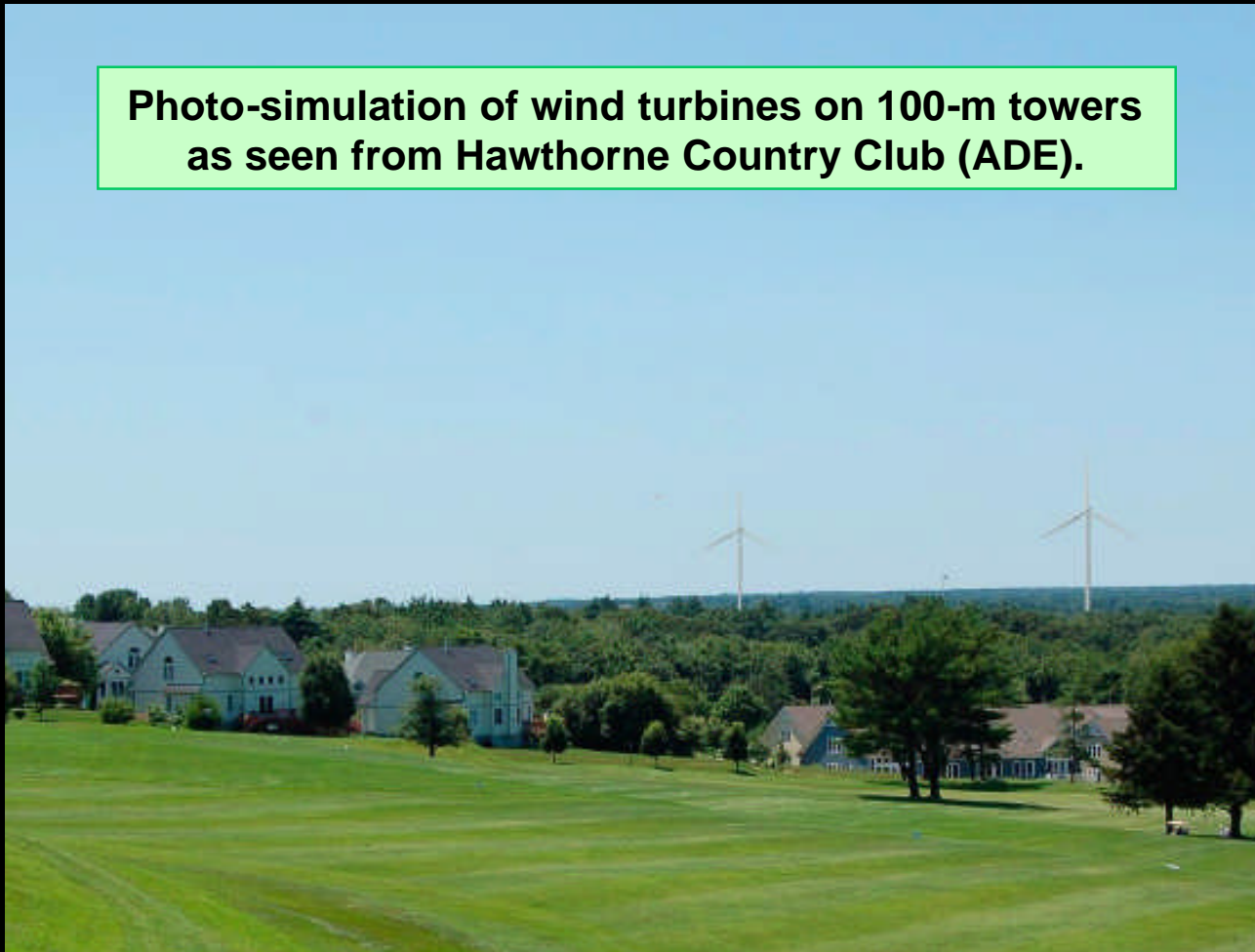


# Members

Ron DiPippo, Chairman; Ed Iacaponi, Ex-Officio

Nathalie Dias, Kevern Joyce, Arthur Larrivee, Paul Lopes, Ray Medeiros,  
Roger Race, Saul Raposo & Joseph Sousa

**Photo-simulation of wind turbines on 100-m towers  
as seen from Hawthorne Country Club (ADE).**



**1. MINUTES**  
**ALTERNATIVE ENERGY COMMITTEE**  
**MEETING OF AUGUST 26, 2009**

Committee members present: Ron DiPippo (Chair), Ed Iacaponi, Nathalie Dias, Raymond Medeiros, Arthur Larrivee, Kevern Joyce, Roger Race.

Committee members absent: Paul Lopes, Saul Raposo, Joseph Sousa.

Others: Robert Barboza, Ken & Joan Castino, Roseanne O'Connell, Margo Moore, Lara Stone, David Hickox, Jim Thomas, Philip Lenz, David & Kendra Costa, Felicia Dupras, Patrick Urbanek, Jeanne Nesto and Bridget Earle.

Chairman DiPippo called the meeting to order at 7:00 P.M. on Wednesday August 26, 2009.

**1. Approval of Minutes.**

*A motion was made and seconded; it was voted unanimously to accept and approve the Alternative Energy Meeting Minutes of July 29, 2009.*

**2. Announcements**

The Chairman announced that an application has been made to the IRS for authorization to issue \$2 million of Clean Renewable Energy Bonds (CREBs) to partially finance the proposed wind turbine project.

Roger Race will be the Acting Chairman while Chairman DiPippo is out of the country during much of September.

