APPENDIX 22

WATER BUDGET ANALYSIS

ALPHA GEOSCIENCE

Geology
Hydrology
Remediation
Water Supply

February 23, 2012

Mr. Kevin Franke
The LA Group
40 Long Alley
Saratoga Springs, NY 12866

Re: Water Budget for Modified Project Plan
Modified Belleayre Resort

Dear Mr. Franke:

Alpha Geoscience (Alpha) provided a water budget analysis of the proposed Modified Belleayre Resort at Catskill Park in March 2011. That analysis was included in Appendix 22 of the April 2011 SDEIS submitted to the NYSDEC and summarized in Section 3.2 of that document. The work was performed for Crossroads Ventures, LLC and focused on the Agreement In Principle (AIP) Plan Alternative. Since that time, the Modified Project Plan (MP Plan) has become the applicant's preferred alternative. Alpha was asked by Crossroads to qualitatively evaluate the changes in the water budget analysis that could occur with a switch from the AIP Plan Alternative (the AIP Plan) to the MP Plan.

The results of the AIP Plan water budget analysis can be used to evaluate the potential impacts to aquifer recharge and surface runoff associated with the development of the MP Plan. The AIP Plan had approximately 233 acres of developed areas where changes to the soil properties for water budget purposes would occur. The MP Plan has approximately 217 acres of development. The reduction in developed acreage is primarily due to the elimination of the lodging units and access road that lay uphill from the Highmount Hotel and Lodge buildings in the AIP Plan. The net result of these changes is that there will be more aquifer recharge and less surface runoff with the MP Plan compared to the original AIP Plan. The areas to be developed in the AIP Plan were subdivided into the following six categories for water budget tracking purposes: 1) Wildacres Resort, 2) Highmount Spa and Resort, 3) buildings and pavement, 4) stormwater swales and ponds, 5) the irrigation pond, and 6) the golf course (see Figure 2 of the Water Budget Analysis). The effect that a design change to the MP Plan will have on each of these categories is discussed in the following paragraphs.

Wildacres Resort

The Wildacres Resort category includes all the graded areas in the eastern development area where the landscape has been modified from wooded to non-wooded, exclusive of buildings and

pavement, swales and ponds, and the golf course. The Wildacres Resort grounds were subdivided into three areas; W1, W2 and W3. Of these three areas, only W1 has any significant changes in the Modified Project design. Area W1 is approximately 0.1 acres larger under the MP design than under the original design, due to a very slight decrease in the footprint of the total building and pavement in that area. The slightly larger area of W1 means that there will be negligible increases in aquifer recharge and surface runoff from area W1. Areas W2 and W3 have not changed with the MP Plan; consequently, the aquifer recharge and runoff from these areas have not changed from the original water budget.

Highmount Spa Resort

The Highmount Spa Resort category (HM) includes all the graded areas in the western development area where the landscape has been modified from wooded to non-wooded, exclusive of buildings and pavement, and swales and ponds. Of the six categories, the HM area is the most changed in the MP Plan versus the AIP Plan. The amount of HM graded area in the MP Plan is reduced in comparison to the AIP Plan because all of the proposed lodging units (and associated landscaping) and paved areas uphill from the Highmount Hotel and Lodge buildings have been eliminated. The ski lift has been extended further uphill in the MP Plan; however, the loss of the graded areas associated with the paved areas and lodging units outweighs the added ski lift acreage. Since much of the graded area from the AIP Plan will remain forested land in the MP Plan, the overall effect on the water budget for the MP Plan is that there will be less runoff and more aquifer recharge.

Buildings and Pavement

The amount of the development considered impervious in the water budget analysis is reduced by approximately 6 acres under the MP Plan. This is primarily due to the elimination of the buildings, driveways and roads associated with the HM developed area uphill from the Highmount Hotel and Lodge buildings. The decrease in impervious area translates to an increase in aquifer recharge and a decrease in runoff from the project area.

Stormwater swales and ponds

There is less acreage of swales and ponds in the MP Plan compared to the AIP Plan. The water budget conservatively assumed that no percolation to the ground water system would occur beneath the stormwater features and that all precipitation on them would exit as runoff. The smaller acreage of stormwater features in the MP Plan translates to an increase in aquifer recharge and a decrease in runoff from the project area.

Irrigation pond

The size of the irrigation pond in the MP Plan has not changed; consequently, no changes in runoff or aquifer recharge associated with the irrigation pond will occur.

Golf Course

The layout of the golf course has not changed in the MP Plan; consequently, no changes in runoff or aquifer recharge in these areas will occur.

Undeveloped Areas

The undeveloped land in the western development area increases in the MP Plan versus the AIP Plan. All of the uphill lodging units have been eliminated along with the associated paved and graded areas. The ski lift has been extended further uphill in the MP Plan and a warming hut has been added at the top of the lift. The net result of the changes in the MP Plan is that more forest area will remain undisturbed in the western development area. The effect of this on the water budget, compared to the AIP Plan, is that the surface runoff will decrease and aquifer recharge will increase under the MP design.

The changes in the six water budget categories discussed above together have a positive effect on the results of the water budget analysis. The change in design from the AIP Plan to the MP Plan will have the net result of increasing the aquifer recharge in the project area and decreasing the runoff from the project area.

Please do not hesitate to contact me, if you have any questions.

Sincerely,
Alpha Geoscience

Steven M. Trader

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WATER BUDGET ANALYSIS
Modified Belleayre Resort at Catskill Park
Highmount, New York

Prepared for:

Crossroads Ventures
72 Andrew Lane Road
PO Box 267
Mount Tremper, New York 12457

March 2011

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March 2011

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1.0 INTRODUCTION

This report presents the findings of a water budget analysis that was completed for the proposed Modified Belleayre Resort (the Project). The work was performed by Alpha Geoscience (Alpha) for Crossroads Ventures, L.L.C (Crossroads) as part of an assessment of potential environmental impacts associated with development of the Project. The water budget analysis was performed to evaluate the potential impact that the Project's changes in the land surface will have on aquifer recharge and surface runoff on an annualized basis. This analysis specifically addresses Attachment B-1 of the "Scoping Outline for Modified Belleayre Resort at Catskill Park Supplemental Draft Environmental Impact Statement" that is dated February 28, 2008 (Final Scoping Document).

The area covered by the water budget analysis is approximately 695 acres and includes the primary development area of the Project, which includes Wildacres Resort in the east and the Highmount Spa Resort to the west (Figure 1). Wildacres Resort contains the main hotel and conference center, a separate parking garage, the existing Marlowe Mansion, 12 octoplex and 11 quadplex units, a clubhouse, and the Highmount Golf Club 18-hole course with maintenance facility. Five of the octoplexes and all 11 quadplexes are clustered in the eastern portion of wildacres Resort and, along with the clubhouse, are part of what is called the Front-9 Village (Figure 2). The remaining 7 octoplexes are in the area of the hotel and are referred to as the West Village (Figure 2).

Highmount Spa Resort contains a hotel and spa building, a separate lodge building, eight duplexes downhill from the hotel, 24 single units along the access road above the hotel, and an auxiliary clubhouse/conference building west of County Route 49A (Figure 2). A Wilderness Activity Center is planned as adaptive re-use of existing Highmount Ski Area buildings along County Route 49A.

Two outlying parcels of land were not included in this water budget analysis because the primary development is not occurring on those lands. One of these parcels is the location of the K Well Field, which is the primary source of potable water for the project. The other parcel is an

abandoned rock quarry adjacent to Route 28 and is the location of the project's backup source of potable water, well Q1. The evaluation of these wells and their potential effects on local water supplies is discussed in the report by Alpha Geoscience "Pumping Tests at the K Well Field and Q1 Well, Fleischmanns, New York" which is included in the SDEIS as an attachment to the Water Supply Preliminary Design Report appendix.

2.0 METHODS

A water budget analysis was performed to evaluate the potential impact that the project's changes in the land surface will have on aquifer recharge and surface runoff on an annualized basis. The analysis was not designed to predict the quantity, quality, or yield of the water resources available to the project, or other entities. The water budget provides a mechanism for estimating percolation to the ground water system by balancing the amount of precipitation with runoff, percolation to the subsurface and evapotranspiration (evaporation of the ground surface and transpiration by plants). This balance is dependent on those factors such as slope, vegetation cover, soil type, land use, and climate (precipitation, temperature, and sun angle). Some of these factors will change when development occurs.

Certain modifications in the landscape within the project area will either increase or decrease the amount of surface water runoff and evapotranspiration. These modifications, such as the construction of parking lots, roadways, buildings, and golf courses, can potentially result in either positive or negative changes in surface water runoff and percolation (aquifer recharge). The analysis of the effects of these modifications was accomplished by first evaluating the amount of surface water runoff and percolation to the ground water system under existing conditions and then estimating the change in total runoff and percolation that will be brought about as the result of the post-development conditions. The modifications to the land surface were addressed through careful tracking of changed and unchanged soil areas within the project area and adjusting the runoff coefficients, soil moistures and slopes to reflect the future, developed conditions. The changes in these variables were incorporated into the water budget analysis to assess the potential impacts to aquifer recharge and runoff.

2.1 Existing Conditions

The areas that were analyzed for the existing conditions water budget correspond to the mapped soil areas within the project area as provided in the DEIS Section 3.6 and Appendix 12, "Soil Test Results", the SDEIS Section 3.3, and in the plan set that accompanies the SDEIS. Plate 1 shows the existing soil types and the mapped soil units throughout the Project area. A water budget analysis was completed for each soil type, based on local climate data, site-specific vegetative cover type (wooded or nonwooded), site-specific slope, and the respective physical properties of the site soils. The water budget analyses for the soil types within the project are summarized in Appendices A1 and A2 for wooded and non-wooded areas, respectively. Some soil types (e.g., VhC, VhD, and VhF) were analyzed together for the water budget based on their similar soil properties and slopes..

Climate Data

As stipulated in the Final Scoping Document (Part B of the Final Scoping Document, Belleayre Mountain Ski Center Unit Management Plan (BMSC UMP) – DEIS and Modified Belleayre Resort at Catskill Park Supplemental DEIS, dated: February 28, 2008), temperature and precipitation data were obtained from the Belleayre Mt. Air Monitoring Station (Location 5565-03) of the NYSDEC's Bureau of Air Quality Surveillance. NYSDEC provided daily records from 1991 through 2010. The daily records were summarized into monthly averages of the 20 years of available data (Table 1).

Vegetative Cover

Most of the development area is wooded, but open (or non-wooded) areas exist at the former Highmount Ski Area, the Marlowe Mansion grounds, and at four other sites associated with former or existing home sites. The existing non-wooded areas were determined from recent (2009) orthoimagery and are highlighted on Plate 1.

Runoff Coefficients

The selection of runoff coefficients for the soil types was based on data provided in Landphair & Motloch (1985). Table 2 shows the rationale for the selection of particular runoff coefficients. Each soil type was assigned one of four different runoff coefficients based on the soil composition, vegetative cover, and slope. The runoff coefficients for each site-specific soil type were applied evenly to each monthly average precipitation value throughout the year. This resulted in a portion of monthly precipitation being lost to the system through runoff (monthly precipitation value multiplied by the runoff coefficient). The quantity of water lost to the system through runoff is then unavailable for evapo-transpiration and percolation

In any specific year, runoff varies from time to time and may actually be higher or lower than the amounts that the water budget tables indicate. In January, for example, runoff is likely to be less than the average shown in the water budget tables due to the fact that most of the runoff gets held back as snow and ice. In contrast, runoff could be higher than the average shown in the water budget tables during March or April due to the spring thaw. These differences are smoothed out by the evaluation of the average total runoff on a yearly basis. The use of average, yearly, runoff totals accounts for extremes and allows for comparisons between existing conditions and future conditions. The purpose of the water budget conducted for the Project is to evaluate the change in those parameters on an average, yearly basis that is likely to occur due to project development. The water budget is not designed to predict runoff and percolation during a specific year or condition.

Soil Moisture

Soil moistures were determined from moisture capacity and solum depth (rooting depth) data presented in the Soil Survey for Greene County, New York (USDA, 1993) for each of the soil types. The soil survey from neighboring Greene County was used because the Ulster County and Delaware County Soil Survey mapping available did not have the Project area soils classified under the recognized frigid temperature regime (DEIS, Appendix 12). The soil type classifications

presented in the DEIS Appendix 12 represent the modern classifications of the soils within the water budget area; consequently, the physical properties, such as solum depth and soil moisture capacity, can be obtained from any of the modern published county soil surveys that contain similar soil types.

2.2 Post-Development Conditions

The total area of land within the water budget area that will have changes in the soil properties for water budget purposes is approximately 233.2 acres. The remaining 461.8 acres within the water budget area will remain unchanged. The areas of undeveloped and developed lands under the future conditions are shown on Figure 2 and Plate 2. The undeveloped acreage will retain the soil properties that currently exist; consequently, there will be no change in the existing water balance in those areas. A small amount of undeveloped area is shown as wooded within the developed areas. These undeveloped areas also will retain their existing soil properties. The water budget analyses for the future conditions in the soil areas that will not be developed are the same as they are for the existing conditions (Appendices A1 and A2).

The areas to be developed were subdivided into the following six categories for water budget tracking purposes: 1) Wildacres Resort grounds (subdivided here as W1, W2 and W3), 2) Highmount Spa Resort (area HM), 3) buildings and pavement, 4) stormwater swales and ponds, 5) the irrigation pond, and 6) the golf course (Figure 2). The golf course areas include the driving range, fairways and greens. The stormwater swales and ponds include all stormwater detention ponds, dry swales, and pocket ponds. The large golf course irrigation pond in the eastern end of the development is tracked separately. The buildings and pavement category includes all the buildings of each resort, as well as the paved areas and the parking garage. The Wildacres and Highmount development areas include all the graded areas where the landscape has been modified from wooded to non-wooded, exclusive of buildings and pavement, swales and ponds, and the golf course.

Water budget analyses for the future conditions within the proposed development areas are summarized in Appendix B, and include the Golf Course; Highmount HM; Wildacres W1 inside the irrigation pond subcatchment; Wildacres W1 outside the subcatchment; Wildacres W2 inside the subcatchment; Wildacres W2 outside the subcatchment; and Wildacres W3. Water budgets were performed on development areas W1 and W2 both inside and outside the irrigation pond subcatchment to account for runoff diverted to the irrigation pond. The water budget analyses were completed for the developed areas based on the same climatic data used for the analysis of existing conditions. Several key assumptions for the future, post-development, water budget analyses are presented in the following sections.

Resort Development Areas

Runoff coefficients and soil moistures for the development areas W1 (inside and outside the irrigation pond subcatchment), W2 (inside and outside the subcatchment), W3 and HM were based on averages of these values from the soils types that currently exist in those areas, except that non-wooded values were used in all cases. The development areas for water budget purposes are shown on Figure 2.

Buildings and Pavement

Areas covered by pavement or buildings are all assumed to have no percolation. It is also assumed that 100% of all precipitation will run off these impervious areas. The runoff will be directed to either the irrigation pond or existing natural drainage features. Evaporation of some portion of total precipitation on these impervious areas likely will occur; however, this offset to runoff is not incorporated in order to maintain a conservative approach in evaluating the change in runoff. Similarly, vegetated rooftops are planned for the Highmount Hotel and the Highmount Lodge building and some evapotranspiration would undoubtedly occur in those areas, but this offset to runoff also is not incorporated in the analysis.

Storm Water Features

The storm water detention features (swales, ponds, etc.) throughout Wildacres and Highmount are all presumed to ultimately drain to existing natural drainage features. It also is assumed that no percolation to the ground water system will occur in those areas and that all the precipitation that falls there will exit as runoff. Undoubtedly, some percolation and evaporation will occur in these features; however, these offsets were not incorporated in order to maintain a conservative approach.

Irrigation Pond

The large irrigation pond in the eastern portion of the project area is designed to receive all runoff from the subcatchment basin indicated on Figure 2. The irrigation pond subcatchment basin includes a portion of Wildacres development areas W1 and W2; all of the buildings and pavement within the Front-9 Village; portions of golf holes 5, 6, 7 and 9; the parking garage; and the rooftops of the upper levels of the hotel. Runoff from the rooftops of the lower tiers of the hotel does not flow into the irrigation pond. All of the runoff in areas outside of the irrigation pond subcatchment is conservatively considered to discharge ultimately to natural drainage features; in reality, some of the runoff from paved areas and buildings will "run on" to the adjacent soil areas as a precipitation surcharge. It is assumed that no percolation will occur below the irrigation pond because construction of the pond will include an impervious liner.

Golf Course

The topsoil that will be used in construction of the Highmount Country Club golf course is assumed to be a sandy loam that will have an average thickness of eight inches. The average solum thickness (depth to root base) for the golf course areas is expected to be approximately twelve inches once the course has fully developed.

The runoff coefficient (CR) used for the golf course (fairways and greens) was selected as shown in Table 2. The lower CR for the golf course reflects the sandier soils and more moderate slopes than exist in the golf course footprint today.

The application of irrigation water on the golf course would theoretically meet the soil moisture demand of the grass within the golf course areas; consequently, irrigation will increase the amount of percolation to the ground water system by negating the soil moisture deficit that normally occurs during the summer months when the golf course would be in full operation. The irrigation water will act as a precipitation surcharge throughout the golf course area. The SDEIS indicates a total 3-month irrigation demand of approximately 7.8 million gallons of water for June, July and August. This surcharge was divided into thirds and distributed equally as additional precipitation to the golf course area during those months (Golf Course, Appendix B).

3.0 RESULTS

3.1 Existing Conditions

The annual percolation and runoff rates for each soil type from the water budget sheets in Appendices A1 and A2 were tabulated with each soil type's area and converted to annualized percolation and runoff rates in gallons per minute (gpm). Table 3 summarizes the annualized percolation to ground water by soil type under existing conditions. The water budget analysis performed for the existing conditions indicates that the percolation rate (annualized aquifer recharge rate) for the project area (695 acres) is approximately 368.2 gpm, which is equivalent to 0.53 gpm per acre.

Table 4 summarizes the annualized surface water runoff rates by soil type under the existing conditions. The runoff rate for the project area is approximately 637.1 gpm, which is equivalent to 0.92 gpm per acre.

3.2 Post-Development Conditions

Tables 5 and 6 summarize the annual percolation and runoff, respectively, estimated for all developed and undeveloped areas. The results for the undeveloped wooded and non-wooded soil types are the same as they were for the existing conditions except that some of the soil areas have been reduced in size or eliminated completely. A small portion of undeveloped, wooded soil areas lay inside the subcatchment and these soil areas are tracked separately in Tables 5 and 6. The developed areas (Golf Course, Highmount HM, Wildacres W1-W2-W3, pavement and buildings, storm water features, and irrigation pond) are analyzed according to the area of each that lies inside or outside of the irrigation subcatchment basin.

Aquifer Recharge

The water budget analysis for the future, post-development conditions indicates that the annualized percolation rate for the entire area will be approximately 348.9 gpm, which is equivalent to .502 gpm per acre. This represents a 19.3 gpm decrease from the existing conditions aquifer recharge rate of 368.2 gpm over the entire 695-acre water budget area. This change in percolation is very small when compared to the normal seasonal and yearly climate fluctuations, and when compared to the basin as a whole. This decrease is primarily due to loss of percolation beneath the building footprints, paved areas, storm water features, and the irrigation pond. All of these features amount to a total of approximately 48.5 acres.

Runoff

Table 6 summarizes the annualized future runoff rates estimated for developed and undeveloped areas. The water budget analysis for the future conditions indicates that there will be a negligible increase in the surface water runoff from the project area. The annualized surface water rate of discharge to natural drainage features increases from 648.7 gpm (Table 4) to 656.1 gpm (Table 6). This is equivalent to an increase of approximately 0.01 gpm per acre.

Separately, the irrigation pond will capture an annualized runoff of approximately 53.3 gpm from within the subcatchment basin (Table 6). This amount also includes direct precipitation to the irrigation pond. The water collected in the pond will be used for irrigation and it is assumed that no runoff from the pond will occur.

4.0 DISCUSSION OF RESULTS

A water budget analysis was completed for the Modified Belleayre Resort, which includes the Wildacres Resort and the Highmount Spa Resort. The water budget analysis was performed to evaluate the potential impact that the project's changes in the land surface will have on aquifer recharge and surface runoff on an annualized basis.

The results indicate that the current annualized percolation rate for the study area is approximately 368.2 gpm, or 0.53 gpm per acre, and that the future, post-development conditions will result in a percolation rate of approximately 348.9 gpm, or 0.502 gpm per acre. This change indicates that there is a very slight decrease in aquifer recharge from the immediate project area. This decrease equates to a loss of approximately 19.3 gpm (0.028 gpm per acre) of recharge to the ground water system from the entire 695-acre water budget area. The change is primarily due to the fact that the reduction in infiltration beneath buildings and paved areas are not completely offset by the increase of infiltration beneath the golf course.

The results also indicate that the current runoff rate is approximately 648.7 gpm, or 0.933gpm per acre, and that the runoff rate to existing drainage features under post-development conditions will increase to approximately 656.1 gpm, or 0.944 gpm per acre. This negligible increase in runoff is equivalent to an increase of approximately 7.4 gpm, or 0.01 gpm per acre. Runoff directed to the irrigation pond was considered separately and is estimated to be approximately 53.3 gpm. This rate includes direct precipitation to the pond.

The change in runoff to existing drainage features is primarily due to the increased runoff from buildings and paved areas. The irrigation pond captures some runoff that would have gone to the

natural drainage features; consequently, it offsets some, but not all of the increased runoff from the project area.

5.0 CONCLUSIONS

The runoff and recharge rate estimates determined through this water budget analysis are annualized averages. The changes in the estimated rates between existing and post-development conditions are indicative of the potential impact to aquifer recharge and the streams that receive the surface runoff. The potential impacts to both aquifer recharge and surface water runoff are minimal, with a very slight decrease in aquifer recharge over the project area, and a negligible increase in runoff. The potential impacts likely will be further limited due to the following considerations:

- Some percolation is likely to occur beneath the storm water retention features. This percolation, while not included in the water budget calculations, would marginally increase the percolation rate of the project area and offset a portion of the reduced aquifer recharge.
- Evaporation of water from the storm water features is likely to occur to some extent, thereby reducing the amount of increased runoff estimated for the post-development conditions.
- Not all of the runoff from pavement and buildings will end up in the storm water control structures. A portion of this water will sheet flow over grassy or unpaved surfaces. Some of the sheet flow will act as a precipitation surcharge to the adjacent soil areas (much like irrigation water on the golf course). Since no percolation was included beneath the pavements and building footprints, the precipitation surcharge to the surrounding soils would increase the percolation rate of the project area and offset a portion of the reduced aquifer recharge. A portion of the increased runoff from the project area would also be offset by this precipitation surcharge to the surrounding soils.

REFERENCES

Broad, William A., 1993, Soil Survey of Greene County, New York, United States Department of Agriculture, Soil Conservation Service in cooperation with Cornell University Agricultural Experiment Station, 349 p.

Landphair & Motloch, 1985, Site Reconnaissance and Engineering, Elsevier, New York, 248 p.

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TABLES

TABLE 1

Average Monthly Precipitation and Temperature Values
Belleayre Ski Center, 1991-2010
Modified Belleayre Resort

	Average Monthly Precipitation (inches)	Average Monthly Temperature (°F)
JAN	2.97	22.7
FEB	2.08	24.0
MAR	3.88	32.0
APR	3.70	43.7
MAY	4.19	53.6
JUN	4.46	63.2
JUL	4.08	66.7
AUG	3.49	65.0
SEP	4.49	57.5
OCT	4.82	47.0
NOV	3.77	37.1
DEC	3.52	27.2
Annual	45.45	

Values based on daily records provided by the NYSDEC, Bureau of Air Quality Surveillance, for Bellayre Mt. Air Monitoring Station (Location 5565-03)

TABLE 2
Runoff Coefficients
Modified Belleayre Resort

Surface condition	Runoff coefficient for design event of <10 yr	25 yr	100 yr
Streets, drives, walks			
Asphalt	0.82	0.90	0.95
Concrete	0.88	0.95	0.98
Roofs	0.86	0.95	0.98
Lawns on sandy soil			
<2%	0.10	0.12	0.14
2–7%	0.14	0.16	0.18
>7%	0.20	0.24	0.26
Lawns on clay soil			
<2%	0.22	0.26	0.28
2–7%	0.24	0.28	0.30
>7%	0.33	0.37	0.41
Pasture and grazing on sand			
2%	0.14	0.16	0.18
2–7%	0.22	0.24	0.27
>7%	0.32	0.36	0.40
Pasture and grazing on clay			
<2%	0.32	0.35	0.40
2–7%	0.42	0.46	0.52
>7%	0.52	0.58	0.64
Woodlands on sand			
<2%	0.12	0.13	0.14
2–7%	0.20	0.22	0.25
>7%	0.30	0.33	0.37
Woodlands on clay			
<2%	0.30	0.33	0.37
2–7%	0.40	0.44	0.50
>7%	0.50	0.55	0.62

Used average of .26 for golf course areas

Average used for <8% slopes on non-wooded areas

Average used for >8% slopes on non-wooded areas

Average used for <8% slopes on wooded areas

Average used for >8% slopes on wooded areas

Modified from Table 5.1 Runoff Coefficients for Rational Method, Landphair & Motloch, 1985.

