Draft Environmental Impact Statement

For:

Belleayre Resort at Catskill Park
Towns of Shandaken and Middletown
Ulster and Delaware Counties
New York

Prepared For:

Crossroads Ventures, LLC
PO Box 267
Mt. Tremper, NY 12457

Lead Agency:

New York State Department of Environmental Conservation
21 South Putt Corners Road
New Paltz, NY 12561-1696
Contact: Mr. Alexander F. Ciesluk, Jr.
(845) 256-3014

Prepared By:

The LA Group
Landscape Architecture and Engineering, P.C.
40 Long Alley
Saratoga Springs, NY 12866
Attn. Mr. Jeff Anthony

Delaware Engineering, P.C.
28 Madison Ave Ext.
Albany, NY 12203
Attn. Ms. Mary Beth Bianconi

September 2003

Whiteman Osterman & Hanna
One Commerce Plaza
Albany, NY 12260
Attn. Daniel Ruzow, Esq.

Creighton Manning Engineering, P.C.
4 Automation Lane
Albany, NY 12205-1683
Attn. Mr. Chuck Manning

Allee King Rosen & Fleming, Inc.
34 South Broadway
White Plains, NY 10601
Attn. Mr. Peter Liebowitz

HVS Consulting Services
372 Willis Avenue Mineola, NY 11501
Attn. Mr. Stephen Rushmore

Alpha Geoscience
679 Plank Road
Clifton Park, NY 12065
Attn. Mr. Sam Gowan

Hartgen Archeological Associates, Inc.
1744 Washington Avenue
Rensselaer, NY 12144
Attn. Ms. Karen S. Hartgen

Rettew Engineering and Surveying, P.C.
PO Box 808
Margaretville, NY 12455
Attn. Mr. Robert Allison

SE Group
156 College Street
Burlington, VT 05401
Attn. Ms. Claire Humber

ENSR International
6601 Kirkville Road
East Syracuse, NY 13057
Attn. Mr. Scott C. Manchester

Love Enterprises and Associates
215 Anguilla Street
St. Simons Island Georgia 31522
Attn. Mr. Paul Cowley

Emilio Ambasz
8 East 62nd Street
New York, NY 100271
Attn. Mr. Emilio Ambasz

Hart Howerton/Robert Lamb-Hart
10 East 40th Street
New York, NY 10016
Attn. Mr. Dean Webb

Blue Dog Design
1701 East Washington St.
Orlando, FL 32803
Attn. Mr. Doug Kleppin

Date of Acceptance of DEIS: November 26, 2003

Date of Public Hearings: January 14, 2004 Margaretville High School, Margaretville, NY &
January 15, 2004 Onteora High School, Boiceville, NY

Close of Comment Period: February 17, 2004

Address Comments to: **New York State Department of Environmental Conservation**
21 South Putt Corners Road
New Paltz, NY 12561-1696
Contact: Mr. Alexander F. Ciesluk, Jr.
(845) 256-3014

Submitted September 2003

Belleayre Resort at Catskill Park

Executive Summary

I. Introduction

This Draft Environmental Impact Statement ("DEIS") was prepared on behalf of the New York State Department of Environmental Conservation ("NYSDEC"), the lead agency for this project under the New York State Environmental Quality Review Act, Environmental Conservation Law Article 8 and implementing regulations as set forth in 6 NYCRR Part 617 ("SEQRA") (see Appendix 1, "SEQRA Documentation.") by the project sponsors, Crossroads Ventures LLC ("Crossroads"). The proposed project, which is the subject of this DEIS, is the construction and operation of a four season world-class recreation resort, the Belleayre Resort at Catskill Park (the "project") located immediately east and west of the New York State Belleayre Mountain Ski Center (the "Belleayre Mountain Ski Center") in the Towns of Shandaken and Middletown in the Central Catskill region of New York State. The project has been designed to work in concert with local and regional economic development plans while blending with the environmental and historic fabric of the Central Catskills. The DEIS identifies potential impacts and effective mitigation measures to enable the development of an economically viable project based on sound environmental principles.

II. Project Description

A. Project Location

The proposed Belleayre Resort at Catskill Park is located in the Central Catskill region of New York State near the intersection of the boundaries of Delaware, Ulster and Greene Counties. The project encompasses two assemblages (i.e. the properties owned by the project sponsor) of property south of NY Route 28 both east and west of the State owned and operated Belleayre Mountain Ski Center. The area to be developed is comprised of 573± acres. Crossroads' assemblage is 1,960± acres in total, and through deed restrictions or conservation easements the remaining 1,387± acres or 71% of the total assemblage of properties owned by Crossroads, will be preserved. The project site includes lands in the Town of Shandaken in Ulster County and lands in the Town of Middletown in Delaware County.

B. Big Indian Plateau -- The Eastern Site Description and Project Components

Crossroads proposes to develop approximately 331± acres of an assemblage of 1,242± acres east of the Belleayre Mountain Ski Center. This includes the Big Indian Country Club, including the Big Indian Resort and Spa consisting of a 150-room hotel with two restaurants, a ballroom, and a spa, designed by Emilio Ambasz, a world-renowned architect known for his environmentally-sensitive architecture.

Adjacent to the hotel an 18-hole championship golf course Big Indian Country Club, designed by Davis Love, III, is proposed. The golf course is located on the plateau along the ridge as well as on flatter "benches" moving down from the top to the north. Fifty-five buildings containing 95 detached lodging units are also proposed to be built around the golf course east of Giggle Hollow. In addition, a golf course maintenance building complex, a satellite golf maintenance building and a wastewater treatment facility will be constructed.

Belleayre Highlands, to the west of Giggle Hollow, includes 22 four-unit buildings containing a total of 88 detached lodging units associated with the Resort. An existing mansion, the Brisbane (Turner) Mansion, will be preserved and used as a social and activities center. Recreational amenities such as tennis and swimming are also proposed for this area. Existing outbuildings associated with the mansion will be maintained and adaptively reused as offices and storage areas.

C. Wildacres Resort and Highmount Golf Club--The Western Site Description and Project Components

Development west of the Belleayre Mountain Ski Center will encompass 242± acres of a total of the 718± acre assemblage owned by Crossroads. The development on this portion of the site will be known as the Wildacres Resort. The hotel complex has been designed by Robert Lamb Hart, recipient of the 1998 AIA Award for Environmental Excellence and Highmount Golf Club designed by Davis Love, III. This golf course is an 18-hole championship golf course offering a different level of play than the golf course proposed at Big Indian Country Club. The Resort will include a hotel building with 250 rooms, related hotel shops and two restaurants, a conference center and a spa. Twenty-one buildings will contain 168 detached lodging units. In addition, a Children's Center, lodging unit clubhouse, a golf course maintenance buildings complex, satellite golf maintenance building and a wastewater treatment facility will be constructed. An existing house built in 1904 for the famous Shakespearean actress, Julia Marlowe (the "Marlowe Mansion") will be renovated and adaptively re-used as a restaurant. A 21-lot residential subdivision, with lots ranging in size from 2-16± acres, to be known as Highmount Estates is proposed on the Leach property west of the former Highmount Ski Area. The former Highmount Ski Area itself will be used as the project's Wilderness Activity Center.

III. Project Purpose, Need and Benefits

A. Purpose and Need

The Belleayre Resort at Catskill Park will bring to fruition the creation of a four season world-class Resort associated with the Belleayre Mountain Ski Center as contemplated in State and regional planning studies prepared over the last 40 years. The project is designed to complement both the active and passive recreational opportunities provided by the Belleayre Mountain Ski Center and surrounding New York State Forest Preserve lands. The Wildacres Resort and Highmount Golf Club situated across from the main

(upper) entrance to the Belleayre Mountain Ski Center will provide lodging and amenities not available at the Belleayre Mountain Ski Center itself. The design of buildings at the Wildacres Resort draws upon the architecture of the great Catskill Mountain resorts of the late 1800's. By contrast, but nevertheless consistent with its surroundings, the Big Indian Resort and Spa has been designed by Emito Ambarz to blend into its surroundings so that it is virtually invisible from hiking trails in the adjacent Forest Preserve.

Of the 1,960± acres owned by Crossroads, approximately 1,387± acres (71%) will remain undeveloped and will be protected from future development by legal restrictions (likely in the form of conservation easements or deed covenants) and enhance access to, yet serve to buffer, adjacent Forest Preserve Lands. The Belleayre Resort at Catskill Park, as envisioned, will marry the physical assets of the Belleayre Mountain Ski Center and the Catskill Forest Preserve with new facilities and programs that will enhance the experience of both visitors to the Resort and the general public.

A strong public-private partnership is at the core of the project sponsor's Vision Statement: an opportunity to assist the State of New York in realizing its original dream of the Belleayre Mountain Ski Center as a major contributor to the economy of the region and the State. Essential to the success of any resort is a critical mass of first-class and family accommodations, year-round activities, event excitement and an extensive menu of recreational amenities, which, taken together, define the area and provide for a range of recreational experiences. The Belleayre Resort at Catskill Park is intended as a major contributor in the provision of such an ambience and renewed regional image.

In addition to its own on-site programs, the Resort will utilize programs of local providers, guides, instructors, outdoor outfitters, etc., as well as governmental and not-for-profit entities including, but not limited to, the NYSDEC, the New York City Department of Environmental Protection (NYCDEP), the YMCA facility at Frost Valley, the Empire State Railway Museum, the Catskill Center, the Watershed Museum and the Phoenicia Fish and Game Association.

The Resort is intended to be the catalyst, that will drive the revitalization of year-round tourism and provide improvements to the quality of life for those who live in, as well as those who visit, the Catskill Park.

B. Project Benefits

An extensive analysis of the economic effects of the construction and operation of the Belleayre Resort at Catskill Park was undertaken and is included in the DEIS. (See DEIS Sections 1.3.4, 3.10 and Appendix 26, "Economic Benefits and Growth Inducing Effects"). The study contains a detailed analysis of existing economic conditions of the region surrounding the proposed project. This analysis reveals that the average household income of $39,524 in the area is approximately $26,600 less than the New York State overall average and has declined by 2.8% in the period 1990-2000. Moreover, 54% of the households earn less than $40,000 annually. The study, which

includes Delaware, Greene and Ulster Counties, concludes that the area continues to suffer from the recession of the late 1980's and early 1990's.

Tourism remains a critical element of the tri-county region with approximately $395 million spent in 1997 with nearly 70% of the tourist dollars spent in Ulster County.

In addition to these economic benefits, Crossroads has already shown its commitment to the Catskill Region. Crossroads Ventures LLC created the Crossroads Foundation ("Foundation") which exists to enhance the cultural, health, youth, and education programs in the Towns of Shandaken and Middletown including the Village of Fleischmanns. The Foundation is a not-for-profit corporation which will receive one-third (1/3) of all of the profits from their ventures. The project sponsor has already vested the Foundation with cash contributions totaling $235,000 and initial grants have been made to the Margaretville Memorial Hospital, the Belleayre Conservatory, the Skene Memorial Library, the Neal Grant Foundation, and the Catskill Watershed Museum. The Foundation initiated a series of community forums entitled 'Vision Quest 2010" to elicit from the community a list of community causes which future gifts by the Foundation should most appropriately target on a priority basis.

1. Construction Phase

Construction of the Belleayre Resort at Catskill Park is expected to take a period of approximately eight years with completion of one and one half of the golf courses and hotels anticipated by the middle of the third year. During the eight year period of time the project is expected to result in the following levels of employment, wages and economic output:

- 2,114 full-time person years of employment over the eight year construction period
- 1,765 additional person years of employment in indirect or generated employment
- direct wages and salaries of $81.09 million
- indirect wages and salaries of $64.40 million
- tax revenues of $11.40 million for Ulster County, Delaware County and New York State
- Total economic output or demand of $451.08 million

2. Operation Phase

Once the Belleayre Resort at Catskill Park is fully operational it is expected to have the following direct and indirect economic benefits:

- direct full-time employment for 542
- direct part-time and seasonal employment for 330
- direct total annual payroll of $20.5 million, average full-time salary of $27,272
- 211 indirect jobs in region
- indirect wages and salaries of $7.43 million

- annual property tax revenue increase of $1,503,154 in the Town of Shandaken and Ulster County allocated as follows:

Ulster County General	$ 186,777
Shandaken Town General	$ 148,277
Shandaken Highway	$ 176,656
Highmount Fire	$ 92,217
Big Indian Oliverea Fire	$ 23,512
Pine Hill Fire	$ 11,330
Pine Hill Light	$ 5,242
Onteora Central School	$ 745,546
Onteora School Library	$ 623
Margaretville School	$ 112,961

- annual property tax revenue increase of $526,472 in the Town of Middletown and Delaware County allocated as follows:

Delaware County General	$ 158,013
Middletown Town	$ 74,103
Highway Outside Village	$ 33,155
General Outside Village	$ 2,072
Middletown FD #1	$ 23,243
Margaretville School	$ 235,883

- annual sales tax revenues allocated as follows:

Ulster County	$ 718,016
Delaware County	$ 238,404
New York State	$1,210,692

- annual off-site Visitor Spending of $11.81 million mostly in village and hamlet centers along the NY Route 28 corridor.

The project will have few, if any, impacts or increased demand on community resources. The roadways will be private with private security. The vacation Resort will add few, if any, students to the local school systems which are not running at capacity in any case.

IV. Approvals and Permits

In addition to reviewing the project as involved and interested agencies under SEQRA, those agencies from which permits, approvals or recommendations are being sought will

also have separate review processes for the proposed project. The following permits and approvals are being sought at various levels of jurisdiction:

Town of Shandaken Planning Board	Special Use Permit. Site Plan Review and Approval. Subdivision Approval.
Town of Middletown Planning Board	Special Use Permit. Site Plan Review and Approval. Subdivision Approval.
Ulster County - Health Department	Review and approve portions of project pertaining to water supply, wastewater disposal and food services. Hotels. Swimming Pools. Subdivisions.
- Bridges and Highways	Review and approve the plans for the realignment of County Road 49A and entrances onto County Road 49A., including proposed grading, signage, and signaling.
Ulster and Delaware County Planning Departments	Gen. Mun. Law § 239-m and 239-n review.
NYCDEP	Wastewater Treatment Plant and Subsurface Disposal. Stormwater Pollution Prevention and Impervious Surface.
NYSDEC	Protection of Waters Permit/Water Quality Certification. SPDES Wastewater Disposal Permits. Water Supply Permit – Big Indian Plateau. SPDES Stormwater Discharge from Construction. SPDES Industrial Discharge from Operations. Petroleum Bulk Storage. Chemical Bulk Storage. Public Water Supply Permit Modification for Village of Fleischmanns. Water Supply Permit for Wildacres.

NYSDOH	Wastewater Disposal Permit. Water Supply Permit. Food Service Permit. Hotels. Swimming Pools. Subdivisions.
NYSDOT	Right-of-way work permits for work within NY Route 28.
NYS Offices of Parks Recreation And Historic Preservation	Cultural Resources Consultation.
US Army Corps of Engineers (ACOE)	ACOE (wetlands) Nationwide Permits (issued July 18, 2003).

V. Key Issues: Impacts and Mitigation

A. Soils and Erosion Control

1. On-Site Soils

The properties on and around the project site are mostly areas of shallow to moderately deep, very stony soils formed in glacial till soils derived from red shale and sandstone. There are some areas of deep glacial till soils that are highly dense, slowly permeable and contain little organic matter. At the base of steep slopes along the outlet of small streams coming off the upper slopes, there are some broad areas of very gravelly glacial outwash. On the nearly level terraces along Birch Creek the soil is mostly well drained and extremely stony.

2. Erosion Control

As a result of the site's topographical and drainage characteristics and its location within the New York City Watershed, an extensive study of on-site soils, drainage patterns, and planning for construction activities was undertaken and numerous control measures have been investigated and analyzed to ensure that erosion will be kept to a minimum. Grading of the site will cause the disruption of soils and the increased potential for erosion during construction. In addition, the short-term removal of vegetation, and especially root systems from portions of the site, will create a greater susceptibility to exposed soils to erosive factors such as wind, rain and surface runoff. Soil transported by surface runoff could potentially find its way into nearby surface waters where it may settle out as sediment. To avoid and mitigate these potential impacts and assure that downstream waterways are not adversely impacted, an extensive sediment and erosion control plan has been developed and will be implemented and maintained under the supervision of a Certified Professional Erosion Control Specialist.

The sediment and erosion control plan will implement several measures during the construction phase to ensure that erosion is kept to a minimum. It is designed to take advantage of the fact that the project site is divided into two separate watersheds (Ashokan and Pepacton Reservoirs) and is at a great distance from these reservoirs (20 miles and 14 miles, respectively). Moreover, construction areas are located at relatively large distances from receiving streams. All erosion control measures will be checked regularly for proper functioning during construction and maintained as needed by two teams of 4-6 persons under the direction of a Certified Professional Erosion Control Specialist who will oversee day-to-day activities on the east and west portions of the site, including making at least weekly inspections, and immediately following any storm event of 0.5 inch or greater, to check the erosion control device's effectiveness and prescribe additional maintenance measures, as necessary.

Section 3.2.2 and Appendix 11 describe how the approach to sediment and erosion control has been revised to address previous questions on this topic. Phase 2 of the Big Indian Country Club is used as an example of how this new approach will be employed project-wide. New Plan Sheets CP-1 through CP-18 illustrate in great detail how this new approach will be implemented. Generally speaking construction is broken up into Phases, Subphases and Subcatchments within Subphases. Extensive temporary stabilization and rapid permanent stabilization will be employed during the construction process so that no more than 25 acres of unstabilized soils will occur at any given time within either reservoir watershed. Final stabilization will utilize large amounts of sod, including 100 acres of sod on the Big Indian Country Club and 50 acres of sod on the Highmount Golf Club. During construction, all subphase subcatchments, almost all of which are less than 5 acres in size, will each have temporary retention basins capable of capturing and holding runoff from a ten-year (6") storm on bare soils. Runoff captured in the retention basins will be treated with an environmentally-friendly flocculant to reduce stormwater turbidity before the stormwater is discharged primarily to the irrigation ponds, with some clarified stormwater discharged via level spreaders located in nearby undisturbed wooded areas. These discharges will be made at rates that are the same or less than under existing conditions in order to avoid downhill erosion.

B. Geologic and Topographic Resources

Construction on the project site will require grading for the various components including access roads, building locations and the proposed golf courses. Geotechnical and hydrogeological investigations on the site revealed that the depth to bedrock on the project site at higher elevations ranges from 12 to 22 inches, while in the valley along NY Route 28 indicate that bedrock is 80 to 100 feet below existing grade.

Given the bedrock depth, it will be necessary to perform some limited blasting to accomplish some of the proposed grading. The irrigation ponds near the Big Indian Resort and Spa are likely to be blasted as well as the foundations of both hotel buildings. Refer to Section 2.3, 3.1, 3.2.2, 3.5.2 and 3.7.2 of the DEIS for details regarding blasting, grading, cutting and filling.

C. Surface Water Resources

Limited surface waters in two different watersheds exist on the project site. Surface water resources consist of intermittent and perennial streams that originate in the higher elevations of the site, or above the site, and flow in a generally northerly direction in well-defined stream channels. None of the waters on the site are listed by the USEPA as "impaired" waters under Section 303(d) of the Clean Water Act.

Neither the Big Indian Country Club nor the Highmount Golf Courses front on any perennial streams. Two (2) intermittent streams run through Wildacres. The closest fairway to a watercourse feeding Birch Creek is 1,000 feet away; one fairway on Highmount is 300 feet from a perennial tributary to Emory Brook, while the remaining fairways average a 1,500-foot distance from the Brook itself.

Site configuration assures that no existing surface waterbodies will be impounded. The ponds used to store irrigation water will be isolated dug and lined ponds and not associated with any of the streams or brooks on the project site, nor will there be any potential overflow from the ponds. In addition to well water, the ponds will be fed by treated wastewater effluent, captured runoff from the roof of the Big Indian Resort and Spa and associated parking, as well as the Wildacres Resort detached lodging units south of Gunnison Road.

The project includes stormwater management facilities that are designed to control a twenty-five (25) year storm event while withstanding the discharge from a one hundred (100) year event. The stormwater management system for the project has been designed in accordance with the NYSDEC Stormwater Management Guidelines and the requirements of the NYCDEP.

In order to mitigate potential impacts to drinking water, surface water and aquatic biota as a result of pesticide runoff, an Integrated Turf Management Plan was prepared based upon the results of a Fertilizer and Pesticide Risk Assessment. The results of the Risk Assessment were used to eliminate from consideration numerous potential pesticides due to a combination of their runoff potential and toxicity to aquatic invertebrates and fish as well as their leaching potential in relation to State drinking water standards.

Additionally, the results of the Risk Assessment were used to design a fertilizer program that would result in healthy golf course turf, without resulting in significant phosphorus and nitrogen transport off-site. The Turf Management Plan and Fertilizer and Pesticide Risk Assessment were prepared in consultation with Dr. A. Martin Petrovic, a professor of Turf Grass Science at Cornell University. Refer to Sections 2.4.8, 3.2, 3.3 and 5.7 as well as Appendices 14 and 15 for detailed information.

D. Groundwater Resources

The principal aquifers of the region are contained in gently folded continental red, gray and gray-green sandstones, siltstones, and shales of Late Devonian age and stratified drift of Pleistocene age. Most of the local wells tap bedrock aquifers in the vicinity of the project site which reportedly yield as high as 550 gpm (gallons per minute), although most are less than 50 gpm. Much groundwater discharges naturally from springs that have been historically and continue to be utilized for individual and public supply systems. Reported spring yields of 5 to 10 gpm are common and many range upward to 100 gpm.

1. Potable Water

An extensive and extended study (see Appendix 7, "Water Supply Report") of available water sources was undertaken by Delaware Engineering and Alpha Geoscience for the project. On the basis of these studies, the Big Indian Plateau portion of the project will take its potable water from two sources: the primary source will be the bedrock Rosenthal Well #2, located northeast of NYSDEC's Belleayre Beach at Pine Hill Lake; and the back-up source will be Silo A Spring located on Bonnie View Avenue, northwest of the Hamlet of Pine Hill.

The Big Indian Country Club and Belleayre Highlands will require a combined average daily flow of 91,854 gallons taking into account use of water saving devices. Rosenthal Well #2 has a projected capacity of 118,080 gpd. Silo A Spring has a projected capacity of 99,792 gpd. These capacities exceed the requirements set forth by New York State Department of Health. Additionally, water quality analytical results reveal that minimal treatment for disinfection and corrosion will be needed.

Irrigation water needs for the eastern portion of the project will be satisfied through the use of Rosenthal Well #1 located 170 feet north of Rosenthal Well #2, as well as supplemental input of effluent from the wastewater treatment facility and from stormwater and precipitation. Well #1 has a recognized capacity of 57 gpm or 82,080 gpd.

The Wildacres Resort portion of the project requires an average daily demand of 109,308 gallons of potable water and will obtain its potable water supply from the Village of Fleischmanns public water supply system. The Village water system has sufficient excess capacity with which to serve the project's combined potable and irrigation water needs. Water would be purchased from the Village and treated to the extent required prior to distribution on-site. Water conserving devices will be utilized throughout the Wildacres Resort.

During operation of the golf course, irrigation water needs for the western portion of the project can be satisfied by use of treated wastewater, supplemented as needed by existing on-site wells and the Village of Fleischmanns water supply.

2. Wastewater

An extensive study of on-site soils and alternative wastewater treatment options was undertaken by Delaware Engineering for the Belleayre Resort at Catskill Park. See Appendix 8, "Conceptual Design Reports for Wastewater Treatment and Disposal", and Appendix 12, "Soil Test Results". With respect to the Big Indian Country Club and Belleayre Highlands, the proposed wastewater treatment plan includes a single regional treatment facility located in the north central part of the development. The treated effluent may be discharged to the on-site lined storage ponds for irrigation or discharged to a surface outfall into Birch Creek. See Sections 2.2.4 and 5.5.1.

The NYCDEP wastewater treatment facility, Pine Hill Wastewater Treatment Plant, currently has sufficient capacity to treat the wastewater from Big Indian Plateau. Discussions with NYCDEP during the preparation of this report resulted in the City of New York stating that treatment of the wastewater flow from Big Indian Plateau is not allowable at this time due to liability concerns.

For the Wildacres Resort, a single regional treatment facility is proposed in the northwest corner of the development. The treated effluent may be discharged to an on-site lined storage pond during the growing season and used for irrigation or to a surface outfall at an unnamed tributary to Emory Brook when not needed for irrigation. See Sections 2.2.4 and 5.5.2.

E. Air Quality and Sound

1. Air Quality

The project is located in Ulster and Delaware Counties, which are both classified as attainment areas for carbon monoxide and ozone. Based upon a screening analysis, a detailed microscale air quality analysis is not necessary since this project will not increase traffic volumes, reduce source-receptor distances or change other existing conditions to such a degree as to jeopardize attainment of the national and New York State ambient air quality standards for carbon monoxide. See Section 3.4. Construction air quality is addressed in Appendix 22A, "Air Quality Assessment of Construction Activities".

2. Sound

A comprehensive sound study is included in the DEIS (see Appendix 22, "Sound Impact Study"). Identification of potentially significant noise impacts is a function of the relative change in noise levels based on acoustical modeling of the project's major noise sources (construction equipment) and the location of receptors (residences). The study examined potential sources of noise from blasting activities as well as general construction activities planned throughout the project site. The study concludes that noise impacts from blasting will be brief and relatively infrequent. Blasting will be

limited to weekdays between the hours of 9 a.m. and 5 p.m. Accordingly, blasting is not expected to significantly contribute to overall project construction noise.

Potentially significant short-term noise impacts associated with construction of the Big Indian Country Club and Belleayre Highlands are solely related to construction of particular length of the access road located near the sensitive receptor. The related construction work is scheduled for the first year of construction and is expected to involve earthmoving and other heavy construction equipment for approximately two weeks. Recommended mitigation includes using the minimal equipment necessary. Additional heavy equipment operation to construct and then shortly thereafter remove earthen noise barriers would only serve to increase potential sound impacts.

Potentially significant noise impacts associated with the Wildacres Resort include construction of an access road, a portion of the Highmount Golf Course, golf maintenance facilities and the Wilderness Activity Center. The access road construction is scheduled for year 1 with all other identified construction work occurring in portions of years 1 and 2. Intermittent construction activity near receptors are expected to last 6-24 months depending on the receptor. Recommended mitigation includes minimizing equipment use and the erection of temporary earthen berm barriers to reduce sound levels to acceptable levels.

F. Vegetation

The proposed site is almost completely covered with a second growth forest dominated by sugar maple, beech, hemlock, yellow birch, oak and ash. All of the tree stands observed on the site, even on the steepest slopes and in the wetlands, are secondary growth less than 100 years old. In the eastern portion of the project site there is an extensive network of logging roads and logging skid trails that provide access to essentially all of the 1,242± acres that comprise the assemblage.

As previously stated, the project site will affect 573± acres. Within these developed acres there will be pockets of untouched vegetation totaling 44 acres. Hence, the proposed project will result in the disturbance of only approximately 529± acres of vegetation, or approximately 27% of the 1,960 acres that comprise the assemblage. Approximately 73% of the land area and, therefore, existing vegetation in the assemblage will remain undisturbed.

The largest amount of disturbance will take place in the beech-maple mesic forest ecological community. Clearcutting of vegetation beyond the proposed clearing limits illustrated on the accompanying site plans will not be permitted. In order to create views, only selective cutting of trees less than six inches dbh (diameter at breast height) and pruning up of limbs on larger trees will be permitted. This clearing of forest represents a short-term, local, adverse impact. Once hotels, detached lodging units and other buildings along with the associated infrastructure, are constructed (covering only 85.16 acres within the project site), natural regrowth and landscaping will occur, returning the vast majority of the cleared area to a vegetated state. Areas disturbed outside of building

sites will also be revegetated as soon as practicable. The planting plans included with the accompanying site plans call for the planting of over 4,100 indigenous trees on the project site plus a substantial amount of ornamental trees and shrubs in the formal landscape.

G. Wetlands

A detailed wetland delineation report was prepared for the proposed site and submitted to the ACOE. Several different types of wetland plant communities exist on the property owned by the project sponsor. These areas occupy approximately 6 acres on the eastern portion of the project site and 11 acres on the western portion of the project site, for a total of 17 acres. Some of these areas that contain wetland plant communities are wetlands that are protected by federal regulations administered by the ACOE. The NYSDEC has not mapped any wetlands on these properties, and all of the wetlands are below the minimum size (12.4 acres) for regulation by the State. The entire project requires placement of clean fill in jurisdictional wetlands only totaling 0.09 acres. All activities proposed in the wetlands will be in conformance with the terms and conditions of the ACOE Nationwide Permit Program and a Pre-construction Notification was submitted to the ACOE (see Appendices 17A and 17B). On July 18, 2003 the ACOE issued a letter stating that an individual permit is not required for the project and that the jurisdictional activities proposed could be accomplished under Department of the Army Nationwide Permit Number 14. (See Appendix 6, Letters of Record.) No further authorizations are required from the ACOE.

H. Wildlife

Detailed surveys of wildlife on and around the assemblage were performed in 1999 and 2000 by LA Group biologists. Wildlife surveys focused on the bird, mammal, reptile, and amphibian inhabitants. In addition to on-site wildlife surveys, review of database surveys of both the US Fish and Wildlife Service and NYSDEC's Natural Heritage Program confirmed the absence of any rare, threatened or endangered species, or significant wildlife habitats on or near the project site. No threatened or endangered amphibians or reptiles, including the state-listed timber rattlesnake were observed during field surveys. No rare mammals were observed during site visits by LA Group biologists.

Impacts to wildlife on the proposed Belleayre Resort project site may include both direct and indirect impacts to common species of amphibians, reptiles, birds and mammals. In order to mitigate potential impacts to wildlife, habitat fragmentation will be kept to a minimum. Over 73% of the 1,960± acre assemblage will remain undeveloped and protected from future development by deed restriction or other similar manner. Much of the land that will be protected from future development is in close proximity to State lands or adjacent to State lands. In effect, this will result in an increase of area to remain undeveloped and act as a buffer to the Forest Preserve. See Section 3.5.3.

I. Traffic

The Traffic Impact Study (see DEIS Sections 2.2.7, 3.7 and Appendix 25) was prepared evaluating the existing condition of NY Route 28 as well as county and local roads in the vicinity of the site. An evaluation of the additional traffic generated by the project (trip generation) was undertaken considering both data from the Institute of Transportation Engineers and traffic counts from similar resort facilities. An evaluation of existing conditions led to the selection of a worst-case winter peak hour traffic condition derived from the Martin Luther King, Jr. holiday weekend of Saturday, January 15, 2000, with record attendance at Belleayre Mountain Ski Center.

The traffic impact study used a 3% background growth rate to reflect in part the planned expansion of skier visits to the Belleayre Mountain Ski Center and analyzed impacts with and without the project for both the year 2006 when the facility will first be opened and 2008 when all new facilities are expected to be in use.

The major conclusions of the traffic impact study include:

(1) Traffic in the area varies significantly by season, time of day and day of the week.

(2) On a typical winter weekend the project will generate 139 peak hour trips (2.32 vehicles per minute).

(3) The impact from the traffic volume increases on NY Route 28 from the proposed project will likely be between 3 and 4 vehicles a minute during the maximum peak hours. For example, the project generated trips at the NY Route 28/County Road 49A intersection for the peak periods are shown below:

	Peak Design Saturday AM	Peak Design Saturday PM	Typical Saturday AM	Typical Saturday PM
NY Route 28/ County Road 49A	202	198	76	76
Approx. trips/min. (Total trips ÷ 60 min.)	3.4	3.3	1.3	1.3

Similar results are found at the other study area intersections in the project corridor. An increase in traffic of this magnitude will typically not be noticeable.

(4) The combined existing and additional Resort traffic flow at typical fall and winter traffic peak hours will utilize 30% of the rated capacity of NY Route 28.

(5) The traffic impact study is based on worst-case traffic operations during the peak seasonal and daily traffic volume conditions in the area.

(6) Various transportation management initiatives are planned and will reduce traffic impacts. These include the use of a shuttle bus for guests and employees, remote park and ride lots for employees and scheduling check-in/out times at the resorts to occur during off-peak times.

(7) The development of the proposed project has the potential for the background traffic to decrease through a shift in employment opportunity within the project area.

(8) The project has the potential to reduce the longer distance daily commuting traffic coming to Belleayre.

(9) The report recommends the following mitigations:

- NY Route 28/Friendship Road (east) - The construction of a westbound left-turn lane on NY Route 28 at its intersection with the easterly leg of Friendship Road. If the operation of Friendship Road is changed to provide one-way traffic (from west to east) the location of the left turn lane on NY Route 28 should be moved to the western leg of Friendship Road.

- NY Route 28/County Road 49A - A fair share contribution towards the construction of a westbound left-turn lane on NY Route 28 and the construction of a northbound right-turn lane on County Road 49A. A fair share contribution towards the installation of a three-phase traffic signal at the NY Route 28/County Road 49A intersection. It is anticipated that this signal would operate during the winter months and would be on flash mode during the other months.

- To maintain smooth travel of vehicles on all the study area roadways, it is recommended that information signs be placed on the main roadways guiding patrons to their proper destination.

J. Land Use and Community Character

1. Land Use

The project site includes lands in Shandaken that are zoned R-1.5, R-3, and R-5, with the great majority being located in R-5. The proposed project qualifies as a "Vacation Resort" under the Town of Shandaken Code. A Special Use Permit is required for Vacation Resorts in Shandaken. The project site also includes lands in Middletown that

are zoned R5 and R3, with most of the land located in R5. "Resorts" in Middletown require a Special Use Permit in R3 and R5 zones. The proposed uses are allowed by both Towns' zoning ordinances and are consistent with the other provisions and requirements of such ordinances.

2. Community Character

The general character of the area is low-density development within a mountainous region, with much of the surrounding lands being undeveloped and owned by New York State as part of the Catskill Forest Preserve. The existing community character reflects a mix of land uses associated with historical land uses within the Central Catskill Region including agriculture, forestry, tourist related land uses, and residential uses.

The area has a significant amount of land use associated with the tourism industry. Most of the developed land uses serving tourism are concentrated in the hamlets along the NY Route 28 corridor including Phoenicia, Pine Hill, the Village of Fleischmanns, Arkville and Margaretville. The popularity of fishing in the area is evidenced by a number of small parking areas available to anglers fishing the Esopus Creek as it generally parallels NY Route 28 in the area.

Concentrated commercial development to serve the daily needs of local residents, i.e., convenience stores and gas stations are scattered through some of the hamlets and along NY Route 28, but the areas where commercial development is concentrated is in Boiceville and Margaretville. It is there that services such as supermarkets, hardware stores, banks, etc. are located.

Residential use is also concentrated in the hamlets and along NY Route 28, but also occurs in lower densities further removed from the highway corridor. Generally speaking, the zoning ordinances of the Towns of Shandaken and Middletown have residential zones that increase in minimum lot size the further removed the lands are from major roads.

The proposed project will involve development of approximately 29% of the assemblage, or only approximately 573 acres. The project will provide for most of the needs of its guests, including lodging, dining, recreation, spa facilities, etc. Because the Resort will be fairly self-contained there will not be an affect on community character. The proposed project will re-introduce resort development into an area that historically supported such development locally and on a large scale. Re-introducing the project in the vicinity of Belleayre Mountain Ski Center consolidates recreation oriented land use in the same general location within the community.

K. Visual Resources

1. Project Visibility

The existing visual character of the project site and environs consists of the wooded portions of the project site, located on the flanks of Belleayre Mountain. The sites are fairly heavily wooded, and have a number of logging trails crossing them. The railroad right-of-way located at the base of the mountain (off of the project site) is apparent due to the break in vegetation that exists in a linear trace. The ski trails at the former Highmount Ski Area are a prominent feature in the landscape from some vantage points, but not as prominent as the ski trails at the Belleayre Mountain Ski Center which are generally only visible from lands to the north of the NY Route 28 corridor.

NY Route 28, the main travel corridor in the area, is in many locations within a steep-walled valley. Views from the NY Route 28 corridor are confined in the project area by several large landforms including Mount Pleasant, Tremper Mountain, Romer Mountain, Garfield Mountain, Sheridan Mountain, Rose Mountain, Belleayre Mountain, Monka Hill, Brush Ridge, Fleischmann Mountain, Hog Mountain, Dry Brook Ridge, and Morris Hill. Housing and commercial land uses border the highway. These uses are generally limited to the valley floors due to increasing slopes, often times immediately above. Views of the assemblage from NY Route 28 are generally limited to a small westbound section in Big Indian where on a long sweeping turn there would only be views of the edge of the clearing in the canopy (the upper side of the tress which remain) on the eastern portion of the Big Indian Plateau. Otherwise, NY Route 28 parallels the ridgeline of Belleayre Mountain.

Visual impact analysis (see DEIS Section 3.8.4 and Appendix 21, "Visual Impact Study") conducted in accordance with NYSDEC guidelines for performing such analyses of the proposed project layout demonstrates that no structures or other development components will be visible from this area.

Views into the project site are limited primarily to a few locations from the north of NY Route 28, including views from the currently closed Owl's Nest Restaurant as well as views from the low-density residential area on Wood Road.

Visual simulations from the closed Owl's Nest Restaurant, located north of NY Route 28 across from Belleayre Mountain Ski Center, show that the clearing for fairways and residential units in the area of the Brisbane Mansion will be visible. Five to six of the 22 quadplex units at Belleayre Highlands may be partially visible, and seven to eight of the detached lodging units south of the clearing for holes 12, 13 and 14 of the Big Indian Country Club will be all or partially visible. The areas cleared for the fairways and detached lodging units will be visible, but not to the degree of current visibility of Belleayre Mountain Ski Center. Simulations from Wood Road, located north of NY Route 28, show that the clearing for the development of the Wildacres site will be visible from Wood Road, and will be back-dropped by the existing Belleayre Mountain Ski

Center ski trail/lift clearings and Highmount Ski Area ski trail/lift clearings. The Wildacres Hotel will be visible as will five octoplexes at the northwest corner of the site, and seven octoplex units to the southeast will be partially visible. Portions of the Highmount Golf Club will also be visible.

With the exception of Balsam Mountain, which is less than five miles from Belleayre Mountain, views to Belleayre Mountain consisted of distant views where the ridge forming Belleayre Mountain was discernable as one of the high points in the overall landform.

Visual simulation of views from Balsam Mountain indicate that from certain vantage points on Balsam Mountain, the site clearing created for the 2nd and 3rd fairway will likely be visible as a linear feature, the edge of canopy and the fairways, and that it is possible that one or two of the detached lodging units to be situated proximate to the golf course planned for the eastern portion of the site may also be visible. Three to four detached lodging units may be visible during leaf off conditions. The Big Indian Resort and Spa building is not visible.

The project will not be visible from the "Reisser Farm" property recently acquired by New York State with Bond Act monies.

L. Community Services

The project site falls under the jurisdiction of three fire departments, these include the Fleischmanns' Fire Department, Big Indian Fire Department, and Pine Hill Fire Company. The Town of Shandaken ambulance service is New York State certified and approved to operate at the paramedic level. The Margaretville Memorial Hospital is located approximately 7 miles from the site and contains 221 beds and operates a 24-hour emergency room. Kingston Hospital and Benedictine Hospital are located in Kingston, approximately 35 miles east of the project site. Correspondence, including interviews with emergency services providers, indicate that all emergency service providers have adequate capacity to serve the project with its existing resources. Additionally, correspondence with the police indicate that they have the capacity to serve the project. These providers include the Shandaken Police Department, Ulster and Delaware County Sheriffs Departments, and the New York State Police. See Appendix 6, "Letters of Record".

The local school systems are not operating at capacity. Correspondence with the schools demonstrates that they have sufficient excess capacity to serve the very limited number of children who may be added to the system.

M. Solid Waste

Ulster County administers two solid waste transfer stations that collect waste for ultimate transportation and disposal of waste in Keystone, Pennsylvania or Ontario, Canada.

Existing service providers have indicated that they have sufficient capacity to serve the project. See Appendix 6, "Letters of Record".

N. Power

Correspondence from NYSEG, the provider of electricity transmission services, indicated that sufficient capacity exists to fully serve the project. See Appendix 6, "Letters of Record".

O. Growth Inducting, Secondary and Cumulative Impacts

1. Induced Commercial Demand

As previously noted, the project is projected to generate significant economic benefits to the region. The potential increase in consumer spending from both visitors and employees generated by the proposed project can be expected to induce secondary demand for commercial development. Based on research regarding typical expenditures of visitors to other resorts, it is estimated that about $11.81 million will be spent annually by Resort visitors and guests within the NY Route 28 corridor.

Initially, the new demands for goods and services resulting from the Resort would tend to stimulate additional commerce in existing businesses, especially among gas stations, food and lodging establishments, general merchandise, as well as recreational facilities. However, there appears to be adequate available capacity among existing businesses to accommodate significant new retail demands as would be generated by the Resort's employees and visitors. To the extent that the Resort directly stimulates new business growth, the analysis shows that it could be expected to generate a need for an additional 76,700 square feet of commercial development in the area. This need may be accommodated by improvements to existing businesses, re-occupancy of existing vacant or under utilized structures or in-fill development in hamlets and villages. It is not anticipated that there will be a significant amount of new construction. See DEIS Section 7 and Appendix 26.

2. New Residential Development

The proposed project is expected to have a negligible effect on year-round residential development in the study area. The Resort itself is not designed to accommodate year-round residential occupancy, although it is possible that the 21 Highmount Estates single-family homes could become year-round homes.

Any increase in year-round residents would be derived from the project's employment of new workers in the area. An analysis of the projected employee profile and employment opportunities shows, however, that the vast majority of the year-round and seasonal jobs created by the Resort would be filled by local residents or people within a commuting radius, currently living in the outlying areas of Ulster, Delaware, Greene and Schoharie Counties. Therefore, there will be a minimal new burden on local school systems, roads,

and infrastructures. The Resort would provide a small number of mid- and upper-management jobs, however, that may be filled by non-residents. These positions would have salaries in the approximate $50,000 to $150,000 range. Approximately 16 to 20 such positions would fall into this category. Very few, if any, new employees would be expected to construct new year-round housing. No other potential new housing construction is anticipated as a result of resort development and operations. See DEIS Section 7 and Appendix 26.

P. Alternatives

1. Alternative Locations

Prior to proposing the Belleayre Resort project at the project site the Applicant considered other lands in the area that could have potentially met the Applicant's objectives of providing a high quality resort to complement the existing recreational facilities at Belleayre Mountain Ski Center and accommodate a four-season destination resort. Such sites were not suitable for a variety of reasons including: reluctancy of property owners to sell property; presence of extensive freshwater wetlands; and presence of flood prone areas on another alternative site as well as its proximity to the Ashokan Reservoir. Alternative parcels of suitable size identified in higher elevations were either unavailable lands owned by New York State or were private lands unsuitable for development because of topographic constraints.

2. Alternative Layouts

The original layout consisted of three 18-hole golf courses and an additional 9-hole par three golf course. This layout was abandoned, however, in response to environmental and local concerns and attempts to purchase additional properties were abandoned.

The golf course layouts are dictated by site topography, therefore limiting the number of alternative layouts for the courses. The Big Indian Country Club golf course layout has been closely scrutinized. The tee location on hole 18 was moved slightly to the west to avoid a potential archeological feature. Alternative golf layouts for the Highmount Golf Club were developed as a result of adding more lands to the project site. Changes made between earlier layouts and the final layout include the movement of hole 17 to the south and slightly moving the 13th green and 16th tees to avoid potential archeological sites.

The proposed Resort and Spa building at the Big Indian Country Club is the third of three building designs for the same location, while the proposed hotel at Wildacres Resort represents the fusion of a number of buildings that were one time separate buildings. A previous alternative site plan consisted of separate upper and lower lodges, and additional stand alone buildings for the conference center and the golf clubhouse. This alternative layout was replaced by the current single hotel building in order to improve the ease and efficiency of operations of the various resort functions and to lessen construction impacts. At one time up to 100,000 square feet of retail space was considered at the Wildacres Resort. Over time the design of the retail area was modified to decrease the amount of

retail square footage to 60,000, then 20,000 and finally to the currently proposed 13,000 square feet of strictly hotel-related shops. The downscaled retail space is in direct response to concerns raised by area businesses in relation to competition.

In response to inquiries by local groups and State agencies, the project sponsor evaluated the feasibility of scaling back the project site to contain the development only within the boundaries of the eastern portion or western portion of the project assemblage. The various land use and economic analyses conducted, determined that to have an overall project that will be economically feasible, and actually be constructed and operated, the proposed project cannot consist of solely either the eastern portion of the project or the western portion of the project. The Resort must be of sufficient size and variability to generate enough interest to attract a broad range of new visitors to the region during the spring, summer and fall. The availability of two golf courses is viewed as an essential factor or "critical mass" for economic viability as has been attested to by the National Golf Foundation, HVS Consulting, RCI and others. (See DEIS Section 5.3 and Appendix 27, "Fiscal and Marketing Information").

The primary factor in limiting alternative development scenarios is topography. The components of the project that require the greatest amount of land with the suitable topography are the two golf courses. The siting of two golf courses together on either the eastern area of the proposed project or the western side of the proposed project is not feasible given the slope constraints of the overall assemblage. As discussed previously, another limitation affecting potential alternatives is the availability of privately owned lands in the vicinity of Belleayre Mountain Ski Center. With almost three-fourths of the Town of Shandaken owned by either the State of New York or the City of New York, alternative locations or alternative layouts are limited.

3. No Action Alternative

The no-action alternative of leaving the lands in their present state will have a number of impacts, including impacts on the land itself, impacts on the realization of regional land use plans, and unrealized positive socioeconomic impacts. The no-action alternative will continue to allow the lands to be logged as they have been for over the past fifty years. The Brisbane Mansion and Wildacres Hotel would continue to be used as rental property and for seasonal occupation.

The no-action alternative would result in the local and regional planning goals of the Towns of Shandaken and Middletown not being realized. As recent as May 1999 the Town of Shandaken passed a resolution and position paper that supports the development of the Belleayre Gateway through an ongoing, established pattern of citizen based, inter-municipal planning. See Appendix 29, Shandaken Town Board Documents". Finally, the no-action alternative would result in a substantial loss of tax revenue and visitor spending in the region.

The heritage of the Central Catskills is a blend of recreational tourism and environmental preservation. The proposed Belleayre Resort is the fusion of this heritage with the vision of a vibrant economy grounded in 21st Century environmental control technology. This

proposal hinges on the attractiveness of both the natural and built environmental; therefore, it is paramount that the project is based in sound environmental principals and practices. The natural environment of the Central Catskill attracted the original "tourists" over a century ago, including artists, visionaries, purveyors, and transporters. The Belleayre Resort will continue this venerable tradition.

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SEPTEMBER 2003

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LIST OF ACRONYMS

AADT	Average Annual Daily Traffic
ACOE	Army Corps of Engineers
AMSL	above mean sea level
APA	Adirondack Park Agency
ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
BOD	biological oxygen demand
c.f.	cubic feet
CCPA	Central Catskill Planning Alliance
CFC	chlorofluorocarbon
cfs	cubic feet per second
CITES	Convention on International Trade in Endangered Species
CO	carbon monoxide
CPPP	Construction Pollution Prevention Plan
CR	County Road
dB	decibels
dBA	A-weighted decibels
DEIS	Draft Environmental Impact Statement
ECL	Environmental Conservation Law
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
EPM	Environmental Procedures Manual
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FTE	full-time equivalent
GIS	Geographic Information Systems
GLEAMS	Groundwater Loading Erosion from Agricultural Management Systems
gpd	gallons per day
gph	gallons per hour
gpm	gallons per minute
HC	Highway Commercial
HCM	Highway Capacity Manual
HUD	Housing and Urban Development
HVAC	heating, ventilation and air conditioning
ICEAS	Intermittent Cycle Extended Aeration System
IPM	Integrated Pest Management
ISO	Insurance Services Office
ITE	Institute of Transportation Engineers
ITM	Integrated Turf Management
kg/ha	kilograms per hectare
kV	kilovolts
LC_{50}	lethal concentration at which 50% of tested organisms die
L_{dn}	day night average sound level
LEACHM	Leaching Estimation and Chemistry Model
L_{eq}	equivalent sound level
LOS	level of service

LIST OF ACRONYMS

LP	liquid propane
MCC	Motor Control Center
MCL	Maximum Contaminant Level
mg/L	milligrams per liter
MOA	Memorandum of Agreement
MSDS	Material Safety Data Sheet
NAC	Noise Abatement Criteria
NGF	National Golf Foundation
NO_x	nitrogen oxides
NY	New York
NYC	New York City
NYCDEP	New York City Department of Environmental Protection
NYCRR	New York Codes, Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
NYSDOT	New York State Department of Transportation
NYSERDA	New York State Energy Research and Development Agency
O & M	Operations and Maintenance
P	phosphorus
PHWC	Pine Hill Water Company
PM_{10}	particulate matter
POTW	publicly owned treatment works
PVC	polyvinyl chloride
RIBS	Rotating Intensive Basin Studies
SCS	Soil Conservation Service
SEQRA	State Environmental Quality Review Act
SIC	standard industrial categories
SLAMM	Source Loading and Management Model
SPDES	State Pollutant Discharge Elimination System
SPL	sound pressure levels
TMDL	total maximum daily load
TKN	total kjeldahl nitrogen
TSS	total suspended solids
UMP	Unit Management Plan
US	United States
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UV	ultraviolet
VOC	volatile organic compounds
WIN	Watershed Index Number
WINPST	Windows Pesticide Screening Tool
WRHGC	Wildacres Resort Highmount Golf Club
WSA	Water Supply Application
WWTP	wastewater treatment plant

SECTION 1 INTRODUCTION

1.1 Project Location

The proposed Belleayre Resort at Catskill Park is located in the Central Catskill region of New York State near the intersection of the boundaries of Delaware County, Ulster County and Greene County. Figure 1-1, "State Location Map", illustrates the project location in New York State. The site is located approximately 35 miles west of the City of Kingston, which is off of Exit 19 of the New York State Thruway. Figure 1-2, "Regional Location Map", illustrates the project location on a more regional scale, and shows the project site south of NY Route 28 and to the east and west of Belleayre Mountain Ski Center (the Ski Center). The project site includes lands in the Town of Shandaken in Ulster County and lands in the Town of Middletown in Delaware County.

The project site is located within the area known as the Catskill Park. The Catskill Park was established by Chapter 233 of the New York State Laws of 1904 and today includes about 700,000 acres of public and private land. Intermingled with the approximately 288,000 acres of Catskill Forest Preserve Lands in the Catskill Park are towns, villages and hamlets, highways, businesses and residences. About 60 percent of the lands in the Catskill Park are privately owned, and home to approximately 50,000 year–round residents. In the Town of Shandaken, New York State owns approximately 73% of the total acreage of the Town. Of this amount, approximately 56,000 acres are defined as "Forever Wild", and 2,000 acres are designated as "Intensive Use Area" and include the Belleayre Mountain Ski Center and the Belleayre Beach at Pine Hill Lake. The project site is on private lands bracketing this Intensive Use area. Figure 1-3, "Catskill Park", illustrates the location of the project site in relationship to the boundaries of the Catskill Park and lands owned by New York State.

The project site is also located within the New York City watershed. New York City's West-of-Hudson watershed is the source of approximately 90 percent of New York City's drinking water supply. The New York City watershed boundaries include parts of five counties and total about 1,900 square miles or 1 million acres. The West-of-Hudson watershed is subdivided into the Catskill watershed that includes the Ashokan Reservoir, and the Delaware watershed that includes the Pepacton Reservoir. The project site consists of lands that are in the uppermost headwaters of both the watersheds that drain to the Ashokan Reservoir and the Pepacton Reservoir. Since the project is located at the headwaters of both the Ashokan and Pepacton Watersheds, it is by definition at the farthest possible distance from these bodies of water. By streamflow distance, the project site is 20 miles above the Ashokan Reservoir and 14 miles above the Pepacton Reservoir. According to NYCDEP mapping of these watersheds, the project site is outside of what is known as the 60-day travel time. In other words any runoff from the site would take more than 60 days to reach the water supply intake. Figure 1-4, "West-of-Hudson Watershed", illustrates the location of the project site in relation to the portion of the New York City water supply watershed west of the Hudson River.

The Crossroads assemblage of lands consists of approximately 1,960 acres; 1,242 acres of which are east of Belleayre Mountain Ski Center and approximately 718 acres of which are to the west of the Ski Center. Figure 1-5, "Site Location Map", illustrates the boundaries of the property that comprise the total assemblage on a more local scale. The project site, i.e., that portion of the total assemblage on which development is proposed, consists of a total of 573 acres, 331 acres of which are east of the Ski Center and 242 acres of which are west of the Ski Center. Lands comprising the assemblage and the project site have been comprehensively and repeatedly logged over the last century, including in recent years.

The 1,242 acres east of the Ski Center consist of lands that extend west from Lasher Road and Lost Clove, across a portion of Giggle Hollow, and to the upper portion of Woodchuck Hollow Road. These lands are southeast of the hamlet of Pine Hill and in the western portion of the hamlet of Big Indian.

The 718 acres west of the Ski Center are located on either side of Ulster County Route 49A south of the hamlet of Highmount. These lands are on either side of Gunnison Road and also include the former Highmount Ski Area, lands directly to the west of the former Highmount Ski Area on Galli Curci Road (the former Leach farm), lands between Galli Curci Road and Todd Mountain Road, and some lands to the west of Todd Mountain Road.

1.2 General Project Description

Figure 1-6, "Layout Plan", illustrates the location and general types of development being proposed as part of the Belleayre Resort at Catskill Park. The different component land areas that comprise the project site are proposed to contain a mix of resort land uses that include recreational, lodging, lodging-related commercial, and a 21-lot residential subdivision for single-family home sites. Each component of the proposed development is described below.

Of the 1,960 acres total in the Crossroads assemblage, approximately 573 acres will be directly affected by development of the proposed project (the project site) and approximately 1,387 acres of the total 1,960-acre assemblage (71%) will remain undeveloped. Within the areas to be developed, there are numerous areas where natural vegetation will not be impacted i.e., a total of 44 acres or approximately 2%. These areas range from small areas less than one-tenth of an acre to larger areas up to 10 acres in size. If these areas were to be considered undeveloped, then the total area of the Crossroads' assemblage that would remain undeveloped increases to 73%, i.e., 1,431 acres undeveloped and 529 acres developed.

1.2.1 Lands East of the Ski Center

The lands to the east of the Ski Center are collectively known as the Big Indian Plateau. Two sub-areas comprising the Big Indian Plateau, separated by Giggle Hollow, are proposed to be developed. Approximately 263 acres will be developed east of Giggle

Hollow as the Big Indian Country Club, Resort and Spa, and 68 acres will be developed west of Giggle Hollow as Belleayre Highlands.

The Big Indian Plateau will contain the following facilities and infrastructure.

- Central water and sewer throughout.
- All internal roads private.
- Access via NY Route 28/Friendship Road

A. Big Indian Country Club 18-hole championship signature golf course.

B. Big Indian Resort and Spa

- 150 unit (room) hotel building that also contains two restaurants one 150 seats and one 75 seats, a 50 seat beverage lounge, a ballroom and meeting rooms.
- Golf clubhouse and a health spa connected to the hotel building.
- 95 detached hotel lodging units in 55 structures to be built around the golf course.
- Golf course maintenance buildings.
- Wastewater treatment facility

C. Belleayre Highlands

- Around the existing Brisbane (Turner) mansion.
- 88 detached hotel lodging units in 22 four-unit structures.
- Existing mansion is social and activities center
- Tennis courts and swimming pool.

A more detailed description is contained in Section 2.1 of this DEIS.

1.2.2 Lands West of the Ski Center

The lands to the west of Belleayre Mountain Ski Center are proposed to be developed in a similar manner as the lands east of the Ski Center. In total, approximately 242 acres are proposed to be developed of the total 718 acres in this portion of the assemblage. The Wildacres Resort is proposed on lands to the west and east of County Route (CR) 49A, the road from NY Route 28 to the Ski Center. Further up CR 49A the 21-lot single

family subdivision, Highmount Estates, is proposed on lands to the west of the former Highmount Ski Area. The Wilderness Activity Center is proposed on the former Highmount Ski Center lands.

The Wildacres Resort will contain the following facilities and infrastructure.

- Central water and sewer throughout.
- All internal roads private.
- Access via County Route 49A and Gunnison Road

A. Wildacres Resort

- 18-hole championship Highmount Golf Club golf course.
- Hotel building with a 250 unit (room) capacity, two restaurants, one 150 seats and one 300 seats, a 100 seat beverage lounge and a health spa.
- Hotel-contained and hotel-related shops totaling approximately 13,000 square feet.
- Conference center, an interfaith chapel and the golf clubhouse integrated with hotel.
- 168 detached hotel lodging units in 21 structures grouped around the golf course.
- Lodging unit clubhouse with tennis and swimming pool.
- A Children's Center.
- Golf course maintenance buildings.
- Wastewater treatment facility.
- Existing Marlowe Mansion to be used as a restaurant.

B. Highmount Estates

- 21-lot residential subdivision with lots ranging from 2 to 16.8 acres. This will be a carefully designed and controlled development through the use of restrictive covenants (See Section 2.4.4).

- Connected to central water and sewer.
- All internal roads private

C. Wilderness Activity Center

- Reuse of existing buildings as central point for outdoor activities.
- Connected to central water and sewer.

A more detailed project description is provided in Section 2.1 of this DEIS.

1.3 Project Purpose, Need and Benefits

1.3.1 Background and History

A. Resort Destination History

The Catskill Region of New York State has long been a favored summer resort area for New York City residents. The transition of the local area from an agricultural economy to a resort economy began in the latter half of the 19th century. Construction of the Ulster and Delaware Railroad, begun in 1866, brought boarders to farm and village homes and led to the hotel boom that reached its peak at the turn of the century. Pine Hill was one of the focal points of hotel development in the late 1800's with over 20 such facilities, including the Grande Hotel at Monka Hill, located just opposite the present Belleayre Mountain Ski Center.

The growth of the area's resort economy coincided with the establishment of the Catskill State Forest Preserve in 1885. Twenty years later in 1905 the New York State Legislature approved creation of the New York City Board of Water Supply. That system now includes six reservoirs and a watershed of over 1,900 square miles (1 million acres). The resort industry continued to thrive until the depression. Factors such as the advent of air conditioning, new roads for motor vehicles, greater mobility of those looking for leisure, etc., all contributed to the decline of the attractions of the Central Catskills as a vacation destination.

According to information presented on the website of the Skene Library in Fleischmanns (http://www.skenelib.org.dpq/hotels.htm), a brochure from 1955 shows a year-round resort climate offering skiing, hunting, golfing, and summer fun. It states, "Modern Fleischmanns is the most cosmopolitan little town in the region where thousands gather every year to enjoy its varied attractions. This sleepy little village with a winter population of approximately a thousand hardy souls blooms almost overnight into a resort community of 15,000 or more, accommodated in hotels, motels, boarding houses, rooming houses, farmhouses, bungalows and rooms for tourists."

In 1963 the area's economy was characterized as being "almost entirely resort-based" and lacking the vitality for necessary continued growth (Vollmer Associates, 1963).

Up until the 1960's a number of golf courses existed close to the project site. There was a 9-hole golf course at the Grande Hotel located on Monka Hill across NY Route 28 from the proposed Wildacres Resort. Other nine hole golf courses that existed in the vicinity of the project site included the Takanasee in Fleischmanns and the golf course at the Shandaken Inn.

B. Belleayre Mountain Ski Center

The ski areas of the Catskills benefited from the tremendous growth in alpine skiing from the 1940's through the 1970's. The growth and success of Catskill ski areas was due in a large part to the New York Metropolitan Area ski market. During this time, Hunter and Belleayre emerged as the region's dominant ski areas. As competition stiffened and tastes evolved, the Catskill ski areas lost their market share. With the rise of more efficient transportation systems, a more sophisticated ski consumer, and innovative resorts, Vermont, the Berkshires and the Western US began to attract a bulk of the ski market formerly captured by the Catskill ski areas. Notwithstanding this trend, Belleayre Mountain has become competitive within its market over the last few years.

Belleayre Mountain Ski Center was authorized by an amendment to the constitution of the State of New York and has been developed in stages since 1950 when the first chair lift was installed. An amendment to Article XIV of the New York State Constitution allows for tree cutting on Forest Preserve lands in order to create and maintain ski trails. Belleayre Mountain is limited to up to 25 miles of ski trails with trail widths up to 200 feet in width permitted. However, no more than two miles of trails in excess of 120 feet wide are permitted. The Ski Center is classified as a 2,211 acre "Intensive Use Area" under the Catskill Park State Land Master Plan. The Ski Center is the largest designated Intensive Use area in the Catskill Park with the next largest being the 600-acre North Lake Campground. Novice facilities, including the lower base lodge building and a double chair lift, were constructed in 1961. In 1962 a new T-bar lift and rope tow for the ski-school were constructed. In 1963 a report by Vollmer Associates for the State of New York recommended expansion of Ski Center facilities for year round use including development of a golf course, swimming pool, a bathhouse, picnic facilities, and camp sites.

In July 1985 NYSDEC issued a Final Unit Management Plan/Environmental Impact Statement (UMP/EIS) for the Ski Center. This represented the first completed Unit Management Plan in the Catskill Park. Proposed actions covered under this document included increasing snowmaking capacity from 30% to 80% coverage of ski trails by utilizing Birch Creek and Pine Hill Lake, expanding the upper lodge, adding additional parking, modification and expansion to trail systems, and retaining a qualified consultant to examine the growth potential of the Ski Center.

In July 1989 a UMP/EIS was prepared for Belleayre Beach at Pine Hill Lake, a summer recreation facility adjoining the Ski Center. The UMP/EIS addressed the public use and carrying capacity of the Belleayre Beach at Pine Hill Lake for activities such as picnicking, swimming and fishing. One of the benefits of the establishment of the Belleayre Beach at Pine Hill Lake stated in the UMP/DEIS was the offering of some year-round intensive recreation opportunities to enhance tourism in the region.

Between 1989 and 1998 minor amendments to the UMP/DEIS were made to allow for construction of storage buildings, installation of a portable surface skier tow and the widening of an existing trail.

The most recent UMP/EIS update for the Ski Center was issued in May 1998. Items included in this UMP/EIS included increasing snowmaking capacity, adding 500 parking spaces, constructing a sewer line to connect to the Pine Hill wastewater treatment plant, lodge expansion, new ski trail construction, and an interpretive trail at the Belleayre Beach at Pine Hill Lake. Management objectives were proposed in order to attempt to accommodate a peak attendance of 4,500 skiers per day. The UMP/EIS was subject to SEQRA review, including opportunity for public comment, and a Negative Declaration was issued in February 1998. To date a number of these items have been completed including installation of quad lifts, increased snowmaking, installation of the sewer line connecting to the Pine Hill wastewater treatment plant, increased parking capacity, and expansion of the lodge facilities. At present, the Ski Center provides over 170 acres of skiable terrain. Existing trails total 17.5 miles, thus providing an additional 7.5 miles of trails within the constitutional 25-mile limit that could be built.

Figure 1-7, "Belleayre Mountain Ski Attendance 1987-2002", illustrates skier visitation trends over this time period. Generally speaking, annual skier visits fall within the range of 75,000 to 142,000 skiers per season with annual variability attributable to many factors, including weather conditions. Because Belleayre Mountain has greatly increased its snowmaking capacity over the past 20 years, natural snowfall patterns no longer have a substantial affect on skier attendance.

Belleayre attributes this to recent improvements, including those contained in the 1998 UMP/EIS. Between 1998 and 2002 there has been an increase in skier visits of almost 100% from a low of approximately 74,000 to a high of 142,000. Management of the Ski Center aims over the next few seasons to attract 200,000 to 225,000 skier visits. The Lodging Bureau of the Ski Center estimates that there is a current shortfall of 500 hotel rooms to accommodate present volumes and this shortfall will rise to 1,000 hotel rooms when current skier targets are achieved.

C. Local Land Use Regulations, Regional Land Use and Comprehensive Plans

1. Local

In 1971 the Town of Shandaken adopted its land subdivision regulations which were then revised and readopted in 1989. Shandaken adopted a local zoning ordinance in 1987 and

various amendments to the zoning code have been made up to the present time. In 1999 a number of zoning code amendments were adopted, including an amendment that allowed for golf course development on lands zoned R5 under a special use permit. Golf courses were already allowed under a special use permit in lands zoned R3 and R1.5. In 1988 the process of preparing a Master Plan or Comprehensive Plan for the Town was initiated, including the establishment of a Master Plan Committee. Efforts to complete such a plan have been ongoing, and at this time the Town of Shandaken is in the process of producing a Comprehensive Plan.

The Town of Middletown adopted and approved its subdivision regulations in 1984 with subsequent amendments and approval of amendments occurring in 1989. Middletown adopted its zoning ordinance in 1988 and amendments were made in 1992, 1995, and 2000. Middletown does not have an adopted master plan although there were efforts in the 1980's that resulted in the production of a draft plan that was never adopted by the Town.

2. County

The most recent planning document issued by Ulster County is entitled "Land Use Plan for Ulster County" adopted by the Ulster County Planning Board in 1977. The Land Use Plan includes a countywide analysis of a number of environmental factors including slopes and topography, flood prone areas, wetlands and waterbodies, and soils and aquifers. The land use inventory portion of the plan includes such things as residential distribution, water and sewer facilities, transportation, recreation facilities, agricultural districts and open space. The economic development policy portion of this plan includes a discussion of the importance of tourism when this report was prepared in the late 1970's. At the time of this report Ulster County ranked third in commercial lodging receipts followed only by New York City and Sullivan County. (According to a 1999 study published by the US Census Bureau, and information provided by Ulster County Tourism, Ulster County currently ranks as 11th in revenue generated through accommodations based on data collected in 1997 and highest among the counties in the Catskills.) The Land Use Plan recognizes that maintenance of the "beautiful environment is crucial to the continuance and growth of the tourist industry." Tourism in Ulster County was also discussed, and the 1977 Land Use Plan states "Expansion of tourism is a natural economic function for the future development of Ulster County." The Land Use Plan recognizes not only the benefits of development of the tourism industry, but also recognizes negative issues related to development of tourism such as "strip mall blight" and traffic congestion that must be addressed through proper planning.

According to personnel at the Delaware County Planning Department, Delaware County does not have a Countywide planning document in place at this time.

3. Regional

a. Catskill Park State Land Master Plan

The 1985 Catskill Park State Land Master Plan set forth management guidelines for the Forest Preserve lands within the Catskill Park. The Master Plan established a broad framework of geographic management units and classifies each unit based upon the area's characteristics and capacity to withstand use. The main classifications in the Catskill Forest Preserve are Wilderness (4 management units, 41% of state lands in the forest preserve), Wild Forest (20 management units, 56% of state lands), Intensive Use (11 management units, 2% of state lands) and Administrative (4 management units, 0.3% of state land).

The Belleayre Mountain Ski Center and Belleayre Beach at Pine Hill Lake are located within Intensive Use Areas. Intensive Use Areas are locations where the State provides facilities for highly concentrated forms of outdoor recreation including facilities designed to accommodate significant numbers of visitors. The 1985 Master Plan recommends that the existing Ski Center at Belleayre should be modernized to the extent physical resources allow and within the constraints of the amendment of the State Constitution authorizing its establishment. As discussed previously, modernization of Belleayre facilities have been occurring in accordance with the various Unit Management Plans prepared for the Ski Center and the Belleayre Beach at Pine Hill Lake. Recent allocations of higher levels of State funding have allowed for dramatic improvements to the Ski Center. These Ski Center improvements combined with favorable weather conditions have contributed to the recent increases in attendance at the Ski Center.

The 1985 Catskill Park State Land Master Plan goes on to state that providing additional opportunity for concentrated forms of outdoor recreation should focus on enhancing existing Intensive Use facilities rather than establishing new intensive use facilities. The Master Plan further goes on to state that "Generally the Department of Environmental Conservation will rely on private enterprises to develop intensive recreational facilities on private lands within the Park."

These same themes were expressed in the in NYSDEC's August 2003 Draft Revision to the Catskill Park State Land Master Plan (CPSLMP). When discussing Intensive Use Area Guidelines, the 2003 CPSLMP states that "Future development of recreational facilities is anticipated to take place primarily on private lands. Demand for developed recreation opportunities that are not present on State lands will need to be met through entrepreneurial ventures seeking to capitalize on the public's

desire for such opportunities". In regards to the Belleayre Mountain Ski Center on Intensive Use lands, the 2003 CPSLMP reiterates the goal stated in the 1985 Master Plan that the Ski Center facilities should be modernized within the constraints of physical resources and that portion of the State Constitution (Article XIV, Section 1) authorizing the Ski Center's establishment. According to statistics provided in the 2003 CPSLMP, use of the Ski Center accounted for almost 1/3 (32%) of the public use of the Forest Preserve in 2002, while all Intensive Uses Areas in the Forest Preserve together accounted for over 80% of public use in 2002, even though Intensive Use Areas comprise only 2% of Forest Preserve lands.

b. Big Indian – Beaverkill Range Wilderness Area Unit Management Plan

In June 1993 NYSDEC issued the current UMP for the Big Indian - Beaverkill Range Wilderness Area. This approximately 33,500 acres of Forest Preserve land ranges from 1½ to 4½ miles wide and over 19 miles long and includes lands in the Towns of Shandaken, Denning and Hardenburgh in Ulster County. The Area is bordered on the north by the Belleayre Mountain Ski Center Intensive Use Area, on the east by Ulster County Road 47, on the south by Willowemoc-Long Pond Wild Forest, on the southwest by Balsam Lake Wild Forest, and on the northwest by Dry Brook. The location of the Area is illustrated on Figure 1-8, "Big Indian – Beaverkill Range Wilderness Area." The Big Indian Plateau portion of the project site is separated from this Area by the private lands in Lost Clove. In the vicinity of the project site the unit can be accessed from State hiking trails in Woodchuck Hollow and Lost Clove.

The 1993 UMP characterizes the Area as experiencing low levels of public use which is explained to be due, in part, to very few vistas within the unit. Visitors to the Area partake in a number of recreational pursuits including hiking, camping/backpacking, hunting, fishing and snowshoeing. Overall recreational use of the Area increases in August and again in October. Total annual use was estimated in the 1993 UMP to be approximately 5,800 visitors for 7,200 visitor days.

The primary goal for the Area stated in the 1993 UMP is the preservation and protection of the wilderness character of the Area and secondarily to provide opportunities for outdoor recreation. In order to achieve these goals, the UMP lists a number of objectives including taking steps to control unauthorized motor vehicle use, monitoring the level of use to prevent future overuse and degradation, adequately protecting the Area for wildlife, selectively acquiring additional contiguous lands which will consolidate the State's holdings, simplifying boundary lines, protecting unique areas, providing additional or improved access and otherwise enhancing the Area.

The August 2003 Draft Revision Catskill Park State Land Master Plan provides some additional information on this unit of the Forest Preserve. In the 2003 CPSLMP it is proposed that this unit be renamed the Big Indian Wilderness. The only thing different in the 2003 CPSLMP from the 1993 UMP issued for this unit, is that the 2003 CPSLMP estimates annual visitation as 4,500 visitors per year, while the 1993 UMP estimated 5,800 visitors per year. The boundary, total area and classification (Wilderness) of this unit remain unchanged.

c. Shandaken Wild Forest Draft Unit Management Plan

In June 2003 NYSDEC issued the Shandaken Wild Forest Draft Unit Management Plan. The Shandaken Wild Forest is comprised of lands formerly known as the Shandaken-Pine Hill Wild Forest and Peck Hill Wild Forest in the 1985 Catskill Park State Land Master Plan. This unit contains approximately 5,376 acres with 4,185 acres located in the Town of Shandaken and the remaining 1,191 acres found in the Town of Lexington. The acreage can further defined by parcel as follows:

Rochester Hollow Parcel	2,475 acres
Peck Hollow Parcel	2,384 acres
Allaben Parcel	414 acres
Lower Birch Creek Road	103 acres

Figure 1-8A, "Shandaken Wild Forest", is from the June 2003 draft UMP and shows the locations of the lands that comprise this unit.

The annual number of users of this unit is not quantified in the draft UMP, but Department personnel describe its use as "substantial". The lands in this unit are relatively easy to access from the local road network. Rochester Hollow is a favored location for cross-country skiing and mountain biking due to the existence of a gravel road. The Allaben parcel is utilized predominantly as a primitive campsite, particularly the area within ¼ to ½ mile of NY Route 28. The Lower Birch Creek Road parcel (the former Reisser farm property) was recently acquired by the State, and is becoming a destination for families and local residents, with fishing and picnicking often enjoyed at this nineteenth century Catskill farmstead with a view across the valley into the Belleayre Mountain Ski Center.

Management actions recommended for this unit in the draft UMP include designating portions of the Lower Birch Creek Road parcel as administrative use and intensive use lands and improving parking capacity and vehicle access restrictions to this parcel. An accessible fishing platform and seasonal, accessible sanitary facilities are already present on this parcel. Other management objectives proposed for the unit include

constructing an accessible lean-to in Rochester Hollow, designating the existing gravel road as a cross country ski/mountain bike/hiking trail with a new loop added to the existing road/trail and increasing parking at the end of Matayas Road. See Section IV of the draft UMP for a complete description of NYSDEC's proposed use and management of the Shandaken Wild Forest unit. Comments on this draft UMP are being accepted by NYSDEC until October 24, 2003.

d. Watershed Memorandum of Agreement

In response to new federal standards for public water supplies, including filtration requirements for surface sources of drinking water, NYCDEP issued new draft watershed regulations in 1990. In 1992 The Coalition of Watershed Towns, in response to the draft NYCDEP regulations, proposed the approach of whole community planning as an alternative to uniform regulations applied throughout the watershed. The concept of whole community planning recognized the interrelationship of economic and environmental protection. Through the mid-1990's much discussion occurred between various groups and agencies regarding how to best balance the concurrent needs to protect the quality of the City's water supply while at the same time still providing the opportunity for economic sustainability and growth within the region. Certain differences between groups resulted in litigation that was resolved under a memorandum of agreement.

In January 1997 the Watershed Memorandum of Agreement (MOA) was entered into. The three principal elements of watershed protection contained in the MOA were land Acquisition and Stewardship Programs, Watershed Protection and Partnership Programs, and Watershed Regulations. The MOA also contained a commitment to the economic viability and social character of the watershed communities and to a continuation of existing development and future growth. Two clauses contained in the MOA are as follows:

WHEREAS, the Parties recognize that the goals of drinking water protection and economic vitality within the Watershed communities are not inconsistent and it is the intention of the Parties to enter into a new era of partnership to cooperate in the development and implementation of a Watershed protection program that maintains and enhances the quality of the New York City drinking water supply system and the economic vitality and character of the Watershed communities;

WHEREAS, the Parties agree that the City's land acquisition program, the City's Watershed rules and regulations, and other programs and conditions contained in this Agreement, when implemented in conjunction with one another, would allow existing development to continue and future growth

to occur in a manner that is consistent with the existing community character and planning goals of each of the Watershed communities; and that the City's land acquisition goals insure that the availability of developable land in the Watershed will remain sufficient to accommodate projected growth without anticipated adverse effects on water quality and without substantially changing future population patterns in the Watershed communities;

The Watershed Protection and Partnership Program portion of the MOA provides for the establishment of locally based watershed protection initiatives to be funded by the City. The MOA allowed for the creation of the Catskill Watershed Corporation, a locally based non-profit entity that administers much of the $240 million the City committed to water quality and economic development programs West-of-Hudson. These programs are generally related to issues of wastewater, stormwater, and other water quality issues. The MOA also created the Catskill Fund for the Future, a $60 million economic development "bank" that issues loans and grants to support projects viewed as responsible and environmentally sensitive and compatible with the MOA's water quality goals.

The MOA also set forth the process by which a new set of watershed regulations took affect in 1997. These regulations superseded the Rules and Regulations for the Department of Water Supply, Gas and Electricity of the City of New York enacted in 1953. The new regulations, among other things, establish standards for the design, construction and operation of wastewater treatment plants, set design standards and setback requirements for septic systems, and require the implementation of stormwater control measures for a variety of commercial, residential, institutional and industrial projects.

e. Route 28 Corridor Committee Study

During the time period when discussions were occurring that led up to the MOA, a report entitled "Resource Protection and Economic Development Strategy for the Route 28 Corridor" (The Route 28 Corridor Committee Study) was issued in 1994. Funded in part by a grant from the Regional Plan Association, The Route 28 Corridor Committee Study included an analysis of the Route 28 corridor, generally within the Towns of Shandaken and Middletown. The study included analysis of such characteristics as population, economy, infrastructure, land use patterns, and existing development controls. Based on an analysis of these factors, as well as consideration of the NY Route 28 corridor outside of Shandaken and Middletown, and the history of the Central Catskill region in general, the study lists seven goals and objectives.

(1) The combined tourist attractions and facilities of the Central Catskills must be developed simultaneously to provide a major destination to attract new visitors. The long-term development should be phased, but the first phase should be of sufficient scale to attract significant new appeal and interest.

(2) Belleayre Mountain Ski Center should continue to improve its facilities and be supported by year round sports and cultural facilities connected to lodging, restaurant and entertainment facilities to serve as a magnet for tourist visits.

(3) Infrastructure (sewage disposal and water supply) must be provided to allow concentration of development in existing hamlets.

(4) Development outside of hamlets should be limited to major tourist facilities requiring large sites in scenic locations and subject to necessary measures to protect the sensitive environment.

(5) Four-season, long term tourist visitation should be encouraged by stimulation of diversity of activities serving the cross section of the "family" tourist market.

(6) Two operating railroad entities, the Catskill Mountain Railroad and the Delaware & Ulster Railroad represent a unique and valuable resource that should be developed to their full potentials. Their location provides excellent scenic views and access, and also provides the opportunity to connect the activity centers along the corridor.

(7) New tourism facilities should be focused around the Belleayre Mountain Ski Center, the area's key existing tourist asset.

One other recommendation of The Route 28 Corridor Committee Study was to create a new organization known as the Central Catskill Planning Alliance (CCPA). Representation on the new organization was recommended to be three representatives from each of the Towns of Shandaken and Middletown (including one each from the Village of Fleischmanns, and the Village of Margaretville), one representative each designated by NYSDEC and NYCDEP, and one representative of the Catskill Center for Conservation and Development.

The Route 28 Corridor Committee Study recommendations were unanimously approved by the Town Boards of Middletown and Shandaken as community objectives.

f. Tourism Development Plan for the Central Catskills

Following the release of The Route 28 Corridor Committee Study, the Towns of Shandaken and Middletown unanimously approved its recommendations, including the creation of the CCPA. In order to undertake further study and implement recommendations of The Route 28 Corridor Committee Study the CCPA applied for and was awarded a planning grant by the Empire State Development Corporation. The additional study was to include a detailed mapping of the entire corridor including natural resources, property ownership, and land use and regulatory controls.

In 1998 the CCPA issued a report entitled "Tourism Development Plan for the Central Catskills." The market analysis portion of this Plan included the following five findings.

(1) The market analysis and surveys confirm that Belleayre Mountain should form the focus of corridor development in terms of improved and expanded ski trails, support facilities and four season attractions.

(2) Revitalization of the older hamlets is important to create additional destinations for shopping, dining, lodging and nightlife.

(3) A resort or lodge setting with good facilities and well-organized outdoor activities (golf, hiking, horseback riding, etc.) would add to the area's appeal especially if tied to Belleayre.

(4) Preservation of the natural environment is an important aspect of the attractiveness of the region to potential visitors but concerns about its remoteness and lack of facilities must be overcome.

(5) Amusement parks and gaming are perceived as incompatible with the character of the region.

As part of the Town of Shandaken's May 12, 1999 adoption of their Position Statement entitled "Belleayre Gateway Development Objectives" (Town Board Resolution #73) the Town of Shandaken Town Board cited the Tourism Development Plan for the Central Catskills as an important planning study supporting their Position Statement.

The Town of Shandaken's adopted Policy Statement included the following three conclusions.

(1) Development of appropriate tourist related development and expansion of existing tourist facilities in the Belleayre Gateway is a critical element of the Town's economic development program.

(2) Planning studies conducted over a period of nearly 40 years have emphasized the importance of the Belleayre Gateway area and recommended that it become the major tourist destination in the Central Catskills.

(3) The routing of the new sewer line from the Belleayre Mountain Ski Center to the Pine Hill Sewage Treatment Plant through the Belleayre Gateway area is consistent with previous planning studies and is essential to realization of the Town's economic development objectives. (Additional discussion of the Pine Hill wastewater treatment plant is included in Section 5.5.1 of this DEIS.)

g. West of Hudson Economic Development Study

A series of reports, collectively entitled "West of Hudson Economic Development Study", were prepared for the Catskill Watershed Corporation in 1998 and 1999 (Hamilton, Rabinovitz & Alschuler, Inc, et al., (HR&A), 1998, 1999). The goal of this study was to provide an analysis of the existing environmental and economic conditions within the West of Hudson portion of the Watershed. Included in this report was a summary of the strengths and weaknesses of the economy of the Catskill Watershed region. The strengths of the Catskill economy were listed as its proximity to major markets, high quality of life, beautiful and plentiful natural resources, a strong agricultural base, and attractive communities. Some of the barriers to economic development that were included in this summary included limited developable land, fragmentation and physical isolation, a shortage of well-located and modern tourist facilities, and a general lack of amenities for residents and visitors.

In its assessment of ski areas in the Catskill Watershed the HR&A study reaches a number of conclusions. It was concluded that it is critical for the local economy at large for the Watershed's ski resorts to boost their market share. More specifically, the three largest ski areas: Belleayre, Hunter and Windham have the potential capacity to compete head-on with other ski regions and even to transition from primarily serving a weekend and vacation market to serving a more steady stream of skier volumes seven days a week. It was stated in this study that realization of this transition would require substantial private capital investment, including investment in year round operations with lodging facilities, golf, concerts, mountain biking, tennis, hiking, swimming, waterslides, and spas. Additions of meeting rooms and convention facilities to attract

organizations and corporate clients was also included as options to consider when attempting the transition to better compete in the regional ski market.

h. Catskill Forest Preserve Public Access Plan

Published by NYSDEC in cooperation with NYSDOT in 1999, the Catskill Forest Preserve Public Access Plan was intended to set forth a new vision for management of nearly 300,000 acres of public land within the Catskill Park, proposing opportunities to strengthen the connection between the Forest Preserve and local communities and improving the public's understanding of and access to the Forest Preserve. The Plan provides a useful blueprint to improve natural and recreational assets and to extend the public's ability to use and enjoy these resources for outdoor recreation, tourism, and economic opportunity.

The 1999 Public Access Plan provides estimates of annual visitation to the Catskill Forest Preserve for the period 1990 to 1997. Generally, annual visitation is approximately half a million people per year, of which approximately 80% occurs on Intensive Use lands, and approximately 20% occurs in lands designated as Wilderness or Wild Forest.

A number of key issues and actions are identified within the Public Access Plan. These include enhancing scenic travel corridors, improving the availability and distribution of informational material related to the Catskill Forest Preserve, and enhancing access to Forest Preserve lands for various recreational purposes.

