

VERMONT ENVIRONMENTAL BOARD  
10 V.S.A. Chapter 15

RE: Killington, Ltd. by Findings of Fact and  
John J. Zawistoski, Esq. Conclusions of Law  
and **Allan R. Keyes**, Esq. and Order (Part III),  
Ryan Smith & Carbine, Esq. Application #1R0584-EB-1  
P.O. Box 310  
**Rutland**, VT 05701  
and  
International Paper  
Realty Corp. by  
Martin Molot, Vice President  
One Maynard Drive  
Park Ridge, NJ 87656

This decision pertains to an appeal filed with the Environmental Board on August 13, 1987 by Killington, Ltd. and International Paper Realty Corporation (IPRC) from the decision of the District #1 Environmental Commission denying approval for Killington to construct and operate a snowmaking pond on land owned by IPRC. The project is located in an area known as Parker's Gore East in **Mendon**, Vermont, adjacent to the Killington ski area. The Applicants appealed the Commission's conclusions that the snowmaking pond is **part of** a larger development in Parker's Gore East, that Parker's Gore East contains "necessary wildlife habitat" for black bears within the meaning of 10 V.S.A. §§ 6086(a)(8)(A) and **6001(12)**, that the construction and operation of the pond will destroy or significantly imperil the necessary wildlife habitat, and that the conditions of the three subcriteria of Criterion 8(A) were not met. The Applicants also objected to the Commission's consideration of **Killington's** need for snowmaking water under Criterion 2 and the Commission's proposed condition under Criterion 4.

I. SUMMARY OF DECISION

Upon the request of the Applicants, the Board trifurcated the proceedings and addressed the following issues separately: 1) What is the scope of the project? 2) Does the area affected by the project contain necessary wildlife habitat and, if it does, will the project destroy or significantly imperil the habitat? 3) Does the project meet the three subcriteria of Criterion 8(A)?

On April 19, 1988, the Board issued Part I of its decision with respect to the scope of the project, in which it concluded that the snowmaking pond is a viable project on its own and that consideration of Application #**1R0584-EB-1** is limited to a review of the impacts from the construction

and operation of the pond and related facilities. On May 11, 1989, the Board issued Part II of its decision, in which it concluded that Parker's Gore East, including the wetland at the pond site, constitutes necessary wildlife habitat for black bears and that the proposed project will destroy or significantly imperil the habitat.

In this decision, the Board addresses the three subcriteria of 10 V.S.A. § 6086(a)(8)(A) and various other issues raised by the parties, and concludes 1) that the economic, social, cultural, recreational, or other benefit to the public from the development or subdivision will not outweigh the economic, environmental, or recreational loss to the public from the destruction or imperilment of the habitat; 2) that the Applicants have not applied all feasible and reasonable means of preventing or lessening the destruction or imperilment of the habitat; and 3) that the Applicants failed to present sufficient evidence to demonstrate that they do not own or control any **reasonably** acceptable alternative sites **which** would allow the project to fulfill its intended purpose. Accordingly, based **upon the** evidence submitted, the Board denies the application for a snowmaking pond.

## II. PROCEDURAL HISTORY

This appeal was filed several months after the District #1 Environmental Commission denied an application by Killington and Norman Smith to conduct a logging operation in Parker's Gore East. At the request of parties, the Board decided to hold joint hearings and issue a decision on the issue of whether necessary wildlife habitat exists in the area affected by the logging and the construction and operation of the snowmaking pond, and separate hearings on all other issues. The Applicants sought to have initial decisions on the scope of the snowmaking pond project, whether certain areas of **Parker's** Gore East contain necessary wildlife habitat, **and**, if they do, whether the project will destroy or significantly imperil the habitat before addressing the three subcriteria of Criterion 8(A) and other issues raised in the appeal. As indicated above, the Board first held hearings and issued a decision on the scope of the snowmaking pond project. Re: Killington, Ltd. and International Paper Realty Corp., Findings of Fact and Conclusions of Law and Order #1R0584-EB-1 (Part I) (Apr. 19, 1988). The Board then held hearings and concluded that Parker's Gore East contains necessary wildlife habitat for black bears that would, be destroyed or significantly imperiled by the proposed logging **operation and** by the

construction and operation of the proposed snowmaking pond.  
Re: Killington, Ltd. and International Paper Realty  
Corp./Norman R. Smith, Inc. and Killington, Ltd., Findings of  
Fact and Conclusions of Law and Order #1R0584-EB-1 (Part II)  
and 1R0593-1-EB (Part I) (May 11, 1989).

On July 11, 1989, a prehearing conference was convened  
by Acting Chair Jan S. **Eastman** for the purpose of discussing  
the procedures to be followed and the remaining issues to be  
addressed in the reconvened hearings. A Prehearing  
Conference Report and Order was issued on July 27. Hearings  
were reconvened on January 26, February 8 and 9, and March  
21 and 22, 1990. The following parties participated in the  
hearings:

Applicants by John J. Zawistoski, Esq. and **Allan R.**  
Keyes, Esq.  
Town of Shrewsbury and Shrewsbury Planning **Commission**  
by Robert E. Woolmington, Esq.  
State of Vermont, Agency of Natural Resources (ANR) by  
Mark A. Sinclair, Esq.  
Friends of Parker's Gore (Shrewsbury Land Trust)  
by William Roper, Esq. and Nancy Bell  
Vermont Natural Resources Council by Robert E.  
Woolmington, Esq.

On May 16, the Town of Shrewsbury, Shrewsbury Planning  
Commission, and the Vermont Natural Resources Council filed  
proposed findings of fact and conclusions of law and on  
May 17 ANR and the Friends of Parker's Gore filed proposed  
findings of fact and memoranda of law. **On May 18**, the  
Applicant filed proposed findings and conclusions and on  
June 13 the Friends of Parker's Gore filed a supplemental  
memorandum.

The Board conducted deliberative sessions on March 22,  
May 23, August 1, and September 5, 1990. On September 5,  
following a review of the record and the proposed findings,  
the Board declared the record complete and adjourned the  
hearing. 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. 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.

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III. PROCEDURAL ISSUES

A. Reopening the Hearing

On August 17, 1990, **Killington** filed two motions with the Board: a Motion to Reopen Phase **II** (Necessary Wildlife Habitat) and a Motion to Reopen Phase III on Criterion **8(A)(iii)**.