TABLE 3
Existing Conditions Percolation Rates

Modified Belleayre Resort

	Soil Symbol	Sq. Ft.	Acres	% of Project Area	Percolation Rate		
					inches/year	gpm	gpm/acre
Wooded Areas	EkB	106,326	2.4	0.4%	10.97	1.4	0.57
	EkC	522,520	12.0	1.7%	7.63	4.7	0.39
	EkD	703,524	16.2	2.3%	7.63	6.4	0.39
	HrF (rock outcrop)	1,777,248	40.8	5.9%	0	0.0	0.00
	HrF (Halcott)	3,610,966	82.9	11.9%	19.60	83.9	1.01
	HvC	23,488	0.5	0.1%	9.88	0.3	0.51
	HvD	32,755	0.8	0.1%	9.88	0.4	0.51
	HvF	1,190,477	27.3	3.9%	9.88	13.9	0.51
	LeB	261,832	6.0	0.9%	11.77	3.7	0.61
	LeC	867,259	19.9	2.9%	8.75	9.0	0.45
	LeD	908,931	20.9	3.0%	8.75	9.4	0.45
	LeF	676,004	15.5	2.2%	8.02	6.4	0.41
	OsB	459,633	10.6	1.5%	12.15	6.6	0.63
	OsC	142,660	3.3	0.5%	9.25	1.6	0.48
	VeD	513,754	11.8	1.7%	8.64	5.3	0.45
	VeF	755,759	17.3	2.5%	8.64	7.7	0.45
	VhB	21,642	0.5	0.1%	12.46	0.3	0.64
	VhC	1,575,115	36.2	5.2%	9.62	18.0	0.50
	VhD	5,217,914	119.8	17.2%	9.62	59.5	0.50
	VhE	14,793	0.3	0.0%	9.62	0.2	0.50
	VhF	3,149,200	72.3	10.4%	9.62	35.9	0.50
	VyB	697,889	16.0	2.3%	12.26	10.1	0.63
	VyC	1,653,842	38.0	5.5%	9.38	18.4	0.48
	VyD	809,601	18.6	2.7%	9.38	9.0	0.48
	WlB	1,318,745	30.3	4.4%	11.61	18.2	0.60
	WlC	643,663	14.8	2.1%	8.54	6.5	0.44
	Wooded Area Subtotal	*27,655,540*	*634.9*	*91.3%*		*336.9*	
Non-Wooded Areas	HrF (rock outcrop)	482,542	11.1	1.6%	0	0.0	0.00
	HrF (Halcott)	979,706	22.5	3.2%	18.57	21.6	0.96
	HvD	10911.5	0.3	0.0%	9.38	0.1	0.48
	HvF	14,180	0.3	0.0%	9.38	0.2	0.48
	OsB	2,652	0.1	0.0%	11.48	0.0	0.59
	OsC	28,072	0.6	0.1%	8.73	0.3	0.45
	VeD	7,601	0.2	0.0%	8.1	0.1	0.42
	VhC	50,152	1.2	0.2%	9.12	0.5	0.47
	VhD	133,981	3.1	0.4%	9.12	1.4	0.47
	VhF	13,882	0.3	0.0%	9.12	0.2	0.47
	VyB	41,985	1.0	0.1%	11.59	0.6	0.60
	VyC	270,656	6.2	0.9%	8.87	2.8	0.46
	VyD	188,368	4.3	0.6%	8.87	2.0	0.46
	WlB	113,883	2.6	0.4%	10.91	1.5	0.56
	Pavement	278,361	6.4	0.9%	0	0.0	0.0
	Building	3,844	0.1	0.0%	0	0.0	0.0
		2,620,777	*60.2*	*8.7%*		*31.3*	

Existing Percolation (Aquifer Recharge) = 368.2 gpm

TABLE 4
Existing Conditions Runoff Rates

Modified Belleayre Resort

	Soil Symbol	Sq. Ft.	Acres	% of Project Area	Runoff		
					inches/year	gpm	gpm/acre
Wooded Areas	EkB	106,326	2.4	0.4%	13.636	1.7	0.70
	EkC	522,520	12.0	1.7%	18.181	11.3	0.94
	EkD	703,524	16.2	2.3%	18.181	15.2	0.94
	HrF (rock outcrop)	1,777,248	40.8	5.9%	0	0.0	0.00
	HrF (Halcott)	3,610,966	82.9	11.9%	27.13	116.2	1.40
	HvC	23,488	0.5	0.1%	18.181	0.5	0.94
	HvD	32,755	0.8	0.1%	18.181	0.7	0.94
	HvF	1,190,477	27.3	3.9%	18.181	25.7	0.94
	LeB	261,832	6.0	0.9%	13.636	4.2	0.70
	LeC	867,259	19.9	2.9%	18.181	18.7	0.94
	LeD	908,931	20.9	3.0%	18.181	19.6	0.94
	LeF	676,004	15.5	2.2%	19.09	15.3	0.99
	OsB	459,633	10.6	1.5%	13.636	7.4	0.70
	OsC	142,660	3.3	0.5%	18.181	3.1	0.94
	VeD	513,754	11.8	1.7%	18.181	11.1	0.94
	VeF	755,759	17.3	2.5%	18.181	16.3	0.94
	VhB	21,642	0.5	0.1%	13.636	0.3	0.70
	VhC	1,575,115	36.2	5.2%	18.181	34.0	0.94
	VhD	5,217,914	119.8	17.2%	18.181	112.5	0.94
	VhE	14,793	0.3	0.0%	18.181	0.3	0.94
	VhF	3,149,200	72.3	10.4%	18.181	67.9	0.94
	VyB	697,889	16.0	2.3%	13.636	11.3	0.70
	VyC	1,653,842	38.0	5.5%	18.181	35.7	0.94
	VyD	809,601	18.6	2.7%	18.181	17.5	0.94
	WlB	1,318,745	30.3	4.4%	13.636	21.3	0.70
	WlC	643,663	14.8	2.1%	18.181	13.9	0.94
Wooded Area Subtotal		*27,655,540*	*634.9*	*91.3%*		*581.6*	
Non-Wooded Areas	HrF (rock outcrop)	482,542	11.1	1.6%	0	0.0	0.00
	HrF (Halcott)	979,706	22.5	3.2%	28.49	33.1	1.47
	HvD	10911.5	0.3	0.0%	19.09	0.2	0.99
	HvF	14,180	0.3	0.0%	19.09	0.3	0.99
	OsB	2,652	0.1	0.0%	14.545	0.0	0.75
	OsC	28,072	0.6	0.1%	19.09	0.6	0.99
	VeD	7,601	0.2	0.0%	19.09	0.2	0.99
	VhC	50,152	1.2	0.2%	18.181	1.1	0.94
	VhD	133,981	3.1	0.4%	18.181	2.9	0.94
	VhF	13,882	0.3	0.0%	18.181	0.3	0.94
	VyB	41,985	1.0	0.1%	14.545	0.7	0.75
	VyC	270,656	6.2	0.9%	19.09	6.1	0.99
	VyD	188,368	4.3	0.6%	19.09	4.3	0.99
	WlB	113,883	2.6	0.4%	14.545	2.0	0.75
	Pavement	278,361	6.4	0.9%	45.45	15.0	2.3
	Building	3,844	0.1	0.0%	45.45	0.2	2.3
Non-Wooded Area Subtotal		*2,620,777*	*60.2*	*8.7%*		*67.1*	

Existing Runoff to Natural Drainage Basins, in gpm = 648.7

TABLE 5
Future Conditions Percolation Rates

Modified Belleayre Resort

	Soil Symbol	Sq. Ft.	Acres	% of Project Area	Percolation Rate		
					inches/year	gpm	gpm/acre
Undeveloped Wooded Areas	EkB	38,636	0.89	0.1%	10.97	0.5	0.57
	EkC	479,869	11.02	1.6%	7.63	4.3	0.39
	EkD	686,687	15.76	2.3%	7.63	6.2	0.39
	HrF (rock outcrop)	1,326,472	30.45	4.4%	0	0.0	0.00
	HrF (Halcott)	2,652,944	60.90	8.8%	19.77	62.2	1.02
	HvC	5,262	0.12	0.02%	9.88	0.1	0.51
	HvD	32,755	0.75	0.1%	9.88	0.4	0.51
	HvF	711,645	16.34	2.4%	9.88	8.3	0.51
	LeB	67,455	1.55	0.2%	11.77	0.9	0.61
	LeC	621,385	14.27	2.1%	8.75	6.4	0.45
	LeD	908,931	20.87	3.0%	8.75	9.4	0.45
	LeF	676,004	15.52	2.2%	8.02	6.4	0.41
	OsB	121,502	2.79	0.4%	12.15	1.8	0.63
	OsC	123,774	2.84	0.4%	9.25	1.4	0.48
	VeD	499,025	11.46	1.6%	8.64	5.1	0.45
	VeF	755,759	17.35	2.5%	8.64	7.7	0.45
	VhC	334,093	7.67	1.1%	9.62	3.8	0.50
	VhD	3,253,235	74.68	10.7%	9.62	37.1	0.50
	VhE	14,793	0.34	0.05%	9.62	0.2	0.50
	VhF	3,034,436	69.66	10.0%	9.62	34.6	0.50
	VyB	123,873	2.84	0.4%	12.26	1.8	0.63
	VyC	610,316	14.01	2.0%	9.38	6.8	0.48
	VyD	281,064	6.45	0.9%	9.38	3.1	0.48
	WlB	148,403	3.41	0.5%	11.61	2.0	0.60
	WlC	253,929	5.83	0.8%	8.54	2.6	0.44
	Wooded Area Subtotal	*17,762,246*	*407.77*	*58.7%*		*213.3*	
Undeveloped Non-Wooded Areas	HrF (rock outcrop)	481,418	11.05	1.6%	0	0	0
	HrF (Halcott)	962,836	22.10	3.2%	18.72	21.4	0.97
	HvD	10,911	0.25	0.04%	9.38	0.1	0.48
	HvF	3,721	0.09	0.01%	9.38	0.04	0.48
	OsC	28,072	0.64	0.1%	8.73	0.3	0.45
	VeD	433	0.01	0.001%	8.1	0.004	0.42
	VhC	38,896	0.89	0.1%	9.12	0.4	0.47
	VhD	70,296	1.61	0.2%	9.12	0.8	0.47
	VhF	13,863	0.32	0.05%	9.12	0.1	0.47
	VyB	14,395	0.33	0.05%	11.59	0.2	0.60
	VyC	140,208	3.22	0.5%	8.87	1.5	0.46
	VyD	188,368	4.32	0.6%	8.87	2.0	0.46
	WlB	17,796	0.41	0.1%	10.91	0.2	0.56
	Non-Wooded Area Subtotal	*1,971,213*	*45.25*	*6.5%*		*27*	
Developed Areas Outside of Irrigation Pond Catchment	Golf Course	1,686,358	38.7	5.6%	15.9	31.8	0.82
	HM	1,790,316	41.1	5.9%	9.393	19.9	0.49
	W1	744,876	17.1	2.5%	9.095	8.0	0.47
	W2	2,435,004	55.9	8.0%	9.391	27.1	0.49
	W3	370,260	8.5	1.2%	8.604	3.8	0.44
	Pavements & Buildings	1,437,134	33.0	4.7%	0	0	0
	storm water features	191,965	4.4	0.6%	0	0	0
	Subtotal	*8,655,913*	*198.7*	*28.6%*		*90.7*	
Undeveloped Wooded Areas within Irrigation Pond Catchment	HrF (rock outcrop)	1,234.7	0.03	0.00%	0	0.00	0.00
	HrF (Halcott)	2,469.3	0.06	0.01%	19.77	0.06	1.02
	LeB	6,356	0.15	0.02%	11.77	0.09	0.61
	LeC	13,619	0.31	0.04%	8.75	0.14	0.45
	VhD	9,319	0.21	0.03%	9.62	0.11	0.50
	VyC	32,216	0.74	0.11%	9.38	0.36	0.48
	VyD	15,367	0.35	0.05%	9.38	0.17	0.48
	WlB	25,356	0.58	0.08%	11.61	0.35	0.60
	WlC	2,487	0.06	0.01%	8.54	0.03	0.44
	Subtotal	*108,423*	*2.49*	0.36%		*1.30*	
Developed Areas within Irrigation Pond Catchment	Golf Course	237,382	5.45	0.8%	15.9	4.5	0.82
	W1	714,384	16.40	2.4%	9.137	7.7	0.47
	W2	365,904	8.40	1.2%	9.964	4.3	0.51
	Pavements & Buildings	405,304	9.30	1.3%	0	0	0
	Irrigation Pond	55,069	1.30	0.2%	0	0	0
	Subtotal	*1,778,043*	*40.85*	*5.9%*		*16.5*	

Future Percolation (Aquifer Recharge) = ***348.9*** **gpm**

TABLE 6
Future Conditions Runoff Rates

Modified Belleayre Resort

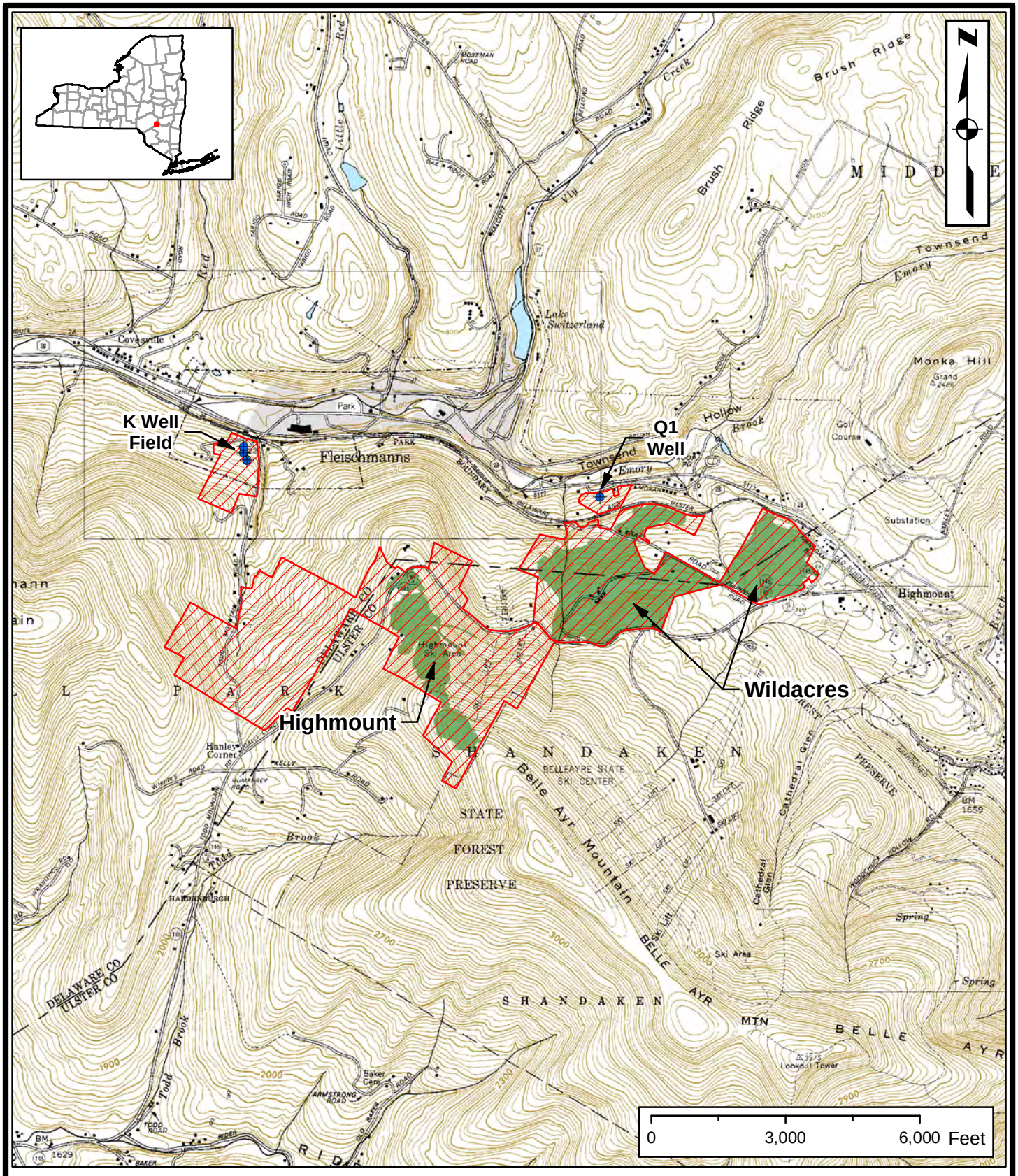
	Soil Symbol	Sq. Ft.	Acres	% of Project Area	Runoff Rate		
					inches/year	gpm	gpm/acre
Undeveloped Wooded Areas	EkB	38,636	0.9	0.1%	13.636	0.6	0.70
	EkC	479,869	11.0	1.6%	18.181	10.3	0.94
	EkD	686,687	15.8	2.3%	18.181	14.8	0.94
	HrF (rock outcrop)	1,326,472	30.4	4.4%	0	0.0	0.00
	HrF (Halcott)	2,652,944	60.8	8.8%	27.27	85.8	1.41
	HvC	5,262	0.1	0.02%	18.181	0.1	0.94
	HvD	32,755	0.8	0.1%	18.181	0.7	0.94
	HvF	711,645	16.3	2.4%	18.181	15.3	0.94
	LeB	67,455	1.5	0.2%	13.636	1.1	0.70
	LeC	621,385	14.3	2.1%	18.181	13.4	0.94
	LeD	908,931	20.9	3.0%	18.181	19.6	0.94
	LeF	676,004	15.5	2.2%	19.09	15.3	0.99
	OsB	121,502	2.8	0.4%	13.636	2.0	0.70
	OsC	123,774	2.8	0.4%	18.181	2.7	0.94
	VeD	499,025	11.5	1.6%	18.181	10.8	0.94
	VeF	755,759	17.3	2.5%	18.181	16.3	0.94
	VhC	334,093	7.7	1.1%	18.181	7.2	0.94
	VhD	3,253,235	74.7	10.7%	18.181	70.1	0.94
	VhE	14,793	0.3	0.05%	18.181	0.3	0.94
	VhF	3,034,436	69.7	10.0%	18.181	65.4	0.94
	VyB	123,873	2.8	0.4%	13.636	2.0	0.70
	VyC	610,316	14.0	2.0%	18.181	13.2	0.94
	VyD	281,064	6.5	0.9%	18.181	6.1	0.94
	WlB	148,403	3.4	0.5%	13.636	2.4	0.70
	WlC	253,929	5.8	0.8%	18.181	5.5	0.94
	Wooded Area Subtotal	*17,762,246*	*407.7*	*58.7%*		*381.0*	
Undeveloped Non-Wooded Areas	HrF (rock outcrop)	481,418	11.1	1.6%	0.0	0.0	0.00
	HrF (Halcott)	962,836	22.1	3.2%	28.64	32.7	1.48
	HvD	10,911	0.3	0.04%	19.09	0.2	0.99
	HvF	3,721	0.1	0.01%	19.09	0.1	0.99
	OsC	28,072	0.6	0.1%	19.09	0.6	0.99
	VeD	433	0.01	0.001%	19.09	0.0	0.99
	VhC	38,896	0.9	0.1%	19.09	0.9	0.99
	VhD	70,296	1.6	0.2%	19.09	1.6	0.99
	VhF	13,863	0.3	0.0%	19.09	0.3	0.99
	VyB	14,395	0.3	0.05%	14.545	0.2	0.75
	VyC	140,208	3.2	0.5%	19.09	3.2	0.99
	VyD	188,368	4.3	0.6%	19.09	4.3	0.99
	WlB	17,796	0.4	0.1%	19.09	0.4	0.99
	Non-Wooded Area Subtotal	*1,971,213*	*45.3*	6.5%		*44.6*	
Developed Areas Outside of Irrigation Pond Catchment	Golf Course	1,686,358	38.7	5.6%	13.5	27.0	0.70
	HM	1,790,316	41.1	5.9%	18.636	39.6	0.96
	W1	744,876	17.1	2.5%	17.272	15.3	0.89
	W2	2,435,004	55.9	8.0%	18.181	52.5	0.94
	W3	370,260	8.5	1.2%	19.09	8.4	0.99
	Pavements & Buildings	1,437,134	33.0	4.7%	45.45	77	2.35
	storm water features	191,965	4.4	0.6%	45.45	10	2.35
	Subtotal	*8,655,913*	*198.7*	*28.6%*		*230.5*	

Post-Development Runoff to Natural Drainage Basins, in gpm= 656.1

Undeveloped Wooded Areas within Irrigation Pond Catchment	HrF (rock outcrop)	1,234.7	0.03	0.00%	0	0.0	0.00
	HrF (Halcott)	2,469.3	0.06	0.01%	27.27	0.1	1.41
	LeB	6,356	0.15	0.02%	13.636	0.1	0.70
	LeC	13,619	0.31	0.04%	18.181	0.3	0.94
	VhD	9,319	0.21	0.03%	18.181	0.2	0.94
	VyC	32,216	0.74	0.11%	18.181	0.7	0.94
	VyD	15,367	0.35	0.05%	18.181	0.3	0.94
	WlB	25,356	0.58	0.08%	13.636	0.4	0.70
	WlC	2,487	0.06	0.01%	18.181	0.1	0.94
	Subtotal	*108,423*	*2.5*	*0.36%*		*2.2*	
Developed Areas within Irrigation Pond Catchment	Golf Course	237,382	5.4	0.8%	13.5	3.8	0.70
	W1	714,384	16.4	2.4%	17.727	15.0	0.92
	W2	365,904	8.4	1.2%	17.272	7.5	0.89
	Pavements & Buildings	405,304	9.3	1.3%	45.45	21.8	2.35
	Irrigation Pond	55,069	1.3	0.2%	45.45	3.0	2.28
	Subtotal	*1,778,043*	*40.9*	*5.9%*		*51.1*	

Post-Development Runoff to Irrigation Pond, in gpm= 53.3

FIGURES



LEGEND

- Production Well
- Property Boundary
- Development Areas

Source:
-NYSDOT 7.5-minute topographic map (Fleichmanns and West Kill quadrangles)
-Elevations are shown in feet above mean sea level.
-Contour interval is 20 feet.