**3. Presentation and Discussion of Feasibility Study by Atlantic Design Engineers.**

Chairman DiPippo presented a Powerpoint presentation that gave the findings and results of studies on: (1) FAA-MAC applications, (2) noise, (3) preliminary site plans, (4) shadow-flicker and (5) financial-economic factors. The entire presentation may be seen on the AEC web page at

<http://www.town.dartmouth.ma.us/altenergy.htm>

The FAA has approved the south turbine, the north turbine is still under review, and approval has been received from MAC for both turbines.

The noise study included the measurement of ambient noise at three receptors on the west side of the DPW property, close to nearest neighbors. The background noise was correlated with wind speed data taken contemporaneously at the UMass Dartmouth MET location. The noise generated by the wind turbines was calculated and compared to the background noise to be sure that the turbine operation did not exceed the limit of 10 dBA over ambient at the property line. The conclusion was that the added noise amounted to 1.1 dBA, at most, for all wind speeds between cut-in (3-3.5 m/s) and rated speed (12 m/s). In most cases, the added noise was a fraction of 1 dBA, the limit of human detectability. Thus the turbines are in conformity with the Bylaw, regardless of which tower height is adopted.

ADE has completed the preliminary site plans including detailed layouts for the north and south turbine areas, as well as elevation views of the turbines. Technical specifications for a typical 1.65 MW turbine (AAER-A-1650) have been obtained and will be used in the Special Permit application even though AAER may not win the bid. Other suppliers are available but the machines have generally similar specifications.

Shadow-flicker study is complete and was reported in some detail at the July 29 meeting. The results were summarized and interpreted here. The 100-m towers expose more locations to potential S-F, but many of these sites may have obstructions such as trees, bushes, or other buildings. Detailed studies can be conducted for those places that seem to have higher exposures. ADE determined the precise times of the day and year when many residences would be exposed for S-F. The times are just after sunrise and just before sunset. A given residence in the S-F zone will potentially experience S-F either in the early morning or in the early evening, but not both. As it happens, these two periods of the day correspond to the historical, measured calmest times during the day, particularly in the summer, based on the 14-month MET tower measurements. Given that S-F can only occur if the sun is shining – unobscured by clouds, fog or heavy mist – and when the turbine is turning – wind speed greater than ~3.5 m/s – and when someone is in the home and awake to observe it – and in view of the timing of the potential S-F, it appears quite likely that the “realistic” S-F effects predicted by the ADE computer model are actually pessimistic and that the actual S-F exposure will likely be even less.

The presentation was paused to allow questions and comments from the AEC members, and later from the residents in attendance. Numerous points of clarification were raised and answered. Several people questioned the noise study, seeking longer term measurements for ambient or ambient measurements during the winter when the questioner thought the ambient sound would be lower. While this might be a valid criticism if the results had been close to the limit of 10 dBA above ambient, since the actual increase is less than 1.1 dBA, the ambient noise in winter would need to drop by 9 dBA compared to what was measured in this run. The measured ambient was between 31.9-37.7 dBA, considered as quiet as a “quiet library”. It is highly unlikely that the winter ambient would be lower than 22.9-28.7 dBA which would be required for the turbines to exceed the ambient. An additional factor is that in winter most people keep their windows closed. It was suggested that ADE be asked to quote the cost to conduct a similar ambient noise measurement during the winter.

One or two residents raised the matter of impact on property values by the installation of the turbines. This cannot be answered now, as was explained by AEC member Mr. Larrivee, a real estate appraiser; real estate values can only be determined after a sale has occurred. If it can be documented that someone’s property has become devalued because of the turbines, they can make an appeal for relief on the property taxes. Much time was spent explaining the financial-economic aspects of the project. ADE conducted yet another evaluation (in addition to the one they presented in their prefeasibility report). This goes along with the ones conducted by Dr. Friedman and Dr. Kurtz. All reached the same general conclusion, namely, that the project has excellent returns for the town. The new ADE study quotes new purchase prices, namely, \$8,406,860 for the 80-m turbines and \$9,249,000 for the 100-m turbines, both lower than their initial estimates. The 100-m turbines show a \$1.6 million greater net present value compared to the 80-m turbines; this is about 12% higher NPV. All the studies used somewhat different figures for the many parameters, but the results favor the 100-m case.

#### **4. Consideration of pros/cons for the 80-m vs. 100-m tower cases.**

During the discussion, the AEC members expressed themselves regarding which tower height should be favored. Various factors were weighed. The membership generally agreed that the 100-m case had the more favorable financial-economic outcome. They also liked going higher because of the lesser risk of missing the expected wind speed there as opposed to missing it at the 80-m height. "You cannot build them too tall" was a lesson learned from other wind turbine projects built in New England, and in particular in the SouthCoast.

The members generally viewed the environmental impacts of the two cases as about the same, especially in light of the mitigating factors for shadow-flicker. The visual impact will be viewed differently through the eyes of different beholders. While the tower will be 20 m (66 ft) taller for the 100-m case, the blades will be the same length (40 m or 131 ft). The noise issue was not considered a discriminant since the added impact is so small anyway. One by one, each AEC member explained the reasons why they preferred one cases over the other, and in the end, the AEC came to a unanimous decision.

*A motion was made and seconded; it was voted unanimously to recommend the project use turbines mounted on 100-m towers.*

#### **5. New business**

It was agreed that the application for a Special Permit be completed as soon as possible for presentation to the Technical Research Group (TRG). A meeting of the TRG to consider the application for the Special Permit has been scheduled for Tuesday, September 8 at 5:30 PM. The Chairman indicated that the application for a Special Permit is nearly done. He will complete it this week and forward it to the TRG members before the meeting.

Interim Executive Administrator Iacaponi stated that he wanted to have the Select Board hear the application before September 14, and that all materials should be ready to go to Town Meeting on October 20.