The Motion to Reopen Phase II (Necessary Wildlife Habitat) requests the Board to reopen the evidence and amend Part II of its decision with respect to the impact of the pond upon the use of the beech stand by bears. **Killington** argues that because a State wildlife biologist recently provided testimony at an Act 250 hearing in another matter that was inconsistent with **ANR's** position in these hearings, the Board should amend its decision to reflect the position taken by **ANR's** witness in the other proceeding. **Killington** requests the Board to amend its decision "to reflect that alleged highly productive concentrated beech stands located approximately one-half mile from the pond site are adequately buffered from the intrusion of human activities associated with pond construction as well as any human intrusion associated with public use of the pond."

The Board does not believe that the testimony of a person in another proceeding, when the person did not testify in this proceeding, has any bearing on the evidence in this appeal. Furthermore, the Board's conclusion that construction and operation of the snowmaking pond will destroy or significantly imperil the beech stands was based upon the testimony of witnesses in addition to **ANR's**. The Board therefore denies this motion.

The Motion to Reopen Phase III on Criterion 8(A)(iii) requests the Board to reopen the last phase or these proceedings to consider evidence of the **VNRC's** position that it has taken outside of these proceedings that it would oppose any application by **Killington** to increase additional water withdrawals by **Killington**. **Killington** asserts that under Criterion **8(A)(iii)**, alternative sites can be considered reasonably acceptable only if opponents demonstrate that development of the sites is legally feasible. **Killington** argues that the **VNRC's** evidence and argument in these proceedings that certain sites should be considered alternatives is contradicted by the **VNRC's** lack of cooperation with **Killington** in **Killington's** efforts

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get the VNRC and others to agree on acceptable rates and volumes of water withdrawals from the Ottauquechee and other sites.

The Board does not believe that the feasibility of a potential alternative site depends upon the position a party may take in opposition to the approval of such a site. Many projects are approved despite strong opposition. Accordingly, we do not believe that evidence that the VNRC opposes development of any of the proposed alternative sites considered by the Board is relevant to our consideration of alternative sites. We therefore deny this motion as well.

#### IV. SUBSTANTIVE ISSUES

##### A. Criteria 2 and 4

In its appeal, the Applicants objected to the District Commission findings on Criteria 2 and 4. Specifically, with regard to Criterion 2 the Applicants claimed that the Commission did not have the authority to consider Killington's need for snowmaking water but should have limited its inquiry to whether there is a sufficient supply of domestic water for the reasonably foreseeable needs of the proposed development, and that "[s]ince Madden Pond does not involve the use of water for human consumption or waste disposal, there is no potential public health impact and the Commission should have terminated its inquiry under Criterion 2." Notice of Appeal dated August 13, 1987, at 4. With regard to Criterion 4, the Applicants challenged Finding 1(a) on page 4 of the Commission's decision "to the extent that it may be incorporated in the standard condition specifying that the project must be built in accordance with the Findings rather than the approved plans and exhibits," id. at 6, and further claimed that prior Commission approval should not be required before operation of facilities served by a snowmaking system attached to Madden Pond, that the condition relating to erosion control is unduly restrictive and inconsistent with Water Resources Board regulations. The Applicants also objected to the standard conditions in the Commission's decision regarding transfer of an undivided whole interest and authorizing official inspections of the project.

The Board has given the Applicants ample opportunity to submit briefs on these legal issues but the Applicants have failed to do so. No other parties provided any information

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or legal arguments on the issues raised by the Applicants. Therefore, the findings and proposed conditions in the District Commission's decision remain in force with respect to Criteria 2 and 4 and the standard conditions.

B. Criterion 8(A) (necessary wildlife habitat)

Having concluded in Part II of this decision that the snowmaking pond is proposed to be located in an area that constitutes necessary wildlife habitat for black bears within the meaning of 10 V.S.A. §§ 6086(a)(8)(A), and that the construction and operation of the pond would destroy or significantly imperil the necessary wildlife habitat, the Board must now decide the following:

- 1) Whether the economic, social, cultural, recreational, or other benefit to the public from the logging operation will outweigh the economic, environmental, or recreational loss to the public from the destruction or imperilment of the habitat, pursuant to 10 V.S.A. § 6086(a)(8)(A)(i).
- 2) Whether the Applicants have applied all feasible and reasonable means of preventing or lessening the destruction, diminution; or imperilment of the habitat, pursuant to 10 V.S.A. § 6086(a)(8)(A)(ii).
- 3) Whether a reasonably acceptable alternative site is owned or controlled by the Applicants which would allow the snowmaking pond to fulfill its intended purpose, pursuant to 10 V.S.A. § 6086(a)(8)(A)(iii).

V. FINDINGS OF FACT

Findings of Fact 11 through 48 and 55 through 68 from Part II of this decision are incorporated by reference, except as amended hereby.