1.3.2 Public Need For the Project

The Belleayre Mountain Ski Center is the primary economic engine of the Catskill High Peaks area: a group of Towns and Villages extending some twenty-five miles along NY Route 28 from Boiceville to Margaretville and including the Towns of Shandaken and Middletown and the Village of Fleischmanns. It is at the nexus of the three major Catskill counties: Ulster, Greene and Delaware.

The Ski Center is the major attraction, the key destination, the focus of activity for outsiders and the major generator of information for the world outside the region. It has a significant number of employees, around 450, and has a payroll of $\pm$ $2,200,000 per year. When its annual visitation is down – as it was for the middle years of the 1990's – all of the region's businesses suffer. When it is up, as it is currently, virtually all local businesses benefit.

As has been indicated in two major studies by Sno-engineering, one of the world's most respected resort consulting firms, the Belleayre Mountain Ski Center has almost unlimited potential. The first of these studies was conducted for the DEC in 1988 and the

second for the Route 28 Corridor Committee in 1993. These studies concluded that topographically, it is a very large mountain, with the potential for many more trails than currently exist, and for much more varied and more challenging skiing – all within the constitutional limit of 25 miles of trails within which it must function.

Sno-engineering personnel have been consistently of the opinion, enthusiastically expressed, that Belleayre has the capacity to be one of the major ski centers of the northeast. And its proximity to the major metropolitan markets of New York and Long Island make such a goal eminently realizable.

Without any major expansion, the Center could increase its present usage by 50%. With new capital expenditures, the mountain could quadruple its present visitation. The overwhelming majority of its visitors drive to and from the area in a single day. Whatever funds they spend, then remain on the Ski Center site: revenues from lift ticket sales go directly to Albany, revenues from the major concessionaire go directly to Boston. In order for the Ski Center to have the most salutary effect on the local economy, a major portion of these day-trips need to be converted into overnight stays. Only then will the local shops, restaurants, and lodging facilities see a significant improvement in their fortunes.

The primary barrier to this transition is the number and character of hotel rooms. The Lodging and Business Bureau has a total of only 430 rooms – many of them quite fine, but many more offering only very basic and old-fashioned accommodation. If Belleayre is to achieve its potential, it needs a major increase in the number and caliber of hotel rooms. The present administration of the Ski Center estimates that the area is now 500 rooms shy of what it currently needs. And if it is to reach its potential over the next decade, it will need as many as a thousand.

Resort areas – whether based on skiing or other activities – require a rounded menu of first-class and tourist-class rooms, together with an exciting array of shopping, *apres-ski* and other entertainments and these for a variety of family age-groups. And the construction costs of such new facilities can be justified only if the area has a menu of year-round activities to complement the winter ski season.

The Belleayre Resort at Catskill Park has been conceived and planned to serve as a major contributor to the ambient circumstances which will enable Belleayre Mountain Ski Center – and the region – to reach its full potential.

For almost forty years, the economic decline of the Central Catskills and the potential for a revitalized tourist economy have been subjects of studies by a variety of consultants and commissions. Crossroads Ventures, LLC was formed to address the recommendations these studies have made, and believe that the Belleayre Resort Project is the ideal fulfillment of these repeatedly stressed needs.

The analyses contained in the economic study for this DEIS (Appendix 26, "Economic Benefits and Growth Inducing Effects") were primarily completed in 2001, prior to the

economic uncertainty that has been growing regionally and nationally, most notably since the September 2001 attack. The construction costs, employment and fiscal generation, and the overall assessment of short- and long-term economic consequences of the project are expected to remain unchanged from what is described in this report. The applicant remains confident of the core market strength of the project (in fact, part of the post-September 2001 trend is a retrenchment of locally-based travel) and in the financial projections and the ability to secure project financing. However, employment opportunities and fiscal stability in New York State has proven to be more at risk and makes a private investment such as the proposed Belleayre Resort at Catskill Park an even more important strategic investment for the region and state.

A. Vollmer Associates, 1963

In his transmittal letter of March 20th, 1963, Arnold Vollmer of Vollmer Associates, a New York City firm of landscape architects and engineers hired by NYSDEC to study the potential of the Belleayre Mountain Ski Center, made the following opening assessment:

"Belleayre Mountain Ski Center...is intensively used for only about three months a year; at the same time there is an acute need for summer recreation facilities in the Catskill area."

Vollmer continues: "Expansion of the ski center for year-round use is both feasible and desirable. It will make more efficient use of existing facilities, increase park revenues, and benefit the local economy."

The report specifically recommended the acquisition by the state of additional lands adjacent to the ski center for the construction of a par three golf course. This acquisition and development never materialized.

The report also noted that visitation to Belleayre is primarily on winter weekends and consists mainly of day-trip usage.

B. Sno-engineering, 1988

In its Comprehensive Management Study prepared for NYSDEC and submitted in October, 1988, Sno-engineering expressed considerable enthusiasm for the potential of Belleayre Mountain as a major northeast ski venue and year-round resort, and expressed the opinion that such a resort, configured as a destination, rather than a day-use area, required ancillary restaurant, entertainment, retail, conference and lodging facilities, as well as "other season" amenities such as golf, tennis and equestrian activities.

C. Route 28 Corridor Committee Study

This study, funded through the Regional Plan Association by a JR Kaplan Fund grant, concluded, variously, that tourism was the most viable answer to the economic problems of the area (low or no population growth, low median incomes, high unemployment) and

the one most compatible with the watershed obligations to protect water quality. It strongly supported the expansion of Belleayre Mountain Ski Center, not only in winter capacity, but also in the development of year-round activities. New tourism amenities ought to be clustered around Belleayre, the area's key tourism asset, including an additional five hundred hotel rooms/resort accommodations.

While noting the need for strict environmental sensitivity, the report stressed that new resort facilities would need to be developed outside of the hamlets in scenic locations.

D. The Central Catskills Planning Alliance

In its "Tourism Development Plan for the Central Catskills" (November, 1998), the Alliance stated that a resort or lodge in a natural setting with good facilities and well organized outdoor activities (hiking, golf, horseback riding, etc.) would add to the area's appeal, particularly if tied to Belleayre.

Other recommendations include:

- Belleayre Mountain should form the focus of development. The mountain is the unique feature of the study area which is most appealing to consumers.

- To make Belleayre a year-round attraction, development around it should include indoor and outdoor pools, golf, and other activities targeted to school-age children.

- Other attractions such as a conference center/spa...may also be appropriate.

- A site for a major resort should satisfy several criteria. It should be large enough to establish its own environment, at least 50 acres, excluding the golf course. It should offer scenic views of mountains, streams, etc. It should provide easy access to hiking trails and, preferably skiing. It must be capable of supporting the necessary infrastructure – water supply, sewage disposal, etc., for at least 100-150 rooms and auxiliary facilities.

In an accompanying study of the potential market by the office of Thomas J. Martin, it was noted that a resort hotel may include golf, conference center, restaurant and possibly associated real estate development. This could also build on the winter activity at Belleayre Mountain Ski Area. Depending upon project components, this could range from 50 to 300 acres or more.

Martin also noted that development opportunity depends upon the availability of an excellent site. The project should be positioned to be unique in the market place.

In that same vein he notes that, for a golf-course to be a primary draw to the resort, it needed to be very special, designed and built by a "name" designer.

E. West of Hudson Economic Development Study

Prepared by Hamilton, Rabinovitz & Alschuler for the Catskill Watershed Corporation, this study (December 4th, 1998), concludes that "Tourism is extremely important to the Watershed economy. Tourism is not just for visitors. It also benefits full-time Watershed residents by providing a range of jobs at various skill and income levels."

HR&A notes that many Watershed hotels, physically deteriorated and functionally obsolete, have closed down. It continues to state that, "expansion of the tourist economy demands an adequate supply of high quality lodging facilities serving a range of target markets."

The study addressed the need for private capital, noting that resort development was beyond the scope of the Fund for the Future. The extraordinary costs and liabilities associated with large-scale private development and operation make such projects more appropriate for private sector lenders or the capital markets.

HR&A adds that the revitalization of Belleayre would be a major boon to the Watershed ski industry and would have substantial secondary impacts on the tourist economy. In addition to these studies various experts in the field of resort and golf development made additional studies of the proposed project. These studies all concurred that there is a need for this project, including the need for more than one golf course. These additional studies are described in more detail in Section 5.3, "Alternative Layouts."

In May of 1999, the Town Board of Shandaken, upon a motion of councilwoman Hoyt, voted unanimously (with one absentee), and reaffirmed the conclusions of both the Route 28 Corridor Committee Study and the Catskill Planning Alliance Study, and issued a position statement entitled "Belleayre Gateway Development Objectives," citing the Belleayre Mountain area as the major tourism asset of the region and recommending it as the focal point for future tourism development efforts (See Appendix 29, "Shandaken Town Board Documents").

1.3.3 Objectives

The primary objective of the proposed project is to develop a recreation-oriented resort that will compliment the current recreational opportunities at the Belleayre Mountain Ski Center and together to provide a four-season destination resort in the Central Catskill region, as outlined in the various studies discussed in Section 1.3.2.

1.3.4 Benefits of the Proposed Action

The Crossroads assemblage consists of a total approximately 1,960 acres of land. Of this 1,960 acres approximately 1,387 acres, or 71%, are not proposed for development. The approximately 1,387 acres of lands left undeveloped will be protected from future development by restrictions that could take the form of deed-restricted lands or conservation easements. These restrictions will be structured so that they run with the

land in the event of transfer of ownership. The benefits that will occur as a result of development restrictions on the approximately 1,387 acres include precluding further land development around the proposed project including additional impervious areas and additional wastewater generation, preservation of open space, protection of wildlife habitat, maintenance of an undisturbed forested buffer between areas proposed to be developed and the surrounding perennial streams (except for bridge crossings), and preservation of lands visible along the NY Route 28 corridor.

A. Roadway Improvements

The proposed project includes some road improvement measures that will also improve access and circulation around the Belleayre Mountain Ski Center and would be beneficial under the current existing conditions. Roadway improvements proposed as part of this project include realignment of a section of Ulster County Road 49A in the vicinity of the existing main (upper) driveway to the Ski Center. Motorists making a right turn out of the Ski Center's main (upper) driveway to go towards NY Route 28 currently have to contend with limited sight distances to their left. Horizontal and vertical realignment on Ulster County Road 49A proposed as part of the project will improve sight distances and provide safer conditions. The improvements proposed for the NY Route 28 and Ulster County Road 49A intersection include a left hand turn lane off of west bound NY Route 28 onto Ulster County Road 49A and a right hand turn lane from County Road 49A to NY Route 28 eastbound. A traffic signal that will be fully operational in the winter months and on flash in other months is also proposed for this intersection. These measures will improve through traffic flow on NY Route 28 as well as improve turning movements onto and off of NY Route 28.

B. Employment

The proposed project will provide significant employment opportunities.

During the construction phase the project will generate a total of 2,114 person years of direct employment and an additional 1,765 person years of indirect employment. The construction phase will produce direct wages and salaries of $81.09 million and indirect wages and salaries of $64.40 million.

The operation phase of the project will provide direct full time employment for 747 full-time equivalent employees including 542 full-time jobs and 330 seasonal and part-time positions. There will be a direct total annual payroll of $20.5 million, with an average full time salary of $27,272 annually. The operation phase of the project will also produce 211 indirect off-site jobs in the region with indirect wages and salaries of $7.43 million.

C. Tax Revenues

During the operational phase, the Resort would provide annual sales tax revenues to Delaware and Ulster Counties and the state. On an annual basis, these taxes are estimated to include $718,016 in sales taxes for Delaware County, $238,404 to Ulster County, and $1,210,692 to New York State.

For the operation phase there will be an annual property tax revenue increase of $1,503,154 in Shandaken and Ulster County allocated as follows:

Ulster County General	$186,777
Shandaken Town General	$148,277
Shandaken Highway	$176,656
Highmount Fire	$ 92,217
Big Indian Oliverea Fire	$ 23,512
Pine Hill Fire	$ 11,330
Pine Hill Light	$ 5,242
Onteora Central School	$745,546
Onteora School Library	$ 623
Margaretville School	$112,961

For the operation phase there will also be an annual property tax revenue increase of $526,472 in Middletown and Delaware County allocated as follows:

Delaware County General	$158,013
Middletown Town	$74,103
Highway Outside Village	$33,155
General Outside Village	$2,072
Middletown FD #1	$23,243
Margaretville School	$235,883

In addition to the employment and tax benefits provided by the project, it is projected that annual off-site Resort patron spending of $11.81 million will occur, and that this will occur mostly in businesses located in local village and hamlet centers. These visitor-generated expenditures would result in additional sales tax generation accruing to the Counties and State.

Because the construction of the project is expected to take advantage of tax-related benefits available through the Industrial Development Agency (IDA), sales tax revenue generation would not occur as a result of the project's direct construction expenditures. However, sales taxes would be generated by indirect construction-related expenditures, and from project-related, personal income, corporate and other business related expenses, including purchases made by contractor personnel involved in the construction of the Resort. These taxes will increase at the local, county, and State levels. For the construction phase of the project tax revenues of $95,800 will be generated for Delaware County, $732,100 for Ulster County, and tax revenues of $10,573,000 will be generated for New York State.

D. Crossroads Foundation

In addition to the several benefits outlined above, the major contribution of the Belleayre Resort Project will devolve directly upon the community in which it is situated. The investors in Crossroads Ventures, LLC have earmarked 1/3 of all the profits from their

ventures to be held by and for the use by the Crossroads Foundation, a not-for-profit corporation. The Foundation, by its charter, exists to enhance the cultural, health, youth, and education programs in the Towns of Middletown and Shandaken and the Village of Fleischmanns. The Crossroads investors in addition, have already vested the Foundation with personal cash contributions totaling $235,000. Initial grants have already been made in sums ranging from $5,000-$25,000 each to the Margaretville Memorial Hospital, the Belleayre Conservatory, the Skene Memorial Library, the Neal Grant Foundation, and the Catskill Watershed Museum. Crossroads Foundation undertook in the fall of 2001 a series of community wide forums in Middletown and Shandaken entitled Vision Quest 2010 to elicit from the community a list of community causes which future gifts by the Foundation should most appropriately target on a priority basis.

E. Recreation

The project will result in increased recreation opportunities, in addition to golf, on and around the project site including development of additional trails on the project site as open space, some connecting to and augmenting access to existing state trails administered by the NYSDEC. The SE Group, formally Sno-Engineering, has indicated the possibility of a family oriented moderate grade multi-use trail roughly following the right-of-way of the abandoned railroad. See Appendix 3, "Recreational Amenities Plan", for a full description of these amenities.

The project will help increase the attendance at Belleayre Mountain Ski Center. One of the goals of the facility improvements that are occurring at Belleayre under their 1998 Unit Management Plan is to increase capacity to serve 4,500 skiers per day. Recent attendance figures for Belleayre indicate that this figure was reached on four occasions this past ski season. Of these four days of skier attendance over 4,500, none of these occurred on weekdays. With the extended stays of Resort guests weekday use will likely see the largest amount of increase in attendance on a percentage basis. Resort guests would also utilize the expanding summer activities that occur at the Ski Center, including summer lift rides, concerts, craft fairs and dining.

F. Cultural Amenities

There is a considerable variety of cultural and arts related activities and organizations active in the towns of Middletown and Shandaken. These include:

- Open-Eye Theater (Arkville)
- Community Choral of the Catskills
- Roxbury Arts Group Festival
- October Festival at Belleayre Mountain Ski Center
- Shandaken Theatrical Society

- The German Alps Oktoberfest
- Belleayre Conservatory Music Festival
- Writers in the Mountains
- Empire State Railway Museum
- Margaretville Memorial Hospital Auxiliary Crafts Fair
- Pakatakan Farmers Market

The sponsoring organizations of these activities all operate on a not-for-profit basis and the funds generated by their activities are applied to a variety of community causes. It is expected that some proportion of Resort guests will exhibit a keen interest in some, if not all, of these activities, thus enhancing the financial purposes of these organizations.

The project will provide the added benefit of serving as an educational/instructional resource regarding the Catskill Park and the New York City Watershed for Resort guests. Information and activities provided by the Resort will enhance the appreciation of Resort guests of the benefits of the Park and the Watershed.

1.4 Environmental Review, Permits and Approval

In addition to reviewing the project as Involved and Interested Agencies under SEQRA, those agencies from which permits, approvals or recommendations are being sought will also have separate review processes for the proposed project. Below is a description of the permits and approvals being sought at the various levels of jurisdiction. These are summarized in Table 1-1, "Permits and Approvals."

1.4.1 Local

Local approvals are required from both the Town of Shandaken and the Town of Middletown. Preliminary sketch site plans were previously submitted to both Towns. More detailed site plans will be submitted to both Towns following this DEIS being accepted as complete by the Lead Agency. Specific requirements of the types of information to be provided during special use permit, site plan review, and subdivisions are included in the zoning ordinances and subdivision ordinances of the Towns of Shandaken and Middletown.

A. Shandaken

In the Town of Shandaken, Vacation Resorts require a Special Use Permit in lands zoned as R5, R3 and R1.5. There are approximately 1,563 acres of the project site in Shandaken. Approximately 1,363 acres are zoned R5, 159 acres are zoned R3,

approximately 40 acres are zoned R1.5, and approximately 1 acre zoned Highway Business (HB). Figures 1-9, "Zoning Map East" and 1-10, "Zoning Map West" illustrate the zoning of the project site for lands in Shandaken as well as the lands in Middletown. Special Use Permit applications are reviewed by the Planning Board. The seven general standards for issuance of Special Use Permits are listed in Section 116-39 of the Town of Shandaken Zoning Code. These include compatibility with surrounding land uses, roads, off street parking, screening, etc. Site Plan Review and Approval is also required from the Planning Board. Subdivision approval will be required from the Town Planning Board for the Highmount Estates 21-lot subdivision. Other lot line adjustments or subdivisions may be necessary to adjust existing lot lines in order to conform the properties to business agreements. General time frames for decisions in the Shandaken zoning code are within 90 days of application for special use permits or within 45 days of a special use permit public hearing, and within 45 days for an application for site plan approval or within 45 days of a site plan approval public hearing. These time frames are often extended when the Planning Board recommends further study and resubmission.

Performance guarantees may also be required by the Town. The amount and sufficiency of such performance guaranty is determined by the Planning Board after consultation with the Town Attorney, Building Inspector, Zoning Enforcement Officer, other local officials or its designated private consultants.

B. Middletown

In the Town of Middletown Resorts are subject to Special Permits in the R-5 and R-3 districts. The project site has approximately 397 acres in Middletown. Approximately 380 acres are in the R-5 zone and 17 acres are in the R-3 zone. The Middletown Planning Board reviews applications for Special Permits, Subdivisions and Site Plan Review. General standards for special use permits include compatibility with the districts and surrounding land uses, and standards associated with noise, fumes, vibration, shading, surface runoff, etc. A public hearing on a Special Permit may be held within 45 days of the submission of a complete Special Permit application and a decision is required within 45 days of the public hearing. The same time frames are in place for Subdivision and Site Plan Review in Middletown.

The Town of Middletown's zoning ordinance states that the Planning Board may require, as a condition of site plan approval, that the owner provide financial guarantee in an amount that the Planning Board determines to be in the public interest, to ensure that the proposed development will be built in compliance with the accepted plans.

1.4.2 County

Ulster County Health Department will review the Ulster County portion of project pertaining to wastewater disposal, water supply and food service. Preliminary plans and permit applications will be submitted following the acceptance of a complete DEIS by the Lead Agency and the review process will run concurrently with the SEQRA review of the project. Information that will be contained in permits for wastewater treatment and

disposal will include wastewater generation rates, engineering design of collection, treatment and disposal systems and soil characteristics for the one subsurface disposal are proposed for the Big Indian Plateau gate house. Water supply information to be provided will include sources, their capacity (quantity), and water quality, as well as the engineering design of production, collection, storage and delivery systems. The Health Department will also review the hotels, swimming pools and the Highmount Estates subdivision.

Ulster County Bridges and Highways will need to review and approve the plans for the realignment of Ulster County Road 49A in the vicinity of one of the proposed access locations to enhance sight distances and improve road safety. All project entrances onto County Road 49A will need to be reviewed and approved by the County Bridges and Highways Department including proposed grading, signage, and signaling. Preliminary plans and permit applications will be submitted following the acceptance of a complete DEIS by the Lead Agency and the review process will run concurrently with the SEQRA review of the project.

Ulster and Delaware County Planning Departments do not have formal permits or approvals for this project, but as regional planning bodies they are interested agencies under SEQRA. During the local special use permit and site plan review processes both County Planning Boards will be contacted and asked for their comments and recommendations. It is required by law that any project that is proposed within 500 feet of a municipal boundary or State Highway be referred to the appropriate County Planning Board(s) for their review. In those instances where a County Planning Board recommends that a site plan be disapproved by the local planning board, a majority plus one vote is required by the local planning board for local special use permit and site plan approval. When County Planning Boards recommend approval, a simple majority is required for approval at the local level.

1.4.3 Regional

Permits pertaining to stormwater management, wastewater disposal and sediment and erosion control will be required from NYCDEP. Activities falling under NYCDEP jurisdiction include such things as discharge of stormwater and sediment; preparation and implementation of stormwater pollution prevention plans; construction of impervious surfaces; the design, construction and operation of sewerage systems, and service connections.

The complete NYCDEP applications which require final construction-level details will not be submitted in full until after NYSDEC, as lead agency, issues a Statement of Findings pursuant to SEQRA. For purposes of the review of stormwater and wastewater treatment and management, substantially complete drawings and analyses are included in the NYSDEC permit application binder as well as Appendix 2 of this DEIS. This includes construction level details for stormwater management during construction for Phase 2 of the Big Indian Country Club. Phase 2 of Big Indian Country Club was chosen

for construction level detail after consultation with NYSDEC because it represents the most challenging stormwater design phase for the entire project.

1.4.4 State

A. NYSDEC

Permits from NYSDEC will be required for bridged stream crossings, wastewater outfall structures, wastewater disposal, water supply, and stormwater discharges. The project will also have to register with NYSDEC as a petroleum bulk storage (PBS) facility since a total of more than 1,100 gallons of petroleum will be stored on the site. Bulk storage of chlorine for the potable water treatment facilities, the swimming pools and spas will require registration of the site as a chemical bulk storage (CBS) facility. Mobile source air permits will be provided by the operators of the two on-site re-locatable rock crushers and the concrete batch plant proposed for the construction phase of the project. The applicant and consultants have examined the feasibility of operating smaller rock crushing equipment that would qualify under subpart 201-3.2 (1)(ii), (30), Exemptions and Trivial Activities for equipment under 400 brake horsepower and less than 150 tons per hour (tph) capacity. The construction phase at each site will operate with the smaller, less impacting equipment. Therefore, it will not be necessary to submit an air permit application as part of this DEIS. Operation of the project facilities will not require air permits because they do not exceed any of the thresholds that trigger the need for a permit. See the November 12, 2003, letter from ENSR International in Appendix 6, "Letters of Record."

This DEIS contains studies in support of the permit applications to NYSDEC (see Appendix 2, "NYSDEC Permit Applications." These permit applications reference other support studies/information included in the DEIS. A separate NYSDEC permit binder with all pertinent support studies/information included with the various permit applications is also submitted as part of this DEIS. It is anticipated that the permit review process will parallel the SEQRA review of the project, the timeframes for which will be in accordance with the rules and regulations pertaining to SEQRA and NYSDEC's Uniform Procedures Act, ECL Article 70, 6NYCRR Parts 621 and 624 ("UPA"). Any work done within the bed or banks of streams with a class of C(T) or higher, such as Birch Creek or the stream in Giggle Hollow, including road crossings via bridges or culverted crossings, or underground utility (sewer or water) line crossings or effluent discharge pipes will require a permit. The permit application illustrates a plan and profile view of the proposed work, including grading, filling, and structural elements. Also included in the permit application are measures to prevent erosion and sedimentation of the involved stream(s) in order to meet standards in 6NYCRR Part 608.

Any discharge of wastewater to groundwater or surface water requires a permit under New York's State Pollution Discharge Elimination System (SPDES). The types of information to be submitted are very similar to those required for Department of Health review. This includes the engineering of the collection, treatment and disposal systems.

Stormwater plans for construction and operation of the Resort will be reviewed by NYSDEC for SEQRA and permitting purposes. An individual SPDES permit for stormwater surface discharges is required for the project. As detailed construction level drawings are neither required nor feasible at this time, these drawings are currently not at that level of detail. To address agency questions regarding the sufficiency of the proposed conceptual design, construction-level detailed drawings have been prepared for the construction of Phase 2 of the Big Indian Country Club. These drawings demonstrate that the most challenging portion of the Resort Project in terms of potential impacts from stormwater during construction can be undertaken in full compliance with DEC standards related to soil erosion and sediment control.

A Water Supply Application (WSA) for a water supply permit will also have to be submitted and reviewed by NYSDEC. The WSA will need to describe the proposed service areas, identify the proposed source(s), and provide quantity and quality data for the proposed source(s). The WSA will also include detailed plans showing collection, transmission, storage and treatment of the water as well as an engineer's report on the proposed water system. Service of the Wildacres Resort by the Village of Fleischmanns' public water supply will require modification of the Village's water supply permit to include service to an out of district user as well as any substantial modifications to the existing system. The project also requires a WSA for the treatment and distribution of water from the Village of Fleischmanns, an application for which has been filed.

B. NYSDOH

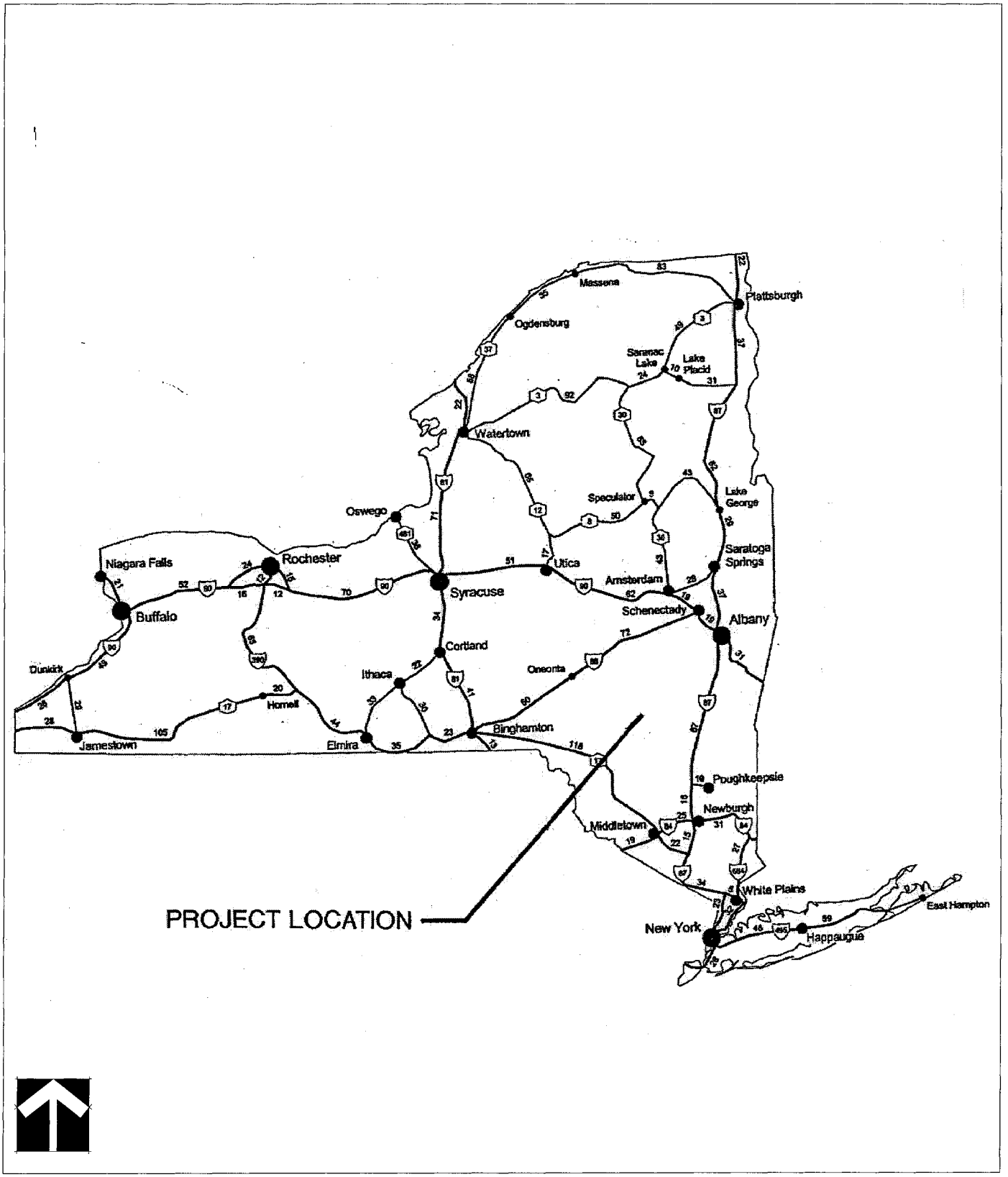
Unlike Ulster County which has its own County Health Department, projects requiring Health Department review in Delaware County are under the jurisdiction of the New York State Department of Health office in Oneonta. Permits for wastewater disposal, water supply and food service located in Delaware County will also be required from this agency. Preliminary plans and permit applications will be submitted following the acceptance of a complete DEIS by the Lead Agency. The review process will run concurrently with the SEQRA review of the project. The information to be provided in the permit application is the same as the information provided to Ulster County Department of Health described above. The Resort swimming pool located in Delaware County will also fall within this jurisdiction, as will the Highmount Estates subdivision that is located partially within Delaware County.

C. NYSDOT

Permits from NYSDOT will be required for work within the right-of-way of New York NY Route 28. This will include work for the entrance road off of Friendship Road as well as for the left turn lane and traffic signal at the intersection of NY Route 28 and Ulster County Road 49A. Applications for permits for these activities will be made after the DEIS is accepted as complete by the Lead Agency. It is anticipated that the review process will run concurrently with the SEQRA review of the project.

1.4.5 Federal

The US Army Corps of Engineers (ACOE) has regulatory authority over waters of the United States including those areas that qualify as federal wetlands. Waters of the United States and Federal Wetlands have been delineated on the project site and reviewed by the ACOE. Permitting requirements are described in more detail in Section 3.5.2 of this DEIS. The ACOE issued a Jurisdictional Determination for the project on February 22, 2002. On July 10, 2002 the Applicant and their consultants met with representatives of the USACOE. A copy of the Pre-Construction Notification submitted to the ACOE in December 2002 is included in this DEIS as Appendix 17A. Additional information submitted to the ACOE in May 2003 in support of the PCN can be found in Appendix 17B, "Supplemental PCN Information". The ACOE used this PCN to make their determination of compliance with the terms and conditions of the Nationwide Permits. On July 18, 2003 the ACOE issued a letter stating that an individual permit is not required for the project and that the jurisdictional activities proposed could be accomplished under Department of the Army Nationwide Permit Number 14. (See Appendix 6, Letters of Record.) No further authorizations are required from the ACOE.

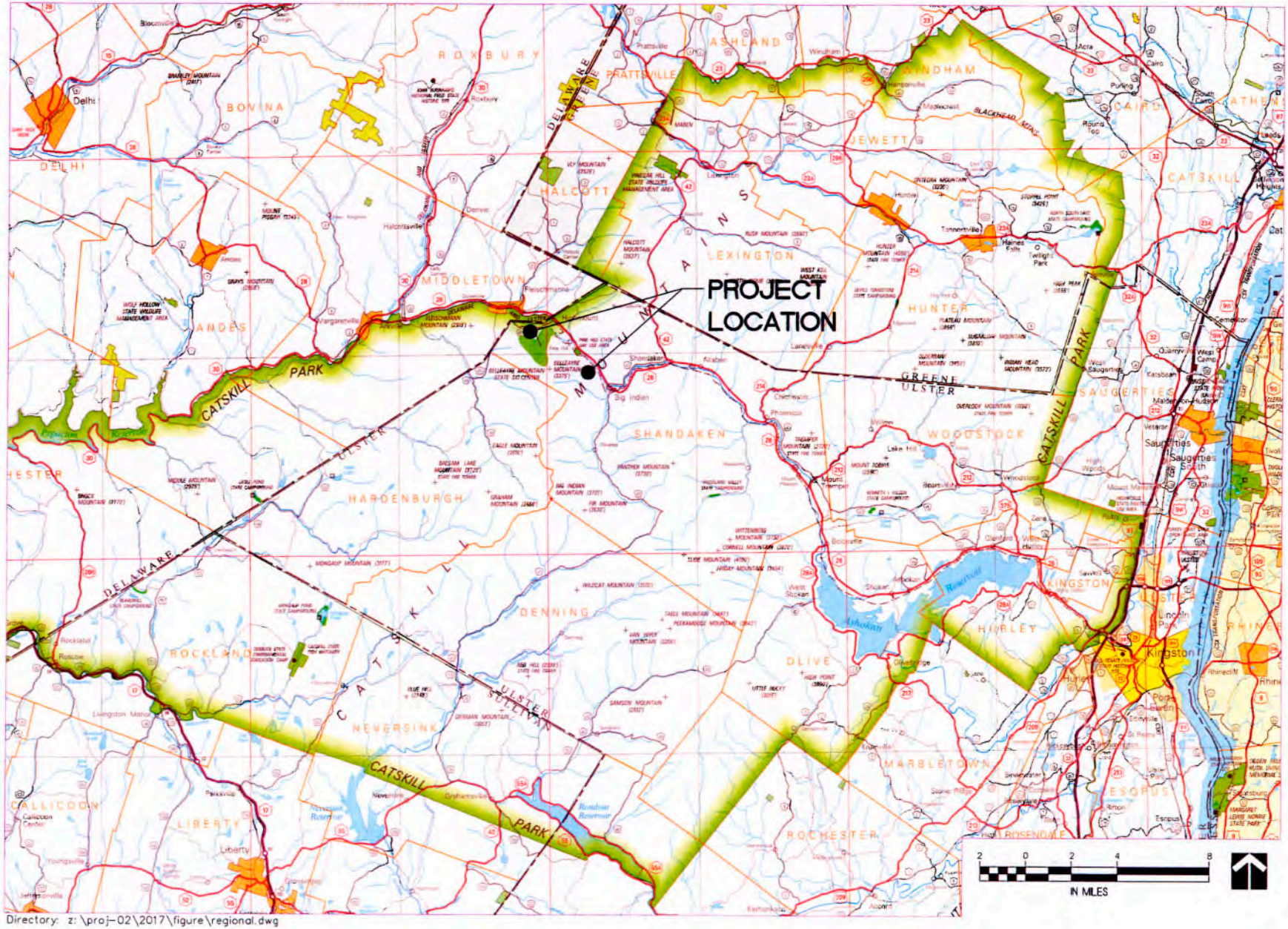


the LA group
Landscape Architecture
and Engineering, P.C.
40 Long Alley
Saratoga Springs
New York 12866
518/587-8100

BELLAYRE RESORT AT CATSKILL PARK
DRAFT ENVIRONMENTAL IMPACT STATEMENT

STATE LOCATION MAP

Date:
Project: 00052
Figure
1-1



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the LA group
Landscape Architecture and Engineering, P.C.

40 Long Alley
Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0180

BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

REGIONAL LOCATION MAP

Project: 00052
Date:

Figure 1-2

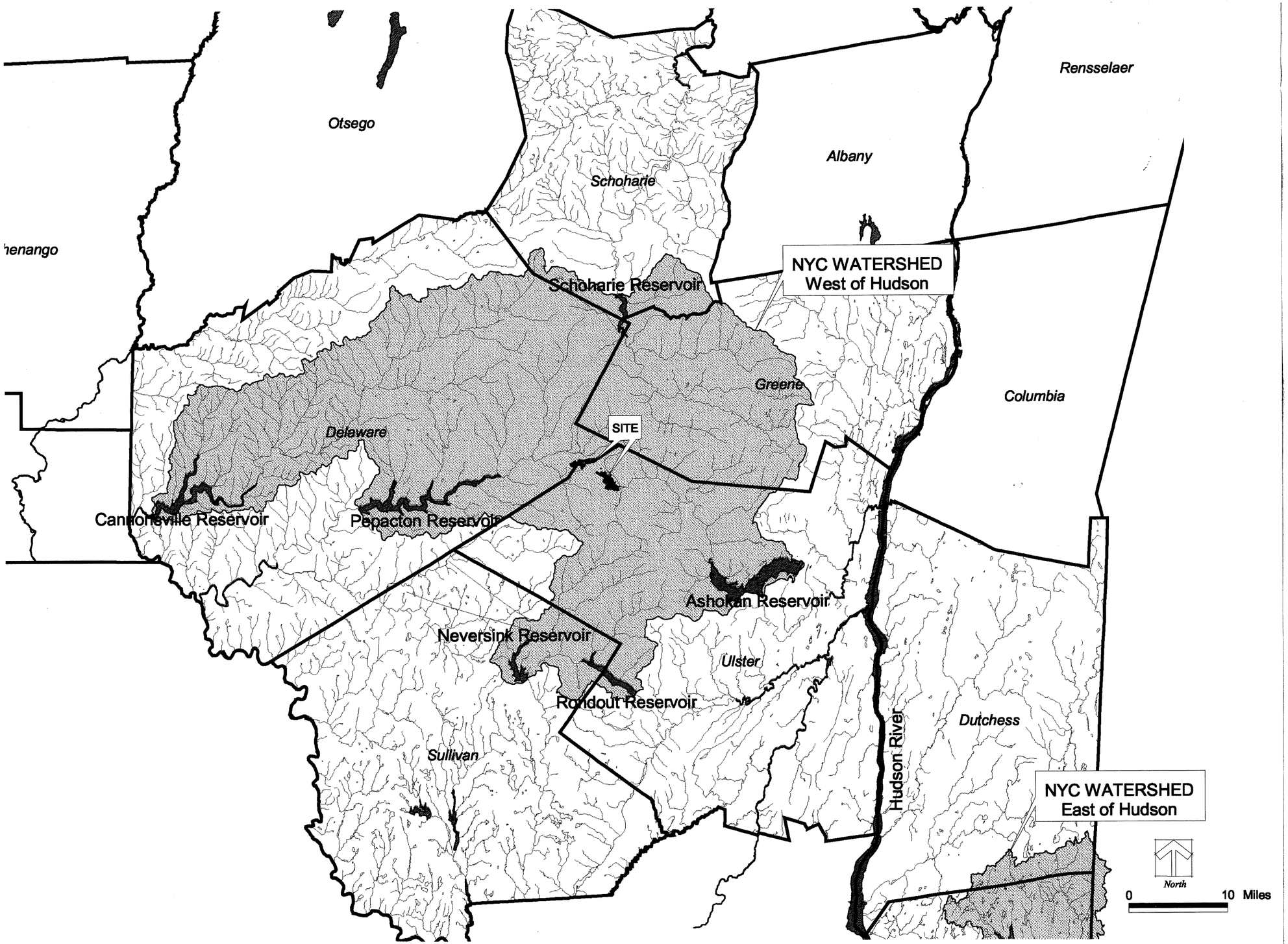
SOURCE:
Catskill Forest Preserve Public Access Plan
New York State Dept. of Environmental Conservation

the LA group
Landscape Architecture
and Engineering, P.C.
40 Long Alley
Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0160

BELLEAYRE RESORT AT CATSKILL PARK
DRAFT ENVIRONMENTAL IMPACT
STATEMENT

CATSKILL PARK

Date:
Project: 00052
Figure
1-3



the LA group
Landscape Architecture
and Engineering, P.C.

40 Long Alley
Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0180

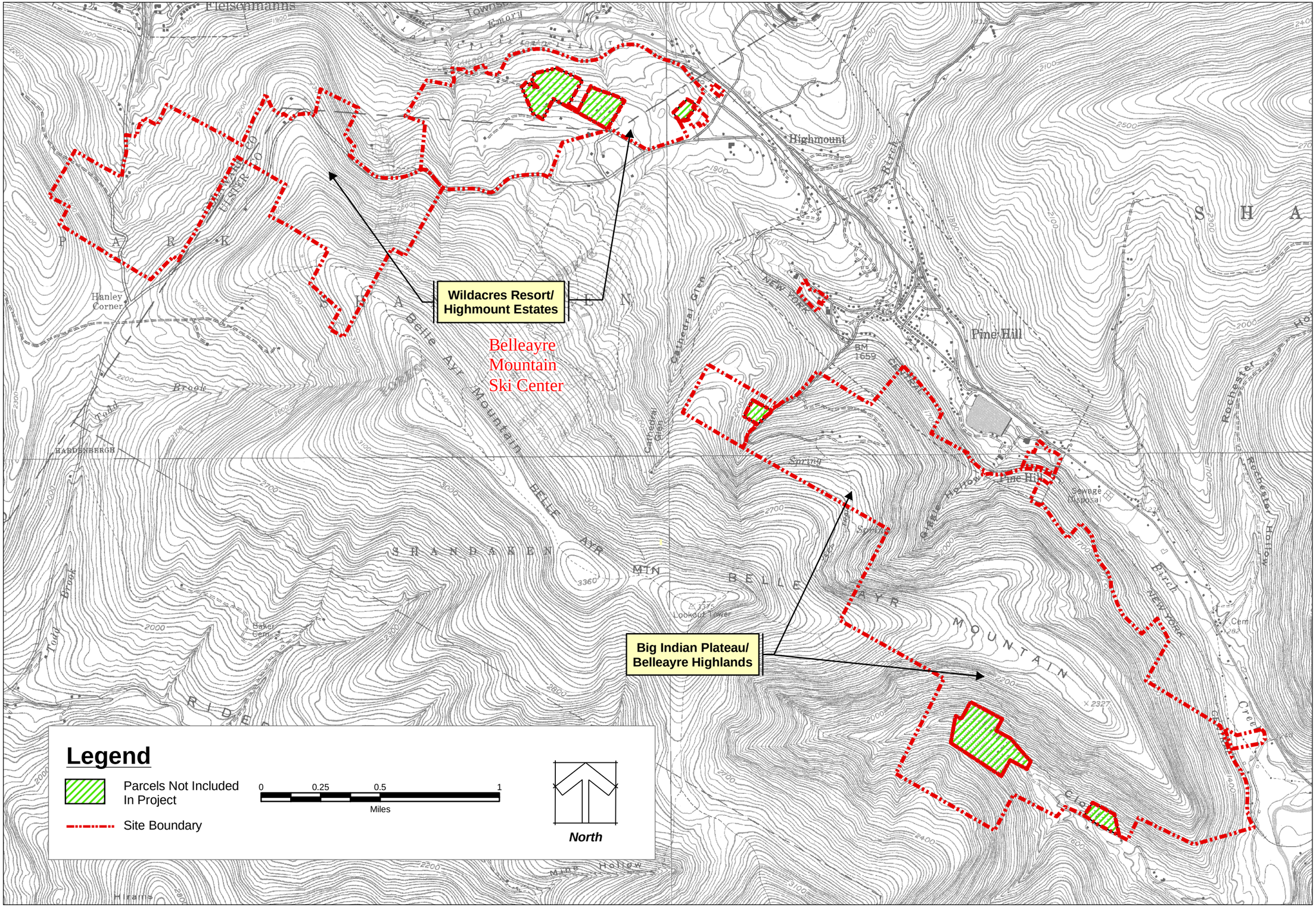
BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

WEST-OF
-HUDSON
WATERSHED

Project: 00052
Date:

Figure
1-4



the LA group
Landscape Architecture
and Engineering, P.C.

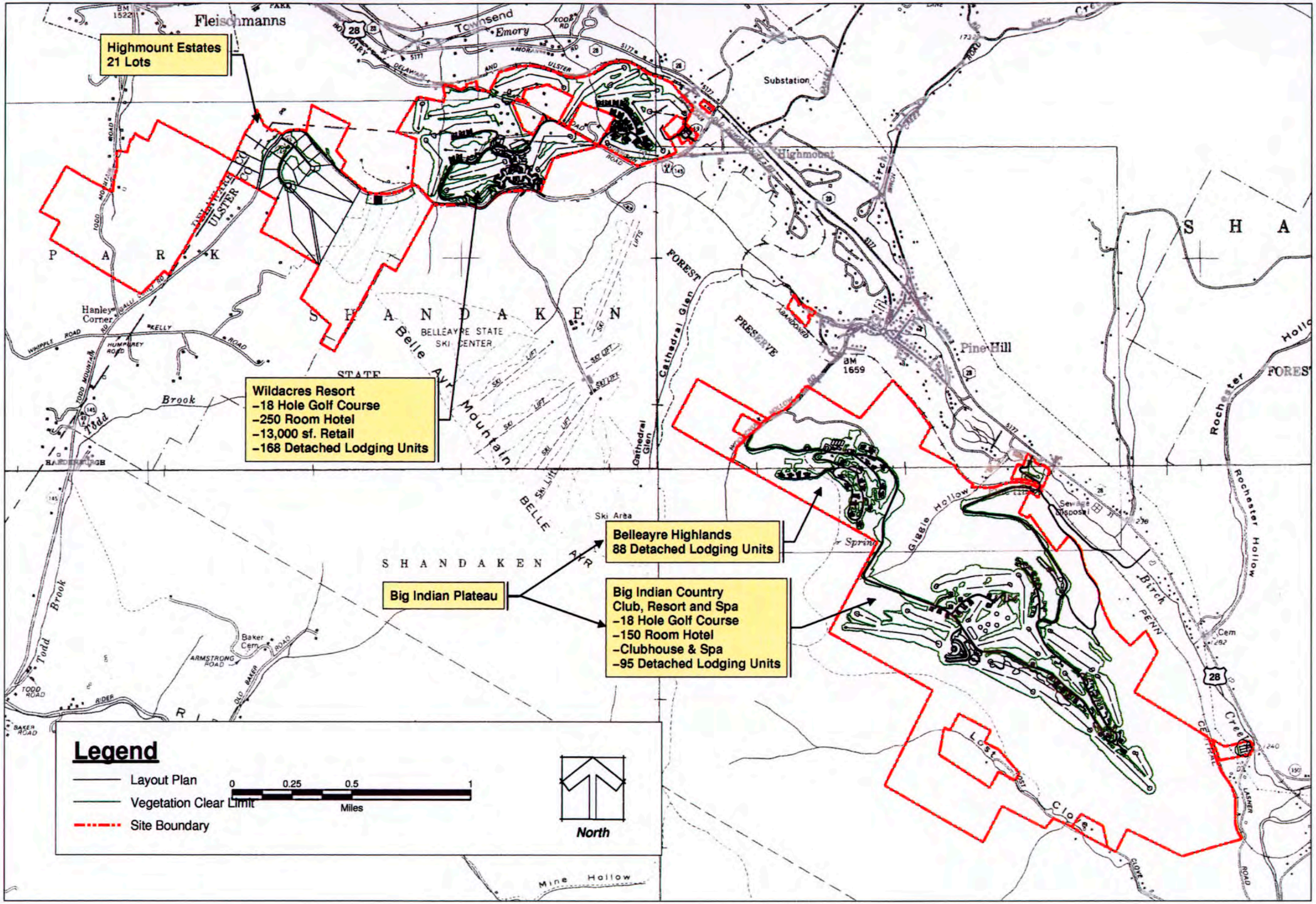
40 Long Alley
Saratoga Springs
New York 12866
518/567-8100
Telefax 518/587-0180

BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

SITE LOCATION MAP

Project: 00052
Date: 12/10/02
Figure: 1-5



the LA group
Landscape Architecture and Engineering, P.C.

40 Long Alley
Saratoga Springs
New York 12866
518/567-8100
Telefax 518/587-0180

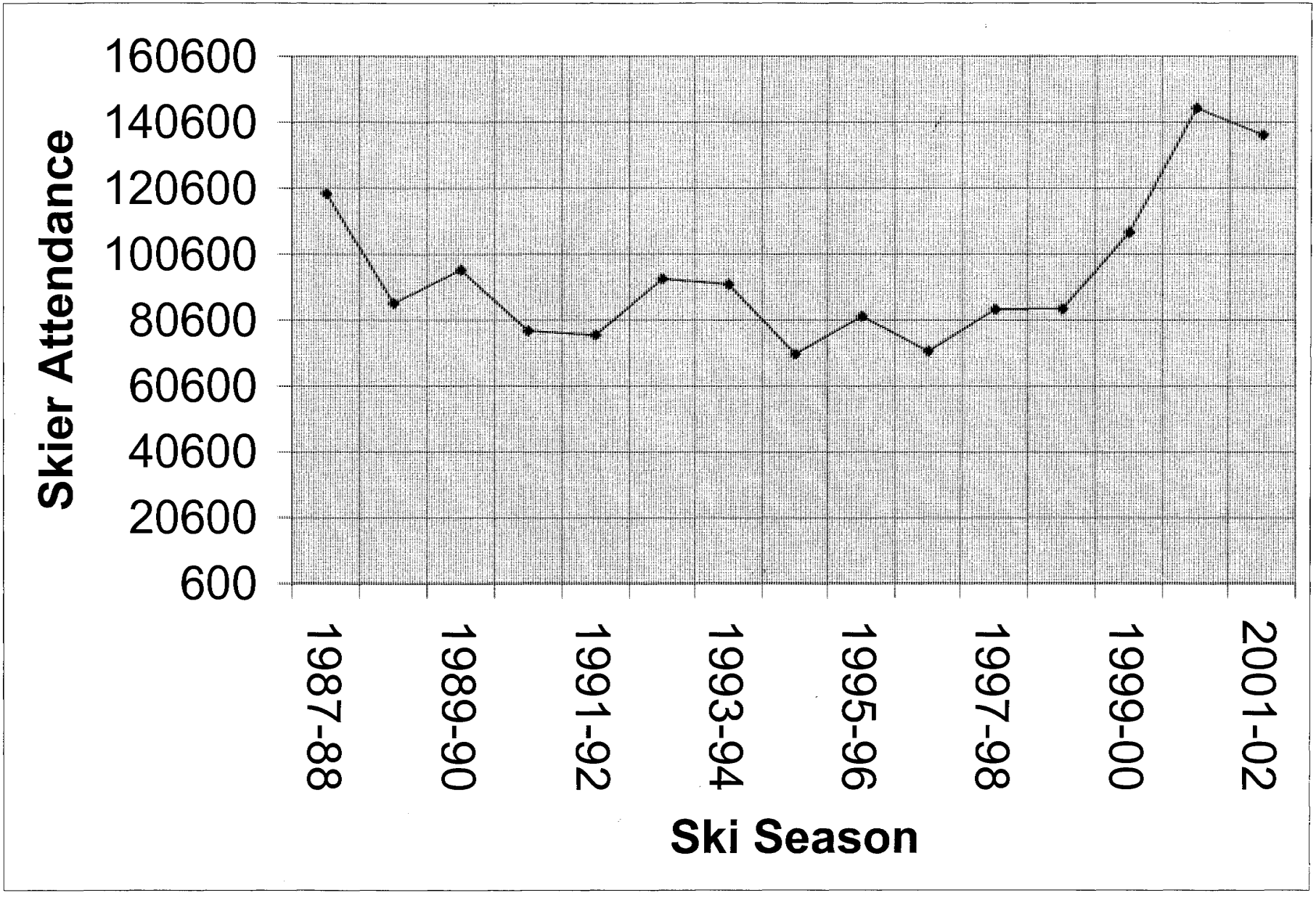
BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

LAYOUT PLAN

Project: 00052
Date: 12/12/02
Figure: 1-6

Figure 1-7 Belleayre Mountain Ski Center Attendance 1987-2002



SOURCE:
Catskill Forest Preserve Public Access Plan
New York State Dept. of Environmental Conservation

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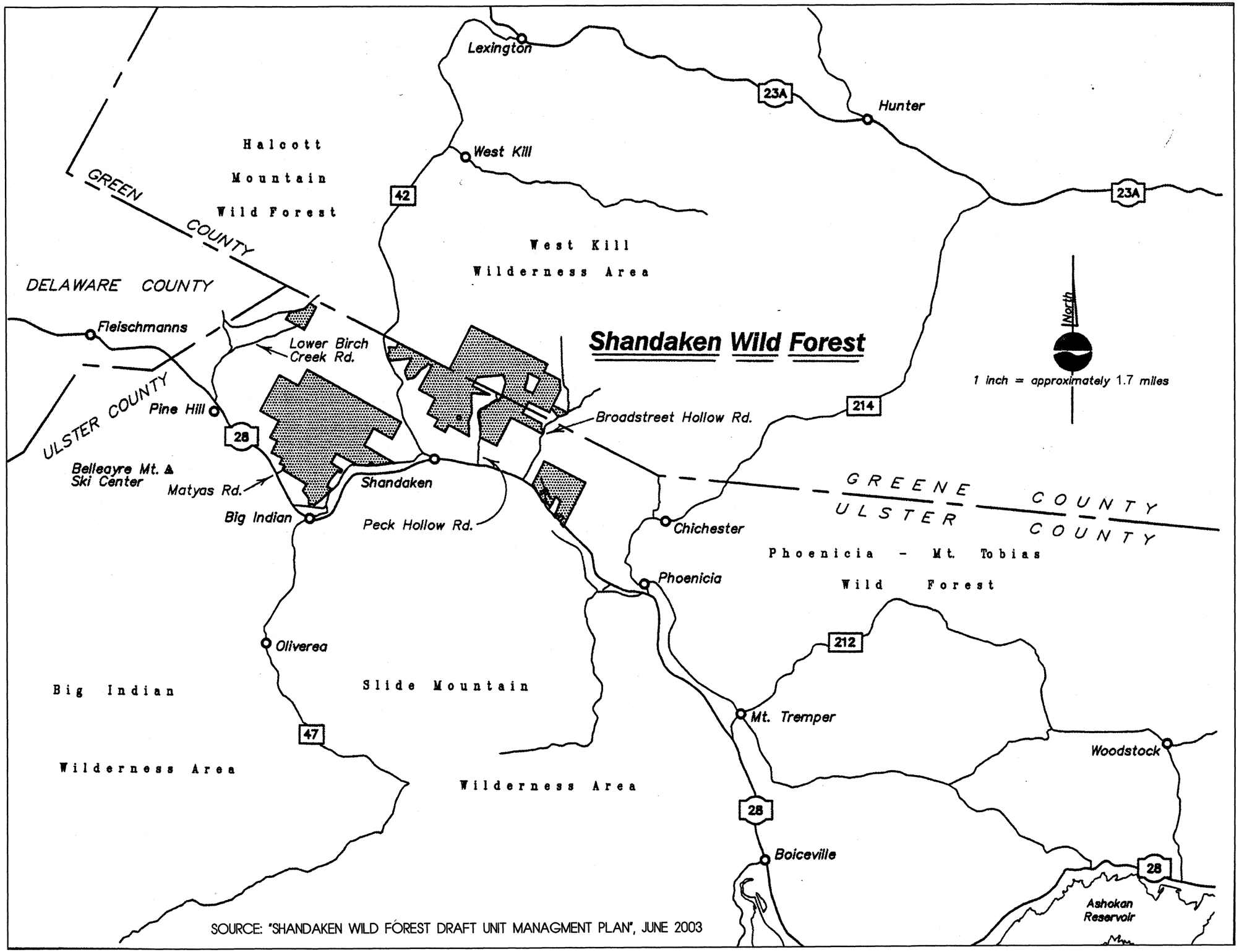
BELLEAYRE RESORT AT CATSKILL PARK
DRAFT ENVIRONMENTAL IMPACT
STATEMENT

BIG INDIAN-BEAVERKILL WILDERNESS AREA

Date:
Project: 00052
Figure 1-8



SOURCE: "SHANDAKEN WILD FOREST DRAFT UNIT MANAGMENT PLAN", JUNE 2003

the LA group
Landscape Architecture
and Engineering, P.C.

40 Long Alley
Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0180

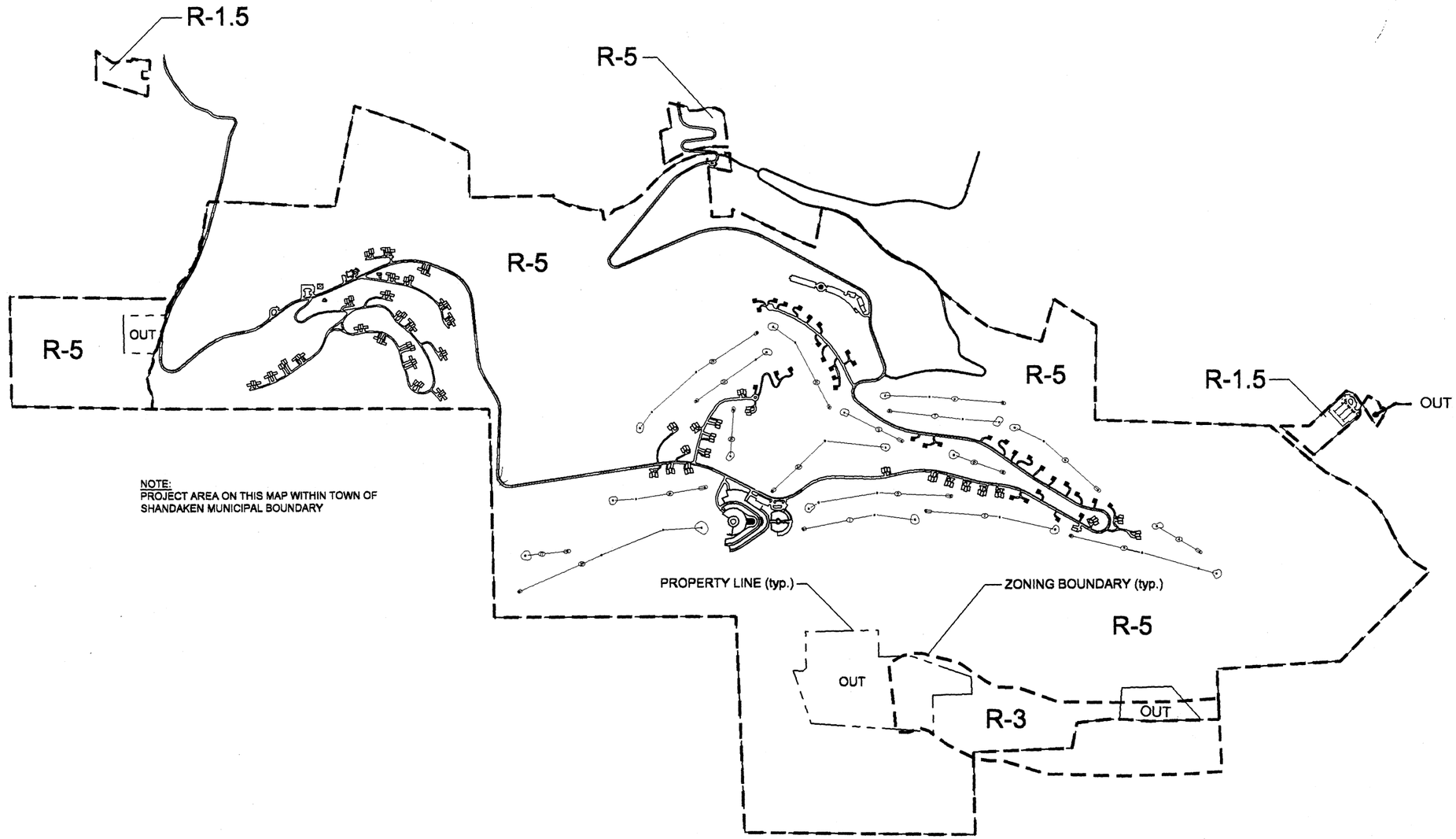
BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

SHANDAKEN
WILD FOREST

Project: 00052
Date: 9/23/03

Figure
1-8A



NOTE:
PROJECT AREA ON THIS MAP WITHIN TOWN OF SHANDAKEN MUNICIPAL BOUNDARY

GRAPHIC SCALE
660 0 660 1320 2640
(IN FEET)

the LA group
Landscape Architecture and Engineering, P.C.

40 Long Alley
Saratoga Springs
New York 12866
518/587-6100
Telefax 518/587-0180

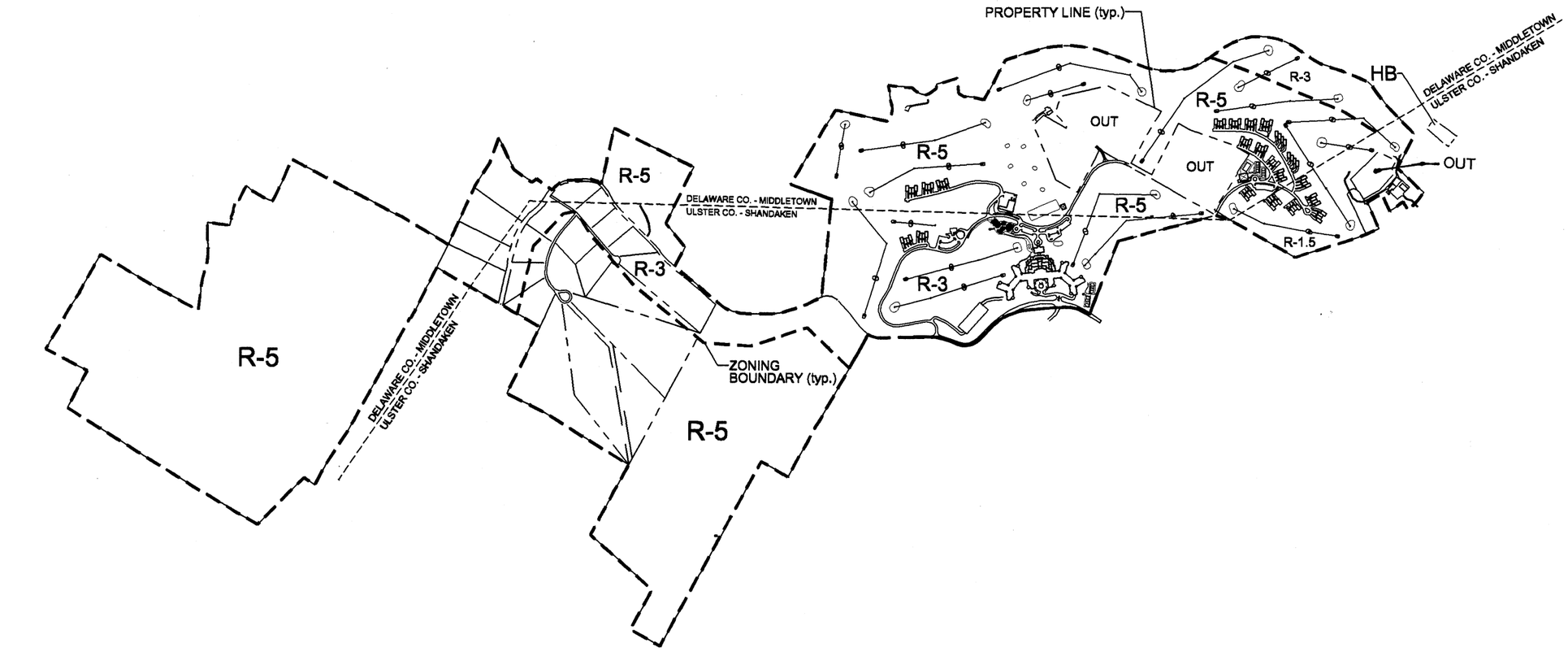
BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

ZONING MAP EAST

Project: 00052
Date: 1/18/02

Figure 1-9



the LA group
Landscape Architecture
and Engineering, P.C.

40 Long Alley
Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0180

BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

ZONING MAP
WEST

Project: 00052
Date: 1/18/02

Figure
1-10

Table 1-1 - Permits and Approvals

Local

Town of Shandaken
- Special Use Permit
- Site Plan Approval
- Subdivision Approval

Town of Middletown
- Special Use Permit
- Site Plan Approval
- Subdivision Approval

Ulster and Delaware County

Health Department (Ulster only)
- water supply
- wastewater disposal
- food service
- hotels
- swimming pools
- subdivisions

Bridges and Highways
- road improvements and driveways

Planning Department
- comments and recommendations to local Boards

Regional

NYCDEP
- Wastewater Treatment Plant and Subsurface Disposal
- Stormwater Pollution Prevention and Impervious Surface

State

NYSDEC
- Streambank disturbance
- wastewater disposal
- water supply, Big Indian Plateau and Wildacres Resort
- SPDES Stormwater Discharge From Construction
- SPDES Industrial Discharge from Operations
- Petroleum Bulk Storage
- Chemical Bulk Storage
- Water Quality Certification
- Public Water Supply Permit modification for Village of Fleischmanns

Table 1-1 Continued

NYSDOH
- water supply
- wastewater disposal
- food service for Delaware County portion
- hotels
- swimming pools
- subdivisions

NYSDOT
- NY Route 28 improvements

NYS Office of Parks Recreation and Historic Preservation
- Cultural Resources Consultation

Federal

US Army Corps of Engineers
- federal wetlands (Issued July 18, 2003)

SECTION 2 DESCRIPTION OF THE PROPOSED ACTION

2.1 Overall Project Design and Layout

The following is a more detailed project description than the description provided previously in Section 1.2.

2.1.1. East of Ski Center – Big Indian Plateau

The lands to the east of the Belleayre Mountain Ski Center are collectively referred to as Big Indian Plateau. The components of the Big Indian Plateau include the Big Indian Country Club with the Big Indian Resort and Spa, and Belleayre Highlands. A layout plan for this area is presented in Figure 2-1, "Big Indian Plateau Layout Plan", as well as the more detailed LA Group site plan drawing set (Sheets MP-4 through MP-6) that accompanies this DEIS. The following list outlines the project components.

Big Indian Plateau

A. Big Indian Country Club

1. 18-hole championship golf course
2. Practice range and practice green
3. Clubhouse connected to the hotel
   a. Pro shop
   b. 40 seat snack bar
   c. Locker rooms with steam and sauna rooms
   d. Cart storage
   e. Limited public access
4. Thirty-five 4-bedroom detached lodging unit buildings
5. Sixty 3-bedroom detached lodging units in 20 triplex buildings

B. Big Indian Resort and Spa

1. Luxury hotel with 150 rooms
2. Two restaurants of 75 and 150 seats
3. Beverage lounge with 50 seats
4. Ballroom for 200 people
5. Four meeting rooms
6. Full service spa with 15 treatment rooms and lap pool

C. Belleayre Highlands

1. Eighty-eight 2-bedroom detached lodging units in 22 quadplex buildings
2. Social/activities center at Brisbane (Turner) mansion

a. Game room
b. 25-seat snack bar
c. Reception, sales and operational offices

3. Outdoor swimming pool and cabana
4. Four tennis courts

Development is proposed on the flatter plateaus on this portion of the project site. The development footprints for the Big Indian Resort and Spa and the Big Indian Country Club are generally in the elevation range of 2,720 to 2,000 feet AMSL, while Belleayre Highlands is located on lands between 2,350 and 2,175 feet AMSL. The areas proposed for development support second growth wooded areas that have been repeatedly logged over the past 100 years, including in the 1990's. Surface waters on this portion of the project site include Birch Creek along NY Route 28, Lost Clove Brook, and a few intermittent drainageways in the internal portion of the project site. These lands are located in the very upper reaches of the Ashokan Reservoir watershed, approximately 20 miles away from the reservoir itself.

2.1.2 West of Ski Center – Wildacres Resort

Proposed on lands to the west of the Ski Center is the Wildacres Resort including the Highmount Golf Club, Highmount Estates and the Wilderness Activity Center. A layout plan for this area is presented in Figure 2-2, "Wildacres Resort Layout Plan", as well as the more detailed LA Group site plan drawing set (Sheets MP-1 through MP-3) that accompanies this DEIS. The following list outlines the project components.

A. Wildacres Resort

1. 250 room hotel across from upper Ski Center entrance.

    a. Resort-related shops up to a total of 13,000 square feet
    b. Two restaurants one with 150 seats and one with 300 seats
    c. 100-seat beverage lounge
    d. Indoor Pool
    e. Two Tennis Courts
    f. Full Service Spa with 15 treatment rooms and a lap pool
    g. 250 Seat Interfaith Chapel
    h. Conference Center with 500-seat ballroom/auditorium
    i. 200-seat ballroom
    j. Eight meeting rooms

2. Existing Marlowe mansion to be third restaurant, 150 seats, and operational offices

3. Highmount Golf Club

    a. 18-hole championship golf course
    b. Practice range and practice green

c. Clubhouse connected to the Hotel
   (1) 40-seat snack bar
   (2) Pro shop
   (3) Cart storage
   (4) Locker rooms with steam and sauna
   (5) Limited public access

4. 168 2-bedroom detached lodging units in 21 octoplex buildings

5. Clubhouse for octoplex detached lodging unit occupants

   a. 40-seat snack bar
   b. Outdoor swimming pool
   c. Health club
   d. Game rooms
   e. Reception, sales and operations office
   f. Two tennis courts

6. Children's Center for Members' and Guests' Children

B. Highmount Estates – 21 lot subdivision for the only single-family, privately-owned homes

C. Wilderness Activity Center – day use for Resort Members, Guests, and the Public

1. Four season facility offering programs in outdoor education and recreation with appeal for the 13-19 age group as well as adults

2. Utilize existing buildings at former Highmount Ski Area

   a. Main Building
      (1) Cafe with lounge and library
      (2) Locker rooms
      (3) Weight training room
      (4) Ski waxing room
      (5) Jacuzzi, sauna, steam rooms
      (6) New addition with indoor climbing wall and outdoor ice climbing wall and outdoor deck
      (7) connected to central water and sewer

   b. Chalet – outdoor equipment sales and rental space

3. New 15 foot by 25 foot warming hut building near top of former ski lift.

4. Limited parking for Wilderness Activity Center staff only. Guest and public access will be via a shuttle from the Hotels.

Development in this portion of the project site is an expansion of existing resort oriented land uses including the Wildacres Hotel and the former Highmount Ski Area. Lands between County Route 49A and Todd Mountain Road and lands to the west of Todd Mountain Road will remain undeveloped, with the exception of some walking trails.

Like the lands to the east of the Ski Center, much of the land to the west of the Ski Center consists of second growth forest that has been logged as recently as the 1990's. There is also evidence of previous agricultural use at the Wildacres Resort site and also on the lands for Highmount Estates. Elevations proposed for development are generally between 1,800 to 2,300 feet AMSL at the Wildacres Resort and between 2,400 to 2,800 feet AMSL at Highmount Estates. This portion of the project site contains some intermittent drainages and is located in the upper reaches of the Pepacton Reservoir, 14 miles above the reservoir itself.

2.2 Project Components

A. Total Land Areas (Developed and Undeveloped)

- Entire project assemblage = 1,960 acres.
- Lands to the east of the Ski Center (Big Indian Plateau) = 1,242 acres.
- Lands to the west of the Ski Center (Wildacres Resort) = 718 acres.

B. Existing Development and Historic Use of the Property

1. East of Ski Center

Existing development on the Big Indian Plateau portion of the project site consists of two hunting camps, a house and barn on 6 acres off of Lost Clove Road which will be separated by a lot line adjustment and sold, the State hiking trail trailhead on Lost Clove Road, the Brisbane (Turner) Mansion, carriage barn and caretaker's house and its surroundings, and lands off of Bonnieview Avenue formerly known as the White Horse Lodge. Together these developed lands total approximately 16 acres. Improved roads on this portion of the project site include an upper and lower driveway at the Brisbane Mansion that total 1.1 miles, and the upper portions of Winding Mountain Road that total approximately 1.2 miles. There are also over 13 miles of dirt/logging roads located throughout the property. State hiking trails also exist on this portion of the project site, including approximately 0.8 miles of trail off of Lost Clove Road and approximately 0.4 miles of trail off of the Brisbane Mansion upper driveway. Figure 2-3, "Existing Development Big Indian Plateau", illustrates the location of these facilities.

2. West of Ski Center

On the western portion of the project site developed lands include the parcel of the existing Highmount Post Office, the Marlowe Mansion/Wildacres Hotel area, a residence and barn off of Gunnison Road, the house and outbuildings of the former Leach farm on Galli Curci Road and the former Highmount Ski Area. Together, these existing developed lands total approximately 99 acres. The driveway to the Marlowe Mansion/Wildacres Hotel area is approximately 1,000 feet long off of Gunnison Road. There is a road at the former Highmount Ski Area from the base to the top of the ski area that is approximately 0.9 miles long. Figure 2-4, "Existing Development Wildacres Resort", illustrates the location of these presently developed areas.

3. Historic Use and Potential for Site Contamination

Historic uses of the project site are known to have included long term and extensive logging (lands comprising the assemblage and the project site have been comprehensively and repeatedly logged over the last century, including in the 1990's), residential, agriculture, and a ski area. There were no known historical industrial or commercial uses that could have resulted in releases of hazardous materials on the project site.

There were no hazardous materials found on or around the project site during the numerous site investigations performed by the various members of the project's team of consultants. Members of Crossroads Ventures are also intimately familiar with the property, especially over the last 35 years or so, and have no knowledge of any hazardous materials on the project site.

With the exception of the Brisbane (Turner) Mansion and some old hunting camps, the Big Indian Plateau portion of the site is currently undeveloped and historically undeveloped. The LP gas furnace at the Brisbane mansion and oil furnace and tank at the Marlowe mansion are in good working condition.

C. Proposed Development

1. East of Ski Center – Big Indian Plateau

- Approximately 331 acres developed of 1,242 acres total

a. Big Indian Country Club, Resort and Spa

- 154 acres for golf
- 109 acres non-golf

- 3.50 miles of roadway, 2.87 miles for main access road, 0.63 miles for spur roads
- Hotel and Spa total parking for 292, with 250 covered parking spaces and 42 spaces of surface parking
- Two employee parking areas served by shuttle buses, 170 spaces off Lasher Road, 125 near golf maintenance.
- 31.7 acres for detached lodging units, including 3.3 acres of buildings and 3.36 acres of driveways.

b. Belleayre Highlands

- approximately 68 total acres proposed to be developed
- 2.39 miles of road, including 1.19 miles main access and 1.20 miles of spur roads.
- Parking: 30 spaces at tennis/pool and 10 at Brisbane mansion
- Approximately 33 acres for detached lodging units, including 2.5 acres of buildings and 1.65 acres of driveways.

2. West of Ski Center – Wildacres Resort

- Approximately 242 acres developed of 718 total acres.

a. Highmount Golf Club and Wildacres Hotel

- 138 acres golf
- 104 acres non-golf
- 1.85 miles of roadway, 0.85 mile for main access road, 1 mile of spur roads
- Hotel and Spa parking from a total of 542, 250 parking spaces underground, 208 additional parking spaces in two story parking garage at hotel.
- 236 spaces surface parking
- Approximately 22 acres for detached lodging units, including 2.65 acres of building footprint and 1.65 acres of driveway

b. Highmount Estates

- 2,400 feet internal roads
- 21 single family home lots, 10.5 acres for homes, yards, drives

c. Wilderness Activity Center

- only new building 15 foot by 25 foot warming hut
- addition to existing main building for climbing walls and outside deck

D. Undeveloped Lands

1,387 acres of the Crossroads' assemblage of 1,960 acres, or 71% of their holdings, will remain undeveloped. Figure 2-5, "Undeveloped Lands", illustrates their location and extent. Deed restrictions or conservation easements will be placed on these undeveloped lands that would prohibit their future development.

Public access will continue at the existing State hiking trails on the property. Additional public access to the proposed undeveloped private lands is not proposed as part of this project. However, additional public recreation opportunities may be pursued with NYSDEC in cooperation with Belleayre Mountain Ski Center, other administrative units of the State of New York, or such conservation organizations as may obtain easements over the non-developed portion of the project.

2.2.1 Golf Facilities

The proposed project includes two (2) 18-hole championship golf courses and related amenities, the Big Indian Country Club on project lands to the east of the Ski Center and the Highmount Golf Club on project lands to the west of the Ski Center.

The two project golf courses were designed by Love Enterprises, the company headed by professional golfer Davis Love III.

A. Golf Course Design Considerations

Golf courses can be differentiated by their length; they include full-length courses, executive or precision courses, par 3's and approach courses, pitch and putts, chip and putts, and putting courses. This discussion will focus on full-length courses. When discussing full length courses the terms "championship" and "regulation" are sometimes used interchangeably. Certain characteristics result in a course being a championship/regulation course, and it is the project's objective to provide these characteristics.

A local example of a regulation course is the existing 18-hole championship Hanna golf course. This golf course contains 18 holes that are a combination of par-3's, par-4's and par-5's. Par is the number of golf strokes necessary to complete the golf hole, and par is determined by the length of a particular hole. A combination of pars that is considered to be regulation is ten par 4's, four par 5's, and four par 3's. The sequences of pars also dictates golf course design. Consecutive par 3's or par 5's are to be avoided. No par 3 should occur before the third hole to reduce crowding on the first and second tees. There should be two par-3's and two par 5's in both the first nine and last nine holes. Adjacent golf holes need to be adequately separated for safety reasons. There should be a minimum of 200 to 250 feet between centerlines of adjoining holes.

A total length of approximately 7,000 yards from the furthest tees is another standard for courses designed to be attractive to today's golfers who are capable of hitting the ball further due to the technological advances in golf equipment. A course for all golfers can be accomplished when all playing levels are given consideration via the provision of multiple tees for each golf hole. The proposed golf courses both have multiple tees for each golf hole.

Another factor that influences the design of a championship golf course is the provision of what is known as returning nines. Returning nines simply means that the first hole starts near the clubhouse and the ninth hole ends near the clubhouse, halfway through the 18-hole course. Similarly the 10^{th} hole starts near the clubhouse and the 18^{th} hole finishes near the clubhouse to complete the returning nine golf course. Advantages of returning nines include providing the option of playing only nine holes, players can start on either the first or tenth holes, players can utilize clubhouse facilities such as restrooms, snack bar and the pro shop in the middle of their round, and overall easier operations.

B. Site Suitability for Golf

There had been some contention earlier in the SEQRA process that the proposed project site, particularly the Big Indian Plateau portion of the site, is unsuitable for a golf course due to its location and elevation. This contention is unfounded based upon local land use history, the geographic distribution of existing golf courses and ecological principles. As per the project Scoping Document, the following is a discussion of the site's suitability for golf course development.

Up until the 1960's a number of golf courses existed close to the project site. These included the nine-hole course at the Grande Hotel, the nine hole Takanassee golf course in Fleischmanns and the nine-hole golf course at the Shandaken Inn. The former golf course at the Grande Hotel was roughly at the same elevation as the Highmount Golf Club (1,900 – 2,200 feet). By comparison, the Big Indian Country Club golf course is between an elevation of 1,990 to 2,740 feet.

The Tennanah Lake Country Club, an 18-hole championship golf course approximately 30 miles southwest of Belleayre in Sullivan County, is at a general altitude greater than 2,800 feet, roughly 500 feet higher the proposed Big Indian Country Club.

Portions of the Big Indian Country Club golf course are approximately 550 feet higher in elevation than the former Grande Hotel golf course. On average, temperatures in mountainous regions decrease about 0.5 degrees Celsius for every elevation increase of 100 meters (328 feet) (Darbenmire, 1974). Therefore, the temperature difference between the elevation of the former Grande Hotel course and the proposed Big Indian Country Club can be expected to be less than one degree Celsius. This difference in temperature certainly is not enough to make a difference in the successful establishment and growth of turf on the proposed golf course.

When constructing new ski trails at the Ski Center, portions of which are at higher elevations up to 3,330 feet, a seed mix is used that contains some of the same grasses proposed to be used at the proposed golf courses. The Blue Seal Feeds® Conservation Mix is composed of more than 33% fine fescue and almost 10% Kentucky bluegrass. These are the two grass species currently proposed on the fairways of both golf courses (creeping bentgrass will be used if suitable lower maintenance varieties are available at the time of construction). Fine fescue, Kentucky bluegrass, and creeping bentgrass are all species native to New York State (Mitchell and Tucker, 1997) and areas further north, including Canada (Gleason and Cronquist, 1963). Figure 2-6, "Turf on Belleayre Mountain Ski Slopes", illustrates how turf can be grown at higher elevations, even under low intensity maintenance implemented on the ski slopes at the Ski Center.

Temperature regimes and the ability to grow and maintain golf course turf will vary not only with altitude but also with latitude. More northerly climates will generally have colder temperature regimes and shorter growing seasons. However, unlike the altitudinal and temperature (climatological) relationship described above, there is not a precise correlation of temperature changes with latitude.

In New York State there are a number of golf courses in the Adirondack Region that are at altitudes comparable to the proposed Big Indian Country Club golf course. There are two golf courses at elevations over 1,900 feet located approximately 160 miles to the north in the Lake Placid area (latitude 44 degrees 15 minutes, versus 42 degrees 7 minutes for the Big Indian Country Club). At about the same latitude as the Lake Placid golf courses there is a golf resort in Michigan called Crystal Mountain Resort. The golf course superintendent at this course reports excellent playing conditions on the 18-hole course, including a successful grow-in during 1997. Seeded in August of 1997, this golf course was ready for play in June of the following year.

One can even go much further north than Lake Placid or Michigan to find successful golf courses. The Anchorage Golf Course, an 18-hole, 6,616 yard, par 72 golf course was constructed in 1987 and offers play between May 15th and October 1st. Another example is Mountain Acres Golf Club in Sainte-Agathe Quebec, Canada. Located in a "picturesque mountain setting" (Golffacts, 1995) this 18 hole, par 70 course requires reservations one week in advance in order to play, a testimony to its high quality.

Also substantiating the site's suitability for growing golf course turf is the US Department of Agriculture's Hardiness Zone Map for plants in the United States. As illustrated in Figure 2-7, "Hardiness Zone Map", the country is divided into a number of zones corresponding to different ranges in average annual minimum temperatures for each zone. The project site occurs in zone five (5), with a minimum average temperature of –20 to –10 degrees Fahrenheit. By comparison, the Lake Placid region and the locations for the Anchorage Golf Course and Crystal Mountain Resort in Michigan are all within zone four (4) with average annual minimum temperature of –30 to –20 degrees Fahrenheit.

It is recognized that these zones are mapped on a large scale and there can be some local variability. However, an analysis of actual minimum daily temperatures at Slide Mountain and Lake Placid climatological monitoring stations for a five year period (1989-1993) confirms the hardiness zone mapping. During this period minimum daily temperature at Slide Mountain averaged –10 degrees Fahrenheit (-10, -9, -9, -9, -13 degrees), while the minimum daily temperature reported at Lake Placid was –24.8 degrees Fahrenheit (-29, -15, -27, -22, -31 degrees). The data corroborate the variability of the temperatures with literature discussed previously. The lower temperatures at Lake Placid were recorded at an elevation of 1,998 feet while temperatures at Slide Mountain are measured at an elevation of 2,650 feet.

The terrain on which the golf course is located is suitable for growing and maintaining turf. For obvious reasons, areas of golf course turf cannot be placed on slopes so steep that it prohibits golfers from playing or the use of maintenance equipment such as mowers.

