

VERMONT ENVIRONMENTAL BOARD
10 V.S.A., Chapter 151

RE: Sherman Hollow, Inc., Findings of Fact and
Richard A. Gadbois, Trustee, Conclusions of Law
Estate of Ned H. Pettengill, and and Order
Roger Lussier and Arthur Elliot Application
by Jonathan H. Brownell, Esq. #4C0422-5-EB (Revised)
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This decision pertains to an appeal filed with the Environmental Board on October 28, 1987, by Sherman Hollow, Inc.; Richard A. Gadbois, Esq., Trustee; The Estate of Ned Pettengill; Roger Lussier; and Arthur Elliot (Applicants) from the decision of the District #4 Environmental Commission dated October 22, 1987. The decision denied the Applicants' application for Phase I of their proposed development of a destination resort located in the Towns of Huntington, Richmond, and Hinesburg, Vermont. Phase I (the Project) consists of the construction of an 18-hole golf course and the addition of lighting to 1.5 kilometers of existing cross-country ski trails. Cross-appeals were filed by the Town of Huntington on November 6, by Marlene McDonald on November 12, and by Lisa Barrett on November 13.

On December 17, 1987, a prehearing conference was convened by Acting Chair Jan S. Eastman, at which a number of requests for party status were made. On February 3, 1988, the Board issued a Memorandum of Decision in which it identified the criteria at issue and the criteria under which each party was granted party status. That decision is incorporated herein by reference.

The Board convened a public hearing on May 3, 1988, and reconvened on July 6. The following parties participated in the hearings:

Applicants by Jonathan Brownell, Esq.
Chittenden County Regional Planning Commission (CCRPC)
by Arthur Hogan
Town of Huntington by Robert Perry, Esq.
Lisa Barrett
Marlene McDonald
Phyllis Austin, Bernard Heinrich, Peter Bailey, Lucinda
Bailey, John Pendris, Carol Pendris, Paula Kelly,
Janet LaBelle, Wendall Sargent, and Kristin Juergens
(the Neighbors) by Michael Marks, Esq.

The Board visited the site on July 6 before reconvening the hearing. At the conclusion of testimony on July 6, the Board recessed the hearing pending the submission of

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proposed findings by the parties and review of the record and deliberation by the Board. On July 27, the Board received proposed findings and memoranda from Lisa Barrett, the Neighbors, the Applicants, and the Town of Huntington. The Applicants also submitted copies of 18 V.S.A. Chapter 36 (Community Right to Know), 42 U.S.C.A. §§ 11002-11022, and ticket sales for the winters of 1979-1980 through 1987-1988, as requested by the Board. On July 6, August 18, and October 20, 1988, the Board deliberated on this matter and on October 20 the Board determined the record complete and adjourned the hearing.

On November 9, the Board issued a decision granting approval for the addition of lighting to 1.5 kilometers of cross-country ski trails and denying approval for the golf course.

On November 23, the Applicants filed a Motion for Reconsideration, Correction, and Re-Opening of the Proceeding Pursuant to Rule 31(a), and on November 28, the Town of Huntington filed a Motion for Reconsideration. On December 1, the Applicants filed a memorandum in support of its previously-filed motion. On December 5, Marlene McDonald filed a letter in opposition to the Applicants' motion. On December 8, Paula Kelley et al. filed a Memorandum in Opposition to Request for Reconsideration, and on that date Lisa Barrett filed a Response to Applicants' Motion for Reconsideration and Response to Motion for Reconsideration from the Town of Huntington.

On December 20, the Board issued a Memorandum of Decision in which it determined to reconsider its November 9 decision but not to reopen at this time, and not to take official notice of a superior court decision regarding the zoning permit for the golf course. On January 5, the Applicants filed a "supplemented copy" of their November 28 filing.

On January 11, 1989, the Board convened a public hearing in Williston, Vermont, to allow the parties orally to supplement their written submissions with regard to arguments that the November 9 decision was not supported by evidence in the record and to persuade the Board to reopen the hearings to take new evidence, if necessary. The following parties participated in the hearing:

Applicants by Jonathan H. Brownell, Esq.
CCRPC by Arthur R. Hogan, Jr., Executive Director
Town of Huntington by Robert J. Perry, Esq.
Lisa Barrett
Marlene McDonald
The Neighbors by Michael Marks, Esq.

On January 13, the Board issued a recess memorandum in which it determined to take official notice of "Guides for Controlling Soil Erosion and Water Pollution on Logging Jobs in Vermont" and "Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont." No objections to the admission of these publications into the record were received. On January 18, the Board received copies of these publications, and on January 19 the Opposing Parties' Final Memorandum Regarding Motions for Reconsideration, Memorandum by Applicant on Issues Raised by Applicant's and Town's Motion to Consider, and Memorandum by Town of Huntington were filed with the Board.

During the afternoon session of the May 3, 1988 hearing, the parties waived a quorum of the Board. The Applicants now suggest that the waiver is not valid because the Board members who originally sat during the first part of the May 3 hearing have not all participated throughout the process. Title 1 V.S.A. § 172 requires that a majority of the total board members make decisions. As long as a quorum is present at the hearings, the quorum need not actually be composed of the same persons in proceedings taking place over time. Provided that each member participating in the decision reviews the entire record, the decision is valid. Lewandoski v. Vermont State Colleges, 142 Vt. 446, 449-450 (1983). All Board members who participated in this decision have either attended all hearings and deliberations in this matter or have reviewed the entire record in this case. Moreover, any concern the Applicants may have was resolved by the motions to reconsider and the hearing held on the reconsideration requests on January 11, 1989. All parties have had ample opportunity to comment upon the Board's November 9 decision, both orally and in writing. As is evident from this revised decision, the Board has fully considered the comments of all the parties and has responded accordingly.

The Board deliberated on January 11 and 25 and February 8, 1989. This matter is now ready for decision. The following findings of fact and conclusions of law are based exclusively upon the record developed at the hearings on May 3 and July 6, 1988. To the extent the Board agreed with and found necessary any findings proposed by the parties, they have been incorporated herein; otherwise, said requests to find are hereby denied.

I. ISSUES IN THE APPEAL

The District Commission denied the application because it found that the Applicants did not meet their burden of demonstrating, pursuant to Criterion 1(B), that the Project

would not result in the injection of harmful or toxic substances into the groundwater because of a likelihood that pesticide contamination from the golf course would contaminate groundwater. The Applicants appealed the District Commission's denial with respect to Criterion 1(B). Cross-appeals with respect to a number of other criteria were filed by other parties. In its Memorandum of Decision dated February 3, 1988, the Board defined the scope of the appeal as relating to Criteria 1 (air), 1(B) (pesticides), 1 (E) (streams), 3 (existing water supplies), 4 (soil erosion), 5 (traffic), 8 (aesthetics), and 9(A) (impact of growth). That decision is incorporated herein by reference.

II. MOTIONS FOR RECONSIDERATION

A. The Town of Huntington

The Town of Huntington believes that the Applicants met their burden of proof under all the criteria at issue and that the Board should grant a permit for the golf course. The Town also requests that the Board clarify its decision with respect to Criteria 5, 8, and 9(A) so that the Applicants will know how to meet the Board's concerns. The Town believes that the Board should respect the selectmen's judgment regarding the timing of improvements to the Sherman Hollow Road, and that the Board should consider the Huntington Town Plan and the Chittenden County Regional Plan to understand the context of the area when evaluating Criterion 8.

It is clear from the statute that the project cannot be denied because of Criterion 5 (traffic) issues. See 10 V.S.A. § 6087(b). The Board, however, is concerned about the impact on the Sherman Hollow Road from the additional traffic from the golf course, given the current state of the road and the need for improvements as described by Mr. Ross, witness for the Town and Mr. Bohn, the Applicants' traffic expert. Therefore, if it were issuing a permit, the Board would require as a condition that the improvements that have been agreed upon between the Town and the Applicants be made prior to the opening of the golf course.

With respect to Criterion 8, the Board notes that it cannot review the town or regional plans in assessing the context of the project because neither of these plans was submitted into the record of this case before the Board by any party. The Administrative Procedure Act, 3 V.S.A. Chapter 25, which governs Act 250 proceedings, requires that decisions be based exclusively on evidence in the record.

In order to review the plans, the Board would have to reopen the record. Because the Board is making a positive finding with respect to Criterion 8, it is not necessary to reopen the hearing on this issue.

Regarding the Board's conclusions under Criterion 9(A), the Board remains convinced that the local fire department must be provided with all the training and equipment necessary to deal with any fires at the pesticide storage building. This issue was raised with and discussed by a representative of the Agriculture Department at the July 8 hearing. If the Board were issuing a permit for the golf course, the Board would require the Applicants to determine whether appropriate training and equipment for dealing with pesticide fires is part of the department's general training and equipment requirements and, if it is not, the Board would require the Applicants to ensure that the fire department has the necessary training and equipment.

