for the project.

Proposed Condition: The applicant will retain the services of a professional engineer to inspect the construction and stabilization of the stone bermed level spreaders and ditch turnouts to be built on the site. Inspections shall consist of weekly visits to the site to inspect each level spreaders /turnout construction, stone berm material and placement, settling basin from initial ground disturbance to final stabilization of the level spreader. If necessary, the inspecting engineer will interpret the stone bermed level lip spreader's location and construction plan for the contractor. Once the stone bermed level lip spreaders are constructed and stabilized, the inspecting engineer will notify the department in writing within 14 days to state that the level lips have been completed. Accompanying the engineer's notification must be a log of the engineer's inspections giving the date of each inspection, the time of each inspection, the items inspected on each visit, and include any testing data or sieve analysis data of the berm media.

FLOODING STANDARDS

The applicant has provided a Hydro-cad model that shows the project's impact on the weighted curve number of each watershed and the subsequent impact to peak flows for these watersheds for the 2,10, and 25 year, 24 hour storm. The evidence shows that the weighted curve number for each sub watershed changes little. In addition the model does not take into consideration that flow on the proposed site is dispersed through natural buffers in sheet flow for 86% of the new roads. This lengthens the time of concentration for all of the watersheds while reducing the peak flow at the property boundary. For this project the model indicates that the project meets the flooding standard requirement of maintaining the preconstruction peak flows for the 2, 10, and 25 year, 24 hour storm at the property boundary.

Approval recommended for this section.

Bull Hill Wind Power

Visual Impact Assessment

Terry DeWan
Terrence J. DeWan & Associates
Landscape Architects

OVERVIEW

- Project Description
- Scenic Resources
- Visual Impacts
- Conclusions

THE PROJECT

NORTHERN
- 10 Turbines
- Bull Hill

O&M Building
Substation

T-LINE
- BHE Line 66
- 115 kV

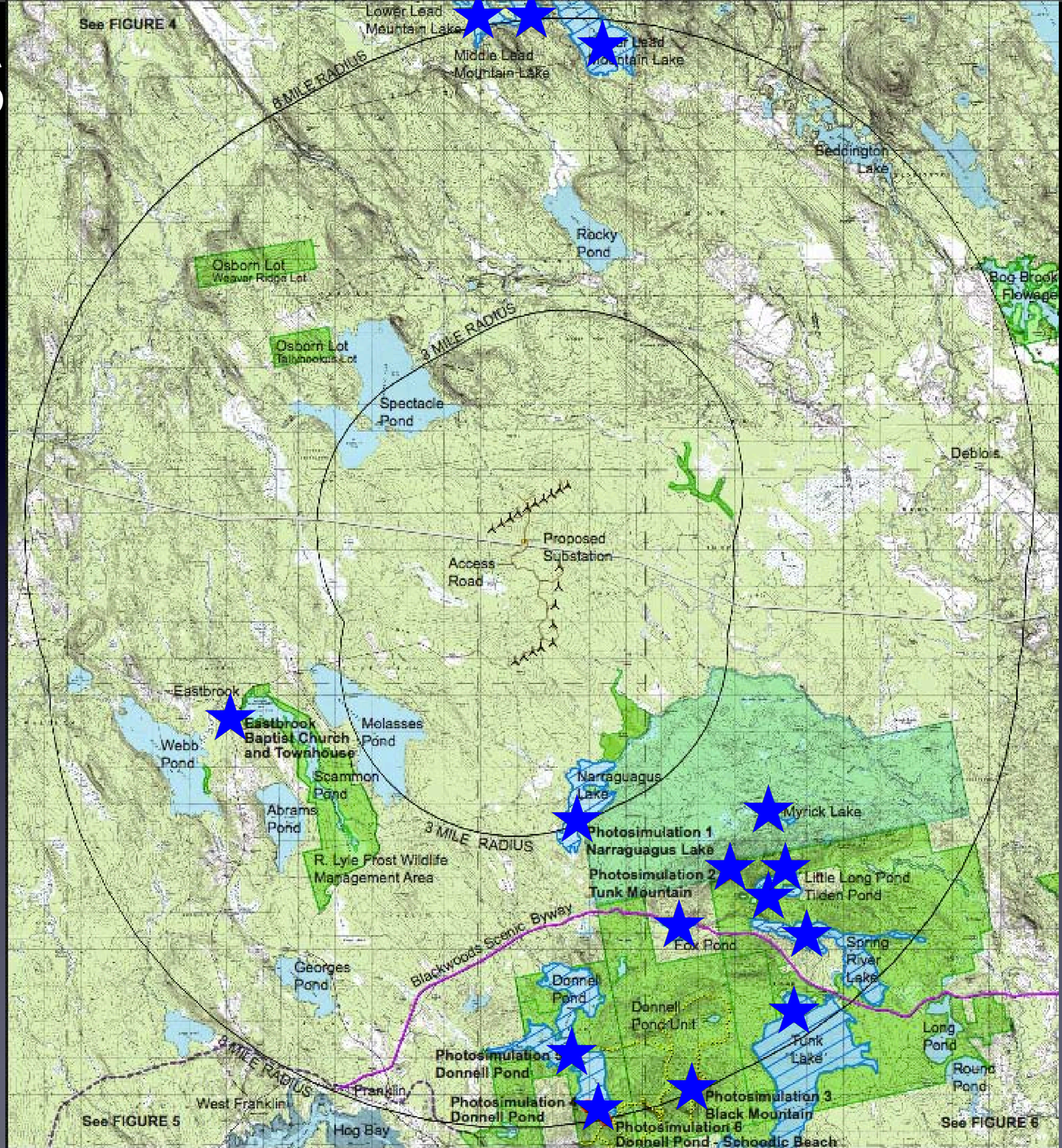
SOUTHERN
- 9 Turbines
- Heifer Hill/ Beech Knoll

SCENIC RESOURCES

of state or national significance

STUDY AREA TOTAL

- 11 Great Ponds
- 1 National Register Site
- 2 Scenic Viewpoints on MePRL
- 1 Coastal Scenic Viewpoint
- 0 Scenic Byway Overlooks

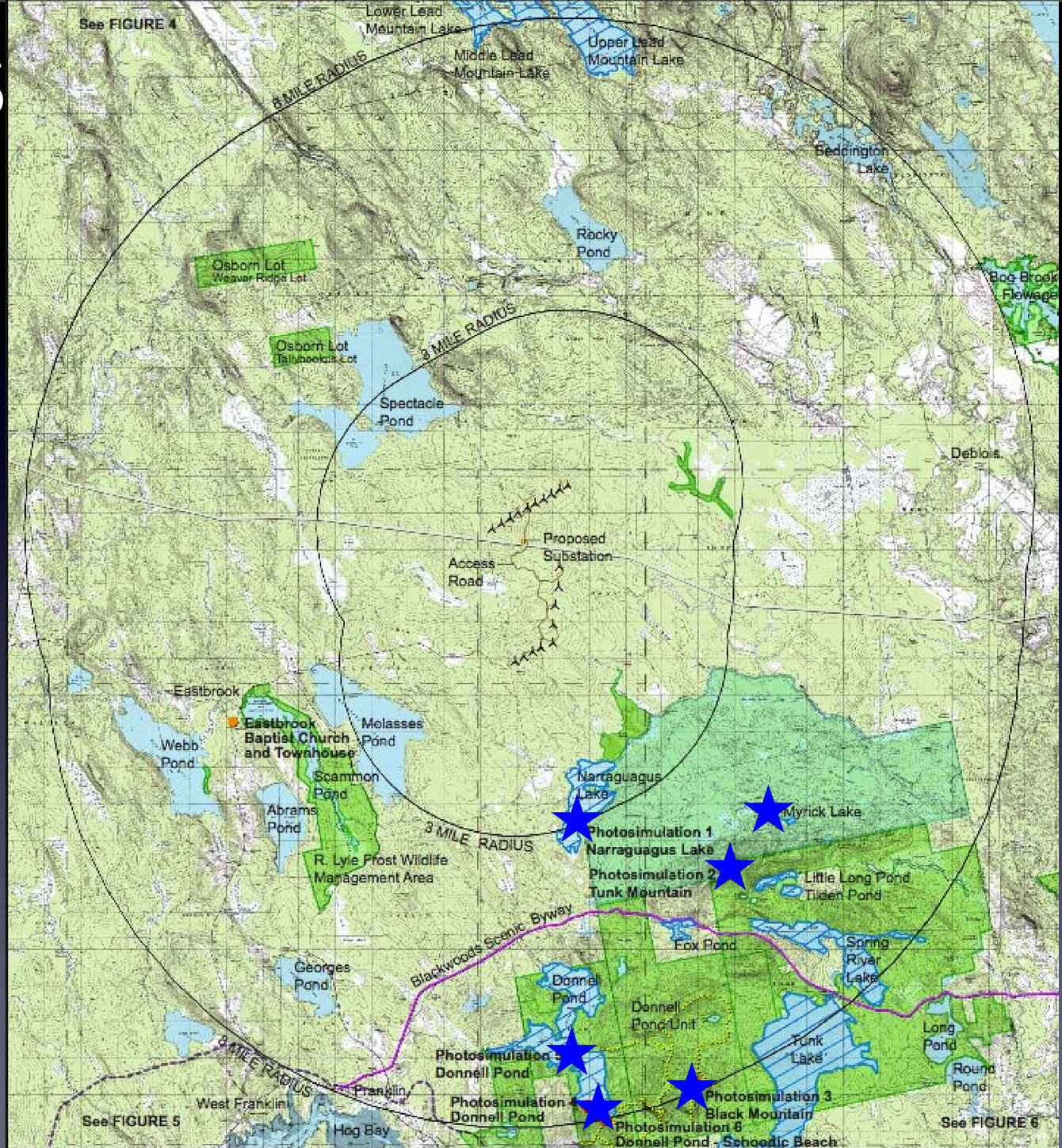


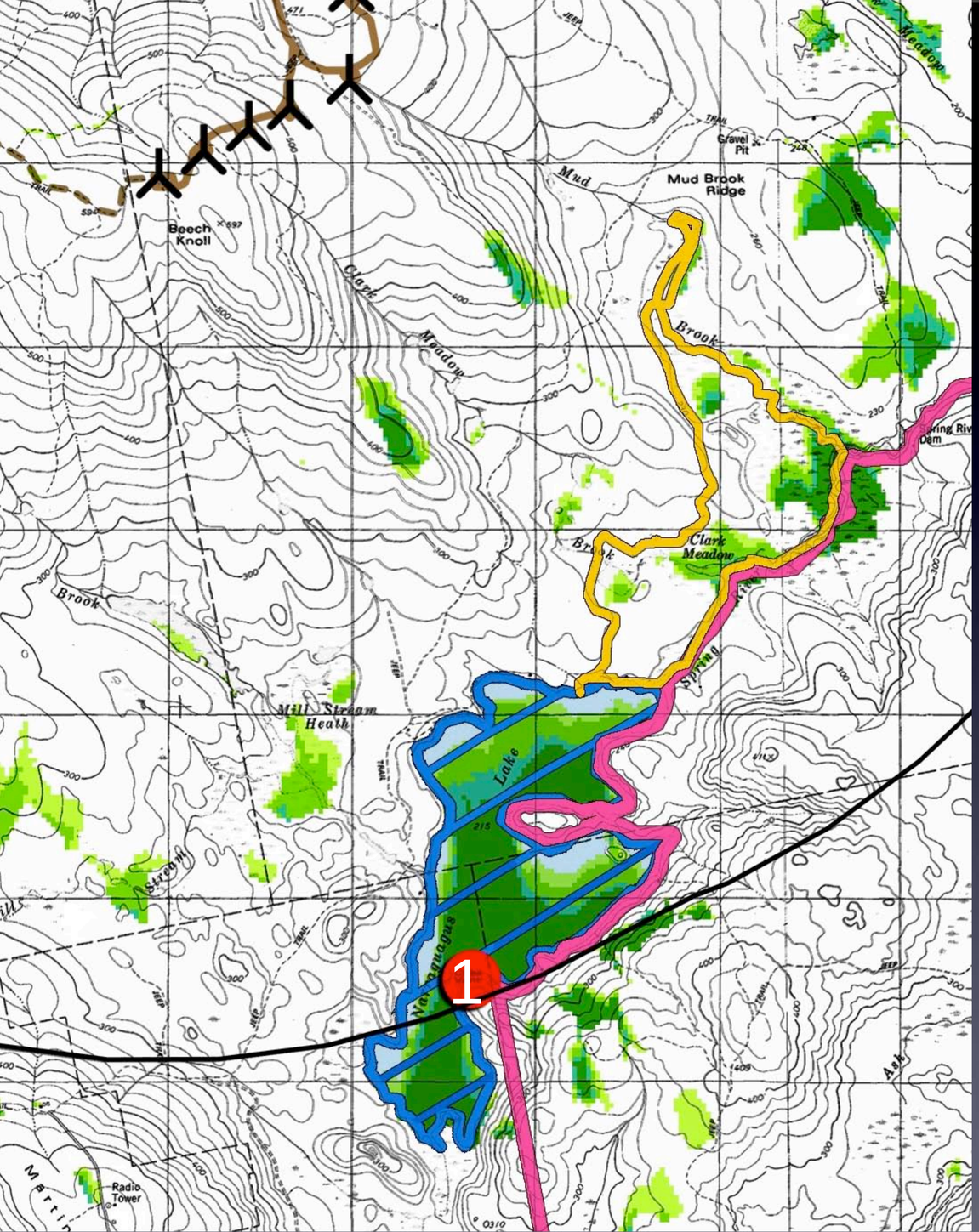
SCENIC RESOURCES

of state or national significance

RESOURCES W/ VIEWS

- Narraguagus Lake
- Myrick Lake
- Donnell Pond
- Black Mountain, MPRL
- Schoodic Beach, MPRL
- Tunk Mountain





Narraguagus Lake

- 426 acres
- 2.0 miles to nearest turbine
- Rated Significant (MWLA)
- No public access