Soils mapped for the areas proposed for golf courses as part of an on-site high intensity soils mapping include the Elka, Halcott, Lewbeach, Vly, and Willowemoc soil series. The USDA Soil Conservation Service (1993) rates these soils' suitability for golf course use. In general these soils are listed as moderately limited for golf course use due to the presence of stone or rock. This limitation is easily overcome by the standard golf course construction practice of using "rock-picker" equipment once the final grade/seedbed is in place. This type of equipment is commonly used when preparing seedbeds and planting beds not only on golf courses but athletic fields, landscaping areas, etc. Typically the machinery sifts the top four to six inches of soil removing rocks and stones as it moves along. Vly soils are ranked as being further limited by being droughty. This can be overcome by proper irrigation. Halcott soils are limited by depth to rock. Based upon deep hole test pits performed on the site the amount of Halcott soils proposed for development is very limited. (See Section 3.6, "Soils.")

C. The Big Indian Country Club

1. Golf Course

The Big Indian Country Club is one of the proposed 18-hole golf courses. This golf course and related amenities are illustrated on Figure 2-8, "Big Indian Country Club

Layout Plan", as well as the more detailed site plans, including LA Group Plan Sheets MP-4 and MP-5 that accompany this DEIS. The 18-hole course was the first component of Big Indian Plateau to be designed, so that the most suitable large areas of lesser slope were utilized for the golf course. The golf course is located on the plateau on the top of the ridge as well as on flatter "benches" moving down from the top of the ridge to the north. The par 71 course totals 6,980 yards, including a finishing 18th hole that is a par 5, 720 yard hole. The golf course has returning nines. This golf course will primarily be a private golf course available to club members. Weekday tee times will be available to local residents. Similarly, on those days when tee times are not all filled by Resort guests, these tee times will also be available to the public.

2. Amenities

A golf clubhouse is proposed at the east end of the Big Indian Resort and Spa building. The clubhouse will include a pro shop, a 40-seat snack bar, locker rooms with steam and sauna rooms and cart storage. The cart storage will include a 250 gallon gasoline tank for the golf carts. The tank and lines will be above ground and may be a skid-mounted tank surrounded by impervious concrete containment of sufficient capacity to capture and hold the total storage volume of the tank. Alternatively, petroleum storage may be a self-containment type such as a ConVault® storage tank. Petroleum storage and dispensing equipment will be located under an open-sided but covered structure. Pumps will be protected by bollards and the area will be planted with landscape screen plantings.

Also proposed is a driving range and a practice putting green. The driving range will be available for players to warm up prior to playing golf, practice, and/or take golf lessons from the golf pro. The driving range will not be available for fee use and will only be operated during the daytime. No night use/lighting of the driving range or any other part of the golf course is proposed.

3. Maintenance Facilities

The main maintenance facility for this golf course is located off of the main access road just to the north of the golf course itself. Figure 2-9, "Big Indian Country Club Golf Maintenance Area", illustrates the components of this area. A 4,000 square foot building will contain employee offices, lockers, restrooms with showers, as well as an open area for mechanic's work space, and storage of materials such as irrigation heads, piping, etc. Lesser-used golf course maintenance equipment that may only be used once or twice a year (i.e., core aerator, topdresser, etc.) will also be stored in this building.

A second building of approximately 3,000 square feet at the main maintenance facility will primarily be used as cold storage of maintenance equipment and supplies. Also included with this building will be a pesticide mixing and recycling area. Figure 2-10, "Pesticide Mixing and Recycling Area", illustrates this feature. The area consists of an exterior concrete pad that slopes to the center where there is a grate over a concrete sump. The concrete pad is covered by a roof. The sump contains a pump that is piped to two 500-gallon above ground storage tanks inside the building. Rinse water from cleaning

pesticide application equipment will be captured, pumped to the tanks, and stored and reused when future pesticide solutions need to be made. Any filling and mixing of pesticide application equipment would be made on the same concrete pad. Should any material be released during mixing it will be captured and recycled similar to rinse water. The recycle water holding tanks will be housed within the building on a concrete pad and sufficient containment will be provided in the event of tank leakage. Pesticides will be stored in this building in a separate locked and fireproof area with a "curbed" floor to provide containment of any accidentally spilled materials.

Both gasoline and diesel fuel (approximately 500 gallons of gasoline and 250 gallons of diesel) for maintenance equipment will be stored on site. Tanks and lines will be above ground and may be skid-mounted tanks surrounded by impervious concrete containment of sufficient capacity to capture and hold the total storage volume of the tanks. Alternatively, petroleum storage may be a self-containment type such as a ConVault® storage tank. Petroleum storage and dispensing equipment will be located under an open-sided but covered structure. Pumps will be protected by bollards.

Outdoor covered storage will be provided for specialized soil materials used on the golf course such as bunker sand, topdressing sands, etc. In the winter these same storage areas will be used to store de-icing materials to be used on the project site.

A satellite maintenance building is proposed near the tees on the third hole. It is here that the more regularly used maintenance equipment, such as mowers, will be stored in this 1,500 square foot building.

4. Irrigation

Irrigation water will be stored in a series of lined ponds proposed to be excavated downslope and to the east of the proposed Big Indian Resort and Spa and the golf clubhouse. These ponds will have an average depth of eight feet and total approximately 3.5 acres. When full these ponds will have a storage volume of approximately 7.4 million gallons of water. The golf course irrigation system will provide water to all areas including tees, greens, fairways and roughs. Configuration and computer control of the irrigation system will allow for irrigating very specific areas of the golf course. For example, it will be possible to irrigate one specific green or all of the greens on the golf course if so desired. For additional information regarding irrigation and irrigation water supply see Sections 2.2.5 and 3.3.

D. The Highmount Golf Club

1. Golf Course

The Highmount Golf Club is the second of the project's two (2) 18-hole golf courses and is located at the Wildacres Resort and northwest of the Ski Center. This golf course and related amenities are illustrated on Figure 2-11, "Highmount Golf Club Layout Plan." The golf course is located on both sides of Gunnison Road, and like the Big Indian

Country Club, The Highmount Golf Club has returning nines. The first nine holes are in the eastern portion of the Wildacres Resort site and the back nine holes are in the western portion. The first hole is located to the east of the proposed clubhouse and plays toward Gunnison Road. Holes two through eight are located north of Gunnison Road and the front nine concludes with the ninth hole south of Gunnison Road. On the back nine all holes, with the exception of holes 14 and 15, are south of Gunnison Road. The par 71 course totals 6,815 yards.

2. Amenities

A golf clubhouse is proposed just to the north of the Hotel building with interior access from the Hotel and exterior access from the internal roadway. The clubhouse will include a pro shop, a 40-seat snack bar, locker rooms with steam and sauna and golf cart storage. The cart storage will include a 250 gallon gasoline tank for the golf carts. The tank and lines will be above ground and may be a skid-mounted tank surrounded by impervious concrete containment of sufficient capacity to capture and hold the total storage volume of the tank. Alternatively, petroleum storage may be a self-containment type such as a ConVault® storage tank. Petroleum storage and dispensing equipment will be located under an open-sided but covered structure. Pumps will be protected by bollards and the area will be planted with landscape screen plantings.

Limited public play will occur on the Highmount Golf Club. Like the Big Indian Country Club, weekday tee times will be available to local residents. Similarly, on those days when tee times are not all filled by Resort guests, these tee times will also be available to the public.

A driving range is also proposed. The driving range, located north of the clubhouse, will be available for players to warm up prior to playing golf, practice and/or take golf lessons from the golf pro. The driving range will not be available for fee use and will only be operated during the daytime. No night use/lighting of the driving range, or any part of the golf course, is proposed. A practice putting green is proposed just to the northeast of the proposed clubhouse.

3. Maintenance Facilities

The main maintenance facility for this golf course is located off of County Road 49A south of its intersection with Gunnison Road. Figure 2-12, "Highmount Golf Club Golf Maintenance Area", illustrates the components of this area. The components are the same as the maintenance area proposed at the Big Indian Country Club. Refer to that description for details.

A satellite maintenance building is proposed off of Gunnison Road near the north end of the driving range. This building is for the storage of machinery that will be used more regularly, such as mowers.

4. Irrigation

Irrigation water will be stored in a lined pond that is proposed to be excavated in the northeast portion of the Wildacres Resort. With an average depth of eight (8) feet, the 3.2 acre pond will have a storage capacity of approximately 7.3 million gallons of irrigation water when full. Since this irrigation pond will be supplied, in part, by treated effluent, the pond will be lined with either impervious geotextile and/or a bentonite liner. The golf course irrigation system will provide water to all areas including tees, greens, fairways and roughs. Configuration and computer control of the irrigation system will allow for irrigating very specific areas of the golf course. For example, it will be possible to irrigate one specific green or all of the greens on the golf course if so desired. For more information regarding irrigation and irrigation water supply see Sections 2.2.5 and 3.3.

2.2.2 Buildings

This section describes the location, size and architectural style of the proposed buildings. The functions and activities occurring at each of the proposed buildings, including tenure and duration of occupancy, is discussed in greater detail in Section 2.4.1, "Operational Stage Activities, Building Functions." Employment is discussed in detail in Section 2.4.2. Section 2.4.3 discusses employee housing. Energy and Materials Management is discussed in Section 2.4.6.

A. Catskills Architecture

According to Catskills historian Alf Evers, the Catskill resort as an architectural type has no consistent form (Evers, et al., 1979). The kinds of buildings enlisted or constructed for Catskill resorts range from the old wooden farmhouse to the huge steel, concrete and glass high-rise complex. But whether they consist of former roadside inns, hotel blocks built for the purpose of taking one or two hundred vacationers, or motels or bungalow colonies, by far the most common resort is a composite of some or all of these physical types.

The only consistency among resorts is their adaptive development and in the speed with which they have changed. Most resorts began small and added facilities when the need arose. Hotel owners are also the original recyclers adapting existing buildings to new uses. And so the typical Catskill resort is a set of parts done in different styles and materials for different purposes with no inherent unity of design, and often no unity imposed after the fact either. No other kind of architecture undergoes such continuous adaptation.

Catskill resort architecture is so eager to reuse, add on, and modernize that it makes a particularly poor subject for analysis with the usual tools of architectural history. Catskill hotels were built in most of the styles currently fashionable in larger American culture: Greek-revival, Queen Anne, and shingle style are all in evidence. But Catskill builders

were seldom innovators of architectural style, they simply used what was available, making adjustments of their own to suit local needs.

In the Fall of 2000, given this ambiguity and determined to embody "traditional Catskill Architecture', the developers undertook a major retrospective analysis of surviving and accessible archived Catskill structures from the period 1820 through 1920. The study was performed under the direction of a local architect, Janis Whelton.

Photographs covering these categories are included in Appendix 5, "Study of Catskill Architecture."

The major stylistic divisions were, in temporal order, Greek Revival, Victorian and Arts and Crafts, and the examples provided ranged over hotels and lodges, barns, farmhouses and cottages. Eventually, a style closet to the Victorian model of the Hotel Minnewaska was chosen as the template for the Wildacres Resort.

The architectural expression for the Wildacres Resort reflects the spirit of the diverse collection of characteristics and styles that make up the Catskills experience. Each of the buildings through its massing, form, material selections, colors and ornament pays tribute to the rich architectural heritage of the region. The eclectic canvass includes traditional cottage and lodge design, the Arts and Crafts movement, classical and Victorian revivalism and the romantic grand hotels from the Catskills resort era.

The design of the Wildacres Resort Hotel complex is inspired by the great mountain lodges of Europe and America. The large sheltering roofs, the lively skyline, the stone foundation walls and the elegant wood details all draw on the architecture of the early Catskill resorts. The guest rooms are located on the top where they command long vistas, and then the public rooms with their terraces step down the slopes to the golf course.

The style of the Wildacres Resort Hotel is consistent with the existing architectural images of Catskill buildings of the period 1880-1930.

The Wildacres Resort Detached Lodging Units and Clubhouse pay tribute to the Greek revival. The buildings are simple symmetrical forms with porches. Classical columns set off formal entries. The building materials express a base, middle and broad cornice, which caps the structure with no roof expression.

Similar detailing and influences are evident at the Belleayre Highland quadplex detached lodging units. Here the architecture is more neoclassical with local symmetries setting up formal porch entries. The resulting composition rests comfortably within the context of vernacular traditional architecture, and is a reflection of the Brisbane Mansion.

The detached lodging units at the Big Indian Resort and Spa provide a decidedly different contextual design response. Here the architecture is a dialogue with the natural environment. Simple forms executed in a natural material palette of plant material, stone, concrete, wood, steel and glass nest comfortably into the terrain. Broad overhangs shelter

large expanses of glass and terraces that look out across the landscape. The look is both contemporary and timeless.

The detached lodging units are operated and managed by the two hotels. The detached lodging units are planned to be serviced by the maintenance and landscape staffs of the respective hotel and golf course. Service will be more limited than in the hotel rooms, (e.g., housekeeping services will be on a weekly rather than daily basis) but they may receive additional services such as turning up the heat, turning down the bed and stocking the kitchen before arrival. Also a limited room service menu might be offered.

The detached lodging units on the Big Indian Plateau are known as club membership units. These units are part of the hotel, the Big Indian Resort and Spa, and they offer membership to the Big Indian Country Club. A club membership unit is fractional interest based, with fewer visitor parties using a unit for a longer time interval. For example, a 4 bedroom single unit is estimated to have on average only 4 visitor parties per unit per year. The 35 four bedroom units are in stand alone buildings. The 60 three bedroom units are grouped in 20 triplex buildings. These 95 units are sited around the Big Indian County Club. The 88 two bedroom units at Belleayre Highlands are grouped in 22 quadplex buildings.

The detached lodging units on the Wildacres Resort are part of the hotel at Wildacres and offer membership to the Highmount Golf Club. These units are timeshares, where the interval of use is a week. Potentially, up to 50 different visitor parties could use a unit in a year. All of the 168 units are two bedroom and are grouped in 21 octoplex buildings. They are sited around the Highmount Golf Club.

For more detailed information, see Appendix 26 "Economic Benefits and Growth Inducing Effects" Chapter 4, Section E, "Timeshare and Vacation Club Visitation."

B. Big Indian Plateau

1. Big Indian Resort and Spa

The Big Indian Resort and Spa is truly a unique building. Designed by Architect Emilio Ambasz and Associates, Inc, all of the roof and terrace exterior areas of the building are proposed to be planted with a mix of indigenous plants. This makes the approximate 393,600 square foot building virtually hidden within the landscape while at the same time taking advantage of the available views and vistas to make it a premier hotel destination. Figure 2-13 "View of Big Indian Resort And Spa Scale Model", is a photograph of a scaled model of the proposed building.

To achieve this result, the architect has designed the project into two buildings. The main building is for the hotel with restaurants, banquet facility and support facilities, and the second building houses the spa and fitness center and the golf clubhouse. The main building is organized on five levels, each conforming to the natural terrain to effectively integrate the mass into the landscape while approximating the original ground profile.

Each floor conforms to the natural contour of the ground and steps back at each level creating roof terraces. The entire building is then blanketed with plants essentially making it invisible. The spa and golf clubhouse are situated in a one-story structure reached from the lowest floor of the hotel. Figures 2-14A and 2-14B, "Big Indian Resort and Spa Building Elevations", show views of the building from the south, east and north.

The total footprint for the building mass for the Big Indian Resort and Spa is 393,594 square feet, and this is distributed among the hotel (207,519 square feet), golf clubhouse (10,725 square feet), the spa and fitness center (9,300 square feet), and the covered parking garage (11,348 square feet).

2. Single Detached Lodging Units

The 35 Single Club Membership Units will be four bedroom resort lodges of 2,400 square feet on two floors, plus garage, basement and terrace of an additional 600 square feet. Most of these units are located at a distance from the Resort and Spa with most of the units located along golf course holes five and twelve. Generally, these units are accessed by driveways off of the main access road, but there are fourteen units located on a cul-de-sac that connects with the main access road north of hole 12 of the golf course. The architectural theme of these buildings is a stone exterior on the lower level and chimney, and horizontal wood finish on the upper level. The roof is supported with exposed beams. The character of these buildings is illustrated in Figure 2-15, "Big Indian Country Club Single Club Membership Unit."

3. Triplex Detached Lodging Units

The exterior character of the proposed triplex buildings is similar to the Single Club Membership Units. Figure 2-16, "Big Indian Country Club Triplex Membership Unit", illustrates the exterior character of the triplex buildings of which there are 20 proposed. Figure 2-16, "Big Indian Country Club Triplex Membership Unit", illustrates the configuration where the middle unit of the triplex is extended forward in the structure. Ten of the triplex buildings are configured this way while in the other ten buildings the middle unit is recessed from the front of the building. Regardless of the unit configuration within the building, the size and character of the triplex buildings are the same. Each unit within the triplex will be three-bedroom with 1,800 square feet on two floors, plus garage, basement and terraces of an additional 600 square feet. The triplex building will have a stone exterior on the lower floor with horizontal wooden siding on the exterior of the upper floor. The flat roof will have exposed support structures on all sides of the building and a single shared chimney in the center of the building will have a stone finish. The proposed triplex units are located in closer proximity to the proposed Resort and Spa than the proposed Single Membership Units. Most of the triplex units have driveways directly to the main access road. Six of the triplex units are located off of a cul-de-sac that connects to the main access road just to the west of Big Indian Resort and Spa.

4. Belleayre Highlands Detached Quadplex Units

At Belleayre Highlands 22 quadplex buildings are proposed in the vicinity of the existing Brisbane (Turner) Mansion. These will be two bedroom units of 1,600 square feet each on two floors, plus garage, basement, and terraces including an additional 600 square feet. The building exterior treatments will be similar to the units at the Big Indian Country Club, but the architecture will be somewhat different. As illustrated in Figure 2-17, "Belleayre Highland Quadplex Club Membership Unit," the lower floor will have a stone exterior and there will be horizontal wood siding on the exterior of the upper floor. These buildings will have peaked roofs with dormers, stone chimneys and a covered entrance with wood column supports. Figure 2-17, "Belleayre Highland Quadplex Club Membership Unit," illustrates one of three possible configurations of the four units within the quadplex building. Regardless of the configuration of the units within the quadplex buildings, the building exterior character will be consistent. This character is consistent with and reflects the character of the existing Brisbane Mansion, which is illustrated in Figure 2-17A, "Brisbane Mansion."

C. Wildacres Resort

1. Hotel and Golf Clubhouse

The Hotel is proposed on the part of the project site across from the upper entrance to Belleayre Mountain Ski Center. This will be a building of 413,150 square feet on numerous levels including parking below the building (250 spaces). It will contain 250 rooms, two restaurants and a beverage lounge, an interfaith chapel, meeting rooms, and hotel-related shops with of a total square footage of approximately 13,000 square feet. The hotel building will also contain a conference center (26,000 square feet), the golf clubhouse (14,700 square feet), a ballroom, indoor pool, and a full service spa. Figure 2-18, "Wildacres Hotel Perspective View", is a color rendering of a view of this building from the north. Figure 2-18A, Wildacres Hotel Scale Model", is a photograph of a scale model of the hotel and its immediate surroundings. The exterior character of the Hotel building is illustrated in Figure 2-19, "Wildacres Resort Hotel."

The 14,700 square foot clubhouse is proposed to be connected with the north end of the hotel. Included in the two-story clubhouse will be a pro shop, locker room facilities with stream and sauna, a 40-seat snack bar and storage for golf carts. The exterior materials for the clubhouse are the same as for the hotel.

A two-story parking garage with 208 parking spaces will be constructed adjacent to the Wildacres Hotel with a ramp for pedestrian and service access to the hotel.

The existing Marlowe Mansion (formerly the original Wildacres Hotel) illustrated in Figure 2-19A, "Marlowe Mansion", will be restored into a 150 seat restaurant and may also include some administration offices.

2. Octoplex Detached Lodging Units

A total of 21 octoplex buildings are proposed in two areas on the Wildacres Resort. Five buildings are located northwest of the hotel and near hole 17, and 16 buildings are located north of Gunnison Road in an area bounded by the fourth, seventh and eighth holes of the Highmount Golf Club. These two-story buildings will contain eight two-bedroom units of 1,200 square feet plus garage and storage spaces of 300 square feet. Figure 2-20, "Wildacres Resort Octoplex Lodging Unit", illustrates the exterior character of these buildings. Like all the other buildings at the Wildacres Resort, the octoplex buildings have horizontal painted wood siding as the primary exterior and stone as the base material. The covered porch entrances with rounded columns lends some Greek revival styling to these buildings.

3. Lodging Unit Clubhouse

A two-story, 10,000 square foot clubhouse building for use by octoplex occupants is proposed near the octoplex units north of Gunnison Road. This building will contain reception, sales and operational offices, a 40-seat snack bar, game rooms, health club, outdoor pool and two tennis courts. As illustrated in Figure 2-21, "Wildacres Resort Lodging Unit Clubhouse", this rectangular building will also have a stone base with horizontal wood siding as exterior finishes. The flat-roofed building has a covered porch running the length of the front of the building.

4. Children's Center

The Children's Center is a building of 18,000 square feet with space allocated to different age groups, including approximately 4,000 square feet allocated to children, 1,500 square feet for arts and crafts, including some power tools, and 1,080 square feet for video and table games. There will also be an outside recreation area adjacent to the building.

2.2.3 Potable Water Supply and Fire Flow Requirements

Proposed water supply for the project is discussed in detail in Appendix 7, " Water Supply Report". Design of the water supply system is illustrated on the Delaware Engineering Plan Sheets that accompany this EIS.

A. Big Indian Plateau

1. Demand

The projected average daily water demand for Big Indian Plateau is estimated to be 114,817 gallons or approximately 80 gallons per minute (gpm). In accordance with Section 15-0314 of the NYS Environmental Conservation Law, all of the planned development units will be constructed with water-saving plumbing facilities. This would result in an approximately 20 percent reduction in the estimated average daily flow, for a total of 91,854 design average daily flow (64 gpm). As of January 2, 1989, Section 15-

1503 of the Environmental Conservation Law was changed to require that water conservation be considered among the standards for Water Supply Application (WSA) issuance. The 20 percent reduction in flow noted above is the credit that is allowed by NYSDOH when water conservation is part of a WSA.

The maximum daily demand was determined by assuming it to be 1.65 times the average daily demand. At an average daily demand of 114,817 gpd, the maximum daily demand is approximately 189,448 gpd. Assuming a 20 percent reduction in flow from the use of water-saving fixtures, the design maximum day demand would be 151,558 gpd. The 20 percent reduction in flow noted above is the credit that is allowed by NYSDOH when water conservation is part of a WSA.

The maximum design hourly demand is expected to be 3 times the average, or 275,562 gpd (11,482 gph). This would compensate for those times of the day when there is abnormally high water usage (e.g., morning showers, etc.).

Based on the above estimates, nearly 83 percent of the anticipated potable water demand will be from residential type facilities (e.g., detached lodging units). The remainder will be from restaurant usage and the laundry facilities located at the hotel facilities.

Recommended fire flows associated with the proposed Big Indian Plateau were computed in accordance with the requirements of the Insurance Services Office (ISO). Table 2 in Appendix 7, "Water Supply Report," summarizes the calculation results. Based on the fire flow projections for the 150-room hotel (facility requiring the greatest demand based on two hour sustained flow of 1,500 gpm), the finished water storage tank will have a capacity of at least 249,817 gallons (135,000 gallons [1,125 gpm x60 min/hr x 2 hr] for fire flow plus the average daily potable consumption (without water-saving plumbing facilities) of 114,817 gallons [irrigation water would be stored in on-site ponds]) for the Big Indian Plateau.

The fire/potable water distribution system (containing hydrants, tanks, valving, and installation locations) will be designed in compliance with the "Recommended Standards For Water Works-Great Lakes Upper Mississippi River Board of State Public Health & Environmental Managers." A more detailed discussion of the distribution system can be reviewed in Appendix 7, "Water Supply Report," Exhibit C, "Big Indian Plateau Water Supply, Treatment and Distribution."

2. Water Supply Sources

Rosenthal Well 2 (Well R2) (118,080 gpd) and Silo A (99,792 gpd) will provide the potable water source for the Big Indian Plateau development. Utilization of this well and spring meets the potable water source criteria set-forth in the "Recommended Standards For Water Works-Great Lakes Upper Mississippi River Board of State Public Health & Environmental Managers."

Rosenthal Well 2 is located down gradient of the proposed development, near the NYSDEC Belleayre Beach at Pine Hill Lake on Friendship Manor Road in Pine Hill. The immediate area near Well R2 is undeveloped. The well is located 70 feet from Birch Creek. The well source was drilled and will be developed to comply with "Recommended Standards For Water Works-Great Lakes Upper Mississippi River Board of State Public Health & Environmental Managers" for groundwater sources. The well was drilled 274 feet into bedrock. A 72-hour pumping test was performed to determine the sustainable capacity of the well. The individual well capacity was found to be 118,080 gpd (82 gpm).

Well R2 is located adjacent to the Resort's proposed irrigation pond replenishment source, Rosenthal Well 1 (Well R1). During initial testing, a hydraulic relationship between the two water resources was discovered. A Simultaneous Test of wells R1 and R2 was performed to better characterize the nature of the observed relationship between the water resources (Appendix 7, "Water Supply Report," Exhibits E, F, G, H and I). Specifically, the combined well yield, aquifer response to pumping both wells simultaneously and water quality were analyzed. The wells were pumped for 72 hours at average rates of 57 gpm and 71 gpm for wells R1 and R2 respectively. Pumping at these rates did not affect Birch Creek and the water in R2 was again deemed to be of potable quality based on laboratory analysis. The Simultaneous Test demonstrated that well R1 is capable of sustaining a long term irrigation pond replenishment rate of 57 gpm and well R2 is capable of sustaining a long term average daily potable demand of 64 gpm without adversely impacting neighboring water supplies and surface water bodies.

Silo A spring is located in a relatively secluded area adjacent to Bonnie View Avenue, which is a secondary road that provides access to the Pine Hill Water Company (PHWC), Depot 'Station' Road, and Woodchuck Hollow Road. The assets of the PHWC have been sold to the Town of Shandaken and are now the assets of the Town's Pine Hill Water District. Immediately up-gradient to the south and west are heavily forested State lands. Approximately 2.5 miles to the southwest is the State owned and operated Belleayre Mountain Ski Center. The closest surrounding developments are residential housing downgradient and to the north in Pine Hill and the proposed Belleayre Highlands development portion of Big Indian Plateau, which is 0.7 miles to the southeast. Silo A is located approximately 150 feet north of the historically utilized railroad tracks. To ensure that the spring source would not be compromised by potential pollutants, a reinforced concrete basin will be constructed over and around the source. It will be constructed pursuant to design details set-forth in standards established by the NYSDOH, found in the "Rural Water Supply" handbook. Silo A was monitored by hydrogeologists from January 2000 through December 2001. The values of October through December 2001 represent measurements during a NYSDEC defined drought. The results of the monitoring indicated a sustainable capacity of 99,792 gpd (69 gpm) during drought conditions.

Both Well R2 and Silo A water will require treatment for disinfection and buffering. In addition, Well R2 water may require treatment to address the presence of sulfur. The presence of sulfur in the well water and the corrosive nature of the water do not present

health concerns. Corrosion control and sulfur neutralization are addressed with treatment for aesthetic and maintenance reasons.

Use of these sources to provide drinking water for the Big Indian Plateau will not diminish the quality or impact the production of the spring waters from the PHWCs' Bonnie View Springs (#1-#3), Crystal Spring Brook or Birch Creek as demonstrated in Appendix 7, "Water Supply Report," Exhibits E, F, G, H and I." Well R2 and Silo A are both in recharge basins separate from the recharge basin of the Bonnie View Springs.

Source protection for both Well R2 and Silo A are anticipated to be conditions of a water supply permit. Source protection will include measures to prevent pollution of the ground or groundwater by direct ownership, protective easements or use restrictions in the immediate area surrounding each ground water source. The areas designated for source protection will be protected from pollution by surface waters through the construction of suitable diversion ditches or embankments. In addition, Well R2 is grouted and sealed to prevent surface water intrusion and the collection box for Silo A spring will be similarly protected from surface contamination and/or small animal (vector) intrusion. Measures to limit access to the groundwater source sites such as fencing and locked well/spring housing structures are planned.

B. Wildacres Resort, Highmount Estates, and Wilderness Activity Center

1. Demand

The projected average daily water demand from the developments is estimated to be 136,635 gallons or 94.9 gallons per minute (gpm). In accordance with Section 15-0314 of the NYS Environmental Conservation Law, all of the planned development units will be constructed with water-saving plumbing facilities. This would result in an approximately 20 percent reduction in the estimated average daily flow, for a total of 109,308 design average day demand (75.9 gpm).

The maximum daily demand was determined by assuming it to be 1.65 times the average daily demand. At an average daily demand of 136,635 gpd, the maximum daily demand is approximately 225,448 gpd. Assuming a 20 percent reduction in flow from the use of water-saving fixtures, the design maximum day demand would be 180,358 gpd. The 20 percent reduction in flow noted above is the credit that is allowed by NYSDOH when water conservation is part of a WSA.

The design maximum hourly demand is expected to be 3 times the average, or 327,924 gpd (13,664 gph). This would compensate for those times of the day when there is abnormally high water usage (e.g., morning showers, etc.).

Based on the above estimates, nearly 67 percent of the anticipated potable water demand will be from residential type facilities (e.g., detached lodging units). The remainder will be from recreational/entertainment venues, restaurant usage and the laundry facilities located at the hotel facilities.

Recommended fire flows associated with the proposed Wildacres Resort Highmount Golf Club (WRHGC) and Highmount Estates were computed in accordance with the requirements of the Insurance Services Office. Table 2 in Appendix 7, "Water Supply Report" summarizes the calculation results. Based on the fire flow projections for the hotel/conference center (facility requiring the greatest demand based on a sustained flow of 1,500 gpm for two hours), the finished water storage tank will have a capacity of 289,308 gallons (180,000 gallons [1,500 gpm x 60 min/hr x 2hr] for fire flow plus the average daily potable consumption of 109,308 gallons).

The fire/potable water distribution system containing hydrant quantities and installation locations will be designed in compliance with the "Recommended Standards For Water Works-Great Lakes Upper Mississippi River Board of State Public Health & Environmental Managers." A more detailed discussion of the distribution system can be reviewed in Appendix 7, "Water Supply Report," Exhibit C "Conceptual Design Report."

2. Water Supply Source

The WRHGC/Highmount Estates will purchase water from the Village of Fleischmanns. A hydrogeologic investigation performed by Alpha Geoscience demonstrated that the Village of Fleischmanns has a more than adequate supply of water to meet their needs, their estimated future needs, and the needs of the WRHGC/Highmount Estates developments. (See Appendix 7.)

The Village of Fleischmanns water sources include a combination of springs and wells. The springs are located on the north-facing lower slopes of Belleayre Mountain to the southeast of the Village. The springs are in the vicinity of the Delaware and Ulster railroad tracks, approximately 200 feet east of a north flowing tributary to Emory Brook. Two of the wells (Well #1 and Well#2) are located along Emory Brook on the east end of the Village. Well #3 is located near the northern base of the Belleayre Mountain hillside, approximately halfway between the springs and NY Route 28.

The components of the Village's supply have the following conservatively estimated capacities:

Well #1:	94 gpm (135,360 gpd)
Well #2:	180 gpm (259,200 gpd)
Well #3:	60 gpm (85,920 gpd)
Springs:	64 gpm (92,160 gpd)*

* Measurement from December 2001 drought.

The Village currently provides treatment of the spring and well water for disinfection and buffering to address the corrosive nature of the water.

In recent years, the Village of Fleischmanns has treated an average of 225,000 gallons of water per day. Given the population and the number and type of commercial uses within the water service area, this value has been viewed as excessive by the Village's water system operator as well as the New York State Department of Health. The corrosive nature of the Village's water supply requires treatment prior to distribution to avoid leaching of lead and copper from aging service connections and plumbing within buildings.

The Village of Fleischmanns is engaged in a project to construct a new wastewater treatment plant to serve the Village residents and businesses. During the design of the sewer collection system, it became necessary for the Village to locate the existing water lines so that minimum separation distances could be maintained between the existing water and the new sewer lines. Wisely, during the survey of the water lines, the Village of Fleischmanns also had the contractor identify major leaks in the water lines. The major leaks were repaired by the Village water system operator and Village work crews in late August of 2002.

The Engineering Report entitled "The Wildacres Resort and Highmount Golf Club/Highmount Estates Water Supply, Treatment and Distribution" presented in Appendix 7, "Water Supply Report," includes the daily log sheets completed by the water system operator. The data shows that for a period of 87 days prior to August 26, 2002, the Village of Fleischmanns treated an average of 239,463 gallons of water per day. This value is consistent with the estimated 225,000 gpd of water discussed in the DEIS. However, after the major leaks were repaired, the amount of water treated by the Village dropped to average 55,916 gpd for the 247 day (8 month) period including August 27, 2002 though April 30, 2003. These values incorporate all demand of the Village of Fleischmanns, including residential and commercial. The eight months of data provides enough data for long term analysis and represents a stable condition for the Village's water demand. The average daily demand for the system overall dropped approximately 80% or about 185,000 gpd.

Therefore, given an available capacity of approximately 572,640 gpd, and a Village demand of 55,916 gpd on average, the remaining water resource is approximately 516,724 gpd. If the Village provides raw water from its existing sources to the Wildacres Resort, the Resort's average day demand of 109,308 would leave 407,416 gpd of water available to the Village for additional allocation or growth.

Notwithstanding the aforementioned repairs to the water mains, the Village water system is still in need of additional improvements. Those improvements include the need to rehabilitate and reconnect the two out of service groundwater wells, improve treatment facilities, rebuild and secure the spring water collection system, and incorporate additional storage in the system, as well as continuing repairs and maintenance to the distribution system. The Village has applied for subsidized funding from the Drinking

Water State Revolving Fund (DWSRF) to finance the needed water system improvements. The Village expects to receive a confirmation letter discussing the terms of the project financing during 2003. These upgrades and repairs the Village water system would be conducted and funded by DWSRF regardless of the proposed Wildacres Resort project and request for water.

As currently proposed, the Wildacres Resort would receive raw water from the Village of Fleischmanns existing sources, which would then be pumped to a treatment facility located on Crossroads Ventures land, treated to reduce corrosivity and disinfected, then pumped to a storage tank located at a high elevation on the Resort lands and through the distribution system for use by patrons and employees of the Wildacres facilities. The engineering, permitting, construction and equipment necessary to pump raw water from the Village system to the Resort would be paid to the Village by the Resort. It has been assumed that the Village of Fleischmanns would treat the Resort as an "out of district" water user and bill the Resort for the water supplied accordingly. Since the Village would not be treating the water, the on-going cost to supply the water to the Resort would be minimal (e.g., power to operate pumps), providing an opportunity for the Village to gain revenue from the sale.

As an alternative to the Resort being supplied from existing Village-owned sources, a new groundwater well could be established by the Village, the capital cost for which would be paid by the Resort. A hydrogeological evaluation of the development of a new well near the existing Village Well #3 indicates that the well would provide a water supply that would not impact the Village's springs or Emory Brook (See Appendix 7, Exhibit D). Should such a well be drilled, an evaluation of the well would be conducted including pumping tests to assess potential impact to the existing area water resources.

The alternative of a new well source is offered for several reasons. While it has been demonstrated that the Village of Fleischmanns has more than enough excess water capacity to supply both residents and businesses within the existing service area and the Wildacres Resort, a new groundwater source developed to serve the Resort exclusively would leave the Village with all its current water resources at its full discretionary disposal. In addition, it may be easier for the Village to supply raw water, maintain and monitor Resort water use if the source of supply is separate from the existing Village system. The Wildacres Resort would still require an interconnection to the existing Village system in order to have a "back-up;" however, the connection could be valved and opened either automatically or manually during an emergency.

A Water Budget Analysis was used to evaluate pre-development and post-development infiltration rates (See The report entitled "The Wildacres Resort and Highmount Golf Club/Highmount Estates Water Supply, Treatment and Distribution" presented in Appendix 7, "Water Supply Report," Exhibit E, Water Budget Analysis as well as Appendix 19A). The analysis indicates that the post-development infiltration rate will minimally exceed the pre-development rate. This effect is caused by the positive infiltration characteristics of the golf course outweighing the negative infiltration characteristics of the post-development impervious surfaces. The results of the Water

Balance Analysis indicate that the use of the Village water sources to supply the Resort combined with the effects of the golf course and impervious structures will not limit, and will potentially increase, the amount of water available to recharge those water resources.

The sale of raw water from either existing or new sources by the Village of Fleischmanns to the Wildacres Resort will provide revenue to the Village in excess of the Village's operational costs associated with the sale of water to the Resort. No capital investment by the Village will be necessary to supply water to the Resort. The Resort would fund and/or construct sources (including the drilling of a new well to be used as the primary water source for the Resort), pumping and distribution solely required for the Village to convey water to the Resort. Under the scenario where a new well is drilled, the well and well pump would be funded by the Resort and owned by the Village.

Since the Village will have no capital expenses associated with the provision of the water and very little operation and maintenance on the facilities required to supply the Resort raw water, the revenue generated by water sale to the Resort will be excess to the Village and should assist in creating a positive cash flow for the Village's water system. The report entitled "The Wildacres Resort and Highmount Golf Club/Highmount Estates Water Supply, Treatment and Distribution" presented in Appendix 7, "Water Supply Report," Exhibit F, includes correspondences between Crossroads, the Village, Delaware Engineering and the New York State Department of Health in support of the Village of Fleischmanns sale of water to Crossroads Ventures.

2.2.4 Wastewater Treatment and Disposal

Proposed wastewater treatment and disposal for the project is discussed in detail in Appendix 8, "Conceptual Design Report Wastewater Treatment and Disposal".

A. Big Indian Plateau

Wastewater generated by the Big Indian Plateau facilities will be treated at a central wastewater treatment plant and discharged both to the surface and to ground water through water recycling for irrigation use.

1. Hydraulic Loading

The estimated average daily hydraulic loading from the Big Indian Plateau was determined by multiplying the number of planned development units (e.g., club membership units, restaurant seats, etc.) by the NYSDEC unit flow rate standard.

The total average daily hydraulic loading from the developments is estimated to be 108,465 gallons or 75 gallons per minute (gpm), excluding the main entrance gatehouse. The estimated average daily hydraulic loading from the gatehouse is 75 gpd (0.05 gpm). In accordance with Section 15-0314 of the NYS Environmental Conservation Law, all of the planned development units will be constructed with water-saving plumbing facilities. This would result in an approximately 20 percent reduction in the estimated average daily

flow, for a total of 86,772 gpd (60gpm). The 20 percent reduction in flow noted above is the credit that is allowed by NYSDOH when water conservation is part of a WSA.

The maximum day hydraulic loading was determined by assuming it to be 2 times the average daily flow. At an average daily loading of 108,465 gpd, the maximum day loading is approximately 216,930 gpd. Assuming a 20-percent reduction in flow from the use of water-saving fixtures, the design maximum day hydraulic loading would be 173,544 gpd.

The peak hourly hydraulic load, assuming an average population of 500 for this development, is 4 times the average hourly loading, per Figure 1 of the *Recommended Standards for Wastewater Facilities* by the Great Lakes – Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers (Ten States). This would compensate for those times of the day when there is abnormally high water usage (e.g., morning showers, etc.). At an average daily loading of 108,465 gpd, the peak hourly loading is approximately 433,860 gpd. Assuming a 20 percent reduction in flow from the use of water-saving fixtures, the design peak hourly hydraulic loading would be 347,088 gpd.

Based on the above estimates, greater than 80 percent of the anticipated hydraulic loading will be from residential type facilities (e.g., club membership units). The remainder will be from restaurant usage and the laundry facilities located at the hotel facilities.

2. Treatment and Disposal

Wastewater generated by the Big Indian Plateau, except the main entrance gatehouse, will be collected and conveyed to a single regional treatment facility. Wastewater from the gatehouse will be discharged through a subsurface treatment system. The central wastewater treatment plant will be located to the east of the Golf Maintenance Facility. The effluent may be discharged to either the on-site, lined storage ponds during the growing season for use as irrigation water or to a surface outfall to Birch Creek when recycled water is not needed to supplement the irrigation ponds volume.

The advantages of utilizing the single treatment facility in combination with the surface discharge and irrigation pond outfall to manage the wastewater are the following: operational flexibility; ability to recycle the effluent as irrigation water or discharge it to the surface when necessary (low flow conditions, rain events, golf off-season); equipment, operation and maintenance activities would primarily be located and occur at one location; and there is an adequate amount of relatively remote property available for the facility.

The wastewater treatment system under consideration includes two Intermittent Cycle Extended Aeration (ICEAS)-NDN: Biological Nutrient Removal basins with filtration and disinfection that would consist of the following facilities:

1. Manually Cleaned Bar Screens and Comminutor
2. Flow Measurement
3. ICEAS-NDN Basins
4. Flow Equalization
5. Sand Filtration
6. Disinfection
7. Surface or On-Site Pond Effluent Disposal (discussed in Section 4.5)
8. Sludge Digestion/Off-Site Disposal

The proposed wastewater treatment system will be designed and installed in accordance with NYSDEC, Ten States, and NYCDEP regulations.

The primary means of discharge of the effluent from the treatment facility is a surface discharge to Birch Creek. The discharge point will be immediately downstream of the bridge crossing the creek from Friendship Manor Road. Effluent will be conveyed to this discharge outfall through a 6-inch diameter pipe installed underground within the disturbance envelope of the main entrance road into the development.

A secondary outfall for effluent disposal is a discharge to one of the proposed ponds located within the development. Effluent would be pumped from the treatment facility to the pond which will be lined with a geosynthetic liner to prevent infiltration into the groundwater. This secondary discharge will be used during periods when irrigation water is needed for the golf course.

The ponds mentioned above will have a capacity of approximately 7 million gallons. A five to 10 foot wide shelf will be installed around their perimeter. The sidewalls will then slope away from the shelf at a ratio of 3:1 to a maximum depth of approximately eight feet. The base will be constructed by compacting the native soils and then placement of a geosynthetic liner. The pond will be designed to include measures to prevent accidental discharge, seepage, overflow, etc., of treated wastewater. Fountains may also be installed in the center of the ponds to aerate the effluent and provide an additional aesthetically pleasing feature to this section of the development.

The wastewater treatment plant will be equipped with standby power (a generator located adjacent to the treatment building) sufficient to run the entire plant in order to ensure uninterrupted, reliable operation in the event of utility power failure. Additionally, the aeration system, blowers, sludge blowers, air control valves, waste sludge pumps, transfer pumps, and controls will be fitted with alarms and automatic start-up capabilities.

A detailed O&M Plan will be assembled which will describe the required operation and maintenance of the treatment system as well as the collection and distribution components. The plan will at a minimum include technical specification cutsheets of equipment including operation requirements, standard operating procedures for sampling and analysis of monitoring wells including frequency (if monitoring wells are required), program for solids and other waste disposal, electrical schematic, and other engineering

details. The O&M plan will be prepared with completion and testing documents prior to beginning system operation.

B. Wildacres Resort, Highmount Estates, Wilderness Activity Center

This portion of the project will be served by a single treatment system and the effluent will be discharged either to a storage pond to be used for golf course irrigation or to a surface outfall at an unnamed tributary to Emory Brook when not needed for irrigation.

1. Hydraulic Loading

The estimated average daily hydraulic loading from Wildacres Resort was determined by multiplying the number of planned development units (e.g., detached lodging units, restaurant seats, homes, etc.) by the NYSDEC unit flow rate standard.

The total average daily hydraulic loading from the developments is estimated to be 140,435 gallons or 98 gallons per minute (gpm). In accordance with Section 15-0314 of the NYS Environmental Conservation Law, all of the planned development units will be constructed with water-saving plumbing facilities. This will result in an approximately 20 percent reduction in the estimated design average daily flow, for a total of 112,348 gpd (78 gpm). The 20 percent reduction in flow noted above is the credit that is allowed by NYSDOH when water conservation is part of a WSA.

The maximum day hydraulic loading was determined by assuming it to be 2 times the average daily flow. At an average daily loading of 140,435 gpd, the maximum day loading is 280,870 gpd. Assuming a 20 percent reduction in flow from the use of water-saving fixtures, the design maximum day hydraulic loading would be 224,696 gpd.

The peak hourly hydraulic load, assuming an average population of 700 for this development, is 3 times the average hourly loading, per Figure 1 of the "Recommended Standards for Wastewater Facilities" by the Great Lakes – Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers (Ten States). This would compensate for those times of the day when there is higher water usage (e.g., morning showers, etc.). At an average daily loading of 140,435 gpd, the peak hourly loading is approximately 421,305 gpd. Assuming a 20 percent reduction in flow from the use of water-saving fixtures, the peak design hourly hydraulic loading would be 337,044 gpd.

The peak instantaneous loading is 674,088 gpd, which is 6 times the design average loading.

Based on the above estimates, approximately 65 percent of the anticipated hydraulic loading will be from detached lodging units. The remainder will be from recreational/entertainment venues, restaurant usage and the laundry facilities located at the hotel facilities.

2. Treatment and Disposal

Wastewater generated by the WRHGC will be collected and conveyed to a single regional treatment facility. The facility will be located in the northeast corner of the WRHGC development. The effluent may be discharged to either an on-site, lined storage pond during the growing season or to a surface outfall when it is not needed for irrigation or low flow conditions exist.

The advantages of utilizing the single treatment facility in combination with both ground water discharge (irrigation) and surface discharge to manage the wastewater are the following: ability to recycle the effluent as irrigation water or discharge it to a surface outfall as conditions warrant (low flow conditions, rain events, golf off-season); equipment, operation and maintenance activities would primarily be located and occur at one location; and there is an adequate amount of relatively remote property available for the facility and absorption systems.

The wastewater treatment system under consideration includes two Intermittent Cycle Extended Aeration (ICEAS)-NDN: Biological Nutrient Removal basins with filtration and disinfection that would consist of the following facilities:

1. Manually Cleaned Bar Screens and Comminutor
2. Flow Measurement
3. ICEAS-NDN Basins
4. Flow Equalization
5. Sand Filtration
6. Disinfection
7. Surface or On-Site Pond Effluent Disposal (discussed in Section 4.5)
8. Sludge Digestion/Off-Site Disposal

The proposed wastewater treatment system will be designed and installed in accordance with NYSDEC, Ten States, and NYCDEP regulations.

An outfall for effluent disposal is a discharge to the proposed pond situated approximately 500 feet south of the proposed wastewater treatment plant. Water collected in the wet well at the plant would be pumped to the pond via a duplex pump system. The waters would be stored in the pond until they were needed for irrigation purposes. Primarily, this effluent disposal alternative would be utilized during the growing season.

The pond mentioned above will have a capacity of 7.4 million gallons. A five to 10 foot wide shelf will be installed around its perimeter. The side walls will then slope away from the shelf at a ratio of 3:1 to a maximum depth of approximately eight feet. The base will be constructed by compacting the native soils and then placement of a bentonite or geosynthetic liner. The pond will be designed to include measures to prevent accidental discharge, seepage, overflow, etc., of wastewater. A fountain may also be installed in the center of the pond to aerate the effluent and provide an additional aesthetically pleasing feature to this section of the development.

Another outfall for effluent discharge is to an unnamed tributary to Emory Brook located approximately 1,100 feet west of the treatment plant. A 6-inch diameter discharge pipe would be installed along the cart path to minimize disturbance and to facilitate future maintenance. Erosion control measures would be constructed at the discharge end of the pipe to prevent scouring and erosion of sediment from the stream.

The wastewater treatment plant will be equipped with standby power sufficient to run the entire plant in order to ensure uninterrupted, reliable operation in the event of utility power failure. Additionally, the aeration system, blowers, sludge blowers, air control valves, waste sludge pumps, transfer pumps, and controls will be fitted with alarms and automatic start-up capabilities.

A generator will be utilized for the standby power needs. As stated previously, it will be located adjacent to the treatment building.

A detailed O&M Plan will be assembled which will describe the required operation and maintenance of the treatment system as well as the collection and distribution components. The plan will at a minimum include technical specification cutsheets of equipment including operation requirements, program for solids and other waste disposal, electrical schematic, and other engineering details. The O&M plan will be prepared with completion and testing documents prior to beginning system operation.

2.2.5 Irrigation Water Supply

The two golf courses that are part of the project will have separate irrigation water supplies. Irrigation water for The Big Indian Country Club will come from a bedrock well located on the project site near Friendship Road known as R1. This supply will be supplemented by treated wastewater from the wastewater treatment plant on Big Indian Plateau. The Highmount Golf Club will utilize a combination of excess and untreated potable water and treated wastewater effluent as its irrigation water supply. The proposed wastewater treatment facility includes a tertiary filtration step and is designed to remove 99.99% of enteric viruses and produce effluent with low fecal coliform counts. Both golf courses will have large amounts of irrigation water storage in their irrigation ponds.

Irrigation water will be sprayed onto the areas to be watered utilizing approximately 45 – 50 sprinkler heads per golf hole.

Review of similar golf course irrigation practices reveals that the discharge of treated wastewater effluent to irrigation ponds is typically limited to the period between May 1 and November 30. For the Belleayre Resort at Catskill Park, pond repair and maintenance will be conducted generally in the late fall after the courses are closed to use for the season. Repairs and maintenance will require that the water level in the ponds be lowered or that the water be completely drained. Ideally, the ponds will be refilled after repairs and maintenance to assess the integrity of the work conducted and to ensure that

the water levels will permit withdrawal for irrigation in the spring. Therefore, discharge of treated wastewater to the irrigation ponds outside the typical May 1 to November 30 timeframe is desirable and should be permitted by special conditions within appropriate environmental permits.

While irrigation is typically conducted between May and November of each year, the ability to irrigate beyond that timeframe is desirable for maintenance purposes. The irrigation lines will be drained and blown out each year in the late Fall for winterization, resulting in the need to recharge and test the lines and sprinkler heads in the early spring. The testing of the lines and sprinkler heads will require some withdrawals from the irrigation ponds and some discharge through the irrigation system. Again, discharges of irrigation water outside the May 1 to November 30 timeframe, provided proper ground conditions (unsaturated and/or unfrozen soils), are desirable and should be permitted by appropriate environmental permits.

Given that tertiary wastewater treatment plant effluent will be blended with clean surface and ground waters to provide irrigation supplies, protection of surface waters, public roads and public and/or private drinking water wells is important.

While there are no surface waters within 200 feet of any area to be irrigated on the Big Indian Plateau, there are two unnamed tributaries to Emory Brook on the Wildacres resort that are within the golf areas to the irrigated. One of these tributaries is the stream into which the tertiary treatment plant effluent will be discharged to the surface. Despite the fact that the effluent quality will be of a level to allow surface discharge to these streams, directional sprinkler heads will be used to the extent possible along these streams to ensure that irrigation water is sprayed onto the course turf.

With regard to public roads, there are three, namely Gunnison and Van Loan roads (Town roads) and Ulster County Route 49A that pass along the edges or through the golf course at the Wildacres Resort with areas to be irrigated closer than 200 feet. Given the high quality of the effluent, irrigation within 200 feet of public roads can be permitted with precautions to protect the public.

Of these areas to be irrigated (tees, greens and the practice range) that are within 200 feet of a public road, many are separated from the pavement by existing grassed areas with existing, mature tree lines. All existing tree lines will be maintained, providing natural barriers to the public roads, ensuring that irrigation water will not be directed or carried onto impervious roadway surfaces. The irrigation system is designed for grass irrigation and will direct water not closer than five feet from the base of any existing tree line. For the areas to be irrigated that are not separated from the public road by tree lines, directional sprinkler heads with spray patterns will be used that allow watering of the various tee areas and greens, but restricted as to watering in the direction of the road ways (i.e., 90 degree heads, 180 degree heads, etc.). This fixed, directional spraying of these limited areas, together with the existing grass swale/drainage ditch that separate the public roads from the areas to be irrigated will prohibit the direct application and overland flow of irrigation water onto the public road.

There are no public water supplies located within the Crossroads assemblage; therefore, distance of irrigation water application to public water supplies is not a concern. The springs for the Village of Fleischmanns system are located over 460' from the closest course tree line. There are five private residences located in close proximity to the Crossroads lands, primarily in and around the Wildacres Resort. These private residences are provided potable water from private, on-site groundwater wells. Field investigations, local regulatory and drillers records indicate that none of the five wells are located within the 100 foot limiting distance imposed by health department regulations.

A. Big Indian Country Club

The Big Indian Country Club will be provided with irrigation water by a well drilled into bedrock near the project access road off of Friendship Road. Pump tests performed on this well demonstrated that this well has an individual production capacity of 77 gallons per minute (See Appendix 7, "Water Supply Report"). When pumped at the same time as another nearby bedrock well proposed to be used as a potable water supply source, this well has the ability to safely provide 57 gallons per minute. Appendix 7, "Water Supply Report", and section 3.3, "Groundwater Resources", provides a more detailed description of the wells in the area of well R1 and their ability to provide water for the project. These wells draw water from a confined bedrock aquifer that is separated from the surficial aquifer by a confining layer with a high clay content. This confining layer prevents the bedrock wells from drawing water from the surficial aquifer associated with Birch Creek.

At 77 gpm the well has the capacity to produce a 110,880 gallon per day contribution to the irrigation water storage in the on site ponds. At 57 gpm the well has the capacity to produce a 82,080 gallons per day contribution to the irrigation water storage in the on site ponds. At times, both the potable well and the irrigation well will be used simultaneously, so the 57 gpm figure was used for irrigation water planning. The remaining volume of water in the ponds will be contributed directly by rain and by stormwater. Since water demands will fluctuate daily throughout season, the stored volume will be continually supplemented by both the well water and the rainwater in order to maximize the amount of water available for irrigation and maintaining healthy turf, especially during the times of peak demand.

In addition to this groundwater supply, irrigation water will also be supplied by the wastewater treatment plant on Big Indian Plateau. This plant will be able to provide, on average, 108,465 gallons per day to the irrigation ponds at the Big Indian Country Club. Highly treated effluent will be supplied to the irrigation ponds during the growing season between May and October when the pond is in need of replenishment.

A series of irrigation ponds have been designed near the Big Indian Country Club clubhouse and Big Indian Resort and Spa. Total storage volume of approximately 7.4 million gallons is provided in these ponds which have been designed to have maximum depths of ten feet and an average depth of 8 feet. The 7.4 million gallons in the storage ponds is capable of providing irrigation water to the Big Indian Country Club golf course

over an extended period of time and allows for replenishing the ponds at lower rates over a longer period of time. Communications with golf course superintendents in the region, including in Delhi and in Windham revealed that irrigating 18 holes requires anywhere from 145,000 gallons to 295,000 gallons every time it is necessary to irrigate the entire golf course. Using these values, there is storage volume in the proposed ponds to provide anywhere from 25 to 51 full irrigations of the proposed golf course. One other way of looking at irrigation demand is a general rule-of-thumb of one inch of irrigation per week. Using this rule of thumb there is approximately 6 weeks of irrigation storage in the proposed ponds. Obviously, these numbers are increased by virtue of well R1 and the wastewater treatment plant supplying replenishment water to the irrigation ponds. Section 3.3.2, "Groundwater Resources", contains additional information regarding providing irrigation water from well R1.

Well water is usually desirable for irrigation because of freedom from weed seeds, pathogenic organisms, and various organic constituents. Its quality is fairly uniform over time in that the concentration of salts and other constituents does not change appreciably during the growing season (Turgeon, 1991). Tests of the water quality from the wells proposed to be used for irrigation show that the water is suitable for irrigating the Big Indian Country Club golf course. Cation levels, as measured by manganese and iron levels in samples from the wells, are low and indicative of regional water quality with low salinity. Salinity is one of the primary factors that can limit the suitability of water for golf course irrigation.

Golf courses throughout the United States use treated wastewater effluent for irrigation. In New York State a study of the use of using treated effluent for golf course irrigation was recently completed in Lake Placid. A discussion of the use of "gray water" for irrigation is included in Section 2.4.8(D)(8), "Use of Effluent for Irrigation" and supporting information is included in Appendix 16, "Treated Wastewater for Golf Course Irrigation."

B. Highmount Golf Club

A large storage volume of irrigation water is also proposed at the Highmount Golf Club. The large pond proposed to be located in the northeastern portion of the Wildacres Resort site has a storage volume of approximately 7.3 million gallons and similar reserve capacity for providing irrigation water as the Big Indian Country Club irrigation water storage ponds.

The primary source for irrigation water for the Highmount Golf Club will be treated wastewater generated by the Wildacres Resort and Highmount Estates. During periods of lower wastewater generation due to lower potable water demand, including during the early years of operation, raw water will be obtained from the projects potable water supply system to augment treated effluent for irrigation water supply. Potable water supply for this portion of the project site is discussed in Section 2.2.3, "Potable Water Supply."

The wastewater treatment plant is expected to discharge on average 112,000 gallons of treated effluent per day at full build out and full occupancy. The volume of stored water in the on site ponds will also be supplemented directly by rain water and by stormwater. In addition, excess potable water will be used to supplement the volume of stored water as appropriate based on potable demand. During periods when potable demand is low, the amount of excess potable raw water available for irrigation use will be greatest. During periods of higher potable demand, less excess potable water is anticipated to be used for irrigation use. During highest potable demand periods, the amount of wastewater generated by the treatment plant will also be highest, therefore the contribution of recycled effluent to the storage ponds will be highest, decreasing if not eliminating the need for untreated potable water.

2.2.6 Site Drainage and Grading

A. Drainage

See LA Group grading plans on sheets SG-1 through SG-10, and drainage plans SD-1 through SD-7.

The Big Indian Plateau portion of the project site drains to Birch Creek and Lost Clove Brook which are tributaries to the Esopus Creek. Esopus Creek eventually feeds into the Ashokan Reservoir. This portion of the project site is approximately 20 river miles upstream of the Ashokan Reservoir.

Subcatchments on this portion of the project site include lands that drain to Woodchuck Hollow Brook (Bailey Brook), Crystal Spring Brook, Giggle Hollow Brook, and lands that drain directly into Birch Creek and Lost Clove Brook. Section 3.2, "Surface Water Resources", provides a more detailed description of the subcatchments, including the amount of land in each and the amount of land proposed to be developed in each subcatchment. In total, of the ± 1,242 acres in this portion of the assemblage, approximately 911 acres will remain undisturbed and 331 acres will be developed.

The western portion of the assemblage, comprised of the Wildacres Resort, Highmount Estates, and the Wilderness Activity Center, is in the upper headwaters of the Pepacton Reservoir watershed. Lands on this potion of the project site drain to Emory Brook either by overland flows or via intermittent tributaries. Emory Brook is tributary to the Bush Kill. Some lands on the project site also drain to the Bush Kill directly and via a tributary along Todd Mountain Road. The Bush Kill is tributary to the East Branch of the Delaware River that then flows into Pepacton Reservoir. This portion of the site is approximately 14 miles upstream of Pepacton Reservoir. In total, of the 718 acres in this portion of the assemblage, approximately 476 acres will remain undisturbed and 242 acres will be developed.

Grading will not produce any significant changes in the existing "sub-watersheds" (subcatchments). See Section B., "Grading," below.

B. Grading

Grading for the proposed project is illustrated on LA Group Plan Sheets SG-1 through SG-10. Generally speaking, the proposed grading is a mix of cuts and fills to provide more level slopes for building footprints, suitable grades for roads and driveways, and more gently sloping areas for tees, greens, and fairway landing areas on the golf courses.

1. Drainage Patterns

The proposed grading does not result in any significant changes to the site's subcatchments so pre-development and post-development drainage patterns will essentially be the same. The only exception to this is that the proposed grading on the Big Indian Country Club along the top of the plateau results in approximately 0.2 acres that currently drain to the south towards Lost Clove Brook that will now drain to the north towards Birch Creek. This 0.2 acres is insignificant in that it represents one hundredth of 1 percent (0.0001) of the drainage area of Lost Clove Brook and an even smaller percentage of the lands draining to Birch Creek.

2. Balanced Cuts and Fills

Balancing cuts and fills in each area of the Resort project has been a major objective of the developer.

The proposed grading illustrated on LA Group Plan Sheets SG-1 through SG-10 balances cuts and fills on the project site. Table 2-1A, "Big Indian Plateau Construction Phasing and Cut and Fill Volumes", and Table 2-1B, "Wildacres Resort and Highmount Estates Construction Phasing and Cut and Fill Volumes", provide a breakdown of the cuts and fills required for the various components of the project broken down by the construction phases and the subcatchments involved in each construction phase.

Cuts and fills have been balanced for the project as a whole. Cuts and fills are also balanced within the eastern portion and the western portion of the project site. Furthermore, for golf course construction, cuts and fills are balanced within each subphase. Cuts and fills do not match exactly on Tables 2-1A and 2-1B, but for all intents and purposes, given the very large volumes of earthwork, the imbalance is insignificant (<1% of earthwork totals) and the cuts and fills are balanced. Balancing cuts and fills reduces construction phase traffic.

Construction phasing is described in greater detail in Section 2.3, "Construction Activities." The following table is a summary of Tables 2-1A and 2-1B.

Table 2-2
Cut and Fill Volumes

a. Big Indian Plateau including Belleayre Highlands: NET 597 yd^3 excess cut

Phase 1 (year 1)	287,331 yd^3 Cut
Phase 2 (year 2)	134,042 yd^3 Fill
Phase 3 (year 3)	45,18662,371 yd^3 Fill
Phase 4 (years 4-8)	107,506 yd^3 Fill

During construction it will be necessary to stockpile materials that are generated earlier in the construction process. A number of locations have been identified as being suitable for stockpiles based on (1) their proximity to roads and the hotel and irrigation ponds where the majority of cut will be generated, (2) the relatively flat nature of the stockpile areas, and (3) the need for fill in the stockpile areas in subsequent years of construction. In many instances it will be possible to stockpile materials by cutting trees, but not grubbing the area, and then placing the material on the area requiring fill. Keeping tree stumps in place and tree root systems intact in the stockpile areas will help to keep the native soils in place during stockpiling operations.

Belleayre Highlands, as a whole, has essentially equal cuts and fills, but in Phases 1 and 3 excess cut will be generated and stockpiled for use in Phases 2 and 4, respectively.

At Big Indian Resort and Spa suitable stockpile locations from excess cut generated in Phase 1 exist at the detached lodging unit areas , the practice range/hole 15, and golf holes 1 and 9, 5 and 8, 10 and 11, and 16 and 17. Enough area is available taking into account the amount the material will "expand" during handling, approximately 15% for soil material and an approximate increase in rock volume between excavation and stockpiling of 40%.

All stockpiles will be stabilized during project construction by enhanced erosion and sediment controls as described in Section 3.2.2 and in Appendix 11, "Draft Construction Stormwater Pollution Prevention Plan." Obviously, stockpiles containing only rock will not require as extensive erosion control measures (i.e., hydroseeding) as the stockpiles that contain soil.

b. Highmount Estates (Access Roads): 50,756 yd^3 Cut for access roads to be constructed in the first year.

The excess cut material generated at Highmount Estates during road construction will be used in the subdivision when constructing house sites in subsequent years.

The material will be stockpiled within the subdivision, and like all other stockpiles on the project, will be stabilized during project construction by redundant erosion and sediment controls as described in Section 3.2.2 and in Appendix 11, "Draft Construction Stormwater Pollution Prevention Plan."

c. Wildacres Resort: NET 3,9317 yd^3 Fill

Phase 1 (year 1)	173,069 yd^3 Cut
Phase 2 (year 2)	161,609 yd^3 Fill
Phase 3 (years 3-8)	15,397yd^3 Fill

Suitable stockpile areas identified at the Wildacres Resort include the practice range, holes 3 and 4, holes 10 and 18, and the detached lodging unit area south of Gunnison Road. Obviously, stockpiles containing only rock will not require as extensive erosion control measures (i.e., hydroseeding) as the stockpiles that contain soil.

The quantities in the table above are raw earthwork values that do not include the topsoil that will be imported when constructing the two golf courses and for landscaped areas around buildings. Approximately 108,000 cubic yards of topsoil will be used on each golf course and 11,000 cubic yards will be used at each Big Indian Plateau and the landscaped areas at the Wildacres Resort.

C. Impervious Areas

Impervious surfaces consisting of buildings, parking areas, driveways, cart paths, roads, etc., are proposed in the different portions of the project. Table 2-3, "Impervious Surfaces Including Porous Pavement," lists the proposed impervious surfaces. Table 2-4, "Impervious Area In Relation to Project Size," puts these data in the context of the project assemblage of lands, as well as those portions of the assemblage proposed to be developed (the project site).

The project includes a total of approximately 85 (85.16) acres of impervious surface, 52.40 acres on Big Indian Plateau (east) and 32.76 acres at Wildacres Resort and Highmount Estates (west). For the entire project this is 14.9% of the project site (area to be developed) and 4.3% of the assemblage of lands.

By utilizing alternative materials and measures such as porous pavement, putting some parking under buildings and vegetating the roof of the Big Indian Resort and Spa building the affects of introducing new impervious surfaces has been reduced. Of the 85.16 acres

of impervious surfaces being proposed, over 35% (31.10 acres), or more than 1/3, of the proposed impervious surfaces consist of porous pavement, underground parking that otherwise would have been surface parking lots, and vegetating the Big Indian Resort and Spa building. The third column in Table 2-3 indicates where these measures have been utilized.

Where possible, porous pavement is proposed to be used instead of typical asphalt paving. Porous pavement is a bituminous (asphalt) paving mixture which has all of the structural properties of conventional asphalt, but which is constructed of an aggregate (gravel) mix in which fine particles are kept to a minimum. Eliminating these fine particles allows rainfall to drain through the pavement rather than running off the surface. Beneath the pavement is a crushed stone storage bed designed to receive the rainfall from the pavement. The stone bed can serve as either a storage/infiltration structure, or a simple subsurface detention basin. The environmental benefits of utilizing porous pavement include reducing the amount of impervious area, reducing the volume of stormwater runoff as well as the peak rate of flow, and reducing the discharge of pollutants and improving water quality.

Because porous pavement can become clogged with road sand, it can only be used on certain surfaces. For this project it is proposed to use porous pavement for tennis courts, driveways, and cart paths. Those portions of parking lots that will not be subjected to traffic by larger vehicles, such as delivery vehicles, are also proposed to be porous pavement. (For the purposes of stormwater modeling and design, porous pavement was modeled as conventional impervious pavement in order to be conservative and to take into account the potential for future clogging.)

Significant reductions in necessary impervious area have been accomplished by locating significant amounts of parking below the hotel buildings and in the two level parking garage at Wildacres. Approximately 3.5 acres of parking are covered within the Big Indian Resort and Spa building and approximately 4.8 acres of underground and covered parking are provided at the Wildacres Resort.

The Big Indian Resort and Spa building, with its soil and vegetation covering, also decrease project impervious area. The footprint of the building is approximately six acres (5.56 acres) and only the skylight of the building is truly impervious. The nature, thickness, and underdrainage of the planted roofs produce a surface that has drainage characteristics equivalent to a hydrological group "A" soils, and this is how the building was incorporated into the stormwater hydrological analyses.

D. Stormwater

Operational phase stormwater control is discussed in detail in Appendix 9A, "Operational Phase Stormwater Quantity Management Plan" including Addendum 1 of Appendix 9 which is the design report for the system, and Appendix 10A, "Operational Phase Stormwater Quality Management Plan." Also see LA Group drainage plans SD-1 through SD-7 and Sheets CP-17 and CP-18 (details).

In general, stormwater control consisting of a series of road side swales, cross culverts and stormwater micropool extended detention basins are proposed to capture, convey and detain stormwater runoff from the developed portions of the project site. By creating positive drainage through site grading within each of the subcatchments, the proposed stormwater control systems are capable of reducing post-development runoff rates from a 10, 25 and 100-year storm.

No existing surface waterbodies will be impounded. The ponds used to store irrigation water will be isolated dug ponds and not associated with any of the streams or brooks on the project site. Water levels in the ponds can be controlled by irrigation withdrawals and the amount of replenishment provided so that there is always reserve capacity in the ponds to accept runoff from storm events without the ponds discharging to surface water resources. Sufficient freeboard will be maintained in the irrigation ponds so that they can contain the runoff from the 100-year storm from the areas that drain to them. For the Big Indian Country Club site the irrigation ponds will capture and hold runoff from the Big Indian Resort and Spa and associated parking while the irrigation pond at the Highmount Golf Club will capture stormwater from a portion of the detached lodging units south of Gunnison Road.

2.2.7 Traffic, Parking and Pedestrian Circulation

A. Project Generated Traffic

A Traffic Impact Study for the project is presented in Appendix 25, "Traffic Impact Study." Based on the results of the Traffic Impact Study conducted for the proposed Belleayre Resort at Catskill Park, the following conclusions are evident:

1. Traffic in the area varies significantly by season, time of day, and day of the week. The Belleayre Mountain Ski Center has a major impact on traffic volumes as evidenced by the fact that the highest peak hour volumes on NY Route 28 occur on winter weekends. This pattern will continue after the Big Indian Plateau and Wildacres projects are completed.

2. Provision of shuttle bus service by the Resort will have a positive impact on traffic conditions by eliminating most vehicle trips between the resorts and Belleayre Mountain Ski Center.

3. Traffic from the project will vary significantly by season, time of day, and day of the week. On a typical winter weekend the Resort will generate 139 peak hour trips (2.3 vehicle per minute). For the traffic design a worst case analysis was conducted. The worst case was identified by combining Resort and background traffic to determine the highest peak hour volumes. The analysis determined these worst case peak hours would occur on the peak winter traffic weekend. During this weekend, the combined Resort and background traffic would be the heaviest. For this worst case winter weekend it was assumed that the Resort would be at 100% occupancy. Big Indian Plateau will generate 146 vehicle trips

during the morning peak hour and 143 vehicle trips during the afternoon peak hour. Wildacres Resort will generate 201 vehicle trips during the morning peak hour and 194 vehicle trips during the afternoon peak hour. During other times of the day (off peak), the number of generated trips will be less. Not all trips generated by the Resort will be new trips to the area. Some trips will be made between the various project components and similarly, some trips will be made between the project and the Belleayre Mountain Ski Area. It is anticipated that approximately 50 percent of the peak hour trips generated by the proposed resort during the winter will be shared trips with the Belleayre Mountain Ski Center. Instead of adding these trips to the traffic stream on NY Route 28 traveling out of the project area, patrons will leave the Ski Center and travel directly to Wildacres Resort or Big Indian Plateau. If the Resort were not there, these skiers would have to travel further to lodging and leave the area.

4. The traffic analysis presented in the report indicates that traffic volume increases at most locations along NY Route 28 from the proposed project will be between 3 and 4 vehicles a minute during the maximum peak hours during the winter season. Peak hour volume increases from the Resort would be less than 2 vehicles per minute for more typical weekends. For example, the project generated trips at the NY Route 28/County Road (CR) 49A intersection for the peak periods are shown below:

	Peak Design Saturday AM	Peak Design Saturday PM	Typical Saturday AM	Typical Saturday PM
NY Route 28@ County Road 49A Hourly Trips	202	198	76	76
Approx. trips/minute (Total trips ÷60 minutes)	3.4	3.3	1.3	1.3

This number of trips from the Resort would use less than 15 % of the capacity of Route 28 during this worst case period. At other times they would use a smaller proportion of the roadway capacity. Similar results are found at the other study area intersections in the project corridor. An increase in traffic of this magnitude will typically not be noticeable.

It should also be noted that the peak design trip estimates assume that each of the proposed Resort facilities would be 100% occupied. Although this assumption follows the industry standard for trip generation in a traffic study, it is reasonable to assume that a percentage of each part of the Resort will be unoccupied for much of the time. This indicates that typically, less resort traffic will be on the roadway network most of the time. Also, in general, the project traffic will be limited to the main arterials through the project area (NY Route 28, County Road 49A). Traffic is not expected to increase on local roads, including the roadways in the Hamlet of Pine Hill.

5. Based on the sight distance analysis, a number of mitigating measures have been proposed.

6. Based on the results of the analysis presented in this report, the following mitigation is recommended:

   - NY Route 28/Friendship Road (east)- The construction of a westbound left-turn lane on NY Route 28 at its intersection with the easterly leg of Friendship Road. If the operation of Friendship Road is changed to provide one-way traffic (from west to east) the location of the left-turn lane on Route 28 should be moved to the western leg of Friendship Road.

   - NY Route 28/County Road 49A- A fair share contribution towards the construction of a westbound left-turn lane on NY Route 28 and the construction of a northbound right-turn lane on County Road 49A. A fair share contribution towards the installation of a three-phase traffic signal at the NY Route 28/County Road 49A intersection. It is anticipated that this signal would operate during the winter months and would be on flash mode during the other months.

7. To maintain smooth travel of vehicles on all the study area roadways, it is recommended that information signs be placed on the main roadways directing patrons on a direct path to their proper destination.

8. The Traffic Impact Study is based on worst case traffic operations during the peak seasonal and daily traffic volume conditions in this area. During most times of the year, the traffic volumes on NY Route 28 are significantly lower than during the peak ski weekend at Belleayre. As a result, there is significant reserve capacity on NY Route 28 to accommodate the proposed Resort project. Mainline improvements to NY Route 28 are not warranted.

9. In addition to the intersection improvements recommended, various transportation management initiatives are planned that will reduce traffic impacts. These include the use of a shuttle bus for guests and employees, remote park-and-ride lots for the employees, and scheduling check in/out times at the hotels to occur during off-peak times.

10. The development of the proposed project has the potential for the background traffic to decrease due to a shift in employment opportunities within the project area. It is expected that the proposed Resort facilities will generate many new opportunities that may attract local residents for employment.

11. Finally, the project has the potential to reduce the longer distance daily commuting traffic coming to Belleayre. For example, peak days at the Ski Center typically attract 3,000 to 4,000 skiers. The proposed Resort has the capacity to

house 40 to 50 percent of these skiers and therefore reduce the amount of daily skier commuting traffic on NY Route 28.

B. Access

Access points and internal project roads are illustrated on Figure 2-22, "Big Indian Plateau Access and Roadways," and Figure 2-23, "Wildacres Resort and Highmount Estates Access and Roadways."

The main access point for the Big Indian Plateau portion of the project site will be off of Friendship Road. The privately-owned access road will start at Friendship Road, pass through the Big Indian Country Club and continue through to Belleayre Highlands, and connect to Woodchuck Hollow Road. Woodchuck Hollow Road will be used for emergency access only. All non-emergency traffic will exit this portion of the project site via the access point off of Friendship Road. Bridges will be constructed where this access road crosses Birch Creek and Giggle Hollow.

A gate house is proposed on the main access road above Friendship Road. Personnel at this location will control access and egress to this part of the project site. Ample space will be provided at the gatehouse for vehicles to turn around. Two electronically controlled gates will be installed, the first at the intersection of Woodchuck Hollow Road and the emergency access to Belleayre Highlands, and the second just inside of where the DEC hiking trail turns right off of the main access road. The turn around will be just inside this second gate. Electronic impulse devices will be issued only to local police, fire, and EMT units and to appropriate on-site maintenance staff. Vehicles attempting to exit the site via Woodchuck Hollow Road in non-emergency situations will be required to turn around and exit the site via Friendship Road.

Secondary emergency access/egress to Big Indian Plateau will be provided off of Winding Mountain Road. Winding Mountain Road currently passes south over Birch Creek and then turns to the west. Just before the point where Winding Mountain Road switches back and abruptly turns to the east, an extension will be constructed to tie into the proposed main access road approximately 400 feet to the west. A gate will be installed on Winding Mountain Road where the extension to the main access road is planned. This gate will prevent unauthorized use of the upper portions of Winding Mountain Road. The upper portion of Winding Mountain Road will be available for use for Resort maintenance vehicles. The existing road will be used up to the area below the proposed sixth hole on the Big Indian Country Club. A new extension will be constructed to connect Winding Mountain Road with the proposed main access road to forming a four way intersection with golf course maintenance and employee parking entrance. Figure 2-22, "Big Indian Plateau Access and Roadways", illustrates the sections of Winding Mountain Road proposed to be used for the project as well as the proposed extensions connecting Winding Mountain Road with the proposed main access drive. During early construction Winding Mountain Road will continue to utilize the existing bridge crossing. Once the main access road and bridge across Birch Creek are complete this bridge will be replaced. The stormwater management analysis and proposed stormwater management system described in the DEIS do include the proposed

new sections for Winding Mountain Road that will connect with the proposed main access road to the Big Indian Plateau.

Access to the Wildacres Resort portion of the project site will be via County Road 49A. The access to the hotel building will be across County Road 49A from the main (upper) entrance to the Ski Center. As part of the project, a portion of County Road 49A in the vicinity of these two entrances will be realigned slightly to improve the existing substandard sight distances in this area (See Section 3.7, "Traffic Patterns"). The proposed road improvements to County Road 49A will occur within the road right-of-way and on the project site. No work on State lands is proposed.

Another access road is uphill, further to the south on County Road 49A. This road will be used to enter the parking garage and is the service entrance to the hotel. The access road continues on into the Wildacres Resort, past detached lodging units, the Marlowe Mansion and the golf clubhouse.

Access to the Wildacres Resort is also provided off of Gunnison Road in the vicinity of the existing driveway to the existing Wildacres Hotel and Marlowe Mansion. A second access off of Gunnison Road provides access to the northern portion of the Wildacres Resort with the octoplex clubhouse and most of the detached lodging units. This access road is located approximately 1,000 feet west of the intersection of Gunnison Road and County Road 49A.

The golf course maintenance facility will have an access drive off of County Road 49A approximately 500 feet north of the intersection of Van Loan Road and County Road 49A.

The sewage treatment plant that will serve Wildacres Resort and Highmount Estates will be accessed off of the end of Van Loan Road.

Access to Highmount Estates, the 21 lot subdivision, will also be from County Road 49A with the access point located just before County Road 49A passes into Delaware County.

The Wilderness Activity Center at the former Highmount Ski Area will utilize the existing driveway. Access will be limited to shuttles provided by the Resort.

C. Parking and Pedestrians

1. Wildacres Resort

Two-thirds of the total 694 Wildacres Resort parking spaces are covered, 250 spaces, (with valet parking) are under the hotel, and 208 spaces are in the parking garage, with a direct pedestrian sidewalk connection to the hotel. This reduces impervious surfaces, lighting requirements, sanding salting and plowing, all of which are environmentally beneficial.

At the golf clubhouse there are a total of 84 spaces. In addition to serving the golf clubhouse this parking area also serves the spa and chapel. There are two bag drop off areas adjacent to the clubhouse parking lot, removed from internal vehicle circulation. A player may drop their bags off, then park their car and return to the drop off area via sidewalks, or the car may be valet parked. Either way there will be minimal vehicle/pedestrian interaction.

There are 65 parking spaces proposed at the Marlowe Mansion that will be converted into a restaurant. Landscaped walks are proposed between the parking area and the restaurant. There is also a circular drop off which at some times may be served with valet parking, thus further reducing potential vehicle/pedestrian conflicts.

The Children's Center will be a self-contained use with 36 parking spaces. Parking will be located adjacent to the building and accessed by its own short driveway off an internal project road.

The only other parking area at Wildacres that will be used by Resort guests is a 41 space parking area north of Gunnison Road serving the octoplex clubhouse, swimming pool and tennis courts for Resort guests. This includes a circular drop off area serving all of these facilities that is a slight distance from the parking area proper as well as the entrance road. There will also be a painted crosswalk between the parking area and the clubhouse.

The other 10 parking spaces are at the golf maintenance buildings.

2. Big Indian Resort and Spa & Belleayre Highlands

There are 292 parking spaces at the Big Indian Resort and Spa, 250 of these spaces (over 85%) of the spaces are within the hotel, and not surface parking. The 42 surface parking spaces are designed primarily to serve the golf clubhouse and spa with a circular drop off located at the building.

The other parking areas on the Big Indian portion of the site are employee parking lots that will be served by shuttle buses.

The only parking area over 10 spaces at Belleayre Highlands is a 30 space lot directly adjacent to the tennis courts and swimming pool that the parking lot serves.

3. Special Event Parking

Additional on-site temporary grass surface parking areas that exist next to both hotels will accommodate any overflow parking for special events.

4. Employee Parking

Employee parking will be provided at a 170-vehicle parking lot on Lasher Road on the south side of Route 28 east of the Big Indian Plateau. Employees using this lot would be

shuttled to Wildacres. There is a second employee parking lot with 115 spaces on Big Indian Plateau at the golf maintenance facility. It is expected that traffic volume peaks at the employee parking lot would occur before and after shift changes, which will occur during off peaks (peaks different than the peak periods analyzed in the traffic impact study). The guest shuttle busses will be diverted to pick up and drop off employees at the employee lots during these off-peak periods.

D. Internal Vehicle Circulation

All internal roads will be privately owned and maintained and will be constructed in general accordance with roadway standards of the municipalities in which they are located. Figure 2-24, "Typical Road Section", illustrates a cross section of proposed project roads.

A full service internal shuttle system will be available to visitors to the Resort. The shuttle will be available to transport guests between the different components of the Resort such as transporting guests from the detached lodging units at Belleayre Highlands to the Wilderness Activity Center. The shuttle will also provide internal transportation such as transporting guests at the Wildacres Resort to the Highmount Golf Course. The shuttle will also transport Resort guests to and from the Ski Center. Separate shuttles will transport the employees to and from the employee parking lots.

Detached lodging units at the Big Indian Country Club will be accessed by driveways and two cul-de-sacs off of the main road.

Internal circulation at Belleayre Highlands will occur on some driveways off of the main access road, a cul-de-sac off the main access road near the Brisbane Mansion, and a loop road with a cul-de-sac off of the main access road just to the west of the existing Brisbane Mansion caretaker's house.

At Wildacres Resort, a cul-de-sac off of the main internal road at the Children's Center will provide access to the 24 detached lodging units proposed near golf hole 16.

Vehicle circulation for the 128 detached lodging units at Wildacres Resort north of Gunnison Road will consist of a main road with a cul-de-sac and two dead end connector roads off the main road.

The internal private roadways in the Highmount Estates subdivision will consist of two cul-de-sacs off of the access road from Galli Curci Road (County Route 49A).

E. Recreational Vehicle Use

ATV and snowmobile use by guests of the Resort will be prohibited. Limited use by Resort maintenance personnel is possible. Resort employees will be clearly instructed that the use of these means of transportation are to be strictly limited to the project site and that trespass onto State lands is strictly forbidden. Also, see the discussion on recreational vehicle use included in Response 9 of the Addendum to Appendix 25.

F. Road Maintenance

All project roads will be privately maintained. No municipal revenues will be needed for pavement patching, pavement replacement, sign replacement or winter maintenance. Roads on the project site will be plowed and sanded and salted in winter on an as-needed basis just as municipal roads are currently maintained. Areas of porous pavement in parking lots and driveways will not be sanded in order to prevent clogging. Also, see the discussion of sight distance and sight triangle figures included in Response 6 of the Addendum to Appendix 25.

G. Pedestrian Circulation

Opportunities for pedestrian use of the site will include the recreational trails proposed as part of the project. Golf course cart paths will be available for walking and jogging during non-golf periods and some of these paths may also be made available to Resort guests for cross country skiing.