ALPHA GEOSCIENCE

Proj. No. 09100

FIGURE 1
Site Location Map

Modified Bellayre Resort
Delaware and Ulster Counties, New York

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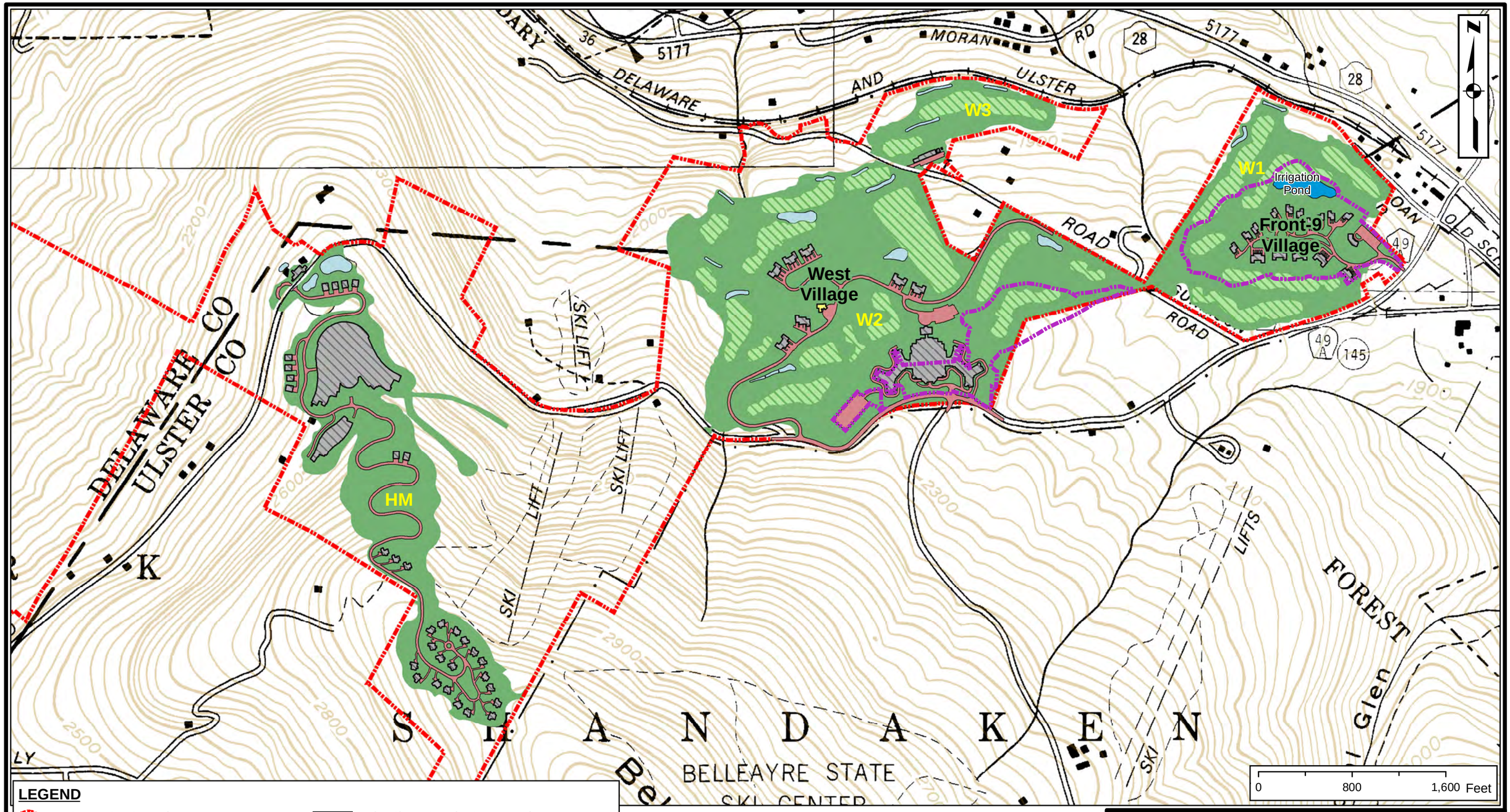

LEGEND

- Property Boundary
- Irrigation Pond Subcatchment Basin
- Development Areas (HM, W1, W2, W3)
- Irrigation Pond, Proposed
- Stormwater Swale or Pond, Proposed
- Building, Existing
- Building, Proposed
- Pavement, Proposed
- Golf Course, Proposed

Note:
Development areas are subdivided here as HM, W1, W2, and W3 for water budget tracking purposes.

Source:
-NYSDOT 7.5-minute topographic map (Fleichmanns and West Kill quadrangles)
-Elevations are shown in feet above mean sea level.
-Contour interval is 20 feet.

ALPHA GEOSCIENCE
Proj. No. 09100

FIGURE 2
Proposed Development Areas

Modified Bellayre Resort
Delaware and Ulster Counties, New York

Path: Z:\projects\2009\09100 - 09120\09100 - Highmount Water Budget\GIS\Fig_2-Development_Areas.mxd
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APPENDIX A1

Water Budget Analysis Tables

Existing Soil Types, Wooded Areas

Belleayre Resort — Water Budget Analysis — EkB - Wooded

Month	Temp °C	Precip. P (mm)	C_r	Runoff (mm)	Infiltration (mm)	Monthly Heat Index	Annual Heat Index I	Unadjusted Monthly PE (mm)	Unadjusted Daily PE (mm)	Mean Possible Monthly Duration of Sunlight (12-hr units)	Adjusted Monthly PE (mm)	Infilt-PET (mm)	Σ Neg. Infilt. (mm)
Jan	-5.17	75.50	0.3000	22.65	52.85	0.00	34.11	0.00	0.00	24.6	0.00	52.85	0.00
Feb	-4.44	52.71	0.3000	15.81	36.90	0.00	34.11	0.00	0.00	24.7	0.00	36.90	0.00
Mar	0.00	98.55	0.3000	29.57	68.99	0.00	34.11	0.00	0.00	30.9	0.00	68.99	0.00
Apr	6.50	94.07	0.3000	28.22	65.85	1.49	34.11	31.69	1.06	33.4	35.28	30.57	0.00
May	12.00	106.51	0.3000	31.95	74.55	3.76	34.11	59.98	1.93	37.7	72.95	1.60	0.00
Jun	17.33	113.26	0.3000	33.98	79.28	6.57	34.11	87.95	2.93	38.0	111.41	-32.13	-32.13
Jul	19.28	103.56	0.3000	31.07	72.49	7.71	34.11	98.25	3.17	38.5	122.02	-49.53	-81.66
Aug	18.33	88.75	0.3000	26.62	62.12	7.15	34.11	93.24	3.01	35.8	107.68	-45.56	-127.21
Sep	14.17	114.02	0.3000	34.21	79.81	4.84	34.11	71.30	2.38	31.2	74.15	5.67	0.00
Oct	8.33	122.48	0.3000	36.74	85.74	2.17	34.11	41.04	1.32	28.6	37.86	47.87	0.00
Nov	2.83	95.64	0.3000	28.69	66.95	0.42	34.11	13.35	0.45	24.5	10.91	56.04	0.00
Dec	-2.67	89.47	0.3000	26.84	62.63	0.00	34.11	0.00	0.00	23.7	0.00	62.63	0.00
		1154.52		*346.36*		34.11							
		45.45	in.	**13.64**	in.								

Soil Moisture Storage (ST) in millimeters ***135.128***

Lattitude = 42° 10'

Month	Soil Moisture Storage (mm)	Δ Soil Moisture Storage (mm)	AET (mm)	AET (in)	Perc (mm)	Perc (in)
Jan	135.13	0.00	0.00	0.00	52.85	2.08
Feb	135.13	0.00	0.00	0.00	36.90	1.45
Mar	135.13	0.00	0.00	0.00	68.99	2.72
Apr	135.13	0.00	35.28	1.39	30.57	1.20
May	135.13	0.00	72.95	2.87	1.60	0.06
Jun	105.53	-29.60	108.88	4.29	0.00	0.00
Jul	72.08	-33.44	105.93	4.17	0.00	0.00
Aug	50.77	-21.32	83.44	3.29	0.00	0.00
Sep	56.43	5.67	74.15	2.92	0.00	0.00
Oct	104.30	47.87	37.86	1.49	0.00	0.00
Nov	135.13	30.82	10.91	0.43	25.22	0.99
Dec	135.13	0.00	0.00	0.00	62.63	2.47
			529.40	**20.84**	*278.76*	**10.97**

Total Runoff	**13.636**	inches
Total AET	**20.842**	inches
Total Perc.	**10.975**	inches
	45.453	inches

Belleayre Resort — ***Water Budget Analysis*** — ***EkC, EkD - Wooded***

Month	*Temp ^{o}C*	*Precip. P (mm)*	*C_r*	*Runoff (mm)*	*Infiltration (mm)*	*Monthly Heat Index*	*Annual Heat Index I*	*Unadjusted Monthly PE (mm)*	*Unadjusted Daily PE (mm)*	*Mean Possible Monthly Duration of Sunlight (12-hr units)*	*Adjusted Monthly PE (mm)*	*Infilt-PET (mm)*	*Σ Neg. Infilt. (mm)*
Jan	***-5.17***	***75.50***	***0.4000***	30.20	45.30	***0.00***	34.11	0.00	0.00	***24.6***	0.00	45.30	0.00
Feb	***-4.44***	***52.71***	***0.4000***	21.08	31.63	***0.00***	34.11	0.00	0.00	***24.7***	0.00	31.63	0.00
Mar	***0.00***	***98.55***	***0.4000***	39.42	59.13	***0.00***	34.11	0.00	0.00	***30.9***	0.00	59.13	0.00
Apr	***6.50***	***94.07***	***0.4000***	37.63	56.44	***1.49***	34.11	31.69	1.06	***33.4***	35.28	21.16	0.00
May	***12.00***	***106.51***	***0.4000***	42.60	63.90	***3.76***	34.11	59.98	1.93	***37.7***	72.95	-9.05	-9.05
Jun	***17.33***	***113.26***	***0.4000***	45.30	67.95	***6.57***	34.11	87.95	2.93	***38.0***	111.41	-43.46	-52.50
Jul	***19.28***	***103.56***	***0.4000***	41.42	62.13	***7.71***	34.11	98.25	3.17	***38.5***	122.02	-59.88	-112.38
Aug	***18.33***	***88.75***	***0.4000***	35.50	53.25	***7.15***	34.11	93.24	3.01	***35.8***	107.68	-54.43	-166.81
Sep	***14.17***	***114.02***	***0.4000***	45.61	68.41	***4.84***	34.11	71.30	2.38	***31.2***	74.15	-5.74	-172.55
Oct	***8.33***	***122.48***	***0.4000***	48.99	73.49	***2.17***	34.11	41.04	1.32	***28.6***	37.86	35.62	0.00
Nov	***2.83***	***95.64***	***0.4000***	38.26	57.38	***0.42***	34.11	13.35	0.45	***24.5***	10.91	46.48	0.00
Dec	***-2.67***	***89.47***	***0.4000***	35.79	53.68	***0.00***	34.11	0.00	0.00	***23.7***	0.00	53.68	0.00
	7.21	*1154.52*		*461.81*	692.71	34.11							
		45.45	in.	***18.18***	in.								

Soil Moisture Storage (ST) in millimeters ***135.128***

Lattitude = 42° 10'

Month	*Soil Moisture Storage (mm)*	*Δ Soil Moisture Storage (mm)*	*AET (mm)*	*AET (in)*	*Perc (mm)*	*Perc (in)*
Jan	135.13	0.00	0.00	0.00	45.30	1.78
Feb	135.13	0.00	0.00	0.00	31.63	1.25
Mar	135.13	0.00	0.00	0.00	59.13	2.33
Apr	135.13	0.00	35.28	1.39	21.16	0.83
May	126.04	-9.09	72.99	2.87	0.00	0.00
Jun	90.21	-35.83	103.78	4.09	0.00	0.00
Jul	56.90	-33.31	95.44	3.76	0.00	0.00
Aug	37.43	-19.47	72.72	2.86	0.00	0.00
Sep	35.81	-1.62	70.03	2.76	0.00	0.00
Oct	71.44	35.62	37.86	1.49	0.00	0.00
Nov	117.92	46.48	10.91	0.43	0.00	0.00
Dec	135.13	17.21	0.00	0.00	36.47	1.44
			499.02	***19.65***	*193.70*	***7.63***

Total Runoff	**18.181**	inches
Total AET	**19.646**	inches
Total Perc.	**7.626**	inches
	45.453	inches

Belleayre Resort — *Water Budget Analysis* — *HrF - Wooded*

Month	*Temp °C*	*Direct Precip. To Halcott Soil (mm)*	*Add'l Precip. (runoff from rock outcrop) (mm)*	*Total Precip. To Halcott Soil (mm)*	C_r	*Runoff (mm)*	*Infiltration (mm)*	*Annual Heat Index I*	*Unadjusted Monthly PE (mm)*	*Unadjusted Daily PE (mm)*	*Mean Possible Monthly Duration of Sunlight (12-hr units)*	*Adjusted Monthly PE (mm)*	*Infilt-PET (mm)*	*Σ Neg. Infilt. (mm)*
Jan	***-5.17***	***75.50***	***37.16***	***112.67***	***0.40***	45.07	67.60	34.11	0.00	0.00	***24.6***	0.00	67.60	0.00
Feb	***-4.44***	***52.71***	***25.94***	***78.66***	***0.40***	31.46	47.19	34.11	0.00	0.00	***24.7***	0.00	47.19	0.00
Mar	***0.00***	***98.55***	***48.51***	***147.06***	***0.40***	58.82	88.23	34.11	0.00	0.00	***30.9***	0.00	88.23	0.00
Apr	***6.50***	***94.07***	***46.30***	***140.37***	***0.40***	56.15	84.22	34.11	31.69	1.06	***33.4***	35.28	48.94	0.00
May	***12.00***	***106.51***	***52.42***	***158.93***	***0.40***	63.57	95.36	34.11	59.98	1.93	***37.7***	72.95	22.41	0.00
Jun	***17.33***	***113.26***	***55.74***	***169.00***	***0.40***	67.60	101.40	34.11	87.95	2.93	***38.0***	111.41	-10.01	-10.01
Jul	***19.28***	***103.56***	***50.97***	***154.52***	***0.40***	61.81	92.71	34.11	98.25	3.17	***38.5***	122.02	-29.30	-39.31
Aug	***18.33***	***88.75***	***43.68***	***132.43***	***0.40***	52.97	79.46	34.11	93.24	3.01	***35.8***	107.68	-28.22	-67.53
Sep	***14.17***	***114.02***	***56.12***	***170.14***	***0.40***	68.06	102.08	34.11	71.30	2.38	***31.2***	74.15	27.94	0.00
Oct	***8.33***	***122.48***	***60.28***	***182.76***	***0.40***	73.10	109.66	34.11	41.04	1.32	***28.6***	37.86	71.79	0.00
Nov	***2.83***	***95.64***	***47.07***	***142.71***	***0.40***	57.08	85.63	34.11	13.35	0.45	***24.5***	10.91	74.72	0.00
Dec	***-2.67***	***89.47***	***44.04***	***133.51***	***0.40***	53.41	80.11	34.11	0.00	0.00	***23.7***	0.00	80.11	0.00
	7.21	*1154.52 mm*		*1722.75 mm*		*689.10*	1033.65							
		45.45 in.		***67.82*** *in.*		***27.13*** *in.*								

Soil Moisture Storage (ST) in millimeters ***35.560***

Lattitude = 42° 10'

Month	*Soil Moisture Storage (mm)*	*Δ Soil Moisture Storage (mm)*	*AET (mm)*	*AET (in)*	*Perc (mm)*	*Perc (in)*
Jan	35.56	0.00	0.00	0.00	67.60	2.66
Feb	35.56	0.00	0.00	0.00	47.19	1.86
Mar	35.56	0.00	0.00	0.00	88.23	3.47
Apr	35.56	0.00	35.28	1.39	48.94	1.93
May	35.56	0.00	72.95	2.87	22.41	0.88
Jun	26.23	-9.33	110.73	4.36	0.00	0.00
Jul	10.76	-15.47	108.18	4.26	0.00	0.00
Aug	4.56	-6.20	85.66	3.37	0.00	0.00
Sep	32.50	27.94	74.15	2.92	0.00	0.00
Oct	35.56	3.06	37.86	1.49	68.73	2.71
Nov	35.56	0.00	10.91	0.43	74.72	2.94
Dec	35.56	0.00	0.00	0.00	80.11	3.15
			535.71	***21.09***	*497.94*	***19.60***

Total Runoff	**27.13** inches
Total AET	**21.09** inches
Total Perc.	**19.60** inches
	67.82 inches

Notes:
Total Wooded HrF area = 5,388,214 ft^2, assumed to be 67% Halcott Soil and 33% Rock Outcrop.
Wooded Halcott Soil area = 3,610,966 ft^2
Rock Outcrop Area = 1,777,248 ft^2
Monthly Precipitation on Rock Outcrop area assumed to runoff directly to Halcott soil area as additional precipitation
(No percolation on Rock Outcrop area)

Belleayre Resort — ***Water Budget Analysis*** — ***HvC,HvD,HvF - Wooded***

Month	*Temp °C*	*Precip. P (mm)*	C_r	*Runoff (mm)*	*Infiltration (mm)*	*Monthly Heat Index*	*Annual Heat Index I*	*Unadjusted Monthly PE (mm)*	*Unadjusted Daily PE (mm)*	*Mean Possible Monthly Duration of Sunlight (12-hr units)*	*Adjusted Monthly PE (mm)*	*Infilt-PET (mm)*	*Σ Neg. Infilt. (mm)*
Jan	***-5.17***	***75.50***	***0.40***	30.20	45.30	***0.00***	34.11	0.00	0.00	***24.6***	0.00	45.30	0.00
Feb	***-4.44***	***52.71***	***0.40***	21.08	31.63	***0.00***	34.11	0.00	0.00	***24.7***	0.00	31.63	0.00
Mar	***0.00***	***98.55***	***0.40***	39.42	59.13	***0.00***	34.11	0.00	0.00	***30.9***	0.00	59.13	0.00
Apr	***6.50***	***94.07***	***0.40***	37.63	56.44	***1.49***	34.11	31.69	1.06	***33.4***	35.28	21.16	0.00
May	***12.00***	***106.51***	***0.40***	42.60	63.90	***3.76***	34.11	59.98	1.93	***37.7***	72.95	-9.05	-9.05
Jun	***17.33***	***113.26***	***0.40***	45.30	67.95	***6.57***	34.11	87.95	2.93	***38.0***	111.41	-43.46	-52.50
Jul	***19.28***	***103.56***	***0.40***	41.42	62.13	***7.71***	34.11	98.25	3.17	***38.5***	122.02	-59.88	-112.38
Aug	***18.33***	***88.75***	***0.40***	35.50	53.25	***7.15***	34.11	93.24	3.01	***35.8***	107.68	-54.43	-166.81
Sep	***14.17***	***114.02***	***0.40***	45.61	68.41	***4.84***	34.11	71.30	2.38	***31.2***	74.15	-5.74	-172.55
Oct	***8.33***	***122.48***	***0.40***	48.99	73.49	***2.17***	34.11	41.04	1.32	***28.6***	37.86	35.62	0.00
Nov	***2.83***	***95.64***	***0.40***	38.26	57.38	***0.42***	34.11	13.35	0.45	***24.5***	10.91	46.48	0.00
Dec	***-2.67***	***89.47***	***0.40***	35.79	53.68	***0.00***	34.11	0.00	0.00	***23.7***	0.00	53.68	0.00
		1154.52		*461.81*		34.11							
		45.45	in.	***18.18***	in.								

Soil Moisture Storage (ST) in millimeters ***42.601***

Lattitude = 42° 10'

Month	*Soil Moisture Storage (mm)*	*Δ Soil Moisture Storage (mm)*	*AET (mm)*	*AET (in)*	*Perc (mm)*	*Perc (in)*
Jan	42.60	0.00	0.00	0.00	45.30	1.78
Feb	42.60	0.00	0.00	0.00	31.63	1.25
Mar	42.60	0.00	0.00	0.00	59.13	2.33
Apr	42.60	0.00	35.28	1.39	21.16	0.83
May	33.90	-8.70	72.60	2.86	0.00	0.00
Jun	11.32	-22.58	90.54	3.56	0.00	0.00
Jul	2.50	-8.82	70.96	2.79	0.00	0.00
Aug	0.63	-1.87	55.11	2.17	0.00	0.00
Sep	0.55	-0.09	68.50	2.70	0.00	0.00
Oct	36.17	35.62	37.86	1.49	0.00	0.00
Nov	42.60	6.43	10.91	0.43	40.05	1.58
Dec	42.60	0.00	0.00	0.00	53.68	2.11
			441.76	***17.39***	*250.96*	***9.88***

Total Runoff	**18.181**	inches
Total AET	**17.392**	inches
Total Perc.	**9.880**	inches
	45.453	inches

HvC,HvD,HvF = 67% Halcott and 33% Vly; these proportions used in weighted average approach to calculate soil moisture storage of the soil complex

Belleayre Resort — ***Water Budget Analysis*** — ***LeB - Wooded***

Month	*Temp ^{o}C*	*Precip. P (mm)*	*C_r*	*Runoff (mm)*	*Infiltration (mm)*	*Monthly Heat Index*	*Annual Heat Index I*	*Unadjusted Monthly PE (mm)*	*Unadjusted Daily PE (mm)*	*Mean Possible Monthly Duration of Sunlight (12-hr units)*	*Adjusted Monthly PE (mm)*	*Infilt-PET (mm)*	*Σ Neg. Infilt. (mm)*
Jan	***-5.17***	***75.50***	***0.30***	22.65	52.85	***0.00***	34.11	0.00	0.00	***24.6***	0.00	52.85	0.00
Feb	***-4.44***	***52.71***	***0.30***	15.81	36.90	***0.00***	34.11	0.00	0.00	***24.7***	0.00	36.90	0.00
Mar	***0.00***	***98.55***	***0.30***	29.57	68.99	***0.00***	34.11	0.00	0.00	***30.9***	0.00	68.99	0.00
Apr	***6.50***	***94.07***	***0.30***	28.22	65.85	***1.49***	34.11	31.69	1.06	***33.4***	35.28	30.57	0.00
May	***12.00***	***106.51***	***0.30***	31.95	74.55	***3.76***	34.11	59.98	1.93	***37.7***	72.95	1.60	0.00
Jun	***17.33***	***113.26***	***0.30***	33.98	79.28	***6.57***	34.11	87.95	2.93	***38.0***	111.41	-32.13	-32.13
Jul	***19.28***	***103.56***	***0.30***	31.07	72.49	***7.71***	34.11	98.25	3.17	***38.5***	122.02	-49.53	-81.66
Aug	***18.33***	***88.75***	***0.30***	26.62	62.12	***7.15***	34.11	93.24	3.01	***35.8***	107.68	-45.56	-127.21
Sep	***14.17***	***114.02***	***0.30***	34.21	79.81	***4.84***	34.11	71.30	2.38	***31.2***	74.15	5.67	0.00
Oct	***8.33***	***122.48***	***0.30***	36.74	85.74	***2.17***	34.11	41.04	1.32	***28.6***	37.86	47.87	0.00
Nov	***2.83***	***95.64***	***0.30***	28.69	66.95	***0.42***	34.11	13.35	0.45	***24.5***	10.91	56.04	0.00
Dec	***-2.67***	***89.47***	***0.30***	26.84	62.63	***0.00***	34.11	0.00	0.00	***23.7***	0.00	62.63	0.00
		1154.52		*346.36*		34.11							
		45.45	in.	***13.64***	in.								

Soil Moisture Storage (ST) in millimeters ***78.232***

Lattitude = 42° 10'

Month	*Soil Moisture Storage (mm)*	*Δ Soil Moisture Storage (mm)*	*AET (mm)*	*AET (in)*	*Perc (mm)*	*Perc (in)*
Jan	78.23	0.00	0.00	0.00	52.85	2.08
Feb	78.23	0.00	0.00	0.00	36.90	1.45
Mar	78.23	0.00	0.00	0.00	68.99	2.72
Apr	78.23	0.00	35.28	1.39	30.57	1.20
May	78.23	0.00	72.95	2.87	1.60	0.06
Jun	50.69	-27.54	106.82	4.21	0.00	0.00
Jul	25.97	-24.72	97.21	3.83	0.00	0.00
Aug	14.04	-11.93	74.06	2.92	0.00	0.00
Sep	19.70	5.67	74.15	2.92	0.00	0.00
Oct	67.57	47.87	37.86	1.49	0.00	0.00
Nov	78.23	10.66	10.91	0.43	45.38	1.79
Dec	78.23	0.00	0.00	0.00	62.63	2.47
			509.23	***20.05***	*298.93*	***11.77***

Total Runoff	**13.636**	inches
Total AET	**20.049**	inches
Total Perc.	**11.769**	inches
	45.453	inches

Belleayre Resort ***Water Budget Analysis*** ***LeC,LeD - Wooded***

Month	*Temp ^{o}C*	*Precip. P (mm)*	*C_r*	*Runoff (mm)*	*Infiltration (mm)*	*Monthly Heat Index*	*Annual Heat Index I*	*Unadjusted Monthly PE (mm)*	*Unadjusted Daily PE (mm)*	*Mean Possible Monthly Duration of Sunlight (12-hr units)*	*Adjusted Monthly PE (mm)*	*Infilt-PET (mm)*	*Σ Neg. Infilt. (mm)*
Jan	***-5.17***	***75.50***	***0.40***	30.20	45.30	***0.00***	34.11	0.00	0.00	***24.6***	0.00	45.30	0.00
Feb	***-4.44***	***52.71***	***0.40***	21.08	31.63	***0.00***	34.11	0.00	0.00	***24.7***	0.00	31.63	0.00
Mar	***0.00***	***98.55***	***0.40***	39.42	59.13	***0.00***	34.11	0.00	0.00	***30.9***	0.00	59.13	0.00
Apr	***6.50***	***94.07***	***0.40***	37.63	56.44	***1.49***	34.11	31.69	1.06	***33.4***	35.28	21.16	0.00
May	***12.00***	***106.51***	***0.40***	42.60	63.90	***3.76***	34.11	59.98	1.93	***37.7***	72.95	-9.05	-9.05
Jun	***17.33***	***113.26***	***0.40***	45.30	67.95	***6.57***	34.11	87.95	2.93	***38.0***	111.41	-43.46	-52.50
Jul	***19.28***	***103.56***	***0.40***	41.42	62.13	***7.71***	34.11	98.25	3.17	***38.5***	122.02	-59.88	-112.38
Aug	***18.33***	***88.75***	***0.40***	35.50	53.25	***7.15***	34.11	93.24	3.01	***35.8***	107.68	-54.43	-166.81
Sep	***14.17***	***114.02***	***0.40***	45.61	68.41	***4.84***	34.11	71.30	2.38	***31.2***	74.15	-5.74	-172.55
Oct	***8.33***	***122.48***	***0.40***	48.99	73.49	***2.17***	34.11	41.04	1.32	***28.6***	37.86	35.62	0.00
Nov	***2.83***	***95.64***	***0.40***	38.26	57.38	***0.42***	34.11	13.35	0.45	***24.5***	10.91	46.48	0.00
Dec	***-2.67***	***89.47***	***0.40***	35.79	53.68	***0.00***	34.11	0.00	0.00	***23.7***	0.00	53.68	0.00
		1154.52		*461.81*		34.11							
		45.45	in.	***18.18***	in.								