Finally, it is important that an application be filed as expeditiously as possible with NSTAR for an interconnection to their distribution line. With the recent order from the DPU clarifying the rules on net metering, there should be a rush to install wind turbines and we need to get our place in the queue.

**6. Adjournment**

*After a motion was made and seconded, it was voted to adjourn the Alternative Energy Committee meeting.* With no further business to discuss, the Chairman declared the regular meeting adjourned at 8:49 P.M.

Attest:



Ronald DiPippo, Chairman

## 2.ANNOUNCEMENTS

- No word yet on our CREB application that was submitted on August 4, 2009.
- Next meeting of the AEC: TBD.

## **3.REVIEW OFTRG ANDSELECT BOARDMEETINGS**

- On September 8, 2009, TRG voted unanimously to recommend that the SPGA (Select Board) approve the Special Permit application submitted by the AEC on behalf of the town.
- On September 28, 2009, Select Board postponed a decision on the SP application at the request of the AEC, pending new site plans for both the north and south turbines.



# **4. CONSIDERATION OF THE NEW SITE PLAN FOR 100 -m TOWERS**

**New plans were received from ADE today.**

**New placements were necessitated by new wetlands that were discovered in the vicinity of both turbines.**

**The north turbine has been re-located about 150 feet to the east.**

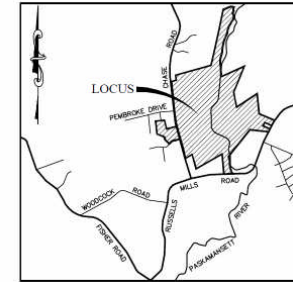
**The south turbine has been re-located about 600 feet to the northwest.**

# ORIGINAL LOCATIONS – SEPTEMBER 2, 2009

## PRELIMINARY SITE PLANS FOR THE DARTMOUTH DPW WIND PROJECT

DARTMOUTH, MASSACHUSETTS  
SEPTEMBER 2, 2009

INDEX OF PLANS		
SHEET NO.	TITLE	SCALE
1	COVER SHEET	1" = 300'
2	SITE VICINITY PLAN	1" = 60'
3	SITE VICINITY PLAN	1" = 60'
4	ELEVATION AND DETAIL PLAN	AS NOTED



LOCUS MAP

1" = 2,000'±

ZONING REQUIREMENTS	
SINGLE RESIDENCE B DISTRICTS (SR-B)	
TOWN OF DARTMOUTH	
ZONING BYLAW, OCTOBER 17, 2008	
MINIMUM LOT SIZE	80,000 SF
MINIMUM LOT FRONTAGE	200 FEET
MINIMUM YARDS:	
FRONT YARD	60 FEET
SIDE YARD	20 FEET
REAR YARD	20 FEET
MAXIMUM BUILDING HEIGHT	35 FEET
LAND-BASED COMMERCIAL WIND TURBINE	
BYLAW (SECTION 34)	
MAXIMUM HUB HEIGHT	100 METERS
PROPERTY LINE SETBACK	2x HUB HEIGHT
SETBACK TO STRUCTURES	CLEAR ZONE

**OWNER:**

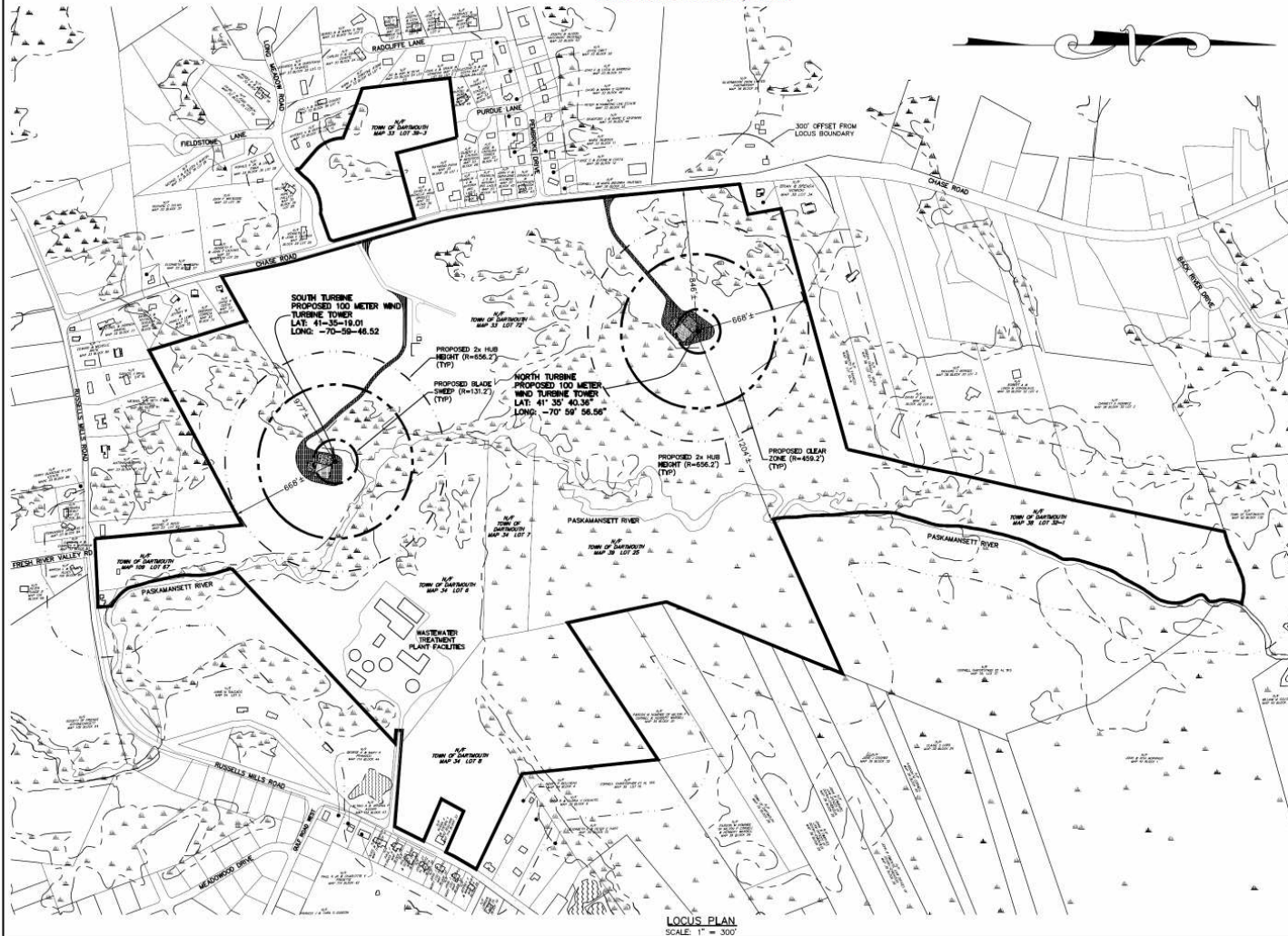
TOWN OF DARTMOUTH  
400 SLOCUM ROAD  
DARTMOUTH, MA 02748