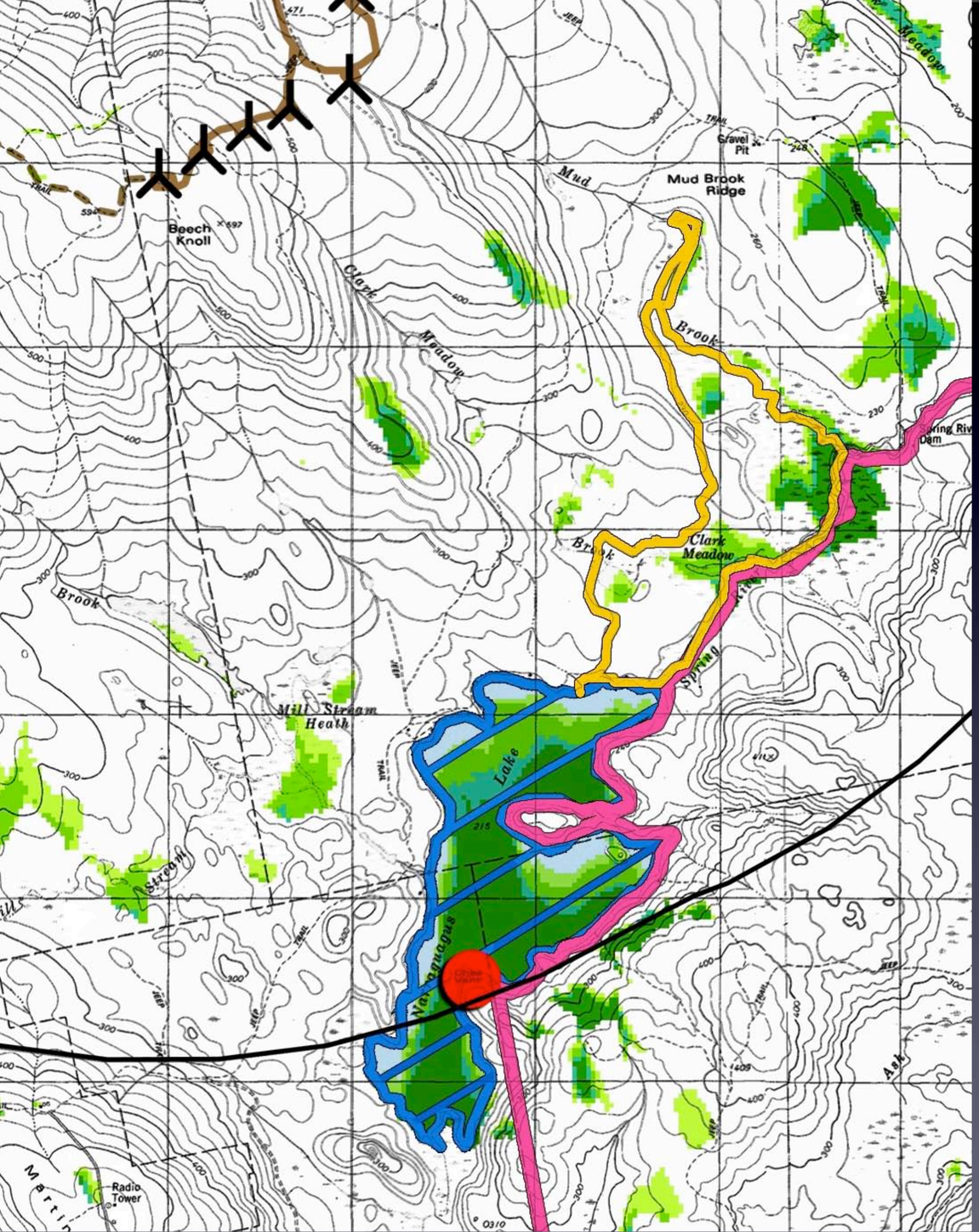
Tunk Mountain as seen from northen end; turbines not visible.

View from north shore; no turbines visible.

Camp on north shore. No turbines visible.

Normal view, northern end of lake.

Psim 1: 19 turbines visible; 2.9 to 5.7 miles.

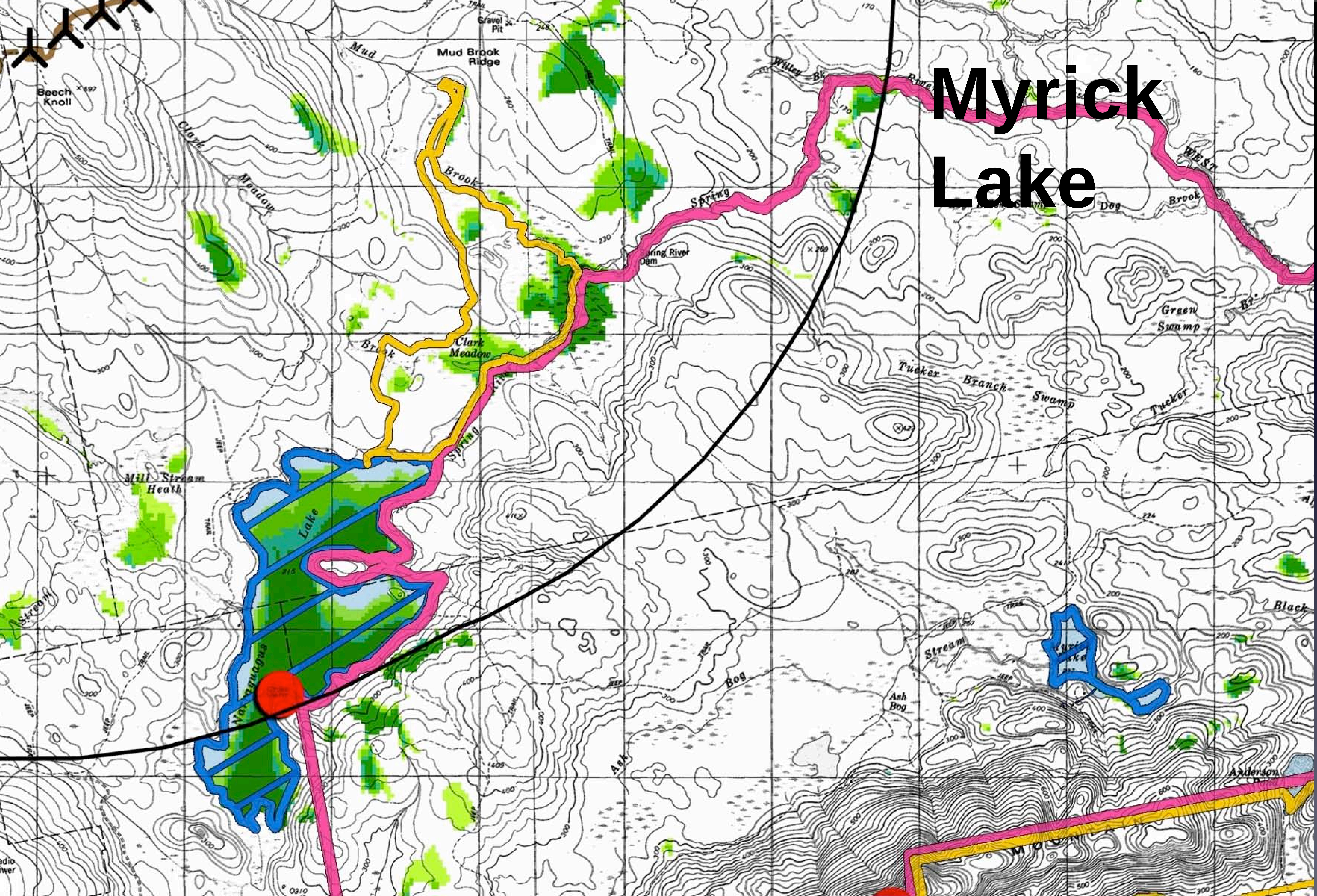


Narraguagus Lake

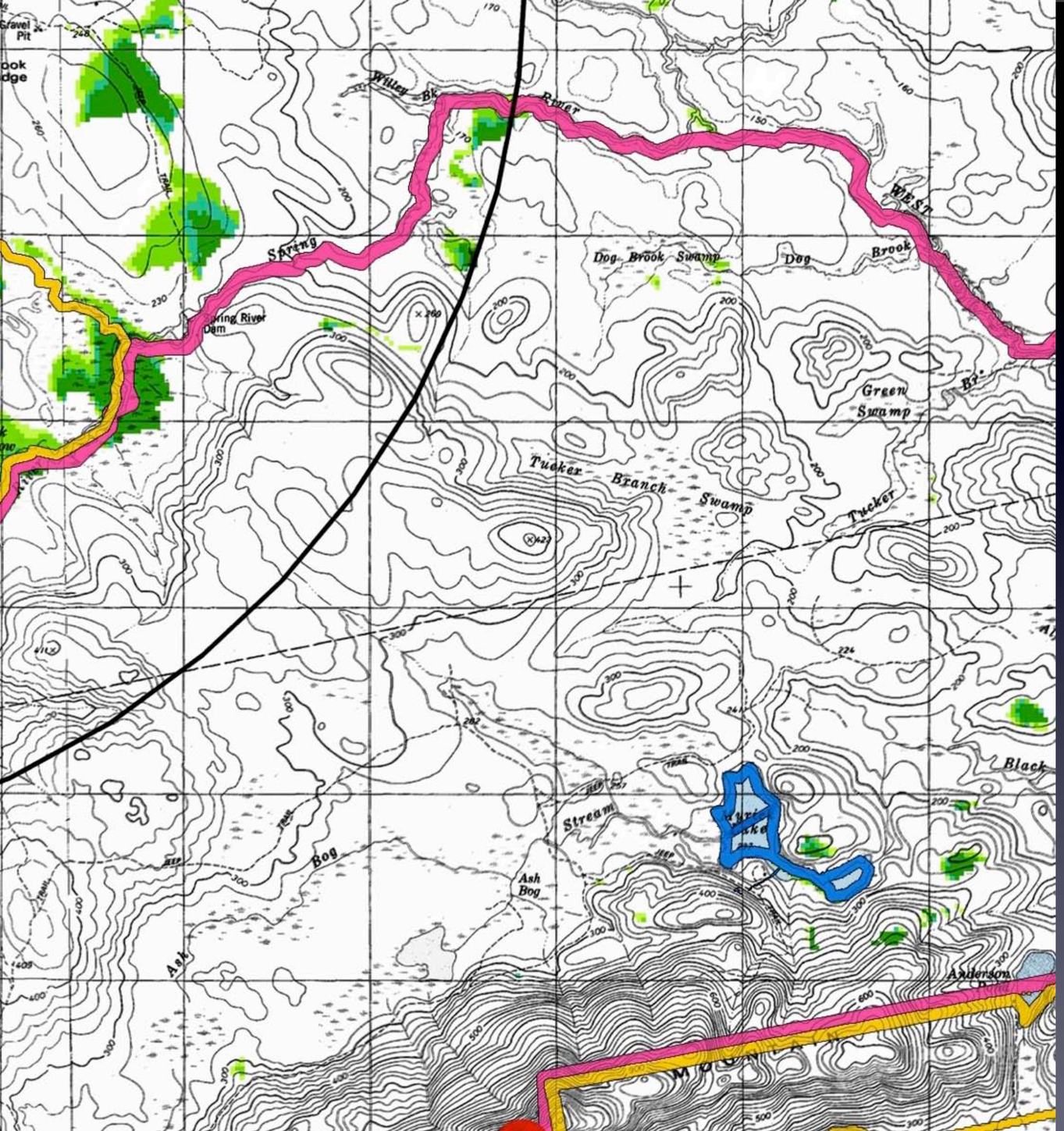
OVERALL VISUAL IMPACT
Low tending to <u>medium</u>

- Turbines dominate northern end
- Limited public access
- Relative few users (fishing / boating)
- View to Tunk Mt. still dominates

Myrick Lake



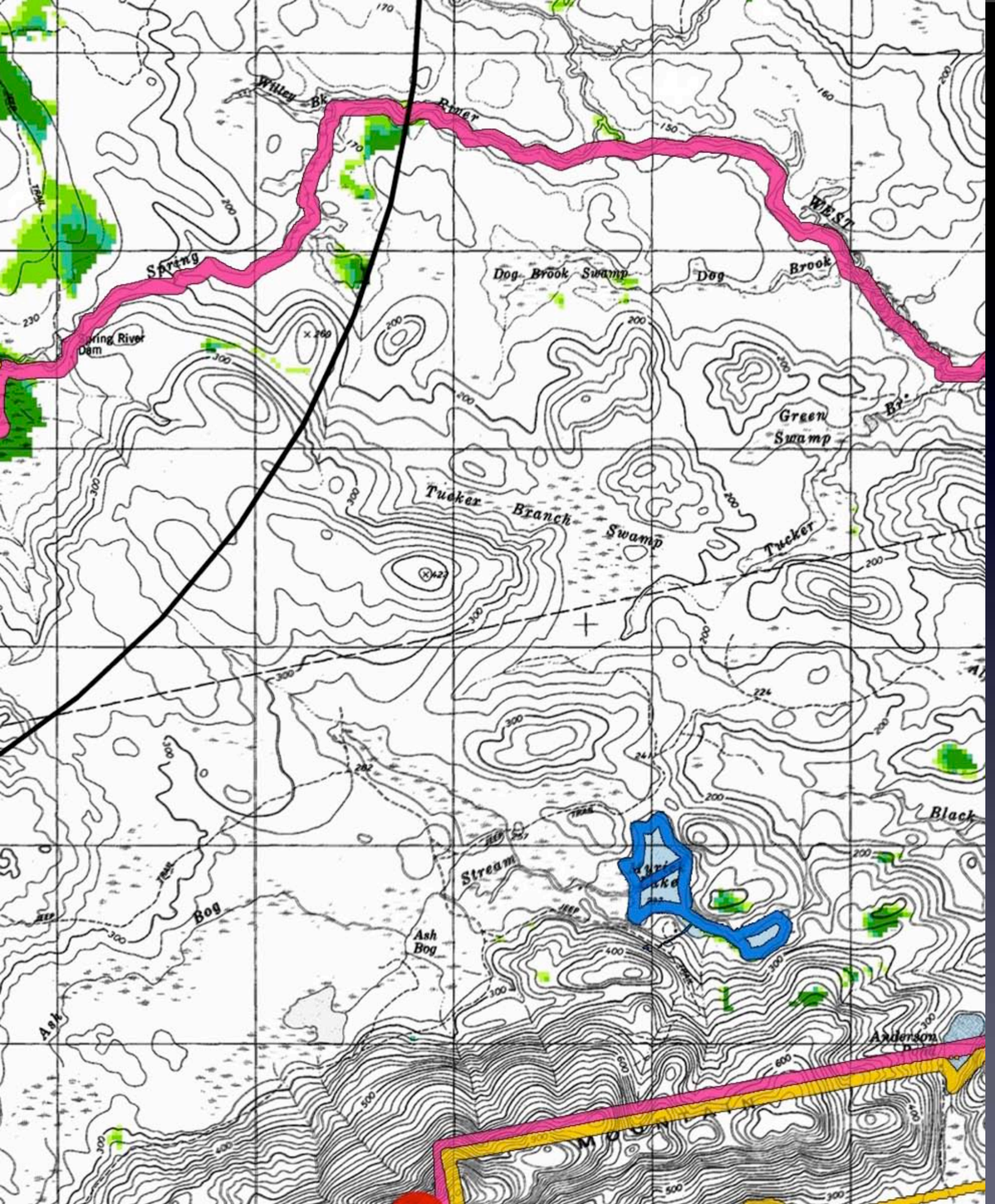
Mud Brook Ridge
Gravel Pit
Beech Knoll
Clark Meadow
Spring River Dam
Willey Bk
Tucker Branch Swamp
Green Swamp
Mill Stream Heath
Stream
Bog
Ash Bog
Anderson
Lake



Myrick Lake

- 45 acres
- 4.6 miles to nearest turbine
- Rated Significant
- No public access

Panoramic view looking N from SE shoreline. Blades of 6± turbines may be visible beyond point of land on left.