Soil Moisture Storage (ST) in millimeters ***78.232***

Lattitude = 42° 10'

Month	*Soil Moisture Storage (mm)*	*Δ Soil Moisture Storage (mm)*	*AET (mm)*	*AET (in)*	*Perc (mm)*	*Perc (in)*
Jan	78.23	0.00	0.00	0.00	45.30	1.78
Feb	78.23	0.00	0.00	0.00	31.63	1.25
Mar	78.23	0.00	0.00	0.00	59.13	2.33
Apr	78.23	0.00	35.28	1.39	21.16	0.83
May	69.24	-9.00	72.90	2.87	0.00	0.00
Jun	38.50	-30.74	98.69	3.89	0.00	0.00
Jul	17.15	-21.35	83.48	3.29	0.00	0.00
Aug	8.22	-8.93	62.18	2.45	0.00	0.00
Sep	7.61	-0.61	69.03	2.72	0.00	0.00
Oct	43.23	35.62	37.86	1.49	0.00	0.00
Nov	78.23	35.00	10.91	0.43	11.48	0.45
Dec	78.23	0.00	0.00	0.00	53.68	2.11
			470.32	***18.52***	*222.39*	***8.76***

Total Runoff	**18.181**	inches
Total AET	**18.517**	inches
Total Perc.	**8.755**	inches
	45.453	inches

Belleayre Resort — Water Budget Analysis — LeF - Wooded

Month	Temp ^{o}C	Precip. P (mm)	C_r	Runoff (mm)	Infiltration (mm)	Monthly Heat Index	Annual Heat Index I	Unadjusted Monthly PE (mm)	Unadjusted Daily PE (mm)	Mean Possible Monthly Duration of Sunlight (12-hr units)	Adjusted Monthly PE (mm)	Infilt-PET (mm)	Σ Neg. Infilt. (mm)
Jan	***-5.17***	***75.50***	***0.42***	31.71	43.79	***0.00***	34.11	0.00	0.00	***24.6***	0.00	43.79	0.00
Feb	***-4.44***	***52.71***	***0.42***	22.14	30.57	***0.00***	34.11	0.00	0.00	***24.7***	0.00	30.57	0.00
Mar	***0.00***	***98.55***	***0.42***	41.39	57.16	***0.00***	34.11	0.00	0.00	***30.9***	0.00	57.16	0.00
Apr	***6.50***	***94.07***	***0.42***	39.51	54.56	***1.49***	34.11	31.69	1.06	***33.4***	35.28	19.28	0.00
May	***12.00***	***106.51***	***0.42***	44.73	61.77	***3.76***	34.11	59.98	1.93	***37.7***	72.95	-11.18	-11.18
Jun	***17.33***	***113.26***	***0.42***	47.57	65.69	***6.57***	34.11	87.95	2.93	***38.0***	111.41	-45.72	-56.90
Jul	***19.28***	***103.56***	***0.42***	43.49	60.06	***7.71***	34.11	98.25	3.17	***38.5***	122.02	-61.95	-118.85
Aug	***18.33***	***88.75***	***0.42***	37.27	51.47	***7.15***	34.11	93.24	3.01	***35.8***	107.68	-56.21	-175.05
Sep	***14.17***	***114.02***	***0.42***	47.89	66.13	***4.84***	34.11	71.30	2.38	***31.2***	74.15	-8.02	-183.07
Oct	***8.33***	***122.48***	***0.42***	51.44	71.04	***2.17***	34.11	41.04	1.32	***28.6***	37.86	33.17	0.00
Nov	***2.83***	***95.64***	***0.42***	40.17	55.47	***0.42***	34.11	13.35	0.45	***24.5***	10.91	44.56	0.00
Dec	***-2.67***	***89.47***	***0.42***	37.58	51.90	***0.00***	34.11	0.00	0.00	***23.7***	0.00	51.90	0.00
		1154.52		*484.90*		34.11							
		45.45	in.	***19.09***	in.								

Soil Moisture Storage (ST) in millimeters ***85.852***

Lattitude = 42° 10'

Month	Soil Moisture Storage (mm)	Δ Soil Moisture Storage (mm)	AET (mm)	AET (in)	Perc (mm)	Perc (in)
Jan	85.85	0.00	0.00	0.00	43.79	1.72
Feb	85.85	0.00	0.00	0.00	30.57	1.20
Mar	85.85	0.00	0.00	0.00	57.16	2.25
Apr	85.85	0.00	35.28	1.39	19.28	0.76
May	74.85	-11.00	72.78	2.87	0.00	0.00
Jun	42.71	-32.14	97.83	3.85	0.00	0.00
Jul	19.97	-22.74	82.80	3.26	0.00	0.00
Aug	10.02	-9.95	61.42	2.42	0.00	0.00
Sep	9.08	-0.94	67.07	2.64	0.00	0.00
Oct	42.25	33.17	37.86	1.49	0.00	0.00
Nov	85.85	43.60	10.91	0.43	0.96	0.04
Dec	85.85	0.00	0.00	0.00	51.90	2.04
			465.95	***18.34***	*203.67*	***8.02***

Total Runoff	**19.090**	inches
Total AET	**18.345**	inches
Total Perc.	**8.018**	inches
	45.453	inches

Belleayre Resort ***Water Budget Analysis*** ***OsB - Wooded***

Month	*Temp °C*	*Precip. P (mm)*	C_r	*Runoff (mm)*	*Infiltration (mm)*	*Monthly Heat Index*	*Annual Heat Index I*	*Unadjusted Monthly PE (mm)*	*Unadjusted Daily PE (mm)*	*Mean Possible Monthly Duration of Sunlight (12-hr units)*	*Adjusted Monthly PE (mm)*	*Infilt-PET (mm)*	*Σ Neg. Infilt. (mm)*
Jan	***-5.17***	***75.50***	***0.30***	22.65	52.85	***0.00***	34.11	0.00	0.00	***24.6***	0.00	52.85	0.00
Feb	***-4.44***	***52.71***	***0.30***	15.81	36.90	***0.00***	34.11	0.00	0.00	***24.7***	0.00	36.90	0.00
Mar	***0.00***	***98.55***	***0.30***	29.57	68.99	***0.00***	34.11	0.00	0.00	***30.9***	0.00	68.99	0.00
Apr	***6.50***	***94.07***	***0.30***	28.22	65.85	***1.49***	34.11	31.69	1.06	***33.4***	35.28	30.57	0.00
May	***12.00***	***106.51***	***0.30***	31.95	74.55	***3.76***	34.11	59.98	1.93	***37.7***	72.95	1.60	0.00
Jun	***17.33***	***113.26***	***0.30***	33.98	79.28	***6.57***	34.11	87.95	2.93	***38.0***	111.41	-32.13	-32.13
Jul	***19.28***	***103.56***	***0.30***	31.07	72.49	***7.71***	34.11	98.25	3.17	***38.5***	122.02	-49.53	-81.66
Aug	***18.33***	***88.75***	***0.30***	26.62	62.12	***7.15***	34.11	93.24	3.01	***35.8***	107.68	-45.56	-127.21
Sep	***14.17***	***114.02***	***0.30***	34.21	79.81	***4.84***	34.11	71.30	2.38	***31.2***	74.15	5.67	0.00
Oct	***8.33***	***122.48***	***0.30***	36.74	85.74	***2.17***	34.11	41.04	1.32	***28.6***	37.86	47.87	0.00
Nov	***2.83***	***95.64***	***0.30***	28.69	66.95	***0.42***	34.11	13.35	0.45	***24.5***	10.91	56.04	0.00
Dec	***-2.67***	***89.47***	***0.30***	26.84	62.63	***0.00***	34.11	0.00	0.00	***23.7***	0.00	62.63	0.00
		1154.52		*346.36*		34.11							
		45.45	in.	***13.64***	in.								

Soil Moisture Storage (ST) in millimeters ***61.138***

Lattitude = 42° 10'

Month	*Soil Moisture Storage (mm)*	*Δ Soil Moisture Storage (mm)*	*AET (mm)*	*AET (in)*	*Perc (mm)*	*Perc (in)*
Jan	61.14	0.00	0.00	0.00	52.85	2.08
Feb	61.14	0.00	0.00	0.00	36.90	1.45
Mar	61.14	0.00	0.00	0.00	68.99	2.72
Apr	61.14	0.00	35.28	1.39	30.57	1.20
May	61.14	0.00	72.95	2.87	1.60	0.06
Jun	34.95	-26.19	105.47	4.15	0.00	0.00
Jul	14.76	-20.19	92.68	3.65	0.00	0.00
Aug	6.68	-8.08	70.20	2.76	0.00	0.00
Sep	12.35	5.67	74.15	2.92	0.00	0.00
Oct	60.22	47.87	37.86	1.49	0.00	0.00
Nov	61.14	0.92	10.91	0.43	55.12	2.17
Dec	61.14	0.00	0.00	0.00	62.63	2.47
			499.50	***19.67***	*308.67*	***12.15***

Total Runoff	**13.636**	inches
Total AET	**19.665**	inches
Total Perc.	**12.152**	inches
	45.453	inches

OsB, OsC = 67% Onteora and 33% Suny; these proportions used in weighted average approach to calculate soil moisture storage of the soil complex

Belleayre Resort ***Water Budget Analysis*** ***OsC - Wooded***

Month	*Temp °C*	*Precip. P (mm)*	C_r	*Runoff (mm)*	*Infiltration (mm)*	*Monthly Heat Index*	*Annual Heat Index I*	*Unadjusted Monthly PE (mm)*	*Unadjusted Daily PE (mm)*	*Mean Possible Monthly Duration of Sunlight (12-hr units)*	*Adjusted Monthly PE (mm)*	*Infilt-PET (mm)*	*Σ Neg. Infilt. (mm)*
Jan	***-5.17***	***75.50***	***0.40***	30.20	45.30	***0.00***	34.11	0.00	0.00	***24.6***	0.00	45.30	0.00
Feb	***-4.44***	***52.71***	***0.40***	21.08	31.63	***0.00***	34.11	0.00	0.00	***24.7***	0.00	31.63	0.00
Mar	***0.00***	***98.55***	***0.40***	39.42	59.13	***0.00***	34.11	0.00	0.00	***30.9***	0.00	59.13	0.00
Apr	***6.50***	***94.07***	***0.40***	37.63	56.44	***1.49***	34.11	31.69	1.06	***33.4***	35.28	21.16	0.00
May	***12.00***	***106.51***	***0.40***	42.60	63.90	***3.76***	34.11	59.98	1.93	***37.7***	72.95	-9.05	-9.05
Jun	***17.33***	***113.26***	***0.40***	45.30	67.95	***6.57***	34.11	87.95	2.93	***38.0***	111.41	-43.46	-52.50
Jul	***19.28***	***103.56***	***0.40***	41.42	62.13	***7.71***	34.11	98.25	3.17	***38.5***	122.02	-59.88	-112.38
Aug	***18.33***	***88.75***	***0.40***	35.50	53.25	***7.15***	34.11	93.24	3.01	***35.8***	107.68	-54.43	-166.81
Sep	***14.17***	***114.02***	***0.40***	45.61	68.41	***4.84***	34.11	71.30	2.38	***31.2***	74.15	-5.74	-172.55
Oct	***8.33***	***122.48***	***0.40***	48.99	73.49	***2.17***	34.11	41.04	1.32	***28.6***	37.86	35.62	0.00
Nov	***2.83***	***95.64***	***0.40***	38.26	57.38	***0.42***	34.11	13.35	0.45	***24.5***	10.91	46.48	0.00
Dec	***-2.67***	***89.47***	***0.40***	35.79	53.68	***0.00***	34.11	0.00	0.00	***23.7***	0.00	53.68	0.00
		1154.52		*461.81*		34.11							
		45.45	in.	***18.18***	in.								

Soil Moisture Storage (ST) in millimeters ***61.138***

Lattitude = 42° 10'

Month	*Soil Moisture Storage (mm)*	*Δ Soil Moisture Storage (mm)*	*AET (mm)*	*AET (in)*	*Perc (mm)*	*Perc (in)*
Jan	61.14	0.00	0.00	0.00	45.30	1.78
Feb	61.14	0.00	0.00	0.00	31.63	1.25
Mar	61.14	0.00	0.00	0.00	59.13	2.33
Apr	61.14	0.00	35.28	1.39	21.16	0.83
May	52.23	-8.91	72.81	2.87	0.00	0.00
Jun	24.52	-27.71	95.67	3.77	0.00	0.00
Jul	8.65	-15.87	78.00	3.07	0.00	0.00
Aug	3.35	-5.29	58.54	2.30	0.00	0.00
Sep	3.03	-0.32	68.73	2.71	0.00	0.00
Oct	38.66	35.62	37.86	1.49	0.00	0.00
Nov	61.14	22.48	10.91	0.43	24.00	0.94
Dec	61.14	0.00	0.00	0.00	53.68	2.11
			457.81	***18.02***	*234.91*	***9.25***

Total Runoff	**18.181**	inches
Total AET	**18.024**	inches
Total Perc.	**9.248**	inches
	45.453	inches

OsB, OsC = 67% Onteora and 33% Suny; these proportions used in weighted average approach to calculate soil moisture storage of the soil complex

Belleayre Resort ***Water Budget Analysis*** ***VeD,VeF - Wooded***

Month	*Temp °C*	*Precip. P (mm)*	C_r	*Runoff (mm)*	*Infiltration (mm)*	*Monthly Heat Index*	*Annual Heat Index I*	*Unadjusted Monthly PE (mm)*	*Unadjusted Daily PE (mm)*	*Mean Possible Monthly Duration of Sunlight (12-hr units)*	*Adjusted Monthly PE (mm)*	*Infilt-PET (mm)*	*Σ Neg. Infilt. (mm)*
Jan	***-5.17***	***75.50***	***0.40***	30.20	45.30	***0.00***	34.11	0.00	0.00	***24.6***	0.00	45.30	0.00
Feb	***-4.44***	***52.71***	***0.40***	21.08	31.63	***0.00***	34.11	0.00	0.00	***24.7***	0.00	31.63	0.00
Mar	***0.00***	***98.55***	***0.40***	39.42	59.13	***0.00***	34.11	0.00	0.00	***30.9***	0.00	59.13	0.00
Apr	***6.50***	***94.07***	***0.40***	37.63	56.44	***1.49***	34.11	31.69	1.06	***33.4***	35.28	21.16	0.00
May	***12.00***	***106.51***	***0.40***	42.60	63.90	***3.76***	34.11	59.98	1.93	***37.7***	72.95	-9.05	-9.05
Jun	***17.33***	***113.26***	***0.40***	45.30	67.95	***6.57***	34.11	87.95	2.93	***38.0***	111.41	-43.46	-52.50
Jul	***19.28***	***103.56***	***0.40***	41.42	62.13	***7.71***	34.11	98.25	3.17	***38.5***	122.02	-59.88	-112.38
Aug	***18.33***	***88.75***	***0.40***	35.50	53.25	***7.15***	34.11	93.24	3.01	***35.8***	107.68	-54.43	-166.81
Sep	***14.17***	***114.02***	***0.40***	45.61	68.41	***4.84***	34.11	71.30	2.38	***31.2***	74.15	-5.74	-172.55
Oct	***8.33***	***122.48***	***0.40***	48.99	73.49	***2.17***	34.11	41.04	1.32	***28.6***	37.86	35.62	0.00
Nov	***2.83***	***95.64***	***0.40***	38.26	57.38	***0.42***	34.11	13.35	0.45	***24.5***	10.91	46.48	0.00
Dec	***-2.67***	***89.47***	***0.40***	35.79	53.68	***0.00***	34.11	0.00	0.00	***23.7***	0.00	53.68	0.00
		1154.52		*461.81*		34.11							
		45.45	in.	***18.18***	in.								

Soil Moisture Storage (ST) in millimeters ***82.713***

Lattitude = 42° 10'

Month	*Soil Moisture Storage (mm)*	*Δ Soil Moisture Storage (mm)*	*AET (mm)*	*AET (in)*	*Perc (mm)*	*Perc (in)*
Jan	82.71	0.00	0.00	0.00	45.30	1.78
Feb	82.71	0.00	0.00	0.00	31.63	1.25
Mar	82.71	0.00	0.00	0.00	59.13	2.33
Apr	82.71	0.00	35.28	1.39	21.16	0.83
May	73.70	-9.01	72.92	2.87	0.00	0.00
Jun	42.34	-31.36	99.31	3.91	0.00	0.00
Jul	19.73	-22.61	84.75	3.34	0.00	0.00
Aug	9.86	-9.88	63.12	2.49	0.00	0.00
Sep	9.16	-0.70	69.11	2.72	0.00	0.00
Oct	44.78	35.62	37.86	1.49	0.00	0.00
Nov	82.71	37.93	10.91	0.43	8.55	0.34
Dec	82.71	0.00	0.00	0.00	53.68	2.11
			473.25	***18.63***	*219.46*	***8.64***

Total Runoff	**18.181**	inches
Total AET	**18.632**	inches
Total Perc.	**8.640**	inches
	45.453	inches

VeD,VeF = 33% Elka and 67% Vly; these proportions used in weighted average approach to calculate soil moisture storage of the soil complex

Belleayre Resort ***Water Budget Analysis*** ***VhB - Wooded***

Month	*Temp °C*	*Precip. P (mm)*	C_r	*Runoff (mm)*	*Infiltration (mm)*	*Monthly Heat Index*	*Annual Heat Index I*	*Unadjusted Monthly PE (mm)*	*Unadjusted Daily PE (mm)*	*Mean Possible Monthly Duration of Sunlight (12-hr units)*	*Adjusted Monthly PE (mm)*	*Infilt-PET (mm)*	*Σ Neg. Infilt. (mm)*
Jan	***-5.17***	***75.50***	***0.30***	22.65	52.85	***0.00***	34.11	0.00	0.00	***24.6***	0.00	52.85	0.00
Feb	***-4.44***	***52.71***	***0.30***	15.81	36.90	***0.00***	34.11	0.00	0.00	***24.7***	0.00	36.90	0.00
Mar	***0.00***	***98.55***	***0.30***	29.57	68.99	***0.00***	34.11	0.00	0.00	***30.9***	0.00	68.99	0.00
Apr	***6.50***	***94.07***	***0.30***	28.22	65.85	***1.49***	34.11	31.69	1.06	***33.4***	35.28	30.57	0.00
May	***12.00***	***106.51***	***0.30***	31.95	74.55	***3.76***	34.11	59.98	1.93	***37.7***	72.95	1.60	0.00
Jun	***17.33***	***113.26***	***0.30***	33.98	79.28	***6.57***	34.11	87.95	2.93	***38.0***	111.41	-32.13	-32.13
Jul	***19.28***	***103.56***	***0.30***	31.07	72.49	***7.71***	34.11	98.25	3.17	***38.5***	122.02	-49.53	-81.66
Aug	***18.33***	***88.75***	***0.30***	26.62	62.12	***7.15***	34.11	93.24	3.01	***35.8***	107.68	-45.56	-127.21
Sep	***14.17***	***114.02***	***0.30***	34.21	79.81	***4.84***	34.11	71.30	2.38	***31.2***	74.15	5.67	0.00
Oct	***8.33***	***122.48***	***0.30***	36.74	85.74	***2.17***	34.11	41.04	1.32	***28.6***	37.86	47.87	0.00
Nov	***2.83***	***95.64***	***0.30***	28.69	66.95	***0.42***	34.11	13.35	0.45	***24.5***	10.91	56.04	0.00
Dec	***-2.67***	***89.47***	***0.30***	26.84	62.63	***0.00***	34.11	0.00	0.00	***23.7***	0.00	62.63	0.00
		1154.52		*346.36*		34.11							
		45.45	in.	***13.64***	in.								

Soil Moisture Storage (ST) in millimeters ***49.855***

Lattitude = 42° 10'

Month	*Soil Moisture Storage (mm)*	*Δ Soil Moisture Storage (mm)*	*AET (mm)*	*AET (in)*	*Perc (mm)*	*Perc (in)*
Jan	49.86	0.00	0.00	0.00	52.85	2.08
Feb	49.86	0.00	0.00	0.00	36.90	1.45
Mar	49.86	0.00	0.00	0.00	68.99	2.72
Apr	49.86	0.00	35.28	1.39	30.57	1.20
May	49.86	0.00	72.95	2.87	1.60	0.06
Jun	25.01	-24.84	104.12	4.10	0.00	0.00
Jul	8.64	-16.37	88.86	3.50	0.00	0.00
Aug	3.25	-5.39	67.51	2.66	0.00	0.00
Sep	8.91	5.67	74.15	2.92	0.00	0.00
Oct	49.86	40.94	37.86	1.49	6.93	0.27
Nov	49.86	0.00	10.91	0.43	56.04	2.21
Dec	49.86	0.00	0.00	0.00	62.63	2.47
			491.65	***19.36***	*316.52*	***12.46***

Total Runoff	**13.636**	inches
Total AET	**19.356**	inches
Total Perc.	**12.461**	inches
	45.453	inches

VhB = 33% Halcott and 67% Vly; these proportions used in weighted average approach to calculate soil moisture storage of the soil complex

Belleayre Resort — ***Water Budget Analysis*** — ***VhC,VhD,VhE,VhF - Wooded***

Month	*Temp °C*	*Precip. P (mm)*	*C_r*	*Runoff (mm)*	*Infiltration (mm)*	*Monthly Heat Index*	*Annual Heat Index I*	*Unadjusted Monthly PE (mm)*	*Unadjusted Daily PE (mm)*	*Mean Possible Monthly Duration of Sunlight (12-hr units)*	*Adjusted Monthly PE (mm)*	*Infilt-PET (mm)*	*Σ Neg. Infilt. (mm)*
Jan	***-5.17***	***75.50***	***0.40***	30.20	45.30	***0.00***	34.11	0.00	0.00	***24.6***	0.00	45.30	0.00
Feb	***-4.44***	***52.71***	***0.40***	21.08	31.63	***0.00***	34.11	0.00	0.00	***24.7***	0.00	31.63	0.00
Mar	***0.00***	***98.55***	***0.40***	39.42	59.13	***0.00***	34.11	0.00	0.00	***30.9***	0.00	59.13	0.00
Apr	***6.50***	***94.07***	***0.40***	37.63	56.44	***1.49***	34.11	31.69	1.06	***33.4***	35.28	21.16	0.00
May	***12.00***	***106.51***	***0.40***	42.60	63.90	***3.76***	34.11	59.98	1.93	***37.7***	72.95	-9.05	-9.05
Jun	***17.33***	***113.26***	***0.40***	45.30	67.95	***6.57***	34.11	87.95	2.93	***38.0***	111.41	-43.46	-52.50
Jul	***19.28***	***103.56***	***0.40***	41.42	62.13	***7.71***	34.11	98.25	3.17	***38.5***	122.02	-59.88	-112.38
Aug	***18.33***	***88.75***	***0.40***	35.50	53.25	***7.15***	34.11	93.24	3.01	***35.8***	107.68	-54.43	-166.81
Sep	***14.17***	***114.02***	***0.40***	45.61	68.41	***4.84***	34.11	71.30	2.38	***31.2***	74.15	-5.74	-172.55
Oct	***8.33***	***122.48***	***0.40***	48.99	73.49	***2.17***	34.11	41.04	1.32	***28.6***	37.86	35.62	0.00
Nov	***2.83***	***95.64***	***0.40***	38.26	57.38	***0.42***	34.11	13.35	0.45	***24.5***	10.91	46.48	0.00
Dec	***-2.67***	***89.47***	***0.40***	35.79	53.68	***0.00***	34.11	0.00	0.00	***23.7***	0.00	53.68	0.00
		1154.52		*461.81*		34.11							
		45.45	in.	***18.18***	in.								

