

CERTIFIED MAIL

December 29, 1982

Mr. Antonio Ruis, Jr.  
P. O. Box 1317  
Kamuela, HI 96743

Dear Mr. Ruis:

Variance Application (V82-44)  
Variance from Maximum Allowable Height Limits  
Tax Map Key 4-7-07:7

After reviewing your application and the information submitted in behalf of it, the Planning Director by this letter hereby certifies the approval of your variance request to allow the construction of a windmill tower with a height of eighty (80) feet in lieu of the maximum allowable height of fifty-five (55) feet for windmills in the Agricultural zoned district in Kamoku, Hamakua, Hawaii.

The approval is based on the following:

1. There are special or unusual circumstances applying to the subject property which exist to a degree that interfere with the best use or manner of development of the property. The circumstances consist of the topographical, atmospherical and locational conditions of the specific area with respect to its intended use as a site to erect a windplant system. These systems are primarily dependent on the wind velocity at the site. The wind pattern itself is affected by terrain, slopes, contours, size and composition of the vegetation, temperatures and climatic conditions. Furthermore, today's energy conscious society and world focuses on alternate energy systems such as windmills as

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viable energy options. This is evidenced by the fact that there are ongoing national and global efforts in becoming less dependent on oil and diversifying the dependence of energy to other resources. The concerted efforts being directed into fields of solar energy, biomass, wind energy, geothermal and ocean thermal systems, etc. are strong evidence as to the viability and need for these systems.

The subject property is situated within the Waikoloa-Waialeale Pastoral Lots Subdivision. The Land Study Bureau's overall master productivity soil rating for the subject area is Class "C" or "Fair". Act 24, SLH 1980, dealing with wind farms allows commercial and private wind farms in the State Land Use "Agricultural" district . . . provided that facilities/structures are compatible with Agricultural uses and cause minimal adverse impacts on agricultural lands. The petitioner is proposing a private windplant as an accessory use to their main use, which is their single family dwelling, as well as for the dairy farm operation.

In "A Siting Handbook for Small Wind Energy Conversion Systems by H. L. Wegley, J. V. Ramsdell, U. S. Department of Energy, March 1980", it is stated that the "surface over which the wind flows affects the wind speed near that surface. The greater the friction the more the wind speed is reduced near the surface. Choosing a site in flat terrain is not as complicated as choosing a site in hilly or mountainous areas. When siting in flat terrain, only two primary questions need to be considered. These are, what surface roughness affects the wind profile in the area and what barriers might affect the free flow of the wind."

"Surface roughness describes the texture of the terrain. The rougher the surface, the more wind flowing over it is impeded. The only way to increase the available power in the uniform terrain is to raise the machine higher above the ground."

"Wind rose information can also guide the user in determining the influence of nearby terrain. For example, suppose a 400 foot high hill lies 1/2 mile northeast of the proposed site, (this classifies the terrain as non-flat). Also assume, the wind rose indicates that winds blow from the northeast quadrant only 5% of the time with an average

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speed of 5 mph. Obviously, so little power is associated with winds blowing from the hill to the site that the hill can be disregarded. If there are no terrain features upwind of the site along the principal wind power directions, the terrain can be considered flat."

All of the above information provides evidence that there are off-site influencing factors in the siting of a windplant system.

In this particular application, while there are no special or unusual circumstances which relate to the subject land, the uniqueness of the wind resource, in this particular case, is the off-site influencing factor relevant to the request for the additional height. Because of the downwind characteristics, these factors do apply to the subject property as they affect the way that alternatives have to be evaluated in terms of establishing a windplant on the property.

Based on these foregoing conditions, the special circumstances relating to the wind patterns in conjunction with the maximum allowable height in the Zoning Code does interfere with the best manner or use of development of the subject property in that the available wind power below the site cannot otherwise be more fully utilized.

2. That there are no other reasonable alternatives in resolving this difficulty. The alternative of denying the variance is not a reasonable one in that the efficiency of the windplant would be further diminished and its utility would be voided. As such, because the requested additional height is needed to ensure or increase the efficiency of the windplant to serve the existing dwelling and dairy farm, we have determined that the most reasonable alternative is in granting the variance. Any other solutions would cause excessive or undue hardships on the petitioner in enhancing the efficiency and utility of the windplant, when a more reasonable solution is available.
3. The approval of the request would be consistent with the County General Plan's "Energy" element and with State and national goals which encourage the development and use of alternate energy sources. The proposed windplant will be utilized in assisting in the agricultural development practices of the Ruis Dairy Farm.

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In assessing the requests of height variances for windplants, three basic elements that are primarily evaluated are the visual impact, the physical impact, and the need for the additional height. The proposed windplant must be reviewed in terms of its visual and physical impact in the area to ensure that the spirit and intent of height limits are not violated. The proposed location of the windplant is approximately 700 feet from the Hawaii Belt Highway and 400-500 feet from the side property lines. The backdrop of the ascending landscape and the distance of the windplant from the highway and side property lines will create a minimal, non-adverse visual and physical impact in this area.

Based on the foregoing, we have determined that the granting of the variance shall be consistent with the general purpose of the Zoning District, the intent and purposes of the Zoning Code and the General Plan. The analysis of the above issues also has concurred that the granting of the variance will not be materially detrimental to the public's welfare nor cause any substantial or adverse impact to the area's character or to adjoining properties.

The variance request is approved, subject to the following conditions:

1. That the petitioner or their authorized representative shall be responsible for complying with all stated conditions of approval.
2. Plans and construction of the total structure must be approved by a structural engineer or architect registered in the State of Hawaii.
3. That the petitioner or their authorized representative shall comply with Part 77 of the Federal Aviation Regulations (14 C.F.R. Part 77) pursuant to Section 1101 of the Federal Aviation Act of 1958 as amended prior to obtaining a building permit.
4. That plans for the windplant shall be submitted to the Planning Department for "Plan Approval" within one (1) year from the effective date of approval of the Variance Permit.

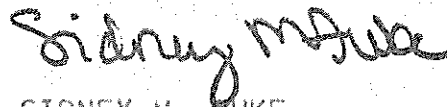
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5. The petitioner or their authorized representative shall be responsible for providing the appropriate safeguards on their system to prevent TV and/or radio interference to the adjoining property owners notified through the variance application.
6. That all other applicable Federal, State and County rules, regulations and requirements shall be complied with.

Should the petitioner or authorized representative fail to comply with the above conditions, the variance shall automatically be deemed void.

If you have any questions on this matter, please feel free to contact us.

Sincerely,



SIDNEY M. FUCE  
Planning Director

RHY:lgv

cc: John Crouch