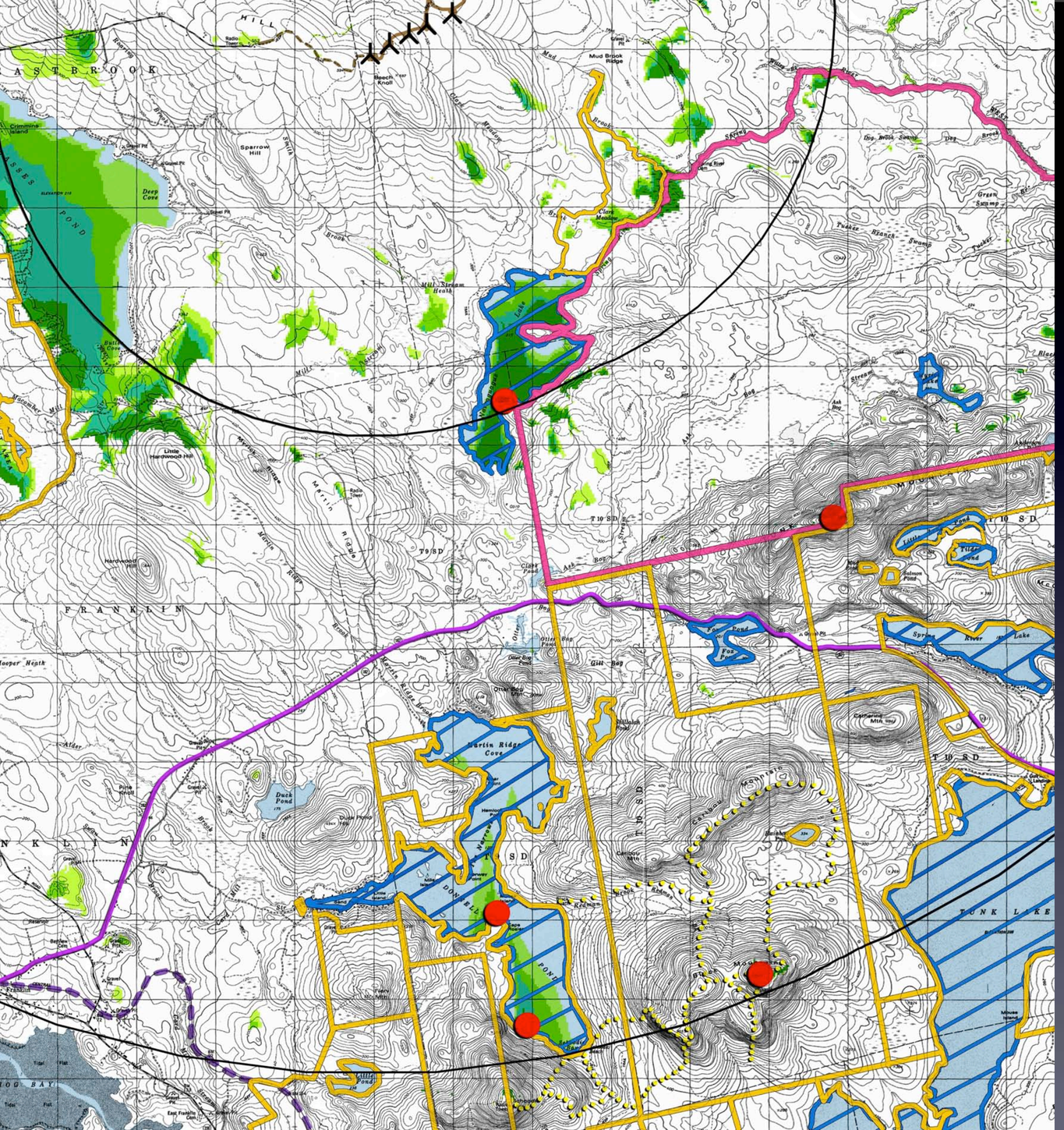


Myrick Lake

OVERALL VISUAL IMPACT

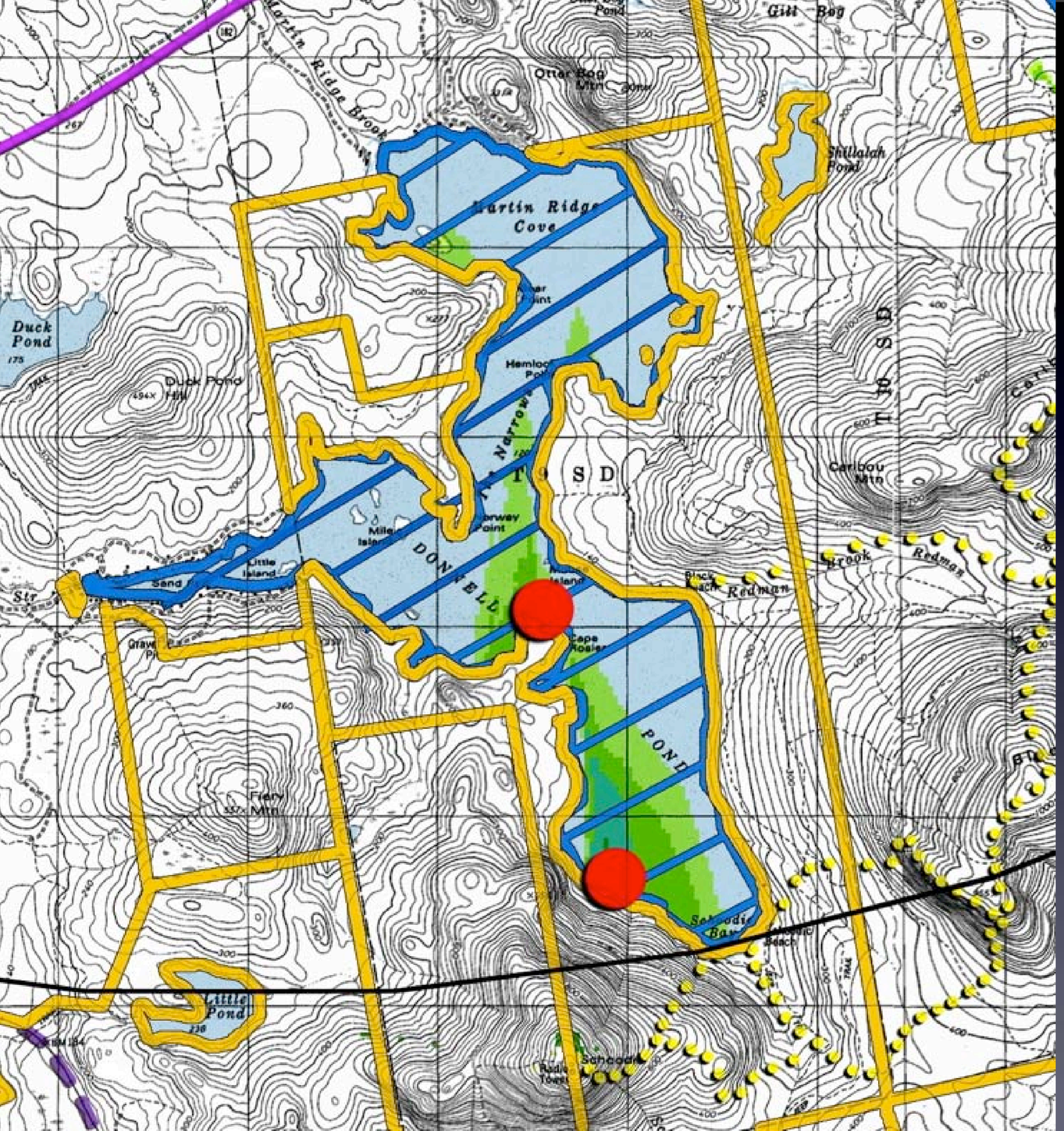
Low

- 4-6 turbines may be seen above trees
- May be visible over 12% of lake
- Limited public access
- Relative few users (fishing / boating)



Donnell Pond

- 1,120 acres
- Rated Outstanding
- Public access
- Largely surrounded by MPRL
- 5.3 miles to nearest turbine



Donnell Pond

- 1,120 acres
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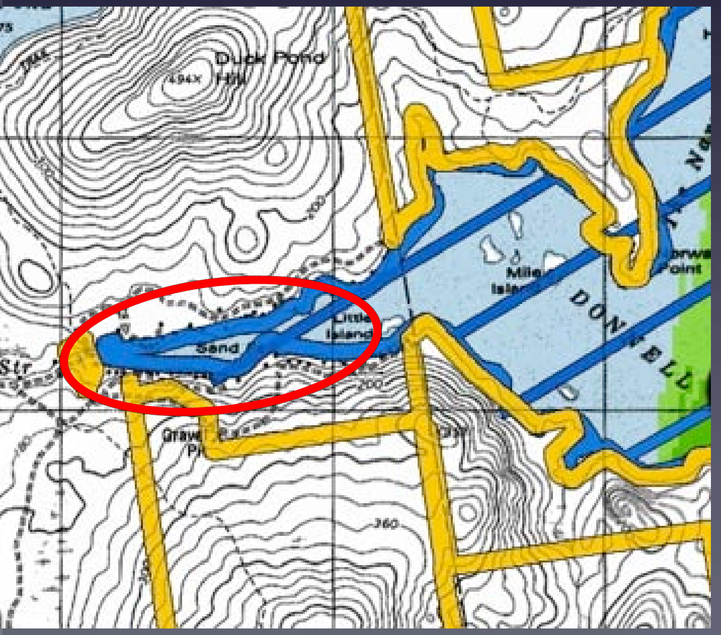
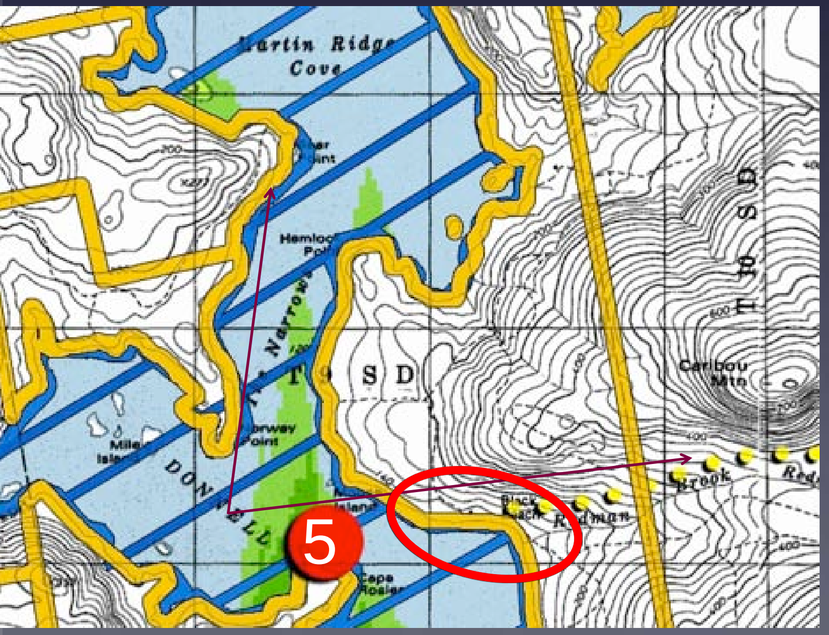


Card Mill boat launch, western end of Pond. Turbines not visible.

Development at western end of Pond; Caribou Mtn. in midground. Turbines not visib

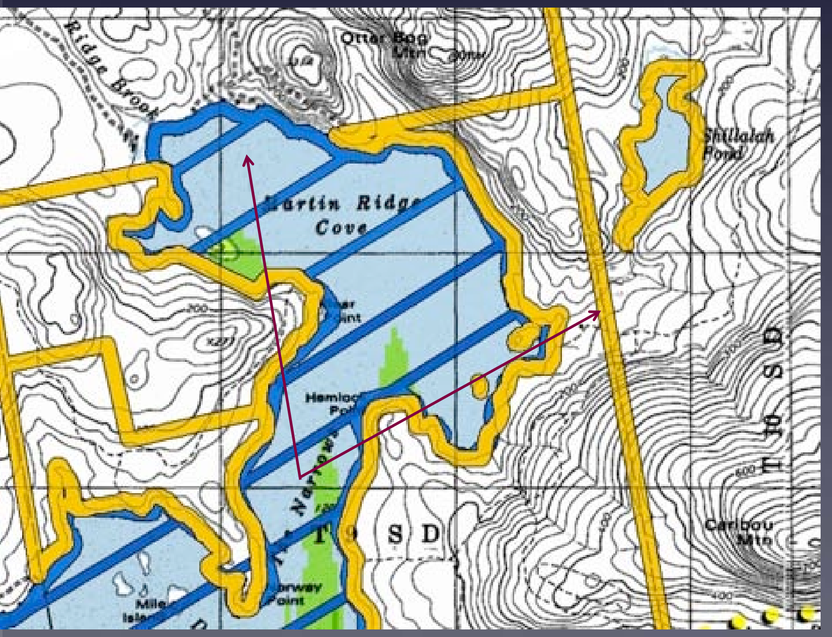
Canoeing east of Little Island. Turbines not visible.