**APPLICANT:**

TOWN OF DARTMOUTH  
400 SLOCUM ROAD  
DARTMOUTH, MA 02748

**ENGINEER:**

**Atlantic** DESIGN ENGINEERS, L.L.C.  
P.O. Box 1051, Sandwich, MA 02563 (508) 888 - 9282



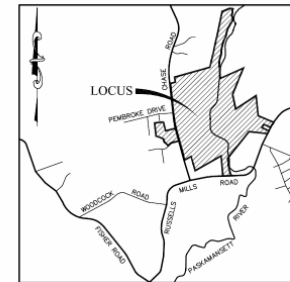
LOCUS PLAN  
SCALE: 1" = 300'

# NEW LOCATIONS – SEPTEMBER 29, 2009

## PRELIMINARY SITE PLANS FOR THE DARTMOUTH DPW WIND PROJECT

DARTMOUTH, MASSACHUSETTS  
SEPTEMBER 29, 2009

INDEX OF PLANS		
SHEET NO.	TITLE	SCALE
1	COVER SHEET	1" = 300'
2	SITE VICINITY PLAN	1" = 60'
3	SITE VICINITY PLAN	1" = 60'
4	ELEVATION AND DETAIL PLAN	AS NOTED



LOCUS MAP  
1" = 2,000'

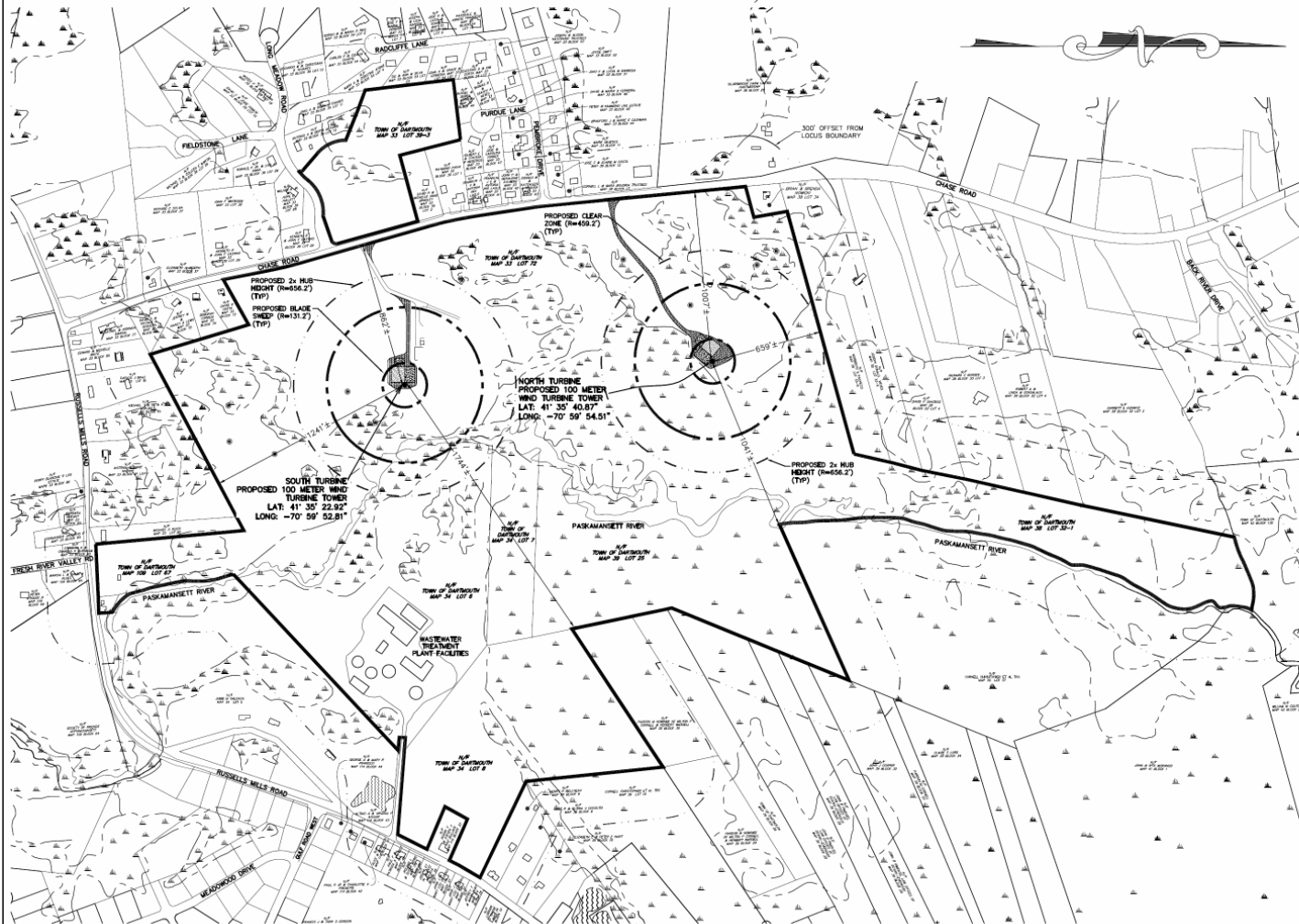
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TOWN OF DARTMOUTH ZONING BYLAWS, OCTOBER 17, 2006	
MINIMUM LOT SIZE	80,000 SF
MINIMUM LOT FRONTAGE	200 FEET
MINIMUM YARDS:	
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SIDE YARD	20 FEET
REAR YARD	20 FEET
MAXIMUM BUILDING HEIGHT	35 FEET
LAND-BASED COMMERCIAL WIND TURBINE BYLAW (SECTION 34)	
MAXIMUM HUB HEIGHT	100 METERS
PROPERTY LINE SETBACK	2x HUB HEIGHT
SETBACK TO STRUCTURES	CLEAR ZONE