Soil Moisture Storage (ST) in millimeters ***49.855***

Lattitude = 42° 10'

Month	*Soil Moisture Storage (mm)*	*Δ Soil Moisture Storage (mm)*	*AET (mm)*	*AET (in)*	*Perc (mm)*	*Perc (in)*
Jan	49.86	0.00	0.00	0.00	45.30	1.78
Feb	49.86	0.00	0.00	0.00	31.63	1.25
Mar	49.86	0.00	0.00	0.00	59.13	2.33
Apr	49.86	0.00	35.28	1.39	21.16	0.83
May	41.05	-8.80	72.70	2.86	0.00	0.00
Jun	16.15	-24.90	92.86	3.66	0.00	0.00
Jul	4.46	-11.69	73.82	2.91	0.00	0.00
Aug	1.39	-3.08	56.33	2.22	0.00	0.00
Sep	1.23	-0.16	68.57	2.70	0.00	0.00
Oct	36.85	35.62	37.86	1.49	0.00	0.00
Nov	49.86	13.00	10.91	0.43	33.47	1.32
Dec	49.86	0.00	0.00	0.00	53.68	2.11
			448.33	***17.65***	*244.38*	***9.62***

Total Runoff	**18.181**	inches
Total AET	**17.651**	inches
Total Perc.	**9.621**	inches
	45.453	inches

VhC,VhD,VhE,VhF = 33% Halcott and 67% Vly; these proportions used in weighted average approach to calculate soil moisture storage of the soil complex

Belleayre Resort — Water Budget Analysis — VyB - Wooded

Month	Temp °C	Precip. P (mm)	C_r	Runoff (mm)	Infiltration (mm)	Monthly Heat Index	Annual Heat Index I	Unadjusted Monthly PE (mm)	Unadjusted Daily PE (mm)	Mean Possible Monthly Duration of Sunlight (12-hr units)	Adjusted Monthly PE (mm)	Infilt-PET (mm)	Σ Neg. Infilt. (mm)
Jan	***-5.17***	***75.50***	***0.30***	22.65	52.85	***0.00***	34.11	0.00	0.00	***24.6***	0.00	52.85	0.00
Feb	***-4.44***	***52.71***	***0.30***	15.81	36.90	***0.00***	34.11	0.00	0.00	***24.7***	0.00	36.90	0.00
Mar	***0.00***	***98.55***	***0.30***	29.57	68.99	***0.00***	34.11	0.00	0.00	***30.9***	0.00	68.99	0.00
Apr	***6.50***	***94.07***	***0.30***	28.22	65.85	***1.49***	34.11	31.69	1.06	***33.4***	35.28	30.57	0.00
May	***12.00***	***106.51***	***0.30***	31.95	74.55	***3.76***	34.11	59.98	1.93	***37.7***	72.95	1.60	0.00
Jun	***17.33***	***113.26***	***0.30***	33.98	79.28	***6.57***	34.11	87.95	2.93	***38.0***	111.41	-32.13	-32.13
Jul	***19.28***	***103.56***	***0.30***	31.07	72.49	***7.71***	34.11	98.25	3.17	***38.5***	122.02	-49.53	-81.66
Aug	***18.33***	***88.75***	***0.30***	26.62	62.12	***7.15***	34.11	93.24	3.01	***35.8***	107.68	-45.56	-127.21
Sep	***14.17***	***114.02***	***0.30***	34.21	79.81	***4.84***	34.11	71.30	2.38	***31.2***	74.15	5.67	0.00
Oct	***8.33***	***122.48***	***0.30***	36.74	85.74	***2.17***	34.11	41.04	1.32	***28.6***	37.86	47.87	0.00
Nov	***2.83***	***95.64***	***0.30***	28.69	66.95	***0.42***	34.11	13.35	0.45	***24.5***	10.91	56.04	0.00
Dec	***-2.67***	***89.47***	***0.30***	26.84	62.63	***0.00***	34.11	0.00	0.00	***23.7***	0.00	62.63	0.00
		1154.52		*346.36*		34.11							
		45.45	in.	***13.64***	in.								

Soil Moisture Storage (ST) in millimeters ***56.896***

Lattitude = 42° 10'

Month	Soil Moisture Storage (mm)	Δ Soil Moisture Storage (mm)	AET (mm)	AET (in)	Perc (mm)	Perc (in)
Jan	56.90	0.00	0.00	0.00	52.85	2.08
Feb	56.90	0.00	0.00	0.00	36.90	1.45
Mar	56.90	0.00	0.00	0.00	68.99	2.72
Apr	56.90	0.00	35.28	1.39	30.57	1.20
May	56.90	0.00	72.95	2.87	1.60	0.06
Jun	31.16	-25.74	105.02	4.13	0.00	0.00
Jul	12.32	-18.84	91.33	3.60	0.00	0.00
Aug	5.24	-7.07	69.19	2.72	0.00	0.00
Sep	10.91	5.67	74.15	2.92	0.00	0.00
Oct	56.90	45.99	37.86	1.49	1.89	0.07
Nov	56.90	0.00	10.91	0.43	56.04	2.21
Dec	56.90	0.00	0.00	0.00	62.63	2.47
			496.69	***19.55***	*311.47*	***12.26***

Total Runoff	**13.636**	inches
Total AET	**19.555**	inches
Total Perc.	**12.263**	inches
	45.453	inches

Belleayre Resort — ***Water Budget Analysis*** — ***VyC,VyD - Wooded***

Month	*Temp ^{o}C*	*Precip. P (mm)*	*C_r*	*Runoff (mm)*	*Infiltration (mm)*	*Monthly Heat Index*	*Annual Heat Index I*	*Unadjusted Monthly PE (mm)*	*Unadjusted Daily PE (mm)*	*Mean Possible Monthly Duration of Sunlight (12-hr units)*	*Adjusted Monthly PE (mm)*	*Infilt-PET (mm)*	*Σ Neg. Infilt. (mm)*
Jan	***-5.17***	***75.50***	***0.40***	30.20	45.30	***0.00***	34.11	0.00	0.00	***24.6***	0.00	45.30	0.00
Feb	***-4.44***	***52.71***	***0.40***	21.08	31.63	***0.00***	34.11	0.00	0.00	***24.7***	0.00	31.63	0.00
Mar	***0.00***	***98.55***	***0.40***	39.42	59.13	***0.00***	34.11	0.00	0.00	***30.9***	0.00	59.13	0.00
Apr	***6.50***	***94.07***	***0.40***	37.63	56.44	***1.49***	34.11	31.69	1.06	***33.4***	35.28	21.16	0.00
May	***12.00***	***106.51***	***0.40***	42.60	63.90	***3.76***	34.11	59.98	1.93	***37.7***	72.95	-9.05	-9.05
Jun	***17.33***	***113.26***	***0.40***	45.30	67.95	***6.57***	34.11	87.95	2.93	***38.0***	111.41	-43.46	-52.50
Jul	***19.28***	***103.56***	***0.40***	41.42	62.13	***7.71***	34.11	98.25	3.17	***38.5***	122.02	-59.88	-112.38
Aug	***18.33***	***88.75***	***0.40***	35.50	53.25	***7.15***	34.11	93.24	3.01	***35.8***	107.68	-54.43	-166.81
Sep	***14.17***	***114.02***	***0.40***	45.61	68.41	***4.84***	34.11	71.30	2.38	***31.2***	74.15	-5.74	-172.55
Oct	***8.33***	***122.48***	***0.40***	48.99	73.49	***2.17***	34.11	41.04	1.32	***28.6***	37.86	35.62	0.00
Nov	***2.83***	***95.64***	***0.40***	38.26	57.38	***0.42***	34.11	13.35	0.45	***24.5***	10.91	46.48	0.00
Dec	***-2.67***	***89.47***	***0.40***	35.79	53.68	***0.00***	34.11	0.00	0.00	***23.7***	0.00	53.68	0.00
		1154.52		*461.81*		34.11							
		45.45	in.	***18.18***	in.								

Soil Moisture Storage (ST) in millimeters ***56.896***

Lattitude = 42° 10'

Month	*Soil Moisture Storage (mm)*	*Δ Soil Moisture Storage (mm)*	*AET (mm)*	*AET (in)*	*Perc (mm)*	*Perc (in)*
Jan	56.90	0.00	0.00	0.00	45.30	1.78
Feb	56.90	0.00	0.00	0.00	31.63	1.25
Mar	56.90	0.00	0.00	0.00	59.13	2.33
Apr	56.90	0.00	35.28	1.39	21.16	0.83
May	48.02	-8.87	72.78	2.87	0.00	0.00
Jun	21.27	-26.75	94.71	3.73	0.00	0.00
Jul	6.92	-14.35	76.48	3.01	0.00	0.00
Aug	2.50	-4.43	57.68	2.27	0.00	0.00
Sep	2.24	-0.25	68.67	2.70	0.00	0.00
Oct	37.87	35.62	37.86	1.49	0.00	0.00
Nov	56.90	19.03	10.91	0.43	27.45	1.08
Dec	56.90	0.00	0.00	0.00	53.68	2.11
			454.36	***17.89***	*238.36*	***9.38***

Total Runoff	**18.181**	inches
Total AET	**17.888**	inches
Total Perc.	**9.384**	inches
	45.453	inches

Belleayre Resort — Water Budget Analysis — WlB - Wooded

Month	Temp ^{o}C	Precip. P (mm)	C_r	Runoff (mm)	Infiltration (mm)	Monthly Heat Index	Annual Heat Index I	Unadjusted Monthly PE (mm)	Unadjusted Daily PE (mm)	Mean Possible Monthly Duration of Sunlight (12-hr units)	Adjusted Monthly PE (mm)	Infilt-PET (mm)	Σ Neg. Infilt. (mm)
Jan	***-5.17***	***75.50***	***0.30***	22.65	52.85	***0.00***	34.11	0.00	0.00	***24.6***	0.00	52.85	0.00
Feb	***-4.44***	***52.71***	***0.30***	15.81	36.90	***0.00***	34.11	0.00	0.00	***24.7***	0.00	36.90	0.00
Mar	***0.00***	***98.55***	***0.30***	29.57	68.99	***0.00***	34.11	0.00	0.00	***30.9***	0.00	68.99	0.00
Apr	***6.50***	***94.07***	***0.30***	28.22	65.85	***1.49***	34.11	31.69	1.06	***33.4***	35.28	30.57	0.00
May	***12.00***	***106.51***	***0.30***	31.95	74.55	***3.76***	34.11	59.98	1.93	***37.7***	72.95	1.60	0.00
Jun	***17.33***	***113.26***	***0.30***	33.98	79.28	***6.57***	34.11	87.95	2.93	***38.0***	111.41	-32.13	-32.13
Jul	***19.28***	***103.56***	***0.30***	31.07	72.49	***7.71***	34.11	98.25	3.17	***38.5***	122.02	-49.53	-81.66
Aug	***18.33***	***88.75***	***0.30***	26.62	62.12	***7.15***	34.11	93.24	3.01	***35.8***	107.68	-45.56	-127.21
Sep	***14.17***	***114.02***	***0.30***	34.21	79.81	***4.84***	34.11	71.30	2.38	***31.2***	74.15	5.67	0.00
Oct	***8.33***	***122.48***	***0.30***	36.74	85.74	***2.17***	34.11	41.04	1.32	***28.6***	37.86	47.87	0.00
Nov	***2.83***	***95.64***	***0.30***	28.69	66.95	***0.42***	34.11	13.35	0.45	***24.5***	10.91	56.04	0.00
Dec	***-2.67***	***89.47***	***0.30***	26.84	62.63	***0.00***	34.11	0.00	0.00	***23.7***	0.00	62.63	0.00
		1154.52		*346.36*		34.11							
		45.45	in.	***13.64***	in.								

Soil Moisture Storage (ST) in millimeters ***86.741***

Lattitude = 42° 10'

Month	Soil Moisture Storage (mm)	Δ Soil Moisture Storage (mm)	AET (mm)	AET (in)	Perc (mm)	Perc (in)
Jan	86.74	0.00	0.00	0.00	52.85	2.08
Feb	86.74	0.00	0.00	0.00	36.90	1.45
Mar	86.74	0.00	0.00	0.00	68.99	2.72
Apr	86.74	0.00	35.28	1.39	30.57	1.20
May	86.74	0.00	72.95	2.87	1.60	0.06
Jun	58.72	-28.02	107.30	4.22	0.00	0.00
Jul	32.18	-26.54	99.03	3.90	0.00	0.00
Aug	18.51	-13.67	75.80	2.98	0.00	0.00
Sep	24.17	5.67	74.15	2.92	0.00	0.00
Oct	72.04	47.87	37.86	1.49	0.00	0.00
Nov	86.74	14.70	10.91	0.43	41.34	1.63
Dec	86.74	0.00	0.00	0.00	62.63	2.47
			513.27	***20.21***	*294.89*	***11.61***

Total Runoff	**13.636**	inches
Total AET	**20.208**	inches
Total Perc.	**11.610**	inches
	45.453	inches

Belleayre Resort ***Water Budget Analysis*** ***WIC - Wooded***

Month	*Temp ^{o}C*	*Precip. P (mm)*	*C_r*	*Runoff (mm)*	*Infiltration (mm)*	*Monthly Heat Index*	*Annual Heat Index I*	*Unadjusted Monthly PE (mm)*	*Unadjusted Daily PE (mm)*	*Mean Possible Monthly Duration of Sunlight (12-hr units)*	*Adjusted Monthly PE (mm)*	*Infilt-PET (mm)*	*Σ Neg. Infilt. (mm)*
Jan	***-5.17***	***75.50***	***0.40***	30.20	45.30	***0.00***	34.11	0.00	0.00	***24.6***	0.00	45.30	0.00
Feb	***-4.44***	***52.71***	***0.40***	21.08	31.63	***0.00***	34.11	0.00	0.00	***24.7***	0.00	31.63	0.00
Mar	***0.00***	***98.55***	***0.40***	39.42	59.13	***0.00***	34.11	0.00	0.00	***30.9***	0.00	59.13	0.00
Apr	***6.50***	***94.07***	***0.40***	37.63	56.44	***1.49***	34.11	31.69	1.06	***33.4***	35.28	21.16	0.00
May	***12.00***	***106.51***	***0.40***	42.60	63.90	***3.76***	34.11	59.98	1.93	***37.7***	72.95	-9.05	-9.05
Jun	***17.33***	***113.26***	***0.40***	45.30	67.95	***6.57***	34.11	87.95	2.93	***38.0***	111.41	-43.46	-52.50
Jul	***19.28***	***103.56***	***0.40***	41.42	62.13	***7.71***	34.11	98.25	3.17	***38.5***	122.02	-59.88	-112.38
Aug	***18.33***	***88.75***	***0.40***	35.50	53.25	***7.15***	34.11	93.24	3.01	***35.8***	107.68	-54.43	-166.81
Sep	***14.17***	***114.02***	***0.40***	45.61	68.41	***4.84***	34.11	71.30	2.38	***31.2***	74.15	-5.74	-172.55
Oct	***8.33***	***122.48***	***0.40***	48.99	73.49	***2.17***	34.11	41.04	1.32	***28.6***	37.86	35.62	0.00
Nov	***2.83***	***95.64***	***0.40***	38.26	57.38	***0.42***	34.11	13.35	0.45	***24.5***	10.91	46.48	0.00
Dec	***-2.67***	***89.47***	***0.40***	35.79	53.68	***0.00***	34.11	0.00	0.00	***23.7***	0.00	53.68	0.00
		1154.52		*461.81*		34.11							
		45.45	in.	***18.18***	in.								

Soil Moisture Storage (ST) in millimeters ***86.741***

Lattitude = 42° 10'

Month	*Soil Moisture Storage (mm)*	*Δ Soil Moisture Storage (mm)*	*AET (mm)*	*AET (in)*	*Perc (mm)*	*Perc (in)*
Jan	86.74	0.00	0.00	0.00	45.30	1.78
Feb	86.74	0.00	0.00	0.00	31.63	1.25
Mar	86.74	0.00	0.00	0.00	59.13	2.33
Apr	86.74	0.00	35.28	1.39	21.16	0.83
May	77.72	-9.02	72.93	2.87	0.00	0.00
Jun	45.85	-31.87	99.82	3.93	0.00	0.00
Jul	22.16	-23.69	85.83	3.38	0.00	0.00
Aug	11.44	-10.72	63.97	2.52	0.00	0.00
Sep	10.67	-0.77	69.18	2.72	0.00	0.00
Oct	46.29	35.62	37.86	1.49	0.00	0.00
Nov	86.74	40.45	10.91	0.43	6.03	0.24
Dec	86.74	0.00	0.00	0.00	53.68	2.11
			475.77	***18.73***	*216.94*	***8.54***

Total Runoff	**18.181**	inches
Total AET	**18.731**	inches
Total Perc.	**8.541**	inches
	45.453	inches

APPENDIX A2

Water Budget Analysis Tables

Existing Soil Types, Non-Wooded Areas

Belleayre Resort — Water Budget Analysis — HrF - NonWooded

Month	Temp °C	Direct Precip. To Halcott Soil (mm)	Add'l Precip. (runoff from rock outcrop) (mm)	Total Precip. To Halcott Soil (mm)	C_r	Runoff (mm)	Infiltration (mm)	Annual Heat Index I	Unadjusted Monthly PE (mm)	Unadjusted Daily PE (mm)	Mean Possible Monthly Duration of Sunlight (12-hr units)	Infilt-PET (mm)	Σ Neg. Infilt. (mm)
Jan	-5.17	75.50	37.19	112.69	0.42	47.33	65.36	34.11	0.00	0.00	24.6	65.36	0.00
Feb	-4.44	52.71	25.96	78.67	0.42	33.04	45.63	34.11	0.00	0.00	24.7	45.63	0.00
Mar	0.00	98.55	48.54	147.09	0.42	61.78	85.31	34.11	0.00	0.00	30.9	85.31	0.00
Apr	6.50	94.07	46.33	140.41	0.42	58.97	81.44	34.11	31.69	1.06	33.4	46.16	0.00
May	12.00	106.51	52.46	158.96	0.42	66.77	92.20	34.11	59.98	1.93	37.7	19.25	0.00
Jun	17.33	113.26	55.78	169.04	0.42	71.00	98.04	34.11	87.95	2.93	38.0	-13.37	-13.37
Jul	19.28	103.56	51.01	154.56	0.42	64.92	89.65	34.11	98.25	3.17	38.5	-32.37	-45.74
Aug	18.33	88.75	43.71	132.46	0.42	55.63	76.83	34.11	93.24	3.01	35.8	-30.85	-76.59
Sep	14.17	114.02	56.16	170.18	0.42	71.48	98.70	34.11	71.30	2.38	31.2	24.56	0.00
Oct	8.33	122.48	60.33	182.80	0.42	76.78	106.03	34.11	41.04	1.32	28.6	68.16	0.00
Nov	2.83	95.64	47.11	142.74	0.42	59.95	82.79	34.11	13.35	0.45	24.5	71.89	0.00
Dec	-2.67	89.47	44.07	133.54	0.42	56.09	77.46	34.11	0.00	0.00	23.7	77.46	0.00
	7.21	1154.52 mm		1723.16 mm		723.73	999.43		496.81				
		45.45 in.		67.84 in.		28.49 in.							

Lattitude = 42° 10'

Soil Moisture Storage (ST) in millimeters 35.560

Month	Soil Moisture Storage (mm)	Δ Soil Moisture Storage (mm)	AET (mm)	AET (in)	Perc (mm)	Perc (in)
Jan	35.56	0.00	0.00	0.00	65.36	2.57
Feb	35.56	0.00	0.00	0.00	45.63	1.80
Mar	35.56	0.00	0.00	0.00	85.31	3.36
Apr	35.56	0.00	35.28	1.39	46.16	1.82
May	35.56	0.00	72.95	2.87	19.25	0.76
Jun	23.69	-11.87	109.92	4.33	0.00	0.00
Jul	8.85	-14.83	104.48	4.11	0.00	0.00
Aug	3.47	-5.39	82.21	3.24	0.00	0.00
Sep	28.02	24.56	74.15	2.92	0.00	0.00
Oct	35.56	7.54	37.86	1.49	60.62	2.39
Nov	35.56	0.00	10.91	0.43	71.89	2.83
Dec	35.56	0.00	0.00	0.00	77.46	3.05
			527.76	20.78	471.68	18.57

Total Runoff	**28.49**	inches
Total AET	**20.78**	inches
Total Perc.	**18.57**	inches
	67.84	inches

Notes:

Total Non-Wooded HrF area = 1,462.248 ft^2, assumed to be 67% Halcott Soil and 33% Rock Outcrop.

Non-Wooded Halcott Soil area = 979,706 ft^2

Rock Outcrop Area = 482,542 ft^2

Monthly Precipitation on Rock Outcrop area assumed to runoff directly to Halcott soil area as additional precipitation (No percolation on Rock Outcrop area)

Belleayre Resort — ***Water Budget Analysis*** — ***HvC,HvD,HvF - NonWooded***

Month	*Temp °C*	*Precip. P (mm)*	C_r	*Runoff (mm)*	*Infiltration (mm)*	*Monthly Heat Index*	*Annual Heat Index I*	*Unadjusted Monthly PE (mm)*	*Unadjusted Daily PE (mm)*	*Mean Possible Monthly Duration of Sunlight (12-hr units)*	*Adjusted Monthly PE (mm)*	*Infilt-PET (mm)*	*Σ Neg. Infilt. (mm)*
Jan	***-5.17***	***75.50***	***0.42***	31.71	43.79	***0.00***	34.11	0.00	0.00	***24.6***	0.00	43.79	0.00
Feb	***-4.44***	***52.71***	***0.42***	22.14	30.57	***0.00***	34.11	0.00	0.00	***24.7***	0.00	30.57	0.00
Mar	***0.00***	***98.55***	***0.42***	41.39	57.16	***0.00***	34.11	0.00	0.00	***30.9***	0.00	57.16	0.00
Apr	***6.50***	***94.07***	***0.42***	39.51	54.56	***1.49***	34.11	31.69	1.06	***33.4***	35.28	19.28	0.00
May	***12.00***	***106.51***	***0.42***	44.73	61.77	***3.76***	34.11	59.98	1.93	***37.7***	72.95	-11.18	-11.18
Jun	***17.33***	***113.26***	***0.42***	47.57	65.69	***6.57***	34.11	87.95	2.93	***38.0***	111.41	-45.72	-56.90
Jul	***19.28***	***103.56***	***0.42***	43.49	60.06	***7.71***	34.11	98.25	3.17	***38.5***	122.02	-61.95	-118.85
Aug	***18.33***	***88.75***	***0.42***	37.27	51.47	***7.15***	34.11	93.24	3.01	***35.8***	107.68	-56.21	-175.05
Sep	***14.17***	***114.02***	***0.42***	47.89	66.13	***4.84***	34.11	71.30	2.38	***31.2***	74.15	-8.02	-183.07
Oct	***8.33***	***122.48***	***0.42***	51.44	71.04	***2.17***	34.11	41.04	1.32	***28.6***	37.86	33.17	0.00
Nov	***2.83***	***95.64***	***0.42***	40.17	55.47	***0.42***	34.11	13.35	0.45	***24.5***	10.91	44.56	0.00
Dec	***-2.67***	***89.47***	***0.42***	37.58	51.90	***0.00***	34.11	0.00	0.00	***23.7***	0.00	51.90	0.00
		1154.52		*484.90*		34.11							
		45.45	in.	***19.09***	in.								