B. The Applicants

In their motion filed November 23, 1988, the Applicants request that the Board take the following actions:

1) Reopen the proceedings in this matter "to allow the Applicants to clarify and explain the testimony in the record of this proceeding to the satisfaction of the Board so that accurate, correct Findings and Conclusions may issue." The Applicants contend that the Board should correct its Findings of Fact and Conclusions of Law to include the testimony submitted by the Applicants which is not controverted by the testimony of any other parties and which supports the issuance of a permit for the golf course as proposed.

In a Memorandum of Decision dated December 20, 1988, the Board agreed to reconsider its decision. The Board's reconsideration and the request to reopen the proceedings are addressed below.

2) Rule on the Applicants' request to the Board to take judicial notice of the decision of the August 12, 1988 superior court regarding an appeal of a zoning permit issued to Sherman Hollow.

The Board determined not to take official notice of **this decision in a Memorandum of Decision dated December 20, 1988.** That decision is incorporated herein by reference.

3) Review recent decisions by district environmental **commissions** approving golf courses with substantially fewer requirements than the Board imposed in this case.

The statute does not include any provisions for the Board generally to review district commission decisions. Appeals to the Board are de novo: the Board must take entirely new evidence and base its decision upon the record developed solely in the proceedings before the Board. See **10 V.S.A. § 6089(a)**. A decision made by a district commission is reviewed by the Board only if a party appeals that decision to the Board; decisions of district commissions in other cases cannot be considered as precedent or even as guidelines for the Board to follow. The Board has the authority only to review the case on appeal. Through its decisions, the Board attempts to interpret Act 250 and its rules so that the district commissions' decisions are consistent. The Board has no authority, however, to review other decisions of district commissions in the context of a pending appeal.

Reconsideration

The Applicants filed a memorandum in support of their motion on December 1 and a supplemental memorandum on January 5. In these documents, the Applicants identified the findings of fact in the Board's November 9 decision that the Applicants believe are not based on evidence in the record. Following each finding, the Applicants provided information which, they claim, both is in the record and contradicts the Board's findings. The Applicants also submitted proposed conclusions of law and a proposed permit.

After carefully reviewing the record in this matter and considering the parties' written and oral arguments, the Board concludes that its November 9 decision was based upon the evidence in the record. For purposes of clarification, the Board will revise certain findings of fact and conclusions of law. However, the Board notes that many of the Applicants' "corrected findings" are either not in the record developed at the May 3 and July 8 hearings, or were submitted in a form difficult or impossible to decipher. As an example of the former, the Applicants originally claimed that the greens and tees would be at least 50 feet from all watercourses, but the plans submitted to the Board showed some tees and greens closer than 50 feet. Now the Applicants propose to move any such tees or greens to create at least a **50-foot** buffer from all watercourses. However, this is new evidence that cannot be presented without reopening the hearing. As an example of the latter, the Applicants claim that Finding #5 incorrectly states the amount of the site that is wooded. However, the portion of

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the site that is wooded is only discoverable by measuring plans that are not drawn to scale. The Board expects an applicant to provide such information directly.

The Board also notes that many of the "corrected findings" refer to prefiled testimony and other exhibits from the witnesses, but do not take into account the oral testimony brought out at the hearings under cross-examination. For instance, "Corrected Finding" #9 states that "there will be no construction from December 1 to May 1." In fact, Alan Turner testified on July 8 that logging would take place during dry and frozen periods in summer and winter. "Corrected Finding" #16 states that "if necessary, [shredders, vacuum rakes, and blowers] are only likely to be used during a brief period in the late fall." In fact, Peter Wohl testified on July 8 that he did not know at which times of day or how often these machines would be used. Other "corrected findings" simply contradict evidence in the record. For instance, "Corrected Finding" #79 states: "Irrigation plans for tee and green irrigation are complete." In fact, Peter Wohl stated on July 8 that final irrigation plans have not been formulated, and no plans for an irrigation system were submitted to the Board.

The Board believes that these points are significant in that they exemplify the confusion on the part of the Applicants over what information they actually submitted to the Board or what evidence the Board is relying on in making its decision.

The Applicants also challenge the Board's decision with respect to two major areas: 1) its regulatory role vis-a-vis other state agencies and 2) its interpretation of Criterion 1(B). **Essentially**, the Applicants contend that since all pesticides and fertilizers will be approved by the Department of Health before they are applied on the golf course, the Board should defer to the regulatory authority of that Department, and make a finding that no undue water pollution will occur.

The Applicants originally argued that the Board should make a positive finding under Criterion 1(B) based upon the procedure the Applicants intend to follow which involves submitting the names of pesticides and fertilizers they intend to use to the Health Department for its approval prior to use. At the January 11 reconsideration hearing, **the Applicants** suggested that the Board could require submission of the names of the pesticides and fertilizers to the Board as well for its approval prior to use. The Applicants claim that it is either not possible or not

necessary to supply the Board with specific information at this time regarding the names or types of pesticides and fertilizers to be used, the types of soils underlying the areas to be developed as greens and tees, the types of soils that will be used to construct the greens and tees, the location of the **outfalls** of the drains to be placed at the greens and tees, or the specific properties of the aquifers. The Applicants argue that much of this information will be provided to the Departments of Health and Agriculture later and that the Board should defer to these agencies' reviews.

The Board disagrees with this position. As explained above, Act 250 specifically requires the Board to make positive findings prior to the issuance of a permit. The Board does not believe it has the authority to transfer its decision-making authority to another agency. Many issues in Act 250 proceedings are addressed by other permit programs administered by other state agencies; however, reviews by other agencies do not alter the statutory obligation imposed upon the Board. In fact, according to the Vermont Supreme Court, the Board's role is actually that of a "supervisory body in environmental matters. ... [T]he Environmental Board is not bound by the approval or permits granted by the other agencies [T]he Board must conduct an independent review of the proposed development" In Re: Hawk Mountain Corporation and Our World Sewer Association, Inc., 149 Vt. 179, 185 (1988).

In addition, the Board notes that its review encompasses broader issues than the Health Department's sole concern with the effect of pesticides and fertilizers upon drinking water. Even if the Board were to defer to the Health Department's review of impact upon drinking water, the Board would still have to review the potential impact upon groundwater and surface water, as well as upon the aquatic biota of the streams, in order to make positive findings under Criteria 1(B), 1(E), and 3.

Furthermore, a procedure such as the Applicants suggest, with review and approval of pesticides taking place outside of the Act 250 process, would contravene the requirement that all parties to Act 250 proceedings have a right to contest information supplied and positions taken by other parties. See 10 V.S.A. § 6085; 3 V.S.A. § 809.

The Applicants argue that many of the Board's concerns can be addressed simply by the Board's retaining jurisdiction over the project and putting conditions in the permit to require that certain information be provided to the Board

or District Commission at a later date. The Applicants also contend that it is the Board's responsibility to request whatever information is lacking in order to reach a positive decision.

In some cases the Board and the Commissions do retain jurisdiction over projects and require some information to be provided later. This cannot be done, however, with an application that contains substantial deficiencies. There would be no purpose in requiring review prior to issuing permits if the Board or Commissions could simply require all lacking information to be submitted after the permit is issued. In a situation where the information that has not been submitted is important enough to the application that a permit could be denied after the information is reviewed, it would completely contradict the purpose of Act 250 to issue a conditional permit. Furthermore, the presentation of an applicant's case is the applicant's responsibility, and not the Board's.

The Applicants directed the Board's attention to its recent decision Re: Juster Associates, Land Use Permit #1R0048-8-EB (December 19, 1988) as support for their assertion that in order to resolve the lack of specific information, the Board need only retain jurisdiction over the project. In Juster, the Board retained jurisdiction over the issue of stream relocation in order to ensure that it is done without adverse impact. The Board notes, however, that in Juster the applicant submitted substantial site-specific and technical information regarding the possible and probable effects of the stream relocation, so that the Board was able to evaluate the impacts. The same type of site-specific information, critical to the Board's ability to evaluate the impacts of pesticide and fertilizer use on the golf course at Sherman Hollow, has not been submitted in this matter before the Board.

The Applicants argue that the language of Criterion 1 that requires the Board to find that the project "[w]ill not result in undue water ... pollution" does not mean that the Applicants must prove that no water pollution will occur, but only that no undue water pollution will occur. The case cited by the Applicants, In re Zoning Permit of Patch, 140 Vt. 158 (1981), addresses the meaning of Criterion 1 and specifically Criterion 1(B) (waste disposal). Criterion 1(B) states:

A permit will be granted whenever it is demonstrated by the applicant that ... the development ... will not involve the injection of waste materials or any harmful or toxic substances into ground water or wells.