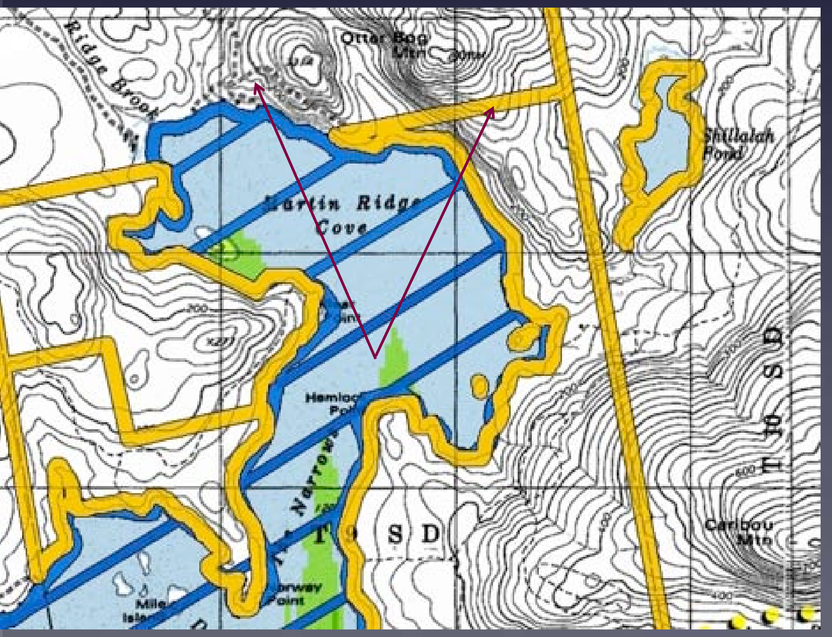
Panoramic view from middle of Pond to Tunk and Caribou Mtns. No turbines visible.

Psim 5: Looking north near Narrows. 4 turbines w/in 8 miles.

Group camping area on Redman Beach. Oriented west. Turbines not visible.



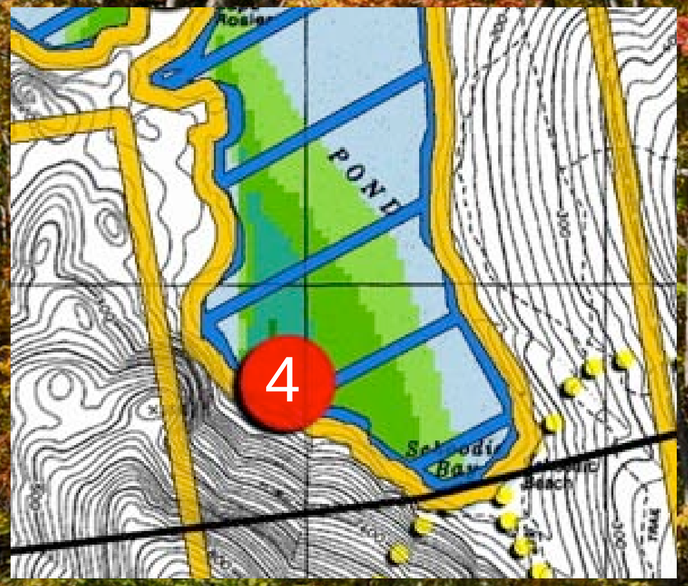
In the Narrows, heading north. 4± turbines may be visible.



Panoramic view in Martin Ridge Cove. Blades of 4± turbines may be visible to left of lower hill.

Shoreline below Otter Bog Mtn. in Martin Ridge Cove.

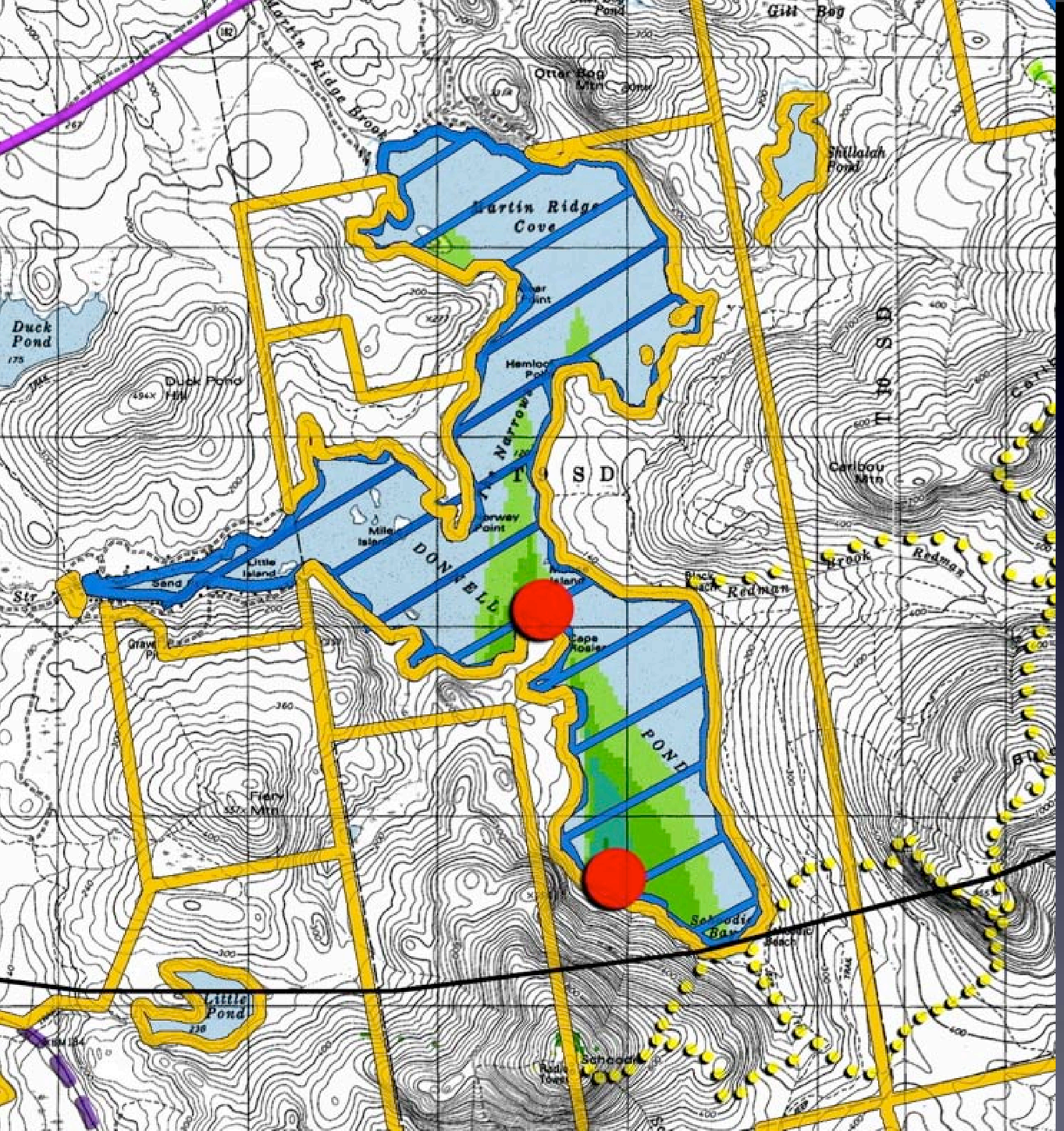
Radio tower on Martin Ridge.



Water access campside at SW shoreline; no turbines visible.

Southern end of Pond, looking north.

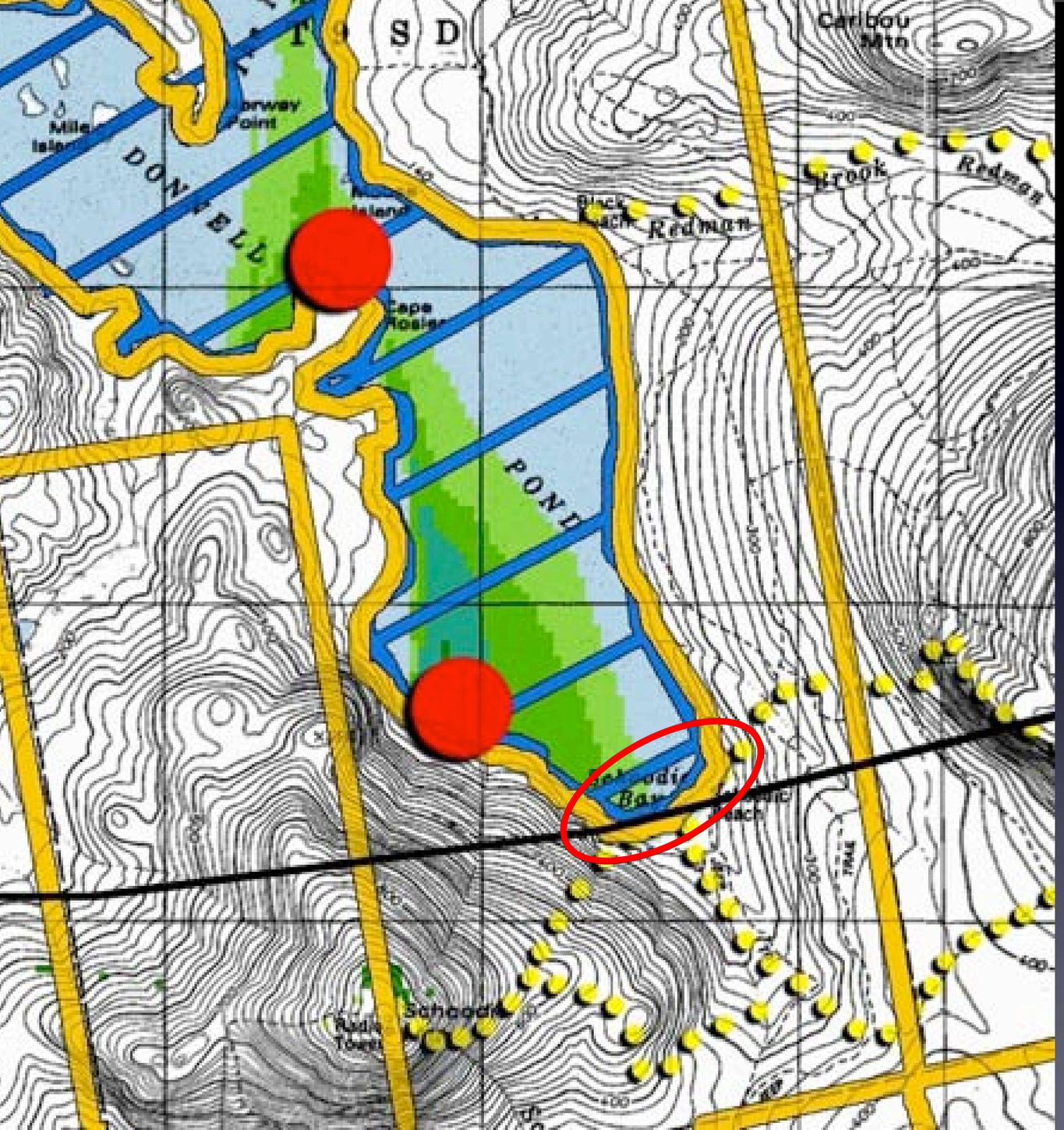
Psim 4: Southern end of Pond. 5 turbines w/in 8 miles.



Donnell Pond

OVERALL VIS. IMPACT
Low tending to <u>medium</u>

- Visible over 19% of lake
- Survey: effect on scenic value,
  minimal effect on return visits
- Turbines do not dominate
- Minimal to no impact on beaches / campsites



SCHOODIC BEACH

- One of two beaches in Donnell Pond Unit of MPRL
- Camping / picnicking on beach
- Easily accessible
- 900’ long
- 8.01 miles to nearest turbine

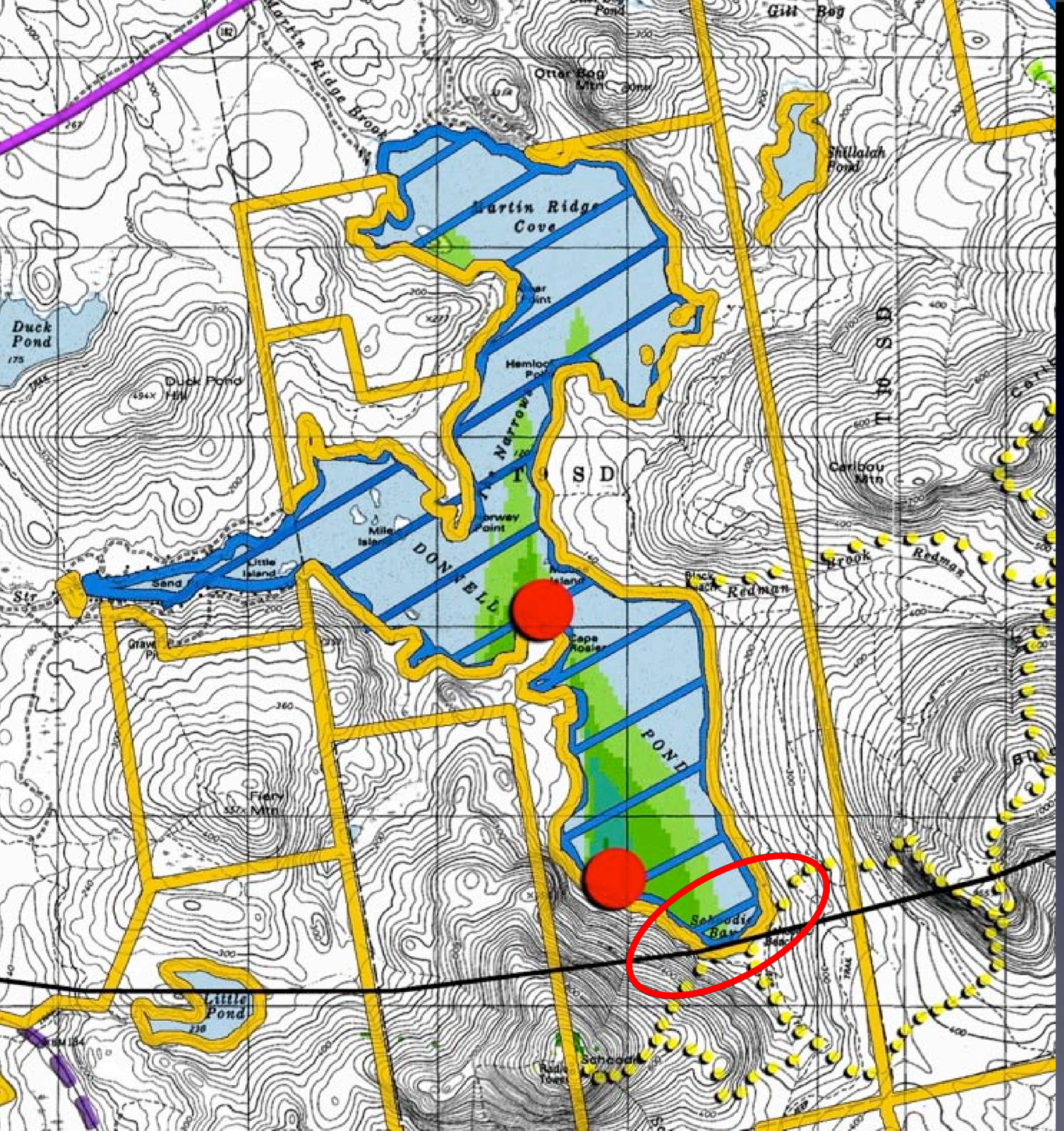
Panoramic view looking east to Black Mtn.