Soil Moisture Storage (ST) in millimeters ***42.601***

Lattitude = 42° 10'

Month	*Soil Moisture Storage (mm)*	*Δ Soil Moisture Storage (mm)*	*AET (mm)*	*AET (in)*	*Perc (mm)*	*Perc (in)*
Jan	42.60	0.00	0.00	0.00	43.79	1.72
Feb	42.60	0.00	0.00	0.00	30.57	1.20
Mar	42.60	0.00	0.00	0.00	57.16	2.25
Apr	42.60	0.00	35.28	1.39	19.28	0.76
May	32.13	-10.47	72.24	2.84	0.00	0.00
Jun	10.13	-22.00	87.69	3.45	0.00	0.00
Jul	2.12	-8.01	68.07	2.68	0.00	0.00
Aug	0.51	-1.61	53.08	2.09	0.00	0.00
Sep	0.42	-0.09	66.23	2.61	0.00	0.00
Oct	33.59	33.17	37.86	1.49	0.00	0.00
Nov	42.60	9.01	10.91	0.43	35.56	1.40
Dec	42.60	0.00	0.00	0.00	51.90	2.04
			431.36	***16.98***	*238.26*	***9.38***

Total Runoff	**19.090**	inches
Total AET	**16.983**	inches
Total Perc.	**9.380**	inches
	45.453	inches

HvC,HvD,HvF = 67% Halcott and 33% Vly; these proportions used in weighted average approach to calculate soil moisture storage of the soil complex

Belleayre Resort ***Water Budget Analysis*** ***OsB - NonWooded***

Month	*Temp °C*	*Precip. P (mm)*	C_r	*Runoff (mm)*	*Infiltration (mm)*	*Monthly Heat Index*	*Annual Heat Index I*	*Unadjusted Monthly PE (mm)*	*Unadjusted Daily PE (mm)*	*Mean Possible Monthly Duration of Sunlight (12-hr units)*	*Adjusted Monthly PE (mm)*	*Infilt-PET (mm)*	*Σ Neg. Infilt. (mm)*
Jan	***-5.17***	***75.50***	***0.32***	24.16	51.34	***0.00***	34.11	0.00	0.00	***24.6***	0.00	51.34	0.00
Feb	***-4.44***	***52.71***	***0.32***	16.87	35.84	***0.00***	34.11	0.00	0.00	***24.7***	0.00	35.84	0.00
Mar	***0.00***	***98.55***	***0.32***	31.54	67.02	***0.00***	34.11	0.00	0.00	***30.9***	0.00	67.02	0.00
Apr	***6.50***	***94.07***	***0.32***	30.10	63.97	***1.49***	34.11	31.69	1.06	***33.4***	35.28	28.69	0.00
May	***12.00***	***106.51***	***0.32***	34.08	72.42	***3.76***	34.11	59.98	1.93	***37.7***	72.95	-0.53	-0.53
Jun	***17.33***	***113.26***	***0.32***	36.24	77.01	***6.57***	34.11	87.95	2.93	***38.0***	111.41	-34.39	-34.92
Jul	***19.28***	***103.56***	***0.32***	33.14	70.42	***7.71***	34.11	98.25	3.17	***38.5***	122.02	-51.60	-86.52
Aug	***18.33***	***88.75***	***0.32***	28.40	60.35	***7.15***	34.11	93.24	3.01	***35.8***	107.68	-47.33	-133.85
Sep	***14.17***	***114.02***	***0.32***	36.49	77.53	***4.84***	34.11	71.30	2.38	***31.2***	74.15	3.39	0.00
Oct	***8.33***	***122.48***	***0.32***	39.19	83.29	***2.17***	34.11	41.04	1.32	***28.6***	37.86	45.42	0.00
Nov	***2.83***	***95.64***	***0.32***	30.60	65.03	***0.42***	34.11	13.35	0.45	***24.5***	10.91	54.13	0.00
Dec	***-2.67***	***89.47***	***0.32***	28.63	60.84	***0.00***	34.11	0.00	0.00	***23.7***	0.00	60.84	0.00
		1154.52		*369.45*		34.11							
		45.45	in.	***14.55***	in.								

Soil Moisture Storage (ST) in millimeters ***61.138***

Lattitude = 42° 10'

Month	*Soil Moisture Storage (mm)*	*Δ Soil Moisture Storage (mm)*	*AET (mm)*	*AET (in)*	*Perc (mm)*	*Perc (in)*
Jan	61.14	0.00	0.00	0.00	51.34	2.02
Feb	61.14	0.00	0.00	0.00	35.84	1.41
Mar	61.14	0.00	0.00	0.00	67.02	2.64
Apr	61.14	0.00	35.28	1.39	28.69	1.13
May	60.58	-0.56	72.98	2.87	0.00	0.00
Jun	33.29	-27.29	104.30	4.11	0.00	0.00
Jul	13.56	-19.73	90.15	3.55	0.00	0.00
Aug	5.95	-7.61	67.96	2.68	0.00	0.00
Sep	9.34	3.39	74.15	2.92	0.00	0.00
Oct	54.76	45.42	37.86	1.49	0.00	0.00
Nov	61.14	6.38	10.91	0.43	47.75	1.88
Dec	61.14	0.00	0.00	0.00	60.84	2.40
			493.59	***19.43***	*291.48*	***11.48***

Total Runoff	**14.545**	inches
Total AET	**19.433**	inches
Total Perc.	**11.476**	inches
	45.453	inches

OsB, OsC = 67% Onteora and 33% Suny; these proportions used in weighted average approach to calculate soil moisture storage of the soil complex

Belleayre Resort ***Water Budget Analysis*** ***OsC - NonWooded***

Month	*Temp °C*	*Precip. P (mm)*	C_r	*Runoff (mm)*	*Infiltration (mm)*	*Monthly Heat Index*	*Annual Heat Index I*	*Unadjusted Monthly PE (mm)*	*Unadjusted Daily PE (mm)*	*Mean Possible Monthly Duration of Sunlight (12-hr units)*	*Adjusted Monthly PE (mm)*	*Infilt-PET (mm)*	*Σ Neg. Infilt. (mm)*
Jan	***-5.17***	***75.50***	***0.42***	31.71	43.79	***0.00***	34.11	0.00	0.00	***24.6***	0.00	43.79	0.00
Feb	***-4.44***	***52.71***	***0.42***	22.14	30.57	***0.00***	34.11	0.00	0.00	***24.7***	0.00	30.57	0.00
Mar	***0.00***	***98.55***	***0.42***	41.39	57.16	***0.00***	34.11	0.00	0.00	***30.9***	0.00	57.16	0.00
Apr	***6.50***	***94.07***	***0.42***	39.51	54.56	***1.49***	34.11	31.69	1.06	***33.4***	35.28	19.28	0.00
May	***12.00***	***106.51***	***0.42***	44.73	61.77	***3.76***	34.11	59.98	1.93	***37.7***	72.95	-11.18	-11.18
Jun	***17.33***	***113.26***	***0.42***	47.57	65.69	***6.57***	34.11	87.95	2.93	***38.0***	111.41	-45.72	-56.90
Jul	***19.28***	***103.56***	***0.42***	43.49	60.06	***7.71***	34.11	98.25	3.17	***38.5***	122.02	-61.95	-118.85
Aug	***18.33***	***88.75***	***0.42***	37.27	51.47	***7.15***	34.11	93.24	3.01	***35.8***	107.68	-56.21	-175.05
Sep	***14.17***	***114.02***	***0.42***	47.89	66.13	***4.84***	34.11	71.30	2.38	***31.2***	74.15	-8.02	-183.07
Oct	***8.33***	***122.48***	***0.42***	51.44	71.04	***2.17***	34.11	41.04	1.32	***28.6***	37.86	33.17	0.00
Nov	***2.83***	***95.64***	***0.42***	40.17	55.47	***0.42***	34.11	13.35	0.45	***24.5***	10.91	44.56	0.00
Dec	***-2.67***	***89.47***	***0.42***	37.58	51.90	***0.00***	34.11	0.00	0.00	***23.7***	0.00	51.90	0.00
		1154.52		*484.90*		34.11							
		45.45	in.	***19.09***	in.								

Soil Moisture Storage (ST) in millimeters ***61.138***

Lattitude = 42° 10'

Month	*Soil Moisture Storage (mm)*	*Δ Soil Moisture Storage (mm)*	*AET (mm)*	*AET (in)*	*Perc (mm)*	*Perc (in)*
Jan	61.14	0.00	0.00	0.00	43.79	1.72
Feb	61.14	0.00	0.00	0.00	30.57	1.20
Mar	61.14	0.00	0.00	0.00	57.16	2.25
Apr	61.14	0.00	35.28	1.39	19.28	0.76
May	50.33	-10.81	72.58	2.86	0.00	0.00
Jun	22.71	-27.62	93.31	3.67	0.00	0.00
Jul	7.73	-14.99	75.05	2.95	0.00	0.00
Aug	2.90	-4.82	56.29	2.22	0.00	0.00
Sep	2.53	-0.38	66.51	2.62	0.00	0.00
Oct	35.70	33.17	37.86	1.49	0.00	0.00
Nov	61.14	25.44	10.91	0.43	19.13	0.75
Dec	61.14	0.00	0.00	0.00	51.90	2.04
			447.79	***17.63***	*221.83*	***8.73***

Total Runoff	**19.090**	inches
Total AET	**17.630**	inches
Total Perc.	**8.733**	inches
	45.453	inches

OsB, OsC = 67% Onteora and 33% Suny; these proportions used in weighted average approach to calculate soil moisture storage of the soil complex

Belleayre Resort ***Water Budget Analysis*** ***VeD,VeF - NonWooded***

Month	*Temp °C*	*Precip. P (mm)*	C_r	*Runoff (mm)*	*Infiltration (mm)*	*Monthly Heat Index*	*Annual Heat Index I*	*Unadjusted Monthly PE (mm)*	*Unadjusted Daily PE (mm)*	*Mean Possible Monthly Duration of Sunlight (12-hr units)*	*Adjusted Monthly PE (mm)*	*Infilt-PET (mm)*	*Σ Neg. Infilt. (mm)*
Jan	***-5.17***	***75.50***	***0.42***	31.71	43.79	***0.00***	34.11	0.00	0.00	***24.6***	0.00	43.79	0.00
Feb	***-4.44***	***52.71***	***0.42***	22.14	30.57	***0.00***	34.11	0.00	0.00	***24.7***	0.00	30.57	0.00
Mar	***0.00***	***98.55***	***0.42***	41.39	57.16	***0.00***	34.11	0.00	0.00	***30.9***	0.00	57.16	0.00
Apr	***6.50***	***94.07***	***0.42***	39.51	54.56	***1.49***	34.11	31.69	1.06	***33.4***	35.28	19.28	0.00
May	***12.00***	***106.51***	***0.42***	44.73	61.77	***3.76***	34.11	59.98	1.93	***37.7***	72.95	-11.18	-11.18
Jun	***17.33***	***113.26***	***0.42***	47.57	65.69	***6.57***	34.11	87.95	2.93	***38.0***	111.41	-45.72	-56.90
Jul	***19.28***	***103.56***	***0.42***	43.49	60.06	***7.71***	34.11	98.25	3.17	***38.5***	122.02	-61.95	-118.85
Aug	***18.33***	***88.75***	***0.42***	37.27	51.47	***7.15***	34.11	93.24	3.01	***35.8***	107.68	-56.21	-175.05
Sep	***14.17***	***114.02***	***0.42***	47.89	66.13	***4.84***	34.11	71.30	2.38	***31.2***	74.15	-8.02	-183.07
Oct	***8.33***	***122.48***	***0.42***	51.44	71.04	***2.17***	34.11	41.04	1.32	***28.6***	37.86	33.17	0.00
Nov	***2.83***	***95.64***	***0.42***	40.17	55.47	***0.42***	34.11	13.35	0.45	***24.5***	10.91	44.56	0.00
Dec	***-2.67***	***89.47***	***0.42***	37.58	51.90	***0.00***	34.11	0.00	0.00	***23.7***	0.00	51.90	0.00
		1154.52		*484.90*		34.11							
		45.45	in.	***19.09***	in.								

Soil Moisture Storage (ST) in millimeters ***82.713***

Lattitude = 42° 10'

Month	*Soil Moisture Storage (mm)*	*Δ Soil Moisture Storage (mm)*	*AET (mm)*	*AET (in)*	*Perc (mm)*	*Perc (in)*
Jan	82.71	0.00	0.00	0.00	43.79	1.72
Feb	82.71	0.00	0.00	0.00	30.57	1.20
Mar	82.71	0.00	0.00	0.00	57.16	2.25
Apr	82.71	0.00	35.28	1.39	19.28	0.76
May	71.73	-10.99	72.76	2.86	0.00	0.00
Jun	40.04	-31.69	97.38	3.83	0.00	0.00
Jul	18.17	-21.87	81.93	3.23	0.00	0.00
Aug	8.87	-9.30	60.77	2.39	0.00	0.00
Sep	8.01	-0.86	66.99	2.64	0.00	0.00
Oct	41.18	33.17	37.86	1.49	0.00	0.00
Nov	82.71	41.53	10.91	0.43	3.04	0.12
Dec	82.71	0.00	0.00	0.00	51.90	2.04
			463.88	***18.26***	*205.74*	***8.10***

Total Runoff	**19.090**	inches
Total AET	**18.263**	inches
Total Perc.	**8.100**	inches
	45.453	inches

VeD,VeF = 33% Elka and 67% Vly; these proportions used in weighted average approach to calculate soil moisture storage of the soil complex

Belleayre Resort — ***Water Budget Analysis*** — ***VhC,VhD,VhE,VhF - NonWooded***

Month	*Temp °C*	*Precip. P (mm)*	C_r	*Runoff (mm)*	*Infiltration (mm)*	*Monthly Heat Index*	*Annual Heat Index I*	*Unadjusted Monthly PE (mm)*	*Unadjusted Daily PE (mm)*	*Mean Possible Monthly Duration of Sunlight (12-hr units)*	*Adjusted Monthly PE (mm)*	*Infilt-PET (mm)*	*Σ Neg. Infilt. (mm)*
Jan	***-5.17***	***75.50***	***0.42***	31.71	43.79	***0.00***	34.11	0.00	0.00	***24.6***	0.00	43.79	0.00
Feb	***-4.44***	***52.71***	***0.42***	22.14	30.57	***0.00***	34.11	0.00	0.00	***24.7***	0.00	30.57	0.00
Mar	***0.00***	***98.55***	***0.42***	41.39	57.16	***0.00***	34.11	0.00	0.00	***30.9***	0.00	57.16	0.00
Apr	***6.50***	***94.07***	***0.42***	39.51	54.56	***1.49***	34.11	31.69	1.06	***33.4***	35.28	19.28	0.00
May	***12.00***	***106.51***	***0.42***	44.73	61.77	***3.76***	34.11	59.98	1.93	***37.7***	72.95	-11.18	-11.18
Jun	***17.33***	***113.26***	***0.42***	47.57	65.69	***6.57***	34.11	87.95	2.93	***38.0***	111.41	-45.72	-56.90
Jul	***19.28***	***103.56***	***0.42***	43.49	60.06	***7.71***	34.11	98.25	3.17	***38.5***	122.02	-61.95	-118.85
Aug	***18.33***	***88.75***	***0.42***	37.27	51.47	***7.15***	34.11	93.24	3.01	***35.8***	107.68	-56.21	-175.05
Sep	***14.17***	***114.02***	***0.42***	47.89	66.13	***4.84***	34.11	71.30	2.38	***31.2***	74.15	-8.02	-183.07
Oct	***8.33***	***122.48***	***0.42***	51.44	71.04	***2.17***	34.11	41.04	1.32	***28.6***	37.86	33.17	0.00
Nov	***2.83***	***95.64***	***0.42***	40.17	55.47	***0.42***	34.11	13.35	0.45	***24.5***	10.91	44.56	0.00
Dec	***-2.67***	***89.47***	***0.42***	37.58	51.90	***0.00***	34.11	0.00	0.00	***23.7***	0.00	51.90	0.00
		1154.52		*484.90*		34.11							
		45.45	in.	***19.09***	in.								

Soil Moisture Storage (ST) in millimeters ***49.855***

Lattitude = 42° 10'

Month	*Soil Moisture Storage (mm)*	*Δ Soil Moisture Storage (mm)*	*AET (mm)*	*AET (in)*	*Perc (mm)*	*Perc (in)*
Jan	49.86	0.00	0.00	0.00	43.79	1.72
Feb	49.86	0.00	0.00	0.00	30.57	1.20
Mar	49.86	0.00	0.00	0.00	57.16	2.25
Apr	49.86	0.00	35.28	1.39	19.28	0.76
May	39.22	-10.64	72.41	2.85	0.00	0.00
Jun	14.70	-24.52	90.21	3.55	0.00	0.00
Jul	3.89	-10.81	70.87	2.79	0.00	0.00
Aug	1.16	-2.72	54.20	2.13	0.00	0.00
Sep	0.98	-0.18	66.32	2.61	0.00	0.00
Oct	34.15	33.17	37.86	1.49	0.00	0.00
Nov	49.86	15.70	10.91	0.43	28.86	1.14
Dec	49.86	0.00	0.00	0.00	51.90	2.04
			438.06	***17.25***	*231.57*	***9.12***

Total Runoff	**19.090**	inches
Total AET	**17.246**	inches
Total Perc.	**9.117**	inches
	45.453	inches

VhC,VhD,VhE,VhF = 33% Halcott and 67% Vly; these proportions used in weighted average approach to calculate soil moisture storage of the soil complex

Belleayre Resort ***Water Budget Analysis*** ***VyB - NonWooded***

Month	*Temp ^{o}C*	*Precip. P (mm)*	*C_r*	*Runoff (mm)*	*Infiltration (mm)*	*Monthly Heat Index*	*Annual Heat Index I*	*Unadjusted Monthly PE (mm)*	*Unadjusted Daily PE (mm)*	*Mean Possible Monthly Duration of Sunlight (12-hr units)*	*Adjusted Monthly PE (mm)*	*Infilt-PET (mm)*	*Σ Neg. Infilt. (mm)*
Jan	***-5.17***	***75.50***	***0.32***	24.16	51.34	***0.00***	34.11	0.00	0.00	***24.6***	0.00	51.34	0.00
Feb	***-4.44***	***52.71***	***0.32***	16.87	35.84	***0.00***	34.11	0.00	0.00	***24.7***	0.00	35.84	0.00
Mar	***0.00***	***98.55***	***0.32***	31.54	67.02	***0.00***	34.11	0.00	0.00	***30.9***	0.00	67.02	0.00
Apr	***6.50***	***94.07***	***0.32***	30.10	63.97	***1.49***	34.11	31.69	1.06	***33.4***	35.28	28.69	0.00
May	***12.00***	***106.51***	***0.32***	34.08	72.42	***3.76***	34.11	59.98	1.93	***37.7***	72.95	-0.53	-0.53
Jun	***17.33***	***113.26***	***0.32***	36.24	77.01	***6.57***	34.11	87.95	2.93	***38.0***	111.41	-34.39	-34.92
Jul	***19.28***	***103.56***	***0.32***	33.14	70.42	***7.71***	34.11	98.25	3.17	***38.5***	122.02	-51.60	-86.52
Aug	***18.33***	***88.75***	***0.32***	28.40	60.35	***7.15***	34.11	93.24	3.01	***35.8***	107.68	-47.33	-133.85
Sep	***14.17***	***114.02***	***0.32***	36.49	77.53	***4.84***	34.11	71.30	2.38	***31.2***	74.15	3.39	0.00
Oct	***8.33***	***122.48***	***0.32***	39.19	83.29	***2.17***	34.11	41.04	1.32	***28.6***	37.86	45.42	0.00
Nov	***2.83***	***95.64***	***0.32***	30.60	65.03	***0.42***	34.11	13.35	0.45	***24.5***	10.91	54.13	0.00
Dec	***-2.67***	***89.47***	***0.32***	28.63	60.84	***0.00***	34.11	0.00	0.00	***23.7***	0.00	60.84	0.00
		1154.52		*369.45*		34.11							
		45.45	in.	***14.55***	in.								

Soil Moisture Storage (ST) in millimeters ***56.896***

Lattitude = 42° 10'

Month	*Soil Moisture Storage (mm)*	*Δ Soil Moisture Storage (mm)*	*AET (mm)*	*AET (in)*	*Perc (mm)*	*Perc (in)*
Jan	56.90	0.00	0.00	0.00	51.34	2.02
Feb	56.90	0.00	0.00	0.00	35.84	1.41
Mar	56.90	0.00	0.00	0.00	67.02	2.64
Apr	56.90	0.00	35.28	1.39	28.69	1.13
May	56.34	-0.56	72.98	2.87	0.00	0.00
Jun	29.57	-26.77	103.78	4.09	0.00	0.00
Jul	11.24	-18.33	88.75	3.49	0.00	0.00
Aug	4.63	-6.61	66.96	2.64	0.00	0.00
Sep	8.02	3.39	74.15	2.92	0.00	0.00
Oct	53.44	45.42	37.86	1.49	0.00	0.00
Nov	56.90	3.46	10.91	0.43	50.67	1.99
Dec	56.90	0.00	0.00	0.00	60.84	2.40
			490.67	***19.32***	*294.41*	***11.59***

Total Runoff	**14.545**	inches
Total AET	**19.318**	inches
Total Perc.	**11.591**	inches
	45.453	inches

Belleayre Resort ***Water Budget Analysis*** ***VyC, VyD - NonWooded***

Month	*Temp ^{o}C*	*Precip. P (mm)*	*C_r*	*Runoff (mm)*	*Infiltration (mm)*	*Monthly Heat Index*	*Annual Heat Index I*	*Unadjusted Monthly PE (mm)*	*Unadjusted Daily PE (mm)*	*Mean Possible Monthly Duration of Sunlight (12-hr units)*	*Adjusted Monthly PE (mm)*	*Infilt-PET (mm)*	*Σ Neg. Infilt. (mm)*
Jan	***-5.17***	***75.50***	***0.42***	31.71	43.79	***0.00***	34.11	0.00	0.00	***24.6***	0.00	43.79	0.00
Feb	***-4.44***	***52.71***	***0.42***	22.14	30.57	***0.00***	34.11	0.00	0.00	***24.7***	0.00	30.57	0.00
Mar	***0.00***	***98.55***	***0.42***	41.39	57.16	***0.00***	34.11	0.00	0.00	***30.9***	0.00	57.16	0.00
Apr	***6.50***	***94.07***	***0.42***	39.51	54.56	***1.49***	34.11	31.69	1.06	***33.4***	35.28	19.28	0.00
May	***12.00***	***106.51***	***0.42***	44.73	61.77	***3.76***	34.11	59.98	1.93	***37.7***	72.95	-11.18	-11.18
Jun	***17.33***	***113.26***	***0.42***	47.57	65.69	***6.57***	34.11	87.95	2.93	***38.0***	111.41	-45.72	-56.90
Jul	***19.28***	***103.56***	***0.42***	43.49	60.06	***7.71***	34.11	98.25	3.17	***38.5***	122.02	-61.95	-118.85
Aug	***18.33***	***88.75***	***0.42***	37.27	51.47	***7.15***	34.11	93.24	3.01	***35.8***	107.68	-56.21	-175.05
Sep	***14.17***	***114.02***	***0.42***	47.89	66.13	***4.84***	34.11	71.30	2.38	***31.2***	74.15	-8.02	-183.07
Oct	***8.33***	***122.48***	***0.42***	51.44	71.04	***2.17***	34.11	41.04	1.32	***28.6***	37.86	33.17	0.00
Nov	***2.83***	***95.64***	***0.42***	40.17	55.47	***0.42***	34.11	13.35	0.45	***24.5***	10.91	44.56	0.00
Dec	***-2.67***	***89.47***	***0.42***	37.58	51.90	***0.00***	34.11	0.00	0.00	***23.7***	0.00	51.90	0.00
		1154.52		*484.90*		34.11							
		45.45	in.	***19.09***	in.								