In Patch, the court reviewed the denial of a land use permit for a landfill by the superior court after a de novo appeal.^{/1/} The district commission had issued a permit for a landfill. The superior court denied the permit for failure of the applicant to comply with Criterion 8 (aesthetics). The applicant appealed to the Supreme Court. The Town of Wallingford cross-appealed on Criterion 1(B), arguing that the superior court erred 'in making positive findings on that criterion. The Town claimed that since the court found that some leachate might get into wells, the court could not find that the applicant met its burden in proving that no harmful or toxic substances would enter the groundwater. The Supreme Court disagreed, stating that a literal interpretation of the statute "would virtually preclude any landfills in the state, since contamination of groundwater is always a possibility." The Court concluded that since the superior court considered the proper factors under the statute, the Supreme Court could not say that the court erred as a matter of law.

However, citing the language of Criterion 1 that "specifically requires the consideration of 'the nature of the soils and subsoils and their ability to adequately support waste disposal; ... the availability of streams for disposal of effluents; and the applicable health and water department regulations,'" the Court found that the superior court's positive conclusion on Criterion 1(B) was based upon very specific findings with regard to the soil types, the depth to groundwater, and the treatment and dilution of the leachate. In this matter before the Board, the Board is unable even to consider those factors enumerated under Criterion 1 because the Applicants have not provided the information referred to in the statute.

The Board agrees that it is not reasonable to require the Applicants to prove that there is absolutely no risk that any amount of pesticides used on the golf course will not enter the groundwater or wells. The Board, however, is not requiring the Applicants to make such a showing. The Board is simply adhering to its statutory obligation to review the site characteristics, the chemicals to be used, and the effect of the project on the environment based upon the potential behavior of the chemicals on the site, in

^{/1/}Until 1985, an applicant could remove its appeal from the Board to a superior court.

order to be able to find that no undue water pollution will occur, before issuing a permit. 10 V.S.A. § 6086(a) states: "Before granting a permit, the board or district commission shall find that the subdivision or development" For the Board to act as the applicants propose would result in a substantial change in the procedures mandated by statute. Such a change would require prior legislative action.

The Applicants also argue that the Board need not have the actual irrigation plans before it in order to review the potential impacts of these plans on streams and water supplies. Furthermore, the Applicants argue that the Board should simply condition any permit to require that these plans be submitted prior to construction.

The Board disagrees that actual plans for construction are unnecessary in assessing a project's impacts upon the streams in the area. The Board believes that such plans should be included as part of any application proceeding on this criterion.

The testimony before the Board indicates that pesticides can be harmful and that it is possible that undetermined amounts of pesticides could reach ground or surface waters or wells. The Board believes it needs additional information in order to resolve this issue, as described in the Conclusions of Law, below.

The Applicants also disagree with the Board's November 9 conclusion that more information is needed to adequately address soil erosion concerns at this site. The Board notes that the greens and tees will be constructed on slopes up to 25%. The plans submitted by the Applicants indicate cut and fill activities to create the greens and tees as proposed, as well as substantial earth movement. With a site containing such steep slopes, the Board must have specific erosion control details. The specific requirements are specified in the Conclusions of Law, below.

Finally, the Regional Planning Commission suggests that the Board does not have the authority to limit any of the logging activities proposed as none of the activities occurs above 2,500 feet and logging operations below 2,500 feet are specifically exempt from Act 250 jurisdiction. 10 V.S.A. § 6001(3). The Board agrees that if the sole activity proposed for this site were logging, there would be no Act 250 jurisdiction. However, as the proposed logging activities actually constitute the clearing and grubbing of the site necessary to construct the golf course, development which is subject to Act 250 jurisdiction, the logging

activities constitute development which requires a permit pursuant to 10 V.S.A. § 6081(a). See In re Agency of Administration, 141 Vt. 68, 93 (1982); Re: J. P. Carrara and Sons, Land Use Permit #1R0589-EB (Feb. 17, 1988).

III. MOTION TO REOPEN

The Town and Applicants have also filed motions to reopen this hearing before the Board to take additional evidence on the issues which the Board found deficient in its November 9 decision. Some of this information was available during the proceedings before the Board but was not presented to the Board. Other information relates to occurrences and activities which have taken place since the most recent evidentiary hearing in this matter held in July, 1988.

The Board concludes that as a result of its reconsideration of the issues discussed above, no new evidence is necessary in order for it to reach positive conclusions with respect to Criteria 1 (air), 5, 8 (aesthetics) and 9(A). The Board acknowledges that with regard to these criteria, certain conditions can be attached to any permit issued for the project in the absence of additional testimony.

Having made these revisions with respect to Criteria 1, 5, 8, and 9(A), the Board nevertheless finds that deficiencies remain with respect to Criteria 1(B), 1(E), 3 and 4.

The Applicants and Town have asked that the record be **reopened** before the Board to allow an attempt to correct the deficiencies now. The Regional Planning Commission agrees that the Board should reopen its proceedings. These parties believe that a reopening before the Board is the most efficient way for all of the parties as well as for the process to address the remaining concerns. Other parties argue that pursuant to 10 V.S.A. § 6087(c) the Applicants have the ability to file for "reconsideration" before the District Environmental Commission within six months of the date of the Board's decision so long as the Applicants can **provide** the information correcting the deficiencies. Those who oppose the request argue that they are entitled to a final judgment, that the Applicants have had many opportunities to provide information relative to this application, and that Act 250 specifies the remedy here: reconsideration before the District Commission pursuant to 10 V.S.A. § 6087(c).

The majority of the Board members believe that this matter should not be reopened before the Board.^{/2/} The Board has identified many deficiencies in this application which would have to be corrected before a permit could be issued. The usual procedure available for an applicant is to return to a district commission with an affidavit certifying that the deficiencies have been corrected, in accordance with 1 V.S.A. § 6087(c) and Board Rule 31(B). No provision exists in the statute or rules for submitting new evidence to the Board without going through district commission hearings. The Board has allowed new evidence in very limited circumstances when, for instance, it determined that it could grant a permit if a site plan were modified. See Re: Liberty Oak, Land Use Permit #3W0496-EB (1987). In this case, however, substantial revisions to the application will be necessary. The majority of the Board believes the applicants must follow the statutory scheme established by the legislature that requires initial review of all applications by the district commissions.

At any reconsideration before the District Commission, only those issues unresolved by the Board in this proceeding would be open to review. However, if the Applicants do not agree with any of the conditions to be attached to any permit with respect to other criteria before the Board, as provided in the Conclusions of Law, below, the Applicants could ask to reopen a specific issue or a group of issues as part of the reconsideration before the District Commission.

IV. FINDINGS OF FACT

A. Project Description

1. The Project will be located on a 1,200-acre tract of land owned by the Applicants in the Towns of Hinesburg, Huntington, and Richmond; the golf course will be located wholly in Huntington. The property is situated on both sides of the Sherman Hollow Road, approximately 1.8 miles from the Huntington-Richmond Road and approximately 3 miles from the Hinesburg-Richmond Road. The Sherman Hollow Road is an unpaved Class III town highway.

^{/2/}Acting Chair Jan S. Eastman and Member Arthur Gibb believe the hearings should be reopened to take new evidence.

2. A cross-country ski center is currently operated on the property, with 3.5 kilometers of lighted trails. Lighting will be added to approximately 1.5 kilometers of existing cross-country ski trails.
3. The golf course will be located on approximately 100 to 120 acres of land.
4. The Project is located in a narrow valley. Other than the Sherman Hollow cross-country ski center, twelve residences and the Audubon Nature Center constitute the only buildings along the 1.8 miles of Sherman Hollow Road between the entrance to the Sherman Hollow cross-country ski center and the Huntington-Richmond Road.
5. Of the total golf course project area of 100 to 120 acres, approximately 60 to 70 acres are wooded. The Applicants intend to have the area logged under the supervision of a professional forester.
6. The Sherman Hollow Brook runs through the proposed golf course area in an approximately east-west direction. The project site contains a number of smaller water courses, several beaver ponds, and wet areas.
7. The wells of Austin and McDonald are located several hundred feet north of and downslope from the proposed golf course.
8. The golf course will be an 18-hole championship course. Each hole would include one green and three tees.

B. Criterion 1 (air)

9. Construction of the golf course will occur over two construction season years. Construction will take place from 7:00 a.m. to 6:00 p.m. Monday through Saturday. The logging operation to clear the site will take several months and will generate noise from the equipment which will include at least one bulldozer, up to four skidders, chainsaws, **feller/bunchers**, and a chipper. Approximately 200,000 to 400,000 board feet of lumber, in addition to pulpwood and firewood, will be removed.
10. Logging equipment, particularly chippers, generate loud noise; the loggers will wear ear protection.