With the exception of the proposed trails discussed in the "Recreational Amenities Plan" presented in Appendix 3, there will be limited pedestrian activity between the different Resort components or between the Resort and the Ski Center because persons wishing to travel these routes will make use of the Resort's shuttle system. It is expected that the shuttle buses would be the preferred mode of travel in the winter due to the ski equipment that pedestrians would need to carry back and forth between the Resort and the Ski Center. It is approximately one mile from the Wildacres hotel to the Ski Center ticket booths making it unlikely that many skiers would walk. However, it is still recommended that a marked crosswalk be provided across CR 49A at the Wildacres Middle Driveway/ Belleayre Mountain Upper Driveway intersection as discussed below as part of the pedestrian connections. Due to the lower traffic volumes south of the driveways, the crosswalk should be placed at a location just south of the driveways. Shuttle buses will also provide service between Wildacres and the Wilderness Activity Center; however, during warmer weather pedestrians and/or bikers may use the path to travel between the facilities. Additional off-site pedestrian activity to/from Wildacres Resort is expected to be limited. Due to the location and terrain surrounding the Big Indian Plateau it is likely that pedestrians wishing to travel off-site will utilize the shuttle system or they will drive.

1. Golf Carts and Walking Golfers

It is not anticipated that there will be many walking golfers on the two proposed golf courses. Many golf courses today mandate the use of golf carts in order to maintain the speed of play on the course. It is not anticipated that golf carts will be used on any other areas of the Resort besides the dedicated golf course cart paths.

Dedicated golf cart paths are proposed throughout both golf courses, including near buildings associated with the golf courses. Golfers will be directed via their scorecard that golf carts are to remain on the cart paths. The exception to this will be the commonly employed 90-degree rule whereby golfers may only leave the cart path on a 90

degree angle to get to their ball to play their next shot. After playing their shot, golfers return to the cart path on the same 90-degree path.

Wherever cart paths pass over internal project roads, or in the case of the Highmount Golf Club, where carts must pass over Gunnison Road three times, there will be signage for both the golfers and for motorists. This is illustrated in Figure 2-24A, "Typical Pedestrian and Golf Cart Crossing for Gunnison Road." Stop signs will be put at the cart paths on their approaches to road crossings to stop both carts and walking golfers. Motorists will be advised via signage of pedestrian and golf cart crossings. The crossings themselves will be striped in a typical crosswalk fashion. Also, see the discussion of sight distance as it relates to the golf maintenance facility access and golf cart path intersections included in Response 8 of the Addendum to Appendix 25.

2. Non-golf Pedestrians

It is envisioned that non-golf pedestrian use could also occur between some of the Resort components. For example, Resort guests that occupy the octoplex detached lodging units north of Gunnison Road could conceivably make the choice to walk to the Wildacres Resort Hotel to eat in one of the restaurants. In the previously referenced figure it is shown how the golf cart path crossing of Gunnison Road has been located in relationship to the driveway to these octoplex units. Pedestrians would make use of the road crossing in the same fashion that golfers would and use the golf cart path that leads in a direct fashion to the Wildacres Hotel.

3. Pedestrian Connections Between Wildacres Hotel and Other Areas

Figure 2-24B, "Pedestrian Connections Wildacres Hotel, Wilderness Activity Center and Belleayre Mountain Ski Center", shows how these areas will be linked for pedestrian use. The connection between the Wildacres Hotel and the Wilderness Activity Center will consist of the following route. Pedestrians will leave the hotel via the sidewalk along the connection between the parking garage and the hotel, pass by the parking garage on a marked and dedicated pedestrian pathway, and then follow a path along the service and parking entrance road, then cross the internal project road at a crosswalk. Pedestrians would then follow a foot path going west and cross County Route 49A at a crosswalk that provides adequate site distances in both directions. Once across County Route 49A, the footpath would continue on to the Wilderness Activity Center.

H. Shuttle Bus Service

An extensive shuttle bus service will serve the Resort. This service will operate throughout the year. Two main services are proposed along with separate internal loop services at Big Indian Plateau/Belleayre Highlands and Wildacres. These routes would be modified depending on the season to accommodate skier trips or golfing trips. Buses operating on the routes would have a capacity to carry up to 30 persons and they would be equipped with racks for ski or golf equipment. The routes are described below and

shown for the winter ski season in Figures 2-24C, "Ski Area Express Bus Route", and Figure 2-24D, "Ski Area Local Bus Route."

- Ski Area Express: This route would operate between the hotel at Big Indian, the Lower Mountain Lodge at the Ski Center and the hotel in Wildacres. The buses would operate on 10 minute headways with five buses operating on this route during peak periods.

- Ski Area Local: This route would operate between the club membership units at Big Indian Plateau, the Lower Mountain Lodge at the Ski Center the detached lodging units at Wildacres, the Lower Mountain Lodge at the Ski Center, and then back to the club membership units at Big Indian Plateau. The bus would travel along all of the internal roads where it could turn around without using driveways or backing up. The service would be demand activated which means that it would travel down side residential roads only when a call was made for a pick-up or when someone on the bus needed to be dropped off on one of these roads. Four buses would be used for this service providing a 20 minute headway.

- Internal Resort Shuttle: Two buses would be used for circulation within the Big Indian Plateau area and the Wildacres Resort area. These would run on demand within the Resort. The bus operating in Wildacres would also serve the Wilderness Activity Center.

2.2.8 Lighting

Lighting for the proposed development has been designed to provide for the appropriate safe and secure operation of the proposed roads, parking lots and pedestrian areas while having a minimum amount of impact on the surrounding environment. The proposed lighting plan for the project is illustrated on LA Group Plan Sheets SL-1 through SL-14, "Landscaping and Lighting Plan." These plans include a photometric map showing the limits of areas with a proposed light intensity of 0.75 foot-candles. Lighting has been concentrated in the high traffic areas where facilities will be used at night. Proposed area lighting will employ metal halide, sharp cut-off fixtures with house shields, to reduce the amount of light pollution beyond the edges of areas intended to be lighted. Sharp cut-off fixtures also limit the amount of night glow from the development when viewed from a distance. Poles will be set at a maximum height of twenty feet which will also limit the amount of light trespass and enable the use of 250-watt fixtures. Using lower wattage fixtures at lower heights will help to distribute the lighting more evenly and eliminate pockets of bright light. By comparison, the typical commercial center uses 400-1000 watt fixtures placed on 45-foot poles.

Each road intersection will be lit with one, twenty foot high sharp cut-off fixture. This is necessary for the Resort guests to safely navigate the roads at night. Low level (70 watt) six foot lamp posts will be located at each lodging unit driveway for safety and security.

Additional information regarding proposed lighting is presented in Section 3.8.4, "Aesthetic Resources."

2.2.9 Landscaping and Open Space Management

A. Landscaping

When preparing the project grading plans (LA Group Plan Sheets SG-1 through SG-10), an attempt was made to limit ground disturbance as much as possible. With the exception of the golf courses where grading is necessary and existing vegetation must be cleared, areas will be re-vegetated by a mix of trees, shrubs and groundcovers.

In addition to areas of proposed cuts and fills, landscaping will be undertaken throughout the proposed resort. LA Group Plan Sheets SL-1 through SL-14, "Landscaping and Lighting Plans", illustrates the extent of proposed landscaping. Landscaping is proposed along roadways (street trees), around buildings (foundation and other plantings), and around and in parking areas. As an example of the extensiveness of the proposed landscaping, the following tree planting is proposed.

Table 2-5
Summary of Proposed Tree Planting

Project Element	Coniferous Trees	Deciduous Trees
Wildacres Resort	986	532
Highmount Estates	104	70
Belleayre Highlands	325	243
Big Indian Resort	1,317	587
Total	**2,732**	**1,432**

GRAND TOTAL: 4,164 trees to be planted

In addition to the tree planting there will be extensive plantings of shrubs, groundcovers, and flowering plants.

When developing the landscaping plans, an initial step was to formulate a list of species that could be planted on the site. When developing this "plant palette" the project landscape architects consulted with the project botanist to determine what plants currently exist on and around the site. All plants are native to the northeast US and many are found growing naturally on the site. All are hardy as far north as Zone 3. A list of plant species to be used on the site is contained in Section 3.5.1, "Vegetation."

In addition to landscaping the grounds of the Resort, the Big Indian Resort and Spa building will also be landscaped. This building will be landscaped with xeriscape (waterwise) plants including a combination of shrubs, large and small plants, vines and perennials. A list of those plant species that may be used in the landscaping of the

building was prepared by local Master Gardeners from Cornell Cooperative Extension of Ulster County. These plants were chosen because they require minimal or no irrigation and can cope with fluctuations of temperature and resist disease and pests.

Xeriscaping originated in Colorado. The technique and plants thrive in elevations similar to the Rocky Mountains. Plants that are labeled as Zone 4 or lower are designated for the top floor of the Big Indian Resort and Spa. This landscape is at the highest elevation and can experience colder growing conditions more typical of Zone 4. Descending roof top selections consists of plants that range in the Zone 4 and Zone 5 categories.

Xeriscape techniques, together with the selected native plants if positioned properly, will create a natural landscape design that contains plant varieties that are drought tolerant, disease resistant and require a low level of maintenance. In addition, xeriscaping supports water quality by reducing non-point source pollution in runoff.

B. Open Space Management

As discussed in more detail in Section 2.4.1 (D), the majority of recreational uses on undeveloped lands outside of development footprints will occur at the Wilderness Activity Center at the former Highmount Ski Area. Appendix 4, "Wilderness Activity Center Program", provides a more detailed description of the activities planned for this area. In order to accommodate some of the possible activities at this location including hiking, snowshoeing, nature trails, ropes course, etc., it will be necessary to continue to maintain some of the existing ski trails by periodic brush removal. Hiking trails with interpretive signage will also be located at various locations outside of the development footprints. On the assemblage lands west of the Highmount Estates subdivision there will be a loop trail.

Other places where trails may be provided include a multi-use family trail parallel to the old railroad and others provisionally indicated on the "Recreational Amenities Plan" included in Appendix 3.

2.2.10 Signage

Signage for the project will include traffic control signage such as stop signs, intersection signs, internal road signs and parking area signs. As illustrated in Figure 2-25, "Typical Road Signage", these internal traffic control signs will be constructed to NYSDOT standards.

There will also be signage associated with the two golf courses as well as each of the larger buildings such as the hotels, clubhouses, etc. All of this internal signage will meet the standards set forth in the Shandaken and Middletown Zoning Codes. These requirements pertain to the size, location of signs within the property. Figure 2-26, "Typical Wood Frame Signage", and Figure 2-27, "Typical Stone Signage", illustrate examples of the types of signage that is being contemplated for the project site.

Any off site signage will comply with the requirements of signage in the Catskill Park. This will include directional signage off of the project site as well as any signage on land owned by a person where a sign is proposed to advertise a building elsewhere on a separate parcel. For a sign of this type, a permit will be required from NYSDEC. When the design plan for this type of signage is finalized a permit application will be submitted in accordance with the requirements of 6NYCRR Part 195 and ECL Section 9-0305(1). At this time it is anticipated that off-site directional signage will be located at two locations, near the Highmount Post Office at the intersection of County Road 49A and NY Route 28, and also within the "island" of land bordered by NY Route 28 and Friendship Road.

2.2.11 Utilities

Utilities that will be provided to the resort will include electric, telephone, and cable television. All distribution lines within the project site will be installed underground.

Electric demand for the project has been estimated to be 4,451.6 kilowatts. New York State Electric and Gas, the local electric service provider, has indicated that they have sufficient capacity to meet the electric demands of the project. A letter confirming NYSEG's capacity to serve the project site is included in Appendix 6, "Letters of Record."

Telephone service for voice, facsimile and internet connections will be provided in each of the project buildings. Telephone service in the area is provided by Verizon as well as the Margaretville Telephone Company. Both companies have indicated in writing that they have the ability to meet the telecommunication needs of the project. (See Appendix 6, "Letters of Record.")

All project buildings will be equipped with cable television service. Cable television in the area is provided by Time Warner Cable. Time Warner has indicated in writing that they have sufficient capacity to adequately serve the project. (See Appendix 6, "Letters of Record.")

Liquid propane (LP) gas will be used on the project but it will not be from a centralized source. All buildings will be supplied with containers of LP gas for use in gas fireplaces and cooking stoves. Only 13 wood-burning fireplaces are proposed for the entire project; two are in the Big Indian Resort and Spa, two at the Wilderness Activity Center, three at Wildacres Resort- Marlowe Mansion (2 of existing 4) and one at the Hotel, three of five existing units at Belleayre Highlands in the existing Brisbane Mansion and the three existing in the Leach house. This is a decrease in the total number of wood burning appliances on the project site. Currently there are 16 wood burning appliances in structures on the project site, 12 fireplaces and 4 wood stoves.

Heating oil will be used to heat the buildings and fuel water heaters on the project site. All heating oil tanks will be located inside of buildings. There will be no underground heating oil storage tanks included in the project.

There are a number of local suppliers of LP gas and home heating oil with the ability to serve the project including Colonial, Suburban, Kosco, and Agway.

Geothermal heating had been given consideration, but is not being proposed as part of this project. The costs associated with this alternative heating method currently outweigh the savings in energy that can be realized over a reasonable time period. If these conditions change then consideration will be given to geothermal systems in the future. If at the time of final building design, geothermal, or ground source heat pump, heating and cooling systems are selected as the best form of heating and cooling from an energy efficiency perspective, the following areas of design will be explored. Wherever possible, horizontal ground source piping will be installed under golf course fairways at a depth of 4 to 5 feet below finished grade. All horizontal piping will be installed with trench diggers, thereby minimizing site disturbance. In areas where surface area is limited, drilled wells to accommodate the heat pump tubing will be provided. In all cases ground source heat pumps will utilize a closed loop system whereby the system water is circulated through the system and the ground. Ground source heat pumps have three primary environmental advantages; low energy usage, the potential for renewable energy usage and the absence of on-site construction. Further, no outside compressors are used thereby reducing noise pollution and increasing aesthetics. The only possible negative impact of the use of ground source heat pumps is the refrigerant used. By the time this project is constructed the hydro chlorofluorocarbons (HCFCs) in the heat pumps will be replaced by hydro fluorocarbons (HFCs) which are greenhouse gases, not ozone depleting. Proper maintenance of the systems is necessary. However, in comparison to typical air-source heat pumps / air conditioners, ground source heat pumps use less than ½ of the refrigerant. Water well and vertical borehole installations will follow the National Ground Water Association guidelines, if required.

Similar to geothermal energy, the use of fuel cells was also given consideration for this project. Since this technology is still emerging, and because this new technology is currently cost-prohibitive, it is not proposed at this time. If and when this technology becomes economical to implement, it will be given consideration for this project.

Water supply and wastewater collection and disposal were discussed previously.

2.3 Construction Activities

For purposes of construction, the overall project will consist of two simultaneous construction projects. Construction of the eastern and western components will occur simultaneously and will follow the schedule set forth in the following section.

2.3.1 Construction Schedule

Following is a general sequencing plan for construction of the eastern and western portions of the project site. Generally speaking, the outdoor construction period will be

between April and November, six days a week, Monday through Saturday, 10 to 12 hours per day.

Construction of the project will be phased over a number of years. Construction phases are broken into year 1 (phase 1), year 2 (phase 2) year 3 (phase 3) and years 4 through 8 (phase 4). The duration of phase 4 will depend on the sale of detached lodging units and is estimated to be somewhere from 4 to 8 years.

Previously referenced Table 2-1A," Big Indian Plateau Construction Phasing and Cut and Fill Volumes", and Table 2-1B," Wildacres Resort and Highmount Estates Construction Phasing and Cut and Fill Volumes", listed the different locations in the different phases along with their acreages and earthwork quantities. Construction phasing is illustrated on two figures, Figure 2-28, "Phasing Plan Eastern Portion", for the eastern portion of the project (Big Indian Plateau) and Figure 2-29, "Phasing Plan Western Portion", for the western portion of the project (Wildacres Resort). The phasing is also illustrated in greater detail in the site plan drawings that accompany this DEIS, Sheets PH-1 through PH-3 (PH = phasing).

In addition to this phasing plan, the DEIS now also includes a much more detailed construction phasing plan using Phase 2 of Big Indian Country Club as an example for the whole site. Concerns were previously expressed as to how construction phase erosion and sediment control might be better implemented. The new approach to construction, devised to minimize impacts from erosion and sedimentation is contained in Section 3.2.2, "Surface Water Resource, Potential Impacts", as well as in Appendix 11 "Draft Construction Stormwater Pollution Prevention Plan." Construction-level detailed drawings have been prepared for the construction of Phase 2 of the Big Indian Country Club (See LA Group Plan Set Sheets CP-1 through CP-18). These drawings demonstrate that the most challenging portion of the Resort Project, in terms of potential impacts from stormwater during construction, can be undertaken in full compliance with DEC standards related to soil erosion and sediment control. Additional detail is provided in Appendix 9, "Construction Phase Stormwater Quantity Management Plan," and Appendix 10, "Construction Phase Stormwater Quality Management Plan."

A. Eastern Portion

1. Big Indian Country Club, Resort and Spa - Year 1/Phase 1

This year will include developing the main access road, constructing the irrigation ponds, beginning construction on the hotel and 4 model detached lodging units (2 single [#25 and 26] and 2 triplex [#54 and 55]), and some transporting of fill material from the roads, ponds and hotel to stockpile areas on the Plateau. The total amount of land involved in this phase, excluding stockpiles, is approximately 59 acres. The following construction projects will be accomplished.

a. Improve Winding Mountain Road for truck access, including improved surfaces in steep areas and pullover areas to allow for vehicles to pass

each other and adding cross culverts. Install temporary shoring to existing bridge. Complete in four (4) weeks or less.

b. Blast rock for irrigation ponds and hotel foundation. Finish ponds and install liners. Approximately 18,000 cubic yards of rock material from hotel excavation will be crushed on site for sub-base material for roads, drives and parking areas. The remainder of the material will be crushed and available mostly for golf course and site work construction fill material.

c. Lay out stockpile locations, size and material types (rock versus rock and soil) described in Section 2.2.6(B). Stabilize soil stockpiles with tackifier (Eco Aegis or approved equal) and seeding (annual ryegrass), surround stockpiles with reinforced ("super") silt fence.

For example, approximately 18,200 cubic yards of rock blasted from the irrigation ponds will be used as fill on holes 1and 9 will be placed there during phase 1. The rock will be placed on 2.5 acres of logged, but not grubbed, areas with an average depth of the fill being 4.5 feet. This material will not be processed (crushed) before it is put on these holes.

Soil from the pond blasting area, estimated to be approximately 6,800 yd3, will be stripped as necessary as blasting progresses, and stockpiled near the blasting site. Stockpiles will be surrounded by silt fence. As rock is put in place on holes 1 and 9 it will be covered with the stripped topsoil and the topsoil will be stabilized with seeding and Eco Aegis or suitable equivalent. The average depth of soil fill will be about 1.5 feet. Enhanced erosion controls including perimeter super silt fence will be maintained around the areas filled with rock and soil.

Approximately 34,500 cubic yards of rock will be will be placed on approximately 8.8 acres that are logged, but not grubbed, on the range and 15 (Phase 3 areas). Average depth of fill will be 2.4 feet. Most of this material will be processed (crushed) before it is put on these areas.

Soil from the hotel blasting area, estimated to be approximately 20,500 yd3, will be stripped as necessary as blasting progresses, and stockpiled near the blasting site. Stockpiles will be surrounded by silt fence. As rock is put in place on the practice range and hole 15 it will be covered with the stripped topsoil and the topsoil will be stabilized with seeding and Eco Aegis or suitable equivalent. The average depth of soil fill will be about 1.5 feet. Enhanced erosion controls, including perimeter super silt fence will be maintained around the areas filled with rock and soil.

d. Construct the main access road and the bridge over Birch Creek near Friendship Road simultaneously. Main access road construction will

begin on the top of the Plateau near the proposed hotel site and progress downhill towards the bridge over Birch Creek. Install potable and irrigation water supply lines, wastewater lines and utilities along the access road. Road to be constructed so that the binder course is installed in six (6) months or less. Once this road is passable, the new bridge at Winding Mountain Road will be built. Also continue access road to Giggle Hollow, construct the bridge across the brook, and continue through Belleayre Highlands to Woodchuck Hollow Road.

e. Complete 20-foot wide centerline cuts for the internal roads and parking areas. Centerline cuts will not be grubbed until actual construction begins in each particular area. (This could be performed over the previous winter if permits are in place.)

f. Construct potable water treatment facility, wastewater treatment plant and irrigation pump station.

2. Big Indian Country Club, Resort and Spa - Year 2/Phase 2

This is the first year of golf course construction. This phase consists of golf holes 1 through 11. This area comprises approximately 85 acres.

a. Install erosion control measures, grub, bury stumps, rough grade, , install irrigation and drainage, final grade temporarily stabilize (where necessary) and final stabilize golf holes 1 through 11.

b. Continue construction of Big Indian Resort and Spa building, wastewater treatment plant and four model detached lodging units. Construct main and satellite golf maintenance buildings.

Note: In terms of developing the Resort's marketing program, should the need arise to construct additional varied models of detached lodging units during the first three years of construction, the construction of said units will be subject to the general restriction that no more than 25 acres will be open and disturbed in each portion of the project (East and West) at one time during any phase of the construction.

c. Stabilize any and all other disturbed soil areas with ryegrass and wood fiber mulch hydroseeding such as Eco Aegis® or approved equal and, where necessary, tackifier.

d. Grade, gravel and install binder course on all internal roads and parking not proposed as porous pavement.

e. For porous pavement areas install proper base material.

3. Big Indian Country Club, Resort and Spa - Year 3/ Phase 3

Phase 3 consists of the remainder of the golf course and the two employee parking areas. The total area of land involved in Phase 3 is approximately 74 acres.

a. Install erosion control measures, grub, bury stumps, rough grade, , install irrigation and drainage, final grade temporarily stabilize (where necessary) and final stabilize remaining golf holes 12 through 18 and the practice range.

b. Top coat asphalt (conventional and porous) on all main roads, parking, and driveways.

c. Landscape all completed buildings.

d. Big Indian Resort and Spa, the eleven golf holes in Phase 2 will open to play +/- mid summer. Holes 10 and 11 will be used as a temporary practice range.

4. Big Indian Country Club, Resort and Spa – Years/Phase 4-8, Future Phases

a. Construct more detached lodging units as they are sold.

b. The seven holes and practice range in Phase 3 will be open to play in mid-summer

5. Belleayre Highlands - Year 1/Phase 1

Total Area 24.2 acres.

a. Complete access road from Giggle Hollow (including bridge) to Woodchuck Hollow Road.

b. Construct 10 parking spaces at Brisbane Mansion and begin renovations on mansion and carriage barn.

c. Construct one model quadplex detached lodging unit, unit #3.

d. If wastewater alternative #3 is implemented install one of the wastewater disposal fields completely and connect to buildings.

6. Belleayre Highlands – Year 2/Phase 2

Total Area 9.4 acres.

a. Construct 30 space parking lot, cabana, swimming pool and tennis courts.

b. Construct four model quadplex detached lodging units, units #1, 2, 4 and 5.

c. Begin renovations on caretaker's house.

d. Clear trees but do not grub 20 foot wide path for upper loop internal road.

7. Belleayre Highlands – Year 3/Phase 3

Total Area 12.3 acres.

a. Grade and complete to binder upper loop internal road and begin building six quadplex detached lodging units, units 8, 9, 10, 11, 17 and 18.

b. If wastewater alternative #3 is implemented, install the wastewater absorption field for the above units.

c. Grade and complete to binder next set of internal roads.

8. Belleayre Highlands – Years/Phases 4-8, Future Phases

a. Construct more detached lodging units as they are sold.

B. Western Portion

1. Wildacres Resort – Year 1/Phase 1

Total Area 100 acres.

a. Install erosion control measures, grub, bury stumps, rough grade, install irrigation and drainage, final grade, temporarily stabilize (where necessary), and final stabilize golf holes 2 through 8 (Phase 1).

b. Construct main access road through site, install binder course as soon as possible.

c. Cut 20 foot wide centerlines on internal roads and parking. Stabilize haul roads and other disturbed areas with ryegrass.

d. Blast rock for hotel, begin construction of hotel and golf clubhouse, main and satellite golf maintenance buildings, potable water treatment facility, wastewater treatment facility and wastewater disposal fields, Children's Center, Lodging Unit Clubhouse with swimming pool and tennis courts, one detached octoplex lodging unit (#6), and improve the Marlowe Mansion. All to be brought on line by summer of the third year. Set up

and operate rock crusher and concrete batch plant at the practice range. These will operate for the first 18 to 24 months of construction.

e. Install utility infrastructure (water, wastewater, power and communications) in vicinity of Phase 1 and along all roads.

f. Clear, grub, bury stumps, grade and gravel Highmount Estates subdivision roads, stockpile excess cut material on-site for lot development. Stabilize stockpiled soil materials.

g. In winter between Phase 1 and Phase 2 clear, but do not grub, Phase 2 centerlines for internal roads and parking.

2. Wildacres Resort – Year 2/Phase 2

Total Area 78.9 acres.

a. Install erosion control measures grub, bury stumps, rough grade, install irrigation and drainage, final grade, temporarily stabilize (where necessary) and final stabilize golf holes 1, 9 and 10 through 18.

b. Grub and bury stumps, grade, gravel, and install binder course on all internal roads and parking not proposed as porous pavement.

c. For porous pavement areas install proper base material.

d. Install utility infrastructure in vicinity of Phase 2 and connect to all buildings under construction.

3. Wildacres Resort – Year 3/Phase 3

Total Area 32.74 acres

a. Install top coat of asphalt (conventional and porous) on all roads and parking, landscape all completed buildings.

b. Open full golf course and hotel, golf clubhouse, lodging unit clubhouse and all associated buildings mid to late summer.

c. Construct more octoplex detached lodging units at Wildacres and single family homes at Highmount Estates as they are sold (up to 8 year buildout).

4. Wilderness Activity Center – Years 1 and 2/Phases 1 and 2

Complete all renovations and improvements, connect to utility infrastructure, construct warming hut.

C. General Erosion Control-All Areas

Detailed descriptions of proposed comprehensive erosion control measures to be implemented during construction can be found in Section 3.2.2 and in Appendix 11, "Draft Construction Stormwater Pollution Prevention Plan."

The following provides a description of how these plans will be implemented.

1. There will be a dedicated erosion control team of 4 to 6 people per golf course, whose primary role will be repairing, maintaining and upgrading erosion control devices such as silt fence, construction fence and wattles. These crews will be equipped with all the necessary equipment and supplies necessary to effectively maintain the erosion control devices. The site work contractor will install all erosion controls and will also be responsible for maintaining the temporary sediment basins under the direction of the Erosion Control Superintendent.

2. These crews will be directed by the Erosion Control Superintendent who will be a Certified Professional Erosion Control Specialist. This Superintendent will have complete stop-work authority of all site earthwork contractors and will have the authority to utilize whatever construction equipment and manpower necessary to implement and repair erosion controls in a timely manner.

3. This Erosion Control Superintendent and the two crews under his direction will not be employed by the site work contractor, but will be under independent contract to the developer and report directly to the developer's on-site representative.

4. The site work contractor, as directed by the Erosion Control Superintendent will be responsible for constructing and structurally maintaining the construction phase sediment retention basins that will be constructed site-wide

5. The Erosion Control Superintendent will be the single point of the contact for all issues related to on-site erosion and sediment control. This individual will be responsible for implementation of the construction pollution prevention plan, monitoring of the local water courses during the construction process, and oversight on the progress of the construction project.

   Given the complexity of the plan to construct the site it will be necessary to have a comprehensive process to share information on the construction process. A constant update of the construction process will be necessary. The contractors

will have to closely monitor daily progress as it relates to all the construction tasks from site clearing to final grading. A common set of electronic plans will have to be maintained at a central location that is updated on a frequent bases in order to maintain accurate and up-to-date stormwater control reports.

Along with the administrative staff it can be anticipated that a significant amount of personnel time will have to be expended to carry out the monitoring requirements on the water courses and of the stormwater control facilities including the retention basins along with the perimeter controls. Status reports on erosion control facilities as well as the water quality monitoring data will have to be compiled at a central location. As a control mechanism, if the water quality of a water course is degraded during construction, it may be necessary to modify the work areas, increase temporary stabilization, or in some cases suspend work until the erosion issue is remediated. Therefore, it is necessary to collect the data and immediately utilize the data.

2.3.2 Construction Stage Activities

A. Construction Sequencing

As described in the previous section on construction schedule/sequencing, the following is the general construction sequencing that will be followed, particularly for golf course areas. (The terms Phase, Subphase and Subcatchments are defined Section 3.2.2)

1. Construction stakeout and golf course centerline stakeout for entire phase.
2. Centerline clearing for Subphase 1.
3. Construction access and perimeter control for Subphase 1.
4. Temporary basins rough grade in Subphase 1.
5. Tree harvest without grubbing in Subphase 1.
6. Stump grub, fine grade stormwater basins and stormwater swales, stabilizing swales with rock or geotextile in Subphase 1.
7. Rough and final grade Subphase 1.
8. Install permanent irrigation lines in Subphase 1.

9A Stabilize Subphase 1 with temporary measures as specified, and

9B Perform Steps 2, 3 and 4 in the Subphase 2.

10. Upon complete temporary stabilization of Subphase 1, repeat Steps 5-8 in Subphase 2.
11. After permanent irrigation lines are installed in Subphase 2 immediately topsoil, install irrigation heads and install permanent stabilization (sod/seed) in Subphase 2.
12. Continue topsoiling and permanently stabilize into Subphase 1 which was previously temporarily stabilized.
13. Perform Steps 2 and 3 in the Subphase 3.
14. When five acres or less of Subphase 1 require topsoiling and final stabilization, clear, but don't grub, up to 5 acres in the Subphase 3.

15. After Subphase 1 is completely permanently stabilized, construct Subphase 3 through temporary stabilization (Steps 4 through 9A).
16. Continue construction through Subphases 4 then 5 and 6 using the same sequence described above for Subphases 1, 2 and 3.
17. Upon establishment of permanent cover, remove temporary drainage swales and basins. Convert appropriate temporary basins to be utilized during operations to their permanent condition (by Subphase).
18. Stabilize all remaining disturbed areas (by Subphase).
19. Remove perimeter erosion control after vegetation stabilization is established (by Subphase).

Whenever disturbed soil is to be left open for more than 14 days in the sequence above, apply temporary stabilization measures as specified.

If irrigation water is not yet available near the completion of a subphase, apply temporary stabilization measures as specified and move to next Subphase.

Building construction will proceed in an orderly and efficient manner, time being of the essence. Maximum efforts will be made to minimize the time required to construct the buildings. Wherever possible, site disturbance will be limited to no more than 40 feet from building edges. Wherever possible, parking areas and roadways will be utilized as construction staging areas.

B. On-Site Material Processing

The feasibility of establishing an on-site mobile batch asphalt plant was evaluated. Consideration was given to the site's proximity to existing asphalt plants and their ability to provide suitably hot asphalt, as well as an economic feasibility assessment of producing asphalt on site. This analysis determined that an on-site plant was not necessary or economically advantageous. An on-site mobile batch asphalt plant is not proposed as part of the project. A nearby existing asphalt plant is available to meet the project's asphalt needs.

The project will require a large volume of concrete, most of which will be produced on-site using stone materials excavated on-site. One portable ready mix concrete plant, a mobile source, will be located near the Highmount Golf Clubhouse and will produce concrete for the east and west sides of the project during the first two years of construction. The concrete batch plant near the Highmount Golf Clubhouse will have an associated rock crusher mill. A well is located nearby to supply the necessary water. Mason sand and cement will have to be brought to the site. Co-locating the concrete batch plant near the crusher mill will minimize sound impacts and reduce the number of truck trips required to move the raw stone material to the batch plant. These plants will operate for the first 18 to 24 months of the project.

The concrete batch plant will operate continuously when the large monolithic pours are necessary at the various construction sites. Therefore, the plant may operate for

prolonged periods of time followed by periods of shut down while concrete sets or forms are being removed and moved.

Another portable rock crusher mill to be located near the Big Indian Resort and Spa will operate during the first 9-12 months of the project generating crushed stone road base material and general fill material. The crusher will operate six days a week and generally from 8 AM-6 PM.

The mobile concrete batch plant and the two rock crushers will have their own mobile source air permits for these facilities.

C. Construction Waste Management

A construction waste management plan, which recycles or salvages portions of the construction waste will be established.

D. Construction Inspection

Construction inspection methods and procedures by local municipalities and other regulatory agencies will follow normal and typical inspection procedures. Construction documents will be reviewed and followed. Building construction inspections are typically performed by:

- The local building inspector.
- County Health Department.
- The electrical underwriter.
- The insurance underwriter, at completion of the building.
- The local fire department, at completion of the building.

Building construction inspections are typically performed at critical construction stages.

Site construction inspections will likely be performed by the NYSDEC and NYCDEP at stages critical to the installation of sedimentation and erosion control systems.

Sewage system installation will be inspected by the County Health Department and may be inspected by the NYSDEC and/or NYCDEP at intervals appropriate to the stage of construction.

All site facilities and infrastructure will be available for inspections at intervals as requested by the regulatory agency(s) as will be the records of the dedicated erosion control crews. The Certified Erosion Control Specialist and his crews will be available to assist in these inspections.

2.4 Operational Stage Activities

The following is the general operational plan for the project site. Due to the seasonal nature of some of the various operational activities, the frequency and intensity of activities can be expected to vary over the course of a year.

2.4.1 Building Functions

A. Big Indian Country Club, Resort and Spa

1. Big Indian Resort and Spa

The Big Indian Resort and Spa will contain 150 rooms of varying configurations for overnight accommodations of variable duration. The Hotel will also include two restaurants, one with a 75 -seat capacity and the second with a 150-seat capacity as well as a beverage lounge with 50 seats. A sundry/apparel shop offering newspapers, books, gift items, and seasonal apparel is also proposed within the Resort. Four conference/function rooms of 350 square feet each will also be included in the Hotel. Meeting rooms will be available. A 200 seat ballroom facility will also be available to country club members, hotel guests, and to the public for private functions such as wedding receptions, golf conventions, and non-golf seminars/lectures. A health spa and fitness center for Resort guests of 9,300 square feet will also be located at the Resort. The Big Indian Country Club will operate essentially as a private club. However, weekdays will be made available for tee times for the general public and the general public will also have the opportunity to reserve tee times on other days when Resort guests have not filled all of the available tee times.

The golf clubhouse at the Big Indian Country Club will include the 2,810 square foot golf pro shop where golf-related items will be available for purchase in the 1,500 square foot retail area and where golf professional staff offices will be located. Also included in the clubhouse will be a 40-seat snack bar, locker rooms and golf cart storage and maintenance. Like the Big Indian Resort and Spa facilities, these facilities will be open to country club members and their guests, Hotel guests, inhabitants of the detached lodging units, and members of the public playing golf on the golf course.

2. Detached Lodging Units

The detached lodging units will be operated by the operator of the Big Indian Resort and Spa and will be available to club members on a fractional interest basis. Club members may choose to purchase fractional interests in intervals ranging from five weeks to three months. During this time club members may stay anywhere from a few days to a number of consecutive weeks.

3. Golf Maintenance Facility

The golf maintenance facility will include offices, a staff meeting room, mechanics workspace for equipment repair, storage space for equipment, parts, and materials used in golf course maintenance such as fertilizer, pesticides, bunker sand, and road sand and salt. The standby electrical generator will be located here. Ten parking spaces will be available here for golf course maintenance employees. Additional employee parking will be available in a lot to the west of the maintenance facility.

4. Satellite Golf Maintenance Facility

The satellite golf maintenance facility will contain equipment regularly used for golf course maintenance, primarily mowers and small golf-cart type utility vehicles.

B. Belleayre Highlands

1. Detached Lodging Units

The functions, operations and activities are the same as described for the detached lodging units at the Big Indian Country Club, Resort and Spa.

2. Brisbane Mansion

The existing mansion itself is planned as a social and activities center with offices on the upper floor. This will include a game room and a 25-seat snack bar. The exterior of this building as well as the existing caretaker's house and carriage house (see 3 below) will be maintained in its present character.

3. Existing Caretaker's House

The existing caretaker's house will be used as housekeeping office space as well as storage space for housekeeping.

4. Existing Carriage Barn

The existing carriage barn will function as office and storage space for maintenance operations at Belleayre Highlands.

5. Cabana

A cabana building is proposed next to the proposed swimming pool and tennis courts. Restrooms, changing areas, and lockers will be provided for resort guests.

C. Wildacres Resort/Highmount Golf Club

1. Wildacres Resort Hotel

The Hotel will contain 250 rooms of varying configurations available for overnight stays of variable duration. Two restaurants will also be included in the Hotel, one with 150 seats and the other with 300 seats. A 100-seat beverage lounge is also proposed. A total of approximately 13,000 square feet of hotel-related retail space is proposed. A 250-seat interfaith chapel is also proposed. The restaurants, retail, and interfaith chapel will be available to the public as well as resort guests.

The conference center within the Wildacres Resort Hotel is proposed to include a 500-seat ballroom/ auditorium. Besides convention meeting space and meeting space available to local groups, it is envisioned that the Conference Center will also be used for musical performances, the showing of movies, wedding receptions, banquets, antique shows, and similar functions.

The clubhouse for the Highmount Golf Club will be attached to the Wildacres Resort Hotel and will include a pro shop, a 40-seat snack bar, locker rooms with steam and sauna and golf cart storage and maintenance. There will be limited public access to the clubhouse, with access being limited to members of the public with reserved tee times on the golf course.

2. Detached Lodging Units

The detached lodging units will be operated in the same manner as that described for similar units at Big Indian Country Club and Belleayre Highlands. The operators of the Wildacres Resort Hotel will also operate the detached lodging units. Lodging unit members may choose to purchase timeshare interest in one week intervals. The duration of occupancy will be similar to that described for the detached lodging units at the Big Indian Plateau.

3. Existing Marlowe Mansion

The Marlowe Mansion will function as a third restaurant with 150 seats available to resort guests and the general public. Some of this existing building will also be used as Resort office space. The exterior of this building will be maintained in its present character.

4. Lodging Unit Clubhouse

A social and activities center with an outdoor swimming pool and tennis courts is proposed within the collection of detached lodging units north of Gunnison Road. Facilities located within this building will include a 40-seat snack bar, health club and game room. These facilities will be available to guests staying in the detached lodging

units at Wildacres Resort. Resort office space for reception, sales and operations will also be located in this building.

5. Golf Maintenance Facility and Satellite Golf Maintenance Facility

The functions, operations and activities associated with these buildings will be the same as those described for the Big Indian Country Club.

6. Children's Center

Located to the east of the Marlowe Mansion, a Children's Center for member and guests' children is proposed.

D. Wilderness Activity Center

1. Existing Buildings

The former main lodge will include a café with lounge and library, locker rooms, weight training room, jacuzzi, sauna and steam room. A new twenty foot long addition will house a rock climbing wall inside the building and an ice climbing wall outside. The existing deck will also be enlarged. An outdoor products sales and rental shop will be constructed within the existing ski rental shop building at the former Highmount Ski Area. These facilities will be open to Resort guests, their guests, and the public. The Wilderness Activity Center will be the center for a number of outdoor activities that might include mountain biking, hiking and trail running, snowshoeing, cross country skiing, nature trails, rock climbing, ice climbing, ice skating, sledding, ropes/terrain challenge courses and environmental and conservation workshops. Expedition-style learning on Activity Center lands and throughout the Catskills is also part of the programming for the Wilderness Activity Center.

2. Warming Hut

A small (15 by 25 feet) warming hut will be constructed near the top of the remnant ski lift at the former Highmount Ski Area. This small building will be equipped with a wood stove, solar power, composting toilet, and cellular phone service and will serve as a support building for some of the activities described above.

E. Highmount Estates

Highmount Estates is proposed as the only single family home 21-lot subdivision in the project. Use of this portion of the project site will be strictly residential. The tenure and duration of stays could range anywhere from a few days (weekends) to full time residential occupancy.

F. Other-Existing Highmount Post Office

This building will be used for support office space for the Resort with functions including rental offices, marketing and sales, and operations offices.

2.4.2 Employment

Employment projections for the entire project are for a total of 747 full-time equivalent jobs, with 542 of these being full time and 330 being part time or seasonal employees. Below is Table 2-7," Projected Employment", that provides a breakdown of the different components of the project, the different departments within each component, and the number of employees in each.

Table 2-7
Projected Employment

	Employment		
Project Component	Full Time	Part Time/ Seasonal	Full Time Equivalent
Golf	9	87	68
Hotel/Lodging/Conference	284	86	334
Retail	14	0	14
Restaurants	164	157	260
Timeshares	46	0	46
Wilderness Center	5	0	5
Children's Center	20	0	20
Total	**542**	**330**	**747**

In addition to these totals, the Wilderness Activity Center will employ five to ten employees that will be a combination of full time, part time, and seasonal employees.

2.4.3 Employee Housing

No employee housing is being proposed by the Applicant. The Applicant prefers that others receive the economic benefit from this potential opportunity, should it arise.

As discussed more fully in Section 7, the project will result in a need for some housing for employees that move to the area. The great majority of Resort employees are expected to come from the local labor pool, and commute to their jobs at the Resort from their existing homes. As a result, new employee housing needs are expected to be limited.

The Resort will, however, provide a small number of mid- and upper management jobs that would probably be filled by non-resident personnel who relocate to the Resort area. These would include management positions in the lodging/hotel operations, restaurants

(including executive chefs), timeshare management and sales, golf course management and the golf pro(s), and financial management. Because of the specialty or technical nature of these positions, filling them from among the available labor pool may not be possible. Consequently, the recruitment program would most likely search nationally for the best candidates, and the Resort will therefore be likely to import these workers into the region. These positions would have salaries in the approximate $28,000 to $150,000 range. Approximately 16-20 such positions will fall into this category.

These full-time and mid- and upper management positions will require year-round housing, presumably close to the Resort location. The salary range for these positions is well above the annual income level of the area (the average estimated annual 1999 wage in Ulster County was $23,220, and in Delaware County was $18,993; see page 4-2 in Appendix 26, "Economic Benefits and Growth Inducing Affects"). These employees, therefore, would have an advantage in finding quality year-round rental properties, or home ownership opportunities. As newly settled employees, however, it is likely that they would either rent or purchase; it is unlikely that they would build. The timeshare and hospitality industry workforce is highly mobile, rotating jobs within the industry, often on a national and international basis. Employees of this mobile nature are not likely candidates to construct homes from scratch, however, there remains the possibility that among the 16-20 individuals in this group there may be a very small number of whom, once their employment at the Resort is stable and considered long-term, may choose to build a permanent year-round residence.

It is anticipated, though, that the majority of employees would reside in existing housing, and that only a small number would enter the regional housing market as new renters and purchasers of existing housing stock as a result of their employment at the Resort. Very few, if any, new employees would be expected to construct new year-round housing. No other potential new housing construction is anticipated as a result of Resort development and operations.

2.4.4 Homeowners Association

The only part of the project that will be served by a Homeowners Association will be Highmount Estates, the 21-lot single family home subdivision. The primary responsibility of the Homeowners Association will be for contracting for the maintenance of the subdivision roads. It is anticipated that water and wastewater infrastructure and maintenance thereto will be the responsibility of the water and wastewater transportation corporation providing water and wastewater services. Other utilities, including telephone, electric and cable television, will also be maintained and serviced by the companies providing those services.

Draft covenants have been developed for the Highmount Estates subdivision. Theses covenants can be found in Appendix 4A, "Draft Covenants Highmount Estates." The draft covenants place limitations on such things as buildings, excavation, grading, drainage and vegetation clearing.

The Restrictive Covenants (the "Covenants") drafted for the Highmount Estates Subdivision (the "Subdivision") play a significant role in the overall protection of the environment. This is achieved in part by the following restrictions which will run with the land and bind all grantees, successors and assignees.

The only buildings and structures permitted in the Subdivision will be for the exclusive use of a single family dwelling. This exclusive use will protect the Subdivision and its surroundings from commercial and/or industrial development, which often results in an added burden on the environment.

In addition to the building and structure requirements, there are excavation and grading specifications which stipulate that no excavation shall be made on any tract, except for the purpose of building thereon. No earth or sand shall be removed from the property, except as part of the initial excavation. Moreover, the finished grade of any parcel after construction shall conform with any drainage plan approved by Grantor, and all drainage swales or ditches required by the drainage plan shall be kept free and clear of spoil, debris or other material by the lot owner, and any landscaping carried out by the lot owner shall not interfere with, or alter in any way, the drainage plan. The surrounding vegetation also receives protection under the Covenants. The removal of trees in excess of 4" or any shrubbery within the area between any building set back lines and the exterior property lines of any tract is strictly prohibited. Moreover, no pesticides, herbicides or other chemical treatment for land, vegetation or animals may be used, unless it is safe for humans and will not contaminate any source of drinking water.

Furthermore, the ground and ground waters are protected due to the requisite strict compliance with sewage disposal and waste removal pursuant to the Covenants. Additional ground protection is provided for in the Covenants because oil or gas wells shall not be drilled on any parcel, and no underground heating oil storage tanks may be used on any parcel.

For more detailed information see Appendix 4A, "Draft Covenants - Highmount Estates."

2.4.5 Site Control and Management

Crossroads Ventures LLC is the owner in fee of all 1,960 acres discussed in this document.

Crossroads Ventures, a limited liability company, organized under the laws of the State of New York, is under the management of the Managing Member, the Silk Road Organization, Inc. a New York Corporation.

The management of the two areas of the project, Wildacres Resort and the Big Indian Plateau, may lodge in two distinct management entities.

Highmount Estates will consist of individual owners of the subdivided lots. To the extent that common resources, such as the internal roadway and sewer and water infrastructure

are held privately and in common, a Homeowner's Association will be formed to ensure the long-term management and operation of these community resources.

2.4.6 Energy and Materials Management

A. Energy

All buildings will, at a minimum, comply with the NYS Energy Code or American Society of Heating Refrigeration and Air Conditioning Engineers (ASHRAE) 90.1 Energy Standard for Buildings, whichever is more stringent.

All heating, ventilation and air conditioning (HVAC) equipment will be chlorofluorocarbon (CFC) free.

Wherever possible, the energy performance of buildings will exceed the minimum standards set forth above. A variety of energy saving and optimizing steps will be studied and may be implemented such as:

1. Demand reduction by improving the building shell including insulation and air infiltration control, improved lighting design and fixture selection, using occupancy lighting controls, providing ventilation cooling, the selection of the most efficient HVAC equipment, etc.

2. Harvesting free energy such as the maximal use of day lighting, using cool outside air for ventilation / cooling loads whenever possible, geothermal / ground source heat pump heating and cooling systems, etc.

3. Selection of maximally efficient fixtures and equipment such as compact fluorescent lighting, exterior metal halide, LED exit signage, high performance chillers, high performance motors.

4. Instituting an energy management and control system for larger buildings for good energy management.

B. Water Use and Conservation

Wherever possible the following water use and conservation measures may be implemented.

1. Utilizing native landscape species. Sections 2.2.9 and 3.5.1 describes the use of native species in the planting plan palette.

2. Utilizing high efficiency irrigation systems. Section 2.4.8 and Appendix 14 describe how golf course irrigation efficiency will be maximized through the use of a computer controlled delivery system calibrated for the varied conditions found throughout the golf courses.

3. Capturing roof drain water for use in irrigation.

4. Capturing storm-water run-off, wherever possible, for irrigation use. Section 2.2.6 and Appendix 9 describes how the proposed stormwater management plan incorporates the use of the proposed irrigation ponds.

5. Considering utilizing some gray water for direct landscape irrigation. Both golf courses will utilize treated effluent for irrigation.

6. Utilizing high efficiency plumbing fixtures wherever possible.

7. Utilizing high efficiency equipment.

8. Utilizing dry fixtures, such as a composting toilet at the warming hut at the Wilderness Activity Center.

C. Recycling

The following steps will be taken to maximize the efforts to recycle at the Belleayre Resort.

A Resort-wide recyclable materials management plan will be established. Facilities will be provided in each building for the collection, sorting and storage of recyclable materials.

Wherever possible, building materials which contain post consumer or post industrial recycled material will be specified. Wherever possible, building materials that are recyclable will be specified.

D. Product Purchasing

Wherever possible the following systems may be implemented.

1. Use condiments and cleaners in bulk instead of portion controlled disposable packaging.

2. Utilizing dispensers instead of throwaway amenities in bathrooms.

3. Purchasing recycled content products wherever possible throughout Hotel and facilities operations.

4. Utilizing chlorine free printing paper and toilet paper.

5. Utilizing toxic free cleaners.

2.4.7 Deliveries of Goods and Services

During the operational phase of the project there will be regular deliveries of goods and services. There will be two daily deliveries of perishable foods for the resort restaurants. Restaurants will also have deliveries of dry goods, canned goods and similar items approximately once every two weeks. Delivery of inventory for the retail components of the project will occur on an as-needed basis, likely averaging a single delivery per retail use per week. Golf course maintenance materials will be delivered to the golf maintenance areas, generally once a month. Overnight delivery services such as UPS and Federal Express will service the resort with daily deliveries. Refuse removal service will occur at the resort twice a week. Liquid petroleum containers will be delivered to the resort on a regular basis, more often in the winter.

Impacts from operational phase truck traffic is incorporated in the Traffic Impact Study (Appendix 25). The trip generation data included in the Traffic Impact Statement is based on Institute of Traffic Engineers multipliers for the various proposed uses, and includes truck trips generated by the proposed uses. The proportion of truck trips during the operational phase is an extremely small portion of the peak hour generator used in the Traffic Impact Study that analyzes a worst case scenario.

2.4.8 Golf Course Integrated Pest Management

A. Introduction

Any assessment of the risks associated with a particular pest management regimen must address certain fundamental questions. The process by which these can be answered involves highly sophisticated investigative techniques and complex analyses the results of which are contained in later pages of this section and, most completely in Appendices 14 and 15.

Pesticides used on golf courses can be divided into three broad categories: herbicides for use against certain weeds and other undesirable vegetation; fungicides to be used against fungi capable of quickly and virulently attacking grass; and insecticides to control insects which put golf course turf at risk.

Clearly insecticides, since they are specific to some forms of animal life, must be subject to the closest scrutiny.

B. Assessing Potential Pesticides

Research specific to these substances has been exhaustively conducted by the federal Environmental Protection Agency, the Department of Environmental Conservation of New York State, and Universities across the country including some of the top experts in the field from Cornell University. The DEC's standards are more rigorous than the EPA's and are, in fact, one of the most rigorous state standards in the nation. Cornell's standards are yet more rigorous.

After the elimination from consideration of any substance, whether herbicide, fungicide or pesticide which was not on the EPA, DEC, and Cornell "approved" list, 53 products remained and these were subjected to further research.

The 53 candidate products were analyzed to determine their toxicity and mobility. Each substance was evaluated by utilizing it at its highest label-recommended application dosage and concentration, in soils known to occur at the Belleayre Resort, using the highest slope, length and steepness parameters and the shallowest soils depth and measuring the results at the edge of the fairways and the bottom of the soil profile. In other words, the analysis utilized worst-case scenarios. Any substance which had migrated to that spot in amounts or concentrations beyond drinking water standards or levels injurious to stream life were eliminated from the list of acceptable products.

This research reduced the list of products deemed by the EPA, the DEC and Cornell to be acceptable for use at Belleayre Resort by a further one-third.

C. Curative Not Preventative

What levels of application are proposed for the pests which are targeted? Clearly the use of these substances is to protect grass when levels of pests are high. Only grasses proven to be tolerant to low levels of pests in the latitude and weather conditions at the Belleayre site have been specified. Fortunately, at the altitude and latitude of the Belleayre Resort, based on the experience of several of the existing golf courses in the Catskills, it is expected that a limited number of pests, certainly only a fraction of those experienced in warmer and moister areas, may occur.

And there is virtually no broad or anticipatory application proposed. The only time any of these substances would be used would be upon actual discovery of invasion by a particular weed, fungus or insect predator, and only in the isolated spots where such an invader had actually appeared at high enough levels to cause serious damage.

In almost all instances, only affected greens and tees would be treated, not the fairways which make up the overwhelming bulk of golf course acreage, and only in the minimum dosages expected to be effective. An exception to this rule could be the annual application in November of a fungicide specific to snow-mold, a condition which can effect greens underneath snow cover during the winter.

That level of safety is then compounded by the fact that the nearest perennial stream is between 900 feet and a mile away from any proposed fairway. In addition, at any point tangent to the Belleayre Resort, the dwell time of any water in any watercourse is well in excess of sixty days from the intake of the New York City water supply.

As further assurance that, in practice, the safety parameters outlined above work as well as they do in the planning, there are three levels of protection: first, all substances which are potentially toxic at any level can only be applied by state qualified and licensed

personnel. Second, the volumes and frequency of all applications of such substances must be recorded and submitted annually to New York State. Lastly, with the permission of the developer of the proposed Belleayre Resort, Crossroads Ventures, New York City's Department of Environmental Protection has established ten monitoring stations at key watercourse points surrounding the Crossroads assemblage and has been, for the last two years, monitoring existing base line concentrations of all chemicals in the water. This regular monitoring will continue by the City for the next decade, insuring that any unwanted substance suddenly appearing in any adjacent watercourse will be immediately identified, located and eliminated.

D. Integrated Management Plans

An Integrated Pest Management Plan (IPM Plan) has been designed for the Big Indian Country Club and the Highmount Golf Club with the intention and purpose to respond to the questions and concerns relating to operations of the proposed golf courses. The full IPM Plan is included in Appendix 14 of this DEIS. The IPM plan is really an Integrated Turf Management Plan (ITM Plan) since it focuses on maintaining healthy turf that is better able to withstand establishment and proliferation of turf pests such as weeds, insects and fungal diseases.

As set forth below, a program can be devised and maintained that will allow for operation of the proposed golf courses and other grassed facilities without causing any environmental damage to the local and neighboring ecosystems. Modeling results described in detail in Appendix 15, "Fertilizer and Pesticide Risk Assessment", were in agreement with published scientific literature. Such as:

- Results of the risk assessment analysis indicate that a fertilizer program which uses up to four (4) pounds of nitrogen per thousand square feet per year can be implemented without adversely impacting groundwater quality or surface water quality.

- Results of this risk assessment have been used to set limits on fertilizer phosphorus application rates in order to protect water quality.

- Also, based on runoff and leaching modeling results, suitable pesticides could be used, when necessary, to treat each individual pest of the potential pest spectrum without adversely impacting local surface water, aquatic biota, groundwater, and potable water supplies. (See DEIS Appendix 14, "Integrated Turf Management Plan" for a full description of potential pesticide use on the proposed golf courses.)

- Some of the pesticides analyzed in the risk assessment are not recommended for use on the proposed golf courses because of the results of the worst-case risk assessment modeling. (See Appendix 15).

Integrated Turf Management (ITM) is the application of the principles of integrated pest management (IPM) to the turf grass environment. IPM has been defined by various authors in different contexts, and this has led to confusion about the exact meaning of the term as it relates to management of golf course turf. In 1994 the National Coalition on Integrated Pest Management, a group of agriculture, horticulture, and environmental groups, suggested the following as a standard definition for "integrated pest management." "Integrated Pest Management is a sustainable approach to managing pests by combining biological, cultural, physical, and chemical tools in a way that minimizes economic, health or environmental risks."

At one time turf managers, on occasion, were involved with the intensive use and overuse of pesticides, fertilizers and irrigation water. Acknowledging the necessity to be environmentally aware and responsible, the golf industry, lead by the United States Golf Association, the Golf Course Superintendent's Association, the Golf Course Architects Society, the U.S.EPA, and a number of environmental groups, as well as by researchers at various universities, has gone through a sea of change in the way they recommend and operate golf courses today. Such as:

- The IPM concept seeks to minimize the disadvantages of nutrient, pesticide and water management and to maximize the advantages (Allen and Bath, 1980).

- Development of IPM systems offers one of the few comprehensive solutions for systematic control of environmental problems related to the management of biotic systems.

- IPM systems offer systematic options to maximize their efficiency and minimize the potential for adverse impacts in any use of pesticides and/or inorganic fertilizers.

- Although IPM is not synonymous with the elimination of pesticides as a management tool, it operates to significantly reduce the amounts of pesticides, fertilizers and irrigation water used.

- Almost always, an economic and environmental benefit is derived from the implementation of an IPM program.

- "IPM practitioners optimize the use of pesticides by increasing their knowledge base of turfgrass, turfgrass pests, monitoring, and timing of pesticide applications to maximize their efficiency and minimize off-target hazards." (Ferrentino, 1991).

1. Grass Selection

The ITM plan begins with the selection of grasses to be used on the proposed golf courses. The grass species chosen for the golf course are chosen for their ability to grow

well in the region at the mowing heights required on the golf courses. Other factors include their resistance to diseases and lower fertilizer requirements. One choice that would be effective for the fairways and roughs is that of Kentucky bluegrass and fine fescues. The tees, greens and approaches to the greens might consist of creeping bentgrass. These are species that belong to the group of grasses known as the cool-season grasses. The cool season grasses are generally adapted to the temperate and sub-arctic climates. Kentucky bluegrass, the bentgrasses and fine fescues are native to and widely used throughout much of the northern United States and Canada (Christians and Engelke, 1994)

Creeping bentgrass is, by far, the most commonly used grass species on golf courses in the northeast (Emmons, 1984). The widespread use of creeping bentgrass is a reflection of its tolerance of low mowing heights even as low as the heights required on putting greens. Even at mowing heights of less than 1/4 inch creeping bentgrass can still form a stand with extremely high shoot density. However, there are some disadvantages associated with creeping bentgrass. Creeping bentgrass has one of the highest fertility requirements of the cool season turfgrasses. Creeping bentgrass is also the most susceptible to fungal diseases of the cool season turfgrasses. By limiting creeping bentgrass to the greens, tees and approaches, where the low cutting height necessitates their use, the amounts of fertilizer and fungicide required to maintain the golf course can be significantly reduced – perhaps by as much as 90% when measured against existing local golf courses (which have not involved any noted environmental damage). New varieties of creeping bentgrass are constantly being developed. Some of these new varieties, or cultivars, show promise from the standpoint of reduced fertilizer requirements and reduced susceptibility to diseases. If at the time when construction specifications are developed for golf course construction, there are commercially available cultivars of creping bentgrass with maintenance requirements that are comparable to Kentucky bluegrass or fine fescue, these cultivars will be considered for use on golf course fairways.

Kentucky Bluegrasses and fine fescues are lower maintenance grasses commonly used in the northeast in athletic fields and home lawns, as well as on golf courses. These grasses perform well at the higher cutting heights in golf course roughs. Recent advances in breeding of different varieties of bluegrass and fine fescues have produced varieties that perform well under the lower cutting heights used on golf course fairways.

Low maintenance rough areas will also be planted to a mix of Kentucky bluegrass and fine fescue. Fescues will comprise a larger portion of the grass mix in the outer roughs that would not be maintained except for an annual mowing to keep out woody species. Hard fescue and chewings fescue are both considered to be "fine fescues", as opposed to tall fescue, which is considered a coarse fescue. The fine fescues as a group have the lowest fertilization requirements of the cool-season grasses. Fine fescues also have a high shade tolerance that enhances their suitability in areas closer to the edges of fairways where shading is more likely to occur. A high drought tolerance also makes the fine fescues a good choice for rough areas that are not irrigated. Kentucky Bluegrass spreads readily by strong rhizomes that allow it to recover well from injury such as divots.

Drought tolerance of Kentucky Bluegrass is good and this species will go dormant during extended high periods of high temperatures and low moisture, but recovers when cool moist weather returns. Fertilizer requirements of Kentucky Bluegrass are moderate while disease potential is low to moderate.

Each grass species has a number of different types, or cultivars, that are commercially available. Cultivars have their own strengths and weaknesses and through regular national field testing, the National Turfgrass Evaluation Program (NTEP) ranks cultivars on their performances. Characteristics such as color, density, mowing quality, drought resistance, and resistance to various diseases is rated. The most recent field test results will be consulted when formulating the construction specification for the different seed blends to be used on the golf courses. Preference will be given to those cultivars that show the ability to naturally resist potential pests. For example, past NTEP results compiled by Cornell University ranks the Kentucky Bluegrass cultivar "Coventry" as having Moderate to Very Good disease tolerance for five different diseases. The same NTEP results have the cultivar "Princeton" as having Very Good to Excellent resistance to the same five fungal diseases. From a disease resistance standpoint, Princeton would be the preferred cultivar.

2. Cultural Management

The majority of operational ITM tactics would be implemented during the day-to-day maintenance of the proposed golf course turf. Operational phase activities consist of providing the best environment for turf growth, while at the same time providing an unsuitable pest environment via cultural practices, monitoring pest levels and documenting their occurrences, and remediating pest problems when pest threshold levels are exceeded. Overriding all these considerations is be the need to avoid all non-target affects to all aspects of the environment. This consideration has been built into the ITM plan and the monitoring suggested as a corollary thereto.

The Integrated Turf Management Plan presented in Appendix 14 provides specific cultural practices for controlling or reducing the severity of turf damage from various pests by cultural methods. These include raising or lowering mowing heights, increasing or decreasing fertilizers, and using less or more irrigation. These cultural methods are used to produce healthy plants that are capable of withstanding some pests as well as providing conditions that are unfavorable to the pests themselves. By properly implementing cultural practices, as described for each pest described in Appendix 14, the need for remedial actions, such as pesticide applications can be significantly reduced.

Mowing, irrigation, and fertilization are the primary turfgrass cultural operations needed to sustain turfgrass quality. These practices are intimately related.

a. Mowing

Mowing is the most basic of all turfgrass cultural practices and is performed regularly for both aesthetic and functional reasons. From a

purely botanical standpoint, mowing could have detrimental effects on turfgrass. It has been known to cause temporary cessation of root growth, reduce carbohydrate production and storage, create ports of entry for disease-causing organisms, temporarily increase water loss from cut leaf ends, and reduce water absorption by the roots (Turgeon, 1991). From a practical standpoint, regular mowing is necessary to provide a playable surface on golf course greens, tees, and fairways and – done properly – not have any of the potential negative effects mentioned.

Mowing could have an influence on pest problems as well (Emmons, 1984). Mowing decreases weed populations because of increased turf density and the continued removal of the terminal growth portion of turf weeds. Disease problems, however, have been known to increase because of mowing. When shoot tissue is cut-off, an open wound remains. Fungi that cause turfgrass diseases can gain entrance into the leaf through the wound before it heals. Although insect pest damage could be promoted by practices such as cutting too low (scalping), using a dull blade, or any other practice which decreases turfgrass vigor, proper practices will avoid causing such problem.

Cutting heights vary with grass species and turf use. At the proposed golf courses the turf will be maintained in "mowing units" including, greens approaches to greens, tees, fairways, and roughs. The bentgrass greens will be mowed to a height of 0.12 to 0.20 inches to provide a desirable putting surface. Bentgrass is the grass species of choice for putting greens because of its ability to tolerate low mowing heights. The bentgrass approaches will also be mowed at a lower height but higher than the greens, at a height of approximately 0.25 inches. It is anticipated that tees will be mowed at a height of approximately 0.25 to 0.33 inches. The fairways at the proposed golf courses will be mowed higher than either the tees or greens for play and aesthetic reasons. The low heights of tees and greens are not required for the fairways but a relatively low height should be maintained so that a golf ball in the fairway will "sit up" on the turf rather than lie within the turf leaves like a ball would in the rough. Mowing height of the fairways will be somewhere around ½ to 9/16 inches. Only portions of the rough areas will be mowed, portions will remain unmowed. Mowing height in the mowed portions of the rough will be 1 ½ to two inches to three inches.

The frequency of mowing that will be required to maintain these heights will vary between mowing units for the moderately to intensively cultured turfs such as those proposed for the golf courses. A generally accepted guide has been to remove no more than one third of the vertical shoot growth per mowing; otherwise, an imbalance between aerial shoots and roots may retard growth (Turgeon, 1991). Cool-season turf growth rates vary through the year. Thus, mowing intervals will change depending on

growth rates. On average, golf course greens should be mowed five to seven times a week, tees four to six times a week, fairways two to four times a week, and roughs once every seven to fourteen days during the maintenance season.

b. Fertilization

Growth of turfgrass requires an adequate supply of all essential plant nutrients, in addition to many other cultural and edaphic factors. Of the 16 elements essential for plant growth and development, nitrogen, phosphorus, and potassium are generally the most important with respect to turfgrass fertilization.

In general, turfgrass is most responsive to nitrogen fertilization. Nitrogen is the essential element considered for controlling growth when other elements are maintained at adequate levels. Nitrogen can be added or withheld to regulate both growth and color of turfgrass. Nitrogen is very dynamic in the soil system. Its concentration is constantly changing, usually decreasing, and therefore, must be routinely added to maintain a soil level sufficient for turfgrass growth.

Turfgrass needs potassium in relatively large amounts, second only to nitrogen. On low potassium soils the addition of potassium may be necessary. Recent research has demonstrated that increasing potassium levels results in improved root growth, an enhancement of heat, cold, and drought tolerance and reduced incidence of disease. Potassium deficiency in turfgrass systems occurs less frequently than nitrogen.

Phosphorus usually enhances the rate of turfgrass establishment from seed or vegetative plantings and enhances root growth. Phosphorus deficiency does not occur as commonly as nitrogen or potassium deficiencies. Reduced levels of phosphorus is usually related to low soil levels or to soil pHs that are either too low (acid) or too high (alkaline).

The Fertilizer and Pesticide Risk Assessment (See Appendix 15) includes a site-specific analysis of proposed golf course fertilizer use. A fertilizer program similar to the program currently used at the Hannah golf course in Margaretville, the nearest golf course to the proposed project, was analyzed. Since the fairways at the Hannah golf course are bentgrasses, which have higher fertilizer requirements than the proposed bluegrass and fescues, the application rates analyzed were higher than what would likely occur on the proposed golf courses. The Risk Assessment illustrates how sufficient amounts of fertilizer can be applied to maintain healthy turf which is more resistant to the affects of pests while at the same time not impacting surface water or groundwater quality.

The computer modeling of fertilizer runoff and leaching through the soils used the steepest area of the two golf courses and also used rainfall data from 1996 when rainfall was more than 19 inches higher than the average annual precipitation of 38.5 inches. Based upon the results of the risk assessment, it was determined that a fertilizer program of up to four pounds of nitrogen per thousand feet per year could be implemented without impacting surface and groundwater quality. By limiting phosphorus application rates on the proposed golf courses to 0.25 – 0.3 pounds per thousand square feet per year, including any phosphorus in the treated wastewater effluent used on the Highmount Golf Club, the water quality in the New York City water supply reservoirs will not be adversely affected.

c. Irrigation

Irrigation systems are employed on golf courses to supplement water supplied by natural precipitation, and to water fertilizers and some pesticides into the soil following their application, maintain sufficient surface moisture to promote germination of interseeded turfgrasses, and modify surface plant tissue temperatures.

Although some past practices on some golf courses have involved too frequent irrigation which is detrimental to turf, and which can produce disease incidence, reduced wear tolerance, low vigor, and high susceptibility to injury from climatic stresses (Turgeon, 1991), as irrigation frequency is reduced, turfgrasses typically improve until inadequate moisture limits growth. Determining the need for irrigation can be done either by estimating consumptive water use by evapotranspiration or by measuring soil moisture directly via devices such as tensiometers. These practices make good sense all around from economic, aesthetic, and good groundskeeping standpoints.

Central computer processing units that would direct irrigation frequency, timing and amount will control irrigation of the proposed golf courses. During set-up of the irrigation system the computer will be programmed to deliver water at proper times and in the proper amounts to all areas of the courses based on soil type, slopes, sun and wind exposure, and type of turf (green, tee, fairway). During early stages of operations, modifications to delivery amount, rates and frequency will be made by the course superintendents to correct any areas where turf is receiving inadequate or excessive amounts of water. Irrigation will be programmed to be delivered at replacement rates. Evapotranspirational loss of soil water will be computed based on data collected on-site, and this amount will be delivered to the turf by the irrigation system. The frequency of irrigation events will be dependent on meteorological conditions and will be variable. During extremely hot, dry weather it is possible that the courses

will receive irrigation four times in a week. On the other hand, irrigation may not be required for a period of weeks because of sufficient precipitation and low evapotranspiration rate. Irrigation events will be performed during non-play periods and as close to morning hours as practical to reduce the potential for disease activity. Delivery timing, rate, and intensity will be monitored on a course-wide basis and modified by maintenance personnel to meet localized water needs, thus maximizing turf water uptake, and minimizing losses.

3. Pest Monitoring and Treatment Thresholds

The cornerstone of all successful ITM plans is a properly planned and implemented pest scouting, monitoring, and record keeping program. Documenting pest occurrences, their levels, timing, location, and extent aid the turf manager in making informed decisions on the need for remedial actions, including pesticide treatments. Effectiveness of cultural practices in preventing pest proliferation and chemical practices in reducing pest levels is also documented as part of the scouting and record keeping program.

Areas to be scouted and the intensity of the scouting program vary from course to course. Priorities are established for each course in terms of areas and time to be allocated. For example, greens are the areas where turf quality is most critical. Therefore, scouting should be most intense for these areas. A commonly implemented scouting strategy is to scout 6 or 9 greens per day so that each green is scouted on a two or three day interval. Tees should be scouted with similar intensity. Fairways should be scouted once or twice per week. Scouting intensity should be increased in areas historically prone to weed, disease or insect problems. More intense scouting at these "indicator areas" can be used as a predictive tool for the entire course and also serve as a method of determining the effectiveness of cultural or chemical remediation practices.

To implement the ITM approach as recommended for the courses to be operated at the proposed Belleayre Resort project, the golf course superintendents will establish thresholds for unacceptable economic or aesthetic injury based upon some reliable system of measurement. These thresholds will be balanced against the higher standard of not causing environmental harm, which will control in all instances. Before using any chemical pesticide, it will be established by actual monitoring of the turf that injury thresholds, or action levels related to such thresholds, would be exceeded unless chemicals are used (Grant, 1989). Until these thresholds are crossed, use of alternative methods will be implemented.

Although explicit thresholds and the means of measuring injury cannot be standardized for the golf industry as a whole, they can be made explicit for a given course or courses (Grant, 1989). However, this should not deter experienced professionals from drawing upon their best judgment in making such determinations. As indicated, the standard drawn for the Belleayre Resort golf courses has as its first principle the need to avoid any environmental damage. All other standards, including the more commonly employed

application of numeric standards to pest population levels, are governed by this primary goal.

The Integrated Turf Management Plan presented in Appendix 14 provides treatment thresholds for the different potential golf course pests.

For example, the following appears in DEIS Appendix 14.

"Threshold:

One spot per square yard on greens/tees and two spots per square yard on fairways during snow free periods when forecasts are calling for cool-wet weather (32-40 ° F).

Similarly, on Page 45 of Appendix 14 of the DEIS.

Monitoring and Thresholds:

- Generally, 5 to 10 larvae per yd^2 may warrant control on fairways, 2-3 per square yard on tees/greens."

4. Biological Pest Control

Over the past decade, research has proceeded at an advanced pace on the use of biological ("natural") agents in golf course maintenance operations. Results have been slow, yet encouraging. The next several years should see advances in these studies which have been encouraged and have been supported by a diverse group, including golf organizations, architects, superintendents, universities, governmental agencies and environmental groups.

Experts in the field of golf course maintenance practices do not believe that current technologies exist to satisfactorily maintain golf course turf using an organic-only approach. Preparation of the Integrated Turf Management Plan for the two project golf courses (Appendix 14) utilized the expertise of Dr. A Martin Petrovic who is a turfgrass professor at Cornell University and one of the leading authorities on turfgrass agronomy and water quality issues. The Integrated Turf Management Plan includes biological control methods that have been proven to be effective under conditions that will occur on the project golf courses.

Biological control agents are living organisms that are used to control other living organisms. The biological control organisms occur in a variety of shapes and forms. In addition, some are general feeders while others are quite specific in their action.

Biological control agents are complex, not totally effective, and not always predictable. The concept of biological control has been so widely publicized that the general public views it as a viable and readily available alternative to all pesticides. Unfortunately, this is not the case, but, as indicated above, this area is currently receiving much needed

attention and hopefully will provide additional control agents in the future. Biological controls are not the answer to all pest problems, but may be a useful component of a good IPM program (McCarty and Elliot, 1994).

Use of biological control agents is more difficult than using standard pesticides. However, research and field testing is occurring at accelerated rates in order to develop effective biological insect and disease control in turf. Recently, the first biological fungicide became commercially available having been proven effective under field conditions. It is now recommended as an alternative treatment method (Cornell Cooperative Extension, 1998). Biological control of turf diseases, insects, and weeds are discussed in Appendix 14 in Sections 4.4, 5.2, and 6.2, respectively.

Turfgrass management has clearly entered an age where microbiological solutions are being sought for biological problems. It is becoming increasingly apparent that maintaining active microbial communities in turfgrass soils is a vital part of overall turfgrass health. Studies on biological control clearly show the potential to affect disease control through both of the microbial-based technologies described. Interest in and commercialization of biological control products continues to grow.

However, because of the general lack of currently available commercial products, it is not envisioned that biological controls can play a significant role in the overall management scheme of the proposed golf courses during the early years of their operation. As products become available and are proven effective by field testing under conditions similar to those found on the proposed golf courses, their use will be given full consideration by maintenance directors. Because of the high quality envisioned for the proposed golf courses, direction of maintenance activities will be in the hands of a highly qualified, experienced golf course superintendent. Managers whose jobs depend on providing the highest quality course possible within budgetary and environmental constraints will be constantly searching for effective, economical and environmentally sound products to meet maintenance needs. This should ensure that consideration be given to all new products, including biological controls.

The Integrated Turf Management Plan in Appendix 14 specifies where proven biological controls will be utilized to control turfgrass insects and fungal diseases. The ITM plan includes numerous recommendations of organic products including the use of the organic fertilizer product Sustane® as well as the biological fungicide Biotrek 22G® and the use of parasitic nematodes to control some turfgrass insecticides. These products have been scientifically proven to be effective and environmentally compatible. Similarly, the IPM plan explores the option of using the biological insecticides from the class known as pyrethrins (derived from chrysanthemum plants). Some of the pyrethrins are not recommended for use because they pose a greater threat to non-target aquatic organisms than their synthetic counterparts. "Organic" does not always equate to "better for the environment."

5. Fertilizer and Pesticide Risk Assessment

In order to develop the Integrated Turf Management Plan described above, and in greater detail in Appendix 14, specifically the recommendations for fertilizer and pesticide use, a Fertilizer and Pesticide Risk Assessment (Appendix 15) was performed.

This report contains the results of the site-specific analyses of the potential for adverse environmental impacts that could potentially result from the use of turf fertilizers and pesticides on the proposed golf courses. The analysis was undertaken in order to address concerns pertaining specifically to the impact of golf course management practices on surface water and ground water resources both on and off the project site. Analysis of impact potential consisted of subjecting pesticide and fertilizer applications to rigorous computer modeling in order to predict overland (runoff) transport and vertical (leaching) transport of nutrients and pesticide active ingredients. Model-generated data were then compared to applicable drinking water standards, published toxicology values, and other standards. Use of conservative assumptions throughout the modeling process insured that worst case scenarios were used to generate output data and these data were used to form the basis for fertilizer and pesticide use recommendations on the proposed golf courses.

The following is a list of the pesticide active ingredients analyzed for leaching and runoff potential and are recommended for use based on the stringent risk assessment:

Fungicides With No Restrictions

- chloroneb
- etridiazole
- flutalonil
- fosetyl-Al
- mefenoxam
- propamocarb
- propiconazole
- quintozene
- trifloxystrobin
- vinclozolin

Insecticides With No Restrictions

- acephate
- bifenthrin
- bendiocarb
- ethoprop
- lambda cyhalothrin

Herbicides With No Restrictions

- 2,4-D
- 2,4-DP
- benefin
- bensulide
- bentazon
- dithiopyr
- ethofumesate
- fenoxaprop
- glyphosate
- halosulfuron
- MCPA
- MCPP
- MSMA
- oxadiazon
- prodiamine
- siduron
- triclopyr
- trifluralin

- The fungicide trifloxystrobin has been added to the DEIS as a substitute for mancozeb. Trifloxystrobin was just recently recommended for use on commercial turfgrass in New York State (Cornell Cooperative Extension's *2002 Pest Management Guidelines for Commercial Turfgrass).* Trifloxystrobin has been evaluated using the same procedures used for the other active ingredients analyzed in the Fertilizer and Pesticide Risk Assessment (DEIS Appendix 15). For the five soil series profiles analyzed, there was zero trifloxystrobin leaching from three of the soil series. The maximum undiluted leachate concentration from the other two soil series profiles was 0.0068 mg/l. This undiluted concentration is almost 10 times less than an actual allowable drinking water health standard of 0.050 mg/l. For the runoff portion of the analysis, when trifloxystrobin was present in runoff, it was at undiluted concentrations less than the LC_{50} values for rainbow trout and *Daphnia*. Undiluted concentrations of trifloxystrobin in runoff ranged from 0.0001 mg/l to 0.0026 mg/l. These are well below the LC_{50} values of 0.014 mg/l for rainbow trout and 0.025 mg/l for *Daphnia*. (LC50 values are toxicity test values that indicate the concentration of a substance that is lethal to 50% of test organisms over a given period of time of exposure, generally 96 hours for aquatic species.) Trifloxystrobin is available to treat leaf spot, pink snow mold, and pythium.

- Very recently the manufacturer of products containing metalaxyl adjusted the chemical structure of metalaxyl to form a slightly different compound. The new stereoisomer of metalaxyl is known as mefenoxam, and mefenoxam is

now the active ingredient in products that formerly contained metalaxyl. The *2002 Pest Management Guidelines for Commercial Turfgrass* published by Cornell University now includes mefenoxam, and no longer includes metalaxyl.

Because mefenoxam has a slightly different chemical structure than metalaxyl, mefenoxam also has slightly different characteristics that affect its potential to leach to groundwater. Mefenoxam has a slightly higher water solubility, but a much higher K_{oc} value than metalaxyl. The vapor pressure and soil half-life for the two compounds are similar. Mefenoxam is more efficient in controlling the target pythium fungus, so much so that mefenoxam label application rates are half of what they formerly were for metalaxyl products.

Behavior of mefenoxam on the proposed golf courses was modeled in the same way the other pesticides were modeled in the Fertilizer and Pesticide Risk Assessment (DEIS Appendix 15). At no time did the undiluted leachate concentration from any of the five soil profiles simulated come close to exceeding the MCL for an unspecified organic compound of 0.05 mg/l. The highest undiluted leachate concentration was 0.0234 mg/l. Mefenoxam can be used safely on the proposed golf courses.

In addition to mefenoxam, the ITM plan continues to recommend etridiazole and propamocarb for pythium treatment. Also, fosetyl-Al has been added to the list of pesticides to treat pythium. Fosetyl-Al did not have any use restrictions as a result of the Risk Analysis, and was recently added to potential pesticides recommended by Cornell to treat pythium.

- Additionally, the *2002 Pest Management Guidelines for Commercial Turfgrass* includes three new pyrethrin insecticide active ingredients; bifenthrin, lambda-cyhalothrin, and deltamethrin. These three active ingredients were analyzed using the same analyses contained in the Fertilizer and Pesticide Risk Assessment (DEIS Appendix 15). Two of the new active ingredients, bifenthrin and lambda-cyhalothrin, did not leach through any of the modeled soils, nor did they appear in runoff from the simulated 18th fairway. Deltamethrin did not leach through any of the modeled soil profiles, but did appear in runoff from the simulated 18th fairway. When it did appear in runoff, deltamethrin concentrations ranged from 0.0001 mg/l to 0.0014 mg/l. The LC50 value for deltamethrin and rainbow trout is 0.001 mg/l to 0.010 mg/l. Deltamethrin is not proposed for use on the golf courses because its runoff concentration at times exceeded its LC50 for fish.

  The Fertilizer and Pesticide Risk Assessment has been amended to include these findings. Additionally, the Integrated Turf Management Plan has been amended to include bifenthrin as another option for treating cutworms, sod

webworms, and chinch bugs. Lambda cyhalothrin will likewise be added to the list of options available for treating cutworms and sod webworms.

- The Integrated Turf Management Plan (DEIS Appendix 14, page 54) states that 2,4-DP could be used on the proposed golf courses as part of a "combination product" with other broadleaf herbicides. As an example, the product Super Trimec® (EPA registration number 00217-00758) contains 2,4-DP as one of its active ingredients, and is currently registered for use in New York according to the Department's listing of currently registered pesticides.

It is expected that the 2003 version of the Cornell Recommends will be issued some time in the Spring of 2003 and any changes in the status of pesticides proposed for use on the project golf courses will be reassessed at that time.

6. Prioritization of Non-Chemical and Chemical Control Options

Under each pest description in the Integrated Turf Management Plan under "Control Options" there is a numbered hierarchy of preference for the control options, with non-chemical controls being highest in the hierarchy and chemical controls being lowest in the hierarchy.

For example, on Page 46 of Appendix 14 the following language can be found:

"Control Options:

Most sod webworms are easy to control, through they may be difficult to reach within their silken tunnels.

Option 1: *Cultural Control-Use Fertilizer and Water* – Damage can often be outgrown if water is continually available. Considerable damage may occur if irrigation is not possible during periods of drought, or if close mowing is used.

Option 2: *Biological Controls* – Natural parasites are known, but ground beetles and rove beetles are major predators of eggs and smaller larvae. Fungal and viral diseases have also been identified, but these usually do not provide consistent control. The insect parasitic nematodes, *Steinernema* spp., seem to provide adequate control of this group when used at $1x10^9$ juveniles per acre. Nematode efficacy can be improved by applying them in the early morning or late afternoon when sunlight is at a minimum, the thatch has been thoroughly moistened, and irrigation occurs immediately after application (before the spray droplets dry).

Option 3: *Cultural Control-Use Resistant Turfgrass Varieties* – Resistance to crambids has been demonstrated in bluegrass cultivars. Perennial ryegrasses, tall fescues, and fine fescues with fungal endophytes are also highly resistant to sod webworm attacks.

Option 4: *Chemical Control-Use Contact and/or Ingestion Pesticides* – Most webworms are easily controlled if the pesticides are ingested or penetration of the webbing tunnels is achieved. Since the larvae feed shortly after dark, best control is achieved by spraying in the late afternoon. Late fall or early spring applications are often not effective because many larvae are hiding in deeper soil chambers. Some species may require additional treatments to control second generation larvae produced by migrating adults.

Sod webworms can be controlled with the same products listed previously for cutworms. Liquid applications that are not irrigated would perform better than granular applications."

Similar descriptions are contained throughout Sections 4, 5 and 6 of the Integrated Turf Management Plan for each of the fungal, insect and weed pests discussed.

7. Inert Ingredients in Pesticides

The ingredients in a pesticide product that are not the active ingredient are known as "inert ingredients." Many times these inert ingredients are not specifically listed on a pesticide label. Comments received on the earlier version on this DEIS requested additional information regarding inert ingredients be included in the DEIS.

The table below, Table 2-8, "Inert Ingredients", includes the pesticides that could potentially be used on the golf course, a trade name of a product containing the active ingredient taken from the *Cornell Recommends*, inert ingredients listed on the product label or Manufacturer Safety Data Sheet (MSDS) and USEPA Category of Inert Ingredients taken from EPA's website.

Where more than one alternative product is available for a particular active ingredient, the product with least toxic inert ingredients was selected.

USEPA has four "lists" or categories of inert ingredients.

