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## TOWN OF HUDSON

## ZONING BOARD OF ADJUSTMENT

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12 School Street

Hudson, New Hampshire 03051

603/886-6005



## Determination of Findings in Support of a Previously Upheld Zoning Administrator's Decision

On June 14, 2002, members of the Hudson Zoning Board of Adjustment, as part of its special public meeting for that date, heard a continuation of Case 14-177 (5/4/02), constituting a remand by the New Hampshire Supreme Court (Marchand v. Town of Hudson) with respect to the scope of the Board's public hearing in conjunction with the Board's original hearing of Case 14-177 (3/23/00), an appeal by Suzanne Marchand and Peter & Joanne Radziewicz of the Zoning Administrator's Decision to permit the construction of three amateur radio communications, and with the mandated requirement being to receive testimony and evidence on the issues of whether

- a. The height of the towers and their antennae configuration is necessary to accommodate the particular amateur radio operator's communication objectives, and
- b. The number of towers that are necessary to accommodate the particular amateur radio operator's communication objectives.

During the course of the two special hearings on this case, as held on May 4, 2002 and June 14, 2002, the Board heard presentations by the amateur radio operator in question, by his legal representative, and by an outside consultant specializing in amateur radio antenna designs and capabilities, including both extensive oral input and extensive documentary input [note: Exhibit B Technical documentation, stamped by a Registered Professional Engineer], wherein explanations were given as to what the amateur radio operator's communication objectives were and how the selected antenna configuration had been selected, together with supporting testimony from other knowledgeable amateur radio operators in this community. On both of these hearing occasions, neighborhood residents were given opportunities to provide contrary input, but in each case they or their legal representative contended that the focus of these hearings was too limited, that the Board should instead be negotiating with the amateur radio operator in question to obtain an antenna configuration that would be mutually agreeable to the said operator and to residents of the neighborhood, and that it was not their task to prove that the request that had been previously upheld was not reasonable.

Following review of that testimony and subsequent deliberation, the members of the Zoning Board of Adjustment unanimously determined to agree upon the following findings:

1. The Hudson Zoning Ordinance, at the time of issuance of the building permit, did not prohibit the towers.
2. Mr. Muller is an amateur radio operator, licensed by the Federal Communications Commission, with 31 years of experience in this activity.

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3. Mr. Muller engages in various contests throughout the world, experiments in amateur radio operations and various antennae design and configurations. At his previous residence in an adjoining town, he operated this hobby with five towers on a much smaller lot.
4. Mr. Muller's participation in various contests and operations requires a multitude of antennas to span the range of frequencies used, with the use of multiple antennas on each tower effectively maximizing the use of each individual tower. In fact the tower themselves, as they are arranged, act as antenna arrays for some radio frequencies used.
5. Mr. Muller's past level of participation and involvement has been in excess of that of the average amateur radio operator.
6. Physical characteristics of the various frequencies require that the antennas be maintained at certain distances from each other and other objects that would distort the radio signal, as documented in Exhibit B.
7. Additional towers would provide more precise directional control, using a phased array system; however, three towers is the minimum number needed to provide directional signal control through 360 degrees.
8. The existing tower configuration optimized communication with Japan, Europe, and South America, which are the three main targets of communication for Mr. Muller. Three towers are the minimum number required to beam towards each of these locations.
9. One of the goals of amateur operators is to minimize signal strength for any particular target of communication; therefore, it is important in some bandwidths for the antennas to be above the surrounding trees, which tend to absorb the signal. Mr. Muller's original designs for higher towers have been compromised at the 100-foot height. (It was noted that he could cut down trees on his own property but not the interfering trees on his neighbors' properties.)
10. In general, higher towers allow a decrease in angle of the signal, thereby reducing the number of "skips" off the atmosphere, which leads to more efficient signal transmission.
11. Mr. Muller would prefer higher towers to meet his goals; however, the zoning ordinance restricted the height to 100-feet and his request for a variance from the Zoning Board of Adjustment was denied.
12. The documentation in Exhibit B constitutes a weighty piece of evidence, with technical support, as requested.
13. Mr. Muller's property covers in excess of six acres, which can reasonably accommodate the three towers.
14. No contrary technical evidence has been presented, despite the Board's efforts to obtain some from opposing parties.
15. The testimony presented to this Board indicates that multiple towers are not unusual.

In addition, all members of the Board in discussing these findings declared a common consensus that multiple towers for this sort of operation represent an accessory use.

For details of specific discussion relative to this decision, please consult the public minutes recorded during this hearing.

Signed: *Charles J. Brubaker*  
Chairman, Hudson Zoning Board of Adjustment

Date: 6/27/02

*Acting  
C/S*

Signed: *Sean T. Sullivan*  
Community Development Director

Date: 7/15/02