Panoramic view looking west to lower portion of Schoodic Mtn.

Western end of beach; tips of 1-2 turbines may be visible at end of beach.

Looking north from western end of beach.

Psim 6: Blades of 1-2 turbines may be visible at 8.01 miles. Tower on Martin Ridge

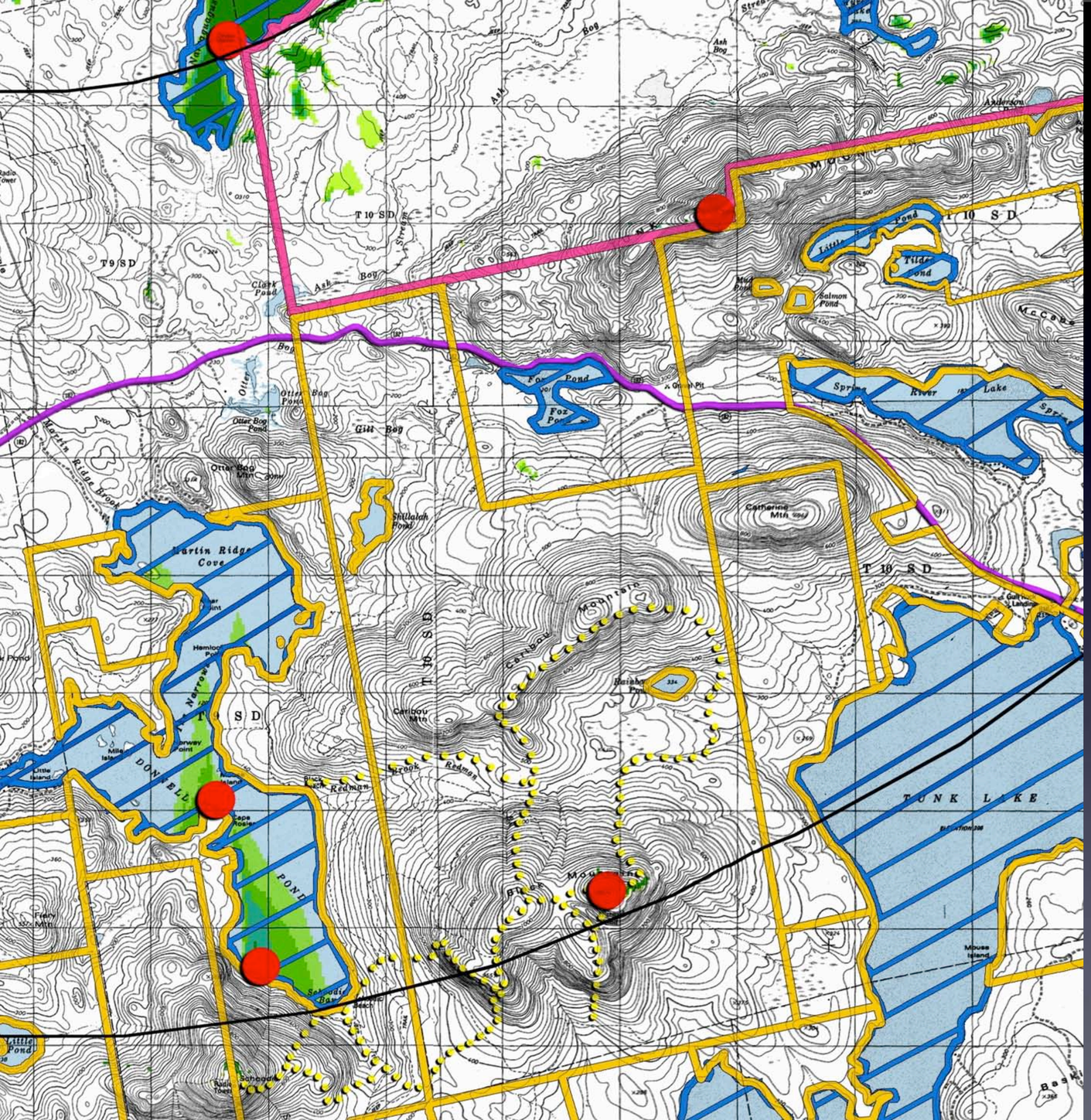


SCHOODIC BEACH

- One of two beaches in Donnell Pond Unit of MPRL
- Camping / picnicking on beach
- Easily accessible
- 900’ long

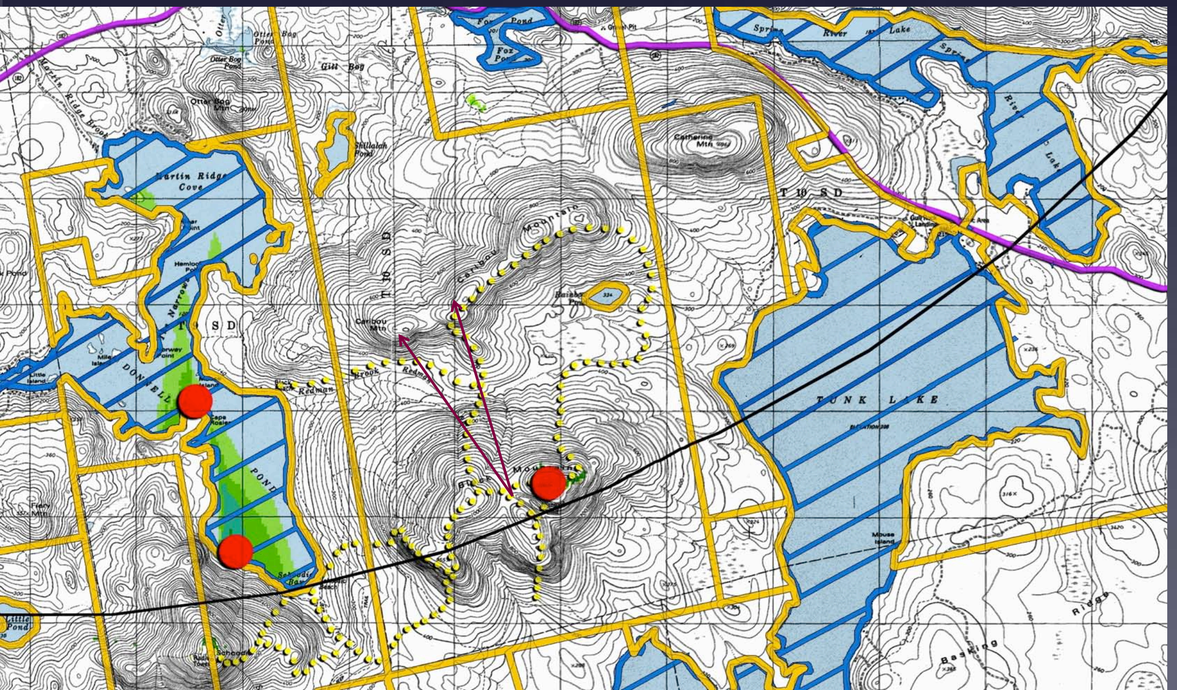
Black Mountain

- Scenic viewpoint in Donnell Pond Unit of MPRL
- Three peaks; East: 1,094’ el.
- Multiple trails to summit
- Moderate use
- 7.9 miles to nearest turbine
- 360º views from east peak

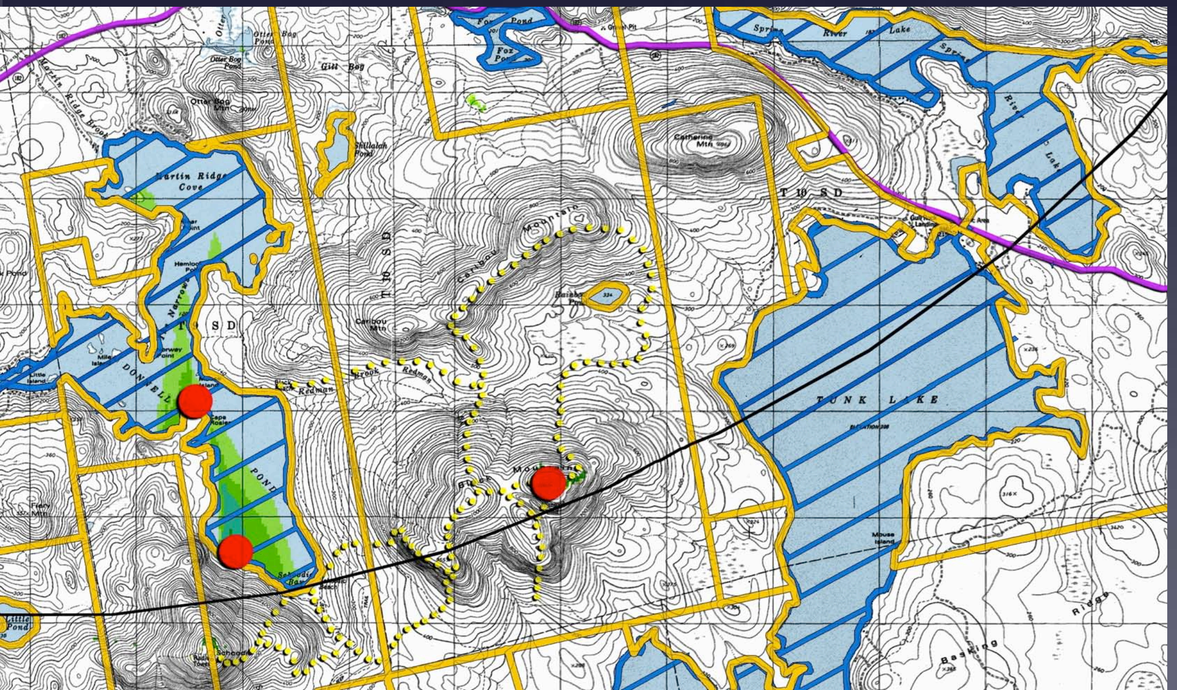


Black Mountain

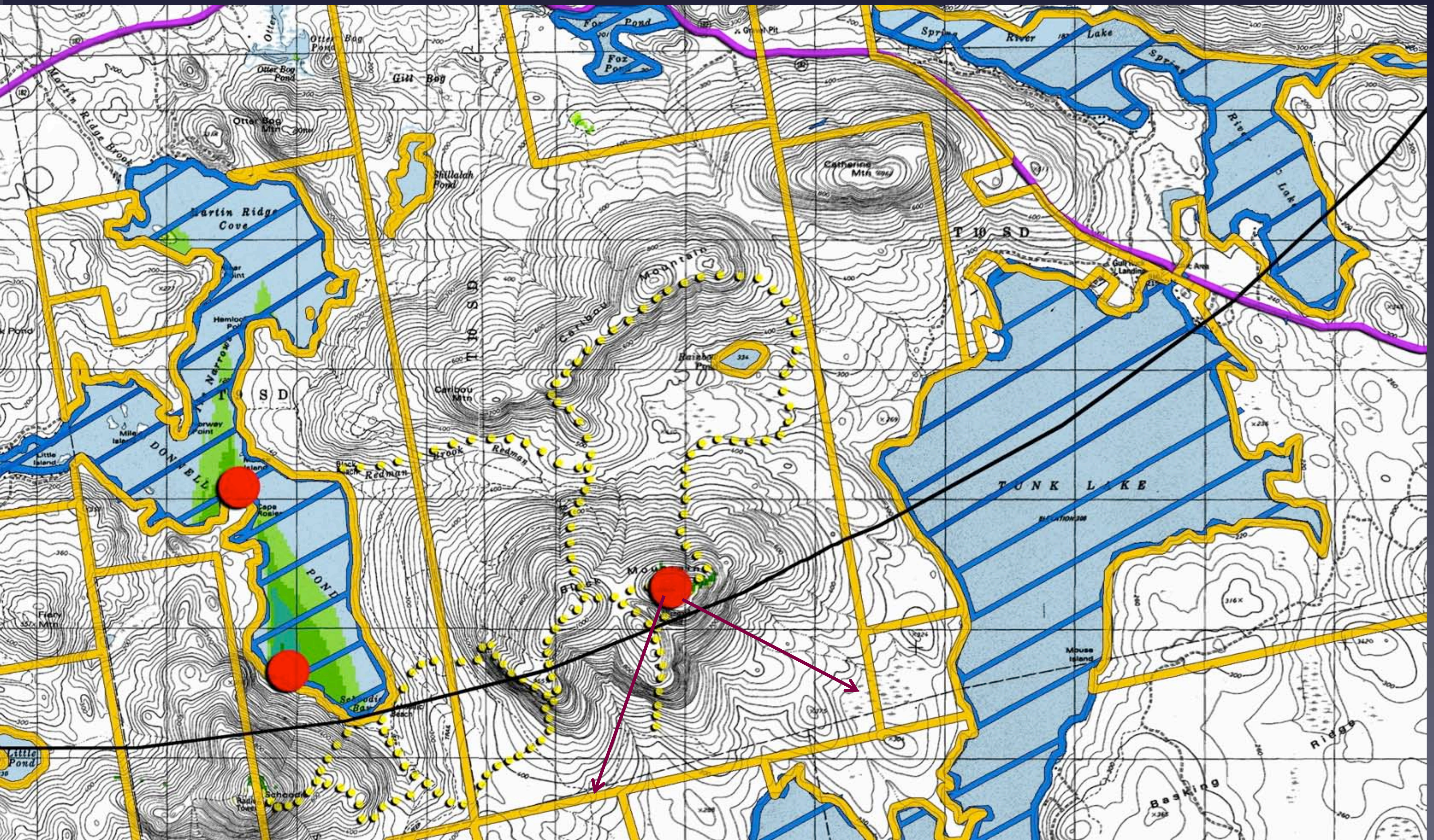
Context: surrounded by highly configured lakes, mountains, views to the ocean.