List 1	Inerts of Toxicological Concern
List 2	Potentially Toxic Inerts
List 3	Inerts of Unknown Toxicity
List 4	Inerts of Minimal Concern

For those inerts identified below, most are from list 4 (minimal concern) and none are from List 1 (toxicological concern).

Table 2-8
Inert Ingredients

Active Ingredient	Product	Inert	List/Category
Chloroneb	Fungicide V	None Listed	NA
Trifloxystrrobin	Compass O 50WDG		
Etridiazole	Koban 30	None Listed	NA
Flutalonil	Pro-star	Kaolin Amorphis Silica	4 4
Fosetyl-Al	Rubigan (Product MSDS states "there are no hazardous or carcinogenic inert ingredients)	None Listed	NA
Bifenthrin	Talstar GC flowable	Propylene glycol	4
Mefenoxam	Subdue Maxx	Polyethylene glycol	4
Propamocarb	Banol	Non Listed	NA
Propiconazole	Banner GL	Butanol	4
Quintozene	Terrachlor	None Listed	NA
Vinclozolin	Vorlan	None Listed	NA
Acephate	Orthene	None Listed	NA
Ethoprop	Mocap	None Listed	NA
Spinosad	Conserve	Propylene glycol alginate	4
2,4-D	Solution	Sodium Lignosulfonate	Not Listed
2,4-DP	Weedone Amine	None Listed	NA
Benefin	Balan Product MSDS states "there are no hazardous or carcinogenic inert ingredients)	Bensulide	NA
Bentazon	Basagran	None Listed	NA
DCPA	Dacthal	None Listed	NA
Dithiopyr	Dimension	Petroleum Distillates	Not Listed
Ethofumesate	Prograss 500SC	"other ingredients"	N/A
Fenoxaprop	Acclaim 1EC	dimethylformamide	Not Listed
Glyphosate	Roundup	None Listed	NA

Active Ingredient	Product	Inert	List/Category
Halosulfuron	Manage	Kaolin Clay Silica	4 4
MCPA	Trimec Encore	Not Listed	NA
MCPP	Cleary's MCPP	Not Listed	NA
MSMA	Daconate 6	Not Listed	NA
Oxadiazon	Ronstar	Not Listed	NA
Prodiamine	Barricade	Not Listed	NA
Siduron	Tupersan	Not Listed	NA
Triclopyr	Confront	Diethylethanamine Ethanol	Not Listed 4
Trifluralin	Team	Not Listed	NA

8. Use of Effluent for Irrigation

Treated wastewater effluent will be used to irrigate the both the Big Indian Country Club and the Highmount Golf Club. Treated wastewater effluent has been used widely for golf course irrigation, particularly in more arid regions where water is in shorter supply.

For over three years, the Village of Lake Placid has used treated wastewater effluent as a source of irrigation water for two local golf courses. Lake Placid operates a 30-year old municipal sewage treatment plant that currently uses floating aerators to treat municipal wastewater prior to discharge to a surface water within the phosphorus restricted Lake Champlain Basin. The plant is in the process of an upgrade to a yet to be determined Best Available Technology, however, the use of the wastewater effluent for golf course irrigation has been a success even with the antiquated treatment process.

For the period covering June to September of 1998, Lake Placid supplied 14 million gallons of treated wastewater for irrigation at an 18-hole golf course. The success of the 1998 irrigation led to an increase to 31 million gallons supplied in 1999 and an expansion in the months for irrigation to include the period between April 15th and November 15th. During winter months, the wastewater facility discharges to a surface water. In the year 2000, Lake Placid continued to irrigate the original pilot golf course, with the addition of discharge to a second golf course located nearby.

The SPDES permit for the irrigation project was issued by a permit administrator in the NYSDEC Main Office in Albany. The permit includes flow limits, nitrate limits of 20 mg/L, chlorine limits of 2 mg/L, BOD of 30 mg/L, Total Suspended Solids (TSS) of 45 mg/L and Total P (monitor only) of 0.8 mg/L. Fecal coliform is 200 mg/L average day/400 mg/L maximum day and total coliform is 2400 mg/L average day/5000 mg/L maximum day.

Operationally, the system functioned within the parameters expected and exceeded expectations in terms of the benefits to the soil and turf. Initial concerns about the plugging of the sprinkler heads due to solids loadings proved unfounded. A holding pond

was successfully employed to provide dechlorination and storage. The golf course management successfully sought the ability to irrigate at night, as is common practice to avoid conflicts with play and to reduce loss due to evaporation and transpiration. DEC initially monitored the night irrigation carefully to watch for over application (sheeting), however, once the practice was fully established, monitoring was decreased.

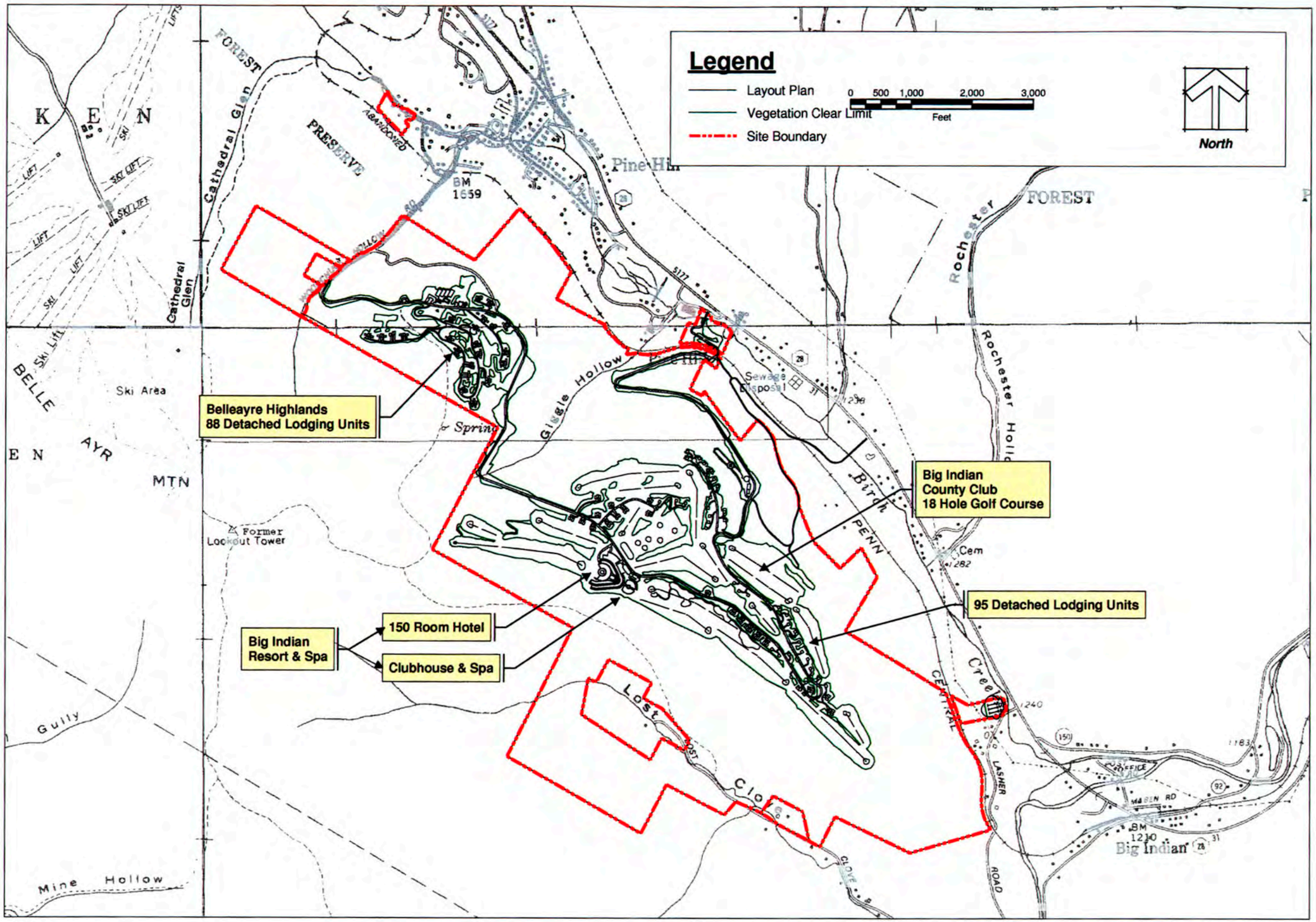
Unlike courses in the southwestern US where treated wastewater is used for irrigation, the course in Lake Placid encountered no problems with salts or other byproducts of the treatment process. In the southwestern US, salts have been an issue with the use of wastewater effluent for golf course irrigation due to evaporation and concentration of byproducts and minerals due to mandated continuous water recycling without dilution. In fact, the levels of nitrogen and phosphorous have acted as fertilizer in Lake Placid resulting in improved soil conditions.

The use of treated wastewater from the Lake Placid wastewater treatment plant for irrigation of an 18-hole golf course is considered a success by regulators, the local community, and the course management. The course owner increased greens fees to compensate for the increased maintenance and mowing of the greens due to the "lushness" of the turf. Lake Placid is considering the potential of using the treated wastewater for snow making during the winter months.

The Lake Placid treated wastewater golf course irrigation pilot has been the focus of review by NYSDEC as the permitting agency, NYSERDA as the provider of the funding for a two year study, the Adirondack Park Agency (APA), the Lake Champlain Management Conference as the agency charged with maintaining the quality of water within the watershed, and the Ag School at Cornell University where scientific analysis has been conducted.

The Lake Placid project has successfully withstood rigorous regulatory scrutiny. However, the parameters under which the SPDES permit were issued in Lake Placid are far less stringent than those required under the NYC Watershed Rules and Regulations. The NYC DEP has held discussions regarding the use of treated wastewater for irrigation in the NYC Watershed and has endorsed the concept for applications in Delhi and other potential locations.

Gray water (treated wastewater) is used for irrigation across the United States. A number of states have enacted mandatory water recycling or water reuse. Appendix 16, "Treated Wastewater for Golf Course Irrigation", contains a list of some of the many guidance documents available for the design and permitting of gray water reuse and golf course irrigation. In addition, the Appendix contains selected examples of the successful use of gray water for irrigation.



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Saratoga Springs
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Telefax 518/587-0180

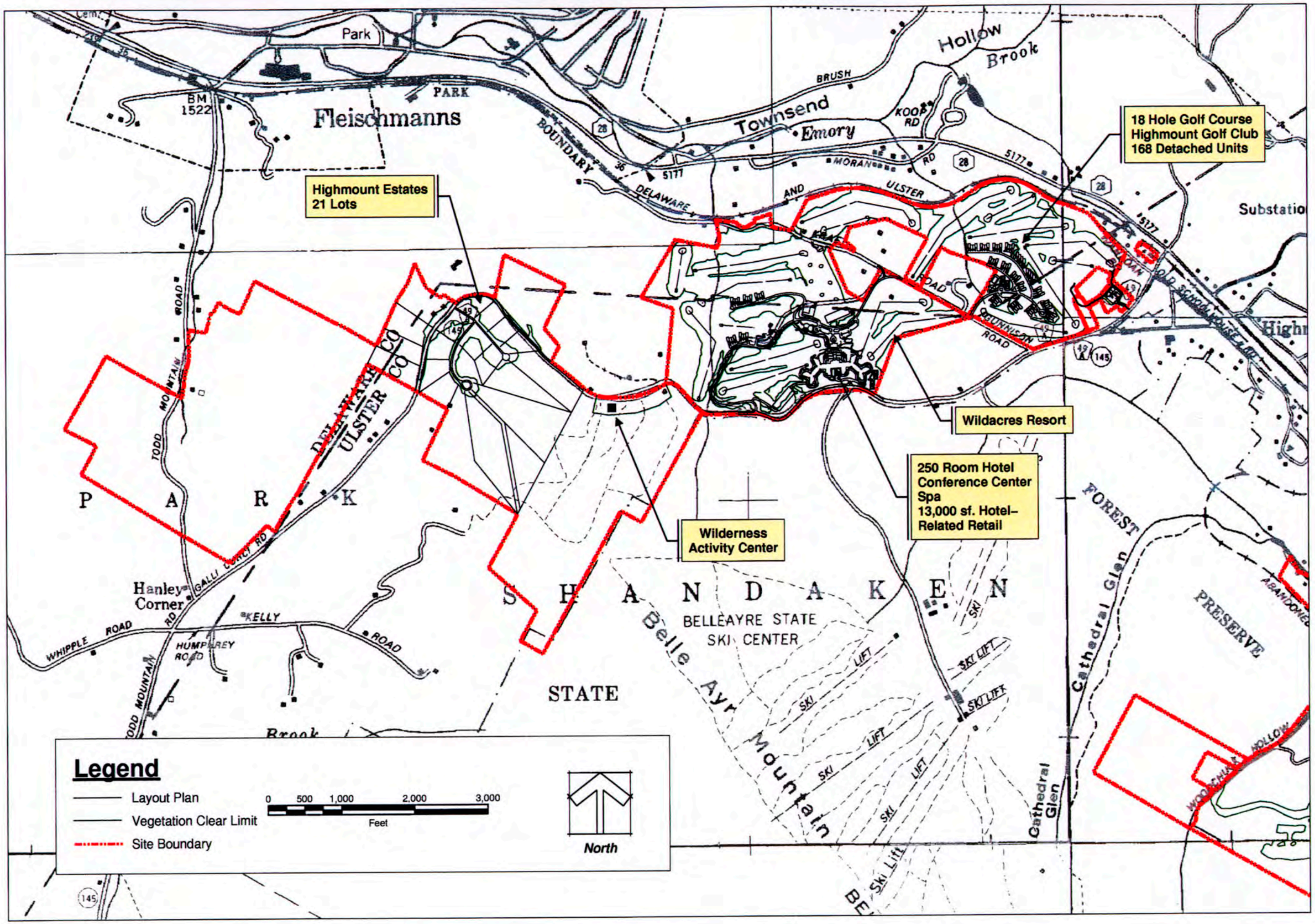
BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

BIG INDIAN PLATEAU LAYOUT PLAN

Project: 00052
Date: 12/12/02

Figure: 2-1



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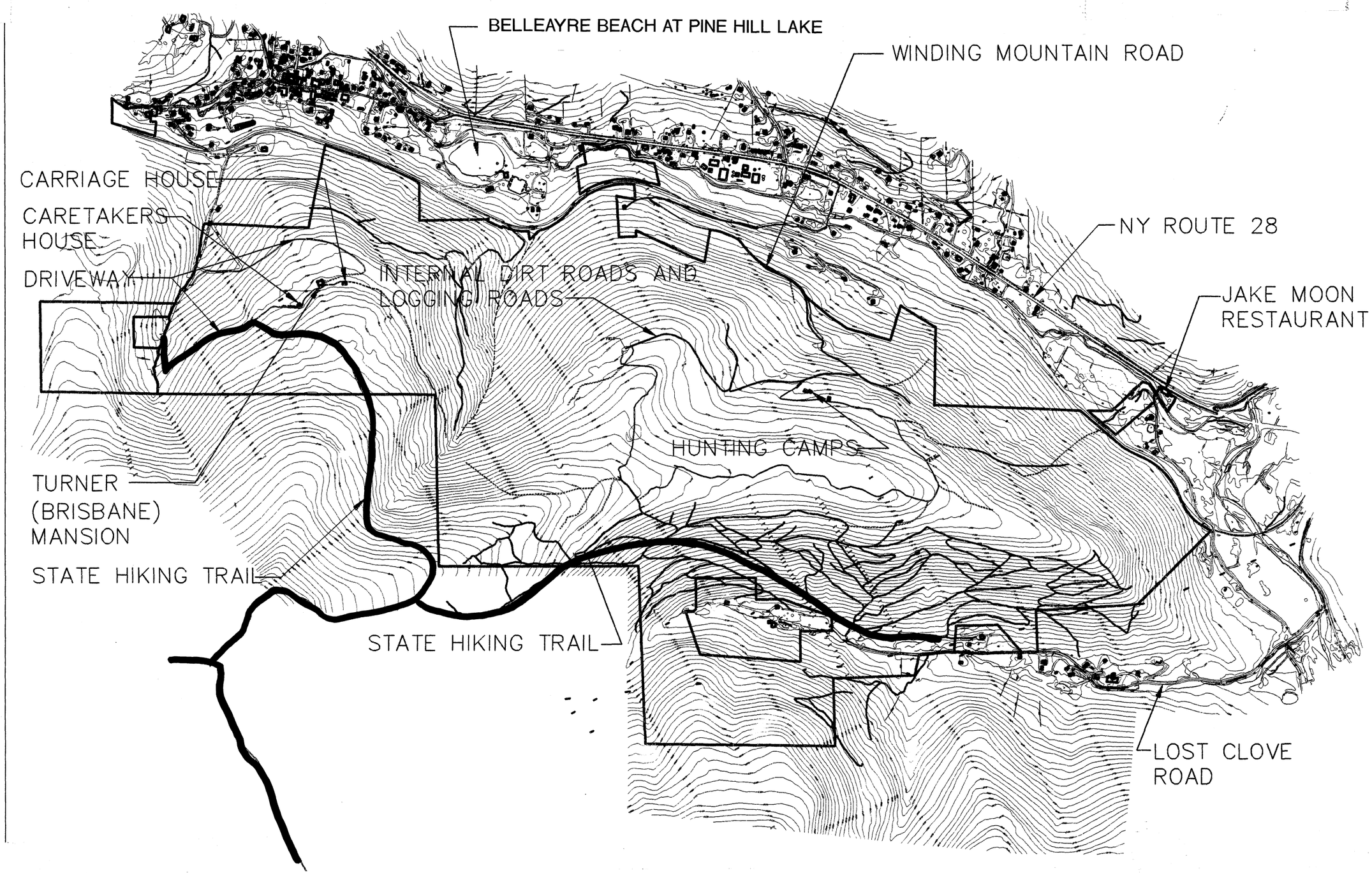
BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

WILDACRES RESORT LAYOUT PLAN

Project: 00052
Date: 12/11/02

Figure: 2-2



CONTOUR INTERVAL 25'

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BELLEAYRE RESORT AT CATSKILL PARK

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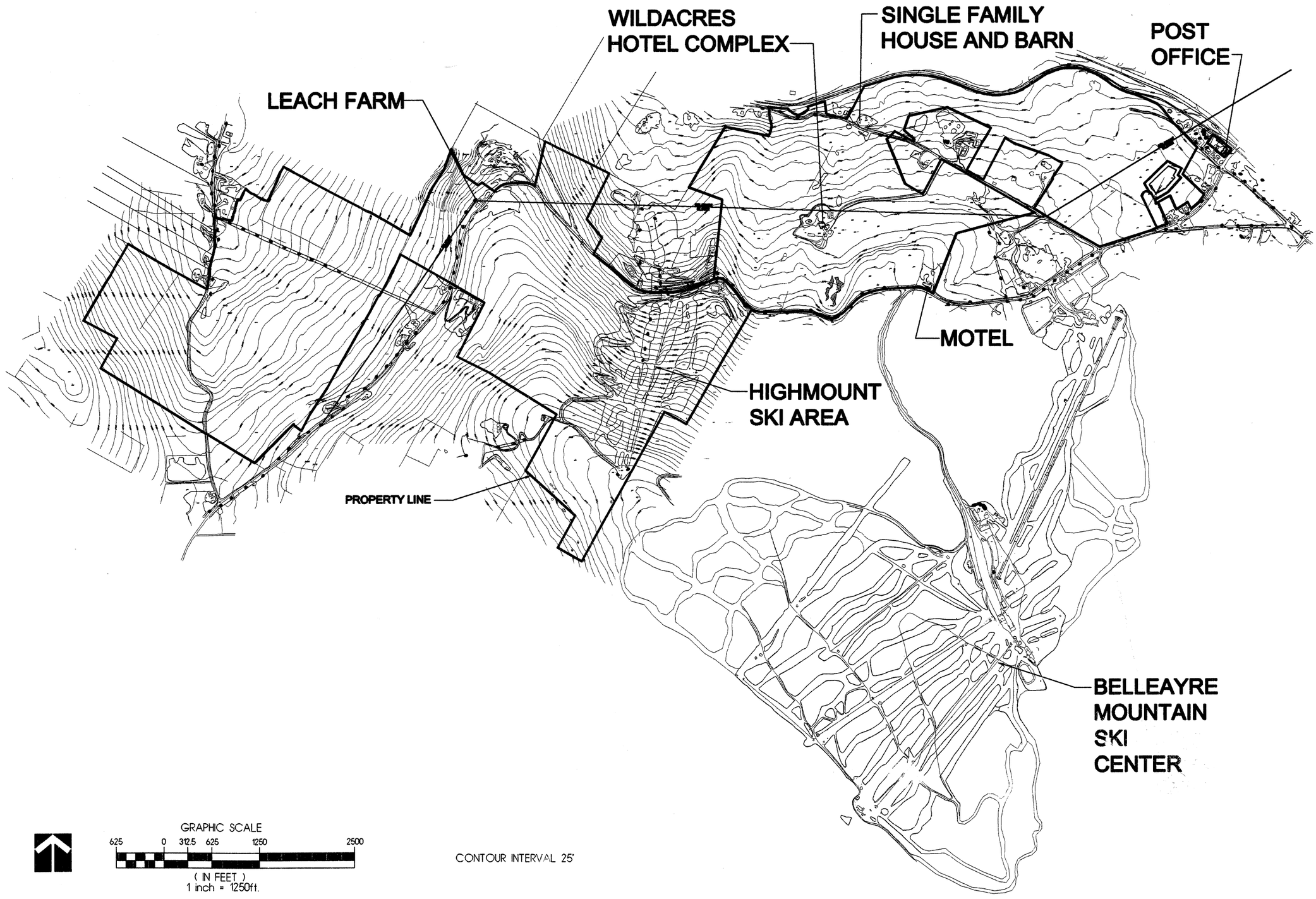
EXISTING DEVELOPMENT BIG INDIAN PLATEAU

Project: 00052
Date:

Figure 2-3



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BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

EXISTING
DEVELOPMENT
WILDACRES
RESORT

Project: 00052
Date:

Figure
2-4

Directory: z:\proj-00\0052\wildacres\0052wild.dwg
Lx: Exisitng

Wildacres Resort/
Highmount Estates

Belleayre
Mountain
Ski Center

Big Indian Plateau

Legend

- Proposed For Development
- Undeveloped Land
- Site Boundary

0 0.25 0.5 1
Miles

North

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UNDEVELOPED LAND

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Date: 12/10/02
Figure: 2-5

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TURF ON BELLEAYRE MOUNTAIN SKI SLOPES

Date:
Project: 00052
Figure 2-6

USDA Plant Hardiness Zone Map

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HARDINESS ZONE MAP

Date:

Project: 00052

Figure 2-7

PRACTICE RANGE

FAIRWAY (TYP.)

GREEN (TYP.)

TEE (TYP.)

NY ROUTE 28

POND 1

POND 2

POND 3

PONDS

PROPERTY LINE

STATE HIKING TRAIL

LOST CLOVE ROAD

THE RIDGE COURSE
SCORE CARD
CHAMPIONSHIP TEES

HOLE	PAR	YDS
1	4	420
2	4	405
3	5	550
4	3	185
5	4	385
6	4	435
7	4	400
8	3	190
9	5	520
OUT	36	3500

HOLE	PAR	YDS
10	3	190
11	4	385
12	3	200
13	5	560
14	4	400
15	3	165
16	4	350
17	3	180
18	4	720
IN	35	3420
TOTAL	71	6950

LOVE

CONTOUR INTERVAL 25'

GRAPHIC SCALE

300 0 150 300 600 1200

(IN FEET)

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New York 12866
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BELLEAYRE RESORT AT CATSKILL PARK

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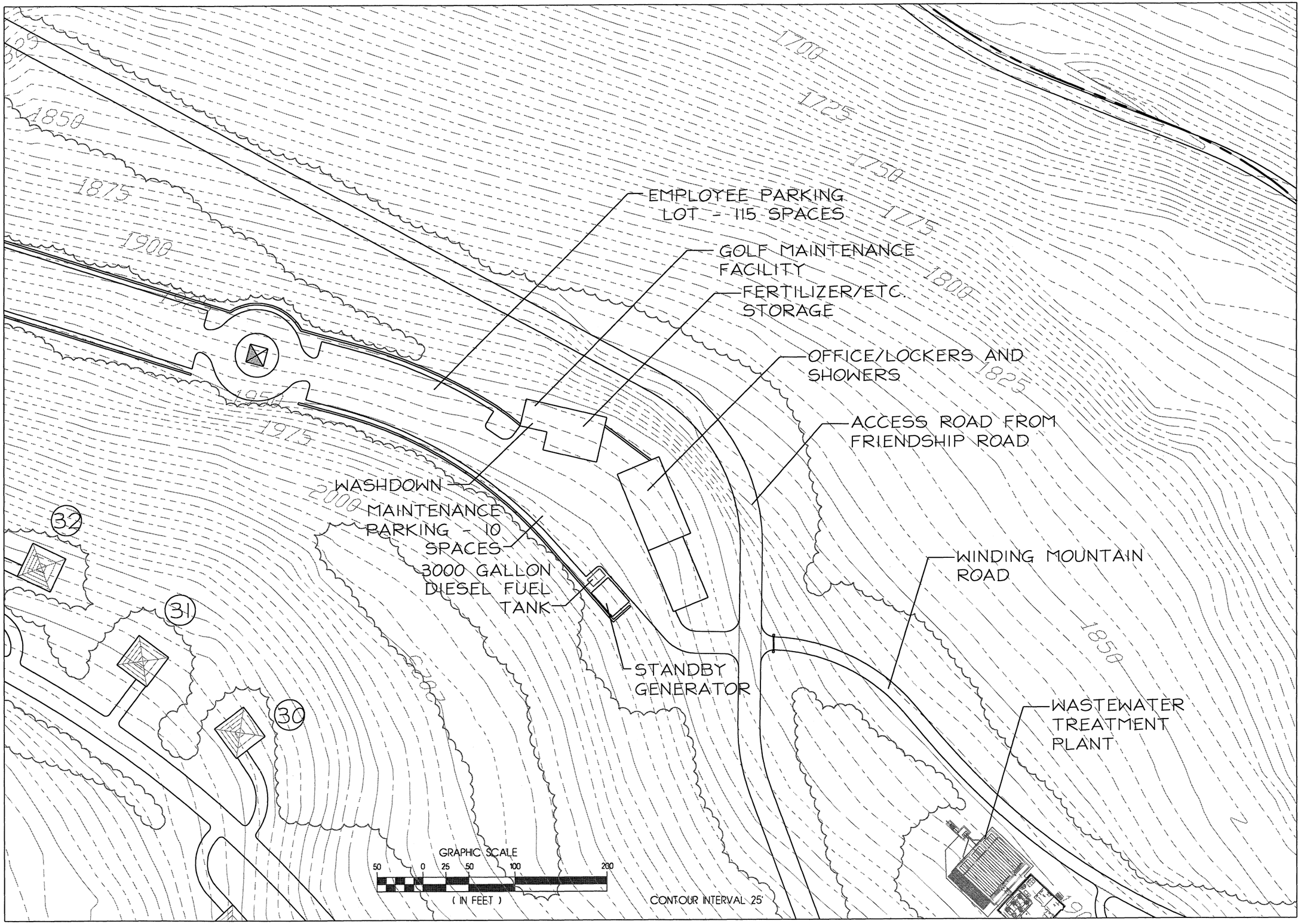
BIG INDIAN COUNTRY CLUB LAYOUT PLAN

Project: 00052
Date: 12/10/02

Figure
2-8



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40 Long Alley
Saratoga Springs
New York 12866
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Telefax 518/587-0180

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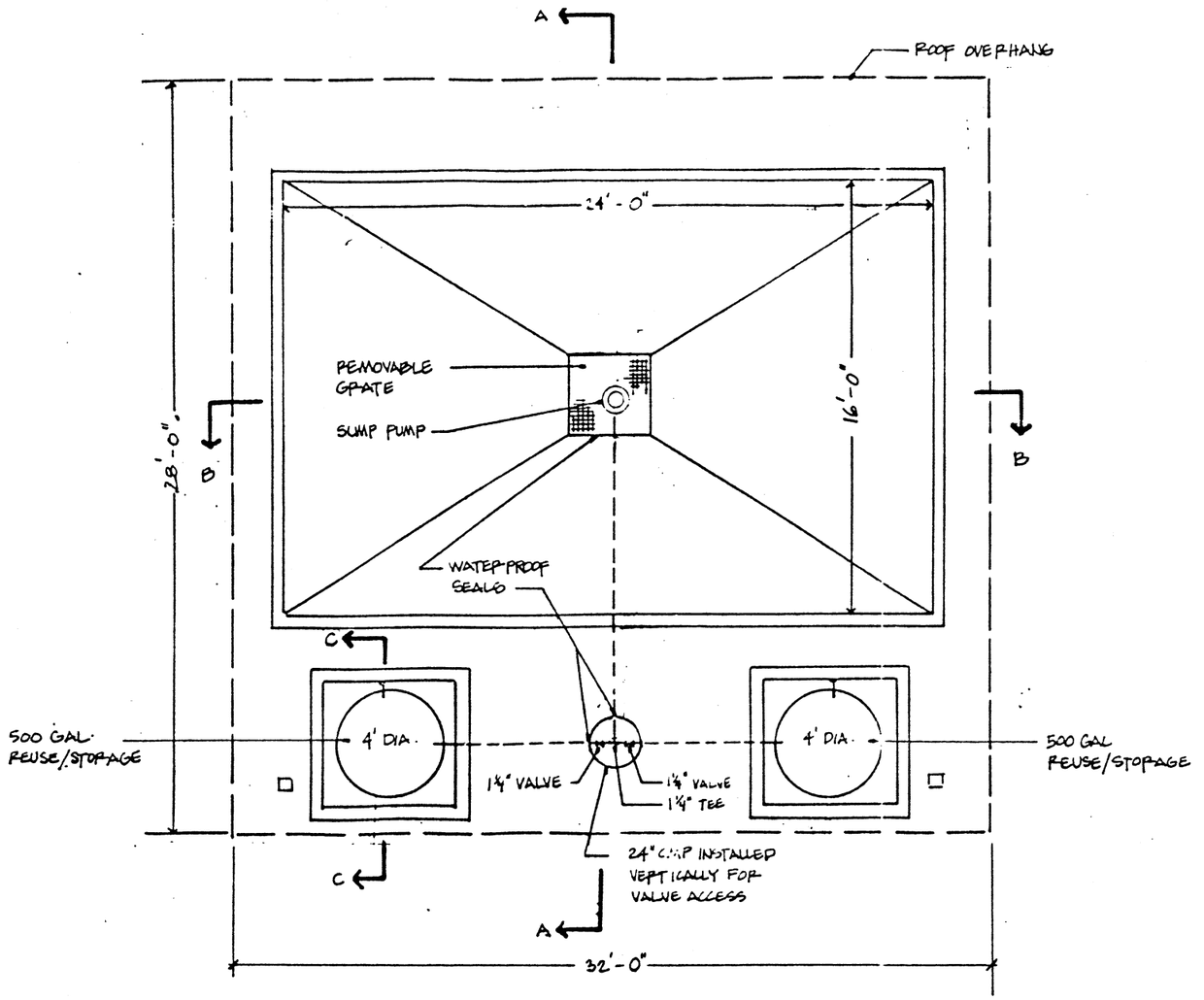
DRAFT ENVIRONMENTAL IMPACT STATEMENT

BIG INDIAN COUNTRY CLUB GOLF MAINTENANCE

Project: 00052
Date:

Figure
2-9



1/4" = 1'-0"

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BELLEAYRE RESORT AT CATSKILL PARK

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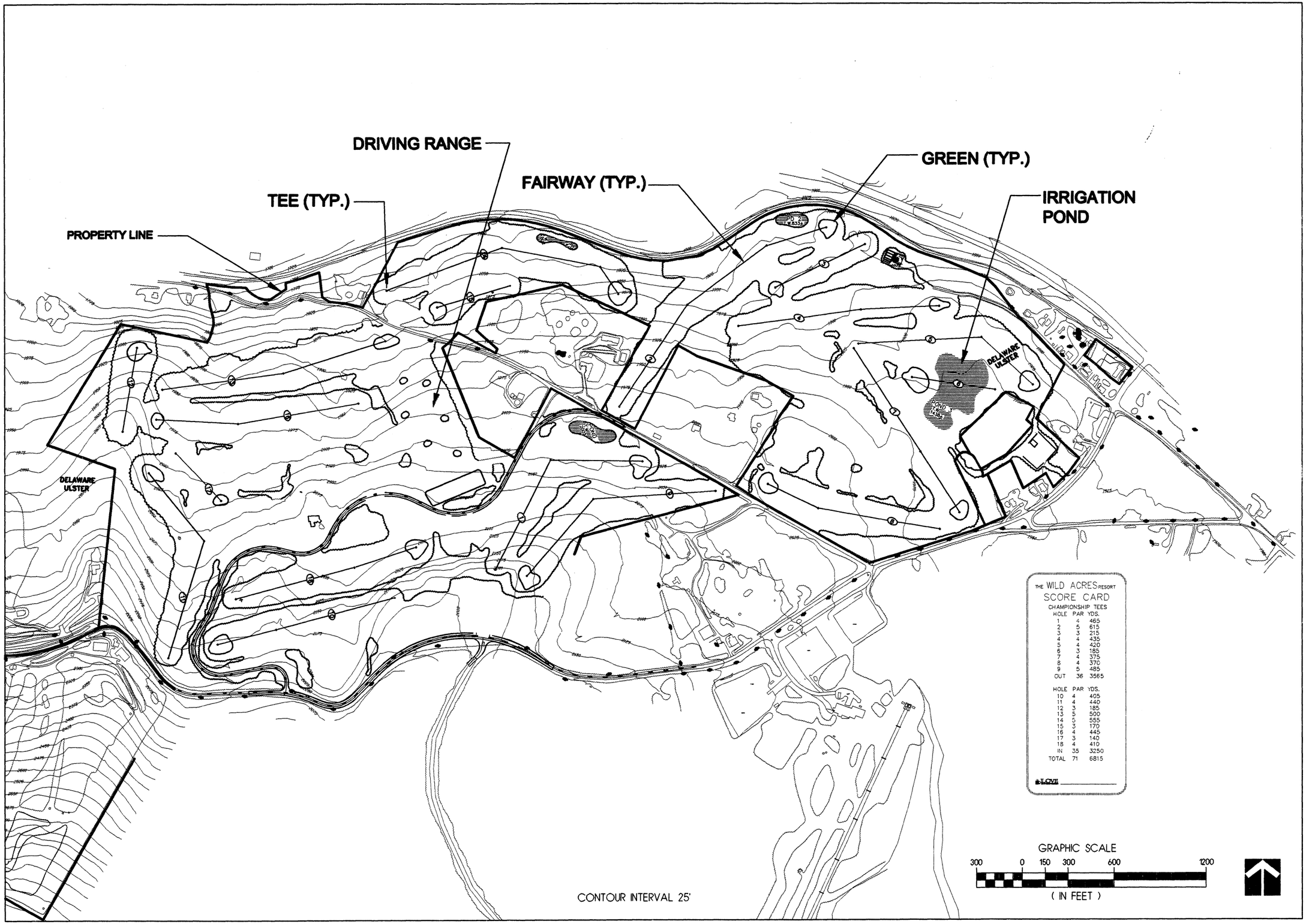
PESTICIDE MIXING AND RECYCLING AREA

Project: 00052
Date:

Figure 2-10



Directory: z:\proj-00\0052\wildacres\0052wild.dwg
Lx: Golf

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Saratoga Springs
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518/587-8100
Telefax 518/587-0180

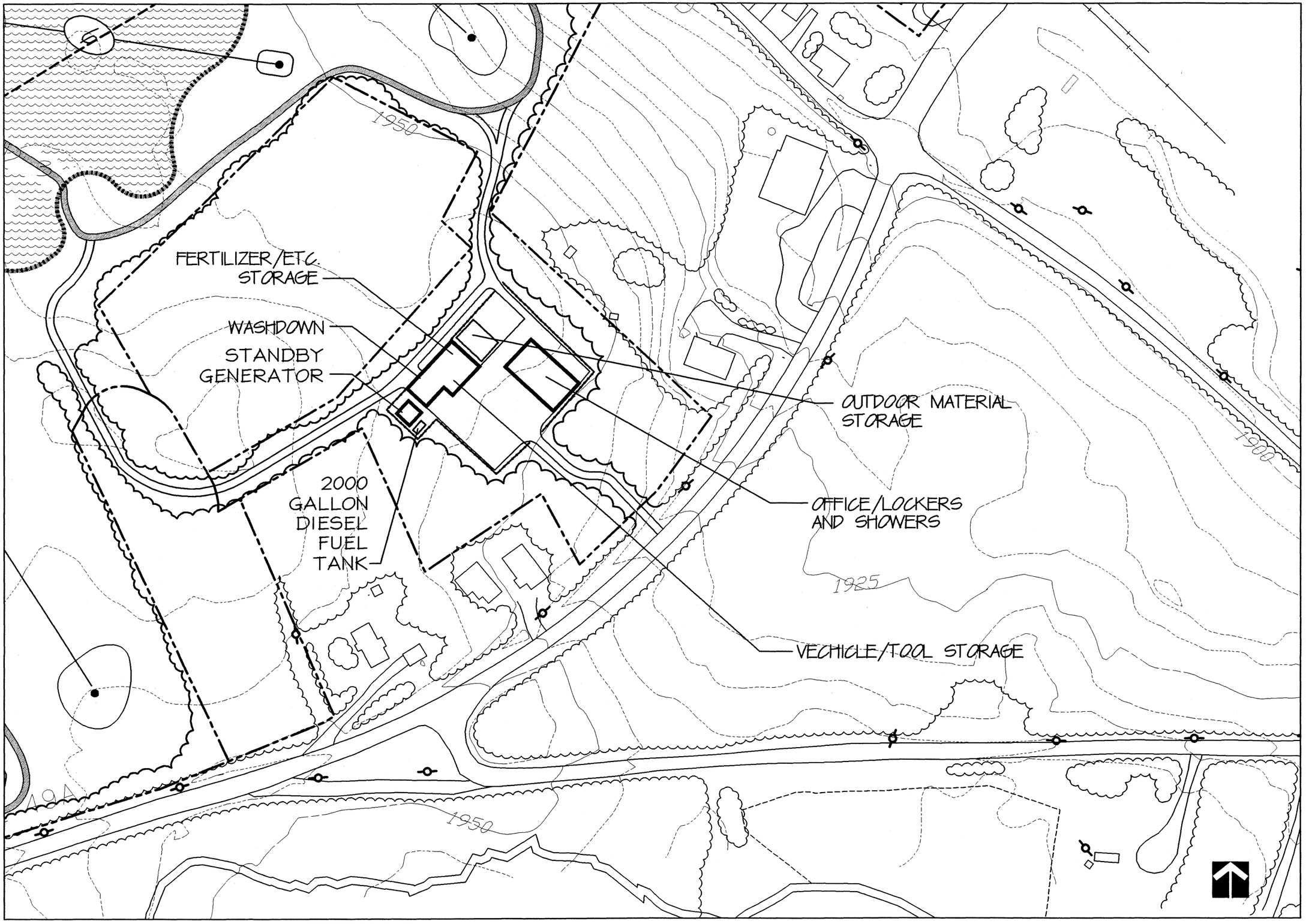
BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

HIGHMOUNT GOLF CLUB LAYOUT PLAN

Project: 00052
Date:

Figure
2-11



the LA group
Landscape Architecture and Engineering, P.C.

40 Long Alley
Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0180

BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

WILDACRES RESORT GOLF MAINTENANCE AREA

Project: 00052
Date:

Figure 2-12

Directory: z:\proj-00\0052\wildacres\0052wild.dwg
Lx: Lay200

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BELLEAYRE RESORT AT CATSKILL PARK

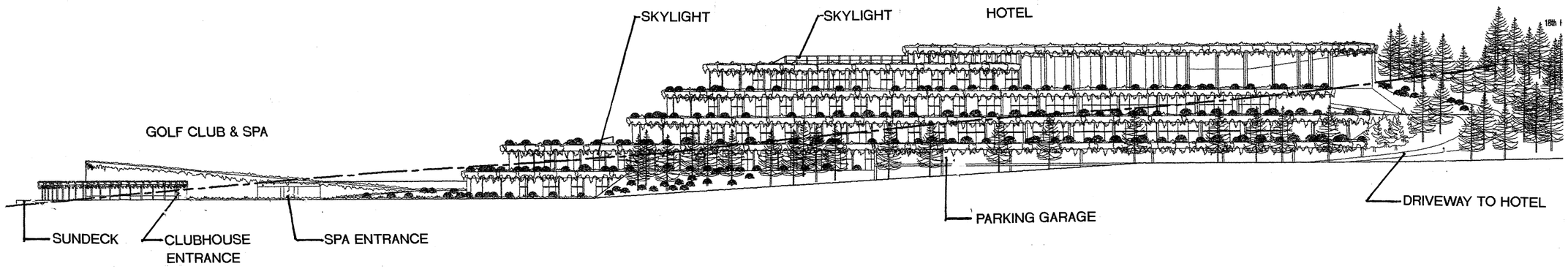
HOTEL DESIGNED BY EMILIO AMBASZ

DRAFT ENVIRONMENTAL IMPACT STATEMENT

VIEW OF BIG INDIAN RESORT AND SPA SCALE MODEL

Project 00052
Date

Figure 2-13



North Elevation

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Landscape Architecture and Engineering, P.C.

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Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0180

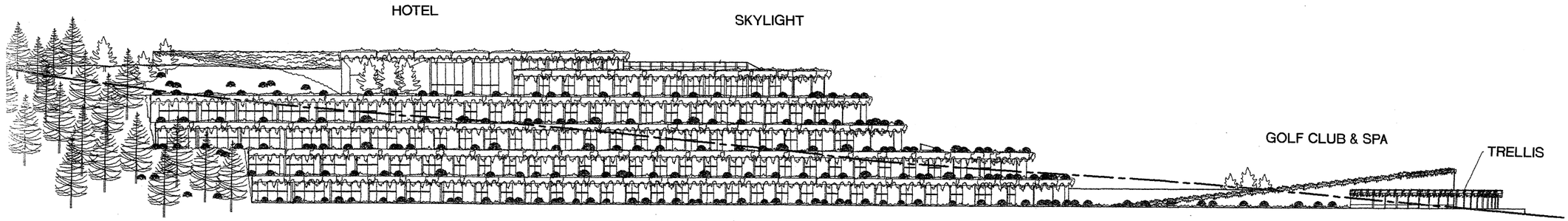
BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

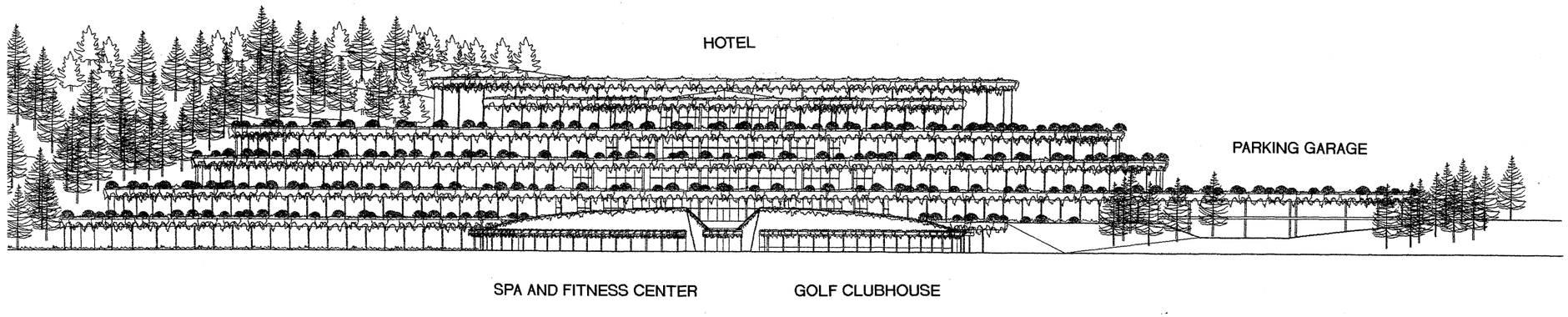
BIG INDIAN RESORT AND SPA BUILDING ELEVATION

Project: 00052
Date:

Figure 2-14a



South Elevation



East Elevation

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Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0180

BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

BIG INDIAN
RESORT AND
SPA BUILDING
ELEVATION

Project: 00052
Date:

Figure
2-14b

blue dog design
1701 EAST WASHINGTON ST.
ORLANDO FLORIDA 32803

Big Indian Country Club Single Membership Unit

Front View

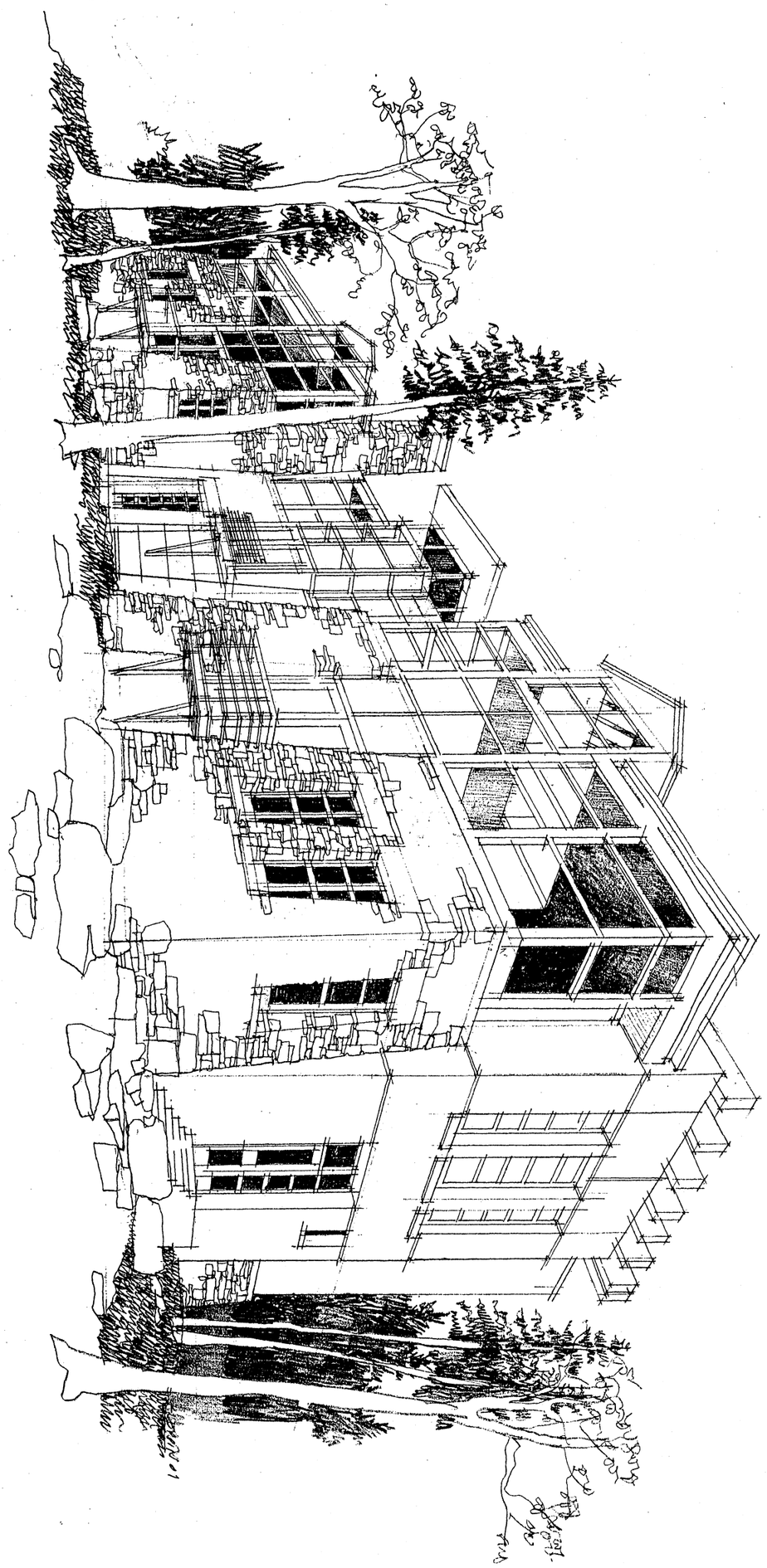
ARTIST'S CONCEPT:
Please note: while the footprint and elevations for this structure are accurately reflected in accompanying engineering documents, final design will be the responsibility of downstream architects whose construction designs may differ.

BELLEAYRE RESORT AT CATSKILL PARK

DRAFT
ENVIRONMENTAL
IMPACT STATEMENT

Figure

2-15



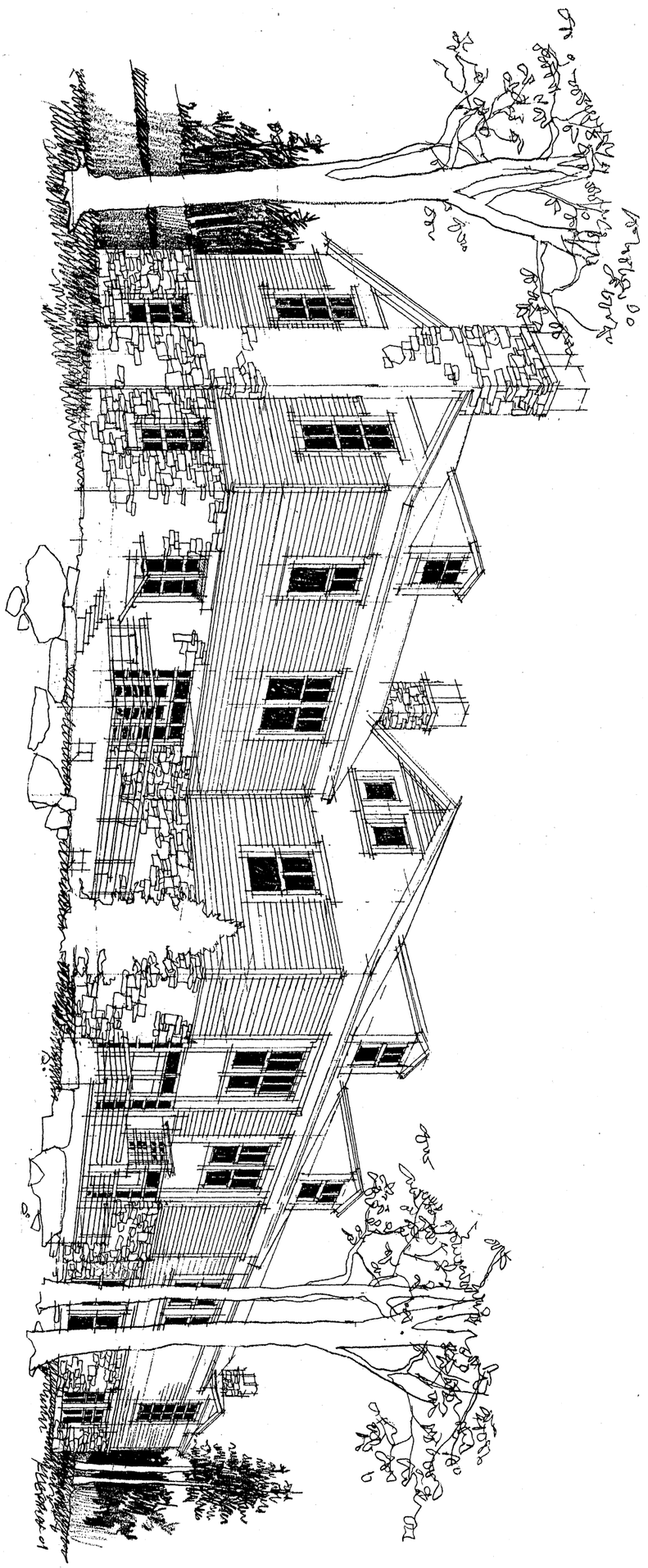
Big Indian Country Club Triplex Membership Unit

Front View

ARTIST'S CONCEPT:
Please note: while the footprint and elevations for this structure are accurately reflected in accompanying engineering documents, final design will be the responsibility of downstream architects whose construction designs may differ.

BELLEAYRE RESORT AT CATSKILL PARK

blue dog design
1701 EAST WASHINGTON ST
ORLANDO FLORIDA 32803



Belleayre Highland Quadplex Club Membership Unit

Front View

ARTIST'S CONCEPT:
Please note: while the footprint and elevations for this structure are accurately reflected in accompanying engineering documents, final design will be the responsibility of downstream architects whose construction designs may differ.

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blue dog design
1701 EAST WASHINGTON ST
ORLANDO FLORIDA 32803

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Saratoga Springs
New York 12866
518/587-8100

BELLEAYRE RESORT AT CATSKILL PARK
DRAFT ENVIRONMENTAL IMPACT
STATEMENT

BRISBANE MANSION
(BELLEAYRE HIGHLANDS)

Date:

Project: 00052

Figure

2-17A

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BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

WILDACRES
HOTEL
PERSPECTIVE
VIEW

Project: 00052
Date:

Figure 2-18

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and Engineering, P.C.

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Telefax 518/587-0180

BELLEAYRE
RESORT AT
CATSKILL
PARK

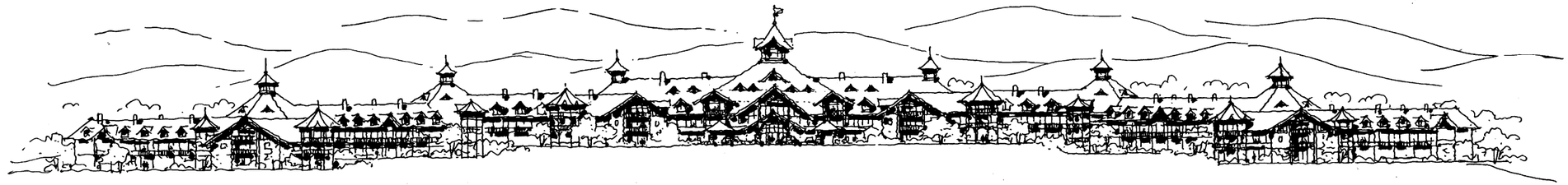
HOTEL
DESIGNED BY
ROBERT
LAMB-HART

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

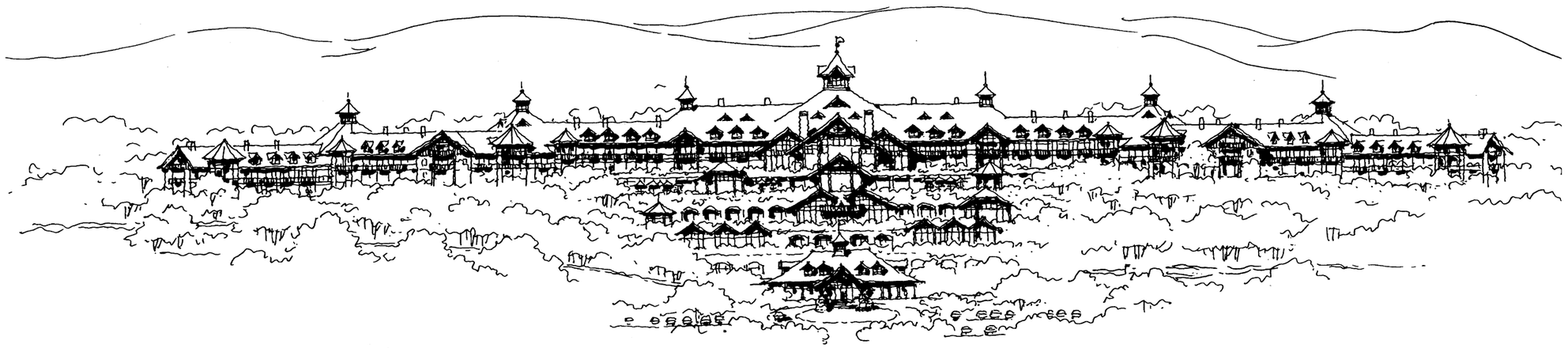
WILDACRES
HOTEL
SCALE
MODEL

Project. 00052
Date

Figure
2-18A



South Elevation



North Elevation

Wildacres Resort Hotel - Elevations

Belleayre Resort at Catskill Park

Catskills **New York**

HART|HOWERTON

Planning · Architecture · Landscape Architecture
September 2001

New York, San Francisco

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BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

WILDACRES
RESORT
HOTEL

Project: 00052
Date:

Figure
2-19

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BELLEAYRE RESORT AT CATSKILL PARK
DRAFT ENVIRONMENTAL IMPACT
STATEMENT

MARLOWE MANSION
(WILDACRES RESORT)

Date:

Project: 00052

Figure

2-19A

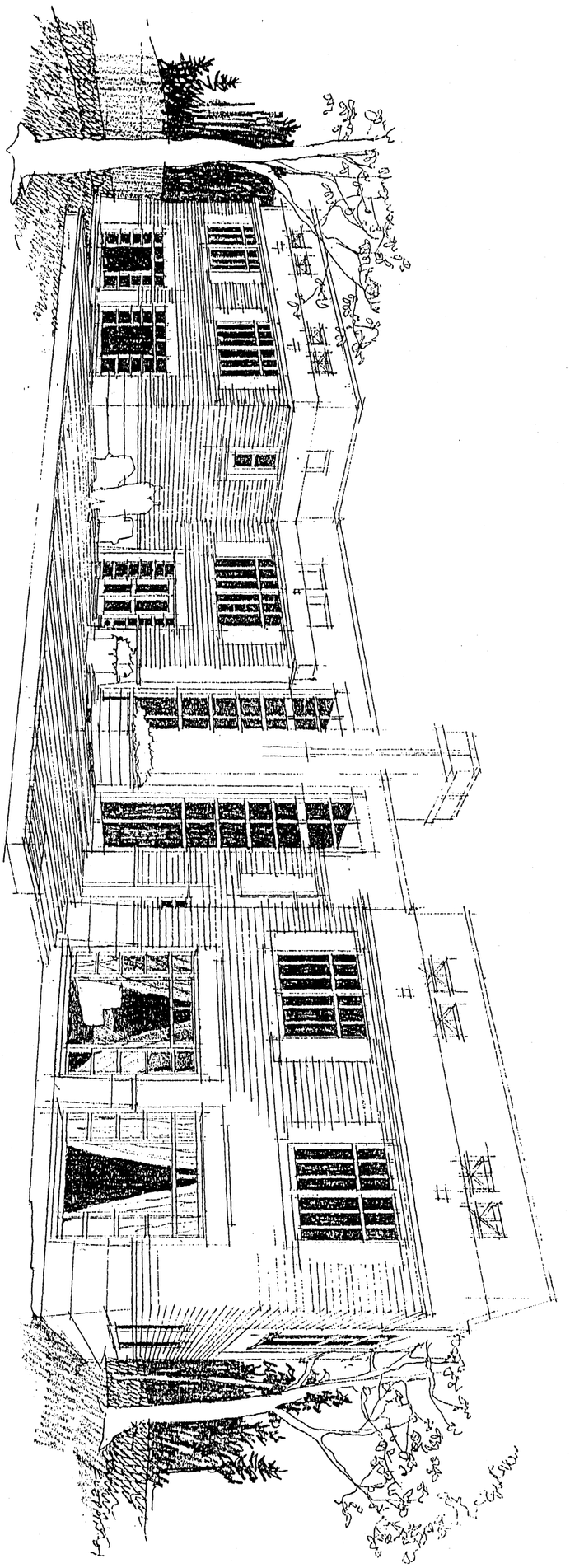


Figure 2-20

DRAFT ENVIRONMENTAL IMPACT STATEMENT

Wildacres Resort Octoplex Lodging Unit

Front View

ARTIST'S CONCEPT:
Please note: while the footprint and elevations for this structure are accurately reflected in accompanying engineering documents, final design will be the responsibility of downstream architects whose construction designs may differ.

BELLEAYRE RESORT AT CATSKILL PARK

blue dog design
1701 EAST WASHINGTON ST
ORLANDO FLORIDA 32803

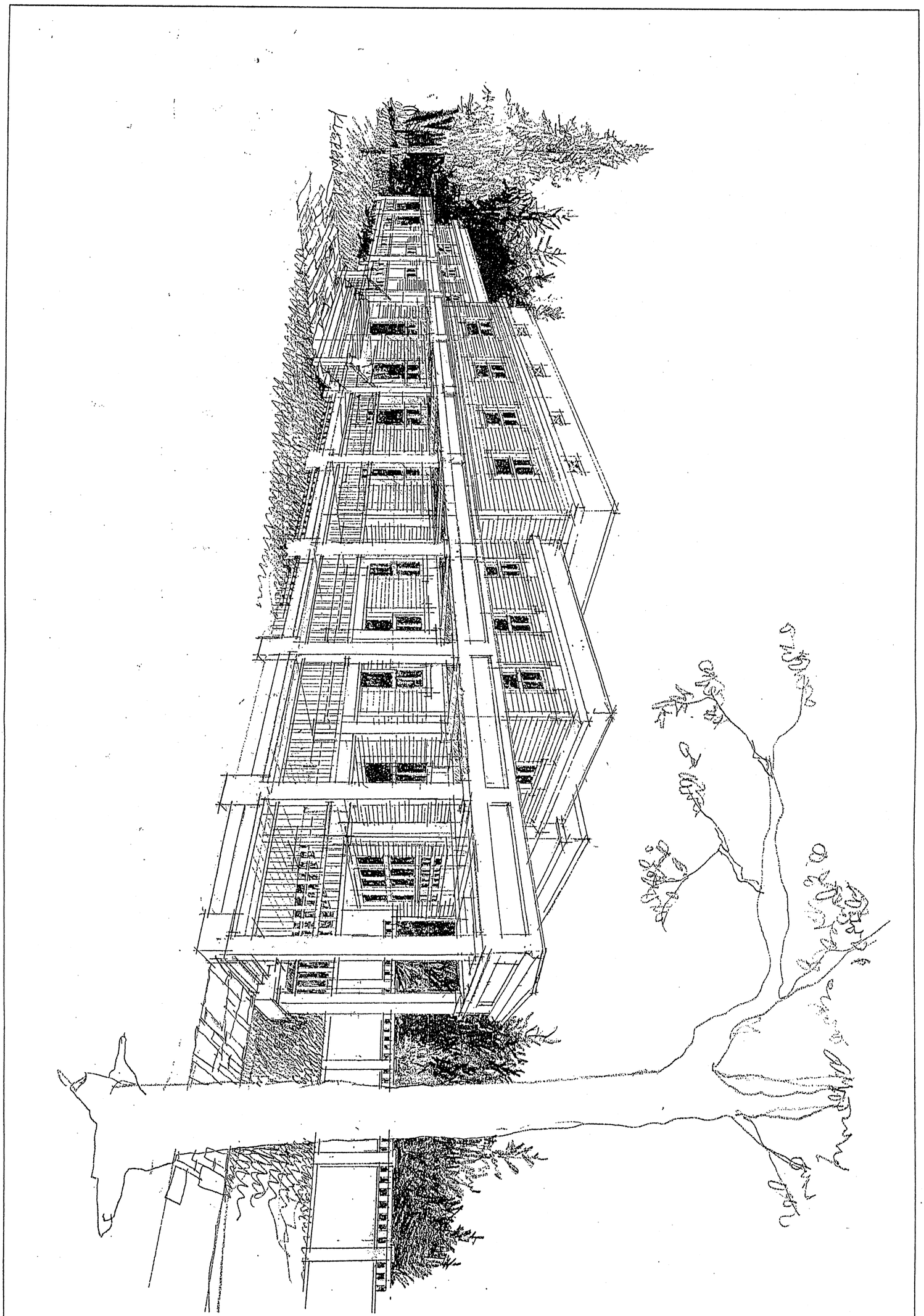


Figure 2-21

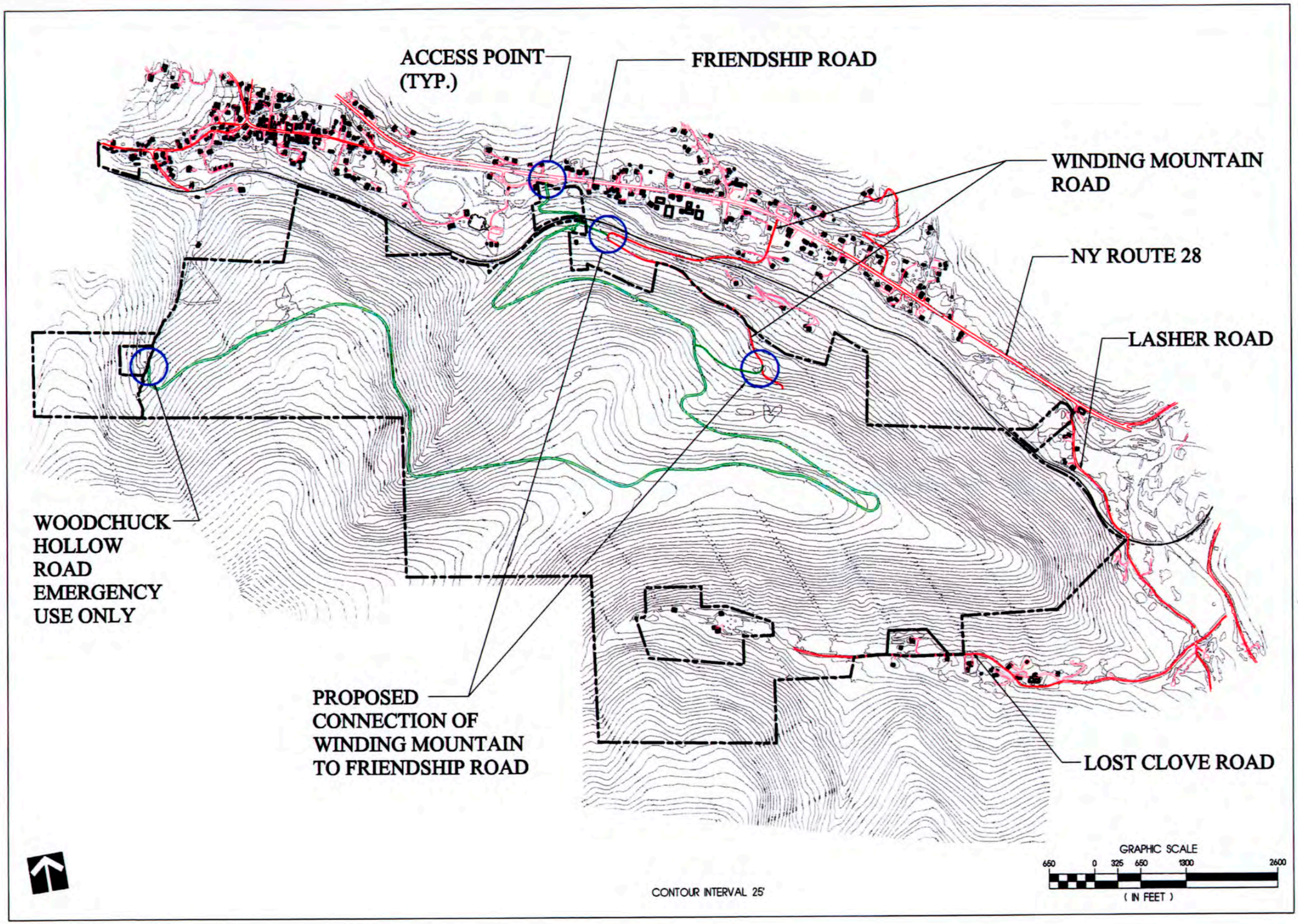
DRAFT ENVIRONMENTAL IMPACT STATEMENT

Wildacres Resort Lodging Unit Clubhouse

ARTIST'S CONCEPT:
Please note: while the footprint and elevations for this structure are accurately reflected in accompanying engineering documents, final design will be the responsibility of downstream architects whose construction designs may differ.

BELLEAYRE RESORT AT CATSKILL PARK

blue dog design
1701 EAST WASHINGTON ST
ORLANDO FLORIDA 32803



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Landscape Architecture
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Saratoga Springs
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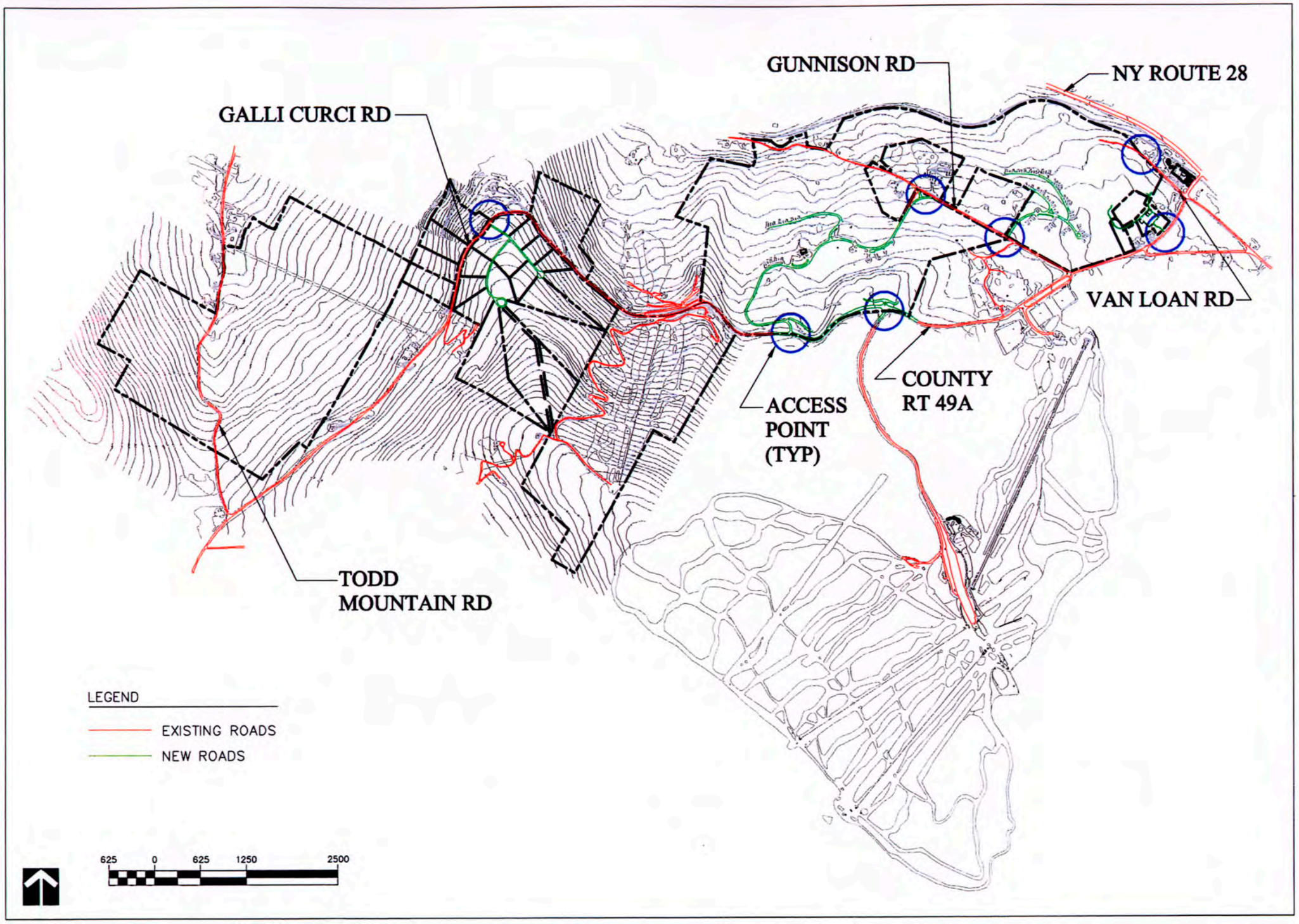
BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

BIG INDIAN
PLATEAU
ACCESS
AND
ROADWAYS

Project: 00052
Date:

Figure
2-22



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New York 12866
518/587-8100
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BELLEAYRE RESORT AT CATSKILL PARK

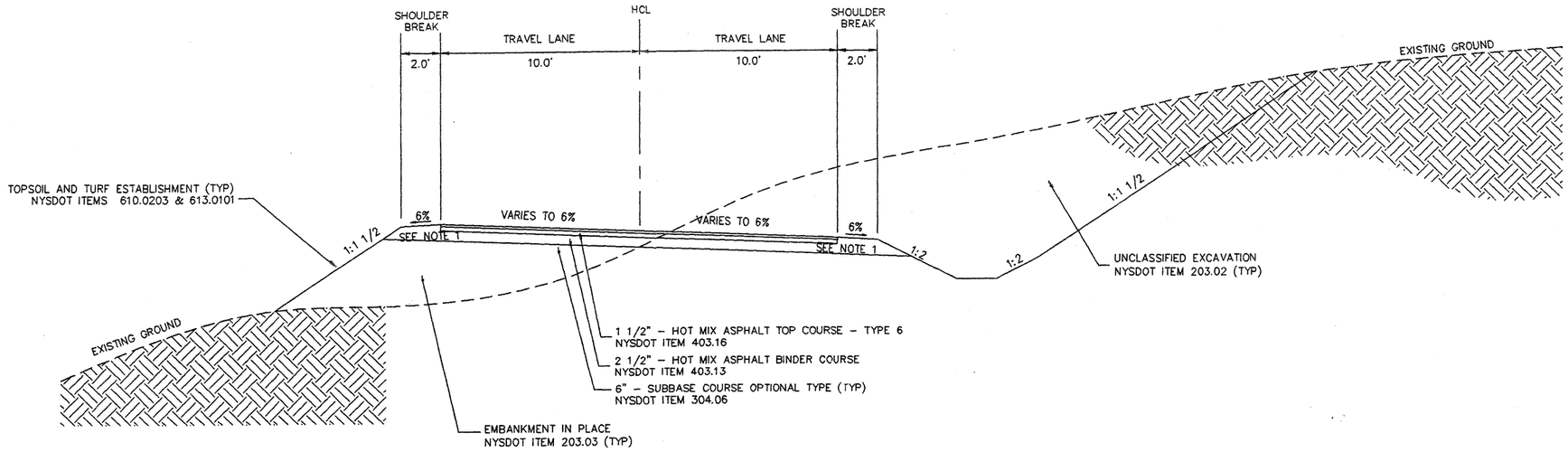
DRAFT ENVIRONMENTAL IMPACT STATEMENT

WILDACREAND HIGHMOUNT ESTATES ACCESS AND ROADWAYS

Project: 00052
Date:

Figure 2-23

Directory: z:\proj-00\0052\wildacres\0052wild.dwg Lx: Access



TYPICAL SECTION

NOT TO SCALE

ITEM NO.	DESCRIPTION	UNIT
203.02	UNCLASSIFIED EXCAVATION AND DISPOSAL	C.Y.
203.03	EMBANKMENT IN PLACE	C.Y.
304.06	SUBBASE COURSE, OPTIONAL TYPE	C.Y.
403.13	SUPERPAVE HOT MIX ASPHALT BINDER COURSE	TON
403.16	SUPERPAVE HOT MIX ASPHALT BASE COURSE TYPE 2	TON
407.0101	TACK COAT	GAL.
610.0203	ESTABLISHING TURF	ACRE
613.0101	TOPSOIL	C.Y.

ITEM NO.	DESCRIPTION	UNIT

NOTES:

1. FIELD CONDITIONS MAY REQUIRE FLATTER SLOPES THAN THOSE SHOWN TO PROVIDE A SMOOTHER TRANSITION BETWEEN PROPOSED AND EXISTING SIDE SLOPES A.O.B.E.
2. TACK COAT SHALL BE APPLIED TO ALL SAWCUTS, EXISTING SURFACES, AND BETWEEN ALL HMA LIFTS.
3. PROOF ROLLING OF SUBGRADE SHALL BE WITNESSED BY THE TOWN ENGINEER. ALL UNSATISFACTORY AREAS, AS DETERMINED BY THE ENGINEER, SHALL BE EXCAVATED AND REPLACED WITH SUBBASE MATERIAL TO THE ENGINEER'S SATISFACTION.
4. PLACE TACK COAT IN ACCORDANCE WITH NYSDOT SECTION 407 AT APPLICATION RATE OF .05 TO .10 GALLONS/SQUARE YARD.