A. Description of the Project

1. Killington proposes to construct a pond to provide a new water source and storage reservoir for the snowmaking system at the Killington ski area on lands owned by IPRC in Parker's Gore East which IPRC leases to Killington. The application for the pond construction does not include any new ski trails.
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21. The proposed pond, known as Madden Pond, will have a surface area of 4.18 acres but will actually occupy approximately 6.88 acres. It will measure 640 feet by 460 feet, and will have a maximum depth of 19 feet. The available water in the pond is 12 million gallons and the proposed pumping capacity is 1,400 gallons per minute (gpm).
  3. The pond will be created by diverting the waters of Madden Brook. A dam will be constructed from compacted earth and will involve the excavation of approximately 25,000 cubic yards of material.
  4. The related pond improvements will include construction of an underground pipeline to divert the North Fork of Madden Brook to the pond, an access road, an overhead power line extending from the existing line at the top of the Northeast passage chair lift, a pump house, and a pipeline to connect the pond with the existing Killington ski area snowmaking system.
  5. The pumphouse will be built near the pond to house two 400-horsepower electrical pumps. The pipes will be buried along the edge of the access road.
  6. The site of the proposed pond contains a wetland of approximately 1.3 acres. It is 80 to 90 percent open, with a continuous margin of trees around the edges and scattered trees on hummocks throughout. In November 1987, the wetland had water at or above the ground surface over about 95 percent of the area. The depth ranged from one to six inches, with several large and deeper pools.
- B. Subcriterion (i) - Public Benefit vs. Public LOSS
7. Killington proposes to construct Madden Pond in order to increase its capacity to make snow. Machine-made snow is the primary skiing surface throughout the ski season at Killington, and particularly between the opening day to the end of the Christmas/New Year's holiday period. The snow-making capacity is critical to the success of the ski resort. It takes 180,000 to 184,000 gallons of water to produce an acre foot of snow on Killington's trail system.
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8. Killington contends that if the water from Madden Pond had been available for snowmaking in the 1988-89 ski season, and every additional acre of ski trail was covered with **snow** in the early season (mid-October to January 1), there would have been an additional 58,323 skier days.
  9. The weather conditions in 1988-89 were much worse than average in terms of the amount of snowfall and temperatures low enough to make snow. No estimates of the effect of Madden Pond in a **year** with more normal **meteorological** conditions were made.
  10. The money spent by the additional skiers will benefit the local economy and the State, and the increased revenue to Killington will result in higher **payments** to the Department of Forest and Parks in accordance with the terms of their lease. Killington did not perform or rely upon any studies to determine the actual amount that is spent by skiers or the actual amount of increased tax revenue to the State.
  11. **Killington's economic** expert's analysis of the economic impact of Madden Pond was based entirely upon other people's estimate of the additional skier days which would be generated by the increased water supply from Madden Pond. He performed **no independent analysis** to determine whether the assumption that the number of early season skier visits is directly related to the number of skier **days** which would be generated by the increased water supply from Madden Pond is valid, **nor** did he determine the skier expenditure per day by **skiers** at the Killington ski area. In **order to assess** accurately the direct economic effect of **increased water** availability for snowmaking, it would be necessary to determine actual skier **expenditures**.
  12. **Killington's** estimate of the number of increased skier days which will result **from** additional snowmaking capacity is **based** upon the assumption that **there is a** direct, linear relationship between available **gallons** of water and the number of skiers.
  13. Many factors **in** addition to availability of water **must** be considered in determining whether the number of **skiers** will actually **increase** when there is **additional snowmaking** capacity. These include the number of
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available chair lifts, the amount of advertising that Killington expends, the amount of natural snowfall, the perception by out-of-state skiers of the weather conditions, the weather conditions on western ski areas, the relative price of lift tickets among resorts, availability of overnight accommodations, the cost of fuel, and the general economic conditions in the country.

14. Killington operates a private ski area which may benefit from additional revenue generated from increased snowmaking capacity. Killington estimates that an additional 58,323 skier days would have generated an additional \$2.7 million in ski revenues to Killington between October 13, 1988 and January 1, 1989, and an additional \$3.3 million between January 12 and May 21 of 1989. However, because so many factors in combination determine the revenues at a ski resort, it is impossible to predict with **accuracy what** economic benefit, if any, would result from construction of Madden Pond.
15. The Board accepts the meaning of "**public**" defined in Webster's New World Dictionary as "**the** people as a whole; community at **large**."
16. The benefit that the public derives from the existence of a healthy bear population in Parker's Gore East is difficult to quantify in economic terms. The primary benefit is the value of bears as part of the natural resources of the State. Construction and operation of Madden Pond would cause a functional loss of the bear habitat within Parker's Gore East and the fragmentation of the bear habitat in the region. Loss and fragmentation of the habitat will endanger the health of the bear population that uses the habitat.

C. Subcriterion (ii) - Feasible and Reasonable Mitigation

17. To reduce disturbance to the bears during construction and operation of the pond, Killington proposes the following: Construction of the pond would take place over the course of several years either during June through late August or perhaps into September, if necessary. The access road, utility lines, and water delivery lines would be consolidated within a single corridor. Waterbars would be installed on the access
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road to the pond and a locked gate put across the road, the property would be posted to prevent trespassing and hunting, and the pond would not be stocked with fish. The pumphouse would be insulated to absorb the sound of the pumps; a minimum of external lighting would be installed, and paints and construction techniques would be as unobtrusive as possible in terms of visual **contrast**. Killington also proposes to develop a written management **plan** for the operation of the pond and pumphouse, with input from the Department of Fish and Wildlife, which is sensitive to reducing disturbance to bears. **Killington** would develop this plan after issuance of a permit for construction of Madden Pond; no details of such a plan were submitted to the Board.

18. Noise from the pumps could be reduced with the use of **special** equipment, different construction techniques, insulation, and a change in the pump operating plan. (Board Exhibit #M-7.) Killington has offered to implement the eight recommendations for reducing noise provided by ANR or "**measures** which are just as effective in controlling noise that are more cost effective ... in place of [those] **recommendations**." Killington submitted no details of such a plan to the Board, but will submit them prior to construction of the pumphouse if a permit is issued.

19. Killington proposes to mitigate the loss of the Madden Brook wetland through a combination of on-site and **off-site** wetland restoration, enhancement, and creation techniques. Specifically, Killington's **proposal** involves: 1) Constructing the pond in such a way that it retains some riparian habitat around its perimeter, which would require the maintenance of a constant water level from the end of April through **September**. The pond would probably have to be redesigned to accomplish this. 2) Enhancing the other wetland habitat in Parker's Gore East by creating small, shallow impoundments in appropriate places along **tributaries** of Madden Brook. 3) Restoring, enhancing, or creating wetland areas away from the proposed pond site. It is **uncertain** whether any of these options are **technically** feasible.

20. Killington has not redesigned the pond to demonstrate that it could be constructed in such a way that **some riparian habitat around its perimeter could be**

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retained. No information was provided about how the pond would be redesigned, what kind of wetland edge would be created, how deep the water would be along the borders of the pond, how often and to what extent the water levels would vary, whether the area around the pond would be open or vegetated, what materials would be used for the pond's bottom and banks, or how the pond would be managed. Even if the pond could be redesigned to provide riparian habitat around its perimeter, the construction of the pond would obliterate the existing peat soils and wetland vegetation, and its primary benefit would be to wildlife in general and not to bears. The proposed riparian ring would not offset the loss of the Madden Pond wetland area to bears.