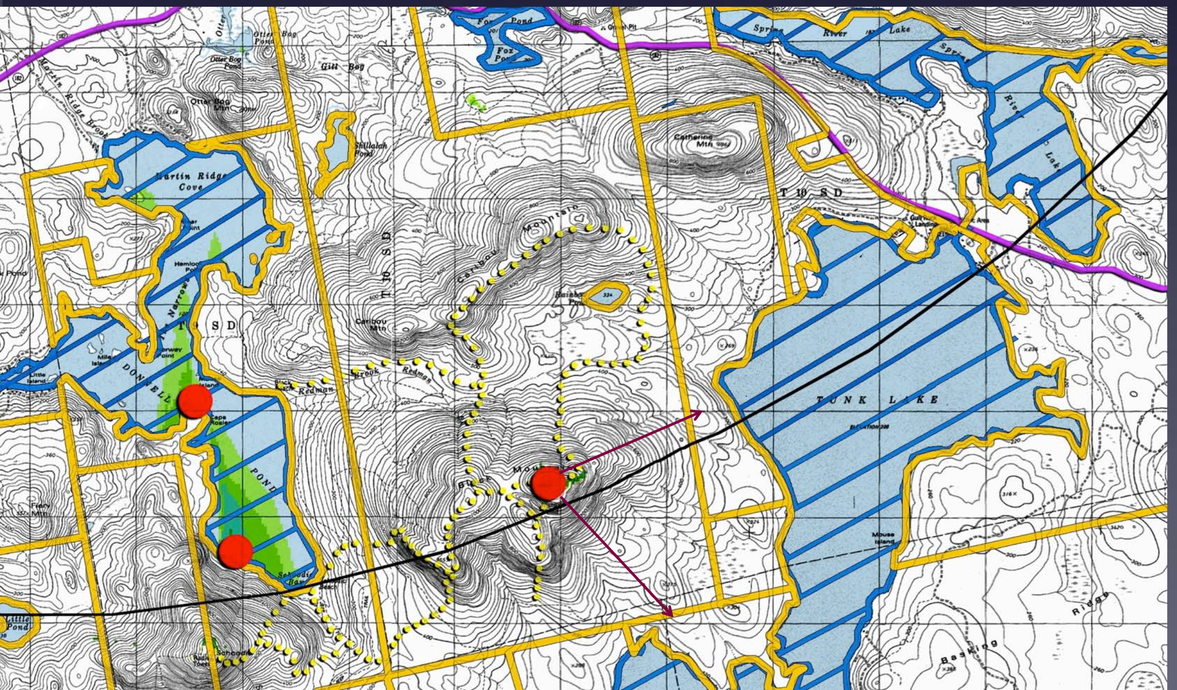
Panoramic view looking north from middle peak Black Mtn. 4 turbines w/in 8 miles may be visible on horizon above Caribou Mtn.



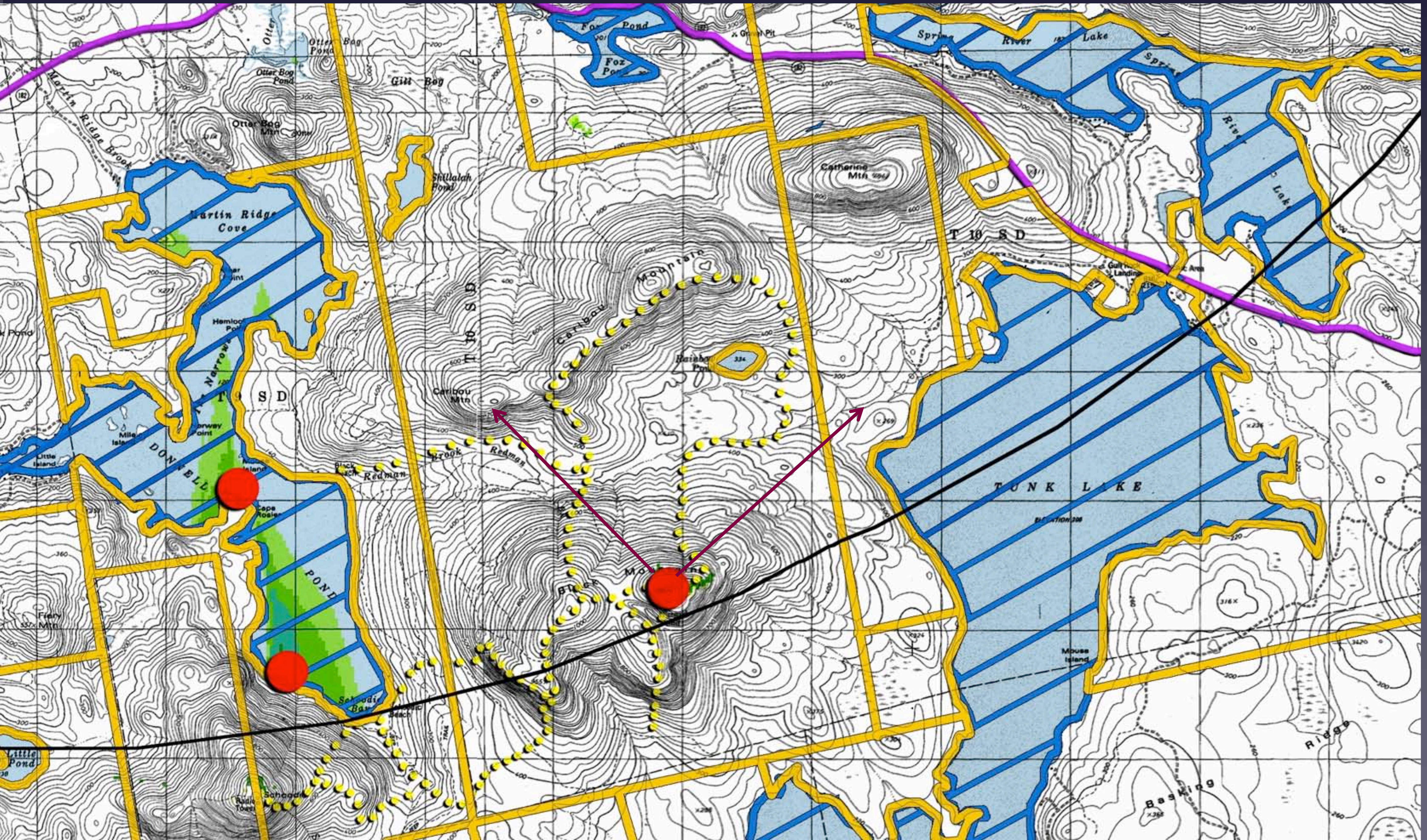
Panoramic view looking south at domed summit of east peak. Turbines not visible in this direction.



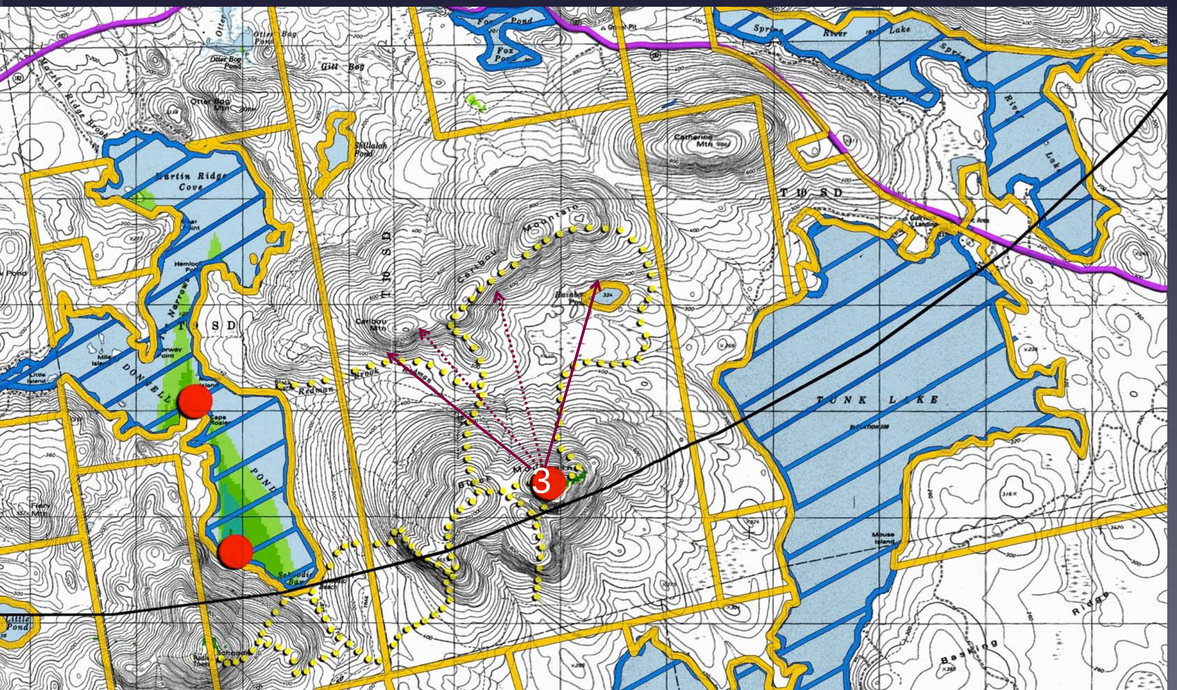
Panoramic view looking S from east peak. Tunk Lake in midground. MDI in background. Turbines not visible.



Panoramic view looking E from east peak. Tunk Lake in midground. No turbines visible.



Panoramic view looking N from east peak toward Tunk and Catherine Mountains.



Panoramic view looking N from east peak.
Caribou Mtn. in center. 5 turbines w/in 8 mi.

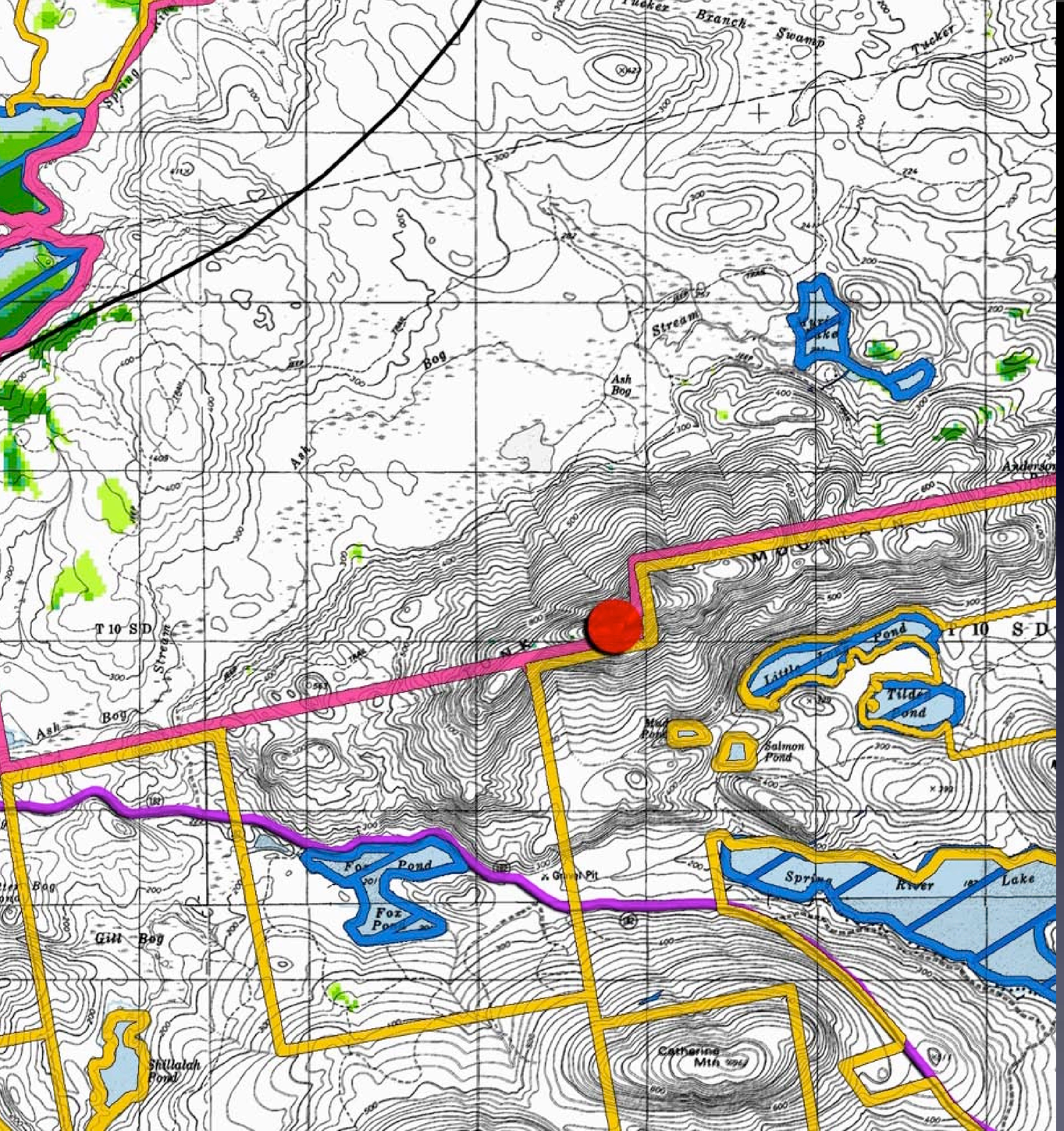
Normal view looking NNW from east peak.