TYPICAL SECTIONS

TOWN OF SHANDAKEN
ULSTER COUNTY

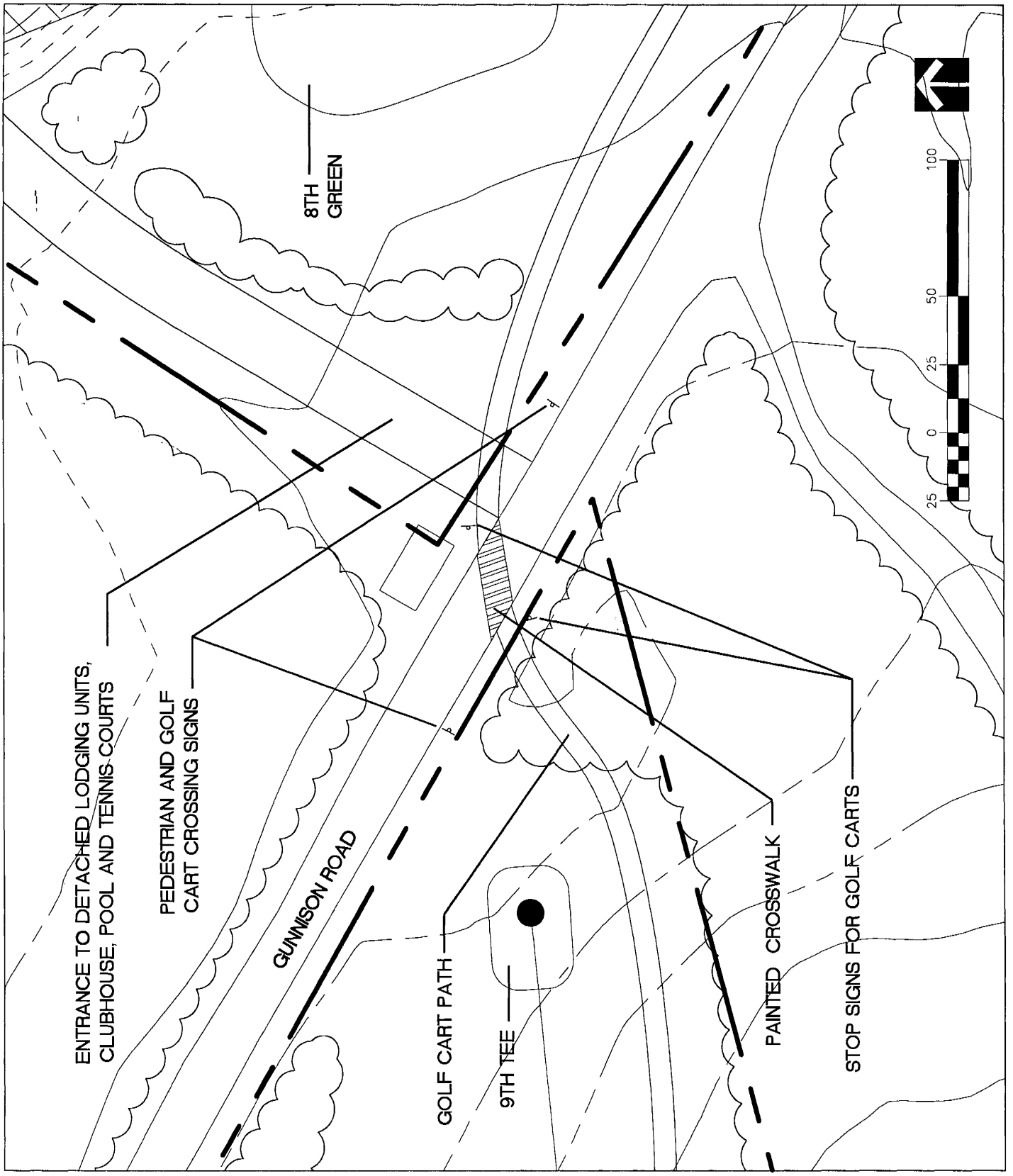
CREIGHTON MANNING ENGINEERING, LLP
4 AUTOMATION LANE, ALBANY, NY 12205
CROSSROADS VENTURES INC.
P.O. BOX 267
MT. TREMPER, NY 12457

NO.	REVISION	DATE	BY

PROGRESS PRINT
NOT FOR CONSTRUCTION

DESIGN:	JWP
DRAWN:	JWP
CHECKED:	EVW
SCALE:	NTS
DATE:	FEB. 2, 2001
FILE:	TYPICAL.DWG

Figure
2-24



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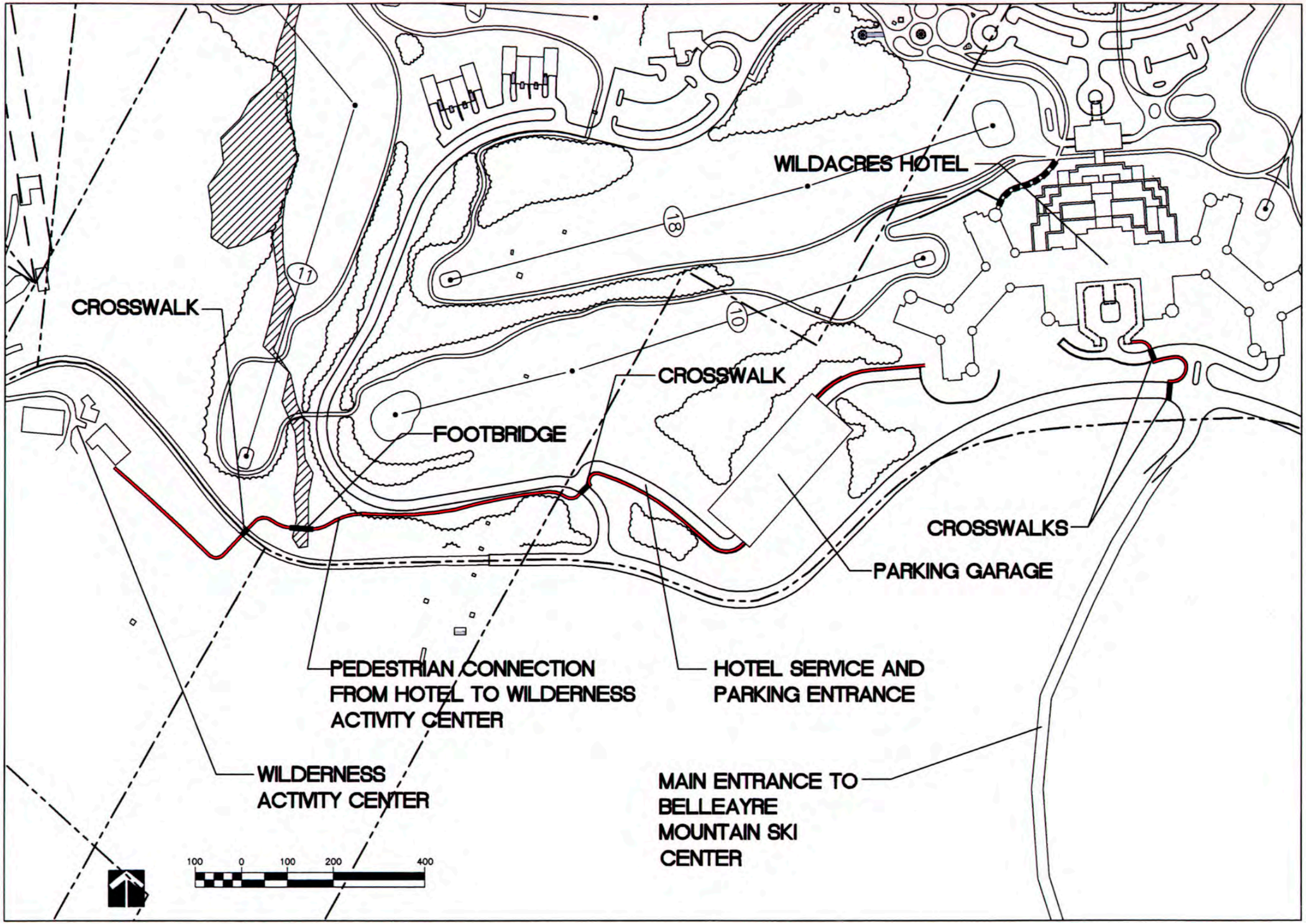
New York 12866
518/587-8100

BELLEAYRE RESORT AT CATSKILL PARK
DRAFT ENVIRONMENTAL IMPACT STATEMENT

TYPICAL PEDESTRIAN AND GOLF CART CROSSING FOR GUNNISON ROAD

Date:
Project: 00052
Figure
2-24A



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Telefax 518/587-0160

BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

PEDESTRIAN
CONNECTIONS
WILDACRES
HOTEL,
WILDERNESS
ACTIVITY
CENTER AND
BELLEAYRE
MOUNTAIN SKI
CENTER

Project: 00052
Date:

Figure
2-24B

Directory: z:\proj-00\0052\wildacres\0052wild.dwg Lx: PedConn

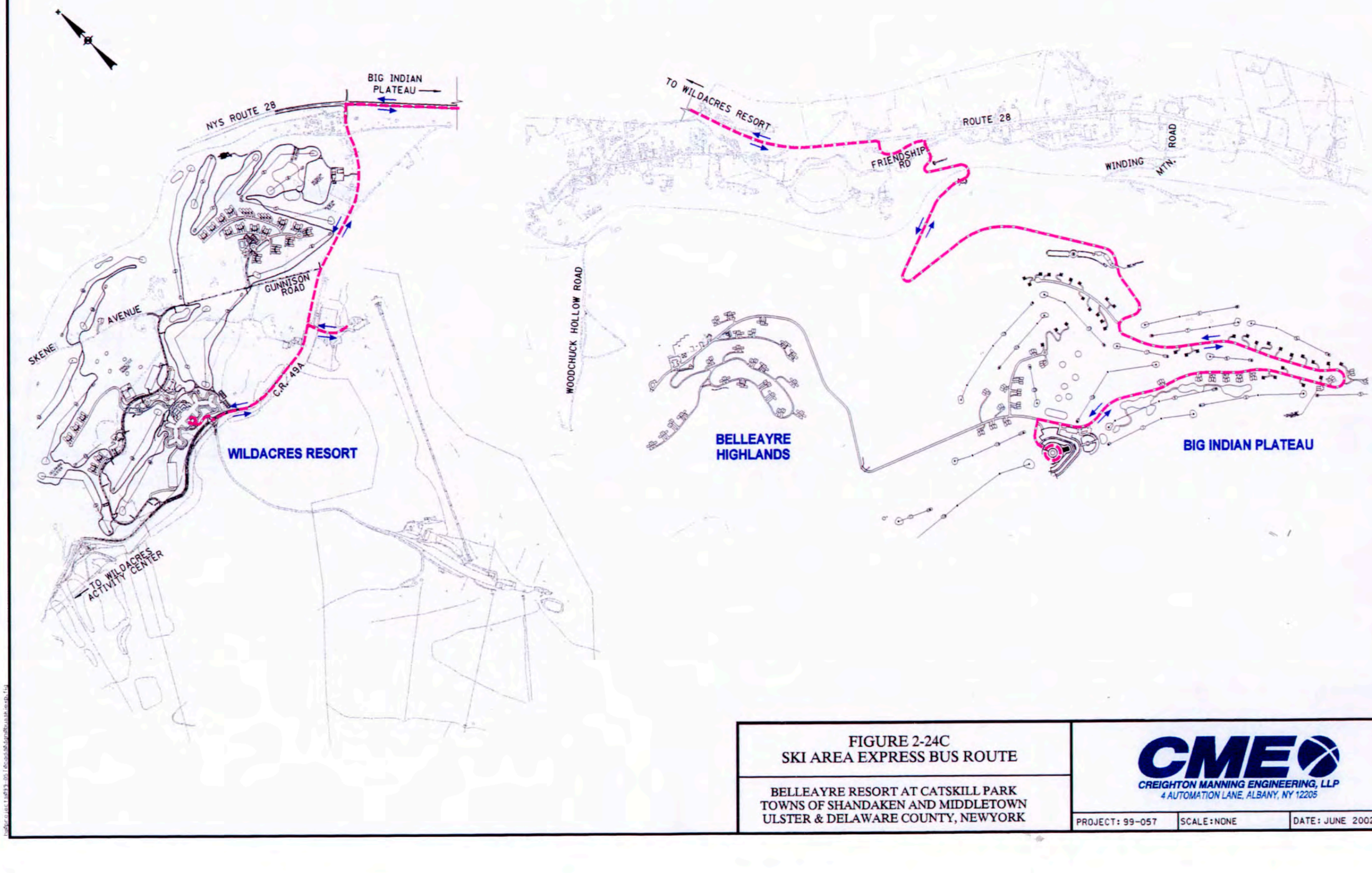
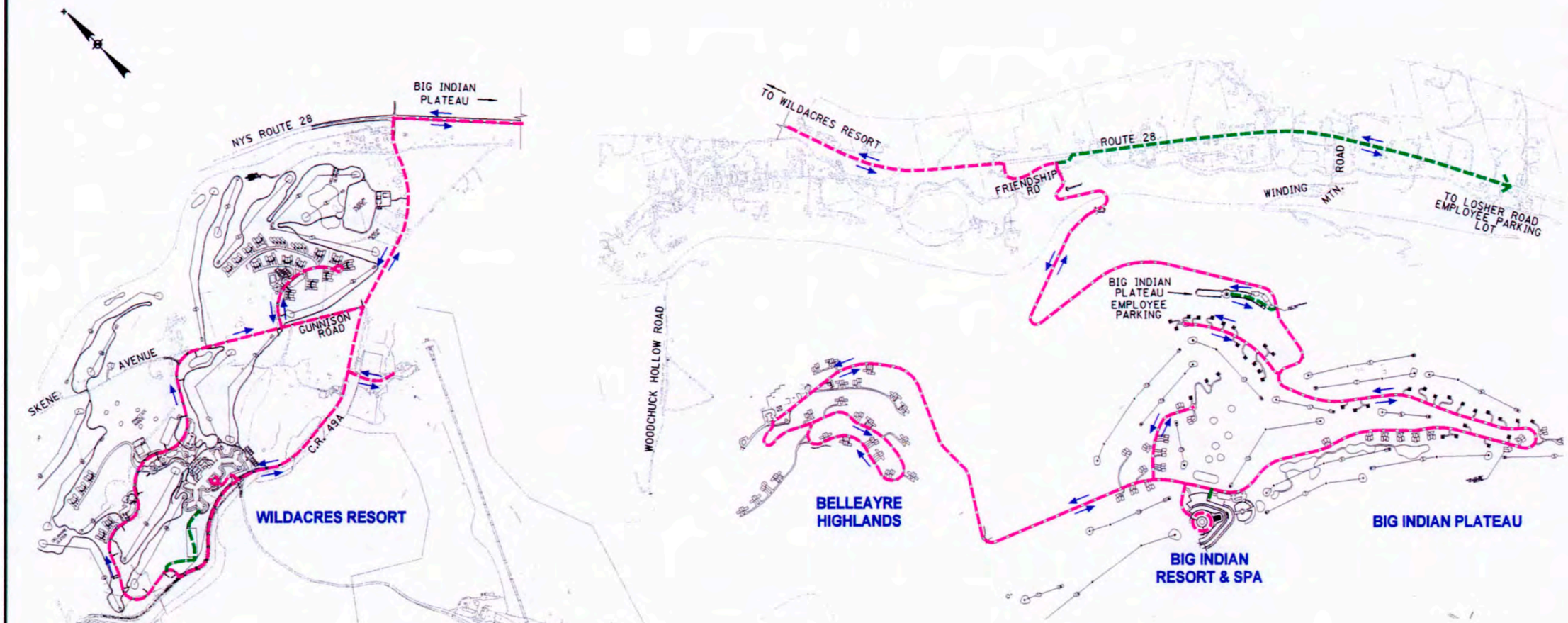


FIGURE 2-24C
SKI AREA EXPRESS BUS ROUTE

BELLEAYRE RESORT AT CATSKILL PARK
TOWNS OF SHANDAKEN AND MIDDLETOWN
ULSTER & DELAWARE COUNTY, NEWYORK

CREIGHTON MANNING ENGINEERING, LLP
4 AUTOMATION LANE, ALBANY, NY 12205

PROJECT: 99-057 | SCALE: NONE | DATE: JUNE 2002

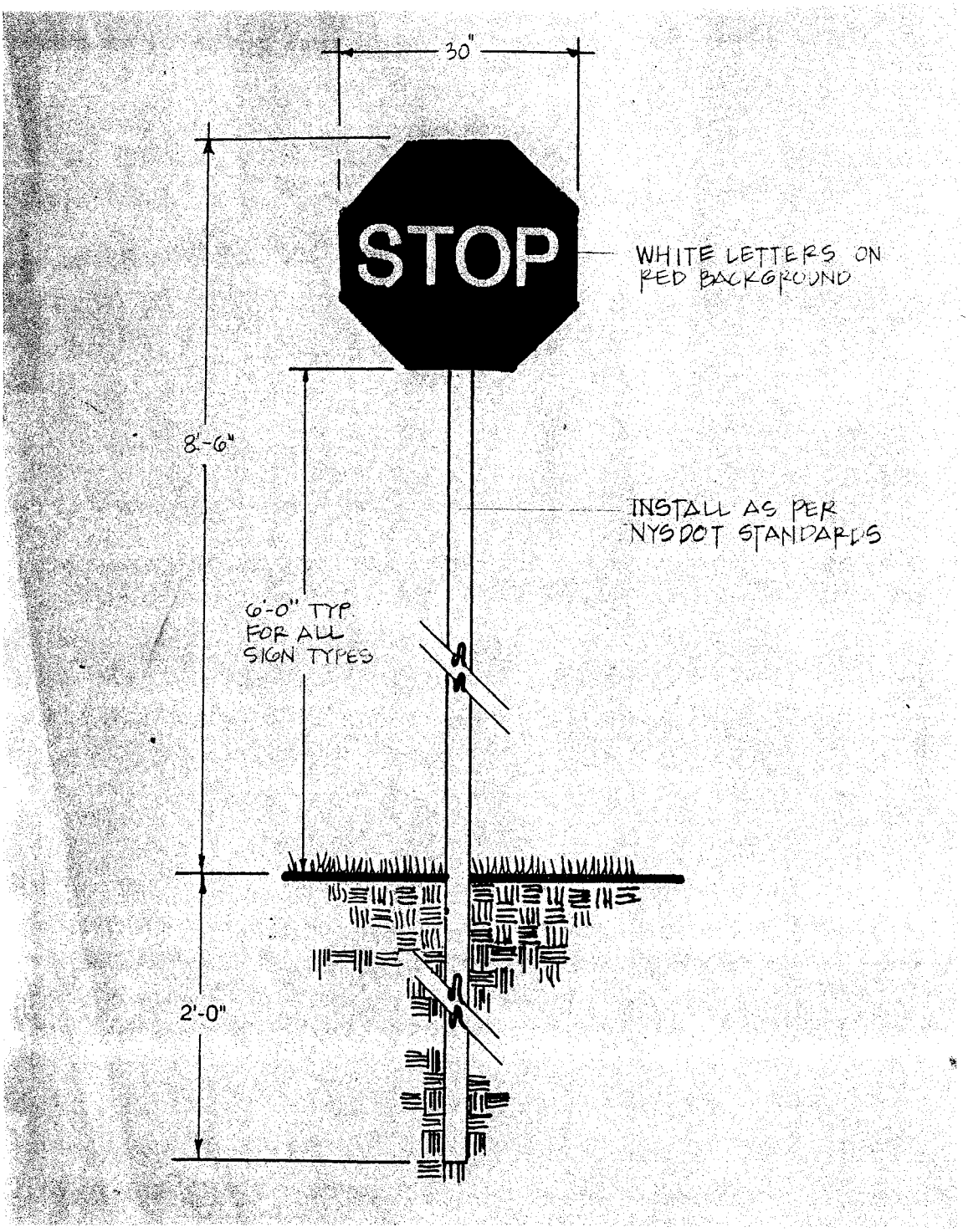


FGURE 2-24D
SKI AREA LOCAL BUS ROUTE

BELLEAYRE RESORT AT CATSKILL PARK
TOWNS OF SHANDAKEN AND MIDDLETOWN
ULSTER & DELAWARE COUNTY, NEWYORK

CREIGHTON MANNING ENGINEERING, LLP
4 AUTOMATION LANE, ALBANY, NY 12205

PROJECT: 99-057 | SCALE: NONE | DATE: JUNE 2002



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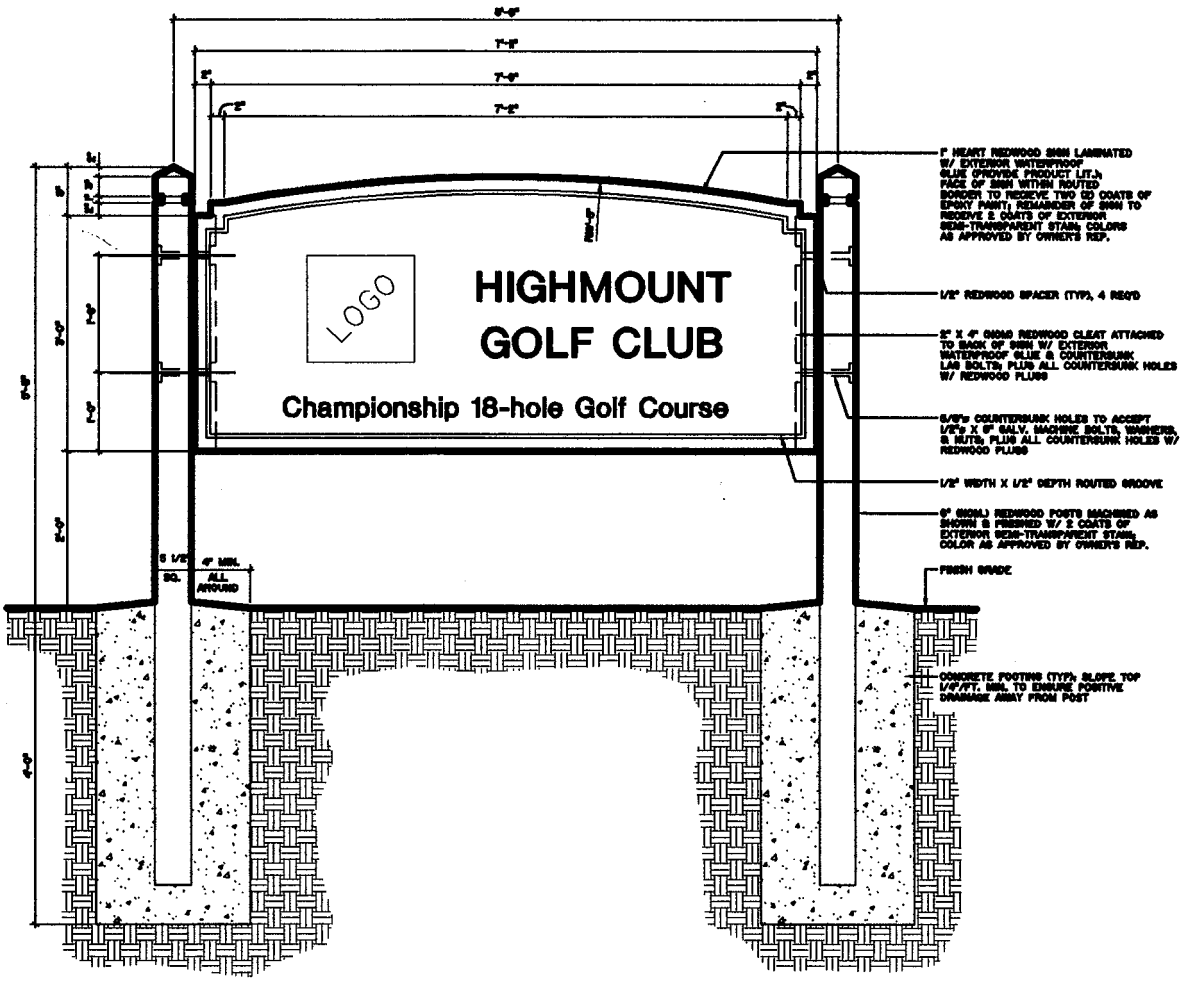
40 Long Alley
Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0180

BELLEAYRE RESORT AT CATSKILL PARK
DRAFT ENVIRONMENTAL IMPACT STATEMENT

TYPICAL ROAD SIGNAGE

Date:
Project: 00052
Figure 2-25



1 ENTRY SIGN DETAIL

N.T.S.

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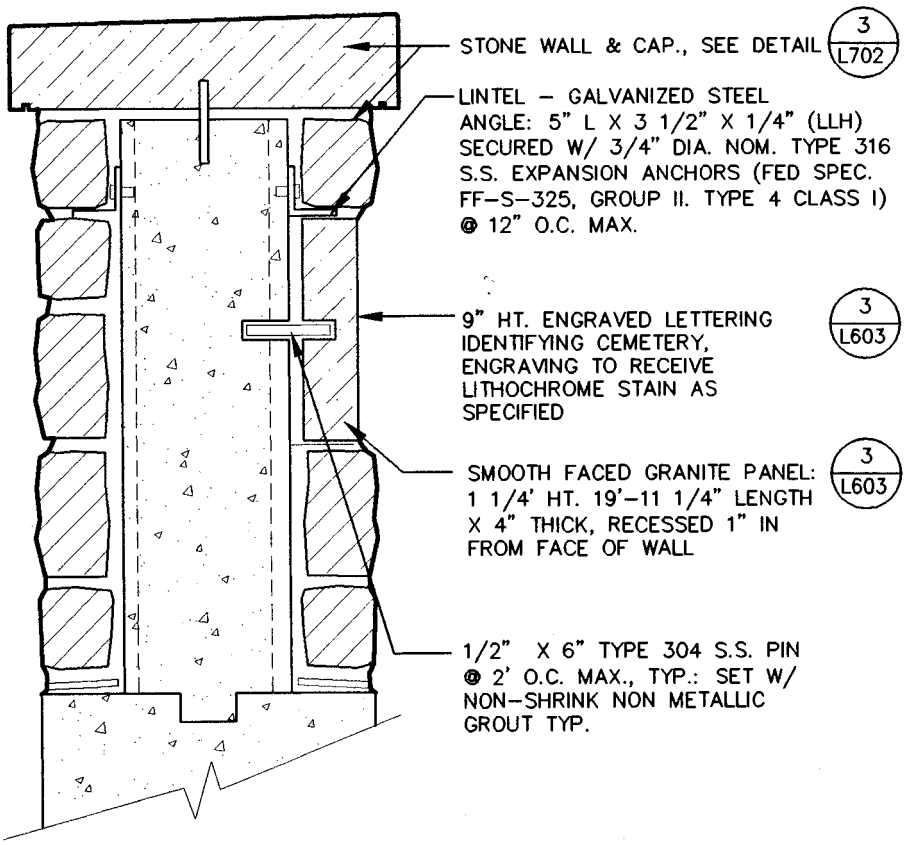
New York 12866
518/587-8100
Telefax 518/587-0180

BELLEAYRE RESORT AT CATSKILL PARK
DRAFT ENVIRONMENTAL IMPACT
STATEMENT

TYPICAL WOOD FRAME SIGNAGE

Date:
Project: 00052
Figure
2-26



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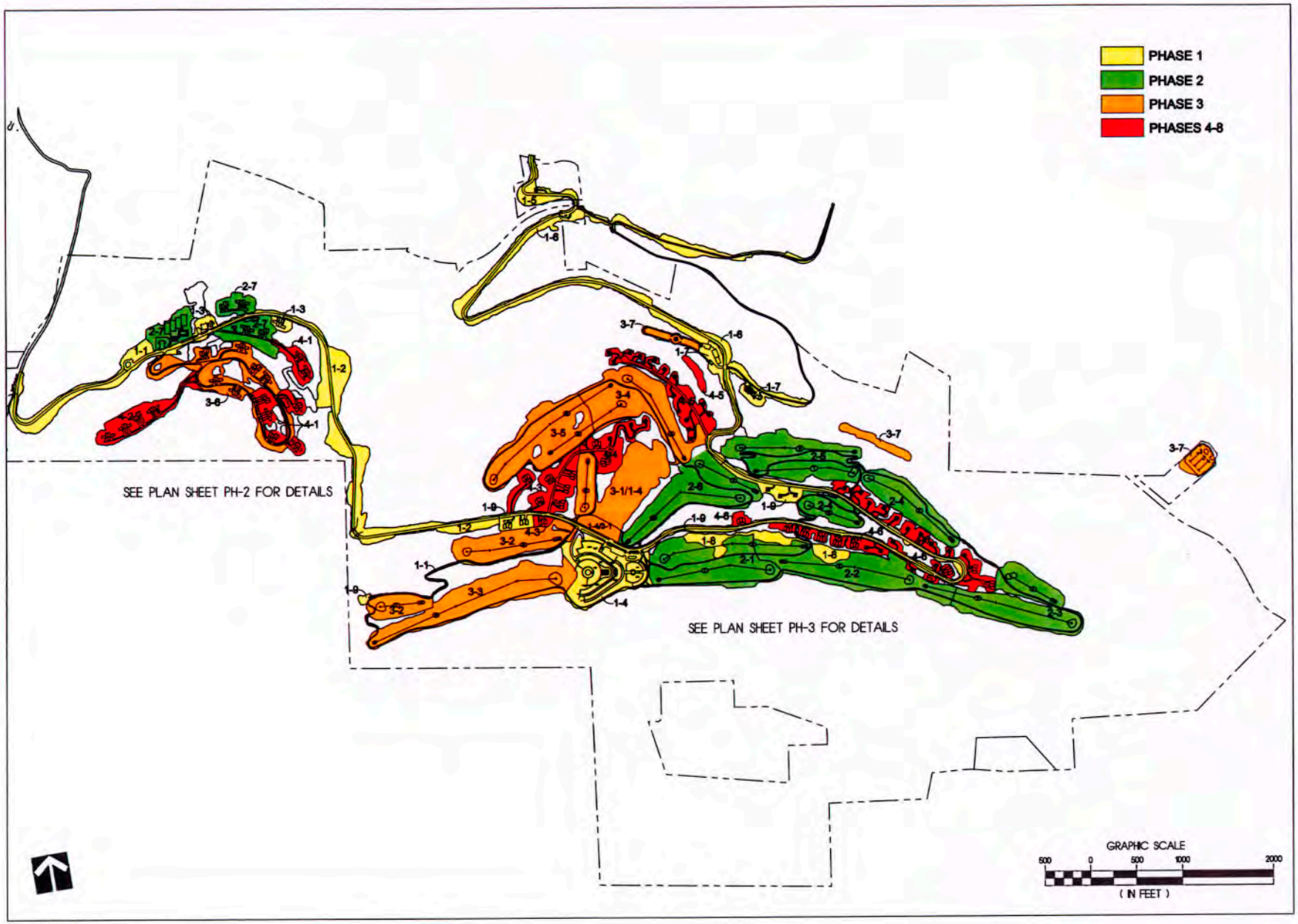
BELLEAYRE RESORT AT CATSKILL PARK
DRAFT ENVIRONMENTAL IMPACT STATEMENT

TYPICAL STONE SIGNAGE

Date:
Project: 00052
Figure 2-27



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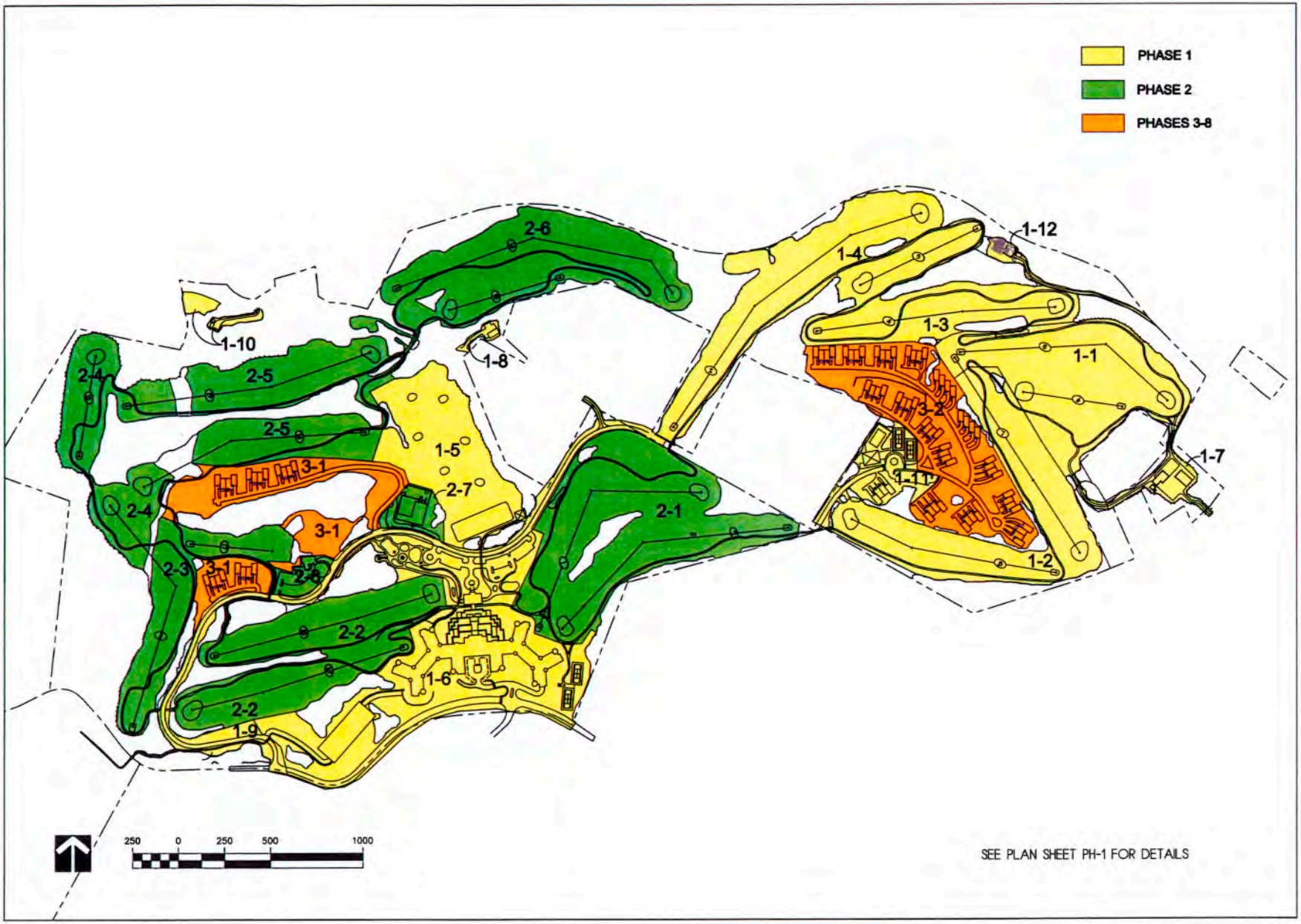
BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

PHASING PLAN - EAST

Project: 00052
Date: 8/19/03

Figure 2-28



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Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0100

BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

PHASING PLAN - WEST

Project: 00052
Date: 8/19/03

Figure 2-29

Table 2-1A Big Indian Plateau Construction Phasing and Cut and Fill Volumes

AREA	COMPONENTS	ACRES		CUT (yd3)	FILL (yd3)	NET (yd3)	Stockpiling (yd3)
1-1	highlands -road west portion	7.2		-63170	12101	-51069	
1-2	highlands - road east portion	15.5		-75135	74704	-431	
1-3	highlands - Brisbane & model	1.51		-350	3938	3588	
1-4/3-1	hotel & range tee (rock crusher)	13.6		-159372	21628	-137744	
1-5	lower access road/bridge area	2.8		-43096	7512	-35584	
1-6	middle portion access road	19		-68975	75185	6210	
1-7	golf maint. & WWTP	4.5		-9110	18394	9284	
1-8	irrigation ponds	4.2		-58313	0	-58313	
1-9	upper portion access road/model	15.2		-50126	26854	-23272	
SUM		*83.51*		*-527647*	*240316*	*-287331*	
2-1	#1,#9 (partial)	14.2	subphase 1	-28665	53665	25000	25,000 from Phase 1Big Indian stockpiled
2-2	#9 (partial), #2, #3 (partial)	14.8	subphase 2	-25720	25720	0	
2-3	#3 (partial), #4	14	subphase 3	-47324	47324	0	
2-4	#5, #8	11.9	subphase 4	-26423	52572	26149	26,000 from Phase 1Big Indian stockpiled
2-5	#6, #7	16.4	subphase 5	-56095	56095	0	
2-6	#10, #11	13.8	subphase 6	-14442	57742	43300	43,000 from Phase 1Big Indian stockpiled
2-7	highlands - pool area & models	9.4		-16000	55593	39593	40,000 from Phase 1 Belleayre highlands stockpiled
SUM		*94.5*		*-214669*	*348711*	*134042*	
3-1/1-4	range, #15	14.8		-7454	67703	60249	60,000 from Phase 1Big Indian stockpiled
3-2	#16, #17	11.1		-38532	69489	30957	31,000 from Phase 1 Big Indian stockpiled
3-3	#18	15.3		-24099	24099	0	
3-4	#12, #13 (partial), #14 (partial)	13.6		-34157	34157	0	
3-5	#13 (partial), #14 (partial)	14.2		-30489	30489	0	
3-6	highlands - upper loop & units	12.3		-71995	22498	-49497	
3-7	employee parking	5.35		-14019	17496	3477	
SUM		*86.65*		*-220745*	*265931*	*45186*	
4-1	highlands - units	6.2		-3406	26257	22851	
4-2	highlands - units	5.4		-6150	36808	30658	53,000 total from Phases 1and 3 Belleaye Highlands stockpiled
4-3	big indian - units	7.1		-7079	34578	27499	
4-4	big indian - units	4.5		-7700	15305	7605	
4-5	big indian - units	7.5		-29264	29106	-158	
4-6	big indian - units	11.6		-31742	50793	19051	54,000 total from Phase 1 Big Indian stockpiled
SUM		*42.3*		*-85341*	*192847*	*107506*	
TOTAL		306.96		-1048402	1047805	-597	

table.2-1A.(revised).phasing.BIP.xls

Table 2-1B Wildacres Resort and Highmount Estates Construction Phasing and Cut and Fill Volumes

AREA	COMPONENTS	ACRES		CUT (yd3)	FILL (yd3)	NET(yd3)
1-1	#5, #6, #7 (partial), pond	14		-123171	67047	-56124
1-2	#7 (partial), #8	13.7		-55110	55110	0
1-3	#3, #4	11.1		-4281	54991	50710
1-4	#2	11.5		-15393	15393	0
1-5	range	11.07		-1009	155171	154162
1-6	hotel, parking garage	22.4		-391465	66336	-325129
1-7	golf maint.	1.74		0	0	0
1-8	satellite golf maint.	0.33		-14	110	96
1-9	entrance road	5.6		-4212	14230	10018
1-10	water treatment	0.65		-3065	163	-2902
1-11	north clubhouse & model	3.45		-5895	1995	-3900
1-12	WWTP	0.94		0	0	0
1-13	Highmount roads	3.6		-68304	17548	-50756
SUM		*100.08*		*-671919*	*448094*	*-223825*
2-1	#1, #9	18.5		-30387	30387	0
2-2	#10, #18	13.9		-24028	181610	157582
2-3	#11 (partial), #17	7.6		-13686	13686	0
2-4	partial #11,13& 16, #12	9.1		-21925	21925	0
2-5	#13 (partial), #16, (partial)	12.8		-27642	27642	0
2-6	#14, #15	14.4		-45958	45958	0
2-7	Children's Center	1.5		-745	2827	2082
2-8	Marlowe mansion area	1.1		0	1945	1945
SUM		*78.9*		*-164371*	*325980*	*161609*
3-1	South Octo.s	8.94		-7054	61666	54612
3-2	North Octo.s	13.3		-65831	26616	-39215
3-3	Highmount Homes	10.5		0	50756	50756
SUM		*32.74*		*-72885*	*139038*	*66153*
TOTAL		**211.72**		**-909175**	**913112**	**3937**

Table 2-3 Impervious Surfaces Including Porous Pavement

Big Indian Plateau (East)				
	impervious	porous		
	area (ac.)	pavement		
roads	21.5			
cart paths	5.98	5.43		
detached lodging units	5.87			
hotel planted roof	5.56	5.56*		
driveways	4.01	4.01		
parking	3.96	3.22		
undergound parking	3.5	3.5*		
tennis courts	0.66	0.66		
pool area	0.36			
hotel skylight	0.32			
golf maintanence	0.3			
wastewater treatment plant	0.21			
water treatment & tank	0.1			
cabanna	0.06			
gate house	0.01			
TOTAL	52.40	22.38		
Wildacres and Highmount (West)				
	impervious	porous		
	area (ac.)	pavement		
roads	5.82			
cart paths	5.76	5.16		
hotel & parking garage footprint	5.21			
underground parking	4.8	4.8*		
detached lodging units	3.72			
parking	2.21	1.1		
driveways	1.76	1.76		
pool area	0.98			
walks	0.92			
tennis courts and shed	0.72	0.7		
children's center	0.26			
golf maintanence	0.24			
wastewater treatment plant	0.2			
water treatment & tank	0.1			
range shed	0.05			
gazebos	0.01			
TOTAL	32.76	8.72		
PROJECT TOTAL	**85.16**	**31.10**		
* not porous pavement, but other measures taken to reduce project impervious surfaces				

Table 2-4 Impervious Area In Relation to Project Size

	total assemblage (acres)	project site (acres)	percent assemblage developed	percent assemblage undeveloped	total impervious* (acres)	percent of assemblage impervious	percent of project site impervious
East (Big Indian Plateau)	1,242	331	27%	73%	52.4	4.2%	15.8%
West (Wildacres Resort)	718	242	34%	66%	32.76	4.6%	13.5%
Total	1,960	573	29%	71%	85.16	4.3%	14.9%
**assumes no credit for such things as porous pavement, underground parking, planted hotel roof, etc.*							

SECTION 3 ENVIRONMENTAL SETTING, POTENTIAL IMPACTS AND MITIGATION MEASURES

3.1 Geologic and Topographic Resources

3.1.1 Existing Conditions

A. Geologic Resources

The project site lies within the Appalachian Upland, the largest landform region in New York State. The entire area is underlain with Paleozoic sedimentary rocks dipping slightly toward the south and west. The area has been glaciated and deeply scoured. The site is in the Catskill Mountains subdivision, where summit elevations range from about 2,000 to 4,000 feet above mean sea level (AMSL). According to Thompson (1966) "the resistant sandstones underlying the area may be delta deposits from a Paleozoic Sea. Both stream and glacial erosion have resulted in deep dissection. A striking characteristic of Catskill topography is its coarse texture. Valleys are relatively few, and the intervening masses correspondingly bulky. The paucity of small tributaries is thought to be due to the permeability of the sandstones, which causes water to soak in rather than run off."

The gently sloping to flat-lying bedrock underlying the majority of the project site consists of the Upper Walton Formation of shale, sandstone and conglomerate. The Lower Walton Formation (consisting of similar rock types) is located at the base of the higher elevations. According to Fisher, et al., (1970) these formations are of Upper Devonian Age. The nature of the bedrock is such that it forms layers of shale and sandstone that weather and erode and are rippable to some extent. The Devonian sedimentary rocks of the Catskill Region have long been mined for their use as flagstone.

According to published sources, the surficial geology consists of exposed rock or rock within approximately three feet of the ground surface, with till at the base of the mountains. Cadwell and Dineen (1987) indicates that glacial outwash sand and gravel deposits are located at the valley bottom, and these may reach thicknesses of up to 40 meters (Kudish, 1979). Mineralogic differences among sedimentary rocks in the Catskill Mountains are minor, and most sediments are composed of detrital quartz, fine-grained metamorphic rocks, and minor amounts of mica and feldspar (Ethridge, 1977). Trace amounts of calcite and hematite also are present as cement materials in the sandstones.

Geotechnical and hydrogeological investigations on the site confirmed published reports. Depth to bedrock on the project site at higher elevations ranged from 12 to 22 inches in the few areas of Halcott soils to greater than the bottom of seven to eight foot deep test pits excavated on the site. Well logs in the valley along NY Route 28 indicate that bedrock is 80 to 100 feet below grade.

B. Topography

The topography within the project boundaries ranges from an elevational high of 3,100 feet AMSL near the top of the lift at the former Highmount Ski Center to an elevational low of 1,225 feet AMSL near NY Route 28 and Lasher Road. Refer to Figure 3-1, "Topography", for an illustration of the project site and surrounding lands. More detailed topography information at 2 foot and 5 foot contour intervals is illustrated on Figures 3-2, "Eastern Portion Existing Topography 2 Foot and 5 Foot Contours," and Figure 3-3, "Western Portion Existing Topography 2 Foot and 5 Foot Contours." (Figures 3-2 and 3-3 are full size plan sheets located in the front pocket of this Volume 1 of the DEIS).

The project site is located on lands on either side of the peak of Belleayre Mountain, a somewhat elongated mountain that has a ridgeline oriented in a northwest/southeast direction. The project site is located several hundred feet below the ridgeline of Belleayre Mountain. Along the ridgeline there are three high points with elevations of 3,375 feet, 3,360 feet, and 3,430 feet AMSL. The highest point of the ridgeline is located just to the southwest of the Ski Center where lifts reach elevations up to 3,430 feet. The two other high points of the ridgeline are located approximately one mile to the east, with the easternmost the former site of a lookout tower. From these high points, elevations decrease via a combination of steep slopes and flatter plateaus, typical of the topography of mountains in the Catskills. In most instances where the slope abruptly becomes very steep, it is a good indication of shallow soil and rock outcrops. Outcropping may also be associated with any abrupt topographic feature.

The western portion of the project site consists of flatter lands at the bottom of the mountain that extend up to the westernmost portion of the Belleayre Mountain ridgeline. The eastern portion of the project site consists of lands that include the eastern extension of the Belleayre Mountain ridgeline as well as portions of the northern and southern side slopes.

The western portion of the project site consists of areas of varying topography. Lands to the west and north of County Road 49A, and on either side of Gunnison Road, are generally flatter and it is here that the Wildacres Resort is proposed. Elevations in this area range from approximately 2,260 to 1,800 feet AMSL. With the exception of the lands at its very top where grades are not as steep, the former Highmount Ski Area consists of steep north-facing slopes with elevations ranging from a high point of approximately 3,400 feet down to 2,260 feet AMSL. Lands to the west of the Highmount Ski Area and around the proposed Highmount Estates consists of both north facing and east facing slopes, with flatter lands on either side of the ridge line that runs in a northwest/southeast direction. Lands to the west of Galli Curci Road are less steeply sloping on the portion between Galli Curci Road and Todd Mountain Road and slope to the west with the lowest elevation being approximately 1,800 feet AMSL. Lands on the project site to the west of Todd Mountain Road are more steeply sloping and slope in a northeastern direction.

The eastern portion of the project site consists of the eastern portion of the Belleayre Mountain ridgeline as well as some of the steep south slopes and a portion of the northern slopes above Lost Clove. Within this portion of the eastern ridge of Belleayre Mountain there is a large area of relatively flatter plateau. **The major portions of development of the Big Indian Country Club and associated buildings will take place on this plateau.** Downslope of the plateau in many areas there are a series of relatively flat "benches" connected by areas of steeper slope. Giggle Hollow divides the eastern portion of the project site, running in a north/south direction. The slopes on either side of Giggle Hollow are steep, with relatively the same slopes as the middle and lower elevations of the overall eastern portion of the project site.

Slopes on the site range from relatively flat lands, 0-5%, to over 40%. Refer to Figures 3-4 and 3-5, "Slope Map -Eastern Portion," and "Slope Map- Western Portion" for relative positions in the landscape of slopes in the 0 to 20% range, and slopes over 20%. Also refer to Figures 3-6 and 3-7, "Soils Map – Eastern Portion", and "Soils Map Western Portion", for additional slope class information. The project site is underlain by slopes of 3 to 8% (B soils), 8 to 15% (C soils), 15 to 25% (D soils), 25 to 35% (E soils) and over 35% (F soils). In general, development is proposed on B and C soils.

From a general land planning perspective, topography has dictated where the various development components of the proposed project could be located. The only portion of the land planning associated with the project that was seriously affected by the site's topography was designing a road to access the Big Indian Plateau portion of the project site. In order to access the flatter plateaus on which development is proposed, it was necessary to overcome slopes of up to 35% for the roadway. In order to provide a suitable access road and attempting to maximize the amount of access road with slopes of 10% or less, it was necessary to incorporate some switchbacks into the access road design.

Existing site topography and its influence on drainage patterns are discussed in Section 3.2, "Surface Water Resources."

3.1.2 Potential Impacts

A. Geologic Resources

Construction on the project site will require grading for the various components including access roads, building locations and the proposed golf courses. There-grading of the site will result in some new configuration of surface grades. Proposed grading is shown in LA Group Plan Sheets SG-1 through SG-0, "Grading Plans."

Rock blasting will be necessary to accomplish some of the proposed grading. The blasting work will occur at the surface. On the eastern portion of the project site the irrigation ponds near the Big Indian Resort and Spa as well as portions of the foundation of the building will require blasting. It will take approximately one month to perform the blasting necessary to create the proposed irrigation ponds and more time for the Resort.

It is anticipated the blasting for the Hotel building will take place first and the ponds will be blasted separately. While there will be some large flagstone boulders that will have to be dealt with for site grading, it is not anticipated there will be other extensive blasting.

Blasting will also be required at one location in the western portion of the project site to construct the Hotel at the Wildacres Resort. There are less soil-related limitations at the Wildacres parcel in regard to depth to bedrock. There is a broad area of shallow Halcott soils on top of the parcel where the Hotel is proposed. This area will likely have to be blasted. The northern portion of the parcel appears to be mostly deep, very stony glacial till. Based upon the existing topography and the proposed Hotel building, it is estimated that approximately 374,600 cubic yards of material will need to be removed by blasting over the course of 3 months.

Two investigations of the effects of mine blasting on water wells, water supply, and water quality were conducted by the seismological consulting firm of Philip R. Berger and Associates, Inc., in 1980 and 1982. The studies were prepared for the US Bureau of Mines, which is a research and advisory group (and not a regulatory agency). A total of five sites were studied in four states to represent a range of geologic conditions. Water supply wells were installed and designed specifically to duplicate typical domestic well construction and use.

The reports which detail well performance in relation to blasting at surface mines indicate that "no evidence of changes in water quantity or quality could be directly attributed to the blasts."

The report also concludes that it is possible the blasting actually improves well yields in wells within a few hundred feet of the active face by increasing the fractures which transmit and store water. The more open fractures improve the permeability of the rock mass and improve well yield. In laymen's terms; the removal of bedrock may cause stress relief in the rock which widens and extends water-containing fractures. This increases the storage capacity in the ground, thereby improving adjacent well yields. The ground water level will temporarily drop somewhat while the additional groundwater storage space is filled. Shallow wells exhibit substantially improved performance while deeper wells indicate improvement to a lesser degree. This decline in well static water level appears to coincide with the approach of the overburden removal to within 300 feet or less from the subject well, but this decline was temporary. As noted in Section 3.1.3(A), Item #6 below, the nearest residences and associated wells are 2,000± feet away from the proposed blasting for the Big Indian Resort and Spa irrigation ponds. The closest private wells to the area to be blasted for the Hotel at Wildacres are approximately 1,500 feet away. **Therefore, it is not anticipated that the groundwater capacity will be negatively affected.**

It is also, therefore, highly unlikely that blasting, or blasting-induced changes to groundwater level will adversely affect wells in the area of the proposed project. On the contrary, studies of blasting effects on nearby wells indicate increased well yield over

time. In fact, well shooting as it is known, or blasting of a drilled well, is a commonly used method in the well drilling industry to obtain increased well yield.

According to Berger's studies, no significant changes in water quality occurred which could be related to blasting. Samples were routinely collected and analyzed for a number of parameters for a year before and after blasting to monitor water quality. A long term reduction of total dissolved solids and specific conductance (a desirable change) appears to occur, but this is probably the result of the cumulative pumping of the groundwater from the numerous drawdown tests.

A review of more recent technical reports (Siskind and Kopp, 2000, "Blasting Effects of Appalachian Water Wells"; Matheson and Miller, 1997, Schnabel Engineering Associates, "Blast Vibration Damage to Water Supply Well Water Quality and Quantity") available from the United States Bureau of Mines and the International Society of Explosives Engineers was conducted. These studies confirm that complaints of well impacts from blasting are not related to blasting and can be shown to be related to either environmental factors, poor well construction, or wells whose elements required repair or replacement prior to blasting.

B. Topographic Resources

The proposed grading will not result in any significant impact to drainage patterns. The Stormwater Management Plan prepared for the project (see Appendix 9A, and a discussion in Section 3-2, "Surface Water Resources") divides the project site and surroundings into numerous drainage subcatchments for the existing topographic conditions as well as the proposed conditions. Under the proposed grading, the only change in surface drainage patterns will occur on approximately 0.2 acres on the Big Indian Country Club site. The grading on approximately 0.2 acres along the ridgeline will result in these two areas that currently drain to Lost Clove Brook now draining to Birch Creek. The 0.2 acres represent approximately 0.01% of the drainage for Lost Clove Brook and 0.002% of the drainage area for Birch Creek.

During the construction phase of the project the existing topography will be altered only in the areas proposed for construction; that is, building sites and attendant infrastructure and grading for golf fairways, parking areas and driveways. Re-grading will generally occur on areas with slopes less than 15% and will be accomplished by cutting and moving this soil toward the topographically lower portion of the site. Calculations of cuts and fills for the project indicate that there will be a balance of cuts and fills for the project as a whole. Cuts and fills are also now balanced within the eastern portion of the project site and balanced within the western portion of the project site, minimizing potential impacts from construction phase traffic.

Proposed grading plans require a much smaller fill slope on one area of the Big Indian Country Club. Grading plan modifications have been made by the golf course architect to dramatically reduce the depth of the fill slope around holes six and seven on the Big Indian Country Club. At one time approximately 30 feet of fill over a fairly large area on

hole #6 would have been required. At the deepest point, up to 50 feet of fill would have been required over a smaller area within this golf hole. The grading plans for this area (See LA Group Plan Sheet SG-9) first reduces the total area where fill is needed, second, reduces the general depth of fill to 5 to 10 feet, and third, reduces the maximum fill depth to 15 feet. These changes also eliminated the need to transport approximately 90,000 cubic yards of material from Wildacres to Big Indian Plateau.

As stated previously in Section 2.2.6, the following is a breakdown of the cuts and fills for the various components of the project.

Table 3-1
Cut and Fill Volumes

1. Big Indian Plateau including Belleayre Highlands: NET 597 yd^3 Cut

Phase 1	287,331 yd^3 Cut
Phase 2	134,042 yd^3 Fill
Phase 3	45,186 yd^3 Fill
Phases 4-8	107,506 yd^3 Fill

2. Highmount Estates (Access Roads): 50,756 yd^3 Cut
3. Wildacres Resort: NET 3,937 yd^3 Cut

Phase 1	173,069 yd^3 Cut
Phase 2	161,609 yd^3 Fill
Phase 3	66,153 yd^3 Fill (includes Highmount Estates home sites)

The quantities in the table above are raw earthwork values and do not incorporate the topsoil that will be imported when constructing the two golf courses and landscaped areas around the resorts. Approximately 108,000 cubic yards of topsoil will be brought in for each of the golf courses and approximately 11,000 yards of topsoil for landscaped areas will be required at each Big Indian Plateau and Wildacres Resort.

A possible source of topsoil for the project has been identified. Rainbow Mountain Construction Corp., in Grand Gorge (Greene County) has indicated that they have sufficient materials to meet the needs of the project. A letter from Rainbow Mountain Construction Corp. is included in Appendix 6, "Letters of Record." In this letter they state that they have sufficient quantities of materials to meet project needs, and that delivery to the project site would be via NY Routes 23 and 23A to NY Route 42 to NY Route 28.

Clearly, altering topography by grading has the potential of creating steep slopes that may be unstable. To the contrary, the grading proposed for this project generally creates less steep areas so as to increase the various areas' suitability for roads, buildings, and golf course holes.

The re-grading required is a short term, local impact and will cause no significant adverse impacts.

There will be no impacts to the ridgeline of Belleayre Mountain that is on the project site.

3.1.3 Mitigative Measures

No specific mitigative measures are proposed since no adverse impacts from blasting on groundwater resources are anticipated.

However, if accurate benchmark data for local residents could be established, identification of well problems would be facilitated, and should be more conclusive with regards to cause. This benchmark data, which will be collected by the Blasting Contractor as part of a pre-blast survey, will include the following: depth of well, depth of pump below surface, type of pump, casing length, date drilled, name of driller, static water level, maintenance history, number of people and/or households using supply, pump capacity in gallons per minute, etc.

Blasting has consistently been used over several decades at the Belleayre Mountain Ski Center without causing any significant adverse environmental impacts. It is doubtful that most residents are even aware of the blasting which periodically occurs at the Ski Center. Ski Center staff, including a licensed blaster, use blasting mats, and small amounts of charge are used in the blast design. No dust or sound impacts have been identified in connection with this work. The area near the Ski Center is sparsely populated, and no complaints have ever been received at the Ski Center in relation to blasting (Mr. Anthony Lanza, Belleayre Mountain Ski Center, personal communication to H. Elmer, The LA Group, March 1, 2001). Blasting at the Ski Center typically occurs about 8 to 10 times per construction season (which consists chiefly of the summer months).

According to local newspaper reports, serious blasting has been occurring sporadically over the last few years as part of the exploration of the meteor impact site on Panther Mountain immediately to the east of Belleayre Mountain. News of such blasting was apparently a revelation to homeowners around the base of Panther Mountain who were otherwise unaware that it had been occurring.

Potential impacts of blasting to the sound environment are discussed in Section 3.8.4, Visual Resources and Aesthetics, while potential wildlife and traffic impacts from blasting are discussed in Section 3.5.3, "Wildlife" and 3.7, "Traffic."

A. Geologic Resources

The soil to be removed in areas where blasting is necessary will be stockpiled and utilized when final site grades are created.

The use of hydraulically-operated rippers, pneumatic tools, or drilling and blasting will be required to remove bedrock or large boulders if encountered. Where blasting is required, the following mitigative measures are proposed:

1. Two to four feet of rippable material will be left over the solid material to be blasted. This will serve as a cover to prevent excessive fly rock and will allow the explosives to be loaded higher for more efficient blasting. Blasting mats may be used if overburden is not available.

2. The size of the shot will be limited by sound and vibration control levels and the amount of area that can be blasted with good results.

3. Small diameter drilling with high speed equipment provides relatively low unit costs and permits fairly close spacing of holes. This allows for better distribution of explosives throughout the mass of rock and the better distribution produces better breakage. Another advantage of small diameter drilling is the reduction in the amount of explosives used in each hole.

4. Explosions in boreholes which have nearby free faces produces less ground vibration. The use of delay blasting techniques establishes internal free faces from which blast vibrations can be reflected. This reduces vibration.

5. Material stockpiles will be placed where they will help block noise transmission off-site.

6. Residents within a one-half mile radius of the blasting site will be notified in advance of blasting events, if requested. The blasting contractor will formally contact nearby residents to ensure that all persons requesting notification are identified. For example, the nearest house to the Big Indian Country Club irrigation ponds to be blasted is 2,000± feet (or 0.38 miles) away. There are two other houses located approximately 2,600 feet (or 0.49 miles) away. Pine Hill is over 1 mile away (or 5,800 feet), and the closest residence on NY Route 28 is 3,400 feet (or 0.65 miles) away. At the Wildacres Resort there are three residences just slightly less than ½ mile from the proposed hotel, one is located on County Road 49A and there are two residences on Gunnison Road that are also just within ½ mile of where blasting is proposed.

7. **Blasting will occur between the hours of 9:00 a.m. to 5:00 p.m. on weekdays only. Explosives will not be detonated on weekends or holidays.**

8. All blasting will be conducted by a qualified licensed blaster pursuant to the applicable requirements of the State of New York and federal government.

9. Blasting will not occur during adverse weather conditions such as high winds unless a loaded charge must be detonated before the end of the day.

10. Shots will be designed to minimize ground vibration and air blast.

11. Blasting mats of suitable size and material will be employed to dampen noise and contain blasted materials.

12. Blasting will be in compliance with applicable NYS Codes under the Department of Labor. Prior to the issuance of a building permit, the selected contractor will submit a specific blasting plan to the Town Building Department for their review. This will include a pre-blast survey to identify pre-existing conditions at nearby properties.

B. Topographic Resources

The following measures will be taken to mitigate potential impacts to topography on the project site.

1. Grading, cutting and filling will be limited to only those areas specified for the development of the project. Approximately 74 % of the project site topography will remain undisturbed.

2. The proposed grading will not result in any drastic cuts and fills along any ridgelines that would alter the overall silhouette of the landform.

3. Even though some components of the project may require substantial fill materials, and even though the opportunity exists to obtain some of these materials on-site, the proposed project does not include any significant "borrow areas" or soils and gravel pits on the project site.

4. Topsoil and other materials necessary for the project will be obtained from permitted off-site sources with approved mining permits, including approved reclamation plans. Cut and fill volumes are balanced for the project, but it will be necessary to import 108,000 cubic yards of topsoil for each golf course and 11,000 cubic yards for landscaping at both the Big Indian Plateau and Wildacres Resort.

5. Side slopes for grading necessary to construct the proposed access road to Big Indian Plateau were increased to 1.5:1 to reduce the impacts to topography for construction of the access road.

6. Any fills that create potentially unstable slopes greater than 1.5:1 will be constructed of suitable material such as large rocks, gabions, etc., to insure the stability of such slopes.

3.2 Surface Water Resources

3.2.1 Existing Conditions

Surface waters in two different watersheds exist on the 1,960 acre assemblage. The Big Indian Plateau portion of the project is within the Catskill Watershed, eventually draining into Esopus Creek and the Ashokan Reservoir. There are approximately 1,242 acres of the assemblage in the 365,440± acre Catskill Watershed. The approximately 331 acres proposed to be developed in this area constitutes less than 0.1% of the Catskill Watershed. The project site is located approximately 20 miles upstream of the Ashokan Reservoir which itself has a watershed of approximately 164,000 acres (256.25 square miles). Thus the 331 acres of the project site to be developed in the Ashokan watershed represents approximately 0.2% of the Ashokan Reservoir's watershed, 96% of which is currently forest or water (NYCDEP, 1999). Figure 3-8, "Ashokan Watershed Land Use", illustrates the amount of various land uses in the watershed as of 1999.

The Wildacres Resort and Highmount Estates portion of the project is within the Delaware Watershed draining to the East Branch Delaware River and the Pepacton Reservoir. There are approximately 718 acres of the assemblage in the Delaware Watershed that consists of 648,320± acres. The approximately 242 acres to be developed in this area (project site) represents 0.03% of the Delaware Watershed. The project site is located approximately 14 miles upstream of the Pepacton Reservoir, which itself has a watershed of 231,777 acres. The approximately 242 acres to be developed in the Pepacton Watershed represents 0.09% of the watershed that is currently 80% forested or water (NYCDEP, 1999). Figure 3-9, "Pepacton Watershed Land Use", illustrates the amount of various land uses in the watershed as of 1999.

According to NYCDEP mapping of these watersheds, the project site is outside of what is known as the 60-day travel time. In other words, any runoff from the project site would take more than 60 days to reach the water supply intake. The 60-day threshold is important because pathogens within the watershed drainage are considered to be able to live up to 60 days. Thus, even if there were any pathogens associated with runoff from the project site, they would die before reaching the water supply intake.

The location of surface water resources on the site is illustrated in Figure 3-10, "Surface Water Resources." Surface water resources consist of intermittent and perennial streams that originate in the higher elevations of the site, or above the site, and flow in a generally northerly direction in well defined stream channels. None of the waters on the site are listed by the USEPA as "impaired" waters under Section 303(d) of the Clean Water Act.

A. Mapped Surface Waters

Table 3-2, "Surface Water Descriptions" lists the streams on and around the project site and gives the water quality standards assigned to these waters by New York State, their watersheds, flow regimes, and presence or absence of trout in Fall of 2000 sampling.

B. Catskill Watershed

On the Big Indian Plateau portion of the site, streams are present in Giggle Hollow and Woodchuck Hollow. Between the Big Indian Plateau and the Ski Center there is a stream in Cathedral Glen named Cathedral Glen Brook. Crystal Spring Brook originates on the Ski Center and passes south of the project site. Tributaries of Crystal Spring Brook are Cathedral Glen Brook and Woodchuck Hollow Brook (a.k.a. Bailey Brook). Crystal Spring Brook is tributary to Birch Creek, as is Giggle Hollow Brook. Birch Creek itself is a tributary of Esopus Creek. A portion of the easternmost portion of the project site drains to Lost Clove Brook that is also tributary to Esopus Creek.

Lost Clove Brook (Watershed Index Number [WIN] H-171-53) located in the very southeastern portion of the Big Indian Plateau portion of the project site, originates in the upper reaches of Lost Clove, and flows west to east for approximately 2.7 miles before feeding into Esopus Creek. This perennial stream has been assigned a classification of Class B(T) by New York State.

New York State classifies fresh surface waters based on their water quality, flow conditions, streambed characteristics and other factors. Classifications range from AA-Special to Class D fresh surface waters. The best usage of Class B waters, as defined by NYSDEC, is primary and secondary contact recreation and fishing, and Class B waters should be suitable for fish propagation and survival. The (T) in the B(T) classification assigned to Lost Clove Brook indicates that it is capable of supporting trout. A (TS) along with a classification indicates that a fresh surface water is capable of supporting trout spawning.

Lost Clove Brook has an overall watershed of 1,960 acres, 410 of which are within the Crossroads assemblage. Approximately 2% of the Lost Clove watershed, or 39 acres, is proposed to be developed. A typical headwater stream, Lost Clove Brook ranges from 3 to 12 feet wide, has water depths of generally 2 to 4 inches and up to 12 inches in small pools, and has a substrate comprised of a mix of boulder, rock and gravel. Both brook trout and rainbow trout, including trout fingerlings, were found in Lost Clove Brook when it was sampled in the Fall of 2000. No reclassification of this brook was proposed as part of the Lower Hudson River Stream Reclassification Program. However, NYSDEC fisheries personnel have recommended that the stream be considered for future upgrading the classification from B(T) to B(TS) based upon the Fall 2000 sampling.

Birch Creek (WIN H-171-52) originates in the Rose Mountain area, flows to the southeast, and then passes under NY Route 28 in Pine Hill. Birch Creek then runs east

along the base of the northern slopes of the Big Indian Plateau portion of the Crossroads assemblage and enters Esopus Creek in Big Indian. This perennial Class B(T) stream has an overall watershed of 8,114 acres, 832 of which are within the Crossroads assemblage. Approximately 3.6% of the Birch Creek watershed is proposed to be developed. Birch Creek is the largest stream near the Big Indian Plateau portion of the Crossroads assemblage. This stream ranges from 10 to 30 feet wide, has water depths of generally 0.5 to 1 foot and up to 3.5 feet deep. Substrate is comprised of a mix of boulder, rock, cobble and gravel. Birch Creek was not sampled in 2000, but sampling in 1996 found that brook trout, brown trout and rainbow trout, including trout fingerlings, occur in the creek. Reclassification of this brook from B to B(TS) occurred as part of the recent Lower Hudson River Stream Reclassification Program. Portions of Birch Creek are present near the Crossroads assemblage near Pine Hill Lake, at Winding Mountain Road, and near the Lasher Road bridge. Near Pine Hill Lake the stream is a complex of riffles and runs in a channel that is approximately 11 feet wide with water depths of 1 to 7 inches. At the Winding Mountain Road crossing the creek is approximately 15 feet wide and consists mainly of riffles and shallow runs with a pool approximately 3 feet deep located at the bridge. A long riffle is located at the Lasher Road bridge where Birch Creek widens to approximately 24 feet wide with depths of 2 to 6 inches.

Giggle Hollow Brook (WIN H-171-52-3) is a north flowing brook and originates on the slopes just above the Big Indian Plateau portion of the Crossroads assemblage. It flows through the site before emptying into Birch Creek near the Belleayre Beach at Pine Hill Lake. With the exception of the proposed bridge crossing of this brook, the nearest proposed development in the Big Indian Resort is at least 900 feet from this stream. This intermittent Class B(T) stream has an overall watershed of 360 acres, 230 of which are within the Crossroads assemblage. In the Summer of 1999 there were locations in Giggle Hollow Creek near the existing railroad trestle where there were no surface flows. In other areas there were locations where subsurface flow would reoccur on the surface. Another typical headwater stream, Giggle Hollow Brook ranges from 3 to 12 feet wide, has water depths of generally 2 to 4 inches and up to 12 inches in small pools, and has a substrate comprised of a mix of boulder, rock, cobble and gravel. Brook trout, including fingerlings, were found in the very lower reaches of Giggle Hollow Brook when it was sampled in the Fall of 2000. No reclassification of this brook was proposed as part of the Lower Hudson River Stream Reclassification Program. However, NYSDEC fisheries personnel have recommended that the stream be considered for future upgrading of the classification from B(T) to B(TS) based on the results of the Fall of 2000 fish sampling.

Crystal Spring Brook (WIN H-171-52-4) originates on the slopes of the Belleayre Mountain Ski Center and flows north before turning to the east, eventually flowing through the Hamlet of Pine Hill and into Birch Creek about one half mile upstream of Pine Hill Lake. This perennial Class B(T) stream is approximately 2.2 miles long, has an overall watershed of 1,627 acres, 12 acres of which are within the Crossroads assemblage (not including lands in the watersheds of its tributaries). The perennial nature of this stream was evidenced by flows late in the summer of 2001, which was a relatively dry summer. Crystal Spring Brook ranges from 3 to 12 feet wide, has water depths of generally 2 to 6 inches and up to 16 inches, and has a substrate comprised of a mix of

rock, cobble, boulder and gravel. Brook trout, including fingerlings, were found in a section of Crystal Spring Brook just upstream of where it passes under the old railroad bed when it was sampled in the Fall of 2000. No reclassification of this brook was proposed as part of the Lower Hudson River Stream Reclassification Program. However, NYSDEC fisheries personnel have recommended that the stream be considered for future upgrading of the classification from B(T) to B(TS) based on the results of the Fall of 2000 fish sampling.

Cathedral Glen Brook (WIN H-171-52-4-1A), a tributary of Crystal Spring Brook, originates on State land east of the Ski Center and passes through a 2 million gallon snowmaking impoundment before emptying into Crystal Spring Brook near the western end of Bonnieview Avenue. This perennial Class D stream has an overall watershed of 650 acres, none of which is within the Crossroads assemblage. The perennial nature of this stream was evidenced by the presence of flows late in the Summer of 1999, which was a relatively dry summer. Cathedral Glen Brook ranges from 2 to 10 feet wide, has water depths of generally 2 to 4 inches and up to 12 inches in pools, and has a substrate comprised of a mix of rock, cobble, boulder and gravel. Brook trout and rainbow trout, including fingerlings, were found in a section of Cathedral Glen Brook just downstream of the snowmaking impoundment when it was sampled in the Fall of 2000. Reclassification of this brook to Class C occurred as part of the recent Lower Hudson River Stream Reclassification Program.

Woodchuck Hollow Brook, also known as Bailey Brook (WIN H-171-52-4-1), another tributary of Crystal Spring Brook, originates on State land south of the easternmost Big Indian Plateau portion of the Crossroads assemblage. It flows south through a portion of the site, then down to Crystal Spring Brook in the Hamlet of Pine Hill. This intermittent Class D stream has an overall watershed of 360 acres, approximately 104 acres of which are within the Crossroads assemblage. Woodchuck Hollow Brook ranges from 1 to 10 feet wide, has water depths of generally 2 to 4 inches and up to 12 inches in pools, and has a substrate comprised of a mix of rock, boulder, cobble and gravel. Brook trout, brown trout and rainbow trout, including trout fingerlings, were found in a section of Woodchuck Hollow Brook just upstream of Pine Hill when it was sampled in the Fall of 2000. Reclassification of this brook to Class C occurred as part of the recent Lower Hudson River Stream Reclassification Program.

C. Delaware Watershed

There are three mapped streams on the Crossroads assemblage that are part of the Delaware Watershed. Two of the streams are tributaries of Emory Brook, which itself is tributary to the Bush Kill. The third stream on the Crossroads assemblage is directly tributary to the Bush Kill. The Bush Kill is tributary to the East Branch of the Delaware River that eventually empties into the Pepacton Reservoir.

Todd Mountain Brook (WIN D-70-80-10) originates on the Crossroads assemblage and flows north, parallel to Todd Mountain Road, before entering the Bush Kill south of NY Route 28 in the Village of Fleischmanns. This intermittent Class B(T) stream has an

overall watershed of 880 acres, approximately 290 acres of which are within the Crossroads assemblage. Todd Mountain Brook ranges from 1 to 8 feet wide, has water depths of generally 2 to 4 inches and up to 10 inches in pools, and has a substrate comprised of a mix of rock, boulder, cobble and gravel. No trout were found in this brook when the on-site portion of the brook was sampled in the Fall of 2000, however NYSDEC believes that trout may exist further downstream in this drainage.

An unnamed tributary to Emory Brook (WIN D-70-80-12-2) originates on State lands east of the former Highmount Ski Area, flows north through the Wildacres Resort and eventually enters Emory Brook in Thompson Hollow, north of NY Route 28. This intermittent Class B stream has a total watershed of 181 acres, 80 acres of which are on the Crossroads assemblage. This stream did not contain trout when sampled in the Fall of 2000, however NYSDEC believes that trout may exist further downstream in this drainage. Approximately 1 to 8 feet wide with a depth of 1 to 8 inches, this stream has substrate consisting of rock, boulder and gravel.

The last mapped stream on the Crossroads assemblage is another intermittent tributary of Emory Brook (WIN D-70-80-12-3) that originates south of Gunnison Road, flows north onto and through the Crossroads assemblage and then under NY Route 28 and into Emory Brook. This intermittent Class B stream has a watershed of 140 acres, 15 of which are located on the Crossroads assemblage. The width of the stream ranges between 1 and 4 feet with depth ranging from 2 to 4 inches and some deeper areas of 8 to 10 inches. The substrate is a mix of boulder, rock, and gravel.

D. Unmapped Drainages

Wetlands and Waters of the United States were delineated on the project site (See DEIS Section 3.5.2, "Wetlands") including the streams described in the previous section. In addition to the mapped streams on the project site, some areas that convey water from storms or during periods of high groundwater were also delineated. These are generally rock channels that do not contain water for most of the year. Some of these channels end somewhat abruptly where seasonal overland flow turns into subsurface flow. In walking the length of these drainages it is not unusual to find that a drainage which has a flow of good volume dries up completely in its lower reaches. Such an occurrence appears to be due to the stream flowing into an area with a soil marked by a high percentage of boulders, cobble and channers. Usually the drainage will reappear at the surface downhill, within a few dozen yards of where it had disappeared. In some cases there is a visible dry channel between the place where the drainage disappears into the ground and the place where it re-emerges, suggesting that some surficial flow occurs there during part of the year. Some never re-emerge, however, and these are simply discharging to the groundwater.

To the east of the existing Wildacres Hotel (Marlowe Mansion) there is a drainage that originates in a seepy area to the north. In the vicinity of the existing Hotel driveway seasonal or storm flow becomes channelized, then passes under the driveway and continues north and down the slope. The location of this unmapped drainage is shown on

the wetland delineation survey maps contained in Appendix 17, "Wetland Delineation Report," as bounded by Lines "Y" and "Z" above the Hotel driveway and lines "K" and "L" below the driveway. NYCDEP considers this to be a watercourse.

Between Galli Curci Road and Todd Mountain Road there are two seasonal/storm drainages, which, when they convey water, flow in an east to west direction and contribute water to Todd Mountain Brook. These drainages are shown on the wetland delineation maps as bounded by lines "AD" and "AF/AG."

The other unmapped drainage on the property is on the eastern portion of the Crossroads assemblage near the existing hunting camps off of the extension of Winding Mountain Road. This drainage conveys seasonal/storm flows in a southwest to northeast direction and terminates in a very channery (gravelly) area where water then goes underground. This area is shown on the wetland delineation map within lines "BJ" and "BL." **This surface conveyance is not contiguous with any watercourse that may exist down hill.** At the downhill end of this surface conveyance, surface flow ceases to exist when water encounters an area of coarse rock and channery and water enters the ground.

NYCDEP water quality monitoring station known as BELLE2 on an unmapped drainage that originates downslope of the project site. Portions of the Big Indian Plateau drain to this off-site intermittent stream.

Stormwater analysis performed for the project provides a detailed analysis of all subcatchments on the project site including the lands draining to the watercourses described above.

Some of the areas identified during the wetland delineation as having wetland characteristics, but isolated from any surface water, are not wetlands under the jurisdiction of the US Army Corps of Engineers. In January 2001 the Supreme Court handed down a decision on Solid Waste Agency of Northern Cook County v. US Army Corps of Engineers. The Supreme Court ruled in that decision that areas of isolated waters are not regulated under Section 404 of the Clean Water Act. Section 3.5.2(B), "Wetlands" describes the areas of wetland on the project site that are under the jurisdiction of the US Army Corps of Engineers (ACOE) as determined by the ACOE.

There are no State-jurisdictional wetlands on the Crossroads assemblage.

E. Water Quality – Outside Sources

A request was made under the Freedom of Information Law (FOIL) for historical and recent water quality data for the streams on and around the Crossroads assemblage in NYSDEC Regions 3 and 4.

Region 3 responded that no water quality data could be located in their files for the streams of interest. However, historical fisheries data provided by Region 3 did contain some limited water quality data for surface waters on and around the Crossroads

assemblage. These data are summarized in Table 3-3, "NYSDEC Region 3 Water Quality Data. Data was provided for Birch Creek, Giggle Hollow Brook, Crystal Spring Brook, Lost Clove Brook, and Cathedral Glen Brook. Data was collected between 1936 and 2000. The limited data confirm the general characteristics of the streams described previously. The streams in the area have cold water regimes, with high dissolved oxygen, and approximately neutral pH.

NYSDEC Region 4 responded to the FOIL request with water quality data for streams close to the site, but did not have data for any of the on-site streams. Region 4 provided data collected as part of the 1999 NYC Watershed Random Sampling Project. Data was provided for Emory Brook that was collected just east of Tributary 2 of Emory Brook (Site 3SE), the unnamed mapped brook that passes through the Wildacres Resort portion of the project site. The second site (Site 1PE) where data was collected from was located downstream on the Bush Kill. Data from the first site were collected in August, September, October, and November 1999, while the second site was sampled in June, September, October and November of 1999. Data from sampling points on the East Branch River just upstream from Margaretville (Site 2PE) and just downstream of Margaretville (Site 1TE) were also provided. These four locations are illustrated on Figure 3-11, "Local Sampling Locations 1999 NYC Watershed Random Sampling Program."

Analyses of water quality consisted of field parameters, nutrients and solids parameters, minerals and hardness parameters, metals parameters, and phenols and organic parameters. Raw data from the sampling of these two sites are included in Appendix 18, "Water Quality Data." Table 3-4, "Selected 1999 Region 4 Water Quality Data" presents data from the four sites described above for the September and October 1999 samplings.

Table 3-4 does not contain any data for phenols and volatile organic parameters because none were present in any of the samples from any of the four sites.

Field parameters data for these streams, including temperature, conductivity, dissolved oxygen, and alkalinity, are similar to those data from Region 3 as previously described. Field parameters are also within the range of values reported in NYSDEC's 1996 Rotating Intensive Basin Studies (RIBS) Water Quality Assessment Program report that summarized data collected in 1993 and 1994. RIBS data included data from the East Branch Delaware River in Arkville at the County Road 38 bridge. Based on the RIBS sampling results at this location, water quality was rated as "good." Field parameters from the 1999 data set were within the range of quality standards for pH and dissolved oxygen established in 6NYCRR Part 703.

Nutrients and solids parameters collected in 1999 are in the range to be expected of streams in the area, although TKN levels seem low given the higher levels of nitrate present. Also somewhat unusual are the higher nutrient levels at the most upstream sampling location in some instances. Nutrients and solids levels at the four 1999 sampling levels were generally comparable, and in some instances lower than the levels

in the 1996 RIBS report for the Arkville site with "good" water quality. Dissolved solids and turbidity levels in the 1999 samples met standards established in 6NYCRR Part 703.

For the minerals and hardness parameters, levels are in the range to be expected based upon the area's geology and previously reported levels of chloride, sulfate and total hardness in local groundwater (Soren, 1963). Chloride levels at the upper monitoring station on Emory Brook were generally higher than at the other three monitoring locations. Chloride and fluoride levels in the 1999 data are similar to the RIBS data collected in 1993 and 1994, while 1999 sulfate, total alkalinity, and total hardness levels were slightly lower than the recent RIBS data.

Trace metals were at typical levels in the 1999 sampling with the exception of a few samples that showed some elevated levels of certain metals. Aluminum and iron levels were somewhat elevated in the September samples from the site on the Bush Kill downstream from Fleischmanns and the East Branch Delaware River site upstream of Margaretville. Iron levels at the site just upstream from Margaretville were also higher in the October 1999 sampling. Otherwise many of the metals were consistently below detection limits, and overall metal levels were within limits set within 6NYCRR Part 703.

F. Water Quality – Project Related Data

To supplement data provided by NYSDEC, additional measurements and samples were taken from around the Crossroads assemblage by Alpha Geoscience between October 2000 and March 2001. Results of field measurements and laboratory analyses are included in Appendix 18, "Water Quality Data." Table 3-5, "Alpha Geoscience Field Water Quality Data", and Table 3-6, "Alpha Geoscience Analytical Water Quality Data", provide summaries of the results of field parameter testing and laboratory analyses from waters on and around the Crossroads assemblage. While field measurements were taken in both the eastern portion and western portion of the Crossroads assemblage, sampling and laboratory analyses focused on the eastern portion of the Crossroads assemblage since there was much less existing data recently collected from this area.

Data was collected at a number of locations within streams and at springs in the area. Field parameters tested included temperature, dissolved oxygen, conductivity, pH, redox potential, and turbidity. Water samples were analyzed by a certified laboratory for bacteria, biological oxygen demand (BOD), chloride, iron, sodium, nitrogen, phosphorus, solids, and pesticides.

Generally speaking, the field parameter and analytical results showed water quality to be very similar to that collected by DEC Region 4 in 1999. But, by comparison, nitrite, nitrate and chloride levels were higher in the samples taken by Alpha Geoscience in 2000 and 2001 from the surface waters around the eastern portion of the Crossroads assemblage while iron levels were generally lower in these samples. The nitrite levels in the 1999 NYSDEC samples were all below the 0.01 mg/l detection limits while nitrite levels up to 0.12 mg/l nitrite were found in Crystal Spring Brook. The nitrite levels and the nitrate levels in the 2000 and 2001 samples, while somewhat higher than levels in

some of the samples taken in the Delaware watershed by DEC in 1999, are within the range to be expected for streams in the area. The elevated chloride levels in some of the 2000-2001 samples are likely attributable to road salts. The 1999 data presented in Table 3-6 are from samples taken in September and October while the 2001 data were collected in October, November and January.

Additional water quality data was collected by NYCDEP in accordance with their "Phase I Exploratory Monitoring of Tributaries Draining Properties of the Proposed Crossroads Ventures Development on Belleayre Mountain." This is a 10-year water quality monitoring program of surface waters on and around the Crossroads assemblage instituted in response to the proposed project. Data collection includes collection of baseline data prior to construction, and data collected during and after construction of the project. Sampling locations were established cooperatively between NYCDEP and Crossroads Ventures. Crossroads Ventures was also agreeable to the full ten year water quality monitoring program.

NYCDEP baseline data collected to date as part of the 10-year monitoring program are also included in Appendix 18. Table 3-7, "Summary of NYCDEP Water Quality Data", provides the ranges of values found for the various field parameters and laboratory parameters tested between August 2000 and March 2003. The range of values for the parameters tested for in the field and in samples taken by NYCDEP were similar to the range of values in the field and analytical data from Alpha Geoscience, with the exception of coliform levels. For all of the NYCDEP sampling locations there was at least one sample from each where fecal coliforms exceeded 100 CFU/ml, while E. coli levels in the Alpha Geoscience samples never exceeded 10 per 100 ml. The ranges in coliform levels in the NYCDEP samples listed in Table 3-7 may be misleading because some of the streams coliform levels were typically less than 5 or 10 per 100 ml and only on one sampling day did coliform levels exceed 100 per 100 ml. For example, samples from Giggle Hollow and Lost Clove Brook all tested at less than 5 per 100 ml with the exception of the samples taken on September 12 where coliform levels were 360 and 120 per 100 ml respectively.

NYCDEP also provided the results of some macroinvertebrate sampling from Birch Creek, Tributary 2 of Emory Brook (DEP sampling site Belle15), and a drainage near the Jake Moon Restaurant. Macroinvertabrate populations are good indicators of the water quality in which they are found. All sampling locations had macroinvertabrate populations typical of healthy cold water streams with midges, mayflies, stoneflies and caddisflies well represented in the samples. Section 3.5.3 provides a discussion and list of invertebrates found during the sampling.

G. Water Budget

Water budget analyses were completed for the Big Indian Plateau and Wildacres Resort portions of the proposed Belleayre Resort at Catskill Park. The complete studies are located in Appendix 19 and 19A, respectively.

1. Big Indian Plateau

The purpose of the water budget analysis was to estimate the amount of infiltration to the ground water system under existing conditions and under post-development conditions at Big Indian Plateau. The results indicate that infiltration to the ground water system for the project area under existing conditions is approximately 0.94 gpm per acre. The results of the water budget completed under future, post-development conditions, indicate that infiltration to the ground water system in the project area will be approximately 1.03 gpm per acre. This change indicates that there is a small increase in infiltration to the ground water system. This equates to a gain of 110 gpm recharge to the ground water system from the entire 1,242-acre site. This increase (0.09 gpm per acre) with respect to existing conditions, is relatively small when compared to the normal season and yearly climactic fluctuations. Golf course irrigation, considered but not incorporated into the water budget calculations, will have a net effect of an increase in infiltration 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 operation. This will result in more groundwater resources for the study area, however, the magnitude of this increase is not expected to be significant since the amount of irrigation to be supplied will be carefully controlled to maximize plant uptake and minimize losses in either percolation or runoff.

2. Wildacres Resort

The purpose of the water budget analysis (see Appendices 7 and 19A) was to estimate the total quantitative change in the ground water resources affected by the proposed Wildacres project development. The estimated change in infiltration rates for the future conditions was used to assess the potential impacts to the Village of Fleischmanns water supplies, which consist of wells and springs downgradient of the project area. The results indicate that the current infiltration rate for the study area under existing conditions is approximately 0.96 gpm per acre. The results of the water budget analysis for the future, post-development conditions indicate that infiltration to the ground water system in the study area will be approximately 0.98 gpm per acre. This slight increase (0.02 gpm per acre), which is negligible when compared to the normal, seasonal and yearly climate fluctuations, is in part due to the beneficial infiltration characteristics of the golf course outweighing the negative infiltration characteristics of buildings and paved areas. Incorporation of additional percolation resulting from golf course irrigation and stormwater management basins' infiltration would further increase ground water recharge in the study area. The results indicate that the development of Wildacres Resort will not negatively impact the quantity of available ground water resources in the study area. Since the study area is upgradient of the Fleischmanns water supplies, the water resources available to Fleischmanns will not be impacted by the development of the Resort.

H. Existing Water Withdrawals and Discharges

Water for snowmaking at Belleayre Mountain Ski Center is taken from Pine Hill Lake. Pine Hill Lake is supplied, in part, by water from Birch Creek. Downstream of Pine Hill Lake, treated wastewater is discharged to Birch Creek from the Pine Hill Wastewater

Treatment Plant. The Pine Hill Water Company uses springs located at the end of Bonnieview Road as their primary source of water. Water from these springs also flows into Crystal Spring Brook.

I. Snowmaking Withdrawals

Snowmaking at Belleayre Mountain Ski Center is a seasonally significant use of water in the project area. According to the Ski Center, snowmaking generally occurs between November 15th and March 15th. Snowmaking uses 100,000,000 to 120,000,000 gallons of water in total each five-month season. The snowmaking system employed by Belleayre has a maximum capacity of 4,000 gpm with a pumping capacity of 2,000 gpm at the reservoir. Typical snowmaking practices involve periods of continuous snowmaking for up to two weeks, pumping the maximum 4,000 gpm, with additional snowmaking occurring intermittently between continuous snowmaking operations. With the facility functioning at capacity (4,000 gpm) for up to two weeks it has been reported that the reservoir water level has not dropped further than 2 feet (Richard Clark, then Superintendent, Belleayre Mountain Ski Center, personal communication). This clearly suggests that the recharge rate for the reservoir from combined springs and creek sources is adequate to accommodate the Ski Center's water draw.

Water from Birch Creek enters Pine Hill Lake via a constructed stream diversion. The diversion was constructed so that no water can enter Pine Hill Lake when discharge (streamflow) in Birch Creek is less than 5 cfs. The 5-cfs limitation on water withdrawal was established by NYSDEC after an analysis of local stream flow data. The 1985 Unit Management Plan (UMP)/Environmental Impact Statement (EIS) prepared for Belleayre Mountain Ski Center includes an analysis of stream gauging data and application of the Tennant Method to set the 5 cfs limit. The Tennant Method involves determining 30% of the average annual stream discharge and using this value as the minimum flow that must be maintained to preserve aquatic life. The stream gauge data that were used in the 1985 Belleayre UMP/EIS analysis was from a gauging station on Esopus Creek in Shandaken. The Esopus Creek data was then converted to account for the smaller overall watershed for Birch Creek at Pine Hill Lake.

J. Wastewater Discharges

The Pine Hill Wastewater Treatment Plant discharges highly treated wastewater to Birch Creek. Under a SPDES permit issued by NYSDEC, the plant is permitted to discharge up to 500,000 gallons per day. Due to the extraordinary historical annual influx of summer visitors to that Village, the capacity of the original treatment plant was set at 500,000 gallons per day. New York City committed itself to that gallonage in its new plant despite the dramatic reduction in Pine Hill tourism that has occurred over the years. Hence, there is significant existing and unused capacity at the existing Pine Hill facility. Currently the plant is discharging approximately 85,000 gallons per day that includes the seasonal peak from the Ski Center.