11. Logs will be loaded at the log landing areas as shown on the erosion control plan (Board Exhibits #80, #95-97).
12. A chipper will be located primarily at the eastern-most log landing, in close proximity to six houses and directly across the road from the Juergens/Sargent homes and the Barrett home. It will be used only between 7:30 a.m. to 5:00 p.m. on weekdays.
13. During construction of the golf course, roads on the site and exposed soils will be watered to reduce dust.
14. The greens and tees will be mowed six or seven days per week, the fairways will be mowed two or three times per week, and the rough will be mowed once a week. The mowing will usually start as early as 6:00 in the mornings because most of the mowing must be done at times when no or few golfers are on site.
15. Close and almost daily mowing is required on greens in order to provide a good golfing surface.
16. The fairway rough will be lined with trees. Shredders, vacuum rakes, and blowers used to clean up fallen leaves and branches from the trees create varying degrees of noise.
17. Sound travels clearly across the narrow valley. However, most of the neighbors are separated from the golf course by woods and over 1,000 feet of distance. The Applicants state that the noise levels at the property line will not exceed 70 decibels.

C. Criterion 1(B) (pesticides)

18. The golf course turf will require intensive maintenance, especially on the greens and tee areas. Fertilizers will be needed to ensure healthy growth of the grass, and pesticides will be necessary to kill the weeds that would interfere with high quality turf. The word "pesticide" includes insecticides, herbicides, and fungicides.
19. Golf courses are composed of several playing areas which differ in turf grass species used and intensity of management. The putting green must be a uniform,

resilient surface. Since up to half of all golf shots occur on the greens, the condition of the greens must be maintained to peak performance at all times. The tees are second to greens in the level of management intensity required. Since they are subject to considerable stress from foot traffic, tees must be intensively managed in order to maintain a good playing surface. Management intensity for the fairways is less than for greens and tees and depends upon the species of grass selected. Roughs need only minimal maintenance in terms of pesticide and fertilizer applications.

20. The Applicants intend to implement an Integrated Pest Management Plan (IPM). The goal of the IPM is to minimize the use of pesticides by treating only identified problems and not using chemicals as prevention. The IPM may include the use of biological and bacteriological controls. Use of the IPM, however, may not result in the elimination of or even a reduction in the quantities of pesticides used.
21. There are no established procedures in any agencies in Vermont for reviewing the use of bacteria as a pest control.
22. The Applicants have developed a Golf Course Management Plan (GCMP) which contains the procedures for obtaining approval for the use and application of pesticides and fertilizers. According to the GCMP, the golf course superintendent will decide when there is a need either to prevent or control disease outbreak by the use of pesticides and will decide on the optimal times and weather conditions for applying them. The golf course superintendent will be both a licensed pesticide applicator and a turf grass agronomist.
23. Pesticide applicators must be certified after training and they must take courses to maintain the certification. A golf course superintendent is subject to the same standards as a commercial applicator. A certified applicator must be at the site during application although someone else may actually apply the pesticides.
24. Pesticides will be applied by spraying only when winds are under 10 mph and a "best effort" will be used to spray when the winds are under 5 mph. If winds exceed 10 mph or if the pesticides are applied incorrectly, the pesticides may drift up to 50 feet beyond the intended area of application.

25. The GCMP does not contain any standards for determining when pesticide application is necessary or the amount of pesticides that should be used to eradicate problems. Instead, it relies upon the review and approval of pesticides and fertilizers by the Vermont Department of Health.
 26. Pesticides will be stored in a structure located at least 200 feet from any surface water or as otherwise required by state regulations. The building will have a concrete floor and curb, it will be identified with clearly visible signs, it will be locked when it is not in use, and it will conform to all state and federal regulations governing storage of pesticides.
 27. Pesticide application equipment will be washed in the storage building in an area equipped with drains leading to a collection tank. The precise procedures for handling the wash and rinsewater are not known at this time and would be determined by the golf course superintendent.
 28. There have been problems at golf courses in Vermont regarding storage of pesticides, including the intermingling of herbicides and insecticides, storage in inappropriate buildings, and lack of secure facilities for pesticides and fertilizers.
 29. According to the GCMP, Sherman Hollow will submit the names of and other information about the pesticides and fertilizers to be used on the golf course to the Vermont Department of Health. That Department will coordinate its review with the Vermont Department of Agriculture. If the Health Department needs additional information, it may request Sherman Hollow to provide additional literature, dilution calculations, or the results of transport models that will simulate a chemical's behavior in the environment.
 30. The Health Department will review the amount, concentration, dates of application, and application areas for each proposed fertilizer and pesticide, with regard to its possible effects on water supplies. Such review addresses only the human health effects of chemicals on drinking water, but does not address the effects upon wildlife or aquatic biota.
 31. The Department of Health and the Department of Agriculture generally rely upon the United States Environmental Protection Agency's list of approved
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pesticides, although occasionally they will reject a pesticide if they believe that a safer one exists that will be as effective. The effect of the pesticides upon drinking water is the standard used by the Environmental Protection Agency.

32. The EPA uses a risk-benefit analysis in determining "health guidance levels" of pesticides in drinking water. The benefits of each chemical are weighed against its "unreasonable adverse effects." The risk assessment involves consideration and integration of exposure and toxicity factors for each pesticide. Sherman Hollow proposes to obtain the health guidance levels and, if the pesticides and fertilizers are suspect carcinogens, the negligible risk levels, from EPA, the pesticide industry, or the World Health Organization. Sherman Hollow will compare the two values and choose the lower one. The Vermont Department of Health will use this number in establishing its health guidance level for pesticides in drinking water.
33. Testing is not required for the approximately 1,200 pesticides registered as "inert ingredients," those that are not listed on the label, but which are chemically or biologically active and may have harmful effects.
34. Very little knowledge exists about the effect of two or more pesticides acting together.
35. Knowledge of the effects of specific pesticides continually changes. As new information becomes available, the Health Department revises its list of pesticides it approves.
36. Neither the Department of Agriculture nor the Department of Health involvement would comprehensively review the broad issue of ground or surface water contamination from this project.
37. Neither the Health Department nor the Agriculture Department has reviewed the Applicants' proposal for storing pesticides and fertilizers or examined the possible impacts from the improper storage, overapplication, or spilling of the pesticides. The Health Department has a toxicologist on staff, although the Agriculture Department does not. The only inspections that will occur are spot checking by one of three Department of Agriculture inspectors responsible

for reviewing all pesticide applicators in the State. The Department of Agriculture will be also involved to the extent of certifying applicators and reviewing specific pesticides and fertilizers as requested by the Applicants.

38. Some of the pesticides and fertilizers that would be approved for use may be water-soluble.
39. The predominant soils on the proposed golf course site consist of Cabot, Peru, and Lyman E soils. Cabot soils are generally poorly drained and loamy with a compact layer 10 to 24 inches below the surface that impedes the downward movement of water and a water table at or near the surface. Peru soils are generally well drained and loamy, with a compact layer that impedes the downward movement of water and causes a saturated condition above it; the water table is one and one-half to two feet below the surface. Lyman E soils are excessively drained and shallow to bedrock, with bedrock outcrops and rapid permeability. None of these soils is totally impermeable: some leaching through the soils will occur.
40. The greens and tees will be constructed of permeable sandy soils. These soils will drain to the native soils below.
41. The more permeable soils, soils with a shallow depth to bedrock, and a high water table facilitate migration of substances into the groundwater.
42. Two aquifers in the area have been identified. The shallow aquifer, located along the trough of the valley, is the source for many of the shallow wells in the valley. The other aquifer, located in the bedrock, is overlaid by a layer of glacial till of generally low permeability.
43. In addition to the Sherman Hollow Brook that flows from east to west through the valley, a number of smaller streams flow through the valley and the site, all eventually feeding the Huntington River to the east.
44. The Sherman Hollow Brook appears to represent a hydrologic barrier that separates groundwater recharge areas on the north and south sides of the valley. Activities on the south side of the stream, where the golf course will be located, may not have any impact upon water supplies on the north side.

45. Most of the water supplies in the area are located north of the Sherman Hollow Brook. The Austin and McDonald water supplies, however, are located on the same side of the brook as the golf course.
46. Several of the proposed greens and tees are located close to the Sherman Hollow Brook and other watercourses.
47. Features of the golf course designed to decrease the possibility of migration of pesticides include berms and buff'er strips on the site. The Applicant has testified that fifty-foot buffer strips will be maintained along stream banks. The plans, however, show tees and greens located closer to streams than fifty feet.
48. The Applicants have made no commitment not to use water soluble pesticides. Buffer strips offer little or no protection against water soluble pesticides. Water soluble pesticides pass through buffer strips or leach vertically.
49. Contamination of shallow wells and both surface and ground water is possible due to runoff and infiltration of pesticides.
50. The Austin and McDonald water supplies consist of poorly constructed shallow wells without protective seals. The Applicants will monitor those wells and have offered to replace the Austin or McDonald wells with wells of equivalent flow in the event that either well becomes contaminated. The Applicants will post a bond with the District Commission in the amount of \$5,000 for each well.
51. Overapplication of pesticides resulting from miscalculations of the proper concentration, improper spray technique, mistake in calibration of the sprayer and intentional overapplication can be poisonous and may result in contamination of ground and surface waters.
52. Little data exists regarding the effect of pesticides from golf courses on water supplies.
53. No studies of the aquifers underlying the site, including the characteristics of the aquifers, or of water table contours have been undertaken. Without such information, an accurate assessment of the groundwater underlying the site, including flow directions and rates, is not available.