Psim 3 looking NNW from east peak. Turbines seen 11º of 360º view. Nearest: 7.8 mi.

Black Mountain

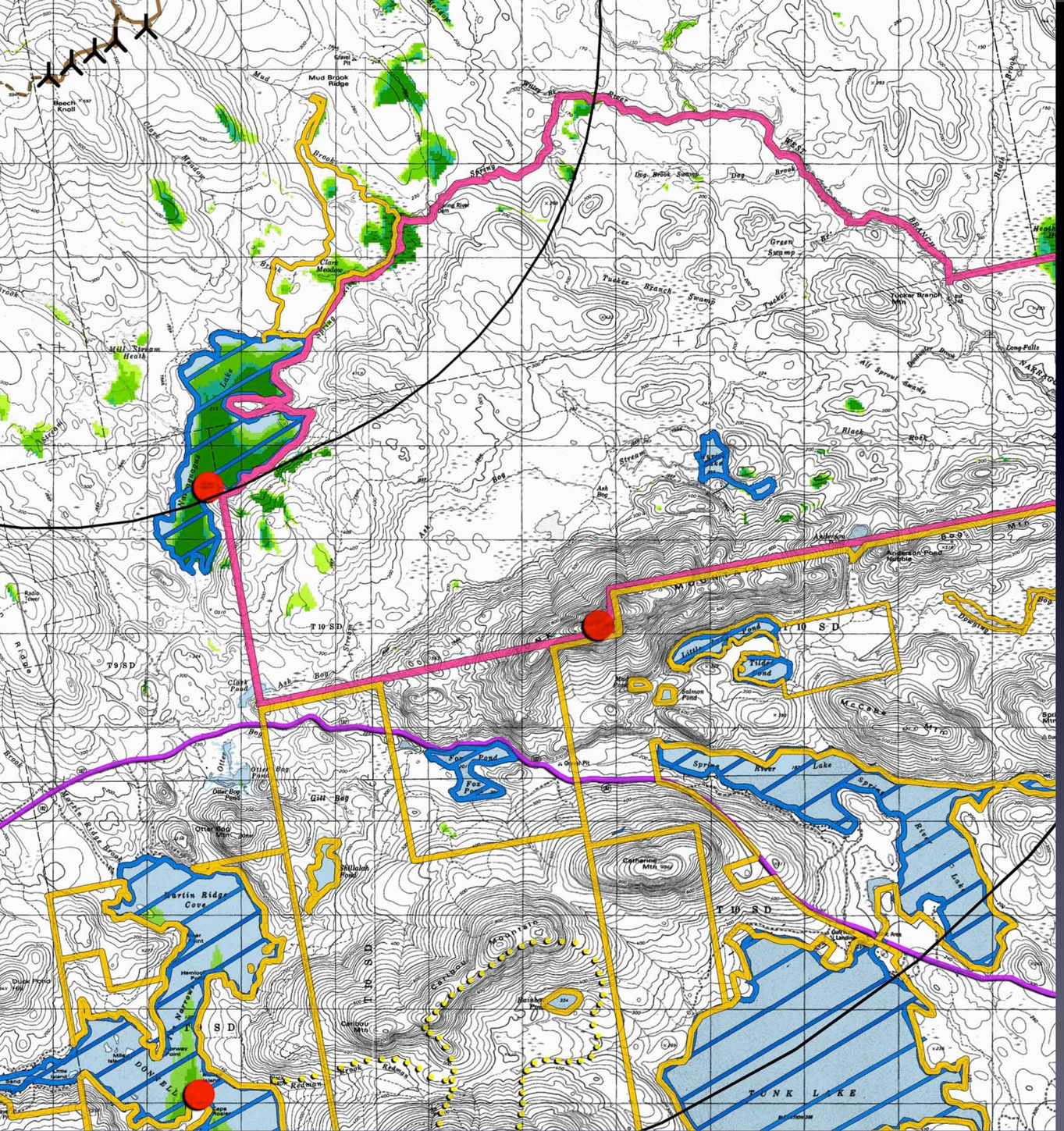
OVERALL VIS. IMPACT
Low tending to <u>medium</u>

- Turbines seen over 11º of 360º view
- No effect on more highly rated views
- No impact on trails to peak
- Survey: effect on scenic value, minimal effect on return visits



TUNK MOUNTAIN

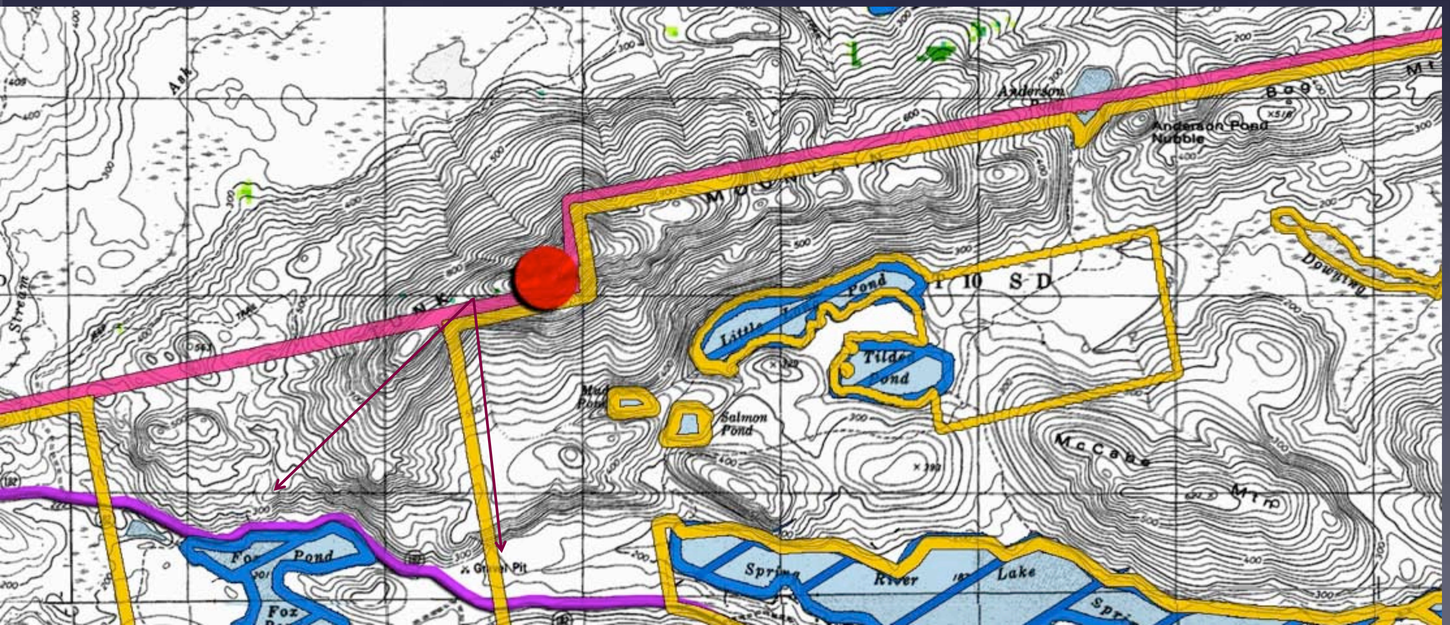
- Inventoried in *Downeast Coastal Scenic Inventory*
- 1,140’ el.
- Most of summit privately held
- Difficult access
- Main views to the south
- No 360º views
- Relatively low use
- 4.9 miles to closest turbine



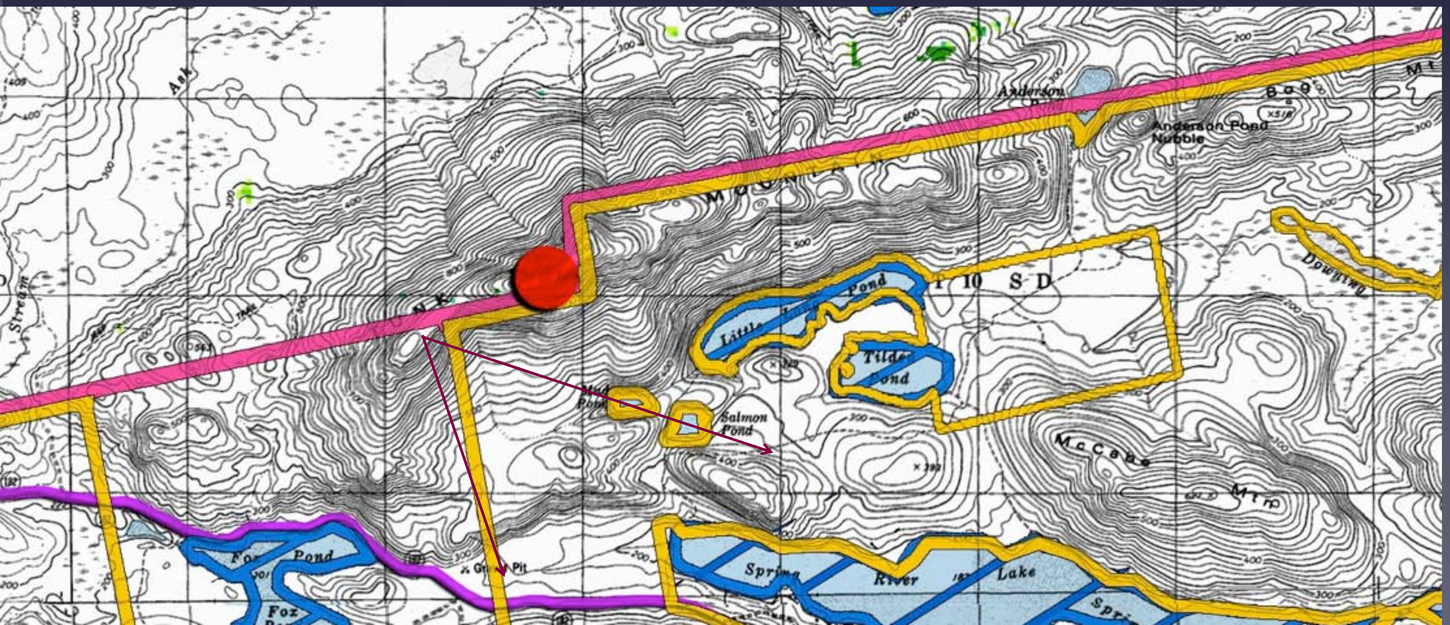
TUNK MOUNTAIN

Context: surrounded by highly configured lakes, mountains, views to the ocean.

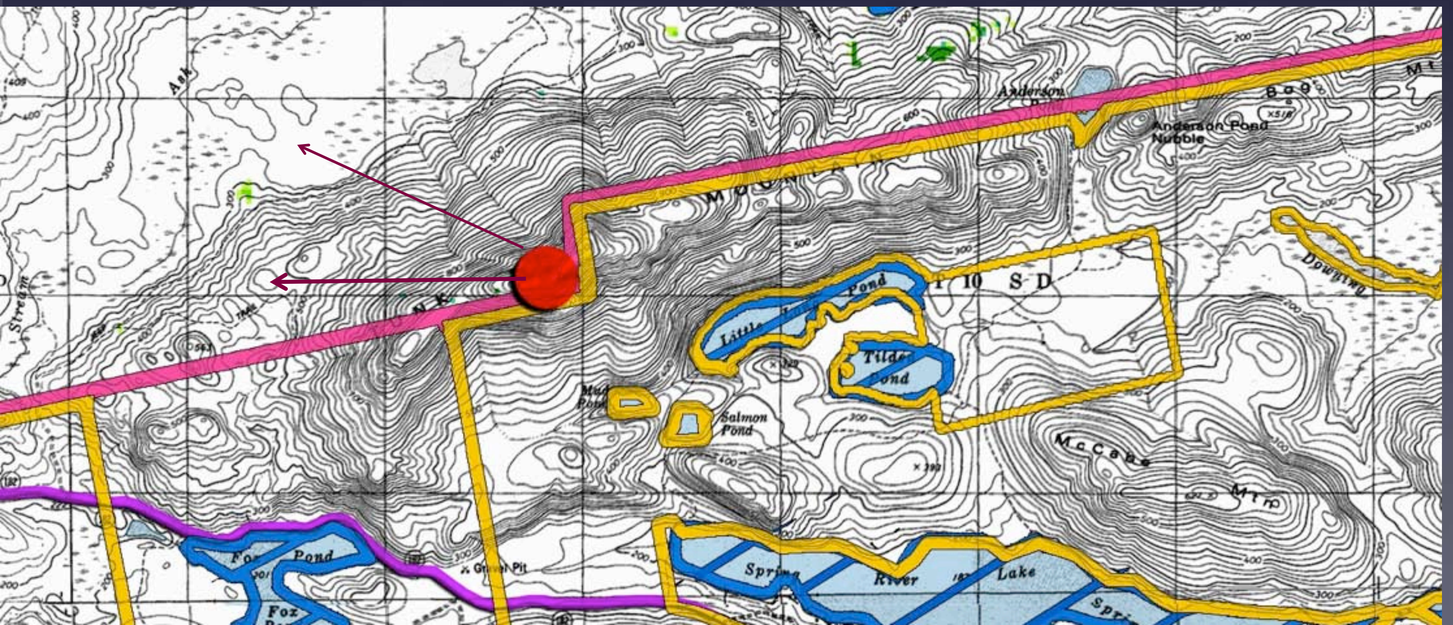
Access difficult, but being improved.