**OWNER:**  
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DARTMOUTH, MA 02748

**APPLICANT:**  
TOWN OF DARTMOUTH  
400 SLOCUM ROAD  
DARTMOUTH, MA 02748

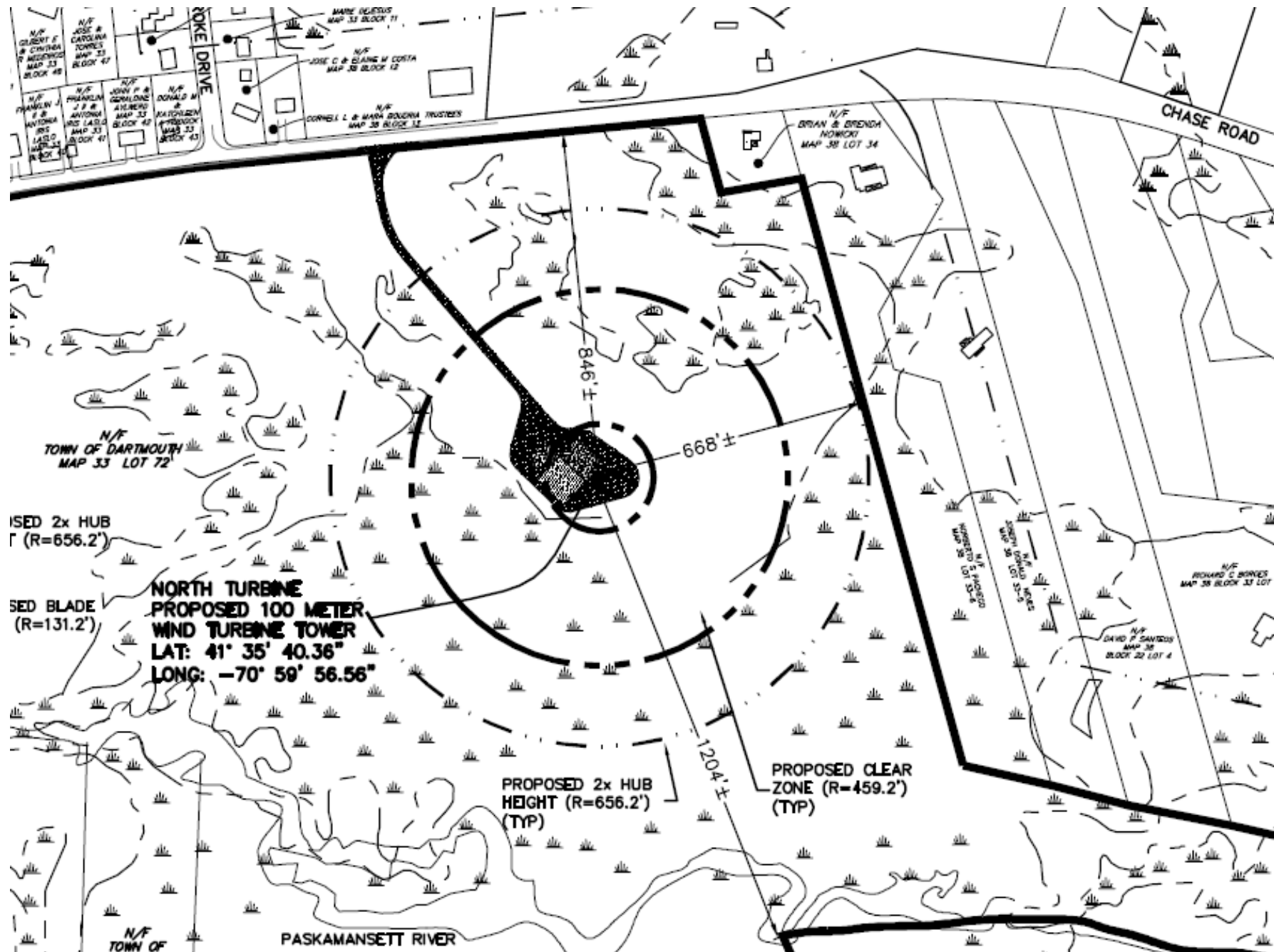
**ENGINEER:**

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P.O. Box 1051, Sandwich, MA 02563 (508) 888 - 9282