54. The Applicants assert that a groundwater flow study is not necessary because they "have assumed a 'worst case' dilution analysis in the second phase of the Golf Course Management Plan." The GCMP states that if, after submitting information regarding a proposed chemical to the Health Department, the Department needs more information, the Applicants may provide "an analysis prepared by a hydrogeologist using a simple dilution type calculation to determine preliminary 'worst case' dilution for each product."
55. Water percolating downward from the greens and tees will be captured in drains. No designs for drains have been submitted. The locations of the drains and **outfalls** have not been determined.
56. The Applicants have developed a water quality monitoring program to arrive at baseline water quality. The monitoring program consists of weekly sampling over a three-month period and analysis of samples as recommended **by** the State.
57. An ongoing monitoring program has also been developed which designates sample locations and establishes parameters and sampling frequencies of once a month prior to construction and once every three months after construction, except for more frequent monitoring of Sherman Hollow's primary well. The monitoring program consists of lysimeters on two tees and two greens that allow for the sampling of downward percolating water in the unsaturated zone; a series of surface water quality sampling locations at key points in the watershed; and a series of groundwater sampling locations that includes existing water supplies.
50. The lysimeters will allow for the sampling of downward percolating water into the unsaturated zone and are intended to detect chemicals migrating before they reach the groundwater system.
59. The monitoring program provides that should contamination occur, the Applicants will notify the Department of Environmental Conservation and the Vermont Department of Health. In addition, there will be annual review of sampling by a consultant and the submission of an annual summary to the Vermont Department of Health, the Department of Environmental Conservation, the District Environmental Commission, and the Town of Huntington. The program will be revised after two years of operation, if necessary.

Monitoring of the greens, tees, and surface water will continue for three years, and groundwater monitoring will be conducted for five years.

60. The proposed monitoring program cannot prevent contamination of groundwater or wells, since contamination can only be measured after it has occurred. Once contamination occurs, clean-up could be difficult and very expensive.

D. Criterion 1(E) (streams)

61. The Sherman Hollow Brook runs through the proposed golf course in an approximately east-west direction, just south of the Sherman Hollow Road. The entire area of the proposed golf course drains into the stream. The stream crosses the property of Marlene McDonald, goes under the Sherman Hollow Road, and crosses the property of Peter Bailey and the Audubon Nature Center to the Huntington River.
62. A small stream runs into the Sherman Hollow Brook in the vicinity of the proposed 15th green and another at the Austin property boundary near the proposed 13th green. Several other watercourses drain the proposed golf course area: one passes near the 6th, 1st, 10th and 12th greens, then crosses the Austin property near the Austin well; the second crosses the 6th, 2nd, and 11th fairways and the southeast corner of the Austin property near the 11th green; the third drains the area containing the proposed 3rd green and 4th tee. A watercourse passes onto the McDonald property within 12 feet of her well. The plans submitted by the Applicants did not identify all the intermittent watercourses that exist on the site.
63. The Sherman Hollow Brook is clear and clean and supports a variety of aquatic life. It is used in several spots as a swimming hole.
64. Grass berms will be constructed on the downhill sides of tees and greens to minimize runoff.
- "65. The Applicants testified that 50-foot buffer strips will be maintained along the streams except where the fairways cross the streams. The ability of vegetated buffer strips to prevent soluble materials such as pesticides to pass through or leach vertically is questionable. However, the plans show that the 13th

and 15th greens and the 14th and 18th tees are within 50 feet of the Sherman Hollow Brook and that the 1st, 3rd, 10th, 12th, 16th, and 18th greens and the 4th and 12th tees are within 50 feet of an intermittent watercourse.

66. The Applicants have not submitted plans showing the location or construction of the drains proposed to be located under the greens and tees or the locations of the outflow of the drains.
 67. The golf course will be irrigated with an irrigation system that will cover each green and tee, including practice greens, but no plans for an irrigation system have been submitted. Although a number of watercourses cross the site, the Applicants have provided no plans for the crossing of streams with irrigation pipes.
 68. The Applicants claim that irrigation of the tees and greens will require one inch of water per acre per week to maintain healthy turf. The calculations on which this figure was based were not presented to the Board, other than a statement that average rainfall in Vermont is 44.5 inches per year. No information regarding seasonal or monthly distribution of this rainfall was presented.
 69. The amount of water required for irrigation varies depending upon the soil types, species of turf grass used, amount of rainfall, and the rate of evapotranspiration.
 70. The Applicants presented no analysis of the soils and no information regarding the species of turf grasses to be used, and incomplete information about the distance between the golf course greens and tees and all the watercourses.
 71. No information on the effect of pesticides and fertilizers upon the Sherman Hollow Brook has been submitted.
 72. The Health Department will not evaluate the impact of pesticides and fertilizers upon the aquatic life in streams. Streams on site will be monitored for three years.
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E. Criterion 3 (water supplies)

73. The Applicants estimate that 21,905 gallons per day of water will be required to irrigate the greens and tees at the rate of one inch per week. Approximately 6,000 gallons per day of water are required for non-irrigation needs.
74. The total amount of water available from the project's wells is approximately 21,000 gallons per day. Water is stored in an existing pond.
75. While the Applicants have estimated the amount of water available from the existing pond, their estimation did not take into account infiltration or exfiltration rates.
76. The project's primary well is located along the Sherman Hollow access road approximately 600 feet south of Sherman Hollow Road. The bedrock well is approximately 200 feet deep; water was encountered at 173 feet. Another well, approved for 7.5 gallons per minute, is located approximately 1,500 feet south of the primary well.
77. A deep aquifer is located in the bedrock, where wells draw groundwater from rock fractures. A shallow aquifer is located along the valley floor. The two aquifers are separated by a layer of glacial till of generally low permeability.
78. With the exception of one of Lisa Barrett's wells, all water supplies in the area are shallow, hand-dug wells. Ms. Barrett's well, which yields 1.5 gpm, is 550 feet deep and is approximately 2,700 feet from Sherman Hollow's primary well. The Health Department is only concerned about possible well interference when wells are located within a 1,000 foot radius of production wells yielding five to 20 gpm.

F. Criterion 4 (soil erosion)

79. The Applicants intend to clear the forested land on the site in order to construct the golf course. The erosion control plan for the clearing operation will be implemented in accordance with the "Guides for Controlling Soil Erosion and Water Pollution on Logging Jobs in Vermont" that was prepared by the United States Soil Conservation Service, the State of Vermont, the United States Forest Service, and the Vermont Soil

Conservation Districts. These guides formed the basis for the "Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont" recently developed by the Vermont Department of Forests, Parks, and Recreation.

80. In addition to following the guides and management practices mentioned above, the Applicants will adhere to the following guidelines:

a) Main skid roads will use the clear cuts and will avoid drainage areas whenever practical. Landing areas and main skid roads will be located in accordance with a map with exact locations to vary only at the discretion of the supervising forester as needed to adjust for unforeseen circumstances.

b) Operations will be halted during periods of excessively wet ground conditions, as occur seasonally in the spring and fall and at other times when large amounts of non-frozen precipitation occur.

c) Roads and landings will be graded and mulched during temporary periods of inactivity and will be graded, seeded, and mulched at the conclusion of clearing operations, except when stump removal and recontouring activities follow immediately.

d) Daily supervision will be carried out by Forest Management Associates of Montpelier, Vermont, with intense multi-professional supervision during the start up and early days of the operation.

e) A contract stipulating the above conditions will be signed by a contractor.

f) A performance deposit or security bond will be posted by the contractor to assure compliance with the contract provisions.

81. The majority of the golf course will be located on a hillside above the Sherman Hollow Brook that is intersected by several small drainage courses. The slopes range up to 25%; 12 of the 18 holes have tees or greens on slopes in excess of 15%. Of those holes with slopes less than 15%, only two involve slopes less than 10%. Developing the proposed terraces for the fairways, tees, and greens will require recontouring the land and constructing the greens and tees will require substantial cutting and filling. Moving earth on steep slopes creates a high potential for silt and sediment movement.

82. The erosion control specifications and plans that the Applicants intend to follow are general and not site-specific. They do not contain either site details or erosion control details. For example, while stump burial grounds are proposed for areas with existing vegetation, no plans have been submitted that indicate whether or how the existing vegetation will be maintained. Moreover, protection for existing vegetation throughout the site is not provided.