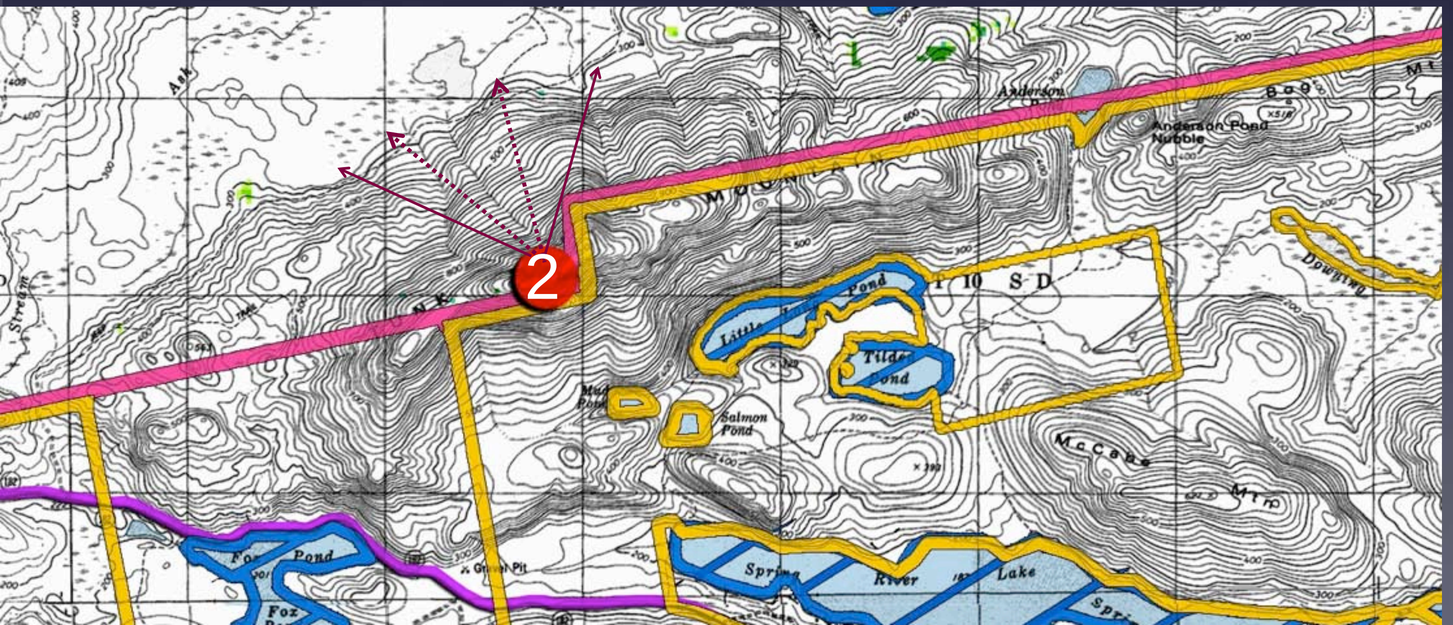
Panoramic view looking SW to Schoodic, Black, and Caribou Mts. MDI in background. No turbines visible.



Panoramic view looking SE. Spring River Lk. in midground. No turbines visible.



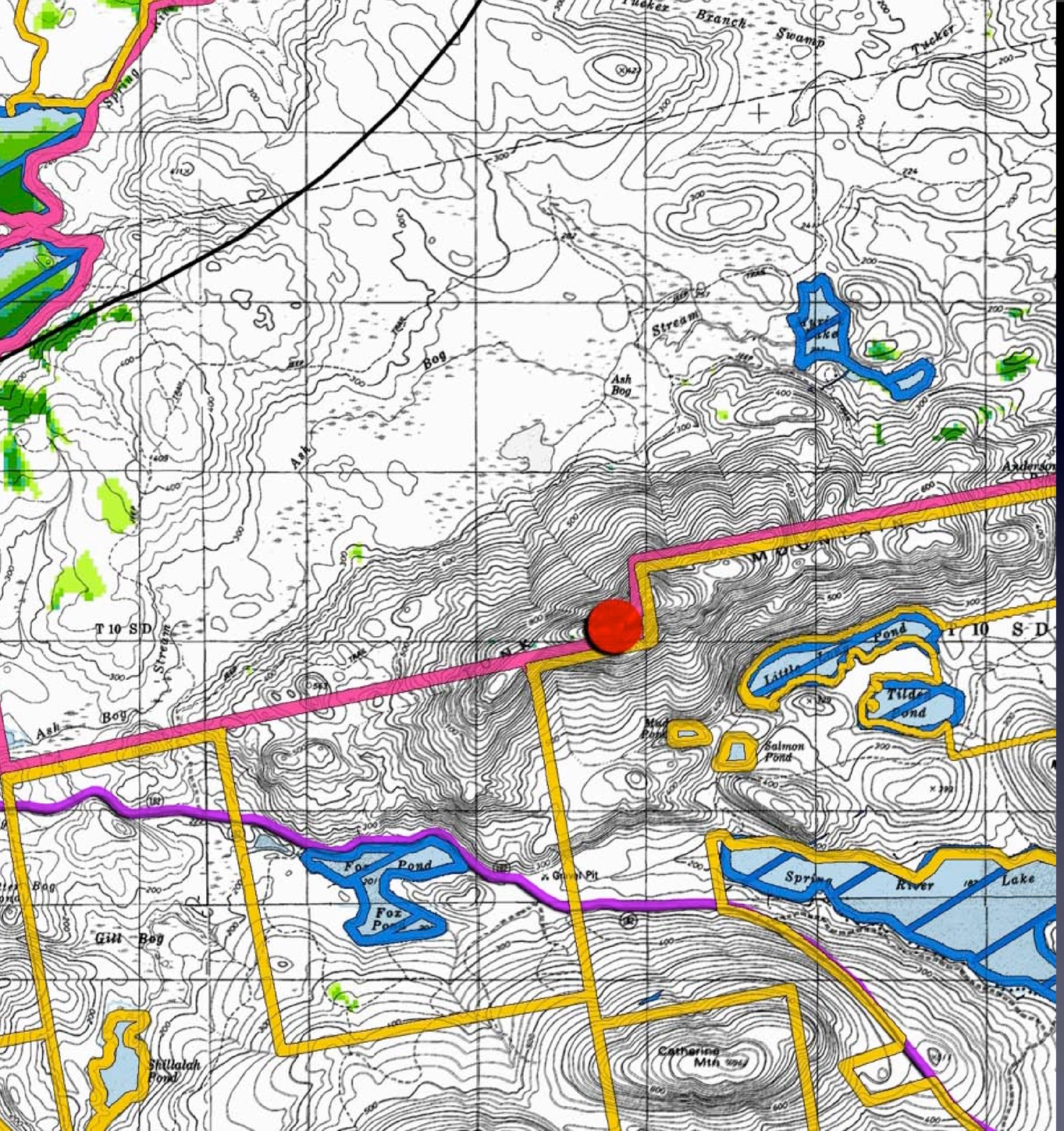
Panoramic view looking west northwest from communications antenna / building.



Panoramic view looking north. Narraguagus Lake / Molasses Pond visible.

View looking north toward Bull Hill project site. Narraguagus Lake visible.

Psim 2: 19 turbines visible. 22º out of 71º view. Turbines 4.9 - 7.2 miles.



TUNK MOUNTAIN

OVERALL VIS. IMPACT
Low tending to <u>medium</u>

- Turbines seen over 22º of 71º view
- All turbines w/in 8 miles
- No effect on more southerly views
- No impact on ridgeline trail

CONCLUSIONS

- The Bull Hill Wind Project will have low to medium overall scenic impacts on six scenic resources of state or national significance.
- Associated facilities will have limited to no impact on scenic resources of state or national significance.
- The Project will not have an unreasonable adverse impact on scenic values and existing uses of scenic resources of state or national significance.

Bull Hill

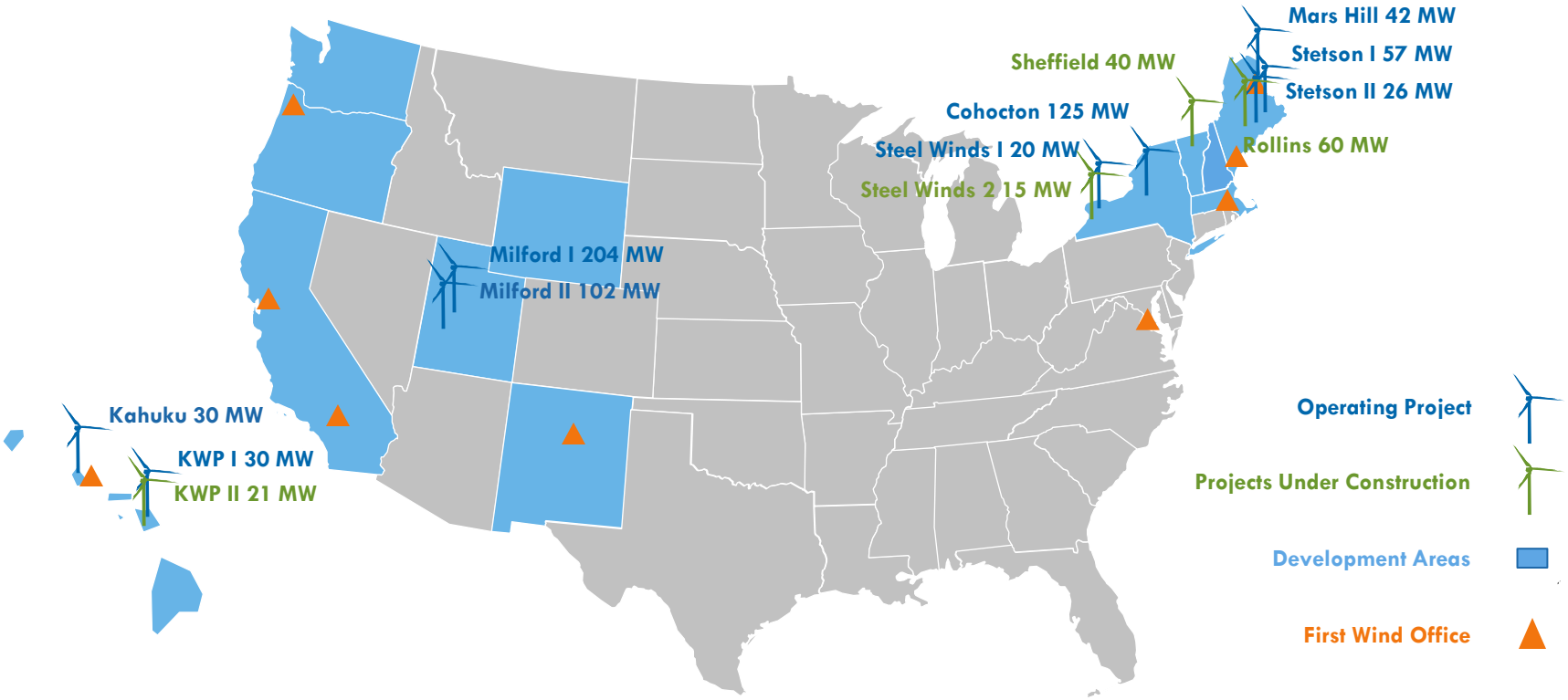
May 17, 2011

firstwind℠

CLEAN ENERGY. MADE HERE.

First Wind Overview

- Independent North American wind energy company
- Headquartered in Boston, MA
- Approximately 195 employees, 30 in Maine
- 635 MW installed capacity in commercial operation at 9 projects



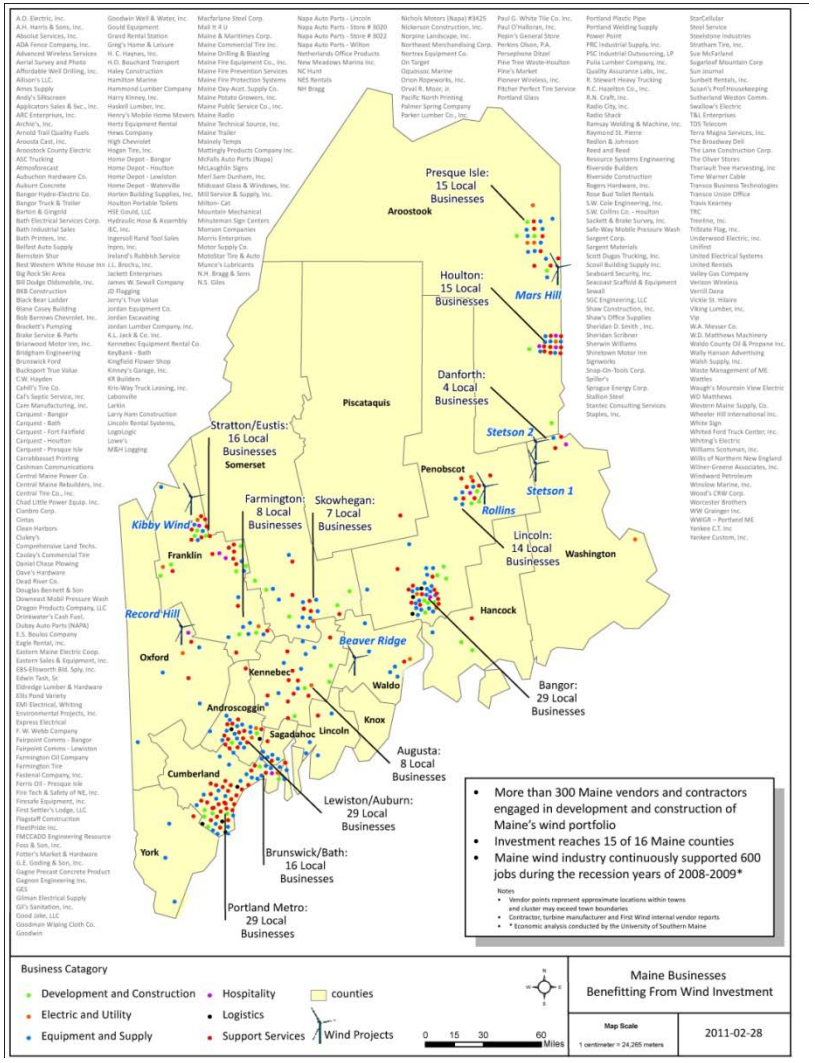
Anchored in New England, with Roots in Maine

Project	MW	Gen. (MWh)	Construction Jobs	Operations Jobs	Local Investment	Homes Powered	CO2 Avoided
Mars Hill	42	120,949	350	6	$22,000,000	20,500	50,069
Stetson I	57	155,736	300	3	$50,000,000	23,000	64,470
Stetson II	26	44,936	200	3	$23,000,000	10,000	18,602
Rollins	60	N/A	200	N/A	$29,000,000	N/A	N/A

- 185 MW successfully permitted in Maine
- Focused on lower elevation sites in working forests w/ pre-existing roads and infrastructure
- Build and operate to minimize environmental impacts
- Early and significant stakeholder and community outreach and involvement:
  - Worked with FSM to establish Stetson Mountain Fund
  - TIF grants for conservation
  - Strategic allocation of $4000/turbine community benefit

Stetson Ride-In

Maine Business Benefitting From Wind Development

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