Wastewater in the Village of Pine Hill has been treated in a centralized facility since 1925 under an agreement with the City of New York. The original treatment works consisted of primary and secondary treatment of sewage. A new Pine Hill Wastewater Treatment Plant was constructed in 1997 to include conventional primary and secondary wastewater treatment as well as tertiary membrane filtration. The current facility discharges into Birch Creek effluent that meets and exceeds New York State Department of Environmental Conservation Intermittent Stream Standards. The tertiary treatment is designed to ensure removal or inactivation of 99.9% of enteric viruses, while other systems are used to remove significant phosphorus from the effluent.

K. Historic Flows

Historical discharge data has been collected in Esopus Creek at USGS gauging stations since 1963. Table 3-8, "Monthly and Annual Average Discharges on Esopus Creek", provides a summary of this data. The historical monthly average discharges are also illustrated in Figure 3-12, "Esopus Creek Average Monthly Discharge 1963-1998." The annual discharge patterns are typical for streams in the region with high spring flows in March and April then declining to a low in August. As discussed above, this data was used when determining limits of water withdrawal from Birch Creek for Belleayre Mountain Ski Center snowmaking. The data collected at the gauging station was used for Birch Creek by incorporating the relative sizes of their respective watersheds.

Because of the mountainous nature of its watershed, the upper Esopus Creek is a very "flashy" stream that experiences rapid increases and decreases in discharge in response to precipitation. In the period of record there was an incidence of an increase in daily discharge from 10 cfs to 1,310 cfs in one day, then a decrease to less than 100 cfs within 10 days. Discharges of less than 5 cfs and up to almost 3,000 cfs have been measured at the Esopus Creek gauging station.

There is also a USGS gauging station located on Birch Creek. However, currently available data exist only for the period of October 1998 to September 1999. During this one year period Birch Creek exhibited the same patterns in annual discharge and also for rapid increases and decreases in discharges.

L. Floodplains

There are federally mapped floodplains associated with Birch Creek, Giggle Hollow Creek, Crystal Spring Brook, Lost Clove Brook and Emory Brook. Figures 3-13 "FEMA Floodplains Eastern Portion", and Figure 3-14, "Emory Brook Floodplain", illustrates the floodplains that are mapped by FEMA on and around the Crossroads assemblage.

Birch Creek has a mapped floodplain that extends from the downstream end where it empties into Esopus Creek upstream to a point a little over half a mile upstream of NY Route 28.

The 100 year floodplain of Giggle Hollow Brook extends upstream from Birch Creek approximately 1,000 feet and just south of the old railroad.

Crystal Spring Brook's (labeled Alton Creek on the FEMA map) floodplain similarly extends to just above the railroad bed and down to its confluence with Birch Creek. A tributary to Crystal Spring Brook, Cathedral Glen Brook, has a mapped floodplain that extends about 2/3 mile up from its confluence with Crystal Spring Brook.

The floodplain for Lost Clove Brook is only for the lower reaches, approximately the 750 feet above Esopus Creek, including approximately 250 feet west of Lasher Road.

Emory Brook has an area of floodplain mapped to the east of the Village of Fleischmanns between NY Route 28 and Brush Ridge Road.

3.2.2 Potential Impacts

A. Physical Disturbance

Very little physical disturbance is proposed for the surface waters on the project site. All road crossings of streams will be bridges. Similarly, where golf cart and pedestrian paths cross intermittent streams, elevated boardwalk crossings will be constructed.

The six figures, Figures 3-15 through 3-15E, illustrate the locations of the four proposed bridges and details for each of the bridge crossings is provided. Figure 3-15, "Big Indian Plateau Bridges", shows the location of three proposed bridges, while Figure 3-15A, "Wildacres Resort Bridge", shows the location of the fourth proposed bridge.

The new bridge at Friendship Road (Figure 3-15B, "Stream Crossing Details Friendship Road Bridge") and the bridge replacement at Winding Mountain Road (Figure 3-15C, "Stream Crossing Details Winding Mountain Road Bridge") will not involve any structural supports within Birch Creek nor will any structural support be constructed within the immediate banks of the creek. Support structures for the bridges will be installed outside of the defined stream channels (See Appendix 24, "Bridge Hydraulics").

Both the Friendship Road and Winding Mountain Road bridge structures were sized to pass the anticipated stream runoff for Birch Creek which both bridges cross at the base of the mountain. The accepted criteria is to design the waterway opening below the main bridge supporting members to pass the fifty year storm (Q_{50}) with a minimum of two (2) feet of freeboard, and the one hundred year storm (Q_{100}) with reduced freeboard. The estimated peak discharges were calculated from the formulas found in the USGS Water Resources Investigations Report 90-4197 entitled "Regionalization of Flood Discharges for Rural Unregulated Streams In New York, Excluding Long Island." Specifics regarding bridge designs are included in Appendix 24, "Bridge Hydraulics."

The access road crossing at Giggle Hollow (Figure 3-15D, "Stream Crossing Details Giggle Hollow Road Bridge") will also involve a bridge crossing. Originally, the

crossing was designed so that it required the installation of a culvert within the stream. This culverted crossing would have involved the placement of over 100 feet of 10 feet by 10 feet box culvert. On top of the culvert up to 18 feet of clean fill consisting of rock, sand and gravel would have been required. This alternative means of crossing Giggle Hollow would have resulted in extensive disturbance of the bed and banks of this brook. Instead, the proposed bridge crossing requires no material within the beds and banks of Giggle Hollow Brook.

Hydraulic calculations were not performed for the existing channel of Giggle Hollow as it is well defined within its banks and the profile places the roadway well above the stream channel. Abutment locations were field chosen on the banks away from the channel and heavy stone fill will be placed outside the stream banks to prevent erosion of the banks.

The fourth proposed bridge is located at the internal entrance road for the Wildacres Resort that provides access to the detached lodging units north of Gunnison Road (Figure 3-15E, "Stream Crossing Details Wildacres Bridge"). Originally this was also designed to be a culverted stream crossing. The currently proposed bridge does not require the placement of any structural supports or fill material in the intermittent Class B tributary to Emory Brook (D-70-80-12-3).

Each of the four figures showing the details of the four bridges illustrate erosion control measures to be implemented during construction of the four bridges. Additional details on the proposed erosion control measures are illustrated in Figure 3-15E1, "Stream Crossing Details- Erosion Control Details", and described in more detail in Section 3.2.3.

In addition to these four bridge crossings of streams on the project site, outfall structures for each of the two proposed wastewater treatment plants will be constructed on the banks of two separate streams. Each outfall will consist of a six-inch effluent line with a flared end section which will discharge to a trapezoidal area of 18 inch rip rap. The discharge point in both cases will be just above the ordinary high water elevation of each respective water body.

For the wastewater treatment plant on the Big Indian Plateau, the outfall is proposed to be located on Birch Creek, just downstream of the proposed bridge crossing over the creek off Friendship Road. The outfall would be constructed on the south side of the creek, which is depicted on Figure 3-15E2, "Big Indian Plateau Effluent Outfall Location." This figure shows the location of the outfall in relation to Birch Creek, Friendship Road, and the proposed new bridge over Birch Creek, as well as NY Route 28. Figure 3-15E3, "Big Indian Plateau Effluent Outfall Plan," provides more detail of the configuration of the outfall, rip rap, and the ordinary high water elevation of Birch Creek. Some rip-rap will be placed on the bank of Birch Creek in the immediate area of the outfall, but the streambed substrate will not be affected.

At the Wildacres Resort, the outfall is proposed to be located on an unnamed tributary to Emory Brook, in close proximity to the green for golf hole number 3 and just northwest

of the cart path. The outfall would be constructed on the east side of the stream, which is depicted on Figure 3-15E4, "Wildacres Effluent Outfall Location and Detail." This figure shows the location of the outfall in relation to the unnamed stream, wetland, and the cart path, as well as the wastewater treatment plant and nearest housing units. A detail of the configuration of the outfall and rip rap is also provided on the figure. Rip-rap will be placed on the bank of the unnamed stream in the immediate area of the outfall, but the streambed substrate will not be affected.

B. Diversion and Impoundment

No existing surface waterbodies will be impounded as part of this project. The ponds used to store irrigation water will be isolated dug ponds and not associated with any of the streams, brooks, watercourses or isolated wetlands on the project site. Water levels in the ponds can be controlled by irrigation withdrawals and the amount of replenishment provided so that there is always reserve capacity in the ponds to accept runoff from storm events without the ponds discharging potentially warmed water to surface water resources. Sufficient freeboard will be maintained in the irrigation ponds so that they can contain the runoff from a 25-year storm from the areas that drain to them. For the Big Indian Country Club site the irrigation ponds will capture and hold runoff from the Big Indian Resort and Spa and associated parking while the irrigation pond at the Highmount Golf Club will capture stormwater from a portion of the detached lodging units south of Gunnison Road. (See Appendix 9A, "Operational Phase Stormwater Quantity Management").

C. Erosion and Sedimentation

During construction there will be disturbed areas with bare soil that will be susceptible to erosion. Soil transported by surface water runoff can potentially find its way into nearby surface waters where it may settle out as sediment. Sedimentation of nearby surface water could negatively affect aquatic habitat quality, water quality, and the suitability of surface waters as a potable water source. An effective sediment and erosion control plan has been developed, and will be implemented and maintained in order to mitigate any potential negative impacts associated with erosion and sedimentation. A key element of the erosion and sediment control plan is a detailed construction phasing plan. LA Group Plan Sheets PH-1 through PH-3 illustrate a phasing plan for the entire project, while Plan Sheets CP-1 through CP-18 provide highly detailed phasing plans using Phase 2 of the Big Indian Country Club as an example of the level of plan detail that will be developed for the entire project. These same measures are described in detail in Appendix 11, "Draft Construction Stormwater Pollution Prevention Plan."

1. Introduction

During the completeness review of the DEIS filed in January 2002, questions were raised as to how construction phase erosion and sediment control might be better understood and implemented. In response to these questions, **this section of the DEIS describes in much greater detail how these questions have been addressed by a complete reevaluation and redesign of construction phase erosion and sediment control.**

The entire project will involve the conversion of ±519 acres of mostly wooded area into a mix of landscaped areas, golf course turf, and limited amounts of impervious surfaces. The project is located in the watersheds of two reservoirs that are part of the City of New York's drinking water supply. The eastern portion of the project is in the Ashokan Reservoir Watershed 20 miles upstream from the Reservoir, and the western portion of the project is in the Pepacton Reservoir Watershed 14 miles upstream from the Reservoir.

As the watershed divide between the Hudson River and the East Branch of the Delaware River is at Highmount, NY, precisely between the eastern and western portions of the proposed Resort, each portion is, by definition, at the farthest distance from the nearest reservoir.

At the Big Indian Plateau, construction areas are distant from watercourses. With the exception of the proposed access road bridge crossings of Birch Creek and Giggle Hollow, major soil disturbing activities, primarily golf course construction, are separated from watercourses by significant forested buffers. The closest proposed golf course construction to Birch Creek, is 2,000 feet away and separated by wooded lands. Similarly, the closest golf course construction to Lost Clove Brook and the brook in Giggle Hollow are 1,500 feet and 800 feet away respectively, also separated from proposed areas of construction by existing wooded lands which will remain undisturbed. At Belleayre Highlands the area of proposed construction closest to the creek in Woodchuck Hollow is 1,000 feet away. Birch Creek, Lost Clove Brook, and the brooks in Giggle Hollow and Woodchuck Hollow all support trout populations (see Section 3.2.1, "Surface Water Resources"). **These forested buffers, ranging from 800 feet to 2,000 feet offer important and tangible stream protection** as well as the other erosion and sediment control measures.

At Wildacres Resort, which includes the Highmount Golf Club, there are two intermittent and unnamed tributaries to Emory Brook that pass through the project site. The intermittent tributary in the western portion of the site is crossed by three golf holes, 11, 13 and 16, while holes 2 and 8 cross the intermittent tributary in the eastern portion of the Wildacres Resort. Enhanced erosion and sediment controls are planned throughout the proposed development and are intensified, as will be inspection and monitoring, near these intermittent tributaries. Stormwater will not be discharged directly to these tributaries. Neither of these Emory Brook tributaries were found to support trout during recent investigations (see Section 3.2.1, "Surface Water Resources"). Emory Brook itself does support trout, but is located approximately 1,500 feet from the closest proposed golf hole.

To minimize the areas under construction and the amount of unstabilized soils at any given time and work within the available construction season, it is necessary to divide the construction areas into segments that can be properly managed. **Minimizing the amount of unstabilized soil at any given time during the construction process and providing proven, effective and enhanced erosion and sediment controls were the driving factors in developing the measures described in the following sections.**

Sheets PH-1 through PH-3 should be consulted for complete details of the construction phasing for the project as a whole, and Sheets CP-1 through CP-18 provide detailed information for Phase 2 of Big Indian Plateau.

The following goals will be met by the construction phasing and erosion control/sediment control program described in the sections that follow:

- Land disturbance is divided into small compartments that can be rapidly constructed and stabilized.

- Construction is sequenced to maximize immediate permanent stabilization and utilize effective temporary stabilization where and when necessary.

- No more than 25 acres of soil are proposed to be unstabilized at any given time within either reservoir watershed, but always with enhanced erosion control measures in place.

- The erosion control program dictates the construction sequencing.

- Water quality of the regional water resources will be protected.

- An operable nine-hole golf course must be available in the third year at Big Indian Plateau. This will enable Resort and Spa operations to begin generating revenue and allow for nine holes of golf to be available to Resort guests and the public for play in the latter part of the third year. Nine holes is the minimum number of holes needed to begin play on any golf course. If a golfer wishes to play the standard 18-hole golf round, the available nine holes will be played twice.

- A complete golf course at Wildacres will be available in the third year. In the western portion of the project site, the Highmount Golf Club will be constructed over the first two phases (years) and the full 18 holes will be open for play in the latter portion of the third year. This is possible because the site is more easily accessible than the Big Indian Plateau. Much of the first phase of the Big Indian Plateau consists of constructing the access to the site. This proposed phasing plan permits the project to begin generating revenue towards the end of the third year which is critical to the economic viability of the project.

To accomplish these goals the originally proposed construction phasing and erosion control practices were completely reevaluated and redesigned. The currently proposed construction phasing and erosion control plans are more complex from a construction logistics standpoint, but protect local surface water resources and the City drinking water supply, while at the same time allowing for the construction of the project to occur in a logical and controlled manner in a timeframe that does not make the construction of the project economically unfeasible.

Most golf courses can be constructed within a single year, and many are constructed in this manner. The protracted 3 and 4 year phasing of the courses on the Belleayre Resort are proposed to accommodate concerns which might be raised relative to its location within the New York City Watershed. Based on conversations with golf course contractors and architects, **it is believed that this timetable may be the longest and most environmentally responsible phasing ever in New York State.**

Central to the construction phasing and erosion control plan are a number of factors designed to mitigate potential impacts commonly associated with construction projects that involve large amounts of earthwork activities. Namely,

- Perimeter erosion control will be installed on a site-wide basis prior to site disturbance.

- All of the relatively small compartments of construction and soil disturbance will have temporary sediment basins designed to capture and hold all runoff from a storm with the level of intensity that can be expected to occur only once every ten years.

- A plan has been developed to treat the runoff water captured in the stormwater basins with an environmentally-friendly flocculent to reduce stormwater turbidity prior to dewatering the stormwater basins. Reducing the turbidity of the captured stormwater prior to discharge will avoid increased turbidity in surface water resources. And rapid dewatering of the basins is important so that they are ready to effectively control erosion and sedimentation should storms occur in rapid succession.

- Temporary stabilization will be widely implemented during the construction process so that the amount of active construction and unstabilized soil never aggregates more than 25 acres at any given time within either reservoir watershed.

- Erosion control measures and practices will be kept in place until the areas that they serve are permanently stabilized.

An analysis of the quality of stormwater runoff entering the temporary construction retention basins was prepared to assess the feasibility of treating the stormwater runoff and to demonstrate the project will conform to discharge limits in the stormwater SPDES permit. This analysis is included in Appendix 10, Construction Phase Stormwater Quality Management Plan", as well as in Appendix 11, "Draft Construction Stormwater Pollution Prevention Plan. The general permit for stormwater has the following requirements:

- **There shall be no increase in turbidity that will cause a substantial visible contrast to natural conditions**;

- There shall be no increase in suspended, colloidal and settleable solids that will cause deposition or impair the waters for their best usages;

- There shall be no residue from oil and floating substances, visible oil film, globules or grease.

2. Construction Sequencing

Detailed construction phasing procedures have been developed to mitigate potential impacts from erosion and sedimentation. These detailed measures have been developed using Phase 2 of the Big Indian Country Club as the model. Phase 2 of the Big Indian Country Club was chosen as the model, after consultation with DEC staff, because it represents the most challenging phase of the construction from a soil erosion and sediment control standpoint. Similar measures will be developed and applied for all phases of both east and west portions of the project in the same manner.

The revised construction phasing that is described in the following section is somewhat complex. The description of the overall general approach that follows is intended to provide the reader with a description of the new approach to construction phasing being proposed. Following the description that follows, subsequent sections will provide the reader with specific details on how construction erosion and sediment control will be implemented using Phase 2 of the Big Indian Country Club as an example. Central to the understanding of the overall process is the hierarchy of project Phases, Subphases and Subcatchments.

a. Phases

Figure 3-15F, "Project Construction Phasing," schematically illustrates the various components of the Belleayre Resort project. In Figure 3-15G, "Construction Components Big Indian Country Club Phase 2", additional detail is provided for the Big Indian Country Club, Resort and Spa, particularly Phase 2 of this component. Phase 2 is the construction that will take place in the second year of project construction. The total amount of construction disturbance for Phase 2 for Big Indian Country Club is 85.1 acres. Figures 2-28 and 2-29, as well as LA Group Plan Sheets PH-1 through PH-3 illustrate the phasing for the project as a whole.

b. Subphases

Figure 3-15G, "Construction Components Big Indian Country Club Phase 2," also shows that all construction on Big Indian Country Club that will take place in Phase 2 (year 2) consists of 6 subphases of the following sizes. All subphases will have balanced cuts and fills. Some subphases include the "transition areas" that tie together some contiguous golf holes (i.e., tee/green complexes, tee complexes, green complexes). It is important that these areas be graded at the same time in order to accurately create the golf course the way it was designed by the golf course architect.

#1 = 14.2 acres (holes 1 & 9)
#2 = 14.8 acres (hole 2 & 9 tees)
#3 = 14 acres (holes 3 & 4)
#4 = 11.9 acres (holes 5 & 8)
#5 = 16.4 acres (holes 6& 7)
#6 = 13.8 acres (holes 10 & 11; "temporary driving range")

average subphase size = 14.2 acres

c. Subcatchments

Each Subphase is further broken down into Subcatchments in Figure 3-15G, "Construction Components Big Indian Country Club Phase 2." Each Subphase is broken down into either 3 or Subcatchments. The size of each Subcatchment ranges from a little more than 2 acres to just over 6 acres, with most of the Subcatchments being 3 to 5 acres. The Subcatchments form the basis for designing the temporary, construction phase retention basins.

Each Subcatchment has its own three-digit identification number. The first digit is the Phase number, the second digit is the Subphase number and the third digit is the Subcatchment number. For example, 234 is Phase 2, Subphase 3, Subcatchment 4. All of the different Subcatchments and their identification numbers are shown in detail on site LA Group Plan Sheets CP-3 through CP-14 (CP = Construction Phasing) that accompany this DEIS, and identification numbers correspond to the subcatchments used in the HydroCAD stormwater analysis (Appendix 9, "Construction Phase Stormwater Quantity Management Plan").

Note: Subcatchment size in the HydroCAD analysis in Appendix 9 may be larger than the actual amount of construction. This is because the subcatchments used in the HydroCAD analysis to design the retention basins must also take into account undisturbed forested areas uphill of the area of construction in the Subcatchment.. It is this additional amount of uphill forested area that will not be disturbed during construction that can make subcatchment size larger than their corresponding actual area to be disturbed during construction.

3. Construction Phasing

The series of colored Figures 3-15H through 3-15P3 illustrate on reduced site plans how construction will proceed through Phase 2 of the Big Indian Country Club and how much land will actually be under construction at any one time. At no time will there be any more than 16.4 acres of disturbed, unstabilized land under construction in Phase 2. Most times there will be less than 15 acres of disturbed land under construction at a given point

in time. All disturbed areas will be protected by sediment/stormwater retention basins and perimeter erosion control at all times.

The color coded areas in Figures 3-15H through 3-15P3 illustrate the sequence of the areas under construction at a given time. The locations and sequence of the different areas are also shown on the LA Group Plan Sheets CP-3 through CP-14 that accompany this DEIS.

The proposed phasing process is modeled after the phasing approach described in "Practical Tips for Construction Site Phasing" (Watershed Protection Techniques Volume 2. No. 3, February 1997).

Phase 2 Construction Phasing

The following is the sequence of activities proposed under the phasing plan illustrated in Figure 3-15H through 3-15P3.

1. Construction stakeout and golf course centerline stakeout for entire phase.
2. Centerline clearing for Subphase 1.
3. Construction access and perimeter control for Subphase 1.
4. Temporary basins rough grade in Subphase 1.
5. Tree harvest without grubbing in Subphase 1.
6. Stump grub, fine grade stormwater basins and stormwater swales, stabilizing swales with rock or geotextile in Subphase 1.
7. Rough and final grade Subphase 1. (Figure 3-15H, Sheet CP-3)
8. Install permanent irrigation lines in Subphase 1.

9A. Stabilize Subphase 1 with temporary measures as specified, and

9B. Perform Steps 2, 3 and 4 in the Subphase 2.

10. Upon complete temporary stabilization of Subphase 1, repeat Steps 5-8 in Subphase 2. (Figure 3-15I_, Sheet CP-4)
11. After permanent irrigation lines are installed in Subphase 2 immediately topsoil, install irrigation heads and install permanent stabilization (sod/seed) in Subphase 2. (Figure 3-15J, Sheet CP-5)
12. Continue topsoiling and permanently stabilize into Subphase 1 which was previously temporarily stabilized. (Figure 3-15K, Sheet CP-6)
13. Perform Steps 2 and 3 in the Subphase 3.
14. When five acres or less of Subphase 1 require topsoiling and final stabilization, clear, but don't grub, up to 5 acres in the Subphase 3. (Figure 3-15K, Sheet CP-6)
15. After Subphase 1 is completely permanently stabilized, construct Subphase 3 through temporary stabilization (Steps 4 through 9A). (Figure 3-15L & 3-15M, Sheet CP-7)
16. Continue construction through Subphases 4 then 5 and 6 using the same sequence described above for Subphases 1, 2 and 3. (Figures 3-15M through 3-15P3, Sheets CP-7 through CP-14)
17. Upon establishment of permanent cover, remove temporary drainage swales and basins. Convert appropriate temporary basins to be utilized during operations to their permanent condition (by Subphase).

18. Stabilize all remaining disturbed areas (by Subphase).
19. Remove perimeter erosion control after vegetation stabilization is established (by Subphase).

Whenever disturbed soil is to be left open for more than 14 days, apply temporary stabilization measures as specified.

If irrigation water is not yet available near the completion of any subphase, apply temporary stabilization measures as specified and move to next Subphase.

Each of these steps is also described in Appendix 11, "Draft Construction Stormwater Pollution Plan."

As stated previously, this description of the construction process is supported by LA Group plan sheets CP-3 through CP-14 that accompany this DEIS. The plan sheets demonstrate that minimal areas will be disturbed, and by phasing the project in this manner, the construction sequence can limit exposed soils yet progress in a logical fashion.

Sheets CP-15 and CP-16 illustrate final stabilization practices to be implemented based on Sheets SA-1 through SA-3, "Proposed Grade Slope Analysis." Included on these Sheets is a copy of DEIS Table 3-9 that lists the various erosion control materials that may be employed based upon slope classifications.

Similar construction phase sequencing as described for Phase 2 of Big Indian Country Club will be developed for each Phase of the entire project.

It is anticipated that construction work will occur six days a week and many activities will occur 10-12 hours daily especially during June and July in order to accomplish this segmented construction process within the construction season.

4. Sizing of Temporary Stormwater Basins

To develop the construction phasing plan it was necessary to establish estimates of stormwater runoff volumes in order to create a stormwater management facilities for each subcatchment. The stormwater management facilities for construction of this project will be large temporary stormwater retention basins. These temporary basins will be constructed in each Subcatchment, and have been designed to capture and hold runoff from the entire area draining to them.

Stormwater calculations were conducted using the method prescribed in the USDA Soil Conservation Technical Release No. 20. The program used is the HydroCAD Stormwater Modeling System (Revised June 6, 1998) produced by Applied Microcomputer Systems of Chocurua, New Hampshire. Appendix 9, "Construction Phase Stormwater Quantity Management Plan", contains the HydroCAD calculations performed for the construction phase.

The Design Storm utilized was the ten (10) year 24 hour Type II storm event having a rainfall total of 6.0 inches falling on bare soil as recommended by NYSDEC. The basins have been designed to capture and hold the entire volume of runoff from the six-inch rainfall regardless of whether the period of rainfall is 2 or 24 hours.

5. Stormwater Capture, Treatment and Discharge

Appendix 11, "Draft Construction Stormwater Pollution Prevention Plan," provides a detailed description of how captured stormwater will be treated with a flocculent to greatly lower turbidity prior to discharging the stormwater to the irrigation ponds or to level spreader soaker hoses located in wooded areas adjacent to construction areas.

Temporary stormwater detention basins will be constructed throughout the area of construction and will be large enough to capture and hold all of the runoff from the 10-year design storm. After the runoff has been captured in the retention basins it will be necessary to treat the captured water with an environmentally-friendly flocculent in order to reduce turbidity. The basins will then be pumped out to level spreaders in undisturbed wooded areas so that the basins will be ready to accept runoff from the next storm event.

The flocculent proposed for use on the Belleayre Resort project is a product called Chitosan® (a.k.a. Storm Klear), marketed by a company called Natural Site Solutions from Washington State. Chitosan® is a natural product made from seafood shells that are a byproduct from food processing. Chitosan® is a derivative of the chitin in the seafood shells. Chitosan® has very low aquatic organism toxicity and completely biodegrades into carbon dioxide and water in 24 hours. Soil samples taken from the project site were tested using Chitosan®. Solutions were made using the site soils to produce turbid water of 5,000, 1,000 and 100 turbidity units (NTU). These turbid soil solutions were then dosed with the flocculent to produce a Chitosan® concentration of 1 ppm. Figure 3-15Q, "Chitosan Flocculent Testing" illustrates how turbidity levels in the soil test solutions rapidly dropped following the application of Chitosan® within one hour after adding the flocculent. Within one hour after applying Chitosan turbidity levels had dropped 93% in both the 5,000 NTU and 500 NTU turbid soil solutions. DEIS Figure 3-15R, "Flocculent Delivery System", provides a schematic of how the basins will be treated with the flocculent and then pumped out.

Chitosan will be added to the stormwater retention basins after a rainfall event in order to reduce turbidity levels to approximately 25 to 50 NTU. After the Chitosan flocculant has settled out the turbidity, stormwater will be pumped out of the basins. The pump and discharge system will be equipped with a turbidity meter and an automatic shutoff valve system so that water pumped to the discharge system will not exceed the target turbidity levels.

Where feasible, basins will be pumped out to the irrigation ponds. Of the 21 basins in Phase 2 of Big Indian Country Club, 15 basins can be pumped to the irrigation ponds. Where this is not feasible due to distance and/or topography, the method to empty these six basins (Subcatchment basins 234, 242, 251, 252, 253, 262) will be to discharge the

water to a spreader pipe laid out in the undisturbed wooded areas below the basins. The spreader pipe will be a four to six inch perforated coil drain pipe with a filter fabric sock around the pipe. The filter fabric sock will reduce spray from the pipe and reduce the potential for undermining the pipe or creating erosion. The sock will also allow the system to act as a soaker hose. The wooded area will polish the stormwater to assure that effluent quality will meet the ambient conditions of the local watercourses. See Appendix 11, "Draft Stormwater Pollution Prevention Plan," for details. A plan has been developed that allows for the basin dewatering to occur at rates that are the same or less than runoff rates that occur under existing conditions (See Appendix 11 [also Addendum 1 in Appendix 9]). Dewatering the basins at these rates will prevent erosion in the forested areas below the level spreaders from which dewatering discharges will be made.

D. Construction Phase Industrial Activities

A concrete batch plan and associated rock crusher will be operated at the location of the practice range of the Highmount Golf Club during the first 18 to 24 months of construction. There is an existing well ("the pool well") that is available to provide water needed at this site. A second rock crusher will be operated at the location of practice range of Big Indian Country Club for the first 12 months of construction. Water for this crusher will be provided by a water truck. Both rock crushers will be equipped with sprayers at the crusher jaws to control dust form the crushing operations. Obviously, water will also be used at the concrete batch plant when the plant is in operation.

The site will be graded to internalize the drainage and prevent runoff from exiting the site where the batch plant and crushers will be located. Stormwater drainage basins will be sized and constructed to intercept and detain the 100-year flood event. It is necessary to hold the 100-year event since much of the site will be at or near bedrock elevation or on soils with a fragipan. All site drainage will be directed towards the stormwater basins.

Regular maintenance of the stormwater basins will be required. These basins will be subject to high loading of fine sediments that will tend to clog the basins and reduce infiltration capacity. Emptying the ponds will require periodic flocculent application and periodic dewatering in the same fashion described for the other temporary construction basins.

In addition to stormwater management, a regular program of site watering to control fugitive dust emissions will be required at the concrete batch plant and at the rock crushers to mitigate potential air quality impacts (See Section 3.4, "Climate and Air Resources").

E. Operational Phase Stormwater – Water Quantity

If proper stormwater controls were not incorporated into project design, surface water hydrology could be affected by development due to increases in stormwater runoff volume and rate and possible reductions in water infiltration that contribute to base flows. This project's stormwater management plan has been designed to minimize these types of impacts. A complete analysis of stormwater quantity management, including

management of the 10, 25 and 100 year storm events are included in Appendix 9A, "Operational Phase Stormwater Quantity Management Plan." This appendix includes all HydroCAD results for the 25-year design storm as well as summary tables for the other storm events modeled. The proposed stormwater management system has been designed so that the 25-year storm is controlled to pre-construction discharge levels, and the proposed system has also been designed to safely convey the 100-year storm. The analysis contained in Appendix 9A makes use of additional deep hole test pit and percolation tests performed at proposed detention basin locations in the Fall of 2002 performed to more precisely define basin exfiltration rates. (See Appendix 12, "Soil Test Results.").

The site drainage (SD) site plans included with the DEIS illustrate the limits of all subcatchments. Sheets SD-1, 3 and 5 show existing conditions subcatchments. Sheets SD-2, 4, 6 and 7 illustrate proposed subcatchment boundaries. Each existing and proposed subcatchment has been assigned an identification number that is included on the SD site plans.

Appendix 9A contains a description of every subcatchment for the existing and proposed conditions. Subcatchment numbers in Appendix 9A correspond to subcatchment numbers included on the SD plans. Included in the description of every individual subcatchment in Appendix 9A is a breakdown of the various covertypes present in the subcatchment and areas (acreages) of each covertype in that subcatchment. Also included in all individual subcatchment descriptions is a time of concentration. It is not necessary for the plans to redundantly include the information contained in Appendix 10 A. To also put the information from Appendix 9A on the plans would result in so much information on the plans that the design elements of the plan would not be discernible. The current plans show layout elements, grading, tree lines, subcatchment boundaries and labels for every subcatchment, basin and culvert. Adding covertypes and times of concentrations for each subcatchment would obscure the intent of the SD drawings, which is to illustrate the design of the stormwater management system.

The HydroCAD water quantity modeling did not utilize proposed porous pavement in the analyses. HydroCAD analyses utilized conventional asphalt in place of proposed porous pavement. This approach insured that if any of the porous pavement should decrease in its operational efficiency over time, the stormwater management system is designed to be capable of providing suitable treatment of runoff from the project site.

All project roads, including Winding Mountain Road, were included in the HydroCAD and WinSLAMM modeling for water quantity used to design the proposed stormwater management system to mitigate potential impacts from project stormwater.

To analyze the hotel rooftop of the proposed Big Indian Resort and Spa, that is to be covered in earth and planted, the vegetated rooftop was treated as the vegetated surface that it is, and assigned a curve number in HydroCAD that is consistent with this type of "ground cover." The author of Appendix 13, "Big Indian Resort and Spa Recommendations for Landscaping on Elevated Structures", provided to the designers of

the stormwater management system the hydrology information necessary to incorporate the proposed hotel building and its runoff and subsurface drainage into the stormwater modeling in a realistic manner (hydrologic group A). In the hydrologic analysis drainage through the roof soil profile was captured and routed to the proposed irrigation ponds for detention and treatment as per the roof drainage system designed for the building. Runoff from the roof and its A soils was added to the runoff from other contributing areas of the subcatchments in which the roof is located and all runoff was directed to stormwater management areas. The parking underneath the vegetated roof is not treated as any type of surface, impervious or otherwise, in the hydrological analysis since it cannot produce runoff because it is not exposed to rainfall. Only surfaces that contribute to runoff are included in the hydrological analyses.

The lined irrigation ponds have been incorporated into the HydroCAD and WinSLAMM analyses and the resultant stormwater management plan, recognizing that during high intensity or prolonged storm conditions stormwater control storage volume may not be available. The irrigation ponds are equipped with a weir that connects them with the rest of the stormwater management system, and the system as a whole is capable of handling design storms up to and including the 100 year storm. Therefore, inclusion of the irrigation ponds in the analysis of the entire system is appropriate and accurately integrated into the overall stormwater management system designed for the project.

The modeling approach used for pre-development and post-development conditions utilized standard modeling practices and is an appropriate use of the HydroCAD stormwater model. Pre-construction modeling and post-construction modeling both analyze the same land area, and dividing the post-development land area into smaller drainage areas simply allows for better design of post-construction stormwater management areas. In the post-construction modeling the smaller drainage areas are modeled in an interconnected manner to reflect the different design points used in pre-construction modeling.

The existing topography is utilized to determine design points. The total area draining to each of design point determines the pre-construction flow for that drainage area. In the post-development condition the pre-construction drainage areas are broken down into several smaller drainage areas that are directed to stormwater management areas. These stormwater management areas are interconnected by overland flow and swales. By modeling the post-development runoff with interconnected basins and reaches (swales) the realistic post-development drainage pathways are modeled. In many cases the post-development travel distance is greater than pre-development, however, travel times are reduced because the runoff is channelized and therefore modeled at a faster rate.

In each of the above inputs into the HydroCAD analysis, the most conservative assumptions were utilized.

F. Operational Phase Stormwater – Water Quality

Similarly, were proper stormwater controls not utilized, development could result in increases in nutrient and metals loading, exports of solids, thermal loading, and a general decrease of water quality in receiving waters. **This project's stormwater management plan has been designed to minimize these types of impacts.** Appendix 10A, "Operational Phase Stormwater Quality Management Plan" provides details of the WinSLAMM (Windows Source Loading Management Model) that was used in the design of stormwater control devices in order to maximize potential pollutant removal efficiencies, including the maximization of phosphorus removal from project-generated stormwater. The operational phase stormwater management system has been designed in accordance with the requirements of the New York State Stormwater Management Design Manual (NYSDEC, October 2001). Addendum 1 in Appendix 10A is a design report for the stormwater management system that demonstrates compliance with the requirements of the design manual. Addendum 2 of Appendix 10 provides additional design information as well as a discussion of the soils data used in designing the stormwater management system.

The project is located within the watersheds of two of New York City's water supply reservoirs, the Ashokan and the Pepacton Reservoirs, therefore the impacts that may result from increased nutrient loading to these Reservoirs have been evaluated. Three sources are considered to cumulatively contribute to the overall nutrient export that may be expected from the project development, golf course fertilization, stormwater runoff, and wastewater disposal.

As discussed later in this section in subsection "H", nutrient export as a result of golf course fertilization practice is an identifiable source. In order to mitigate potential impacts to surface water as a result of increased phosphorus and nitrogen loading from golf course fertilizer use, an Integrated Turf Management Plan (Appendix 14) was prepared based partly on the results of a Fertilizer and Pesticide Risk Assessment (Appendix 15).

The loss of nitrate and phosphorus in runoff from the sloped 18th fairway on Big Indian Resort and Spa Golf Course was analyzed using the GLEAMS model as a worst case analysis. Nine (9) different fertilizer application programs were used to analyze nitrogen and phosphorus runoff based upon different fertilizer composition, fertilizer application rates, and fertilizer application frequency. Undiluted Nitrate concentrations were compared with the State and Federal standards for nitrates in drinking water, MCL = 10 mg/l. In no case did the total nitrogen concentrations in runoff events exceed 10 mg/L. Furthermore, the Integrated Turf Management Plan was refined to produce phosphorus export coefficients equal to or less than the "grass area" export coefficients used by NYCDEP in determining Total Maximum Daily Load (TMDL) calculations for the Ashokan and Pepacton watersheds. Reducing the annual phosphorus application to 0.25 pounds of phosphorus per thousand square feet per year will result in the annual export coefficient of 1.11 kg./ha.

The fertilizer phosphorus application rates have been reduced to closely match the phosphorus export coefficients use by the NYCDEP for "grassy areas." The effects of nutrient export in the context of pre- and post-development is further analyzed in the Operational Phase Stormwater Quality Management Plan (Appendix 10A) and subsequently described below.

Appendix 10A of the DEIS provides an assessment of the expected water quality impacts of the project. This Appendix focuses on water quality of the stormwater runoff while Appendix 9A, "Operational Phase Stormwater Quantity Management Plan", examines the volumes and means to control velocity and release rates of the stormwater runoff.

In order to assess stormwater quality and nutrient export from the project, a computer model simulation of runoff water quality was completed using WinSLAMM (Windows Source Loading and Management Model, Pitt and Voorhees, 2000, Version 8.4). Section 2 of Appendix 10A describes the model, including the conceptual framework of WinSLAMM's method of stormwater runoff water quality estimation, background data, and assumptions utilized in the analysis of potential project water quality impacts.

The potential water quality impacts have been quantified for both the site in the pre-development condition and for the property at full buildout, which provides the data to assess potential changes in water quality associated with development of the resort.

The goal of the project's stormwater management program is to manage runoff water quality to minimize nutrient or contaminant export or closely match pre-development stormwater quality. This has been accomplished by locating stormwater management facilities throughout the project site and by maintaining a low density of development that converts less than 5% of the project assemblage to impervious surfaces.

As further discussed in Appendix 10A, stormwater is anticipated to produce ±70 kg of phosphorus per year and ±328 kg of nitrates per year. See Table 3-10 below, "Overall Nutrient Export."

Table 3-10
Overall Nutrient Export

Net Nutrient Loading	Total Phosphorus (kg./yr.)	Nitrogen (kg./yr.)
Pepacton Reservoir		
Wastewater	42.7 -	94.0
Stormwater	48.0 -	214.0
Subtotal	**90.7** -	**308.0**
Ashokan Reservoir		
Wastewater	33.0 -	72.5
Stormwater	22.0 -	114.3
Subtotal	**55.0** -	**186.5**
Total	**145.7** -	**494.5**

**See Appendix 10 of this DEIS

Sanitary waste is a source of nutrients to groundwater and surface water resources. Several wastewater disposal alternatives have been evaluated to treat effluent from the proposed developments. These alternatives include: cluster subsurface systems; a regional disposal systems to accommodate the wastewater from portions of the development; a combination of the above; and installing a collection network to convey all the wastewater to the New York City owned and operated Pine Hill Wastewater Treatment Plant.

Centralized wastewater treatment facilities are proposed for the Wildacres Resort and Big Indian Plateau. Regional wastewater treatment facilities are capable of decreasing phosphorus to ±0.1 – 0.5mg/l and reducing nitrogen to ±1.1 mg/l.

Treated wastewater from Big Indian Plateau will be discharged to Birch Creek for roughly six months out of the year and to the Big Indian Country Club irrigation ponds for spray irrigation during the remaining six months. Treated wastewater from Wildacres will be discharged to an intermittent tributary to Emory Brook for 6 months out of the year and to the golf course irrigation pond for spray irrigation for during the remaining 6 months. Spray irrigation of the effluent will further reduce phosphorus and nitrogen concentrations by ±90%. The overall discharge characteristics of the project are summarized in the table below, Table 3-11, "Wastewater Nutrient Export."

Table 3-11
Wastewater Nutrient Export

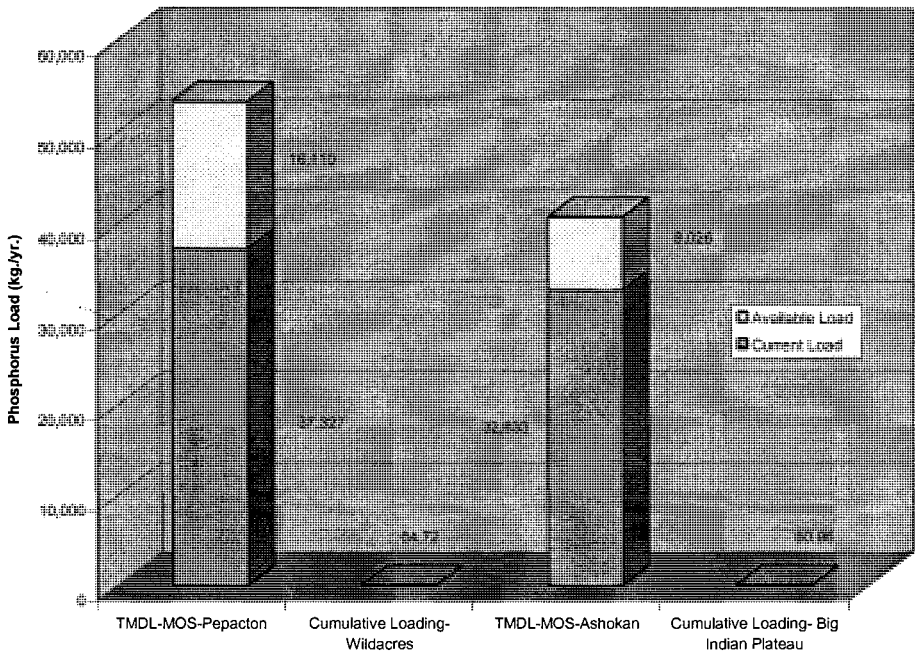
Wastewater Loading Estimates (kg/yr)			
			Total Annual Load
Wildacres	**Point Discharge (6 mo)**	**Spray Irrigation (6 mo)**	**Wildacres**
TP (kg./yr.)	38.84	3.88	42.72
N (kg./yr.)	85.43	8.54	93.97
Big Indian	**Point Discharge (6 mo)**	**Spray Irrigation (6 mo)**	**Big Indian**
TP (kg./yr.)	29.97	2.99	32.96
N (kg./yr.)	65.94	6.59	72.53
TOTAL	**Point Discharge (6 mo)**	**Spray Irrigation (6 mo)**	**Total Combined Annual Load**
TP (kg./yr.)	68.81	6.87	75.68
N (kg./yr.)	151.37	15.13	166.5

Phosphorus and nitrogen exports were estimated using the above noted nutrient concentrations and wastewater flows. Hence, the total sanitary waste export of phosphorus and nitrogen are estimated to be approximately 75.68 kg/year and 166.5 kg/year, respectively.

The sanitary wastewater nutrient exports were combined with the stormwater nutrient exports to assess the cumulative condition over the Crossroads assemblage. An export approximately 145.68 kg of phosphorus may be expected from sanitary wastewater and stormwater runoff. The total nitrogen export is anticipated to be between approximately 484.8 kg over the entire Crossroads assemblage (See Table 3-10, "Overall Nutrient Export").

The cumulative impacts of wastewater and stormwater quality will not rise to the level of a significant impact. The additional loadings will, as a worst-case scenario, only consume 0.4% of the available load to the Pepacton Reservoir and 1.0% of the available load to the Ashokan Reservoir. The available load represents the amount of phosphorus that can be safely introduced to the reservoir systems without any adverse effects. Hence, the phosphorus load that is anticipated to result from the Crossroads assemblage will not impact water quality. Given the fact that the remaining lands of both watersheds are under State or City control virtually guarantees that the available loads will not be realized. Furthermore, the resulting phosphorus load will only constitute 0.173% of the existing load to the Pepacton Reservoir and 0.247% of the existing load to the Ashokan Reservoir (Figure 3-15S, "Cumulative Phosphorus Loading").

Figure 3-15S
Cumulative Phosphorus Loading



The nitrate runoff concentrations were compared to tributary concentrations, which were measured by the NYCDEP and recorded in the report entitled "Monitoring of Tributaries Draining Belleayre Mountain Crossroads Ventures Development Location." The flow-weighted aggregate concentration of nitrate in the streams is 0.32 mg/l. As determined from the wastewater analysis and stormwater quality analysis (Appendix 10A), the net nitrate discharge concentrations are anticipated to be ±1.1 mg/l and 0.54 mg/l, respectively. The estimated in-stream concentration of nitrates after the project development is anticipated to be ±0.36 mg/l. This represents an increase of 0.004 mg/l, which is not anticipated to change the ecology of the stream. This is under the scenario where the wastewater treatment plant is discharging to surface water, when in reality, for approximately half the year, the plant will be discharging to the irrigation ponds. Hence, the impacts associated with the increased nitrate concentration in the tributaries will not rise to the level of significant impacts.

G. Golf Course Pesticide Use

Concern has been expressed that golf course pesticides could potentially result in runoff containing pesticide residues which might conceivably reach nearby surface waters. If present in sufficient quantities, pesticide residues may have negative impacts on aquatic biota such as aquatic invertebrates and fish. A site-specific integrated turf management plan, based on a site-specific fertilizer and pesticide risk assessment has been developed to mitigate these potential impacts (See Appendix 15, "Pesticide and Fertilizer Risk Assessment and Appendix 14, "Integrated Turf Management Plan" for a full discussion

of how the proposed golf course maintenance practices have been designed to avoid potential impacts to surface water resources.)

H. Golf Course Fertilizer Use

Improperly utilized golf course fertilizers could potentially result in increased phosphorus runoff from the proposed golf courses into nearby surface waters. Increased phosphorus loading to nearby surface waters and downstream NY City drinking water supply reservoirs could result in increased biological production, decreased water quality and affect drinking water quality. Increased nitrogen loading could also potentially lead to contravention of State and Federal drinking water standards for nitrate. A site-specific Integrated Turf Management Plan, based on a site-specific Fertilizer and Pesticide Risk Assessment have been developed to mitigate these potential impacts (See Appendix 15, "Pesticide and Fertilizer Risk Assessment and Appendix 14, "Integrated Turf Management Plan" for a full discussion of how the proposed golf course maintenance practices have been designed to avoid potential impacts to surface water resources.)

I. Golf Course Irrigation

Water for golf course irrigation will not be taken from existing surface water resources.

One source for irrigation water for the Big Indian Country Club is a bedrock well (well R1) located near Birch Creek as well as the treated effluent from the wastewater treatment facility serving the Big Indian Plateau. The water that is in Birch Creek and the surrounding surficial aquifer is separate from the water withdrawn from the bedrock well that is in a confined aquifer. There is a layer of clay between the water in the surficial aquifer/Birch Creek and the groundwater to be used for irrigation water. This clay layer prevents water in the surficial aquifer from passing through and down into the confined bedrock aquifer. The potable water source for the Big Indian Plateau that becomes the treated effluent used for irrigation is water from another well that is also hydrologically separated from nearby surface waters, including Birch Creek.

Golf course irrigation could have a small positive impact on local surface water. Water removed from the confined bedrock aquifer will be stored in the lined irrigation ponds and then applied to the golf course turf when necessary. If any irrigation water percolates through the soil column it could eventually find its way via subsurface flow into the surficial aquifer connected with Birch Creek, thus adding to groundwater base flow. However, this contribution to base flow is not expected to be significant since irrigation water will be applied so that losses to runoff and percolation are minimized and plant uptake is maximized. This is achieved by carefully controlling irrigation rates and irrigation timing. (See Appendices 19 and 19A, which contain the water budget analyses done for the project, for a complete discussion of how base flow to surface waters will be maintained when the project is developed.)

The primary source for irrigation water for the Highmount Golf Club will be treated wastewater generated by the Wildacres Resort and Highmount Estates. The identified

potential source of the raw water is the Village of Fleischmanns water supply system that draws water from wells and springs that are hydrologically isolated from nearby surface waters, including Emory Brook. **Thus the project's use of potable water, treatment of project-generated wastewater, and use of project-generated wastewater will not have an impact on surface water resources.**

J. Petroleum and Chlorine Storage

There will be gasoline and diesel fuel tanks located at both golf course maintenance areas. Storage of bulk chlorine will be needed for the two project potable water treatment facilities as well as for the Resort pools and spas.

Proper storage techniques, including the use of secondary containment and storing materials in covered locations with impervious floors, will be implemented to avoid potential impacts to surface waters.

K. Springs as Water Sources

The Surface Water and Groundwater Assessment Big Indian Plateau (DEIS Appendix 19, pages 18 and 19) addresses this issue. Section 4.0 of this Appendix is entitled "Spring Use Impacts on Stream Flow" addresses this issue. A low flow analysis of Crystal Spring Brook was provided in the context of contributions from Crystal Spring (Silo A). Crystal Spring (Silo A) is the only spring that could potentially be used for the project, and only as a backup source when the primary supply is temporarily out of service. Measures were included in Appendix 19 to avoid potential impacts to Crystal Spring Brook, including use restrictions on Crystal Springs (Silo A) during specific low flow conditions, and using the primary source, Rosenthall well 2, during low flow conditions.

3.2.3 Mitigation Measures

A. Physical Disturbance

Where it is necessary to cross surface waters with roads or cart paths/pedestrian crossings these crossings will be spanned by bridges and boardwalk cart paths. This includes two bridges over Birch Creek, a bridge in Giggle Hollow and a bridge on the northern portion of the Wildacres site. These four bridge crossings were illustrated on Figures 3-15B through 3-15E.

These four bridge crossings are included in a streambank disturbance permit application prepared for NYSDEC and included in Appendix 2 of this DEIS.

A 70 foot span is proposed with abutments proposed on both sides of Birch Creek where the project access road enters from Friendship Road. Birch Creek itself is approximately 35 feet wide at the location of the proposed bridge. Stone rip-rap will be placed along the three sides of each of the abutments for scour protection during high discharges. No activities are proposed within the streambed of Birch Creek. The top of bank of Birch

Creek is at an elevation of approximately 1,380 feet at this location. Both bridge abutments and their protective rip-rap are located outside of the streambed.

Once the new bridge over Birch Creek from Friendship Road is built, the Winding Mountain Road bridge will be replaced. The existing bridge at Winding Mountain Road is inadequate from the standpoint of weight capacity and also from the standpoint of being able to pass peak discharges in Birch Creek. The existing bridge span is 35 feet, and during high flows the area around the north end of the bridge reportedly acts as a relief channel, which has historically resulted in the need for structural repairs to be performed on this bridge. The bridge is not supported on piles and is subject to being washed out. The south embankment was recently reinforced with heavy stone where the embankment had settled during a minor storm event. The only activity proposed within the stream channel is the removal of existing gabions that are partially within the stream channel on the south side of Birch Creek. Gabions will be removed by equipment operated outside of the streambed on the south side of the creek. Gabions will be moved to an area removed from Birch Creek. All other activities associated with this bridge replacement will be outside of the stream bed. During the reconstruction of this bridge, the property owners above the Winding Mountain Road bridge will be able to use the new bridge off of Friendship Road.

There will be a 55 foot span over Giggle Hollow Brook, which itself is only a few feet wide at the proposed bridge location. Abutments will be constructed on either side of the brook and sheeting will be installed between the abutments and the brook. Unlike the two Birch Creek bridge crossings discussed above, rip-rap will not be installed at this bridge. The slopes on either side of the Giggle Hollow bridge are steeper than the slopes at the two bridge crossings of Birch Creek. Also, Giggle Hollow Brook is a much smaller stream and the bridge is at the upper end of the brook, so scour protection of the abutments is not required. Sheet piling will be installed at the toe of the fill slope in order to lessen the horizontal extent of backfill required. No activities are proposed within Giggle Hollow Brook.

The fourth bridge is part of an access road into the northern portion of the Wildacres Resort site. The access road is off of Gunnison Road, approximately 1,000 feet west of its intersection with County Route 49A. Abutments will be constructed on either side of the brook and sheeting will be installed between the abutments and the brook. Unlike the two Birch Creek bridge crossings discussed previously, rip-rap will not be installed at this bridge. No activities are proposed within the bed of this small, intermittent brook.

B. Diversion and Impoundment

No surface waters are proposed to be diverted or impounded as part of the project, so no mitigation measures are necessary.

C. Construction Phase Sediment and Erosion Control

The following are measures proposed to mitigate potential erosion. See Appendix 11, "Draft Stormwater Pollution Prevention Plan", for a full detailed description of sediment and erosion control measures (structural, vegetative, temporary, permanent, etc.) proposed to mitigate potential impacts.

Overall project phasing designed to control erosion by limiting the amount of construction at any given time is illustrated on LA Group Plan Sheets PH-1 through PH-3, "Phasing and Erosion Control Plan". Phasing as well as structural and vegetative means proposed to control erosion and sedimentation and are described in detail in Appendix 11 which is a draft version of a Stormwater Pollution Prevention Plan developed for this project. LA Group Plan Sheets CP-1 through CP-18 provide construction level details for sediment and erosion control for Phase 2 of the Big Indian Country Club as an example for the entire project site.

The following are measures proposed to mitigate potential erosion.

1. The developer will be responsible for hiring and employing a Certified Professional Erosion Control Specialists (CPECS). This individual will have a staff of 4 to 6 people per golf course whose sole responsibility will be the inspection and oversight of maintenance of erosion control practices. They will be equipped with all materials necessary to insure the implementation and maintenance of the stormwater control devices such as silt fence, wattles, and construction fence. It will be the responsibility of the contractor and subcontractors to maintain the structural operation of temporary stormwater basins under the control and direction of the CPECS. The CPECS will have stop work authority over all contractors and subcontractors working on the project.

2. Construction will be phased over a multi-year time period so as to reduce the amount of disturbed soil at any given time. Construction plans divide the site into Subphases of 25 acres or less that are composed of subcatchments of 2 to 6 acres each. **Work on subsequent Phases will not begin until the area in the previous Phase is stabilized. Likewise, work on a subsequent Subphase will not begin until the area in the previous Subphase is nearly all stabilized (last 5 acres being stabilized).** The proposed phasing plan for the entire project is illustrated on LA Group Plan Sheets PH-1 through PH-3, and LA Group Plan Sheets CP-1 through CP-18 provide construction level details for phasing and sediment and erosion control for Phase 2 of the Big Indian Country Club.

3. Detailed construction phasing plans will be developed for all areas of the project consistent with the plans developed for Phase 2 of the Big Indian Country Club (LAG Plan Sheet CP-1 through CP-18) discussed in Section 3.2.2 and discussed in more detail in Appendix 11, "Draft Construction Stormwater Pollution Prevention Plan."

4. Temporary sediment basins have been located throughout the proposed development. These basins have been sized to capture and hold the runoff from a 10-year storm of 6 inches in 24 hours falling on bare soil. Appendix 9, "Construction Phase Stormwater Quantity Management Plan", provides more detailed information and HydroCAD data used to size the construction phase retention basins.

5. Fairway drains will be installed during construction, and during construction these drains will consist of a perforated stand pipe surrounded by a gravel/rock jacket all surrounded by perimeter silt fence (Detail 6, Sheet CP-18). These fairway drains will be piped to temporary sediment basins that will be converted to operational phase basins. During final stabilization the silt fence and stone/gravel jacket will be removed, the standpipe cut flush with finished grade and a grate placed over the inlet to the drain pipe.

6. Each sediment basin will be dewatered after storm events using an environmentally-friendly flocculent treatment to reduce turbidity levels of stormwater to 25 to 50 NTU prior to discharge to the irrigation ponds or diffuse discharge into adjacent undisturbed areas. See Appendix 11 for details.

7. Any areas of disturbed soils or soil stockpiles that will not be worked on for a period of fourteen (14) consecutive days shall be temporarily stabilized by hydroseeding with ryegrass and mulch. Preferred mulch materials are Eco Aegis® and Soil Guard®.

8. Sod will be used in many areas to provide more rapid stabilization. Approximately 100 acres of sod will be used on the Big Indian Country Club (2/3 of the total area disturbed during golf course construction)and 50 acres of sod will be used on the Highmount Golf Club.

9. Sheets SA-1 through SA-3 illustrate how the finished grades of the proposed golf courses have been broken down into different slope categories. Table 3-9, "Erosion Control Products", lists those erosion control products that are suitable for the different slopes shown on LA Group Plan Sheets SA-1 through SA-3. The materials listed in Table 3-9 will be used to accelerate stabilization of exposed soils. LA Group Plan Sheets CP-1 through CP-18 illustrate how temporary stabilization will be widely utilized during the construction process to limit exposed soils at Big Indian Plateau and at Wildacres to less than 25 acres each at any given time.

10. The permanent irrigation system will be used where and when necessary to supplement precipitation and promote rapid germination and rooting of seeded and sodded areas. If irrigation water is not yet available, apply temporary stabilization measures as specified and move to next Subphase.

11. NYCDEP will continue to monitor surface water on and around the Crossroads assemblage during and after construction. Appendix 11 also includes details regarding additional water quality that the Applicant will conduct during construction. Any decreases in water quality that can be attributed to the proposed project will result in changes in construction or operations of the project in order to immediately restore local water quality.

12. All erosion control measures will be maintained in good working order; if repair is necessary, it will be initiated within 24 hours of report.

13. Built up sediment will be removed from silt fence when it has reached one-third the height of the fence.

14. Silt fence will be inspected for depth of sediment, tears, to see if the fabric is securely attached to the fence posts, and to see that the fence posts are firmly in ground.

15. All temporary sediment basins should be inspected for stability and integrity once a week or after a storm event of 0.5 inch or more. Any structural failure in sediment basins or trenches that serve them will be repaired within 24 hours after detection

16. All temporary sediment basins or trenches shall be cleaned out when one foot of sediment or half the design depth of the trap has accumulated. All spoils shall be removed to a stabilized upland area.

17. Seeded and planted areas will be inspected for bare spots, washouts, and healthy growth. If necessary, spot reseeding or sodding will be implemented.

18. A maintenance inspection report will be made after each inspection. A copy of the report form to be completed by the inspector is attached. Reports will be compiled and maintained on-site.

D. Construction Phase "Industrial" Activities

The selected site for the batch plant with its rock crusher is at a location of large scale excavation and rock removal for the Wildacres Hotel. It will be located at the practice range of the Highmount Golf Club. A second portable rock crusher will be sited at the practice range of the Big Indian Country Club. The site will be graded to internalize the drainage and prevent runoff from exiting the site.

Once rough grading has reached an elevation that will approximate the long term finish grade, the site can be prepared for set up of the concrete mixing plant. This will involve setting up equipment foundations that consist of gravel pads and spread footings for the equipment. Stormwater drainage basins will be sized and constructed to intercept and detain the 100-year flood event. It is necessary to hold the 100-year event since much of

the site will be at or near bedrock elevation or on soils with a fragipan. All site drainage will be directed towards the stormwater basins.

Regular maintenance of the stormwater basins will be required. These basins will be subject to a high loading of fine sediments that will tend to clog the basins and reduce infiltration capacity. Dewatering the basins will require periodic pumping of the stormwater and discharging the stormwater to a level spreader prior to recharging the water, as described for construction areas.

In addition to stormwater management, a regular program of site watering to control fugitive dust emissions will be required at the concrete batch plant and at the rock crushers.

The concrete plant operation will be subject to the market conditions that exist at the time of construction. Plant operations will vary from intermittent to continuous depending on the amount of construction under way at the site.

Based on the construction schedule, construction phasing and the amounts of stone and concrete needed, it is estimated that the rock crusher on Big Indian Plateau will be in operation only in the first year of construction, and the rock crusher and concrete batch plant at Wildacres Resort will be in operation during the first 18 to 24 months of construction.

E. Operational Phase Stormwater – Water Quantity

The detailed and comprehensive operational phase stormwater management plans for the project are found in Appendix 9A, "Operational Phase Stormwater Quantity Management Plan", and Appendix 10A, "Operational Phase Stormwater Quality Management Plan." These individual components of stormwater quantity stormwater quality and construction erosion management encompass a comprehensive approach to stormwater runoff for the Belleayre Resort.

1. The concept for stormwater management is to control the increased volume and rate of surface runoff caused by the development of buildings, roads, parking areas, recreational facilities and the golf courses. **These volumes and rates will be reduced to existing or predevelopment levels by using measures to slow surface water runoff from developed areas and increase infiltration.**

2. The proposed stormwater facilities are designed to control a twenty-five (25) year storm event while withstanding the discharge and being capable of conveying runoff from a one hundred (100) year event. Also, treatment facilities such as detention basins have been designed to treat and control the water quality volume (WQv) from developed areas. Pollutant loading is discussed in Appendix 10A, "Operational Phase Stormwater Quality Management Plan."

3. The objectives of the stormwater management plan are to:

   - Prevent increased runoff from developed land to reduce potential flooding and flood damage.
   - Minimize the erosion potential from new construction.
   - Increase water recharge.
   - Enhance the quality of stormwater runoff to prevent water quality degradation and preserve water quality in receiving water bodies, including City water supply reservoirs.

4. Stormwater impacts associated with clearing and grading, along with the development of golf holes, roads and buildings have been mitigated. This has been achieved through the use of devices such as swales, roadside ditches, catch basins, pipes and micropool extended detention basins. To control stormwater runoff, 69 stormwater management areas have been sited. The stormwater facilities control the twenty-five (25) year, Type II storm event while withstanding the discharge from a one hundred (100) year event.

   The intensity of rainfall varies considerably during a storm as well as over geographic regions. To represent various regions of the United States, SCS developed four rainfall distributions (I, IA, II, and III) from available National Weather Service duration-frequency data. Type II is the type of storm that SCS has mapped for the Crossroads assemblage Type II represents the most intense, short duration rainfall of the four different distributions.

5. The stormwater system for the proposed project will utilize on-site storage with outlet devices to regulate the stormwater discharge. The system is designed to discharge from the storage basins to the existing drainageways. The proposed peak runoff for the project is designed to not exceed the pre-development peak runoff conditions for a 25-year design storm event.

6. The stormwater management system for the project is designed in accordance with the October 2001 New York State Department of Environmental Conservation (NYSDEC) Stormwater Management Guidelines. This includes peak flow attenuation and water quality treatment through control of the water quality volume.

7. The majority of the stormwater will be directed through proposed micropool extended detention basins controlled release rates from the basins. The micropool extended detention basins will also serve to capture water quality volume contaminants.

8. The drainage system as designed will function conservatively and will not adversely affect downstream or adjacent properties.

9. Implementation of the operational phase Stormwater Management Plan presented in Appendix 9A, will result in no net increase in runoff volume to existing drainageways.

10. All operational phase stormwater micropool extended detention basins will be maintained in accordance with Section 6.16 of the Stormwater Design Manual and the maintenance requirements included with the stormwater management design report (Addendum 1 in Appendix 10, and included in Appendix 11). This includes such things as sediment removal, trash racks, and a pond drains.

    Materials removed as part of detention basin maintenance will be used on site. As described in the Integrated Turf Management Plan for the Resort golf courses, (Appendix 14) course maintenance often applies the application of very thin layers of coarse topdressing to the golf course turf. Much of the materials that will accumulate in the detention basins will be sand from road sanding. Therefore this material will be suitable for topdressing material on the golf course.

F. Operational Phase Stormwater – Water Quality

A detailed report on managing stormwater to protect water quality is included in Appendix 10A, "Operational Phase Stormwater Quality Management Report."

To determine the effects of the project on stormwater quality a computer stormwater quality simulations has been employed. This stormwater quality simulation, WinSLAMM, is based on an Environmental Protection Agency (EPA) model that is maintained by a private company (PV and Associates, Madison, Wisconsin). WinSLAMM is a windows version of SLAMM, Source Loading and Management Model.

The goal of the project's stormwater management program is to control the runoff water quality to reach the lowest possible nutrient or contaminant load and to match pre-development stormwater quality. This has been accomplished by locating stormwater management facilities throughout the developed portion of the project as well as the low density of development that is proposed for this project.

The stormwater management system is composed of pipes, open channels, and micropool extended detention ponds for water quality maintenance. The open channels are rock lined to better manage the velocity of the runoff by providing rough channels.

The micropool extended detention pond designs (Details shown on Plan Sheets CP-17 and CP-18) provide for settling while at the same time minimizing standing water to avoid thermal impacts. The ponds tend to be narrow so that the water is shaded as much as possible. Each pond will have multiple outlets to allow for dispersion of the

stormwater events accumulated runoff as well as allowing for infiltration of stormwater captured in the detention ponds. It is necessary to release the stormwater in order to avoid thermal loading associated with standing water and to avoid adverse impacts to local coldwater stream life.

Addendum 1 of Appendix 10 contains the Design Report for the proposed operational phase stormwater management system, and the Design Report provides details on how the proposed system complies with the requirements contained in the October 2001 New York State Stormwater Management Design Manual. Addendum 2 of Appendix 10 provides additional design information as well as a discussion of the soils data used in designing the stormwater management system. The proposed system conforms to the sizing guideline found in the Design Manual for the water quality volume, and in all cases exceeds that sizing requirement.

To keep the results of the water quality modeling conservative, the WinSLAMM model functions for porous pavement have not been utilized. Therefore, the analyses reflect the total amount of impervious surface area regardless of whether it is porous or conventional pavement. The analysis was also conservative from the standpoint that WinSLAMM does not allow the modeling of detention basins in a series, as proposed as part of the project. Thus, the additional nutrient reduction that is obtained from multiple basins in series is not reflected in the analyses included and discussed in Appendix 10A.

The WinSLAMM modeling of the proposed stormwater management system has closely examined the export of phosphorus and fine tuned the stormwater system to minimize the transport of phosphorus. This fine tuning of detention and stormwater releases balances the need to control phosphorus while minimizing the potential for thermal loading of detained stormwater.

G. Golf Course Pesticide Use

In order to mitigate potential impacts to surface water and aquatic biota as a result of pesticide runoff, an Integrated Turf Management Plan (see Appendix 14) was prepared based upon the results of a Fertilizer and Pesticide Risk Assessment (see Appendix 15). The results of the Risk Assessment were used to eliminate those available golf course pesticides which had the potential to migrate and potentially impact fish and aquatic invertebrates. **Based on the analyses of these conditions, only those pesticides which do not pose a threat to local stream biota will be used on the proposed golf courses.**

The analyses that were undertaken involved simulating worst case conditions that will occur on the proposed golf courses, including their soils, slopes, and weather conditions. These site conditions were combined with other factors, such as different pesticides that could be used and their different chemical properties, in order to predict how much, if any, pesticides could be carried off the proposed golf course in runoff. The worst case predictions of potential pesticide concentrations in runoff were then compared to how toxic the different pesticides are to fish and other stream life.

Table 3-12, "Pesticide Screening Process", provides a general description of the pesticide screening process. The pesticides that were even considered for use and analyzed in the site-specific pesticide modeling met a hierarchy of three standards. Pesticides had to be registered for use on turf by the USEPA as well as by New York State. (Not all USEPA registered products are registered for use in New York.) Additionally, pesticides analyzed in the Risk Assessment are recommended by Cornell University for use for specific pests in commercial turfgrass in their 2002 recommendations of effective turf pesticides. Since this is a publication that is updated annually, there will be an annual reevaluation of those products that can be safely used on the Belleayre Resort golf courses.

Those pesticides meeting the above criteria above were then subjected to three different computer models. The models were the Windows Pesticide Screening Tool (WINPST) developed by the US Soil Conservation Service, the Leaching Estimation and Chemistry Model (LEACHM) developed by Agronomists at Cornell University, and the runoff component of the Groundwater Loading and Erosion from Agricultural Management Systems (GLEAMS) model developed by the US Department of Agriculture. All of these models utilize site-specific data, including data pertaining to soils, topography, climate, anticipated turf pests, etc. Modeling input data also included using the highest allowed application rate for each modeled pesticide as well as simulating multiple applications of the same pesticide, even for those pesticides where it would be highly unlikely that multiple applications, much less a single application, might be required in any given year. In reality, most of the pesticides modeled in the risk assessment will not be applied to the proposed golf courses in any given year.

This last point deserves further discussion. The use of pesticides that were modeled in the risk assessment can be described as a "preventative" approach to controlling turf pests with pesticides. This preventative approach essentially is a calendar-based approach whereby pesticides are routinely applied on a given schedule regardless of the presence or absence of pests or the level of pest occurrence. This is the absolute opposite approach to pest control that will be implemented on the proposed golf courses. The Integrated Turf Management Plan for the proposed golf courses that is contained in Appendix 14 explains how the approach to pest control on the proposed golf courses will be "curative" rather than preventative. No pesticide application will even be considered until a particular turf pest exceeds a specific threshold level. This integrated approach to pest management relies on non-pesticide methods to promote healthy turf that does not provide conditions under which pests can flourish. These non-pesticide methods include proper cultural controls as well as available biological pest controls. The Integrated Turf Management Plan contained in Appendix 14 provides a description of potential turf pests, non-pesticide methods of control, the threshold levels where pesticide use should be considered, and the safest pesticides to be used, if and when any pesticide use may be necessary to prevent turf destruction. The proposed golf courses will be regularly monitored for pest occurrences and pest levels, and if and when any pesticide application is necessary, these applications will occur only on those areas where pest levels exceed thresholds. **This is a "spot-treatment" approach rather than a "blanket-treatment" approach to pest control.**

Computer modeling of pesticide fate, both from a runoff standpoint and a leaching standpoint, was based on worst case conditions integrated into the modeled conditions. For example, runoff modeling was performed on the most steeply sloped golf hole, the proposed 18th hole on the Big Indian County Club. Similarly, the analysis of leaching tendencies was based upon the shallowest soil profile actually occurring on the proposed golf courses. The climate data set used in the modeling was from 1996, a year when rainfall was much higher than the average year. Higher rainfall promotes both higher runoff and leaching in the computer modeling.

The computer modeling produced predictions of pesticide concentrations in runoff and from leaching through the modeled soil profiles. It was these "edge of field" or "bottom of profile" concentrations that were used in the Pesticide Risk Assessment. Under actual field conditions these concentrations would be greatly reduced by dilution due to mixing with the receiving surface water or groundwater resources. These dilution factors were not incorporated into the risk assessment to provide a truly worst case analysis. In essence, the risk assessment consisted of, among other things, using undiluted runoff or leachate as potable water for the human health portion of the risk assessment, and using the undiluted concentrations as actual in-stream concentrations for the aquatic life portion of the risk assessment. The fact that the proposed golf courses are separated by significant distances from both potable water resources and local surface water resources was purposefully not included in the risk assessment in order to produce an extremely conservative set of factors upon which pesticide use on the proposed golf courses will be restricted.

These undiluted runoff concentrations were compared with drinking water standards established by the USEPA as well as the New York State Department of Health. Similarly, the undiluted pesticide concentrations were compared with published toxicity values for trout and aquatic invertebrates. Any pesticide that under worst case modeling conditions produced undiluted runoff or leachate concentrations that exceeded either drinking water standards or aquatic toxicology values will not be used on the proposed golf courses.

The following is excerpted from the Risk Assessment contained in Appendix 15.

GLEAMS modeling produces export quantities of water and pesticide residues at specified regular intervals. The results from the GLEAMS modeling of the long and relatively steep eighteenth fairway used for a most conservative approach, were compared with aquatic toxicology values to form the basis of this portion of the risk assessment. GLEAMS produced storm-by-storm concentrations of pesticides in runoff, and these **undiluted** concentrations were compared with the LC_{50} values for fish (most often rainbow trout) and aquatic invertebrates (preferably stonefly or mayfly larvae if available, but usually the water flea-*Daphnia*). The LC_{50} value is the concentration that is lethal to 50 of the test organisms over the duration of the toxicology test. More toxic substances have lower LC_{50} values. Most LC_{50} determinations are made during a 96-hour

test period. Rainbow trout and *Daphnia* are commonly used when performing toxicology tests.

LC_{50} values were primarily taken from scientific literature reports as compiled in Balough and Walker (1992). Other sources for LC_{50} values included a USFWS database of toxicity of freshwater animals (Mayer and Ellerseick, 1986), "Agrochemicals Desk Reference, Environmental Data" (Montgomery, 1993), and the "Herbicide Handbook of the Weed Science Society of America" (Humburg et al., 1989). Manufacturer's Technical Bulletins or MSDS were used only to fill data gaps not filled by other sources.

There were a total of 141 days where precipitation fell or irrigation was applied when 1996 was simulated. There was some runoff from the edge of the modeled 18th fairway on 46 days. The maximum number of days when any one particular active ingredient was present in runoff was 25 days. The average rainfall on these days was over an inch.

A total of 53 products and their runoff potential were analyzed using GLEAMS. As expected, based upon previous WINPST modeling, runoff potential varied. All products except two were present in runoff in varying degrees at some time during the simulated worst case conditions. However only eight of the 53 active ingredients modeled had maximum undiluted runoff concentrations that exceeded the lower LC_{50} value for rainbow trout or aquatic invertebrates.

Table 5, "Comparison of Maximum Runoff Concentrations and Toxicology Values," presents the different products analyzed, the maximum concentration found in runoff, and toxicology data for each product. The last column of Table 4 compares the maximum runoff concentration to the toxicology of the more sensitive test organism. Using the highest concentration generated from worst-case modeling in conjunction with the most sensitive toxicological data introduces an additional conservative measure into the risk assessment.

A total of 8 products; 5 insecticides (carbaryl, chlorpyrifos, deltamethrin, trichlorfon, cyfluthrin), 2 fungicides (thiram, iprodione) and 1 herbicide (pendemethalin) had maximum undiluted runoff concentrations that exceeded the lowest LC_{50} value for that product.

As a result, the following products will not be used on the proposed golf courses:

- carbaryl
- chlorpyrifos
- trichlorfon
- thiram
- iprodione

- pendemethalin
- cyfluthrin
- deltamethrin

Among the products not recommended for use are cyfluthrin and deltamethrin. Cyfluthrin and deltamethrin are two of the products from a category of compounds known as pyrethrins. Pyrethrins are compounds derived from the chrysanthemum plant, or what could be considered an "organic" product. Cyfluthrin is by far the most toxic to aquatic invertebrates of all the pesticides analyzed. This illustrates that not all organic pest controls pose less of a threat to non-target organisms than their inorganic counterparts.

As shown in Table 5 in Appendix 15, the other 45 products had worst case maximum runoff concentrations that were a very small fraction of the lowest LC_{50} value and can be used safely on the proposed golf courses without impacting aquatic life in on-site and off-site surface water.

The following conservative factors used in the modeling provide an added degree of safety in the Risk Assessment:

- Higher than anticipated use of individual pesticides was modeled, including multiple applications of insecticides, and using the shortest re-treatment intervals allowed for the fungicides simulated.
- Comparisons of undiluted runoff concentrations with the most sensitive aquatic toxicology values were used as the basis of accepting or rejecting a pesticide.
- The steepest slopes on either of the two golf courses was modeled and results from these conditions were applied to all areas on both proposed golf courses,
- Rainfall data that totals 19 inches above the thirty-year average were used in the model.

H. Golf Course Fertilizer Use

In order to mitigate potential impacts to surface water as a result of increased phosphorus and nitrogen loading from golf course fertilizer use an Integrated Turf Management Plan (see Appendix 14) was prepared based upon the results of a Fertilizer and Pesticide Risk Assessment (see Appendix 15). The results of the Risk Assessment were used to design a proposed fertilizer program that would result in healthy turf that is better able to withstand turf pest pressure, and simultaneously not result in significant phosphorus and

nitrogen loading from the proposed golf courses. The following is an excerpt from the Risk Assessment.

The methodology that was employed was similar to that used for pesticides described above. But instead of analyzing pesticide runoff and toxicity to stream life, this analysis involved fertilizer application programs and runoff of nutrients to local streams.

The loss of nitrate and phosphorus in runoff from the sloped 18th fairway on the Big Indian Country Club golf course was analyzed using the GLEAMS model. Nitrate was analyzed to assess potential health effects in the event runoff water ends up as groundwater or surface water used as drinking water. Phosphorus was analyzed because it is the nutrient that most often limits biological productivity in surface water. Significant increases in phosphorus loading could accelerate eutrophication of receiving waters such as the Ashokan and Pepacton Reservoirs.

Nutrient export as a result of fertilization was examined for a number of potential fertilizer programs, including the program described in Appendix 15 Section 3.1, "Fertilizer – Groundwater Risk Assessment" and detailed in Appendix 15 Table 3, "Fertilizer Program." In addition program, a to this total of four pounds of nitrogen per year split over ten applications, a four pound per thousand square feet application was also simulated using five applications. This was done to analyze the effects of applying the same 4 lb./M/yr. of fertilizers program, but using fewer applications. A two pound per thousand square feet program was also simulated to determine the effect of lower fertilizer application rates on nutrient export. The reduced application rate was also simulated two ways, splitting the two pounds per thousand square feet into ten applications and five applications.

Phosphorus application rates varied with the different programs described above. The amount of phosphorus applied was dictated by the types and amounts of the different fertilizers applied. The two fertilizers that were used vary in their relative amounts of phosphorus.

The ratio of nitrogen to phosphorus to potassium in fertilizers (N:P:K ratio) describes the relative amount of these three elements in a particular fertilizer. For example, the Sustane ® product used in the modeling has a 5:4:2 N:P:K ratio. This means that 5% of Sustane is nitrogen, 4% is phosphorus, and 2% is potassium. Or, in other words, for every five ponds of nitrogen applied in Sustane® 4 pounds of phosphorus is applied (or 0.8 pounds of phosphorus per every pound of nitrogen). For the 31:3:10 High Maintenance Pro Turf ® product simulated in the May and September applications, approximately 0.1 pound of phosphorus was applied for every pound of nitrogen.

Below is a table describing the different fertilizer programs analyzed for nitrogen and phosphorus runoff.

Table 3-13
Modeled Fertilizer Programs

Program Number	Total Nitrogen Applied (lb/M)	Total Phosphorus Applied (lb/M)	Number of Applications
1	4	1.4	10
2	4	0	10
3	4	1.4	5
4	4	0	5
5	2	0.7	10
6	2	0.7	5
7	2	0	10
8	2	0	5
9	0	0	0

The following table presents the total annual export of nitrogen and phosphorus under the nine different fertilizer programs described above. Total annual export is in kilograms of nutrients per hectare.

Table 3-14
Nutrient Export from Modeled Fertilizer Programs

Program Number	Nitrogen Export (kg/ha)	Phosphorus Export (kg/ha)
1	1.91	4.14
2	1.91	0.48
3	1.93	4.15
4	1.93	0.48
5	1.61	2.30
6	1.64	2.39
7	1.61	0.48
8	1.64	0.48
9	1.49	0.48

A number of conclusions can be made from these data.

- Distributing the total amount of fertilizer applied between 10 applications and 5 applications does not significantly affect nutrient export. Comparing program 1 to program 3 shows N export increasing from 1.91 to 1.93 kg/ha and phosphorus export increasing from 4.14 kg/ha to 4.15 kg/ha when comparing distributing the total amount applied in 10 applications versus 5 applications.

- Decreasing nitrogen application rates in half reduces nitrogen export by more than one half. For example, program 3 with 4 lb N/M has nitrogen export 0.44 kg/ha higher than program 9 that does not have any fertilizer applications

(background levels). Program 6 with 2 lb N/M has nutrient export that is 0.15 kg/ha higher than background levels (1.64 vs. 1.49 kg/ha).

- Decreasing phosphorus applications by half results in a decrease in phosphorus export in half. Comparing phosphorus export of programs 3 (4.15 kg/ha) and 6 (2.39 kg/ha), as done above, shows increases of phosphorus export above background levels of 3.66 kg/ha at the higher application rate and 1.82 kg/ha at half higher the application rate.

1. Nitrates

Like the other risk assessments discussed above, it was undiluted concentrations of nitrate in runoff that was compared with the State and Federal standards for nitrates in drinking water, MCL = 10 mg/l. Forty-six (46) rainfall events produced runoff in the GLEAMS modeling. None of the total nitrogen concentrations in runoff events exceeded 10 mg/l. The highest nitrate concentration in runoff was 1.44 mg/l. Concentrations of nitrate were greater than 1 mg/l on only three occasions. Thus, even undiluted total nitrogen concentrations, of which nitrate is only a part, never approached the drinking water standard for nitrate.

2. Phosphorus

Because the Crossroads assemblage is located within the watersheds of two of New York City's water supply reservoirs, the Ashokan and the Pepacton Reservoirs, increased phosphorus export as a result of golf course fertilization practices is a serious concern.

In order to keep phosphorus export from the proposed golf courses within minimal or acceptable levels, the fertilizer programs described above were adjusted to decrease the total amount of phosphorus applied in order to keep phosphorus export levels consistent with other lands within the watershed.

Existing levels of phosphorus loading to Ashokan and Pepacton Reservoirs were analyzed by the New York City Department of Environmental Protection (NYCDEP) in 1999. These analyses were performed in order to develop phase two phosphorus total maximum daily load (TMDL) calculations for the two reservoirs. Data from the two reports that were used for this Risk Assessment were the current watershed nutrient loadings on an area basis, and phosphorus export coefficients for grassed areas used in NYC DEP's modeling of watershed nutrient loading and to calculate TMDL levels.

Using the watershed areas of the two reservoirs as well as the current phosphorus loading rates, it was calculated that the average phosphorus loading rates for Ashokan and Pepacton Reservoir is 1.41 kg/ha and 0.58 kg/ha respectively.

When modeling watershed phosphorus loading to the two reservoirs from the land use identified as "grass areas", NYC DEP utilized export coefficients of 1.11 kg/ha and 1.10 kg/ha for the Ashokan and Pepacton watershed's respectively.

GLEAMS modeling of the steeply sloped 18th fairway on the Big Indian Country Club golf course using an annual application of 0.3 pounds of phosphorus per 1,000 square feet resulted in an annual export of 1.35 kg P/ha. This is slightly less than the 1.41 kg/ha watershed average calculated by NYCDEP.

GLEAMS modeling of the 18th fairway on the Big Indian Country Club golf course was also performed in order to meet the 1.11/1.10 export coefficients used in NYCDEP's modeling for TMDL calculations. Modeling of the worst case conditions indicates that reducing the annual phosphorus application to 0.25 pounds of phosphorus per thousand square feet will result in an annual export of 1.11 kg/ha.

I. Golf Course Irrigation

No surface waters will be diverted, dammed or otherwise used for golf course irrigation. The bedrock well proposed to supply a portion of the irrigation water to the Big Indian Country Club is not hydraulically connected to the surficial aquifer or Birch Creek.

No adverse impacts have been identified and no mitigation measures are necessary.