83. None of the exhibits submitted by the Applicants contains an accurate, complete, and detailed map of the site on which erosion control details are depicted.

G. Criterion 5 (traffic)

84. The Sherman Hollow Road is a Class III, unpaved town road located in both the Towns of Huntington and Hinesburg. The road is narrow and contains a number of curves. Sight distances are generally inadequate. Twelve residences are located along the road in Huntington, and at least 14 houses are located along the Hinesburg portion of the road.

85. The Green Mountain Audubon and Nature Center is located along both sides of the road in Huntington. Approximately 19,000 people visit the Center each year, many of whom are school children. Hikers use the five miles of trails, five of which begin at or cross the Sherman Hollow Road. The road is used to get from one trail to another.

86. The Sherman Hollow Road experiences a low volume of traffic. It is used primarily by the residents of the road, the school bus, town maintenance vehicles, and the mail carrier, and is rarely used by through traffic.

87. In one 12-hour period on May 29, 1985, a total of 34 car trips were observed on the Sherman Hollow Road. In the winter of 1988, an average of approximately 85 people per day traveled to the Sherman Hollow cross-country ski center.

j/88. The Sherman Hollow Road is used regularly by children walking and riding bicycles, joggers, hikers, birdwatchers, horseback riders, and tractors, most frequently during the summermonths.

89. The Applicants estimate that the golf course will generate 280 to 300 vehicle trips on a peak weekend day, assuming two golfers per vehicle.

90. Golf carts and golfers will have to cross Sherman Hollow Road to get from the 15th green to the 16th tee and from the 17th green to the 18th tee. The locations of golf cart crossings and sight distances have not been submitted as part of this application.

91. The Sherman Hollow Road is the sole access to the project. Traffic may approach the site from either the western (Hinesburg) or eastern (Huntington) end of Sherman Hollow Road. The Sherman Hollow Road is in need of substantial improvements. The Applicants' traffic consultant recommends the following:

Upgrade Sherman Hollow Road, either by improving its surface or by paving.

Adjust the horizontal and vertical roadway alignment, where possible, to eliminate existing sight distance and width deficiencies.

Improve sight distance at the intersection of Sherman Hollow Road with the Huntington Richmond Road.

Post and enforce a 30-mph speed limit.

Install guardrail at locations with steep, unprotected slopes.

Locate golf crossings to maximize sight distance and safety.

Monitor traffic to deal with any unexpected conditions.

92. The Applicants have offered to give \$125,000 to the Town of Huntington for road improvements on the Sherman Hollow Road. This amount is sufficient to cover the costs of realignment, widening, and resurfacing for the anticipated increase in traffic from the golf course.

H. Criterion 8 (aesthetics)

93. The existing landscape in the area of Sherman Hollow consists of hilly valley land of forests interspersed with fields and residential homesites.

94. The golf course is designed to achieve a park-like effect. The fairways will be separated by buffers of forest areas; existing stone walls will be maintained

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and integrated into the fairway edge: overgrown pasture land will be restored to its previous visual pattern of open and closed areas; and brush will be removed to provide views of Camel's Hump. The overall visual effect of the golf course will be a patchwork of maintained lawns contrasted by forest areas.

95. Except where the 13th green is located approximately 250 feet from the Kelley property, the golf course is a minimum of 1,000 feet from the residences along the Sherman Hollow Road. Trees will screen the golf course from most of the residences and large parts of the Sherman Hollow Road.
96. The proposed 1.5 kilometer lighted ski trail will be located in a small valley parallel to a portion of the existing 3.5 kilometer trail farther away from the Sherman Hollow Road.
97. Lighting on the existing 3.5 kilometers of ski trails consists of three downward-directed lamp heads located on trees at less than 20 feet above the ground level and at intervals of approximately 100-200 feet.
98. The proposed lighting for an additional 1.5 kilometers of trails will be similar to the existing lighting. No specific proposals for types, sizes, or number of lighting fixtures, or plans depicting the locations of the lights have been submitted.
99. The existing lighting is not directly visible from any of the houses along the Sherman Hollow Road or from the road itself. When the night air is hazy, the lights cause a glow in the sky.

I. Criterion 9(A) (impact on growth)

100. Solid waste generated by the golf course will be picked up by the private hauler that currently picks up the trash generated by the ski area.
101. The Town of Huntington does not have its own police but relies upon the Vermont State Police. Demand for police services will not rise due to the construction of the golf course.
102. Under both State and federal law, Sherman Hollow would be required to notify the municipal fire department of the location of each hazardous chemical.

103. Huntington's volunteer fire department may not be trained in controlling pesticide fires and may not possess the equipment necessary to fight pesticide fires. If it is lacking the necessary training and equipment, special training and equipment would be required to deal with the possibility of a fire at the pesticide storage building.
104. The heavy equipment required for logging the property could cause damage to the road. For this reason, road repairs and upgrading will be implemented after the completion of this aspect of construction.
105. Sherman Hollow has entered into a stipulation with the Town of Huntington agreeing to pay the Town up to \$125,000 for "front end improvements for the Phase I portion of the Sherman Hollow project, including but not limited to guardrails, culverts, roadside ditching, crowning, and gravel replacements." The Applicants represent that \$125,000 will cover the cost of the needed repairs.
106. Additional routine maintenance on the Sherman Hollow Road due to the traffic from the golf course is estimated to be between \$400-\$600 annually.
107. The estimated increase in value of the Sherman Hollow property with an 18-hole golf course is \$461,000. With the current property tax rate of \$2.72 per hundred dollars assessed value, the golf course would bring in \$12,539 in additional tax revenues, including \$8,529 for the school tax and \$4,010 for the town tax. After subtracting the approximately \$5,000 reduction in state aid to education, the additional school tax would be approximately \$3,500.
108. Neither Huntington, Hinesburg, nor Richmond has a capital improvement program in place.

IV. CONCLUSIONS OF LAW

A. Criterion 1 (Air)

The Applicants propose to clear the golf course site by "hiring professional loggers who will cut the timber on the !/property. The logging operation will take up to two construction seasons and will involve the use of the usual **equipment**, including a bulldozer, skidders a chipper, and **trucks**. While a logging operation such as this **creates a**

good deal of noise, it is the same as noise that would arise from a normal forestry operation that could occur on this land.

The Board notes that although the Applicants state that noise levels at the property boundaries will not exceed 70 decibels, no testimony of actual noise levels has been introduced by any party. The Board is concerned about excessive levels of noise from the chipper, particularly since it is proposed to be located at the log landing across the road from two homes. Consequently, the Board will condition any permit to require that chipping operations take place at a location on the site farther enough away from neighbors' homes that unreasonable disturbance would not occur.

In order to ensure that neighbors are not unreasonably disturbed by the noise from the logging operations or the mowing, the District Commission would retain jurisdiction to impose additional conditions if necessary.

The machines used in the mowing of the golf course will result in noise during most of the days that the golf course is open, beginning early in the morning. Due to the location of the golf course in a narrow valley, sounds coming from one part of the valley will be clearly audible at other places in the valley.

The Board acknowledges that noise can create undue pollution when it intrudes on people, regardless of the decibel level. Therefore, if the Board were to issue a permit for the golf course, it would require that the logging operations be limited to 7:00 a.m. to 6:00 p.m. Monday through Friday, and that mowing operations not begin until after 7:30 a.m.

If the Board were issuing a permit for the golf course, it would include the following conditions:

The chipper **must** be located at a place far enough away from neighbors' homes that unreasonable disturbance will not occur from chipping operations.

Logging operations shall be limited to 7:00 a.m. to 6:00 p.m., Monday through Friday, except legal Federal holidays, and mowing operations shall not begin until after 7:30 a.m.

The District Commission will retain jurisdiction over this matter to ensure that the neighbors are not unreasonably disturbed by the noise from the logging operations or by the operation and maintenance of the golf course.

B. Criterion 1(B) (pesticides)

Criterion 1(B) requires the applicant to demonstrate that the development "will not involve the injection of waste materials or any harmful or toxic substances into ground water or wells."

The Applicants propose to construct a golf course of "championship" quality. In order to keep the turf free of weeds and to ensure healthy growth of the grass, intensive management, including the use of pesticides and fertilizers, will be necessary.

Many of the pesticides and fertilizers that will be applied on the golf course pose potential risks of contaminating the environment through migration into ground and surface waters. A substantial portion of the soils on the site are of relatively high permeability with shallow depth to bedrock and a high water table, and the greens and tees will be constructed of sandy soils. These soil characteristics tend to facilitate migration of substances into the groundwater. A number of surface streams are located throughout the site, some of which are close to the greens and tees, which receive the most intensive chemical application. A shallow aquifer is located along the valley floor and a deep aquifer also underlies the area. Although no analysis or study of the site has been conducted to determine actual groundwater flow, including rates and directions, it is clear that at least the Austin and McDonald water supplies, consisting of poorly constructed shallow wells without protective seals, are vulnerable to pollution. Other water supplies in the area may be fed by water flowing from or near the golf course. Due to the soil conditions on this site that are known, the abundance of surface water courses, and the high water table, it is reasonable to assume that pesticides and fertilizers may migrate into the groundwater or the surface waters or both.