21. Killington did not identify specific sites in which to create the **small, shallow** impoundments which it suggests would substitute for the loss of the Madden Pond wetland, nor did Killington offer any study determining the possibility or feasibility of growing food for bears in these shallow impoundments. The plants that Killington suggests could be planted in the shallow impoundments are not necessarily an equivalent food source to what is *now* available at the Madden Pond site.
  22. Vegetation at the Madden Pond wetland is available a week to a month earlier than other bear foods in surrounding areas because the deep groundwater sources that feed the wetland cause the wetland soils to **warm** and green up earlier than most upland sites. The lack of deep groundwater in shallow impoundments precludes early plant emergence in these areas. Artificial impoundments would probably lack the existing wetland's groundwater component and associated stable soil temperature stability. The plants that would grow in created wetlands would differ significantly from the existing wetland at the pond site.
  23. Killington offered no evidence demonstrating that the functions and values of the existing wetland as bear habitat could be successfully replicated either by on-site or off-site habitat restoration.
  24. Killington acknowledges that were wetland replication to be attempted, a detailed management plan that addresses the strategic and operational phases of the process needs to be written and **become** a functional part of the
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- mitigation effort, and an active monitoring and management program would have to be followed over a period of years. Killington did not submit any short-, or long-term plans for a wetland replication proposal and does not know whether successful replication could be achieved.
25. Even if the bear habitat values of the existing wetland could be replicated in another area, it is likely that it would take up to ten years to establish a permanent plant community. During that time, the bears that use the Madden Pond wetland would lose their primary spring food source and the health of the bear population would be at risk.
  26. If a permit were granted for construction of the pond, Killington would prepare a detailed mitigation plan in consultation with the Department of Fish and Wildlife.
  27. **Killington's** conceptual proposals for mitigating the impact of Madden Pond do not include proposals for protecting the nearby beech stand that is an **important** fall food source for bears.
  28. Killington may not be managing its snowmaking system as efficiently as possible; and considerable water may therefore be lost. For example, during the winter of 1989 it did not pump excess flow in the Ottauquechee River to the **Snowshed** Pond when the **Snowshed** Pond was almost depleted, resulting in a snowmaking water loss of over six million gallons.
  29. The amount of snow that is made from the available water depends upon a number of operational factors. For example, the percentage of snow that is available for use on ski trails is determined in part by the **extent** to which the operator allows snow to be produced in windy conditions and by the placement of guns. Making snow at warm temperatures requires higher air to water ratios and close attention must be paid to the guns to **ensure** proper air supply.
  30. A **detailed** systems analysis of operations could produce an efficiency plan that, if implemented, could **result** in substantial savings in water supply. **Killington has** not provided such an analysis and has refused to provide information on its snowmaking system, such as **the**
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diameter of the snowmaking pipes, to enable anyone else to determine the precise water savings, if any, that might be achieved.

31. Between October 1 and March 31 the combined flow of water available for capture for snowmaking in Roaring Brook, Falls Brook and the Ottauquechee River exceeds 1.2 billion gallons. A savings of 20 percent of the existing available water would realize 242 million gallons during a single season, more than the flow of **Madden** Brook during the same period.
  32. Killington has not provided any information that indicates it has considered more efficient operation of its existing snowmaking system as an alternative to building Madden Pond.
  33. Mitigation generally means avoidance, reduction of impact, and compensation. Avoiding this wetland by water conservation **or** construction of a pond for snowmaking at an alternative site would be preferable to efforts to reduce impacts on or compensating for the loss of the wetland habitat because it would **unquestionably** result in no destruction of the habitat.
- D. Subcriterion (iii) - Alternative Sites
34. **Killington's** snowmaking system consists of two storage reservoirs and three water sources. The water sources used are the Ottauquechee River, Falls Brook, and Roaring Brook. The storage reservoirs consist of **Snowshed** Pond, with an existing storage capacity of 24.5 million gallons, and Bear Mountain Pond, with an existing storage capacity of 1.5 million gallons. Madden Pond would add a storage capacity of 12 million gallons.
  35. Killington holds Act 250 permits for the addition of snowmaking pipelines to approximately 400 of the 435 acres of ski trails serviced by its **snowmaking** system. Each permit includes a finding that there is sufficient water available for the reasonably foreseeable needs of the snowmaking system.
  36. Currently, the north side of the Killington ski area contains the bulk of its water storage capacity. Killington chose the Madden Pond site to increase its
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water storage capacity on the south side of the ski area. The primary advantage of having a water source in that area is the reduction of the distance that water needs to be pumped.

37. The availability of water for snowmaking depends upon a combination of source and storage. Storage enables a ski area to make snow during periods when natural streamflows would not be adequate both to serve snowmaking needs and maintain minimum stream flows. For that reason, sufficient storage capacity is a critical element of a successful snowmaking system.
38. The following potential additional new source and storage sites, which could be used as alternatives to the Madden Pond project either separately or in conjunction with each other, were identified by ANR:

- a. Carpenter's Brook. An in-stream or off-stream impoundment could be created at Carpenter's Brook, which is located in the Falls Brook watershed adjacent to existing ski trails near the Gondola lift line. A pond could be constructed at this site to hold between nine and 34 million gallons, depending upon whether the impoundment is located on-stream or off-stream. Additional storage capacity could be achieved by placing storage tanks in the area near Carpenter's Brook or by increasing the water withdrawal from the Ottauquechee River (see below). The Carpenter's Brook site is on State-owned land leased to Killington for ski-related facilities. Killington believes that the Carpenter's Brook site has potential for water withdrawal and storage.