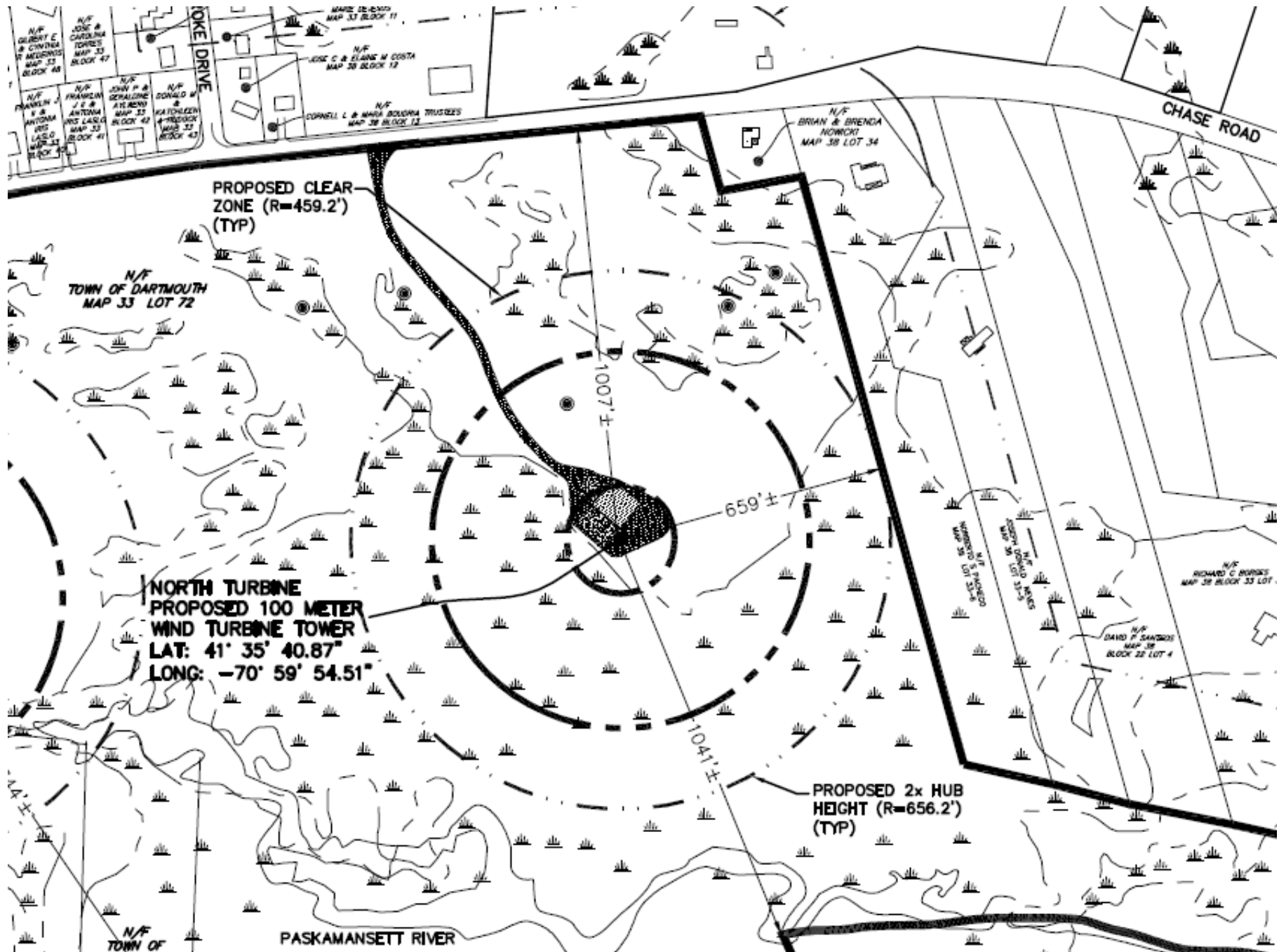


LOCUS PLAN  
SCALE: 1" = 300'