The Applicants contend that they are providing safeguards to prevent the contamination of the ground and surface waters. They intend to implement the Integrated **Pest** Management Program which involves the use of biological and bacteriological controls and which may reduce the quantity of pesticides applied. They have developed a plan for managing the use of pesticides on the golf course that involves a golf course superintendent trained in the application of pesticides. Grass berms and buffer strips will be constructed and maintained in an attempt to reduce runoff and migration of pesticides and fertilizers into the surface waters. All pesticides and fertilizers that will be

used will be approved by the Vermont Department of Health prior to their application. Groundwater will be monitored at least for several years, and if contamination occurs, the Applicants will notify the Department of Health and the Department of Environmental Conservation.

The Board is not persuaded, however, that contamination will not occur. Implementation of the Integrated Pest Management program could result in the use of fewer pesticides. Nevertheless, substantial quantities of pesticides and fertilizers may be used to maintain the golf course for peak performance.

Pesticides are potentially hazardous. The knowledge of the effects of various pesticides is constantly evolving and changing, and pesticides that were once deemed safe have turned out to be highly toxic. There is a lack of data regarding the synergistic effects of exposure to several pesticides and chemicals together, and very little is known about the toxicology of the so-called "inert" ingredients that are applied with the pesticides. Even proper spraying of pesticides can cause the pesticides to drift, and accidental overapplication of pesticides can be poisonous and can contaminate ground and surface waters.

Given the potential for environmental contamination from pesticides, the Board is especially concerned about the lack of specific information provided by the Applicants. The Applicants have not determined the specific pesticides and fertilizers which they will use. Therefore, the Board has no way of determining whether the pesticides and fertilizers that are actually used will not be toxic. No guidelines or standards exist for determining the amount of pesticides needed at any given time. An accurate assessment of the rate and direction of groundwater flow at the site is not available because no study of the aquifers underlying the site has been conducted. No soils information was provided for evaluation of permeability or the behavior of the pesticides and fertilizers in the soils. The Applicants have proposed to install drains under the tees and greens to capture surface runoff, but the exact design and locations of the drains and outfalls have not been determined. No provision has been made for review of bacteriological controls. Without this information, the Board cannot conclude that contaminated surface water will be safely contained.

The Applicants argue that because their risk assessment involves dilution calculations which assume the "worst case," there is no need to do a study of actual soil

conditions and groundwater flow. This assertion is not satisfactory, for several reasons. One, the risk assessment is concerned only with acceptable levels of pesticides in drinking water and does not consider the effect of pesticides on aquatic biota, wildlife, or water other than drinking water. **Two**, the dilution calculations are performed only on pesticides and fertilizers about which the Health Department needs more information to determine whether to approve them. Finally, dilution calculations based upon too many assumptions are not reliable. For instance, the extent of dilution of the pesticides and fertilizers will depend upon the flow rates at any given time. Without at least the specific bases for the dilution calculation, the Board is unable to determine whether all necessary factors have been considered. Thus, only a small portion of the Board's concerns is addressed by the proposed risk assessment procedure.

Moreover, the regulatory involvement of the Department of Health and the Department of Agriculture will be quite limited. The protocol for Department of Health approval of pesticides for use on the golf course has not been fully developed and therefore was not available to the Board for its review. Approval by the Health Department is limited to the area of drinking water and does not ensure that a chemical is safe if spilled, overapplied, or burned, or that it will not have an adverse effect upon people, wildlife, aquatic biota, or other waters. Furthermore, the Applicants' proposal for storing pesticides and fertilizers or the possible impacts from improper storage, overapplication, spilling, or burning of the pesticides have not been reviewed by either the Department of Health or the Department of Agriculture. On-going monitoring of pesticide use by another state agency is limited to occasional inspections by the Vermont Department of Agriculture.

In this application, the Board has been provided only very general information and assumptions. The Applicants failed to provide any information about the soils, they did not identify all the water courses on the site, and they provided no specific information about the groundwater flow rates and directions. The effect of the use of pesticides on this site has not been evaluated. The Applicants' conclusions that no undue water pollution will occur is based almost entirely upon assumptions that have not been tested. The proposed monitoring program would only detect contamination of ground or surface water after it has **occurred** but would not prevent contamination. Without more detailed information on the groundwater flow, rates, and directions, the Board does not know that a monitoring

program will be meaningful. Monitoring wells need to be located based upon specific site information in order to provide accurate and timely information. A monitoring program will only be beneficial if it is designed and implemented to ensure that possible pollution is detected in time both to evaluate the situation and to correct any problems. Any monitoring program must also ensure that the proposed lysimeters will allow detection of every pesticide that may be applied. All pesticides have the potential to poison the environment and once contamination occurs, clean-up can be difficult and very expensive.

The Board cannot conclude that the Applicants have met their burden of proving that harmful or toxic substances will not be injected into groundwater or wells. In light of the potentially harmful nature of pesticides and fertilizers, combined with the lack of site-specific information regarding movement of groundwater, the drainage and soil characteristics that are or could be known, the lack of identification of the actual pesticides and fertilizers to be used, and the lack of information regarding the handling of pesticides and pesticide residue and bacteriological alternatives, the Board is not persuaded that contamination of ground and surface waters and wells will not occur.

The District Commission or the Board would need the following additional information in order to determine whether it could issue positive findings on this criterion:

1. A list of the pesticides and fertilizers that could be applied to the golf course, with information about the characteristics of each, including its mobility and solubility.
2. Results of a groundwater study that includes specific borings to determine the rates and directions of flow throughout the site, depth of the water table, and the general zones of influence.
3. Soil types throughout the site, with particular attention to the native soils at the areas of the proposed greens and tees.
4. Construction details for the greens and tees, including soil types.
5. A revised groundwater monitoring program that includes assurances that all proposed pesticides and fertilizers are capable of being detected with lysimeters or monitoring wells, and that the lysimeters and wells are located so that they will detect any pollution in a timely fashion.

6. Information on the effects of using bacteriological controls, or assurances that these will be reviewed by experts if used.
7. Designs of the drains at the greens and tees and designs and locations of the outfalls.
8. Specific plans for dealing with pesticide spills or fires at the pesticide storage building.
9. Information to demonstrate that the pesticides and fertilizers to be used will not adversely affect the aquatic biota of the streams or groundwater.
10. Specific procedures intended for handling the wash and rinsewater from cleaning pesticide application equipment and the methods for disposing of this water.

The Board would also require that monitoring of ground and surface waters would extend beyond the life of the project.

C. Criterion 1(E) (streams)
Criterion 3 (water supplies)

Criterion 1(E) provides that the applicant must demonstrate that the development of lands "adjacent to the banks of a stream will, whenever feasible, maintain the natural condition of the stream, and will not endanger the health, safety, or welfare of the public or of adjoining landowners."

Criterion 3 requires the applicant to demonstrate that the development "[w]ill not cause an unreasonable burden on an existing water supply. ..."

The Board believes the Applicants have not met their burden of proof with respect to Criterion 1(E). As described above, several of the proposed greens and tees are very close to the Sherman Hollow Brook or other watercourses, and the potential for contamination of these waters by pesticides and fertilizers exists. The impact on the aquatic stream life from these pesticides and fertilizers has not and will not be analyzed by any state or federal regulatory agency.

Moreover, the Board cannot make a positive finding with respect to Criterion 1(E) because insufficient information has been submitted. The Applicants have not submitted plans showing the outflow locations for the drains under the

greens and tees. Since the greens and tees are going to receive intensive application of pesticides and fertilizers, information on the drainage patterns for the water collected in the drains is necessary to determine whether the streams will be affected.

The effect of irrigation upon the streams also cannot be determined based upon the information the Board received. While the tees and greens will be irrigated, plans for the irrigation system have not been made available to the Board. The Applicants claim that one inch of water per week will be required for irrigating the greens and tees^{/3/} but the Applicants also have not provided the Board with the basis for their assertion that their irrigation needs will be no more than one inch per week. The Board is therefore not persuaded that sufficient water exists for irrigation. It is possible that water will have to be withdrawn from the streams. However, the Board has had no opportunity to review the impact upon the streams from such activity, and cannot make a positive conclusion that the natural condition of the streams will be maintained. Furthermore, no plans for crossing the streams with irrigation pipes have been submitted.

Without this information, the Board is unable to find that the project will not cause an unreasonable burden on the streams groundwater, or existing water supplies. Most of the water supplies in the area are shallow and depend upon surface water for their water supply. In the event that the Applicants find that they need to withdraw water from the Sherman Hollow Brook for irrigating the golf course, these shallow wells could be affected. Therefore, the Board cannot find that the project complies with Criterion 3.