- b. Bower Roaring Brook. A diversion below the existing diversion to Snowshed Pond in the vicinity of the Lower Roaring Brook and its tributaries could be constructed, on land owned by Killington, to capture the drainage below the existing diversion. The available drainage in the Lower Roaring Brook system is potentially 47 percent larger than the drainage area at the proposed Madden Pond. Storage capacity in excess of the Madden Pond proposal could be created in a variety of configurations, including the construction of tanks or reservoirs near Roaring
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Brook at or near the golf course, or in combination with an expansion of **Snowshed Pond** (see below). Because of **Snowshed Pond's proximity** to Lower Roaring Brook, transfer of water from tanks or reservoirs could be readily accomplished by construction of a short force main. Two sites on or near **Killington's** golf course could be developed with reservoirs to achieve the **capacity** of Madden Pond. A relatively level pond site exists along the second fairway at the golf course, just south of Lower Roaring Brook, which could accommodate an earth embankment dam to create a pond of approximately 5.5 million gallons. The second site (known as the Golf Course-Lower Pond site), located north of the Killington golf course on undeveloped land, adjacent to a lower section of Roaring Brook behind the Wobbly Barn Restaurant, could accommodate an earth embankment dam to create a pond of approximately 5.8 million gallons. The Killington Village area also contains numerous potential sites for placement of storage tanks of a volume equivalent to or exceeding Madden Pond's storage capacity. Three feasible tank sites were identified adjacent to Lower Roaring Brook: (1) in the vicinity of the fourth green and fifth tee of the golf course, east of the Wobbly Barn Restaurant; (2) in the open field north of the golf course; and (3) in an open area adjacent to **Killington's** wastewater treatment plant.

- c. Reservoir Brook. A diversion could be located on lands owned by Killington opposite the Northeast Passage ski entry. The brook at that point drains a watershed that includes Madden Brook, and is more than eight times larger than the watershed that would be drained by the Madden Pond project. The system would involve withdrawing water from Reservoir Brook, constructing a storage tank, and connecting the tank to the existing snowmaking network through a new force main to the nearby Gondola Pump Station.
  - d. Snowshed Pond expansion. It would be technically feasible to raise the level of **Snowshed** pond to provide up to nine million gallons of additional water storage capacity.
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- e. Bear Mountain Pond expansion. of B e a r Mountain Pond could be raised to provide approximately **15** million gallons of additional water storage capacity.
  - f. Ottawauechee River. The Ottawauechee River **is** a potential source of increased water withdrawal which, if pumped to new storage facilities at Carpenter's Brook, could provide more water for snowmaking than the proposed Madden Pond. The Ottawauechee River has far more water than any of **Killington's** upland streams, including Madden Brook. Killington is considering requesting State approval to increase its withdrawal rate from the Ottawauechee River from the currently approved 1,000 gpm to 5,000 gpm.
- 39.** Killington objects to any sites on the north side of the **ski** area because it believes that "balance" to the snowmaking system is important, and most of the current water sources are on the north side. In addition, Killington has raised a number of potential financial, technical, and regulatory obstacles to developing any of the alternative water source or storage sites identified by ANR, including the following:
- a. Carpenter's Brook. Water withdrawals from Carpenter's Brook could affect the dilution of effluent which reach the stream from a spray operation site operated by Killington. This **could** result in water quality violations. An in-stream impoundment in the brook might not be **approved by** ANR. More storage or an increase in the flow would be required because Carpenter's Brook **has** a slower flow of water than Madden Brook. **The** site contains wetlands which may fall under the jurisdiction **of** the State or the U.S. Army Corps of Engineers. The feasibility of the Carpenter's Brook site is only hypothetical because soils borings to determine engineering potential **have** not been performed.
  - b. Lower Roaring k. The State would probably not approve withdrawing water from Roaring **Brook**. There could be safety and engineering problems with the Golf Court-Lower Pond site and ANR has not shown that it is feasible from a **technical and**
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engineering standpoint. It would require the relocation of a power line and construction of a bridge which would be expensive. The storage volume would not be sufficient. Construction of a reservoir at the Golf Course-Upper Pond location and construction of a tank near the wastewater treatment plan would require an amendment to the Killington Planned Unit Development (PUD) approval. Placement of storage tanks in the area of Killington Village and the golf course could require revision of the golf course or intrusion into the existing open spaces in Killington Village. Storage tanks are very expensive and would result in substantial aesthetic impact.

- c. Reservoir Brook. Use of Reservoir Brook would require greater vertical lift to move water to the ski slopes than Madden Pond.
- d. Snowshed Pond Expansion. The technical feasibility of raising the water level has not been determined. Downstream safety factors have not been considered. There is no guarantee that **necessary** permits will be issued. Raising the dam could be extremely expensive. **Snowshed** Pond is located on the northern side of the ski area.
- e. Bear Mountain Pond Expansion. More than 75 percent of the parking spaces in the Bear Mountain parking lot would be lost. This parking lot is heavily used and often at or over capacity. Modification of the pond would conflict with the use of approved but unbuilt leachfields required by **ANR** for future disposal capacity. The existing pumphouse would have to be relocated which would be very expensive. **It** is also not feasible to move the other facilities which border the pond.
- f. Ottawauechee River. Killington needs increased water from the Ottawauechee River in addition to the additional water from the Madden Pond site.

40. Killington has not demonstrated that it would be legally precluded by the federal government, the State, or the Town of Sherburne from developing any of the proposed alternative sites. Killington also **has** not demonstrated that it would not be possible to construct a parking

**garage**, to terrace parking on the side of hills in the vicinity of the Bear Mountain area, or to use shuttle buses; that structures could not be moved; and that leachfields could not be relocated. Although **Killington** claims that many of the proposals are "too expensive," it has provided no information on the capital costs relative to the long-term economic gain from the increased snowmaking.