Soil Moisture Storage (ST) in millimeters ***56.896***

Lattitude = 42° 10'

Month	*Soil Moisture Storage (mm)*	*Δ Soil Moisture Storage (mm)*	*AET (mm)*	*AET (in)*	*Perc (mm)*	*Perc (in)*
Jan	56.90	0.00	0.00	0.00	43.79	1.72
Feb	56.90	0.00	0.00	0.00	30.57	1.20
Mar	56.90	0.00	0.00	0.00	57.16	2.25
Apr	56.90	0.00	35.28	1.39	19.28	0.76
May	46.14	-10.75	72.53	2.86	0.00	0.00
Jun	19.59	-26.56	92.24	3.63	0.00	0.00
Jul	6.13	-13.45	73.52	2.89	0.00	0.00
Aug	2.14	-3.99	55.47	2.18	0.00	0.00
Sep	1.84	-0.30	66.43	2.62	0.00	0.00
Oct	35.01	33.17	37.86	1.49	0.00	0.00
Nov	56.90	21.88	10.91	0.43	22.68	0.89
Dec	56.90	0.00	0.00	0.00	51.90	2.04
			444.23	***17.49***	*225.39*	***8.87***

Total Runoff	**19.090**	inches
Total AET	**17.490**	inches
Total Perc.	**8.873**	inches
	45.453	inches

Belleayre Resort — Water Budget Analysis — WlB - NonWooded

Month	Temp °C	Precip. P (mm)	C_r	Runoff (mm)	Infiltration (mm)	Monthly Heat Index	Annual Heat Index I	Unadjusted Monthly PE (mm)	Unadjusted Daily PE (mm)	Mean Possible Monthly Duration of Sunlight (12-hr units)	Adjusted Monthly PE (mm)	Infilt-PET (mm)	Σ Neg. Infilt. (mm)
Jan	**-5.17**	**75.50**	**0.32**	24.16	51.34	**0.00**	34.11	0.00	0.00	**24.6**	0.00	51.34	0.00
Feb	**-4.44**	**52.71**	**0.32**	16.87	35.84	**0.00**	34.11	0.00	0.00	**24.7**	0.00	35.84	0.00
Mar	**0.00**	**98.55**	**0.32**	31.54	67.02	**0.00**	34.11	0.00	0.00	**30.9**	0.00	67.02	0.00
Apr	**6.50**	**94.07**	**0.32**	30.10	63.97	**1.49**	34.11	31.69	1.06	**33.4**	35.28	28.69	0.00
May	**12.00**	**106.51**	**0.32**	34.08	72.42	**3.76**	34.11	59.98	1.93	**37.7**	72.95	-0.53	-0.53
Jun	**17.33**	**113.26**	**0.32**	36.24	77.01	**6.57**	34.11	87.95	2.93	**38.0**	111.41	-34.39	-34.92
Jul	**19.28**	**103.56**	**0.32**	33.14	70.42	**7.71**	34.11	98.25	3.17	**38.5**	122.02	-51.60	-86.52
Aug	**18.33**	**88.75**	**0.32**	28.40	60.35	**7.15**	34.11	93.24	3.01	**35.8**	107.68	-47.33	-133.85
Sep	**14.17**	**114.02**	**0.32**	36.49	77.53	**4.84**	34.11	71.30	2.38	**31.2**	74.15	3.39	0.00
Oct	**8.33**	**122.48**	**0.32**	39.19	83.29	**2.17**	34.11	41.04	1.32	**28.6**	37.86	45.42	0.00
Nov	**2.83**	**95.64**	**0.32**	30.60	65.03	**0.42**	34.11	13.35	0.45	**24.5**	10.91	54.13	0.00
Dec	**-2.67**	**89.47**	**0.32**	28.63	60.84	**0.00**	34.11	0.00	0.00	**23.7**	0.00	60.84	0.00
		1154.52		*369.45*		34.11							
		45.45	in.	***14.55***	in.								

Soil Moisture Storage (ST) in millimeters ***86.741***

Lattitude = 42° 10'

Month	Soil Moisture Storage (mm)	Δ Soil Moisture Storage (mm)	AET (mm)	AET (in)	Perc (mm)	Perc (in)
Jan	86.74	0.00	0.00	0.00	51.34	2.02
Feb	86.74	0.00	0.00	0.00	35.84	1.41
Mar	86.74	0.00	0.00	0.00	67.02	2.64
Apr	86.74	0.00	35.28	1.39	28.69	1.13
May	86.19	-0.55	72.98	2.87	0.00	0.00
Jun	56.76	-29.43	106.44	4.19	0.00	0.00
Jul	30.33	-26.43	96.85	3.81	0.00	0.00
Aug	17.07	-13.26	73.61	2.90	0.00	0.00
Sep	20.46	3.39	74.15	2.92	0.00	0.00
Oct	65.88	45.42	37.86	1.49	0.00	0.00
Nov	86.74	20.86	10.91	0.43	33.27	1.31
Dec	86.74	0.00	0.00	0.00	60.84	2.40
			508.07	***20.00***	*277.00*	***10.91***

Total Runoff	**14.545**	inches
Total AET	**20.003**	inches
Total Perc.	**10.906**	inches
	45.453	inches

APPENDIX B

Water Budget Analysis Tables

Future Development Areas

Modified Belleayre Resort — *Water Budget Analysis* — *Golf Course*

Month	Temp °C	Direct Precip. P (mm)	Golf Course Irrigation (mm)	Total Precip. to Golf Course (mm)	C_r	Runoff (mm)	Infiltration (mm)	Monthly Heat Index	Annual Heat Index I	Unadjusted Monthly PE (mm)	Unadjusted Daily PE (mm)	Mean Possible Monthly Duration of Sunlight (12-hr units)	Adjusted Monthly PE (mm)	Infilt-PET (mm)	Σ Neg. Infilt. (mm)
Jan	-5.17	75.50	0.00	75.50	0.26	19.63	55.87	0.00	34.11	0.00	0.00	24.6	0.00	55.87	0.00
Feb	-4.44	52.71	0.00	52.71	0.26	13.71	39.01	0.00	34.11	0.00	0.00	24.7	0.00	39.01	0.00
Mar	0.00	98.55	0.00	98.55	0.26	25.62	72.93	0.00	34.11	0.00	0.00	30.9	0.00	72.93	0.00
Apr	6.50	94.07	0.00	94.07	0.26	24.46	69.61	1.49	34.11	31.69	1.06	33.4	35.28	34.33	0.00
May	12.00	106.51	0.00	106.51	0.26	27.69	78.81	3.76	34.11	59.98	1.93	37.7	72.95	5.87	0.00
Jun	17.33	113.26	54.86	168.12	0.26	43.71	124.41	6.57	34.11	87.95	2.93	38.0	111.41	13.00	0.00
Jul	19.28	103.56	54.86	158.42	0.26	41.19	117.23	7.71	34.11	98.25	3.17	38.5	122.02	-4.78	-4.78
Aug	18.33	88.75	54.86	143.61	0.26	37.34	106.27	7.15	34.11	93.24	3.01	35.8	107.68	-1.41	-6.19
Sep	14.17	114.02	0.00	114.02	0.26	29.65	84.38	4.84	34.11	71.30	2.38	31.2	74.15	10.23	0.00
Oct	8.33	122.48	0.00	122.48	0.26	31.84	90.63	2.17	34.11	41.04	1.32	28.6	37.86	52.77	0.00
Nov	2.83	95.64	0.00	95.64	0.26	24.87	70.77	0.42	34.11	13.35	0.45	24.5	10.91	59.87	0.00
Dec	-2.67	89.47	0.00	89.47	0.26	23.26	66.21	0.00	34.11	0.00	0.00	23.7	0.00	66.21	0.00
		1154.52		*1319.11*		*342.97*	976.14	34.11							
		45.45		***51.93***	in.	***13.50***	in.								

Soil Moisture Storage (ST) in millimeters ***60.960***

Lattitude = 42° 10'

Month	Soil Moisture Storage (mm)	Δ Soil Moisture Storage (mm)	AET (mm)	AET (in)	Perc (mm)	Perc (in)
Jan	60.96	0.00	0.00	0.00	55.87	2.20
Feb	60.96	0.00	0.00	0.00	39.01	1.54
Mar	60.96	0.00	0.00	0.00	72.93	2.87
Apr	60.96	0.00	35.28	1.39	34.33	1.35
May	60.96	0.00	72.95	2.87	5.87	0.23
Jun	60.96	0.00	111.41	4.39	13.00	0.51
Jul	56.08	-4.88	122.12	4.81	0.00	0.00
Aug	54.72	-1.36	107.63	4.24	0.00	0.00
Sep	60.96	6.24	74.15	2.92	3.98	0.16
Oct	60.96	0.00	37.86	1.49	52.77	2.08
Nov	60.96	0.00	10.91	0.43	59.87	2.36
Dec	60.96	0.00	0.00	0.00	66.21	2.61
			572.30	***22.53***	*403.84*	***15.90***

Total Runoff	**13.50**	inches
Total AET	**22.53**	inches
Total Perc.	**15.90**	inches
	51.93	inches

Modified Belleayre Resort — Water Budget Analysis — Highmount - HM

Month	Temp °C	Precip. P (mm)	C_r	Runoff (mm)	Infiltration (mm)	Monthly Heat Index	Annual Heat Index I	Unadjusted Monthly PE (mm)	Unadjusted Daily PE (mm)	Mean Possible Monthly Duration of Sunlight (12-hr units)	Adjusted Monthly PE (mm)	Infilt-PET (mm)	Σ Neg. Infilt. (mm)
Jan	-5.17	75.50	0.41	30.96	44.55	0.00	34.11	0.00	0.00	24.6	0.00	44.55	0.00
Feb	-4.44	52.71	0.41	21.61	31.10	0.00	34.11	0.00	0.00	24.7	0.00	31.10	0.00
Mar	0.00	98.55	0.41	40.41	58.15	0.00	34.11	0.00	0.00	30.9	0.00	58.15	0.00
Apr	6.50	94.07	0.41	38.57	55.50	1.49	34.11	31.69	1.06	33.4	35.28	20.22	0.00
May	12.00	106.51	0.41	43.67	62.84	3.76	34.11	59.98	1.93	37.7	72.95	-10.11	-10.11
Jun	17.33	113.26	0.41	46.43	66.82	6.57	34.11	87.95	2.93	38.0	111.41	-44.59	-54.70
Jul	19.28	103.56	0.41	42.46	61.10	7.71	34.11	98.25	3.17	38.5	122.02	-60.92	-115.62
Aug	18.33	88.75	0.41	36.39	52.36	7.15	34.11	93.24	3.01	35.8	107.68	-55.32	-170.93
Sep	14.17	114.02	0.41	46.75	67.27	4.84	34.11	71.30	2.38	31.2	74.15	-6.88	-177.81
Oct	8.33	122.48	0.41	50.22	72.26	2.17	34.11	41.04	1.32	28.6	37.86	34.40	0.00
Nov	2.83	95.64	0.41	39.21	56.43	0.42	34.11	13.35	0.45	24.5	10.91	45.52	0.00
Dec	-2.67	89.47	0.41	36.68	52.79	0.00	34.11	0.00	0.00	23.7	0.00	52.79	0.00
		1154.52		*473.35*		34.11							
		45.45	in.	**18.64**	in.								

Soil Moisture Storage (ST) in millimeters ***49.155***

Lattitude = 42° 10'

Month	Soil Moisture Storage (mm)	Δ Soil Moisture Storage (mm)	AET (mm)	AET (in)	Perc (mm)	Perc (in)
Jan	49.16	0.00	0.00	0.00	44.55	1.75
Feb	49.16	0.00	0.00	0.00	31.10	1.22
Mar	49.16	0.00	0.00	0.00	58.15	2.29
Apr	49.16	0.00	35.28	1.39	20.22	0.80
May	39.44	-9.72	72.56	2.86	0.00	0.00
Jun	14.93	-24.51	91.33	3.60	0.00	0.00
Jul	3.96	-10.97	72.07	2.84	0.00	0.00
Aug	1.19	-2.77	55.13	2.17	0.00	0.00
Sep	1.02	-0.17	67.44	2.66	0.00	0.00
Oct	35.42	34.40	37.86	1.49	0.00	0.00
Nov	49.16	13.73	10.91	0.43	31.79	1.25
Dec	49.16	0.00	0.00	0.00	52.79	2.08
			442.57	**17.42**	*238.59*	**9.39**

Total Runoff	**18.636**	inches
Total AET	**17.424**	inches
Total Perc.	**9.393**	inches
	45.453	inches

Modified Belleayre Resort — Water Budget Analysis — Wildacres - W1

(outside irrigation subcatchment)

Month	Temp °C	Precip. P (mm)	C_r	Runoff (mm)	Infiltration (mm)	Monthly Heat Index	Annual Heat Index I	Unadjusted Monthly PE (mm)	Unadjusted Daily PE (mm)	Mean Possible Monthly Duration of Sunlight (12-hr units)	Adjusted Monthly PE (mm)	Infilt-PET (mm)	Σ Neg. Infilt. (mm)
Jan	-5.17	75.50	0.38	28.69	46.81	0.00	34.11	0.00	0.00	24.6	0.00	46.81	0.00
Feb	-4.44	52.71	0.38	20.03	32.68	0.00	34.11	0.00	0.00	24.7	0.00	32.68	0.00
Mar	0.00	98.55	0.38	37.45	61.10	0.00	34.11	0.00	0.00	30.9	0.00	61.10	0.00
Apr	6.50	94.07	0.38	35.75	58.33	1.49	34.11	31.69	1.06	33.4	35.28	23.04	0.00
May	12.00	106.51	0.38	40.47	66.03	3.76	34.11	59.98	1.93	37.7	72.95	-6.92	-6.92
Jun	17.33	113.26	0.38	43.04	70.22	6.57	34.11	87.95	2.93	38.0	111.41	-41.19	-48.11
Jul	19.28	103.56	0.38	39.35	64.20	7.71	34.11	98.25	3.17	38.5	122.02	-57.81	-105.92
Aug	18.33	88.75	0.38	33.72	55.02	7.15	34.11	93.24	3.01	35.8	107.68	-52.66	-158.57
Sep	14.17	114.02	0.38	43.33	70.69	4.84	34.11	71.30	2.38	31.2	74.15	-3.46	-162.03
Oct	8.33	122.48	0.38	46.54	75.94	2.17	34.11	41.04	1.32	28.6	37.86	38.07	0.00
Nov	2.83	95.64	0.38	36.34	59.30	0.42	34.11	13.35	0.45	24.5	10.91	48.39	0.00
Dec	-2.67	89.47	0.38	34.00	55.47	0.00	34.11	0.00	0.00	23.7	0.00	55.47	0.00
		1154.52		*438.72*		34.11							
		45.45 in.		***17.27*** in.									

Soil Moisture Storage (ST) in millimeters ***86.643***

Lattitude = 42° 10'

Month	Soil Moisture Storage (mm)	Δ Soil Moisture Storage (mm)	AET (mm)	AET (in)	Perc (mm)	Perc (in)
Jan	86.64	0.00	0.00	0.00	46.81	1.84
Feb	86.64	0.00	0.00	0.00	32.68	1.29
Mar	86.64	0.00	0.00	0.00	61.10	2.41
Apr	86.64	0.00	35.28	1.39	23.04	0.91
May	79.66	-6.99	73.02	2.87	0.00	0.00
Jun	48.28	-31.38	101.60	4.00	0.00	0.00
Jul	23.91	-24.37	88.58	3.49	0.00	0.00
Aug	12.60	-11.30	66.33	2.61	0.00	0.00
Sep	12.08	-0.52	71.21	2.80	0.00	0.00
Oct	50.16	38.07	37.86	1.49	0.00	0.00
Nov	86.64	36.49	10.91	0.43	11.90	0.47
Dec	86.64	0.00	0.00	0.00	55.47	2.18
			484.78	***19.09***	*231.02*	***9.10***

Total Runoff	**17.272**	inches
Total AET	**19.086**	inches
Total Perc.	**9.095**	inches
	45.453	inches

Modified Belleayre Resort — Water Budget Analysis — Wildacres - W2

(outside irrigation subcatchment)

Month	Temp °C	Precip. P (mm)	C_r	Runoff (mm)	Infiltration (mm)	Monthly Heat Index	Annual Heat Index I	Unadjusted Monthly PE (mm)	Unadjusted Daily PE (mm)	Mean Possible Monthly Duration of Sunlight (12-hr units)	Adjusted Monthly PE (mm)	Infilt-PET (mm)	Σ Neg. Infilt. (mm)
Jan	-5.17	75.50	0.40	30.20	45.30	0.00	34.11	0.00	0.00	24.6	0.00	45.30	0.00
Feb	-4.44	52.71	0.40	21.08	31.63	0.00	34.11	0.00	0.00	24.7	0.00	31.63	0.00
Mar	0.00	98.55	0.40	39.42	59.13	0.00	34.11	0.00	0.00	30.9	0.00	59.13	0.00
Apr	6.50	94.07	0.40	37.63	56.44	1.49	34.11	31.69	1.06	33.4	35.28	21.16	0.00
May	12.00	106.51	0.40	42.60	63.90	3.76	34.11	59.98	1.93	37.7	72.95	-9.05	-9.05
Jun	17.33	113.26	0.40	45.30	67.95	6.57	34.11	87.95	2.93	38.0	111.41	-43.46	-52.50
Jul	19.28	103.56	0.40	41.42	62.13	7.71	34.11	98.25	3.17	38.5	122.02	-59.88	-112.38
Aug	18.33	88.75	0.40	35.50	53.25	7.15	34.11	93.24	3.01	35.8	107.68	-54.43	-166.81
Sep	14.17	114.02	0.40	45.61	68.41	4.84	34.11	71.30	2.38	31.2	74.15	-5.74	-172.55
Oct	8.33	122.48	0.40	48.99	73.49	2.17	34.11	41.04	1.32	28.6	37.86	35.62	0.00
Nov	2.83	95.64	0.40	38.26	57.38	0.42	34.11	13.35	0.45	24.5	10.91	46.48	0.00
Dec	-2.67	89.47	0.40	35.79	53.68	0.00	34.11	0.00	0.00	23.7	0.00	53.68	0.00
		1154.52		*461.81*		34.11							
		45.45	in.	***18.18***	in.								

Soil Moisture Storage (ST) in millimeters ***56.677***

Lattitude = 42° 10'

Month	Soil Moisture Storage (mm)	Δ Soil Moisture Storage (mm)	AET (mm)	AET (in)	Perc (mm)	Perc (in)
Jan	56.68	0.00	0.00	0.00	45.30	1.78
Feb	56.68	0.00	0.00	0.00	31.63	1.25
Mar	56.68	0.00	0.00	0.00	59.13	2.33
Apr	56.68	0.00	35.28	1.39	21.16	0.83
May	47.81	-8.87	72.77	2.87	0.00	0.00
Jun	21.11	-26.70	94.66	3.73	0.00	0.00
Jul	6.84	-14.27	76.40	3.01	0.00	0.00
Aug	2.46	-4.38	57.63	2.27	0.00	0.00
Sep	2.20	-0.25	68.66	2.70	0.00	0.00
Oct	37.83	35.62	37.86	1.49	0.00	0.00
Nov	56.68	18.85	10.91	0.43	27.63	1.09
Dec	56.68	0.00	0.00	0.00	53.68	2.11
			454.17	***17.88***	*238.54*	***9.39***

Total Runoff	**18.181**	inches
Total AET	**17.881**	inches
Total Perc.	**9.391**	inches
	45.453	inches

Modified Belleayre Resort — Water Budget Analysis — Wildacres - W3

Month	Temp °C	Precip. P (mm)	C_r	Runoff (mm)	Infiltration (mm)	Monthly Heat Index	Annual Heat Index I	Unadjusted Monthly PE (mm)	Unadjusted Daily PE (mm)	Mean Possible Monthly Duration of Sunlight (12-hr units)	Adjusted Monthly PE (mm)	Infilt-PET (mm)	Σ Neg. Infilt. (mm)
Jan	-5.17	75.50	0.42	31.71	43.79	0.00	34.11	0.00	0.00	24.6	0.00	43.79	0.00
Feb	-4.44	52.71	0.42	22.14	30.57	0.00	34.11	0.00	0.00	24.7	0.00	30.57	0.00
Mar	0.00	98.55	0.42	41.39	57.16	0.00	34.11	0.00	0.00	30.9	0.00	57.16	0.00
Apr	6.50	94.07	0.42	39.51	54.56	1.49	34.11	31.69	1.06	33.4	35.28	19.28	0.00
May	12.00	106.51	0.42	44.73	61.77	3.76	34.11	59.98	1.93	37.7	72.95	-11.18	-11.18
Jun	17.33	113.26	0.42	47.57	65.69	6.57	34.11	87.95	2.93	38.0	111.41	-45.72	-56.90
Jul	19.28	103.56	0.42	43.49	60.06	7.71	34.11	98.25	3.17	38.5	122.02	-61.95	-118.85
Aug	18.33	88.75	0.42	37.27	51.47	7.15	34.11	93.24	3.01	35.8	107.68	-56.21	-175.05
Sep	14.17	114.02	0.42	47.89	66.13	4.84	34.11	71.30	2.38	31.2	74.15	-8.02	-183.07
Oct	8.33	122.48	0.42	51.44	71.04	2.17	34.11	41.04	1.32	28.6	37.86	33.17	0.00
Nov	2.83	95.64	0.42	40.17	55.47	0.42	34.11	13.35	0.45	24.5	10.91	44.56	0.00
Dec	-2.67	89.47	0.42	37.58	51.90	0.00	34.11	0.00	0.00	23.7	0.00	51.90	0.00
		1154.52		*484.90*		34.11							
		45.45	in.	**19.09**	in.								

Soil Moisture Storage (ST) in millimeters ***65.205***

Lattitude = 42° 10'

Month	Soil Moisture Storage (mm)	Δ Soil Moisture Storage (mm)	AET (mm)	AET (in)	Perc (mm)	Perc (in)
Jan	65.21	0.00	0.00	0.00	43.79	1.72
Feb	65.21	0.00	0.00	0.00	30.57	1.20
Mar	65.21	0.00	0.00	0.00	57.16	2.25
Apr	65.21	0.00	35.28	1.39	19.28	0.76
May	54.35	-10.85	72.63	2.86	0.00	0.00
Jun	25.81	-28.54	94.23	3.71	0.00	0.00
Jul	9.41	-16.40	76.46	3.01	0.00	0.00
Aug	3.77	-5.64	57.12	2.25	0.00	0.00
Sep	3.31	-0.46	66.59	2.62	0.00	0.00
Oct	36.48	33.17	37.86	1.49	0.00	0.00
Nov	65.21	28.73	10.91	0.43	15.84	0.62
Dec	65.21	0.00	0.00	0.00	51.90	2.04
			451.08	**17.76**	*218.54*	**8.60**

Total Runoff	**19.090**	inches
Total AET	**17.759**	inches
Total Perc.	**8.604**	inches
	45.453	inches

Modified Belleayre Resort — Water Budget Analysis — Wildacres - W1

(inside irrigation subcatchment)

Month	Temp °C	Precip. P (mm)	C_r	Runoff (mm)	Infiltration (mm)	Monthly Heat Index	Annual Heat Index I	Unadjusted Monthly PE (mm)	Unadjusted Daily PE (mm)	Mean Possible Monthly Duration of Sunlight (12-hr units)	Adjusted Monthly PE (mm)	Infilt-PET (mm)	Σ Neg. Infilt. (mm)
Jan	-5.17	75.50	0.39	29.45	46.06	0.00	34.11	0.00	0.00	24.6	0.00	46.06	0.00
Feb	-4.44	52.71	0.39	20.56	32.15	0.00	34.11	0.00	0.00	24.7	0.00	32.15	0.00
Mar	0.00	98.55	0.39	38.44	60.12	0.00	34.11	0.00	0.00	30.9	0.00	60.12	0.00
Apr	6.50	94.07	0.39	36.69	57.38	1.49	34.11	31.69	1.06	33.4	35.28	22.10	0.00
May	12.00	106.51	0.39	41.54	64.97	3.76	34.11	59.98	1.93	37.7	72.95	-7.98	-7.98
Jun	17.33	113.26	0.39	44.17	69.09	6.57	34.11	87.95	2.93	38.0	111.41	-42.32	-50.30
Jul	19.28	103.56	0.39	40.39	63.17	7.71	34.11	98.25	3.17	38.5	122.02	-58.85	-109.15
Aug	18.33	88.75	0.39	34.61	54.14	7.15	34.11	93.24	3.01	35.8	107.68	-53.54	-162.69
Sep	14.17	114.02	0.39	44.47	69.55	4.84	34.11	71.30	2.38	31.2	74.15	-4.60	-167.29
Oct	8.33	122.48	0.39	47.77	74.71	2.17	34.11	41.04	1.32	28.6	37.86	36.85	0.00
Nov	2.83	95.64	0.39	37.30	58.34	0.42	34.11	13.35	0.45	24.5	10.91	47.43	0.00
Dec	-2.67	89.47	0.39	34.90	54.58	0.00	34.11	0.00	0.00	23.7	0.00	54.58	0.00
		1154.52		*450.26*		34.11							
		45.45	in.	**17.73**	in.								