The District Commission or the Board would need the following additional information in order to determine whether it could issue positive findings:

1. A revised site plan showing at least a 50-foot buffer between greens and tees and all watercourses.
2. The locations of the outflows for the drains under the greens and tees.

^{/3/} If the Applicants later propose to irrigate the f airways, the application would have to be amended.

3. The information used to calculate the amount of water needed to irrigate the tees and greens.
4. Plans showing where and how the irrigation pipes will cross the streams.
5. Final designs for the irrigation system.

D. Criterion 4 (soil erosion)

Criterion 4 requires an applicant to demonstrate the project "[w]ill not cause unreasonable soil erosion or reduction in the capacity of the land to hold water so that a dangerous or unhealthy condition may result."

The Applicants propose to clear much of the currently wooded site to develop the golf course. In addition to an extensive logging operation, the land will have to be recontoured, involving a great amount of cutting and filling. Developing terraces for the fairways, greens, and tees will involve extensive moving of earth. The potential for sediment movement and siltation of streams is high.

The Applicants have provided a general soil erosion plan that would apply to any logging operation. No site-specific plans to control erosion based upon the actual logging operation at this site have been provided. Given the steep slopes on this site and the high potential for serious erosion, the Board cannot find that the Applicants have met their burden of satisfying Criterion 4 without more site-specific erosion control plans.

The District Commission or the Board would need the following additional information to determine whether it could issue positive findings on this criterion:

1. A map of the site that contains an accurate, detailed depiction of the existing site conditions with specific erosion control details for the proposed project.
2. An erosion control plan for both the clearing and grubbing of the site and the construction of the golf course.
3. Construction details for greens and tees including soil types.
4. Specific information on how the erosion control measures will be implemented.

5. Provisions for protection of existing vegetation.
6. Plans for the proposed routes of the golf carts from the greens to the tees and plans for erosion control during the construction and maintenance of golf cart paths.

E. Criterion 5 (traffic)

Criterion 5 requires that the applicant demonstrate that the project "[w]ill not cause unreasonable congestion or unsafe conditions with respect to the use of the highways...."

The Sherman Hollow Road is used extensively in the summer months by residents of the area and by visitors to the Audubon Nature Center. Summer traffic volume on the road is currently low and would increase substantially by virtue of the existence of a golf course. Sherman Hollow Road would require significant upgrading in its entire length in order to safely accommodate the additional----, traffic. If the Board were issuing a permit, it would require those improvements to the road that have been agreed upon by the Town and the Applicants to be made before the golf course opens for business. The Board would also require a low speed limit to ensure that unsafe conditions would not result.

If the Board were issuing a permit, it would include the following condition:

Before the golf course opens for business, the Applicants shall submit to the District Commission evidence that the Sherman Hollow Road has been improved to the Town's satisfaction. Such improvements shall include, but shall not be limited to, the addition of culverts, guardrails, roadside ditching, crowning, widening, and gravel replacement. The speed limit shall be posted at 30 mph. The Applicants shall also submit plans for crossing the Sherman Hollow Road for review and approval by the District Commission.

F. Criterion 8 (aesthetics)

Criterion 8 requires that the Board find that a project "[w]ill not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, historic sites or rare and irreplaceable natural areas."

The Board has provided a framework for analyzing the aesthetic effect of a project in In re Quechee Lakes Corporation, Land Use Permit #3W0411-EB and #3W0439-EB (November 4, 1985). In order to decide whether the effect of a project on the aesthetics of an area will be "adverse," the Board must first identify the context of a proposed project and determine whether the project will "fit" into that context. This involves evaluating the nature of the project's surroundings including the character of the area, its density, and existing land uses. The visual compatibility of the project are also considered.

The Board believes that the golf course will have an adverse effect during its construction phase and possibly also during its operation. The peaceful valley will experience a huge upheaval by virtue of the two-year logging operation, with the movement and use of heavy machinery and the resulting noise. The disruption caused by the clearing of such a large area will have an adverse effect on the aesthetics of the area. Once constructed, while visibility of the golf course will be limited to several areas, the very existence of the golf course will change the context of the peaceful rural/residential neighborhood. The widening of the Sherman Hollow Road to accommodate the additional traffic will alter its "backroad" character which could also affect the rural nature of this small valley.

According to the procedure described in the Quechee decision, if the Board determines that a project will have an adverse effect, it must then decide whether the adverse effect is "undue." This involves addressing the following questions. If the Board reaches a positive conclusion with respect to any of the questions, the permit must be denied.

- 1) Does the project violate a clear, written community standard intended to preserve the aesthetics or scenic, natural beauty of the area? Such standards may, for example, be set forth in the local or regional plan, or be adopted in the creation of an historic design district, or be incorporated into a municipal or State scenic road designation. If the Board or Commissions find that such standards do exist, and that the project as designed would violate those standards, the adverse impact would be undue.
- 2) Does the project offend the sensibilities of the average person? The Legislature has directed the Commissions and this Board, composed of lay people from many different communities within Vermont, to determine what is acceptable in terms of new developments' impact on aesthetics and scenic and natural

beauty. If our sensibilities are, collectively, offended by a project, its impact under Criterion 8 is undue. It is not enough that we might prefer to see a different design or style of building, or that we might prefer a different type of land use, but that the project, when viewed as a whole, is offensive or shocking, because it is out of character with its surroundings, or significantly diminishes the scenic qualities of the area.

- 3) Has the Applicant failed to take generally available mitigating steps which a reasonable person would take to improve the harmony of the proposed project with its surroundings? Such steps may include selection of less obtrusive colors and building materials, implementation of a landscaping plan, selection of a less obtrusive building site within the project area, or reduction of the mass or density of a project. If there are reasonable alternatives available to the Applicant that would mitigate the adverse impact of the project, failure to take advantage of those alternatives may, in some circumstances, render undue an otherwise acceptable aesthetic impact.

Without the Huntington Town Plan in evidence, the Board cannot determine whether there is a clear, written community standard intended to preserve the scenic and natural beauty of the area. The Board cannot find, therefore, that any community standard is violated by the project.

The Board does not believe that the project would be so aesthetically offensive as to be shocking. The golf course will not be highly visible from most areas of the Sherman Hollow Road or the neighbors' homes, and the design of the golf course involves leaving substantial areas of vegetation. The Board does believe that excessive noise can create an undue adverse impact upon aesthetics by its offensiveness to people. However, if the Applicants mitigate the noise impacts by following the parameters described in the section on air pollution, above, the Board is persuaded that the noise from the project would not be undue.

Therefore, if the conditions are adhered to, the Board concludes that the golf course construction and operation will not cause an undue adverse impact on the aesthetics and scenic and natural beauty of the area.

With regard to additional lighting on the cross-country **ski** trails, the Board believes that the aesthetic impact will not be adverse. The existing 3.5 kilometers of lighted

ski trails are not visible, and no persuasive evidence was presented that the lights from an additional 1.5 kilometers will be able to be seen from any vantage point. Therefore, the Board will issue a permit for the addition of lighting to 1.5 kilometers of cross-country ski trails.

G. Criterion 9(A) (impact of growth)

Under Criterion 9(A), the burden of persuasion is on any party opposing the application. With one exception, the opponents in this case have not proved that a burden on the town would be created by the project if the Sherman Hollow Road is completely upgraded. The Board is concerned, however, that an undue burden upon the volunteer fire department would be created if it were required to provide the special training and equipment necessary to deal with a fire at the pesticide storage building. If it were issuing a permit for the golf course, the Board would require the Applicants to determine whether the local fire department possesses the training and equipment necessary for dealing with a pesticide fire and to provide such equipment and training if it does not.

If it were issuing a permit, the Board would include the following condition:

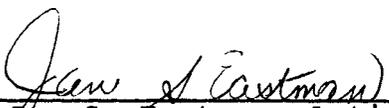
The Applicants must provide assurances to the District Commission that the local fire department possesses the training and equipment necessary for dealing with a pesticide fire. If the fire department does not possess the necessary training and equipment, the Applicants shall provide such to the fire department before the golf course may open.

IV. ORDER

1. The motion to reopen is hereby denied.
2. Land Use Permit Amendment #4C0422-5-EB is hereby issued in accordance with the Findings of Fact, Conclusions of Law and Order herein and Findings of Fact and Conclusions of Law #4C0422-5 issued by the District Commission relative to additional lighting of 1.5 kilometers of cross-country ski trails.
3. Land Use Permit Amendment #4C0422-5-EB is hereby denied in accordance with the Findings of Fact, Conclusions of Law and Order herein relative to the construction of a golf course.
4. Jurisdiction over this matter is returned to the District #4 Environmental Commission.

Dated at Montpelier, Vermont this 17th day of February, 1989.

ENVIRONMENTAL BOARD



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