41. The cost of constructing Madden Pond would be approximately \$685,000. This estimate does not include the costs of implementing any mitigation plan. Development and operation of some of the alternative water sources and storage areas identified by the State would likely be more expensive than construction and operation of Madden Pond; others might be less expensive.
  42. Some of the alternative water source and storage systems identified by ANR have advantages over **the Madden Pond** proposal in addition to the potential avoidance of any impact on bear habitat. For example, Madden Pond is not in close proximity to the majority of **Killington's** ski trails, and it is not served by existing infrastructure. The Carpenter's Brook site is closer to roads, power lines, existing snowmaking pipelines, and infrastructure than the Madden Pond site, so that the **costs of** construction as well as operation and maintenance would be less; similarly, the Lower Roaring Brook site is much closer to **Snowshed** Pond than the Madden Pond site is and it is also served by better road access and existing utilities. The Carpenter's Brook site is at a **similar** elevation to that of **Snowshed** Pond and Bear Mountain Pond, resulting in minimal energy costs for **pumping** water from a pond at Carpenter's Brook because it would require no **vertical lifting**.
  43. The alternative sites identified by ANR located on State **leased** lands would be allowed uses under the terms of the current lease.
  44. The capacity of **Killington's** snowmaking **system** might be expanded by increasing the efficiency of water **use at** other sites in the current system.
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45. Killington may not be managing its snowmaking system as efficiently as possible, and considerable water may therefore be lost. For example, during the winter of 1989 it did not pump excess flow in the Ottauquechee River to the Snowshed Pond when the Snowshed Pond was almost depleted, resulting in a snowmaking water loss of over six million gallons.
46. The amount of snow that is made from the available water depends upon a number of operational factors. For example, the percentage of snow that is available for use on ski trails is determined in part by the extent to which the operator allows snow to be produced in windy conditions and by the placement of guns. Making snow at warm temperatures requires higher air to water ratios and close attention must be paid to the guns to ensure proper air supply.
47. A detailed systems analysis of operations could produce an efficiency plan that, if implemented, could result in substantial savings in water supply. Killington did not provide such an analysis and has refused to provide information on its snowmaking system, such as the diameter of the snowmaking pipes, to enable anyone else to determine the precise water savings that might be achieved.
48. Between October 1 and March 31 the combined flow of water available for capture for snowmaking in Roaring Brook, Falls Brook and the Ottauquechee River exceeds 1.2 billion gallons. A savings of 20 percent of the existing available water would realize 242 million gallons during a single season, more than the flow of the Madden Brook during the same period.
49. Killington has not provided any information that indicates it has considered more efficient operation of its existing snowmaking system as an alternative to building Madden Pond.

VI. CONCLUSIONS OF LAW

A. Criterion 8(A)

In Part II of this decision, the Board concluded that Parker's Gore East constitutes necessary wildlife habitat for black bears and that construction and operation of the

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**Killington, Ltd. and International**

Paper Realty Corp.

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proposed snowmaking pond will destroy or significantly imperil necessary wildlife habitat. The Board must now weigh the factors delineated in the three subcriteria of Criterion 8(A) to determine whether a permit may be granted. The Board cannot grant a permit if it finds that the Applicants have not satisfied any one of the subcriteria.

10 V.S.A. § 6086(a)(8)(A) states:

(A) Necessary wildlife habitat and endangered species. A permit will not be granted if it is demonstrated by any party opposing the applicant that a development or subdivision will destroy or significantly imperil necessary wildlife habitat or any endangered species, and

(i) the economic, social, cultural, recreational, or other benefit to the public from the development or subdivision will not outweigh the economic, environmental, or recreational loss to the public from the destruction or imperilment of the habitat or species, or

(ii) all feasible and reasonable means of preventing or lessening the destruction, diminution, or imperilment of the habitat or species have not been or will not continue to be applied, or

(iii) a reasonably acceptable alternative site is owned or controlled by the applicant which would allow the development or subdivision to fulfill its intended purpose.

1. Burden of Proof

ANR contends that the burden of proof is on the Applicants with regard to the three subcriteria of Criterion 8(A). The Applicants believe the burden of proof is on the parties opposing the project.

The Board has not previously addressed the question of the allocation of the burden of proof on the subcriteria of Criterion 8(A). In past decisions, the Board assumed that the burden placed on parties opposing a project to demonstrate that the project will destroy or significantly imperil necessary wildlife habitat also applied to the three subcriteria. After careful review of ANR's arguments, the

language of Criterion 8(A), and the policies involved, we believe that ANR's arguments have merit. However, we decline at this time to rule on the question, because we believe that the preparation and presentation of the parties' cases were based upon the assumption that the burden of proof was on the opponents. Our consideration under the subcriteria of Criterion 8(A) in this appeal, therefore, assumes that the parties opposing the project have the burden of proof.

It must be kept in mind, however, that the burden of proof is generally considered to include both the burden of production and the burden of persuasion. In Act 250 proceedings, the burden of production means the burden of producing sufficient evidence on which to make positive findings under the criteria, and the Board has previously determined that the burden of production is always on the applicant. See Re: Pratt's Propane, Findings of Fact and Conclusions of Law #3R0486-EB at 4-6 (Jan. 27, 1987); Re: Imported Cars of Vermont, Findings of Fact and Conclusions of Law #1R0156-2-EB at 2-3 (Oct. 12, 1982).. The Board believes that the term "burden of proof" as used in Act 250 means the "burden of persuasion," that is, the burden of persuading the Board that certain facts are true. Thus, Killington must produce sufficient evidence on the three subcriteria in order for the Board to make positive findings for Killington. If the Board determines that Killington has produced sufficient evidence, the burden shifts to the parties opposing the project to persuade the Board, by a preponderance of evidence, that Killington's position is not correct.

However, notwithstanding the statutory allocation of the burden of persuasion, in making its findings and conclusions the Board may consider all the evidence presented, regardless of which party introduced it. In re Quechee Lakes Corp., No. 87-108, slip op. at 10-11 (Sept. 22, 1989).

B. Subcriterion (i) - Public Benefit vs. Public Loss

This subcriterion requires the Board to find that "the economic, social, cultural, recreational, or other benefit to the public from the [construction and operation of the pond] ... will not outweigh the economic, environmental, or recreational loss to the public from the destruction or imperilment of the [necessary bear] habit ....

In determining the "public benefit," the Board looks to the definition of "public," which is "the people as a whole; community at large." Based upon the plain meaning of the

word, the appropriate focus of our evaluation is on the benefit to the public which would accrue from the project. The Board confirms its interpretation in Re: Southview Associates, Findings of Fact and Conclusions of Law and Order #2W0634-EB at 10 (June 30, 1987) that **the benefit** to the public does not include the economic gain to the applicant. Therefore, we must disregard the evidence concerning the economic benefit of the project to Killington.

The Board agrees that the ski industry in general provides benefits to the public in terms of both the economy and the recreational opportunities that skiing affords, and that snowmaking capacity is important to the viability of ski areas in general and to Killington. However, Killington has not presented credible evidence of the economic and recreational benefits to the public that would result from the additional water that Madden Pond would provide. While Killington claims that the public benefit consists of the revenue that would accrue to the local and State economies from the additional skier days attributable to the construction of Madden Pond, the estimates of the revenue are not reliable because supporting data was lacking. **Killington's** calculations were based upon the assumption of a direct relationship between water availability and skier use. However, many factors other than water availability combine to determine the amount of revenue generated by a ski area; Killington did not take these factors into account in estimating the additional revenue. Without accurate projections of the economic and recreational benefits from this project, and no evidence of any social or cultural benefit, the Board cannot determine the extent of the public benefit, if any.