Soil Moisture Storage (ST) in millimeters ***73.956***

Lattitude = 42° 10'

Month	Soil Moisture Storage (mm)	Δ Soil Moisture Storage (mm)	AET (mm)	AET (in)	Perc (mm)	Perc (in)
Jan	73.96	0.00	0.00	0.00	46.06	1.81
Feb	73.96	0.00	0.00	0.00	32.15	1.27
Mar	73.96	0.00	0.00	0.00	60.12	2.37
Apr	73.96	0.00	35.28	1.39	22.10	0.87
May	65.98	-7.98	72.95	2.87	0.00	0.00
Jun	36.01	-29.97	99.06	3.90	0.00	0.00
Jul	15.51	-20.49	83.66	3.29	0.00	0.00
Aug	7.21	-8.30	62.44	2.46	0.00	0.00
Sep	6.75	-0.46	70.01	2.76	0.00	0.00
Oct	43.60	36.85	37.86	1.49	0.00	0.00
Nov	73.96	30.36	10.91	0.43	17.08	0.67
Dec	73.96	0.00	0.00	0.00	54.58	2.15
			472.17	**18.59**	*232.09*	**9.14**

Total Runoff	**17.727**	inches
Total AET	**18.589**	inches
Total Perc.	**9.137**	inches
	45.453	inches

Modified Belleayre Resort — Water Budget Analysis

Wildacres - W2

(inside irrigation subcatchment)

Month	Temp °C	Precip. P (mm)	C_r	Runoff (mm)	Infiltration (mm)	Monthly Heat Index	Annual Heat Index I	Unadjusted Monthly PE (mm)	Unadjusted Daily PE (mm)	Mean Possible Monthly Duration of Sunlight (12-hr units)	Adjusted Monthly PE (mm)	Infilt-PET (mm)	Σ Neg. Infilt. (mm)
Jan	-5.17	75.50	0.38	28.69	46.81	0.00	34.11	0.00	0.00	24.6	0.00	46.81	0.00
Feb	-4.44	52.71	0.38	20.03	32.68	0.00	34.11	0.00	0.00	24.7	0.00	32.68	0.00
Mar	0.00	98.55	0.38	37.45	61.10	0.00	34.11	0.00	0.00	30.9	0.00	61.10	0.00
Apr	6.50	94.07	0.38	35.75	58.33	1.49	34.11	31.69	1.06	33.4	35.28	23.04	0.00
May	12.00	106.51	0.38	40.47	66.03	3.76	34.11	59.98	1.93	37.7	72.95	-6.92	-6.92
Jun	17.33	113.26	0.38	43.04	70.22	6.57	34.11	87.95	2.93	38.0	111.41	-41.19	-48.11
Jul	19.28	103.56	0.38	39.35	64.20	7.71	34.11	98.25	3.17	38.5	122.02	-57.81	-105.92
Aug	18.33	88.75	0.38	33.72	55.02	7.15	34.11	93.24	3.01	35.8	107.68	-52.66	-158.57
Sep	14.17	114.02	0.38	43.33	70.69	4.84	34.11	71.30	2.38	31.2	74.15	-3.46	-162.03
Oct	8.33	122.48	0.38	46.54	75.94	2.17	34.11	41.04	1.32	28.6	37.86	38.07	0.00
Nov	2.83	95.64	0.38	36.34	59.30	0.42	34.11	13.35	0.45	24.5	10.91	48.39	0.00
Dec	-2.67	89.47	0.38	34.00	55.47	0.00	34.11	0.00	0.00	23.7	0.00	55.47	0.00
		1154.52		*438.72*		34.11							
		45.45	in.	**17.27**	in.								

Soil Moisture Storage (ST) in millimeters ***54.844***

Lattitude = 42° 10'

Month	Soil Moisture Storage (mm)	Δ Soil Moisture Storage (mm)	AET (mm)	AET (in)	Perc (mm)	Perc (in)
Jan	54.84	0.00	0.00	0.00	46.81	1.84
Feb	54.84	0.00	0.00	0.00	32.68	1.29
Mar	54.84	0.00	0.00	0.00	61.10	2.41
Apr	54.84	0.00	35.28	1.39	23.04	0.91
May	47.94	-6.91	72.94	2.87	0.00	0.00
Jun	21.50	-26.43	96.65	3.81	0.00	0.00
Jul	6.98	-14.52	78.73	3.10	0.00	0.00
Aug	2.50	-4.48	59.50	2.34	0.00	0.00
Sep	2.34	-0.16	70.86	2.79	0.00	0.00
Oct	40.41	38.07	37.86	1.49	0.00	0.00
Nov	54.84	14.43	10.91	0.43	33.96	1.34
Dec	54.84	0.00	0.00	0.00	55.47	2.18
			462.73	**18.22**	*253.08*	**9.96**

Total Runoff	**17.272**	inches
Total AET	**18.218**	inches
Total Perc.	**9.964**	inches
	45.453	inches

Belleayre Resort — ***Water Budget Analysis*** — ***Future HrF - Wooded***

Month	*Temp °C*	*Direct Precip. To Halcott Soil (mm)*	*Add'l Precip. (runoff from rock outcrop) (mm)*	*Total Precip. To Halcott Soil (mm)*	C_r	*Runoff (mm)*	*Infiltration (mm)*	*Annual Heat Index I*	*Unadjusted Monthly PE (mm)*	*Unadjusted Daily PE (mm)*	*Mean Possible Monthly Duration of Sunlight (12-hr units)*	*Adjusted Monthly PE (mm)*	*Infilt-PET (mm)*	*Σ Neg. Infilt. (mm)*
Jan	***-5.17***	***75.50***	***37.75***	***113.26***	***0.40***	45.30	67.95	34.11	0.00	0.00	***24.6***	0.00	67.95	0.00
Feb	***-4.44***	***52.71***	***26.36***	***79.07***	***0.40***	31.63	47.44	34.11	0.00	0.00	***24.7***	0.00	47.44	0.00
Mar	***0.00***	***98.55***	***49.28***	***147.83***	***0.40***	59.13	88.70	34.11	0.00	0.00	***30.9***	0.00	88.70	0.00
Apr	***6.50***	***94.07***	***47.04***	***141.11***	***0.40***	56.44	84.67	34.11	31.69	1.06	***33.4***	35.28	49.39	0.00
May	***12.00***	***106.51***	***53.25***	***159.76***	***0.40***	63.90	95.86	34.11	59.98	1.93	***37.7***	72.95	22.91	0.00
Jun	***17.33***	***113.26***	***56.63***	***169.88***	***0.40***	67.95	101.93	34.11	87.95	2.93	***38.0***	111.41	-9.48	-9.48
Jul	***19.28***	***103.56***	***51.78***	***155.33***	***0.40***	62.13	93.20	34.11	98.25	3.17	***38.5***	122.02	-28.81	-38.29
Aug	***18.33***	***88.75***	***44.37***	***133.12***	***0.40***	53.25	79.87	34.11	93.24	3.01	***35.8***	107.68	-27.81	-66.10
Sep	***14.17***	***114.02***	***57.01***	***171.03***	***0.40***	68.41	102.62	34.11	71.30	2.38	***31.2***	74.15	28.47	0.00
Oct	***8.33***	***122.48***	***61.24***	***183.72***	***0.40***	73.49	110.23	34.11	41.04	1.32	***28.6***	37.86	72.37	0.00
Nov	***2.83***	***95.64***	***47.82***	***143.46***	***0.40***	57.38	86.07	34.11	13.35	0.45	***24.5***	10.91	75.17	0.00
Dec	***-2.67***	***89.47***	***44.74***	***134.21***	***0.40***	53.68	80.53	34.11	0.00	0.00	***23.7***	0.00	80.53	0.00
	7.21	*1154.52 mm*		*1731.78 mm*		*692.71*	1039.07							
		45.45 in.		***68.18*** *in.*		***27.27*** *in.*								

Soil Moisture Storage (ST) in millimeters ***35.560***

Lattitude = 42° 10'

Month	*Soil Moisture Storage (mm)*	*Δ Soil Moisture Storage (mm)*	*AET (mm)*	*AET (in)*	*Perc (mm)*	*Perc (in)*
Jan	35.56	0.00	0.00	0.00	67.95	2.68
Feb	35.56	0.00	0.00	0.00	47.44	1.87
Mar	35.56	0.00	0.00	0.00	88.70	3.49
Apr	35.56	0.00	35.28	1.39	49.39	1.94
May	35.56	0.00	72.95	2.87	22.91	0.90
Jun	26.66	-8.90	110.83	4.36	0.00	0.00
Jul	11.10	-15.56	108.76	4.28	0.00	0.00
Aug	4.77	-6.33	86.21	3.39	0.00	0.00
Sep	33.24	28.47	74.15	2.92	0.00	0.00
Oct	35.56	2.32	37.86	1.49	70.05	2.76
Nov	35.56	0.00	10.91	0.43	75.17	2.96
Dec	35.56	0.00	0.00	0.00	80.53	3.17
			536.94	***21.14***	*502.12*	***19.77***

Total Runoff	**27.27**	inches
Total AET	**21.14**	inches
Total Perc.	**19.77**	inches
	68.18	inches

Notes:
Total Future Wooded HrF area = 3,979,416 ft^2, assumed to be 67% Halcott Soil and 33% Rock Outcrop.
Wooded Halcott Soil area = 2,652,944 ft^2
Rock Outcrop Area = 1,326,472 ft^2
Monthly Precipitation on Rock Outcrop area assumed to runoff directly to Halcott soil area as additional precipitation
(No percolation on Rock Outcrop area)

Belleayre Resort ***Water Budget Analysis*** ***Future HrF - NonWooded***

Month	Temp °C	Direct Precip. To Halcott Soil (mm)	Add'l Precip. (runoff from rock outcrop) (mm)	Total Precip. To Halcott Soil (mm)	C_r	Runoff (mm)	Infiltration (mm)	Annual Heat Index I	Unadjusted Monthly PE (mm)	Unadjusted Daily PE (mm)	Mean Possible Monthly Duration of Sunlight (12-hr units)	Infilt-PET (mm)	Σ Neg. Infilt. (mm)
Jan	-5.17	75.50	37.75	113.26	0.42	47.57	65.69	34.11	0.00	0.00	24.6	65.69	0.00
Feb	-4.44	52.71	26.36	79.07	0.42	33.21	45.86	34.11	0.00	0.00	24.7	45.86	0.00
Mar	0.00	98.55	49.28	147.83	0.42	62.09	85.74	34.11	0.00	0.00	30.9	85.74	0.00
Apr	6.50	94.07	47.04	141.11	0.42	59.27	81.84	34.11	31.69	1.06	33.4	46.56	0.00
May	12.00	106.51	53.25	159.76	0.42	67.10	92.66	34.11	59.98	1.93	37.7	19.71	0.00
Jun	17.33	113.26	56.63	169.88	0.42	71.35	98.53	34.11	87.95	2.93	38.0	-12.88	-12.88
Jul	19.28	103.56	51.78	155.33	0.42	65.24	90.09	34.11	98.25	3.17	38.5	-31.92	-44.80
Aug	18.33	88.75	44.37	133.12	0.42	55.91	77.21	34.11	93.24	3.01	35.8	-30.47	-75.27
Sep	14.17	114.02	57.01	171.03	0.42	71.83	99.20	34.11	71.30	2.38	31.2	25.05	0.00
Oct	8.33	122.48	61.24	183.72	0.42	77.16	106.56	34.11	41.04	1.32	28.6	68.69	0.00
Nov	2.83	95.64	47.82	143.46	0.42	60.25	83.20	34.11	13.35	0.45	24.5	72.30	0.00
Dec	-2.67	89.47	44.74	134.21	0.42	56.37	77.84	34.11	0.00	0.00	23.7	77.84	0.00
	7.21	*1154.52 mm*		*1731.78 mm*		*727.35*	1004.43		496.81				
		45.45 in.		***68.18 in.***		***28.64 in.***							

Lattitude = 42° 10'

Soil Moisture Storage (ST) in millimeters ***35.560***

Month	Soil Moisture Storage (mm)	Δ Soil Moisture Storage (mm)	AET (mm)	AET (in)	Perc (mm)	Perc (in)
Jan	35.56	0.00	0.00	0.00	65.69	2.59
Feb	35.56	0.00	0.00	0.00	45.86	1.81
Mar	35.56	0.00	0.00	0.00	85.74	3.38
Apr	35.56	0.00	35.28	1.39	46.56	1.83
May	35.56	0.00	72.95	2.87	19.71	0.78
Jun	24.04	-11.52	110.05	4.33	0.00	0.00
Jul	9.11	-14.93	105.03	4.13	0.00	0.00
Aug	3.61	-5.50	82.71	3.26	0.00	0.00
Sep	28.66	25.05	74.15	2.92	0.00	0.00
Oct	35.56	6.90	37.86	1.49	61.79	2.43
Nov	35.56	0.00	10.91	0.43	72.30	2.85
Dec	35.56	0.00	0.00	0.00	77.84	3.06
			528.94	***20.82***	*475.50*	***18.72***

Total Runoff	**28.64** inches
Total AET	**20.82** inches
Total Perc.	**18.72** inches
	68.18 inches

Notes:

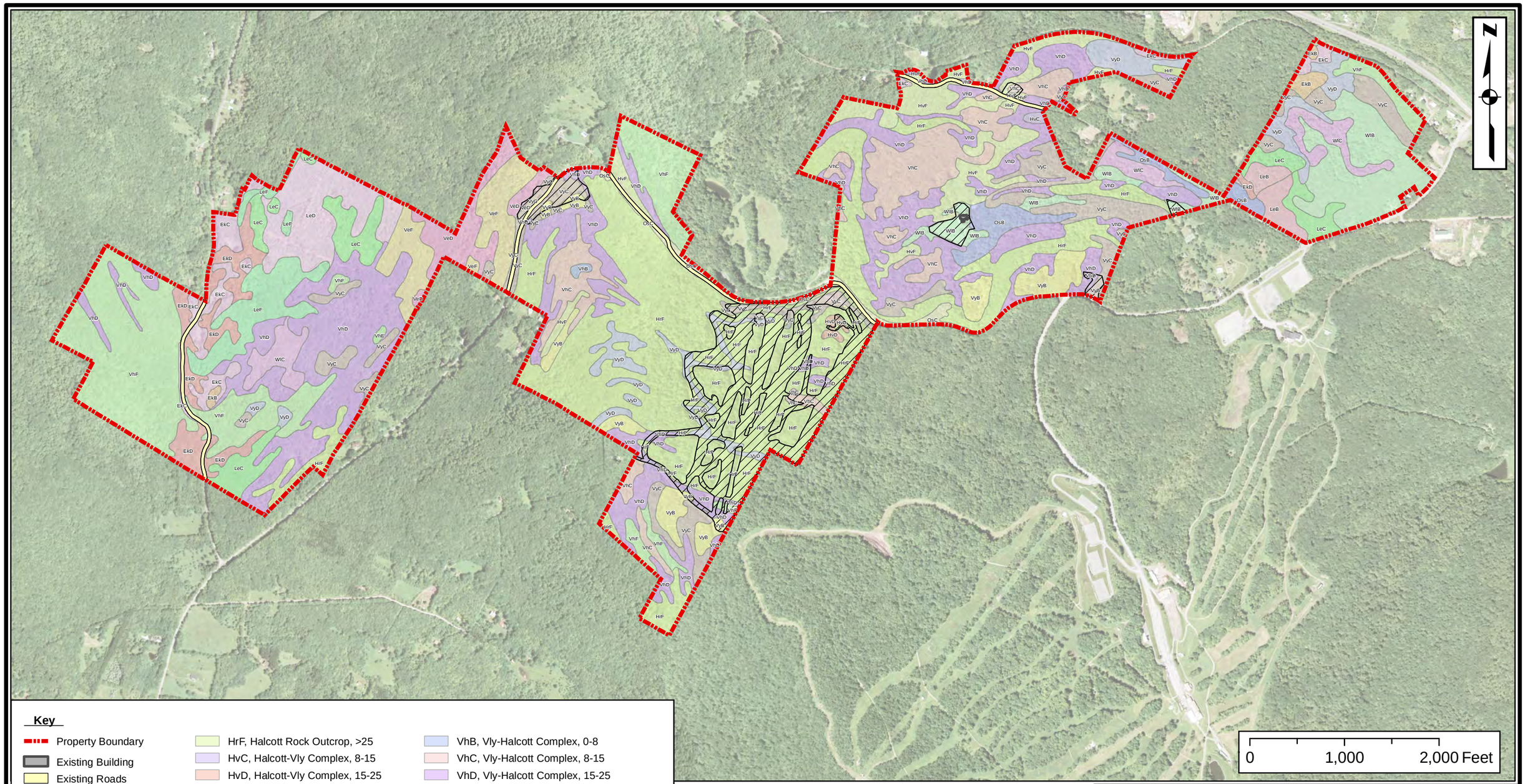
Total Non-Wooded HrF area = 1,444,254 ft^2, assumed to be 67% Halcott Soil and 33% Rock Outcrop.

Non-Wooded Halcott Soil area = 962,836 ft^2

Rock Outcrop Area = 481,418 ft^2

Monthly Precipitation on Rock Outcrop area assumed to runoff directly to Halcott soil area as additional precipitation (No percolation on Rock Outcrop area)

PLATES



Key

- Property Boundary
- Existing Building
- Existing Roads
- Hatching indicates non-wooded areas

Soil Survey

Symbol, Series Name, Slope %

- EkB, Elka Silt Loam, 0-8
- EkC, Elka Silt Loam, 8-15
- EkD, Elka Silt Loam, 15-25
- HrF, Halcott Rock Outcrop, >25
- HvC, Halcott-Vly Complex, 8-15
- HvD, Halcott-Vly Complex, 15-25
- HvF, Halcott-Vly Complex, >25
- LeB, Lewbeach Channery Loam, 0-8
- LeC, Lewbeach Channery Loam, 8-15
- LeD, Lewbeach Channery Loam, 15-25
- LeF, Lewbeach Channery Loam, >25
- OsB, Onteora-Suny Complex, 0-8
- OsC, Onteora-Suny Complex, 8-15
- VeD, Vly-Elka Complex, 15-25
- VeF, Vly-Elka Complex, >25
- VhB, Vly-Halcott Complex, 0-8
- VhC, Vly-Halcott Complex, 8-15
- VhD, Vly-Halcott Complex, 15-25
- VhE,Vly-Halcott Complex, 25-45
- VhF, Vly-Halcott Complex, >25
- VyB, Vly Channery Silt Loam, 0-8
- VyC, Vly Channery Silt Loam, 8-15
- VyD, Vly Channery Silt Loam, 15-25
- WlB, Willowemoc Channery Silt Loam, 0-8
- WlC, Willowemoc Channery Silt Loam, 8-15

Notes:
- Basemap - Ulster county orthoimage (2009), USDA National Agriculture Imagery Program.

ALPHA GEOSCIENCE

Alpha Project No. 09100

PLATE 1

EXISTING SOILS MAP

Modified Bellayre Resort

Delaware and Ulster Counties, New York

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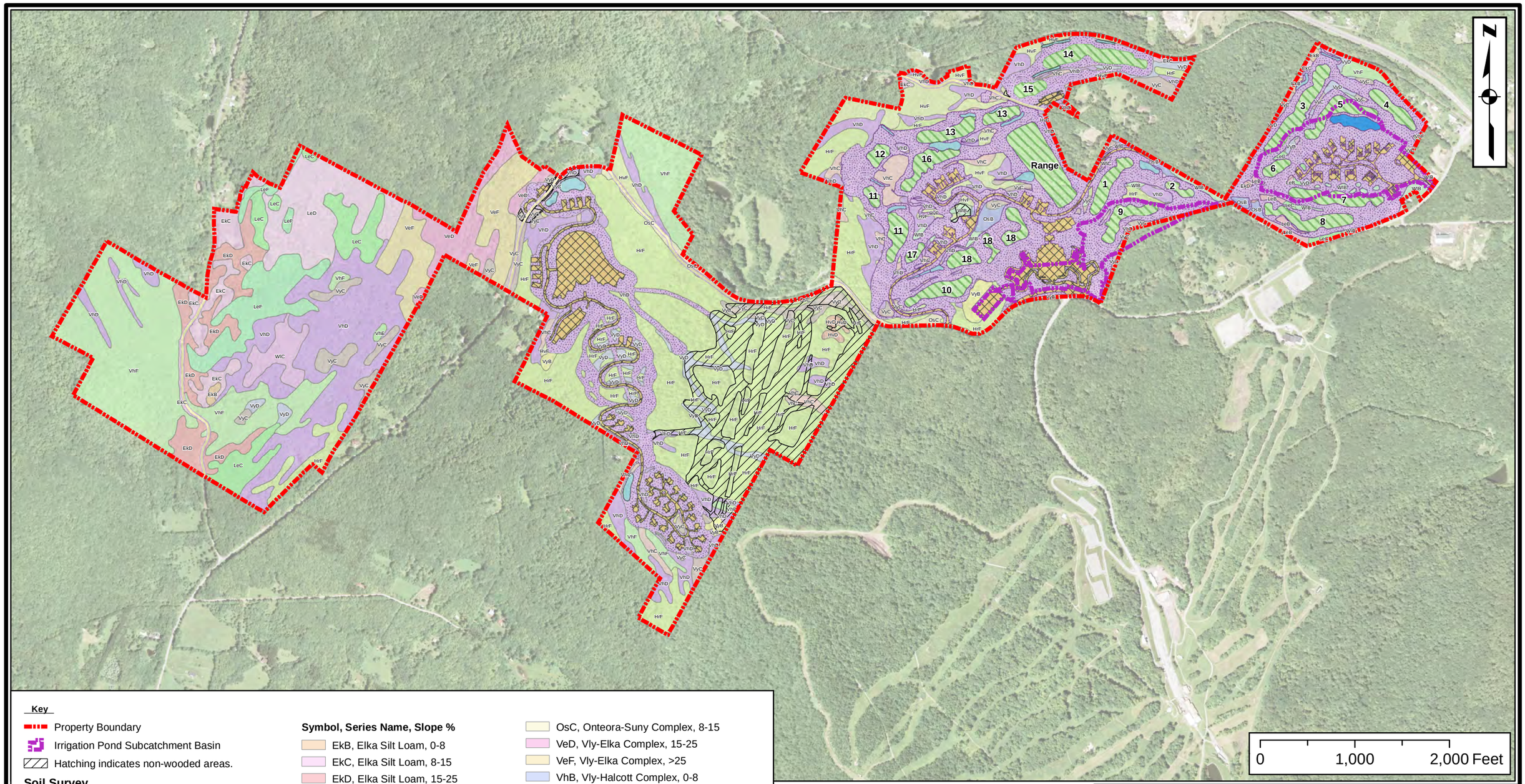

Key

- Property Boundary
- Irrigation Pond Subcatchment Basin
- Hatching indicates non-wooded areas.

Soil Survey

Developed Areas

- Proposed Irrigation Pond
- Proposed Stormwater Pond or Swale
- Proposed Development, Pavement and buildings
- Proposed Development, Golf Course with Hole No.
- Proposed Development, Graded Areas
- Existing Pavement and Buildings

Symbol, Series Name, Slope %

- EkB, Elka Silt Loam, 0-8
- EkC, Elka Silt Loam, 8-15
- EkD, Elka Silt Loam, 15-25
- HrF, Halcott Rock Outcrop, >25
- HvC, Halcott-Vly Complex, 8-15
- HvD, Halcott-Vly Complex, 15-25
- HvF, Halcott-Vly Complex, >25
- LeB, Lewbeach Channery Loam, 0-8
- LeC, Lewbeach Channery Loam, 8-15
- LeD, Lewbeach Channery Loam, 15-25
- LeF, Lewbeach Channery Loam, >25
- OsB, Onteora-Suny Complex, 0-8
- OsC, Onteora-Suny Complex, 8-15
- VeD, Vly-Elka Complex, 15-25
- VeF, Vly-Elka Complex, >25
- VhB, Vly-Halcott Complex, 0-8
- VhC, Vly-Halcott Complex, 8-15
- VhD, Vly-Halcott Complex, 15-25
- VhE,Vly-Halcott Complex, 25-45
- VhF, Vly-Halcott Complex, >25
- VyB, Vly Channery Silt Loam, 0-8
- VyC, Vly Channery Silt Loam, 8-15
- VyD, Vly Channery Silt Loam, 15-25
- WlB, Willowemoc Channery Silt Loam, 0-8
- WlC, Willowemoc Channery Silt Loam, 8-15

Notes:
- Basemap - Ulster county orthoimage (2009), USDA National Agriculture Imagery Program.

ALPHA GEOSCIENCE
Alpha Project No. 09100

PLATE 2
SOILS MAP
PROPOSED FUTURE CONDITIONS

Modified Bellayre Resort
Delaware and Ulster Counties, New York

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