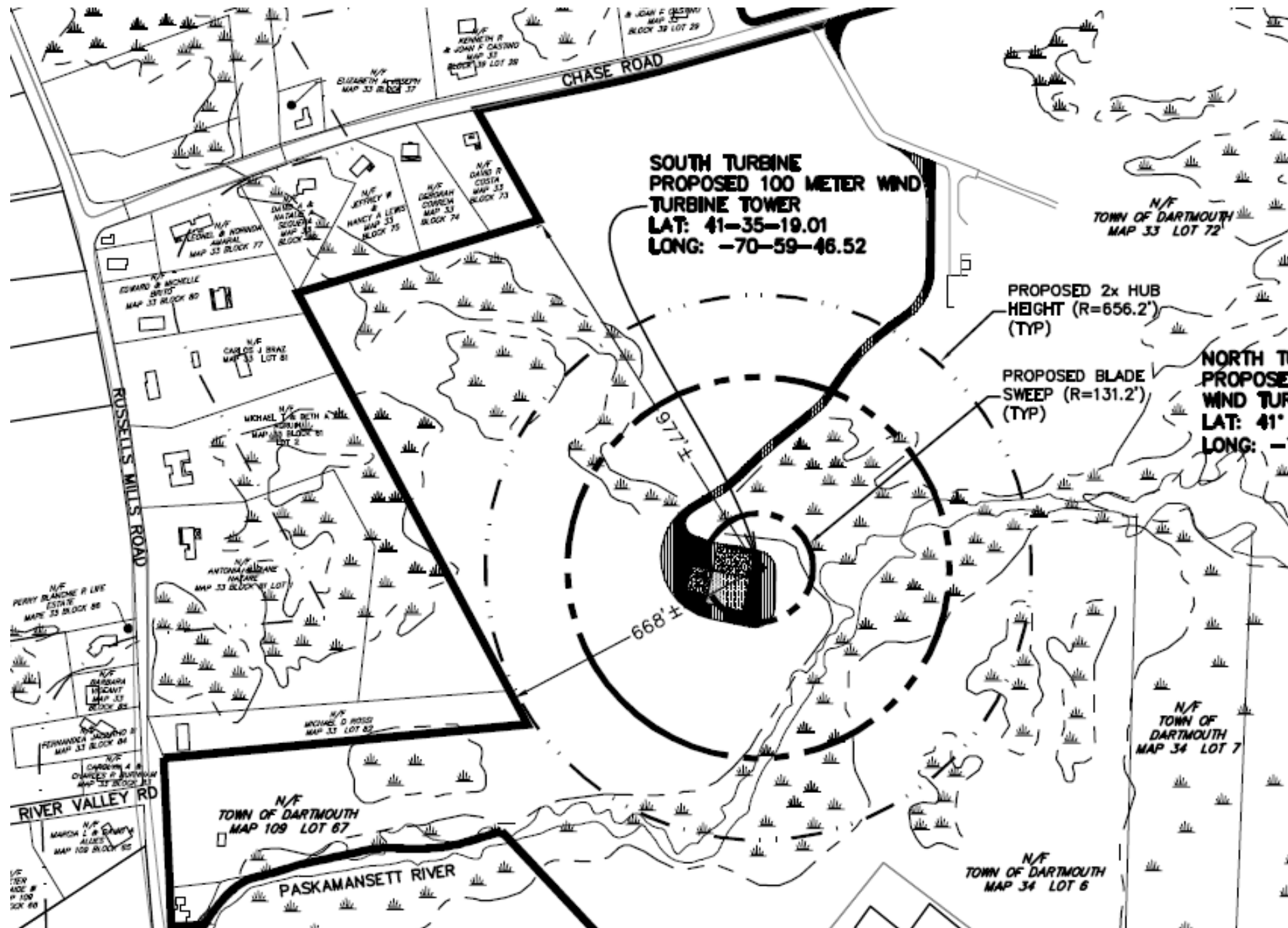
# ORIGINAL NORTH TURBINE SITE



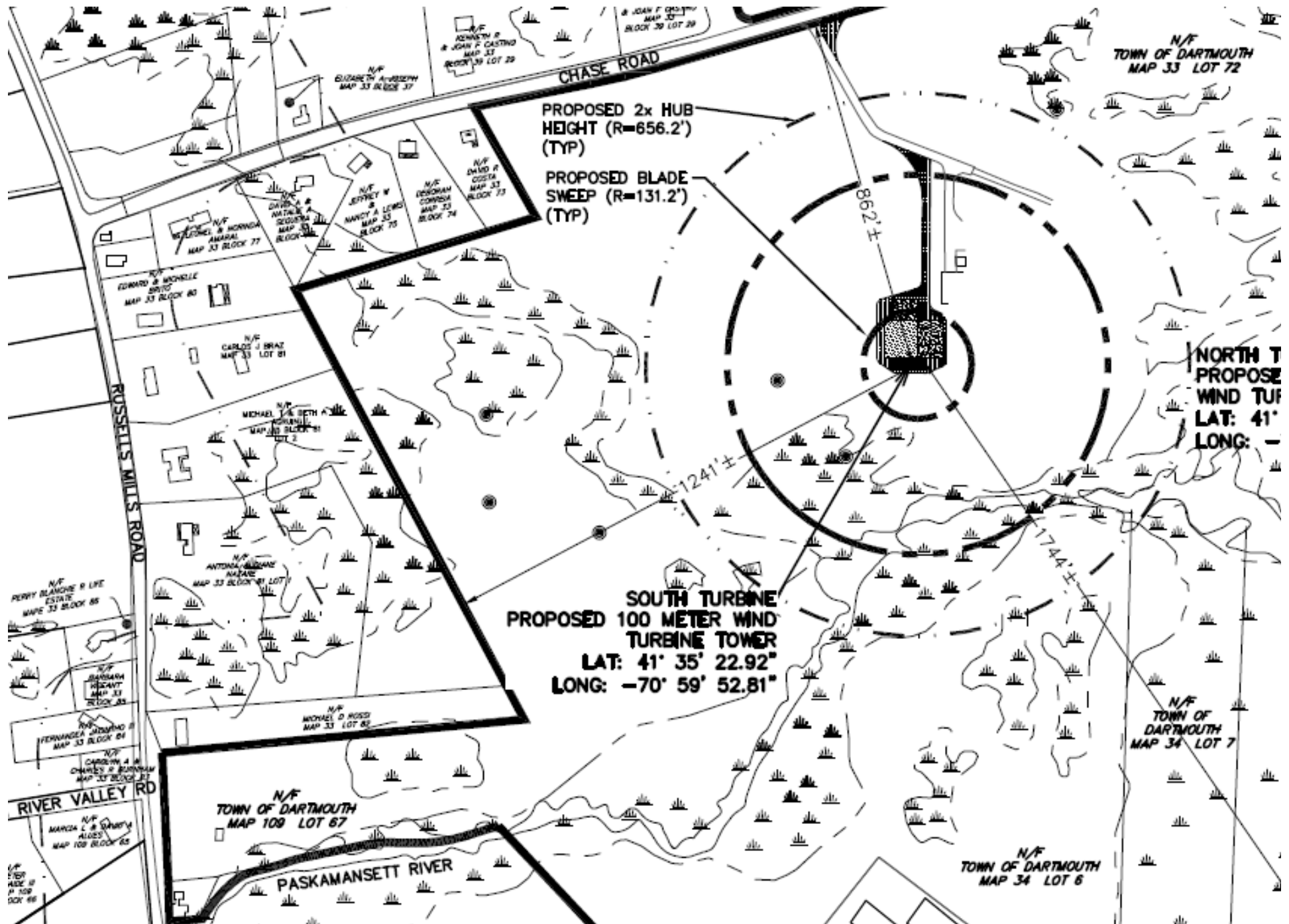
# NEW NORTH TURBINE SITE



# ORIGINAL SOUTH TURBINE SITE



# NEW SOUTH TURBINE SITE



# Consequences of newsiting

**Wetlands avoidance.**

**Shorter access roads; lower costs.**

**Turbines will not interfere with each other wind-wise.**

**Relatively small changes in distances to nearest neighbors.**

**No changes on sound generation effects; incremental sound will still be below the threshold for hearing detection.**

**Shadow-flicker pattern will be affected but expect to see the same general pattern as previous.**



# 5. Other business

## Consideration of proposed comment to DPU regarding Net Metering.

September 29, 2009

Re. DPU 09-71, 09-72, 09-73, 09-74 – Net Metering Tariff  
Comments from Town of Dartmouth Alternative Energy Committee

Dear DPU Hearing Officer and Other Interested Parties:

Like the Town of Milton (see the letter from Richard Kleiman of September 28, 2009, which served as the template for this letter) and many other community wind proponents, the Town of Dartmouth has been closely tracking the DPU Net Metering Tariff setting process and are quite concerned over one aspect of the near-final Tariff. The issue pertains to how the Rate Class for net metered electricity is established, which has significant bearing on the revenue generation assumptions, ability to obtain financing, and the viability of Dartmouth's proposed 2 x 1.65 MW, 3.3 MW total, wind turbine project, along with many other community wind projects in the Commonwealth.

As things stand now, the draft Tariff calls for the Rate Class to be determined through negotiation between the Host Customer (in our case the Town of Dartmouth) and the Distribution Company (in our case NSTAR). More specifically, there is a wide spread between the lowest and highest commercial Rate Classes (i.e., the established retail rate of payment for generated electricity). The range in Massachusetts has recently run from approximately 8¢ up to 18¢ per kWh. Community wind projects are marginal propositions at best. Too low a rate will make many of these projects uneconomic, killing them outright, and discouraging future projects.

The intent of the Green Communities Act and in particular the Net Metering Tariff was expected to fix this problem. Unfortunately, the draft Tariff as currently written fails to establish a coherent rate structure or objective standards for Rate Class setting. This, we believe, is a big problem for the following reasons:

1. Finance plans for community wind projects do not have large margins and are predicated on locking in a favorable rate under the Tariff. These projects take a tremendous effort to get approved at the local and state levels. If the return is too small, communities will simply choose not to pursue these projects and instead focus on other initiatives;