On the other hand, the loss to the public from the destruction or imperilment of the bear habitat in Parker's Gore East due to the proposed construction and operation of Madden Pond would be enormous. As we found in Part II of this decision, Parker's Gore East contains bear habitat that is necessary to the survival of the bears that use it. This habitat consists of an exceptional stand of beech trees within one-half mile from the Madden Pond site that provides essential fall food for bears, a wetland at the Pond site itself that provides critical spring food for bears, and excellent cover and remoteness that bears require. We also found in that decision that construction and operation of the pond would destroy or significantly imperil the habitat because the noise and disruption during construction and on-going human intrusion after construction would significantly decrease the bears' use of the beech stand and reduce the remoteness of the area, and that destruction of the wetland

at the pond site would **decrease** the available spring food supplies. While Killington now proposes to take several measures to reduce the disturbance to bears during construction and operation of Madden Pond and to **mitigate** loss of the wetland habitat, as described under Section C, below, Killington has not provided the Board with sufficient information to be able to determine that the necessary bear habitat will not be destroyed or significantly imperiled.

The Board believes that the importance of bears as part of the State's natural resources is an environmental **benefit** that, although difficult to quantify, nevertheless is significant. See In re Southview Associates, No. 87-313, slip op. at 9 (Vt. Dec. 1, 1989). **The** value of the black bear population in Parker's Gore East consists primarily of the intangible enhancement of the quality of human life from the existence of the bears as part of the natural resources of the State. We believe that the protection provided for this value by Criterion 8(A) reflects a broad public desire to maintain for the future the balance existing between man and his works and the natural world, and that subcriterion (i) allows this balance to be disturbed only when the benefits to the public clearly outweigh the loss. Killington has failed to produce evidence of any significant economic benefit to the public from construction and operation of Madden Pond. The Board must therefore conclude that the environmental loss to the public from the destruction and imperilment of the bear habitat outweighs the public benefit and that the project therefore violates Criterion 8(A)(i).

**C. Subcriterion (ii) - Feasible and reasonable mitigation**

Subcriterion (ii) requires the Board to find that the applicant has applied all feasible and reasonable means of preventing or lessening the destruction, diminution, or imperilment of the habitat.

**In Part II** of this decision, the Board found that the Madden Pond project, as proposed, would destroy or significantly imperil the bear habitat.. Since then, **Killington** has proposed to take a number of **actions to** prevent or lessen both the impact on the bears from the loss of the habitat and the loss of the habitat **itself**. Several proposals are intended **to** minimize disturbance to the bears both during and after construction of the pond, while others are concerned with replacing the spring food source that **will** be destroyed when the pond is constructed.

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The Board agrees that consolidating utilities and the access road into a single corridor and closing the road to the public after construction by installing waterbars and a locked gate would reduce human intrusion into the area after construction of the pond. However, Killington has presented no plan for reducing the noise of the pumps to an acceptable level and only proposes to develop a management plan for operation of the pond and pumphouse after a permit is issued. Without knowledge of the details of such plans, the Board is unable to assess whether disturbance to the bears both at the pond site and at the beech stand will be reduced sufficiently to prevent or lessen the destruction or imperilment of the habitat.

Killington proposes to reduce the impact on the bears by replacing the spring food that will be lost when the wetland is destroyed by retaining some riparian habitat around the perimeter of Madden Pond, enhancing other wetland habitat in the area by creating small, 'shallow impoundments along tributaries of Madden Brook, and enhancing or creating wetland areas away from the pond site. However, Killington **has** provided no concrete plans for the Board to assess in order to evaluate the possibility of success. While Killington proposes to redesign the pond to retain riparian habitat around the perimeter, no plan for a redesigned pond or any information on the details of a proposed redesign were submitted. Killington did not identify specific sites in which to create the small, shallow impoundments, nor did Killington demonstrate the feasibility of growing equivalent spring food for bears in these shallow impoundments. Killington did not demonstrate that the functions and valves of the existing wetland for early spring food for bears could successfully be replicated. In fact, substantial evidence demonstrated that the creation of a new source of spring food for bears is an extremely risky **proposition**. **While acknowledging** that any attempt to create new wetlands would require an active monitoring and management program over the course of years, Killington provided no such plan.

In the absence of the submission of any detailed plans **for** implementation of the proposed mitigation and evidence supporting **Killington's** contention that its general, **conceptual** proposals would succeed, we are unable to determine that Killington is applying and will continue to **apply** all feasible and reasonable means of preventing or lessening the destruction or imperilment of the wetland habitat. Considerable evidence was submitted to show that

attempts to mitigate the loss of the wetland would not provide adequate substitute spring food for bears. The evidence that retention or creation of riparian habitat around the perimeter of the pond would not provide food for bears was not disputed, and substantial evidence was presented demonstrating that the success in providing bears with a sufficient source of spring food in shallow impoundments or new wetlands is uncertain at best. Killington acknowledges that even if the existing wetland values for bears were replicated, it would take a number of years before the plants were established.

Given the uncertainty about the feasibility of replicating the spring food source that would be lost were the existing wetland destroyed, and the absence of any details from Killington on its mitigation proposals for the Board to evaluate, the Board concludes that Killington has not met its burden of production on subcriterion (ii).

Killington contends that the Board should issue a permit with a condition requiring submission of a mitigation plan, the details of which would be worked out later by Killington. The Board rejects this argument, as it has in other cases when it was asked to approve a general concept and issue a conditional permit. See, e.g., Re: Sherman Hollow, Inc. Findings of Fact, Conclusions of Law and Order #4C0422-5(Revised) at 8-9 (Feb. 17, 1989). As we stated in that decision, Act 250 specifically requires the Board to make positive findings prior to the issuance of 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" complies with the environmental criteria that follow. Findings of compliance with the statute are to be made prior to issuance of a permit. See In re Robert B. and Deborah J. McShinsky, No. 88-312, slip op. at 5 (Vt. Feb. 9, 1990). We cannot find that Killington has proposed "all feasible and reasonable means of preventing or lessening the destruction or imperilment of the habitat" when it admits that its conceptual scheme must be refined into a specific plan, the details of which have not been determined, before it can be implemented.