2. To satisfy lenders/bond issuers, as much uncertainty as possible needs to be eliminated as early as possible in the process, so a well-defined process is highly important;
3. Forcing communities to negotiate with their distribution companies in an open-ended process adds an administrative/legal burden that many towns will have a hard time funding and many distribution companies would likely prefer not to be involved in;
4. The distribution companies are entitled to cost recovery regardless of the Rate Class used, so specifying a favorable rate for community wind projects will not adversely impact the distribution companies financially;
5. Establishing a single Rate Class sufficiently favorable to effectuate community wind and other eligible projects will not harm ratepayers. The primary goal of the Green Communities Act is to create an economic framework that allows renewable energy projects to be built, and moves us closer to meeting Renewable Portfolio Standard objectives. This benefits all ratepayers in the long-term. Given that the cap has been set at 1% of the distribution companies' historical peak load, sensitivity analysis shows that even if the Tariff mandated the highest possible Rate Class for net metering, this would represent a *de minimis* impact on ratepayers' bills. However, if too low a Rate Class is established, or if the matter is left to the distribution companies' discretion, potentially viable projects will not be built, and the goals of the Green Communities Act will very likely not be realized;
6. Giving the distribution companies veto power on setting the Rate Class would give the utility the power to kill good wind projects or punish municipal customers they may have issues with on other fronts - simply put, they may choose to be difficult, as has certainly been the case in other matters.

I encourage the DPU to specify a single, favorable Rate Class in its final Tariff, rather than leaving in place an open-ended, ill-defined process whereby the utilities are turned into regulators, and the future of renewable energy development in Massachusetts is left to chance. In effect, the DPU should establish a simple “feed-in tariff” similar to what has been successfully adopted in Germany and other European countries. This would also be the simplest approach from an administrative perspective, for all parties involved.

If we are to make real strides toward achieving the Governor's and the ISO region's renewable energy capacity goals, the Tariff needs to set the highest reasonable Rate Class for community wind and other eligible projects. Otherwise, we risk that most if not all of these projects will not be financially feasible, will be unable to get financing, and will never be built.

Thank you for your consideration of these comments.

Best regards,

**5. Other business**

**6. Public comments and  
questions**

**7. Adjournment**