The Board also believes another possibility for mitigation exists that Killington has not applied, which is conservation of existing water supplies through more efficient management of its snowmaking system. Killington might annually save a substantial amount of water by managing

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its snowmaking system more efficiently. In the absence of evidence that **Killington's** snowmaking system is operated efficiently, we cannot find that Killington has applied all feasible and reasonable means of preventing or lessening the destruction or imperilment of the habitat. Without more information from Killington regarding its snowmaking system, which Killington refused to provide, the Board cannot agree that Killington must destroy this wetland and jeopardize and destroy bear habitat in order to obtain an additional 12.5 million gallons of water. It is also possible, as described below, that Killington could obtain the additional water it needs through enhanced storage facilities rather than development of a new water source. Again, without sufficient information that the construction of additional storage facilities is not feasible and reasonable, the Board cannot permit the unnecessary destruction of this critical habitat.

After considering all the evidence, the Board concludes that all feasible and reasonable means of preventing or lessening the destruction, diminution, or imperilment of the habitat have not been and will not continue to be applied, and that the project does not comply with Criterion **8(A)(ii)**.

D. Subcriterion (iii) - Alternative sites

Subcriterion (iii) requires the Board to find that the applicant owns or controls no reasonably acceptable alternative site that would allow the development to fulfill its intended purpose.

Killington has stated that its purpose for constructing Madden Pond is to provide an additional water source and storage area to enhance its snowmaking capabilities. The Board does not accept **Killington's** contention that the only water source located on the south side of the ski area is reasonably acceptable because it needs to balance its snowmaking system; Killington has not provided any evidence to show that that location is necessary for any reason other than cost savings in the reduced distance required to pump.

The question, then, is whether any "reasonably acceptable" alternative sites exist that would provide equivalent water and storage capabilities.

**ANR** has identified a number of sites that may be suitable for the diversion of surface streams to create new impoundments, identified potential additional storage areas, and shown that additional water may be available from existing sources. Although Killington has raised a number of objections to **ANR's** suggestions of alternative water and storage sources, Killington has not demonstrated that the

alternative sites are not reasonable. For example, Killington presented no cost estimates of any of the alternative proposals, other than the cost of a storage tank and provided no evidence that the costs of minor relocation of recreational facilities in the Killington Village area or of storage tanks, or of construction of additional parking spaces, or of relocation of leach fields, or of increased costs for pumping a longer distance, are unreasonable. Killington argues that only alternative sites in the Madden Valley watershed may be considered. The Board rejects this argument, because no such restriction is provided in the statute, and Killington cites no authority in support of its argument.

In taking the position that increased water withdrawal is not an alternative because it needs as much water as it can get for snowmaking, Killington contradicts the findings contained in a number of its Act 250 permits that sufficient water was available for the reasonably foreseeable needs of its snowmaking system. We therefore reject **Killington's** argument that the Ottauquechee River cannot be considered an alternative site.

Killington also argues that an alternative site is not reasonably acceptable unless the Environmental Board finds that development at that site will receive all necessary permits. The Board believes this argument is also without **meirt**. There is never a guarantee that any proposed development will obtain a permit. Therefore, we reject the argument that an alternative site is not "**reasonable**" unless it is known that all necessary permits will be obtained. We believe that other regulatory requirements are relevant only if they clearly prohibit, by their terms, a particular development on a particular site. For example, if zoning bylaws did not allow a particular use at a site, then it would not be considered a reasonable alternative. However, if a zoning bylaw listed the use as a conditional use, then obtaining a permit would be possible and the Board would not consider that the requirement to obtain a conditional use permit renders the site not reasonably acceptable within the meaning of Cirterion **8(A)(iii)**.

The Board also believes that before destroying critical bear habitat Killington has the obligation to obtain as much snowmaking water as possible through the use **of** efficient operation of its snowmaking system and conservation of water. Killington did not provide any information on the operation of its snowmaking system in order for the Board to determine whether the system is being operated efficiently.

Evidence was submitted that operation in 1989 resulted in the loss of six million gallons of snowmaking water, which suggests that substantial savings might be realized through more efficient operation. Other evidence suggests that an analysis of the snowmaking system and its operation could result in a meaningful savings through better conservation of the existing water supply. As discussed at pages 25-26, above, without this information, the Board cannot determine whether destruction of the wetland bear habitat by the construction of Madden Pond is the only way Killington can achieve its goal of adding 12.5 million gallons of water to its snowmaking system.

Accordingly, the Board cannot conclude that the Applicants own or control no reasonably acceptable alternative sites which would allow the development to fulfill its intended purpose. The project therefore does not comply with Criterion 8(A)(iii).

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The Board believes that Criterion 8(A) was not intended as an absolute bar to development in areas containing necessary wildlife habitat, but requires first that there be a substantial public benefit to the development, and second that there be consideration of all possible alternatives that would enable the purpose of the development to be achieved with the least possible impact on the habitat. The standards established by the legislature in Criterion 8(A) are rigorous, and reflect the desire of the legislature to ensure that a natural resource as important as habitat that is necessary to the survival of wildlife will be destroyed or significantly imperiled only when the public good to be achieved outweighs the loss and there is no possibility of mitigating the impacts on the habitat or of relocating the development to another site.

In evaluating compliance of a project with Criterion 8(A), the Board needs sufficient information in order to fairly evaluate the proposed development. Particularly when dealing with a natural resource as important to the State as critical wildlife habitat, it is incumbent upon the applicant to investigate thoroughly alternative ways of achieving its purpose and to support its contentions with credible evidence. In this case, despite many hearings and voluminous testimony, Killington did not provide the underlying supporting data or details necessary for the Board to make positive findings.

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VII. ORDER

Application #1R0584-EB-1 is hereby denied. Jurisdiction is returned to the District #1 Environmental Commission.

Dated at Montpelier, Vermont this 21st day of September, 1990.

ENVIRONMENTAL BOARD

  
Jan S. Eastman, Acting Chair  
Lawrence H. Bruce, Jr.  
Ferdinand Bongartz  
Elizabeth Courtney  
Arthur Gibb  
Samuel Lloyd

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