J. Petroleum and Chlorine Storage

Bulk petroleum and chlorine storage will take place in compliance with all local, state and federal regulations.

1. As stated previously, petroleum (gas and diesel) storage at the golf maintenance areas and golf clubhouse cart storage areas will be above ground in concrete-encased tanks or in tanks surrounded by concrete containment of sufficient capacity to capture and hold the total storage volume of the tanks, and that pumps will be protected by bollards.

2. As state previously, heating oil will be used to heat the buildings and fuel water heaters on the project site. All heating oil tanks will be located inside of buildings on concrete floors. There will be no underground heating oil storage tanks included in the project.

3. Bulk chlorine for use in Resort pools and spas and for potable water treatment will be stored in their original containers in indoor locations and on concrete floors with floor drains connected to above ground storage capable of holding the entire volume of materials that could possibly be spilled.

K. Springs as Water Sources

Water supply and the limited backup roles of springs in providing water for the project are discussed in section 2.2.3 as well as the following section 3.3. Appendix 7 contains the water supply report for the project.

1. The primary water source will be a groundwater well (R2) capable of serving the project needs. Silo A would be used only as a backup.

2. Backup use of Silo A should be curtailed once the flow within Crystal Spring Brook falls below 861 gpm. The Tennant Method threshold of 797 gpm for Crystal Spring Brook might not be met if Silo A Spring is utilized during these low flows.

3. The well R2 primary source will continue to be used during drought conditions.

3.3 Groundwater Resources

3.3.1 Existing Conditions

A. Published Reports –Delaware County

The basic characteristics of the groundwater resources in Delaware County are summarized in Soren, (1963) as follows:

"The principal aquifers of the county are gently folded continental red, gray, and gray-green sandstones, siltstones, and shales of Late Devonian age and stratified drift of Pleistocene age. A very small amount of water is drawn from Pleistocene till and from Upper Devonian marine rocks which crop out in a small area in the northern and northwest parts of the county. Most of the wells tap bedrock aquifers; the stratified drift, where coarse and saturated, is a greater producer, but these deposits are relatively undeveloped in most of the county. Yields from bedrock wells reportedly range as high as 550 gpm (gallons per minute), although most are less than 50 gpm. Yields up to 1,000 gpm have been reported from wells in saturated, coarse stratified drift, and yields of more than 100 gpm are common from wells in such deposits. Yields from dug wells in till are generally a few hundred gallons per day. Much ground water discharges naturally from springs throughout the county, and many springs are utilized for individual and public supply systems. Reported spring yields of 5 to 10 gpm are common and others range upward to 100 gpm.

The groundwater of Delaware County is usually soft, contains moderate to high concentrations of iron, and is usually low in dissolved solids. In a few areas of the county, the groundwater is moderately hard to hard and has high chloride and dissolved-solids concentrations; hydrogen sulfide and natural gas also have been reported. "These objectionable qualities are attributed to marine beds of the Middle Devonian and, perhaps, older marine units where these rocks are nearer the surface along low anticlinal crests and faults, and where faults and joints may provide paths for migration of water to the overlying strata from which the water is tapped." (Soren, 1963). The thick deposits of stratified drift in the larger valleys are capable of supporting greater development.

B. Village of Fleischmann's Water Supply System

As noted in Appendix 7, "Conceptual Design Report for the Wildacres Resort and Highmount Golf Club/Highmount Estates Water Supply, Treatment and Distribution", Section 5.1, and its Subappendix C, "Village of Fleischmanns Water Supply Investigation Data", the Village's water supply consists of a combination of springs and wells. Well #1 is a bedrock well with a yield of approximately 94 gallons per minute (gpm). Well #2 is a bedrock well which yields 180± gpm. Well #3 is also a bedrock well, and has a yield of approximately 60 gpm. The capacity of the springs which contribute to the village supply is about 64 gpm.

C. Published Reports – Ulster County

The groundwater resources of Ulster County occur in Pleistocene sand and gravel deposits of glacial origin and in Precambrian and Paleozoic consolidated rocks.

Frimpter, 1972, notes that the sand and gravel aquifers generally are small and restricted to the valley areas, but some can be recharged rapidly and, therefore, yield large quantities of water. Numerous smaller sand and gravel aquifers are scattered throughout the valleys. A major part of the Esopus Creek valley does not contain a sand and gravel aquifer but is filled with relatively impermeable clay and silt. The consolidated rock has secondary porosity and is a dependable aquifer for small domestic supplies, but not generally for municipal and industrial supplies.

Iron, manganese, and hydrogen sulfide are the most common and troublesome chemical pollutants of the groundwater in Ulster County but the water is generally of good chemical quality for public water supplies (Frimpter, 1972).

D. Pine Hill Water Company Water Supply System

Downgradient from Big Indian Plateau, the Hamlet of Pine Hill is serviced by the Pine Hill Water Company (PHWC). The PHWC has been privately owned since its inception, circa 1893. PHWC provides potable drinking water to approximately 140 customers.

The Pine Hill Water Company (PHWC) owns a series of three springs known as the Bonnie View Springs (#1-#3) (on a 0.787-acre parcel) and Depot 'Station' Road Spring (on a 0.6-acre parcel). In addition the PHWC owns 2 drilled wells and leases a third well from an adjacent land owner. PHWC also owns two reservoirs, known as the Bonnie View Reservoir and the Depot 'Station' Road Reservoir, and a 0.9 acre parcel of unimproved land.

The neighboring Hamlet of Pine Hill receives their potable water from the PHWC and specifically the Bonnie View Springs. The three springs are situated at the end of Bonnie View Avenue parallel to Crystal Spring Brook at an elevation of approximately 1,550 feet AMSL. The water generated at each of the three springs is directed to the PHWC

treatment system where the water receives treatment for corrosion and disinfection prior to being discharged into a storage reservoir and then to the Pine Hill distribution system. The Bonnie View Springs are conservatively estimated to provide a flow rate of 85 gpm (125,280 gpd) (See Appendix 19, "Surface Water and Groundwater Assessment Big Indian Plateau.").

Depot 'Station' Road Spring is located approximately 1,700 feet southeast of the Bonnie View Springs, adjacent to where Bonnie View Avenue intersects Station Road. Depot 'Station' Road Spring and its adjacent reservoir are currently in a state of disrepair. Neither of the assets are connected to the existing water supply system or operational, nor have they been for some time. This spring has the potential to produce a conservatively estimated 39,600 gpd (low flow). The spring is considered an emergency water supply for the PHWC. In an emergency, the spring could be accessed in a relatively short period of time to temporarily serve the Hamlet by utilizing a portable pump, a generator, overland pipe, and temporary casing. Use of this source in an emergency would also require a boil water order since no treatment would be provided.

An 'Application for Modification of a Public Water Supply Permit' was submitted to the NYSDEC in April 2001. The purpose of the application was to clarify and document the existing assets of the PHWC. Additionally, the permit application requested approval for the taking of up to 210,000 gpd of water. This total taking provides for both the demand of the current customers (average of 75,407 gpd in 2001) and reserve capacity. The permit was issued September 12, 2002.

A water improvement project, funded by the Drinking Water State Revolving Fund, is in design to address a number of improvements for the PHWC system. Improvements include the provision of a well or wells to act as a permanent backup source to the Bonnie View Springs, improvements to the spring source protection, provisions for storage and extensive distribution system repairs. The assets of the PHWC enumerated in the current public water supply permit have been purchased by the Town of Shandaken.

E. Existing Wells on the Crossroads Assemblage and in the Vicinity of the Crossroads Assemblage

The water supplies at the existing developed areas of the site consist of wells and springs. Well and spring locations are noted in Figure 3-16, "Well Location Map." "PH" indicates the location of the Pine Hill system of springs and reservoirs. A well, known as the mid-road well, located at elevation 1700± is 698 feet deep in shale and has a yield of 6 gpm. This well was constructed on October 22, 1999. This is a 6 inch diameter well with 40 feet of casing. The well encountered hardpan from the surface to 29 feet, and bedrock consisting of bluestone, green sandstone and red shale from 29 to 688 feet.

At the Brisbane (Turner) Mansion site there is a six-inch well, 15± years old and a spring-fed concrete reservoir (approximately 10 feet x 20 feet x 15 feet deep = 22,440 gallons) and a spring(s) located south of the mansion.

Locations of other (unused) springs on the Crossroads assemblage are indicated on Figure 3-16, "Well Location Map."

Well logs provided by Titan Drilling Corporation for the NYCDEP Pine Hill Wastewater Treatment Plant indicate that the two wells are both 172 feet deep, and 6 inches in diameter. Both wells yield over 60 gpm from sandstone. Both wells have 110 feet of 6 inch diameter casing. Bedrock was encountered at 97 feet and 100 feet, respectively, below grade.

A well (R1) was drilled on the project site at a location east of the Belleayre Beach at Pine Hill Lake, south of Friendship Road and north of Birch Creek, as shown on Figure 3-16, "Well Location Map." This well was constructed in May 2000 and is 8 inches in diameter and 224 feet deep. Sandstone was encountered at a point 80 feet below grade. The bedrock encountered consists of a layered series of green, red and blue sandstone and red shale. The overburden to 80 feet consists of sand and gravel, and some clay. This well yields over 100 gpm. The static water level is 28 feet. A 24 hour long pump test was conducted on this well in October 2000. Pumping was initiated at a rate of 115 gpm and was reduced gradually to 104 gpm at a stabilized drawdown of 101 feet for the last four hours of the test. Within 24 hours of the cessation of pumping, the well recovered to within three feet of the static level (96% recovery). Water samples were analyzed and indicate the presence of some turbidity, which is often encountered in shale wells. Once such a well is in operation, often this turbidity clears up after a sustained period of pumping. Additional testing of this well and an adjacent well (R2) was conducted in the fall of 2002. Simultaneous testing of the wells demonstrated that well R1 is capable of sustaining a long term rate of 57 gpm. (See Appendix 7, "water Supply Reports.")

Potable water for the existing Wildacres Hotel is obtained from a well located about 400 feet northwest of the hotel structure. This well is 447 feet deep and yields about 4 gpm. A 10,000 gallon underground concrete reservoir provides storage. A low yield well that is about 300 feet deep is located next to the Marlowe mansion, on its east side. A well was constructed in October 1999 about 600 feet northeast of the house (known as Wildacres pool well). This well is 6 inches in diameter, has 50 feet of casing, is 498 feet deep, and yields an estimated 25 to 30 gpm. Bedrock consisting of layers of bluestone, green sandstone and gray and red shale was encountered at a point 41 feet below grade. There are springs (and associated springhouses) located south of the mansion and motel. Refer to Figure 3-16, "Well Location Map."

There are also springs and spring houses located on the former Leach farm parcel near the Delaware/Ulster County line.

A well was constructed in November 2000 beyond the end of Van Loan Road, above the railroad tracks. This well, known as the "Janis East well", is 6 inches in diameter and 698 feet deep. There is 40 feet of casing. The well yields 30± gpm. Bedrock consisting of blue and gray sandstone, red shale and bluestone was encountered at a point 34 feet below grade.

Refer to DEIS Section 3.6, "Soils", Table 3-15, "Soil Characteristics and Limitations", for information regarding the depth of the water table at the site.

There are 6 functioning wells at the Belleayre Mountain Ski Center. The original three were drilled in 1992. The first is by the upper lodge and is 800 feet deep with a yield of 5 gpm. The second is part way down towards the lower lodge and is 600 feet deep with a yield of 35 gpm. The third is at the summit, it is 900 feet deep with a yield of 1+ gpm. Three more wells were drilled in 2002 down by the cross country parking area. The first is 350 feet deep with a yield of 60 gpm. The second is 500 feet deep with a yield of 18 gpm. The third is 500 feet deep with a yield of 4.5 gpm.

3.3.2 Potential Impacts

A. Water Use

The eastern extension of the project (Big Indian Plateau) will utilize 91,854 gallons per day of potable water from a well and a spring as a backup source. The bedrock well (well R2) is located near Friendship Road and Birch Creek (refer to DEIS Section 3.2, "Surface Water Resources"). Because the wells tap a confined aquifer with no connection to the surficial aquifer, withdrawal of water from the well will not affect flows in Birch Creek or any other surface water. Refer to Exhibit F of Appendix 7, "Conceptual Design Report for Big Indian Plateau Water Supply, Treatment and Distribution.." Water conserving devices will be utilized.

The western most portion of the project (the Wildacres Resort, the Highmount Golf Club and Highmount Estates) will obtain its potable water supply from the Village of Fleischmanns public water supply system, and will utilize an estimated 109,308 gpd. The Village water system has sufficient excess capacity with which to serve the project. Refer to Appendix 7, "Conceptual Design Report for Wildacres Resort and Highmount Golf Club/Highmount Estates Water Supply, Treatment and Distribution." Base flows to Emery Brook will be maintained.

B. Irrigation Water

The source of irrigation water for the Big Indian Country Club will include groundwater from the well known as Rosenthal Well 1 (Well R1). This well has the capacity to safely producing 77 gallons per minute (gpm) when pumped alone, and 57 gpm when simultaneously pumped with the nearby potable water supply well (R2). Pump test data is included in Appendix 7, "Water Supply Reports."

The wastewater treatment facility on Big Indian Plateau will also contribute to the irrigation water supply for the Big Indian Country Club.

A number of factors allow groundwater to be one of sources of irrigation water without negatively impacting local ground water resources or surface water resources.

First, the irrigation ponds for the Big Indian Country Club have a storage capacity of approximately 7.4 million gallons (see Section 2.2.5). Most golf courses typically have irrigation storage volume in the range of one to three million gallons. By oversizing the storage capacity, the required withdrawal rates from the water source can be lowered. Belleayre Mountain snowmaking is a similar situation. Pine Hill Lake has a storage capacity of over twenty seven million gallons. This allows a large snowmaking operation to be able to utilize a source of water that is not terribly large, Birch Creek, while still protecting the quality of Birch Creek. Even though Pine Hill Lake is fed by surface water and the proposed irrigation ponds are fed by groundwater, both systems involve sources with finite supply capacity.

The proposed ponds will be dug ponds, there will be no dam holding back water. The ponds will be excavated into rock and will be lined with geotextile liners.

All irrigation water for the golf course will be taken from the irrigation ponds. Irrigation water will not be taken directly from well R1. Well R1, as described in Appendix 19, "Surface Water and Groundwater Assessment Big Indian Plateau", and Exhibit F of Appendix 7, "Conceptual Design Report for Big Indian Plateau Water Supply", has no impact on surface water, specifically on the adjacent Birch Creek.

Golf courses in the area, including the Windham Country Club, the Links at Union Vale vary in amounts of irrigation water applied to water the 18 hole golf course (irrigation cycle) but fall within the range of 145,000 to 300,000 gallons per irrigation cycle. An irrigation cycle can be considered the full watering of the golf course play areas (18 holes with tees, greens, fairways), and at the higher end of the range, also watering portions of the rough areas closest to the play areas. With 7.4 million gallons of storage available, and using the range of 145,000-300,000 gallons per irrigation cycle, the ponds at the Big Indian Country Club will have a storage capacity of almost 25 up to 50 irrigation cycles of irrigation water available without any replenishment from the well or the treatment plant.

Irrigation is only performed when necessary, and when there is a deficit between natural rainfall and soil water lost to evaporation and plant uptake. Obviously, the need for irrigation is weather dependant and will vary week by week, month by month, and season to season. At times, irrigation may not be required for weeks because of sufficient precipitation . Or, on the other hand, two or three full irrigation cycles per week could be required during the driest periods when precipitation is lacking. Using the storage numbers from above (25 to 50 irrigation cycles stored in the ponds), at worst case, the irrigation ponds have storage for a full eight week period, using the highest application amounts, during the driest period, and watering the entire golf course. This is without any replenishment from the groundwater well or the treatment plant.

Irrigation will likely be required during the months of June, July, August and September, or a total of around 122 days out of the year. Table 3-16 "Big Indian Country Club Irrigation With Well R1 Replenishment", provides a water balance scenario of what could happen under the very heavy irrigation demands of 3 cycles per week, or

approximately a full irrigation cycle every other day, and also the scenario of a full irrigation cycle every third day throughout the entire four month period. The every other day scenario in Table 3-16 is an absolute worst case scenario for the entire four month period and is extremely unlikely to occur during any growing season due to weather factors such as precipitation events, cooler air temperatures, etc. The every third day scenario in Table 3-16 also overestimates irrigation demand. It is unlikely that for the entire four month period that irrigation is going to be required every third day. There will be those weeks during the growing season, because of rainfall patterns, that a single irrigation event, or possibly no event, may be necessary in a given week or weeks.

In the water balance in Table 3-16, each irrigation cycle involves applying 250,000 gallons of water over the entire 18-hole golf course, and pond replenishment from well R1 at a rate of 57 gpm. Based on simultaneous pump test data collected on wells R1 and R2 (the proposed potable well for Big Indian Plateau) the aquifer in which these wells are located is capable of supplying the potable needs of the project as well as 57 gpm for irrigation water supply without impacting surface flows, i.e., nearby Birch Creek, in any fashion due to the confined nature of the aquifer that the well draws from. When pump tested by itself well R1 demonstrated a safe yield of 77 gpm and did not impact Birch Creek water levels.

The every third day scenario, on average, can be considered a somewhat typical occurrence for the drier parts of the growing season when precipitation is lacking. Under this scenario for the entire four month period, the large amount of storage in the irrigation ponds is evidenced by the final volume of water in the ponds which is 7.08 million gallons or over 95% of the original 7.4 million gallon storage volume. Even under the worst case condition of having to irrigate every other day over the entire four month period, an extremely unlikely condition, the irrigation pond will still have water remaining at the end of the period, approximately 2.08 million gallons. This doesn't even take into account the treatment plant which is capable of supplying 80,000 to 100,000 gpd that would not have to come from well R1.

Regardless of the amount of depletion of water within the irrigation ponds during the growing season, the ponds can be gradually refilled during the non-growing season. Even under the heavy depletion scenario to 2.08 million gallons at the end of the growing season, the ponds can be refilled by pumping from the 57 gpm well (R1) an average of approximately six hours per day during the non-growing season. Under the every third day scenario when 7.08 million gallons of water remain in the ponds at the end of the four month period, the pond can be replenished by pumping from well R1 at 57 gpm for an average of one half hour per day during the non-growing season. Using R1 to fill the ponds at the end of the season will unlikely be necessary, given the availability of the treatment plant to provide water to the irrigation ponds.

In the preceding analysis natural pond replenishment by precipitation and also replenishment by stormwater control contribution have not been considered. These two factors will serve to further reduce the demands placed on the proposed irrigation well. Local meteorological data collected at Slide Mountain and summarized for the project

area indicates that on average there are 60.24 inches of precipitation for the year. Average annual pan evaporation for the area is 20.5 inches. Based on these data there is a net difference of 39.74 inches of precipitation. Direct precipitation input to the 3.5 acre ponds, less the expected evaporation losses, will be approximately 3.8 million gallons per year, on average. Climatological data indicate that the Crystal Spring Brook drainage basin receives more annual precipitation on average than the rest of the upper Esopus Creek drainage basin. Significant variations in the amount of total precipitation occur throughout the Catskills due to orographic effects caused by the mountainous nature of the geography. Daily precipitation measured at Slide Mountain (NOAA Station ID 307799) is likely to be more similar to the project area than any other station since it is the closest, is at a comparable elevation and is in a similar physiographic setting.

The irrigation ponds are situated near the high point of the subcatchment in which they are located. Therefore, the amount of stormwater that will enter the pond as natural runoff or captured runoff from the Big Indian Resort and Spa will be inconsequential. Based on HydroCAD stormwater analyses, a ½ inch storm can be expected to contribute a little over 6,500 gallons of stormwater, while a one inch storm would contribute 48,874 gallons of stormwater to the irrigation ponds. While not a substantial amount of water, this still represents a decrease in the amount of water that would be needed from well R1 for irrigating the Big Indian Country Club.

More importantly, the analyses described above also do not take into account the availability of an average of approximately 108,000 gallons per day of treated wastewater from the wastewater treatment facility proposed to serve Big Indian Plateau. Such an abundant source of additional water for irrigation significantly reduces the demands that will be placed on groundwater resources to provide irrigation water. Thus, the above analyses, using groundwater alone as the source to provide irrigation water, are truly conservative, and demonstrate that even under the highest demands on groundwater resources there will be no significant impact to this resource.

C. Wastewater Disposal

Wastewater from the project will be treated by different treatment facilities, specifically designed for the project site. Refer to Appendix 8 that includes "Conceptual Design Report for Big Indian Plateau Wastewater Treatment and Disposal," and, "Conceptual Design Report for the Wildacres Resort and Highmount Golf Club/Highmount Estates Wastewater Treatment and Disposal."

The option of utilizing the existing Pine Hill Wastewater Treatment Plant for disposing of a portion of the project's wastewater is a viable alternative. However, NYCDEP has stated to the Applicant that the treatment plant is not available for use for this project, although no specific basis for this decision was provided, other than liability concerns. Section 5.5, "Alternative Wastewater Disposal", provides a detail description of the different alternatives for wastewater disposal that were evaluated.

D. Stormwater Control

The stormwater system for the proposed site will utilize on-site storage with outlet devices to regulate the stormwater discharge. The system is designed to discharge from the storage basins to the existing drainageways. The proposed peak runoff for the project is designed to not exceed the pre-development peak runoff conditions for a 25-year design storm event.

The stormwater management system for the project is designed in accordance with the New York State Department of Environmental Conservation (NYSDEC) and New York City Department of Environmental Protection (NYCDEP) Stormwater Management Guidelines. This includes peak flow attenuation and water quality treatment through control of the water quality volume.

The majority of the stormwater will be directed through proposed detention basins which will control the release rate from the basins. The detention basins will also serve to capture "first flush" contaminants.

The drainage system as designed will function conservatively and will not adversely affect downstream or adjacent properties (See Appendix 9A, "Operational Phase Stormwater Quantity Management Plan.").

Implementation of the Operational Phase Stormwater Quantity Management Plan presented in Appendix 9A, will result in no net increase in runoff volume to existing drainageways.

E. Grading

Groundwater will be impacted only where grading (excavation) will occur at or below the water table level. If groundwater is encountered during the construction phase, temporary settling basins will be used to reduce the potential for downgradient sedimentation. If necessary, foundation drainage systems will be installed in order to intercept and divert groundwater away from the building.

F. Maintenance and Operations Practices

If proper practices and products are not employed, groundwater quality can potentially be impacted by use of pesticides and fertilizers on the proposed golf courses. An Integrated Turf Management Plan (Appendix 14) is presented for the golf courses that assures that only environmentally acceptable and safe product are proposed for use.

Similarly, groundwater quality could potentially be impacted by accidental releases such as gasoline or home heating oil. Proper storage practices will mitigate this potential impact.

G. Operational Phase Water Budget

The purpose of the water budget analysis is to estimate the amount of infiltration to the ground water system under existing conditions and under post-development conditions at Big Indian Plateau (see Appendix 19). The results indicate that infiltration to the ground water system for the project area under existing conditions is approximately 1.170 gpm per acre. The results of the water budget completed under future, post-development conditions indicate that infiltration to the ground water system in the project area will be approximately 1.167 gpm per acre. This change indicates that there is a very slight decrease in infiltration to the ground water system. This equates to a loss of 3.7 gpm recharge to the ground water system, from the entire 1,242-acre site. Golf course irrigation, not included in this analysis, will have a net effect of an increase in infiltration to the ground water system. However, the magnitude of this increase is not expected to be significant since the amount of irrigation to be supplied will be carefully controlled to maximize plant uptake and minimize losses in either percolation or runoff.

A water budget analysis was also prepared for the Wildacres Resort (see Appendix 19A). The area covered by the analysis was approximately 723 acres and considered the historical use of groundwater as the source of potable water in the Village of Fleischmanns. The result of the analysis indicate that approximately 0.96 gpm per acre is anticipate to be the post-development infiltration rate. This slight increase represents a gain of approximately 14.8 gpm of recharge over the entire 723 acre area. This minimal increase in infiltration is due to the positive infiltration characteristics of the golf course surpassing the negative infiltration characteristics of the impervious surfaces. Irrigation and pond infiltration were not considered in this analysis but would result in additional surcharge. Since the study area is upgradient of Fleischmanns water supply the water resources available to the Village will not be limited by the development.

3.3.3 Mitigation Measures

The following mitigation measures are proposed to avoid and/or minimize any negative impacts to groundwater resources.

As noted above, base flows to downgradient surface water resources will be maintained. Refer to DEIS Section 3.3.2.

A. Potable Water Supply

1. Water conserving devices will be utilized.

2. A new water supply system will be used to supply potable water to the eastern portion of the project site.

3. Existing public water supply systems will be the source of the western portion of the project's potable water requirements, pursuant to NYSDEC/NYSDOH amended water supply permits.

B. Irrigation Water Supply

1. The Big Indian Country Club will have a series of irrigation ponds with a total storage volume of approximately 7.4 million gallons.

2. All irrigation water for the 18 hole golf course will be withdrawn from the irrigation ponds. There will be no direct withdrawals of water from well R1 for irrigation.

3. During the non-growing season pumping irrigation water from well R1 to the irrigation ponds can be scheduled to occur at night when potable water demands from well R2 will be lowest.

4. Pond replenishment during the non-growing season can be accomplished by limited daily amounts of pumping time from well R1 extended through the long non-growing season.

5. The initial filling of the pond will occur early in the construction process when there is no demand for potable water, therefore, the proposed potable source (well R2) and well R1, as well as precipitation, will be available to fill the irrigation ponds initially.

6. During the driest periods the operator of the golf course has the option of only irrigating the tees and greens on the golf course. Since greens and tees represent roughly 10% of the golf course, irrigation demands could be reduced by 90%. Fairway turf may go dormant at this time but it will not die. The turf will come out of dormancy once precipitation or irrigation increase soil water levels.

7. The potable water supply well (R2) will be equipped with a water level monitor and this water level monitor will be connected with the power supply for the pump in well R1. Should water levels approach the level below which this well can provide adequate potable water, the pump in the irrigation water well will be shut off and will not be turned back on until water levels in the potable well recover.

8. The analyses conducted to assess use of groundwater for irrigation water supply did not take into account the availability of an average of approximately 108,000 gallons per day of treated wastewater from the wastewater treatment facility proposed to serve Big Indian Plateau. Such an abundant source of additional water for irrigation significantly reduces the demands that will be placed on groundwater resources to provide irrigation water. Thus, the analyses discussed above, using groundwater alone as the source to provide irrigation water, are truly conservative, and demonstrate that even under the highest demands placed on groundwater resources there will be no significant impact to this resource.

C. Wastewater Disposal, Stormwater Control, Sediment and Erosion Control

Wastewater from the project will be treated and disposed of pursuant to a NYSDEC SPDES permit.

1. Silt fence and construction fence will be installed prior to construction at the limit of all fill and grading activities. This will provide a visual limit for contractors so that areas not identified for construction can be avoided.

2. After construction is complete, stormwater will be directed to proposed drainage structures and to the proposed detention areas designed to accommodate the 25 year storm.

3. The water collection and inlet system will be designed to intercept as much sediment and organic debris as reasonably possible. A SPDES Permit for Wastewater will be obtained from the NYSDEC. NYCDEP approval of the stormwater management system will also be obtained prior to construction. The DOH will review and approve proposed water and sewer services to the site.

4. If groundwater is encountered during the construction phase, temporary settling basins will be used to reduce the potential for downgradient sedimentation.

D. Golf Course Maintenance

1. In order to mitigate potential groundwater impacts from golf course fertilizer and pesticide use, a Fertilizer and Pesticide Risk Assessment (see Appendix 15) was performed. Results of the Risk Assessment were used in part to formulate an Integrated Turf Management Plan for the proposed golf courses (see Appendix 14). The Integrated Turf Management Plan describes non-chemical maintenance methods to be employed to reduce fertilizer and pesticide use. When fertilizer and pesticide is needed, specific products and practices are provided to mitigate potential impacts to groundwater. The following are excerpts from the Risk Assessment describing mitigation measures to prevent groundwater impacts from fertilizer and pesticide use.

2. As discussed previously in Section 2.4.8, inert ingredients of pesticides that can be safely used on the project site have been analyzed. For the inert ingredients identified most are from USEPA's "List 4" which are those inert ingredients listed as "inerts of minimal concern." None of the inert ingredients identified are from USEPA's "List 1", "Inerts of Toxicological Concern."

E. Fertilizer - Groundwater Risk Assessment

Groundwater quality will not be impacted as a result of turf fertilization on the proposed golf courses. This conclusion is based upon the comparison of federal and state drinking

water standards for nitrate with maximum undiluted leachate nitrate concentrations from a fertilizer program that is at the upper limit of what is recommended for turf in this area.

Both the Federal (USEPA) and the New York State Maximum Contaminant Level (MCL) for Nitrate (as N) in public drinking water supplies is 10.0 mg/l. Maximum Contaminant Level is the maximum permissible level of a contaminant in water which is delivered to any user of a public water supply. The 10.0 mg/l standard for nitrate-N has withstood several critical examinations, and current evidence suggests the nitrate standard provides reasonable protection to newborns against methemoglobinemia (National Research Council, 1978). This 10.0 mg/l standard was compared with undiluted leachate concentration from a four (4) pounds nitrogen per thousand square feet per year (4 lb N/M/yr.) fertilizer program. Leachate concentrations used for comparison with the MCL are those that were predicted to occur immediately below the simulated Lewbeach soil series which is the best drained soil series mapped where the golf course areas are proposed on the project site.

At no time did undiluted leachate concentration exceed the state and federal standard of 10.0 mg/l under the 4 lb N/M/yr. fertilizer program. Figure 1 in Appendix 15, "Leachate Nitrate Concentrations With and Without Fertilization (10 mg/l)", illustrates nitrate leachate concentrations in relation to the 10 mg/l drinking water standard. At no point during the two-year simulation did nitrate concentrations even exceed 1 mg/l, much less the 10 mg/l drinking water standard.

For comparison purposes, the Lewbeach soils were also modeled without any fertilizer applications. The assessment of leachate without fertilizer application was performed for comparison due to the fact that nitrate is present in fairly substantial amounts in rainfall. The no-fertilizer simulation provides a prediction of what background nitrate concentrations can be expected in leachate.

Figure 2 in Appendix 15, "Leachate Nitrate Concentrations With and Without Fertilization (1 mg/l)", presents the same data in Figure 1 but on a compressed scale. This figure more precisely illustrates the nitrate concentrations in leachate with and without fertilizer applications. With the exception of periods during the late fall, nitrate leachate concentrations with and without fertilizer applications were very similar. Even with the fertilizer applications totaling four pounds per thousand square feet per year, nitrate leachate concentrations never exceed 0.5 mg/l, which is only 5% of the drinking water standard of 10 mg/l. The relatively higher leachate nitrate concentrations seen in the late fall are a result of two factors. Precipitation in one week prior to the sharp rise in nitrate concentrations was nearly 4.5 inches, including one storm that produced three inches in one day. The second factor affecting the late fall slight increases in nitrate leaching is that the grasses are slowing their nutrient uptake, and there is still some fertilizer nitrogen remaining in the soil profile from the last fertilizer application in September.

The following conservative factors used in the modeling provide an added degree of safety in the Risk Assessment:

- The fertilizer program analyzed was at the upper end of the recommended range (4 pounds per thousand analyzed, 2-4 pounds is likely to be applied).

- Undiluted nitrate leachate concentrations from the bottom of the modeled soil profiles and not within groundwater were compared with federal and state drinking water standards of 10 mg/l.

- The best drained soils on the proposed golf courses were modeled.

- Rainfall data from 1996 that totals 19 inches above the thirty year average was used in the modeling and irrigation was inputted in ½ inch intervals during those times when evapotranspiration exceeded precipitation.

- In the LEACHM model there is no surface runoff. The modeling assumes flat ground and that all rainfall and irrigation is available to move into the soil profile. This is obviously not the case in many situations where rainfall intensity exceeds the soils infiltrative capability and runoff occurs. This results in more fertilizer being available for transport through the soil profile than would actually occur under actual field conditions.

F. Pesticide - Groundwater Risk Assessment

Analysis of the potential risk of groundwater impacts from the use of turf pesticides on the proposed golf courses was performed in a manner similar to that for nitrates as described above. Leachate concentrations of pesticides were compared to New York State Department of Health (DOH) Part 5 drinking water standards. Part 5 is not specific for any of the maximum contaminant levels (MCL) of the pesticides analyzed except for the herbicide 2, 4-D (MCL=0.05 mg/l) which is listed as a Group I Contaminant.

Other standards that were compared to predicted leachate concentrations were NYSDEC's surface water and groundwater Quality Standards and Groundwater Effluent Standards (6NYCRR Part 703), as well as NYSDEC's Division of Water Technical and Operational Guidance Service (TOGS) Number 1.1.1 (reissued June 1998). Ambient standards and guidance values were found for eleven active ingredients; benefin, carbaryl, chlorthalonil, 2,4-D, dicamba, glyphosate, mancozeb, pendemethalin, PCNB (quintozene), thiram, and trifluralin.

For all other active ingredients not specified in Part 703 or TOGS 1.1.1, a 50 ppb Standard was applied consistent with the value provided for unspecified organic contaminants (DOH Part 5).

A total of 310 pesticide/pest/soil scenarios were modeled by LEACHM, including a total of 53 different pesticide active ingredients. A total of 177 out of the 310 scenarios modeled by LEACHM produced no leaching of pesticide through the simulated Elka, Halcott, Lewbeach, Vly, and Willowemoc soils. The number of pesticide/pest/soil type

scenarios that had some leaching, but maximum undiluted leachate concentrations within drinking water standards, was 100. Only 33 of the 310 scenarios modeled had maximum undiluted leachate levels in excess of drinking water standards, and these consisted of 13 of the 53 pesticide active ingredients modeled.

Table 4 in Appendix 15, "Maximum 1996 Leachate Concentrations by Soil Type as Predicted By LEACHM," gives the maximum concentrations of pesticides in leachate for the pesticides/pests/soils analyzed. Bold numbers in Table 4 are those concentrations that exceeded the Part 5 drinking water standards and Part 703/TOGS 1.1.1 standards. These concentrations are undiluted leachate concentrations.

- Any pesticide that produced undiluted leachate in excess of standards for drinking water will not be used on the proposed golf courses.

The following conservative factors used in the modeling provide an added degree of safety in the Risk Assessment:

- Higher than anticipated use of individual pesticides was modeled, including multiple applications of insecticides, and the shortest re-treatment intervals allowed for the fungicides was simulated.

- Undiluted pesticide leachate concentrations were compared with federal and state drinking water standards.

- All of the soils mapped on the proposed golf courses were modeled, and results from the soils showing the highest concentration of pesticide in leachate were applied on a site-wide basis.

- Rainfall data from 1996 totaling 19 inches above the thirty year average was used in the modeling and irrigation was inputted in ½ inch intervals during those times when evapotranspiration exceeded precipitation.

- In the LEACHM model there is no surface runoff. The modeling assumes flat ground and that all rainfall and irrigation is available to move into the soil profile. This is obviously not the case in many situations where rainfall intensity exceeds the soils infiltrative capability and runoff occurs. This results in more pesticide being available for vertical transport through the soil profile than would actually occur under field conditions.

G. Proposed Groundwater Monitoring Program

In addition to all of those mitigation measures described above to safeguard groundwater quality, the following groundwater monitoring program will be implemented to make sure that the mitigation measures are effective in protecting local groundwater.

1. Pesticide Application Records

6NYCRR Section 325.25 requires that golf courses keep true and accurate records of pesticide use. Records must show the kind and quantity of each pesticide used, dosage rates, methods of application, target organisms, and the use, date and place of each pesticide used. Records are required to be maintained on an annual basis and retained for a minimum of three years. Annual reports derived from these records are required to be submitted to the central office of the NYSDEC.

If requested, copies of annual records will also be sent to the Regional Office in New Paltz.

Access to pesticide application records will be available to the Towns of Shandaken and Middletown. This will provide a means of checking for compliance with the pesticide use recommendations contained in the Integrated Turf Management Report prepared for the golf courses at the local level. It is envisioned that Town personnel, such as the Code Enforcement Officer, would perform annual or semi-annual reviews for compliance.

2. Groundwater Quality Testing Program

To validate the safety of chemical maintenance activities on the proposed golf courses, the Applicant proposes to conduct groundwater quality sampling on the project site in proximity to the two golf courses. Collection of groundwater samples for analyses for fertilizer and pesticide residues will be done before and after construction.

a. Testing Parameters

Groundwater will be tested for nitrate and pesticides. Pesticides that will be tested for will be those that have been used on the golf course to date and for which Standard EPA test methodologies exist. For baseline samples pesticides will be analyzed for using the general EPA Method 8081.

b. Sampling Timing and Frequency

Two sets of baseline samples will be taken prior to construction.

There will be no fertilizer or pesticide use during the construction phase. Therefore, there will be no need to sample groundwater during construction.

All parameters will be tested for annually in groundwater during the grow-in phase and the operational phase. The Applicant proposes to conduct the operational phase monitoring program for a period of five years after

starting operations. If no adverse water quality effects are observed after five years of monitoring, the monitoring program will be terminated.

c. Sampling Locations

Groundwater will be sampled from two wells that currently exist on the project site.

On the Big Indian Plateau there is an existing well just downhill of hole 11 of the Big Indian Country Club. This is the "mid-road well" described in Section 3.3, "Groundwater." This is a six-inch bedrock well.

The "Rashid well" described in Section 3.3 will be the groundwater monitoring location near the Highmount Golf Club. This well is located approximately 250 feet down hill of the 13th green of the Highmount Golf Club, and approximately 200 feet west of the 15th green. This is also a six-inch well in bedrock.

d. Sampler

The Applicant will contract with a Department of Health accredited laboratory to collect and analyze samples.

e. Data Summary

Laboratory results will be summarized in a brief report prepared by the golf course superintendent. Reports will be maintained on site with the annual pesticide application records. These reports will also be available to the Department and the Towns to review.

f. Application of Data

Any pesticide detected above the Health Department median concentration limit (MCL) for drinking water shall be re-sampled for within a week after receiving the laboratory report indicating such a finding. If the second sample still shows the level for this pesticide being above the MCL, then this pesticide will no longer be used on the particular golf course where the contamination was detected (e.g., either Big Indian Country Club or Highmount Golf Club).

Similarly, if nitrates exceed the drinking water standard of 10 mg/l in a sample, the well will be re-sampled within a week after receiving the laboratory report. If the second sample still exceeds drinking water standards, fertilizer nitrogen application rates will be reduced by one pound nitrogen per thousand square feet per year, and the percentage of slow-release nitrogen applied shall be increased by a factor of 50%.

H. Petroleum and Chlorine Storage

The following measures are proposed to mitigate potential impacts to groundwater by petroleum products and bulk chlorine storage.

1. There will be no underground storage of petroleum products.

2. Home heating oil tanks will be located within the buildings they serve. All tanks will be on concrete, or similarly impervious floor and will be equipped with automatic shutoffs to prevent tank overfilling.

3. Gasoline and diesel fuel storage at the golf course maintenance buildings, golf clubhouses, and standby generator buildings will be above ground, covered from above, and be of the self-containment type or sufficient containment will be constructed under and around them.

4. Fuel pumps will be protected with concrete bollards.

5. Bulk chlorine for use in Resort pools and Spas and for potable water treatment will be stored in their original containers in indoor locations and on concrete floors with floor drains connected to above ground storage capable of holding the entire volume of materials that could possibly be spilled.

3.4 Climate and Air Quality

3.4.1 Existing Conditions

Climate in the area has been characterized as having cold winters with moderately warm summers with occasional hot spells (USDA SCS 1974). Average monthly temperatures range from a low of 24.4° F in January to a high of 70.7° F in July. The frost-free period generally is between early May and mid-October in Ulster Country and the growing season ranges between 150 and 200 days. Precipitation is well distributed throughout the year. Average annual precipitation measured at a local monitoring station in Arkville is 38.47 inches. Approximately half of the precipitation falls during the growing season that is generally April through September. Prevailing winds are from the west/southwest and highest winds generally occur in March.

The project is located in Ulster and Delaware Counties, which are both classified as attainment areas for carbon monoxide and ozone. New York State collects air quality data for numerous pollutants at monitoring stations in each county through a program operated by the Bureau of Air Quality Surveillance. The EPA prescribes what pollutants are required to be monitored at different locations based on the characteristics of each region. Therefore, monitoring stations are disbursed throughout New York State with each station monitoring certain pollutants. The data from each monitoring station is recorded and summarized in the "New York State Air Quality Report, Air Monitoring

System." The latest version of this report was compiled in 1998. The monitoring station at Belleayre Mountain in Ulster County, which monitors sulfur dioxide, ozone, and inhalable particulates is located within the project limits. Due to the rural characteristics of the project area, carbon monoxide is not monitored at Belleayre Mountain. The closest monitoring station to the project site that monitors carbon monoxide is located in Schenectady. Based on the results of the NYSDEC report, these stations were all in compliance with the current New York State and Federal Ambient Air Quality Standards for each pollutant in 1998.

3.4.2 Potential Impacts

Air quality on and around the project site could potentially be affected by emissions from vehicles associated with the proposed project and the potential for impacts also exist if there was a proposed increase in wood burning fireplaces and/or wood stoves.

A. Vehicle Emissions

An air quality assessment was conducted for the proposed Belleayre Resort at Catskill Park. The air quality assessment conducted conforms to the procedures followed by the New York State Department of Environmental Conservation (NYSDEC). Currently, the NYSDEC follows the procedures outlined in the New York State Department of Transportation (NYSDOT) Environmental Procedures Manual (EPM), Chapter 1.1, Air Quality, updated June 1999. These procedures address the Clean Air Act Amendments of 1990 and guidance from the Environmental Protection Agency (EPA). Below is a discussion of the assessment.

1. Microscale Air Quality

   a. Requirements

      A microscale air quality analysis is performed to determine carbon monoxide (CO) concentrations at various worst case receptors adjacent to the roadways in a project area. Based on the procedures outlined in the EPM, worst case receptors are typically chosen at signalized intersections where a level of service D, E, or F exists for the build conditions. This criterion typically applies to signalized intersections. Unsignalized intersections do not typically warrant a detailed air quality analysis since the major-street high volume approaches at these intersections operate as free flow conditions. Any intersection requiring a detailed air quality analysis based on the level of service criteria undergoes additional screenings based on an analysis of the site conditions with respect to the reduction in source-receptor distances, traffic volume increases, vehicle emission increases, and speed reduction. The screening process is used to pinpoint locations where vehicle emissions will be the highest and will contribute to the background air quality. Any detailed air quality analysis is conducted using CAL3QHC, Version 2.0, which is a computer based air quality dispersion model. This model is based on traffic parameters from

the "Highway Capacity Manual" (HCM) and is capable of analyzing intersection and free flow receptors.

b. Analysis

Based on a review of the Final Scoping Document and an assessment of the intersections analyzed in the Traffic Impact Study prepared for the project (see Appendix 25), the seven intersections listed below were assessed for air quality:

- NY Route 28/County Road 47
- NY Route 28/Main Street
- NY Route 28/County Road 49A
- County Road 49A/Belleayre Main (upper) Driveway
- Pine Hill Road/Main Street/Bonnieview Avenue/Academy Street
- NY Route 28/NY Route 214
- NY Route 28/NY Route 42

The information presented in the Traffic Impact Study prepared for the project indicates that all seven intersections in the project area are unsignalized intersections that do not require a detailed air quality assessment. Intersection improvements were recommended at the NY Route 28/County Road 49A intersection to install a three-phase traffic signal to operate during the winter months and on flash mode during the other months. With the installation of this traffic signal and geometric improvements to add turn lanes, the intersection is expected to operate with an overall Level of Service B during the AM and PM peak Saturday conditions. Since this intersection is not expected to operate at a LOS D, E, or F, a detailed air quality analyses is not required.

Based on the above site screening analysis, a detailed microscale air quality analysis is not necessary since this project will not increase traffic volumes, reduce source-receptor distances or change other existing conditions to such a degree as to jeopardize attainment of the National and New York State ambient air quality standards for carbon monoxide.

2. Mesoscale Air Quality

a. Requirements

A mesoscale air quality analysis is conceptually similar to the microscale air quality analysis, however, it covers a larger geographic area, typically larger than the immediate project area. In addition to carbon monoxide, a mesoscale air quality analysis monitors for volatile organic compounds (VOC) and nitrogen oxides (NO_x). In general, a mesoscale air quality analysis is required for projects involving the addition of through travel lanes (substantial in length) on main thoroughfares and major modifications to highway interchanges. Based on the air quality analysis criteria for a mesoscale air quality analysis found in Chapter 1.1 of the EPM, the proposed project does not meet the requirements for a quantitative mesoscale air quality analysis.

3. Other Pollutants

a. Ozone

Ozone concentrations are not estimated as part of an environmental analysis for a transportation project. Motor vehicles do not emit ozone. Although they do emit precursors of ozone (VOC and NO_x), the amount of these emissions are small compared to the total emissions for the regional area and would not affect ozone concentrations at or in the vicinity of the project site. In addition, these emissions are transported many miles before the action of sunlight and atmospheric chemistry causes ozone to be formed. Ozone problems are regional problems that are addressed on a scale much larger than the typical project and its relationship to transportation impacts. Ozone concentrations in the project area are not meaningfully affected by the project itself.

b. Particulate Matter (PM_{10})

The proposed project is located in an area classified as attainment for particulate matter. Based on procedures outlined in Chapter 1.1 of the EPM, particulate matter emissions are not typically modeled as part of a project air quality analysis regarding transportation impacts. Projects that may require an analysis of PM_{10} include bus and/or rail terminal construction where the number of diesel vehicles congregating at a single location would increase, which are typically located in New York City (a PM_{10} non-attainment area). However, based on the current standards and the project area attainment status, an analysis of particulate matter is not warranted or required for traffic associated with this project.

B. Wood Burning Fireplaces

Large numbers of fireplaces or wood stoves concentrated in smaller areas have the potential for negatively impacting local air quality. In order to avoid this potential impact, planned wood burning fireplaces or wood stoves on the entire 1,960 acre assemblage have been limited to a total of 13 woodburners, five of which are existing fireplaces at the Marlowe Mansion and the Brisbane Mansion. Currently, there are a total of 16 fireplaces and wood stoves on the project site. Two camps and one house each with wood burning stoves that are currently located on the property will not remain once the project is complete. The Leach farmhouse at Highmount Estates has three fireplaces. Also there are two additional fireplaces at the Marlowe mansion and two additional fireplaces in the Brisbane mansion that will not be used. There will be two new woodburning fireplaces at the Big Indian Resort and Spa, one at the Wildacres Resort, and two at the Wilderness Activity Center, one of which is an outdoor pit. Therefore, there will a net decrease of three (3) known wood burning fireplaces or stoves as a result of the construction of the project. All other fireplaces on the proposed project will utilize LP gas. A decrease in three (3) fireplaces or wood stoves over the 1,960 acre assemblage will not result in a significant change in emissions or impact to local air quality.

The unknown aspect of the project as it relates to fireplaces or wood stoves in the 20 single family homes in the proposed Highmount Estates subdivision. It can be expected that some of these residences, if not all, will have some type of fireplace or wood stove. It can also be expected that at least some, if not many, of these homeowners may choose to install an LP gas fireplace as opposed to a wood burning fireplace. Even if all of the 20 homes in the subdivision installed a wood burning fire place or a wood stove, the project would only produce a total potential maximum increase in 17 fireplaces or woodstoves across the entire 1,960 acre assemblage.

C. Fugitive Dust

Construction activities, particularly vehicles traveling temporary dirt construction roads has the potential for raising dust which could be carried by wind off of the project site.

The proposed rock crushers and concrete batch plant can also produce dust when they are in operation.

An air quality impact analysis was performed for one concrete batch plant and two rock crushing plants proposed to be temporarily installed and operated during the construction of the Project. The purpose of the analysis was to define plant designs and operating scenarios such that existing residential properties would not experience any significant air quality impacts from the particulate emissions of these plants. The analysis involved the development of emission rates from various plant emission sources and air dispersion modeling that predicted ambient air concentrations of particulate at distances from the plants. The results of the analysis show that the plants will not create significant air quality impacts at the nearest existing residences. The impact analysis approach and

results, along with assumptions used regarding the plants' design and operations, are provided in Appendix 22A.

D. Blasting

The use of blasting has consistently been used over several decades at the Belleayre Mountain Ski Center without causing any significant adverse environmental impacts. It is doubtful that most residents are even aware of the blasting which periodically occurs at the Ski Center. Ski Center staff, including a licensed blaster, use blasting mats, and small amounts of charge are used in the blast design. No dust or sound has been an issue by this work. The area near the Ski Center is sparsely populated, and no complaints have ever been received at the Ski Center in relation to blasting (Mr. Anthony Lanza, Belleayre Mountain Ski Center, personal communication to H. Elmer, The LA Group, March 1, 2001). Blasting at the Ski Center typically occurs about 8 to 10 times per construction season (which consists chiefly of the summer months).

3.4.3 Mitigation Measures

No significant impacts to local air quality from project-related traffic or wood burning fireplaces are anticipated, so no mitigation measures are necessary.

In order to mitigate potential impacts from fugitive dust, construction roads that are in use will be watered using a water truck on an as-needed basis to control dust.

In order to mitigate potential impacts from blasting activities, shots will be designed to minimize ground vibration and air blast. Also, blasting mats of suitable size and material will be employed to dampen noise and contain blasted materials.

Appendix 22A provides a description of those mitigation measures to be employed to reduce dust and air emissions form the proposed concrete batch plant and rock crushers.

3.5 Terrestrial and Aquatic Ecology

3.5.1 Vegetation

A. Existing Conditions

Despite its large size and breadth of over 5½ miles, the project site is almost completely covered with a forest dominated by sugar maple, beech, hemlock, white ash and yellow birch. Lands comprising the assemblage and the project site have been comprehensively and repeatedly logged over the last century, including in recent years. There are a few small developed areas where there are maintained lawns and gardens, and some open, herb-dominated areas on stream floodplains. A map of the vegetation of the site is presented in Figure 17, "Ecological Community Type – Western Property", and Figure 18, "Ecological Community Type – Eastern Property." This is based on the ecological communities classification system of the New York Natural Heritage Program (Reschke,

1990). There are seven plant communities on the project site. Following is a brief description of each community:

1. Beech – maple mesic forest. Sugar maple is a constant in this community, mixed with lesser quantities of other species, including beech, yellow birch, black birch, white ash, black cherry, red maple, and hop-hornbeam. Red oak and basswood are often found as scattered individuals. Many parts of the site have been subjected to selective logging in recent years, and bigtooth aspen is common in places where this has opened the canopy in the past decade or two. In more mature stands, shrubs may be relatively sparse, consisting of a few species, including striped maple, witch hazel, and hobblebush. Where more light reaches the forest floor, northern blackberry, red raspberry, and pink thimbleberry may be common. Common herbaceous plants of this community include Jack-in-the-pulpit, blue cohosh, trillium, violets, herb-Robert, white wood aster, mountain aster, wreath goldenrod, zig-zag goldenrod, common wood sorrel, wild lily-of-the-valley, shining clubmoss, ground pine, Christmas fern, spinulose wood fern, marginal wood fern, and hay-scented fern.

2. Hemlock – northern hardwoods forest. This community is characterized by the presence of hemlock, which is usually co-dominant with hardwoods such as sugar maple, beech, yellow birch, sweet birch, and red maple. In general, the composition of this community is similar to that of the beech-maple mesic forest, although the herbaceous layer tends to be more sparse, especially where hemlock constitutes more than half of the canopy area.

3. Hemlock – hardwood swamp. Within the forests there are seepy places where wetland vegetation has developed. The dominant trees usually are hemlock and at least one or two of the following: yellow birch, red maple, green ash, and American elm. The shrub layer usually is sparse and is composed of saplings of these trees with a few shrubs such as currant, mountain maple, black elderberry, and witch hazel. Herbs present in the wetland include spotted touch-me-not, pale jewelweed, fowl manna-grass, sedges, soft rush, purple-stemmed aster, flat-top white aster, spinulose wood-fern, sensitive fern, interrupted fern, drooping woodreed, mad-dog skullcap, and foamflower.

4. Intermittent rocky stream wetland. In a number of places there are natural drainage courses that carry water only during spring snow-melt and other times of high runoff, but which are moist enough through the growing season to sustain wetland plants. Often, these are very rocky and the plants grow in small pockets where some soil has accumulated. Usually these linear wetlands are no more than 5 to 15 feet wide and have few woody plants. Typical among the herbaceous plants are pale jewelweed, spotted touch-me-not, fowl manna-grass, sedges, golden saxifrage, and foamflower.

5. Rocky headwater stream. There are a few places where Birch Creek runs through or adjacent to the eastern property. This is a permanent stream with a rocky bed, and relatively steep banks. Wetland vegetation is sparse, usually on the very edge of the stream, or in pockets which are relatively protected from high, strong flows in the stream. Plants on the stream edge include speckled alder, tussock sedge, ferns, and spotted touch-me-not.

6. Shallow emergent marsh. In some segments of drainage courses, especially where the gradient decreases, there are broad, seepy areas, often with a peaty soil. Although many of these places may have saturated soil for long periods, they may never experience inundation because of their slope. The vegetation is dominated by herbaceous plants, sometimes with a few low shrubs and tree saplings. Common plants include fowl manna-grass, sallow sedge, fringed sedge, flat-top fragrant goldenrod, giant chickweed, steeple-bush, purple-leaf willow-herb, sensitive fern, and spotted touch-me-not.

7. Shrub swamp. In one place on the floodplain of Birch Creek, there is a small patch of wetland dominated by shrub-size black willow and a few herbs, mainly spotted touch-me-not, bulrush, and sensitive fern. Another shrub-dominated area, in the western property, has some dense patches of arrow-wood and more open areas with narrow-leaf meadow-sweet.

8. Hardwood swamp. In a few wetlands there is a swampy forest of red maple, green ash, and shadbush, with a shrub and herb layer including narrow-leaf meadow-sweet, sensitive fern, interrupted fern, fowl manna-grass, flat-top fragrant goldenrod, and lady-fern.

9. Successional old field. These are open areas that were cleared of all woody plants, used for agriculture or other purposes, then abandoned, allowing natural recolonization of plants to occur. Herbaceous plants are dominant, and may include common goldenrod, rough goldenrod, tall hairy goldenrod, common milkweed, ground-ivy, hemp-nettle, bush goldenrod, wild strawberry, various grasses, and bouncing-bet. There may also be a few shrubs and small trees, including hawthorn, northern blackberry, and red raspberry.

10. Mowed lawn with trees. On the project site there are a few seasonal residences and hotel/motels. Their grounds include areas of maintained lawns and landscape plantings of various trees and shrubs.

11. Pine plantation. There are a few stands of trees that are obvious plantations. White pines may have been planted in some of these, and there is one plantation of red pine.

12. Ski slope. The part of the project site that includes the former Highmount Ski Area has a number of ski slopes, which had been mown at least several times each year. Maintenance is no longer being carried out, and so these slopes are beginning to undergo ecological succession. The vegetation is dominated by grasses and broad-leaved herbs, with many of the same plants as in successional old field areas. In some places, there are also seedlings of trees such as gray birch, paper birch, quaking aspen, and red maple.

The project site has a low diversity of plant communities and is quite homogenous.

Table 3-17, "Vegetation Communities Eastern Portion", and Table 3-18, "Vegetation Communities Western Portion", lists these different plant communities and their areas on the project site. Table 3-19 , "Existing Vegetation", combines the two tables. For the entire project site the Beech Maple Mesic Forest community comprises 81.5% of the project site. Second to this community in total area is the hemlock northern hardwoods community with 13.9% of the project site. Together these two communities represent over 95% of the project site. Twelve other communities combined constitute less than 5% of the project lands.

From examination of the vegetation, it is apparent that disturbance by human activities has been widespread and long-term on the Belleayre Resort site. Especially in the western property, the abundance of stone walls dividing the land into smaller segments suggests that most of the area, particularly at elevations below 2500 feet, had at one time been cleared and used for agricultural purposes, most likely pastures and hayfields. All of the forest stands observed on the site, even on the steepest slopes and in the wetlands, are secondary growth less than 100 years old. In the eastern portion of the project site there is an extensive network of logging roads and logging skid trails that provide access to essentially all of the 1,242 acres that comprise this portion of the project site. Evidence of current and past logging activities is common throughout, including stumps in various states of decay, scattered tree tops and slash, and a general young appearance of the existing stands of trees within wooded areas.

Scientific names of the plants mentioned above are provided in Table 3-20, "Flora of the Belleayre Resort Site," which lists all the plants identified in the course of fieldwork on the site. None of the plant species found are considered to be rare, threatened, or endangered in New York State. All of the ecological communities on the site are relatively common (Reschke, 1990), and the New York Natural Heritage Program (NYNHP) of the NYS Department of Environmental Conservation has assigned them element ranks of either S4 ("apparently secure in New York State") or S5 ("demonstrably secure in New York State"). A check of the files of NYNHP and the US Fish and Wildlife Service by these agencies revealed no records of rare, threatened, or endangered species, or of rare or unusual ecological communities within the project area (see letters in Appendix 6, "Letters of Record").

B. Potential Impacts

The proposed project will result in the disturbance of approximately 529 acres of vegetation, or approximately 27% of the 1,960 acres that comprise the total assemblage. Approximately 73% of the existing vegetation will remain undisturbed.

Table 3-21, "Vegetation Disturbance Total Site, lists the approximate size of the areas occupied by the different plant communities on the site and the amount of disturbance that will occur in each. Tables 3-22 and 3-23 break these total areas down between the eastern and western portions of the project site.

As expected, since it is by far the most prevalent community on the site, the largest amount of disturbance will take place in the beech–maple mesic forest ecological community. Approximately 430.7 acres of this community will be transformed to building sites, roadways, parking lots, golf course greens and fairways, lawns and landscaped areas. The second most affected community will be hemlock–northern hardwoods forest, of which 62 acres will be affected by development. Disturbances of less than 4 acres will occur in each of the remaining communities. Although not indicated in this table, the area of mowed lawns with trees will increase in area.

This clearing of forest represents a short-term, local, adverse impact. Once homes and other buildings, along with the associated roads and other infrastructure are constructed, natural regrowth and landscaping will occur, returning much of the cleared area to a vegetated state. The species composition of the project site will change somewhat as a result of planting of lawns, gardens, and landscape plants. Given that approximately 73% of the assemblage site will remain in its current state, the clearing of wooded areas is not likely to cause the elimination of any plant species from the assemblage.

The replacement of a forest cover with buildings, roads, lawns, and landscape plantings does have the potential to affect the hydrology of the site. These potential impacts and mitigating measures are discussed in Section 3.2.1(G), "Water Budget," which is a summary of the completed water budgets contained in Appendix 19, "Surface Water and Groundwater Assessment Big Indian Plateau", and Appendix 19A, "Water Budget Analysis Wildacres Resort."

Cutting of trees will also have an effect on wildlife that utilize wooded habitat. These impacts are discussed below in Section 3.5.3, "Wildlife."

C. Mitigation Measures

The following mitigation measures will be implanted to minimize and/or avoid any negative environmental impacts.

1. Only areas absolutely necessary for construction of proposed improvements will be cleared. All other areas will be maintained in a natural state during and after construction.

   Of the 529 total acres of vegetation to be disturbed on the 1,960 acre assemblage, only 85.16 acres will actually be developed into non-vegetated areas such as buildings and roads. The remaining 444 acres of disturbance will be revegetated by tree planting, ornamental planting or golf course areas. This constitutes 84% of the disturbed areas being revegetated.

   In all, once the project is completely built out, approximately 4% of the assemblage will not be vegetated, and approximately 96% will be vegetated.

2. The proposed tree clearing for golf course construction illustrated on the project plans represents the very outermost limit of vegetation impacts that could occur. It is extremely likely that most of the golf holes will actually require less clearing than that illustrated on the project plans.

   Clearing for golf holes is a multiple step process. The first step is to clear a 50 foot wide area along the centerline of the golf hole. The golf course architect then walks this cleared centerline. Once the architect verifies in the field that the centerline is accurate, the limits of clearing around the green and landing areas are expanded. The architect then walks the length of the hole again, defining the outer limits of clearing from the tees up to the greens. During this step particularly desirable trees that should be kept in place along the clearing line are clearly indicated. These may be particularly larger trees, or trees of a particular species in a particular location that would add to the natural character of the particular golf hole. Once the hole is cleared from tee to green the architect may then indicate where it may be desirable to clear some of the understory to create a wooded hazard area from which a golfer may play out of on that particular hole.

3. Clearcutting of vegetation beyond the proposed clearing limits illustrated on the accompanying site plans in order to create views will not be permitted. Only selective cutting of trees less than six inches diameter at breast height (dbh) and pruning up of limbs on larger trees will be permitted.

4. Upon completion of construction of the various components on the project site, the surrounding areas will be revegetated and landscaped. Areas disturbed outside of building sites will also be revegetated as soon as practicable. The planting plans included with the accompanying site plans call for the planting of over 4,100 trees on the project site. The table below summarizes the proposed replanting of trees.

Table 3-24
Summary of Proposed Tree Planting

Project Element	Coniferous Trees	Deciduous Trees
Wildacres Resort	986	532
Highmount Estates	104	70
Belleayre Highlands	325	243
Big Indian Resort	1,317	587
Total	**2,732**	**1,432**

GRAND TOTAL: 4,164 trees to be planted

The vegetation to be planted will include the following.

Table 3-24A
Plant Palette

Coniferous Trees

- *Abies balsamea,* Balsam Fir used for screening and specimen
- *Picea glauca,* White Spruce
- *Picea rubens,* Red Spruce
- *Pinus resinosa,* Red Pine
- *Pinus strobus,* White Pine
- *Pinus strobus 'Fastigiata',* Columnar White Pine
- *Pinus strobus 'Pendula',* Weeping White Pine
- *Thuja occidentalis 'Techny',* White Cedar

Deciduous Trees

- *Acer rubrum 'Red Sunset',* Red Sunset Maple
- *Acer saccharum 'Bonfire',* Sugar Maple
- *Betula papyrifera,* Paper Birch
- *Fagus grandifolia,* American Beech
- *Fraxinus americana 'Autumn Purple',* White Ash
- *Fraxinus pennsylvanica 'Marshall's Seedless',* Green Ash

Small Trees

- *Carpinus Caroliniana,* Hornbeam
- *Cornus alternifolia,* Pagoda Dogwood
- *Hamamelis virginiana,* Witchhazel
- *Ostrya virginiana,* Hop-hornbeam
- *Prunus virginiana 'Shubert',* Red Chokecherry
- *Sorbus americana,* American Mountainash
- *Viburnum prunifolium,* Blackhaw Viburnum

Shrubs

- *Amelanchier canadensisl,* Serviceberry
- *Aronia arbutifolia 'Brilliantissima',* Red Chokeberry
- *Clethra alnifolia,* Sweetshrub
- *Cornus alba 'Elegantissiama,* Variegated Red Twig Dogwood
- *Cornus sericea, Redosier* Dogwood
- *Juniperus horizontalis 'Bar Harbor',* Bar Harbor Juniper
- *Juniperus virginiana 'Grey Owl',* Grey Owl Juniper
- *Pinus strobus 'Nana',* Dwarf White Pine
- *Potentilla fruticosa 'Goldfinger',* Goldfinger Potentilla
- *Sambucus canadensis,* Black Elderberry
- *Sambucus racemosa 'Plumosa Aurea',* Gold Leaved Elderberry
- *Thuja occidentalis 'Hetz Midget',* Hetz Midget Arborvitae
- *Viburnum burkwoodi,* Burkwood Viburnum
- *Viburnum dentatum,* Arrowwood Viburnum

Ground Covers and Perennials

- *Asarum canadense,* Wild Ginger
- *Aster novae-angliae 'Alma Potschke',* Aster
- *Chelone lyonii,* Pink Turtlehead
- *Coreopsis verticillata 'Moonbeam',* Threadleaf Coreopsis
- *Echinacea purpurea Kim's Knees,* Kim's Knees Purple Coneflower
- *Eupatorium purpureum,* Joe-pye Weed
- *Filipendula rubra,* Queen of the Prarie
- *Hemerocallis var.,* Daylily
- *Iris cristata,* Crested Iris
- *Liatris spicata,* Spike Gayfeather
- *Mitchella repens,* Partridgeberry
- *Osmunda claytonia,* Interrupted Fern
- *Pachysandra procumbens,* American Pachysandra
- *Rudbeckia fulgida 'Goldsturm',* Goldsturm Black-eyed Susan
- *Solidago,* Golden Rod
- *Tiarella cordifolia,* Foamflower
- *Uvularia grandiflora,* Great Merrybells
- *Veronicastrum virginicum,* Culver's Root

Grasses

- *Festuca sp.,* Fine Fescue
- *Poa pratensis,* Kentucky Bluegrass
- *Deschampsia caespitosa,* Hairgrass
- *Schizachyrium scoparium,* Little Bluestem
- *Sporobolus heterolepis,* Prairie Dropseed

5. In addition to the over four thousand trees to be planted, planting of ornamental trees and shrubs, also numbering in the thousands, is proposed around buildings, walks, and entrance drives.

6. In addition to these tree and shrub plantings on the project site, over five acres of plantings will occur on the Big Indian Resort and Spa building itself. Appendix 13, "Big Indian Resort and Spa Recommendations for Landscaping on Elevated Structures", provides details on how these plantings will be installed and maintained.

7. To as great an extent as possible, species used to re-vegetate disturbed areas will be indigenous to the area and will otherwise not be considered "invasive" to the region. The Big Indian Resort and Spa will be Xeriscaped with especially low maintenance species as recommended by Master Gardeners from Cornell Cooperative Extension.

   Table 3-24B, "Xeriscape Plant List," presents the list of species complied by the Cooperative Extension Master Gardeners that can be used when landscaping the Big Indian Resort and Spa building.

8. Unlike many other golf courses in the region that use high maintenance creeping bentgrass for the golf course fairways, the fairways on the two proposed courses will be Kentucky bluegrass and fine fescues. These grasses require less fertilizer and are less susceptible to turf pests that could potentially require pesticide use.

9. Erosion control measures (see Sections 3.2.2 and 3.2.3) will be used on building sites and other areas with disturbed soils to avoid affecting adjacent vegetation by erosion or siltation.

10. The stormwater control system on the project site (see Sections 3.2.2 and 3.2.3) has been designed to detain increased runoff resulting from changes in vegetation cover. Water will be released at a controlled rate from stormwater detention basins to insure that peak flows in streams do not surpass their pre-development condition.

11. For the Highmount Estates Subdivision, specific clearing limits are proposed as part of draft deed covenants for the subdivision discussed in Section 2.4.4. Under these proposed covenants, no trees in excess of 4" caliper or any shrubbery may be removed between any building set back lines and the property lines.

3.5.2 Wetlands

A. Existing Conditions

As indicated in the previous section, several different types of wetland plant communities exist on the assemblage. Areas meeting the criteria to qualify as jurisdictional wetlands occupy approximately 6 (5.91 acres)acres on the eastern portion of the assemblage and

approximately 11 (10.97) acres on the western portion of the assemblage, or a total of approximately 17 acres.

Wetlands that are present on the assemblage are protected by federal regulations administered by the US Army Corps of Engineers (USACOE). The New York State Department of Environmental Conservation has not mapped any wetlands on these properties, and all of the wetlands are below the minimum size (12.4 acres) for regulation by the State. There are no state-regulated wetlands on the Crossroads assemblage or in the immediate vicinity.

The location of the boundaries of these wetlands was determined using the methods accepted by the USACOE (Environmental Laboratory, 1987). Under the federal definition, wetland areas must meet three criteria: (1) they are underlain by hydric soils, (2) they have vegetation dominated by hydrophytic plants, and (3) their hydrology exhibits evidence of inundation or high water table for significant periods during the year. Areas must also be hydrologically connected to surface waters to be considered a wetland under the jurisdiction of the USACOE.

This last requirement, the hydrological connection to surface water, is important for this project. The hydrological connection requirement was instituted by a court decision after wetlands on the assemblage were delineated. Therefore, there are some areas on the assemblage that were originally determined to be wetland under USACOE jurisdiction, but because they lack a hydrological connection to surface water, they are "isolated" areas and not wetlands under USACOE jurisdiction.

Wetland scientists of the LA Group, P.C. delineated the wetland boundaries in the fall of 1999. Positions of the wetland boundaries were determined through observation of changes in slope, vegetation changes, and changes in soil characteristics, as well as indicators of hydrology. To mark points on the wetland boundaries, pieces of plastic flagging tape were tied to trees and shrubs at intervals of 20 to 80 feet. Each flag was marked with an identification number. A licensed land surveyor located and mapped the positions of all the flags. A report providing descriptions of the wetlands and maps of their locations is presented in Appendix 17, "Wetland Delineation Report."

The ACOE issued a Jurisdictional Determination for the project on February 15, 2002. This jurisdictional determination verified the wetland delineation. Included in this Jurisdictional Determination was the ACOE's determination of which delineated wetlands were isolated and which delineated wetlands are non-isolated. Only activities within non-isolated wetlands are regulated by the ACOE. On July 10, 2002 the Applicant and their consultants met with representatives of the USACOE. At this time it was agreed that the project apparently meets the terms and conditions of the ACOE nationwide permit program. In accordance with the discussions at the July 10 meeting, a Preconstruction Notification (PCN) was filed with the USACOE in December 2002. A copy of the PCN is included in this DEIS as Appendix 17A, and supplemental information for the PCN is contained in Appendix 17B. In response to this PCN the ACOE issued a letter on July 18, 2003, stating that an individual permit is not required

for the project, and that the jurisdictional activities proposed could be accomplished under Department of the Army Nationwide Permit Number 14. (See Appendix 6, "Letters of Record".) No further authorizations are required from the ACOE.

Some of the wetlands on the assemblage are associated with drainageways that channel runoff and groundwater that has emerged at the surface. These appear to flow intermittently, during times of snowmelt and high runoff from precipitation. Mostly, these are very rocky and the few plants that grow in them are found in small pockets where some soil has accumulated. Usually these linear wetlands are no more than 15 to 25 feet wide and have no woody plants.

Birch Creek, a perennial stream, flows along the northern edge of the eastern portion of the project site. The streambed is very rocky, and the riparian wetland consists only of scattered patches of sedges and other wetland plants. In one place on the floodplain of Birch Creek, there is a small patch of shrub swamp. The creek itself, for federal regulatory purposes, is considered a water of the United States.

In a few places within the wooded parts of the assemblage, and usually associated with a drainageway, there are broad seepy places where tree-dominated swamp vegetation has developed. The dominant trees are hemlock and at least one or two of the following: yellow birch, red maple, green ash, and American elm.

The following is a description of the location of jurisdictional wetlands on the assemblage. Details regarding vegetation, soils and hydrology of each wetland are described in Appendix 17, "Wetland Delineation Report."

Summaries of the location, ecological communities, and size of the wetlands on the western and eastern parts of the assemblage are provided in Tables 3-25 and 26 "Wetland Table" east and west, respectively. Also indicated in these tables are the predominant functions and values of each wetland.

The total amount of wetlands on the assemblage consists of a number of separate areas comprising 16.88 acres, including 5.91 acres in the eastern portion and 10.97 acres in the western portion.

1. Western Portion

The total acreage of wetlands in the western portion is 10.97 acres and they are distributed as follows.

In the westernmost portion of the assemblage, on lands that are to remain undeveloped (the former Adelstein parcel), there are eight areas of wetland totaling 6.39 acres. (Wetland Delineation Report wetlands 1, 2, 4, 5, 6, 8, and 9.)

At the former Highmount Ski Center there are four small areas of wetland near the bottom of the slope that total 0.41 acres. (Wetland Delineation Report wetlands 12, 13, 14, and 15.)

On the Wildacres Resort portion of the project site there are three areas of jurisdictional wetlands. The first wetland (Wetland Delineation Report Wetland 16) is in the western portion of the Wildacres property and includes an intermittent stream that flows from the south to the north. The total area of wetland here is 3.64 acres. Towards the eastern portion of the Wildacres parcel there are two wetland areas north of Gunnison Road Wetland Delineation Report Wetland 23 and 24). These two areas of wetland are part of the same wetland system but they are separated by a parcel of land that is not part of the project site. Together they total 0.83 acre.

2. Eastern Portion

On the eastern portion of the assemblage there are five areas of wetlands totaling 5.91 acres. Wetland 27 is located along a portion of the stream in Woodchuck Hollow that is on the assemblage and totals 0.57 acres. Wetland 32 is 1.33 acres in size and is located along a portion of the creek in Giggle Hollow. Wetland 28 is a low area adjacent to and including Birch Creek totaling 1.45 acres. Near the Lasher Road bridge 0.30 acres of Birch Creek was delineated as wetland 31. To the south of wetland 31, totaling 2.26 acres, wetland 30 was delineated.

B. Project Impacts

Project impacts to jurisdictional wetlands that are discussed in the Preconstruction Notification (PCN) are summarized in Table 3-26A, "Projected Impacts to Wetlands on the Crossroads Ventures Site."

1. Wetlands 1,2,4,5,6,8,9 totaling 6.09 acres in the very western portion of the assemblage will remain undisturbed since no development is proposed for this portion of the assemblage.

   Likewise, wetlands 12, 13, 14 and 15 totaling 0.41 acres will remain undisturbed as there are no development plans for the former Highmount Ski Area that could potentially affect these wetlands.

2. Wetlands 16 and 23, totaling 4.18 acres, will not be filled, but have been incorporated in their existing states into the golf course layout. Some of the holes of the Highmount Golf Club are proposed to play over wetlands 16 and 23, and the wetlands have been incorporated into the design of the golf course to serve as hazards to be avoided by golfers, much the same as a sand bunker is designed into a golf course as a hazard to be avoided. Up to 2.31 acres of selective hand removal of some trees may be necessary to allow golfers to avoid and shoot over these hazards. Clearing widths are the minimum amount necessary to accommodate a playable golf hole. Golf course design principles call for general recommended minimum clearing widths of 100 to 150 feet at the tees widening out to 180 to 300 feet for the fairways and 200 to 300 feet at the greens (Graves and Cornish. 1998.Golf Course Design. John Wiley and Sons, Golf Course

Developments, Urban Land Institute Technical Bulletin 70. 1974.). These distances are measured perpendicular to the centerline of the golf hole. The maximum fairway clearing width proposed is 275 feet.

3. Wetland 16 will be affected by the proposed golf course cart path in the western portion of the Wildacres Resort/Highmount Golf Club. Any and all such golf cart paths that need to cross over delineated jurisdictional wetlands will be constructed of elevated "boardwalk type" wetland crossings with the deck height above grade to be equal or greater than the deck width. This type of wetland crossing requires a *de-minimus* amount of wetland activity related to the pouring of concrete supports in tightly sealed forms within wetlands. Wherever possible, boardwalk cart paths will be constructed so that all support structures are constructed in uplands. As illustrated on the project layout plans, six such crossings totaling 220 linear feet are proposed. The longest crossing is 82 feet long and the shortest is 8 feet long. All but two crossings are 5 foot wide and the other two are 8 foot wide. Elevated cart paths have been located within the golf hole clearing limits.

4. A narrow portion of wetland 24 will need to be crossed to access the detached Wildacres Resort lodging units to the north of Gunnison Road. A bridge to be constructed at the crossing will require only 14 square feet (0.0003 acre) of fill in the wetland. Details of the proposed crossing are illustrated in Figure 3-15E1, "Stream Crossing Details, Wildacres Bridge Plan & Elevation." Upstream from the bridge, wetland 24 will be crossed by a golf fairway, including 82 linear feet of golf cart path, which will require up to 0.28 acre of selective clearing of vegetation.

5. In order to construct the structural protection elements of the bridge crossing in Giggle Hollow, 0.056 acre of wetland 32 will be filled. There may also be a need to clear trees and tall shrubs for an additional 0.05 acre at that crossing.

6. In wetland 29, construction of an access road will require deposition of fill in an area of 0.036 acre (see Figure 3-15A and Drawing SG-6). Due to the limited amount of frontage on Friendship Road at this point, the extent of wetlands on the floodplain of Birch Creek, and the steep slopes adjacent to the floodplain, it is not possible to construct a roadway without some wetland impacts. Immediately south of the point where this roadway will connect to Friendship Road, it will cross Birch Creek, and area which is part of wetland 28. A bridge will be constructed at this point, but there will be no impacts to Birch Creek nor to any other part of wetland 28 (see Figure 3-15A). The effluent outfall just downstream of this bridge will require placement of rip-rap on the bank of Birch Creek which is a water of the United States under the jurisdiction of the ACOE.

7. In order to keep wetland impacts to a minimum, the wetland in Giggle Hollow, wetland 32, will be crossed by a bridge, rather than using a culvert and fill (see Figure 3-15C and Drawing SG-8). At this location, 0.056 acre of fill will be

needed in the wetland, and up to 0.28 acre of clearing of trees and tall shrubs will be necessary.

8. Wetland 36 is located at the point where Winding Mountain Road crosses Birch Creek. All the work will take place on the road right-of-way. The existing bridge at this location will be replaced by one which is wider and higher (see Figure 13). Due to widening of the approach to the bridge, it will be necessary to fill and grade a roadside swale containing a wetland. The impacted area will be 292 square feet (0.007 acre).

9. In the Big Indian Plateau area, isolated (non-regulated) wetlands that will be impacted are wetlands 26, 33, 34, and 35 (see Drawings SG-5, SG-7, and SG-9). The largest impact will be in wetland 34, where 0.34 acre of wetland will be filled or excavated to construct a road and a stormwater detention basin. Each of the other impacts from filling will be 0.04 acre or less, and will result from road construction or golf fairway construction. In addition, there will be 0.01 acre of vegetation clearing in wetland 34, on the edge of a golf hole.

SUMMARY: The project requires placement of clean fill in jurisdictional wetlands totaling 0.0993 acre. These activities are in conformance of the terms and conditions of the Nationwide Permit Program issued by the Army Corps of Engineers. A PCN has been prepared for the project (See Appendix 17A and Appendix 17B) and this PCN was filed with the Army Corps of Engineers (ACOE) for their determination of compliance with the Nationwide Permit Program. In response to this PCN the ACOE issued a letter on July 18, 2003, stating that an individual permit is not required for the project, and that the jurisdictional activities proposed could be accomplished under Department of the Army Nationwide Permit Number 14. (See Appendix 6, Letters of Record.) No further authorizations are required from the ACOE.

C. Mitigation Measures

No significant impacts to wetlands have been identified, and as such, no in-kind mitigation measures are proposed or are being required by the ACOE. However, the following mitigation measures are proposed to preserve and protect wetlands on the site.

1. A 25-foot-wide protective buffer zone will be established on both sides of wetland 32, that contains the stream in Giggle Hollow.

2. After completion of the project, all remaining wetlands, both isolated and non-isolated, will be protected from further development. This will be accomplished by means of deed restrictions and/or conservation easements on the wetlands and surrounding undeveloped lands.

3. The former Adelstein Property, which constitutes 203 acres in the westernmost part of the Western Property, will remain undeveloped, with the exception of foot

trails, and will be preserved as "forever wild." This area includes wetlands 1 through 11, which occupy 8.29 acres.

4. In order to mitigate potential impacts to wetlands where tree clearing is necessary for golf hole to play over wetlands, the following protocols are proposed.

Selective Wetland Tree Removal Protocols

Removal of trees will be done in such a manner as to minimize soil disturbance to the maximum extent practicable. The wetland tree removal methods, as described below, will be contained in the Construction Specifications that will be developed for soliciting bids for project construction.

1. All trees will be felled by hand using chain saws. Stumps will be left in place.

2. When construction scheduling allows, activities will be performed in the winter when there is snow cover and frozen ground conditions. Under frozen ground and snow cover conditions trees will be felled, sectioned, and winched out of wetland areas using machinery operating from upland locations. At the discretion of the Contractor, some trees will not be sectioned prior to winching them out of wetlands. These trees will be winched out of the wetland so that the weight of the winched tree is supported and distributed by the crown of the winched tree.

3. During times when the ground is not frozen and there is no snow cover, some felled trees will be removed by lifting them out of wetlands, and some felled trees, or portions thereof will be left in place.

   Wetland Edges
   Felled trees or sections of felled trees will be lifted and removed from the edges of wetland areas using machinery equipped with typical log-loader pincers, chains, or straps. Machinery will be operated in upland areas, and will lift and boom trees, or sections of trees, out of wetlands and into upland areas. The type of machine that is used will dictate how far into wetland areas this procedure can be implemented. A larger track-hoe excavator will have the capability of reaching trees that are felled within 30 to 40 feet of the wetland edge.

   Wetland Interiors
   Trees that are felled farther within the wetland will be limbed and topped. Cut limbs and tops will either be left in place or will be removed by hand from the wetland into upland areas.

   Alternatively, trees will be removed beginning at the wetland edge then construction matting will be installed starting from uplands and working out into the wetlands with equipment always working on matting. Trees will be cut, topped, and lifted out of wetlands using machinery operating on the construction matting.

4. The decision to remove felled trees or portions of felled trees in particular areas will be made by the Golf Course Architect prior to finalization of construction bid documents. In most, if not all instances, portions of some or all felled trees may be left within wetland areas. Removal of some or all portions of all felled trees will give the Golf Course Architect the flexibility to make sure that the quality of a particular golf hole is not compromised by unusually high numbers of trees or unusually large trees left within affected wetland areas. The wetland play over areas will develop into a combination of herbaceous and shrub plant communities following selective tree removal. This plant community development would be hindered by dense ground covering by a high number of felled trees or by a number of particularly large trees.

5. Woody vegetation clearing activities proposed in the uplands in the immediate proximity of the wetland in the western portion of the Wildacres portion of the project site could lead to increased solar exposure and have the potential for increasing water temperatures.

   Due to the intermittent nature of the stream that passes through this wetland it is just that, intermittent. Surface water flows occur during times of discharge of seasonal high groundwater (spring months) and after precipitation events. The channel has a high gradient and water passes quickly downstream through this drainage and does not dwell in any particular area where it is exposed to prevailing solar exposure and warming.

   Nonetheless, for all of those reaches of the intermittent stream where upland activities could result in an increase of solar exposure, the banks of this intermittent stream will be augmented with streamside plantings of suitable native plant materials so as to produce increased in-stream shading.

   Where upland vegetation is proposed to be disturbed in proximity to this intermittent stream/wetland, plantings are proposed to provide shading of the stream/wetland and still allow a golf shot to be played over this area. This will be accomplished by placing appropriately sized koir logs along the existing stream banks and planting the koir logs with willow cuttings. Regular hand cutting maintenance of the vertical growth of the willow sprigs will allow for the development of a more horizontal willow canopy over the stream/wetland and still allow for a golf shot to be played over this area.

3.5.3 Wildlife

A. Existing Conditions

Surveys of wildlife on and around the Crossroads assemblage occurred in 1999 and 2000. Wildlife surveys focused on the bird, mammal, reptile, and amphibian inhabitants of the site and its surroundings. In addition to on-site wildlife surveys, database searches of both the US Fish and Wildlife Service and NYSDEC's Natural Heritage Program were

conducted by these agencies to determine if there were known records of any rare, threatened or endangered species, or significant wildlife habitats on or near the project site.

1. Special Concern, Rare, Threatened and Endangered Wildlife Species

A letter of inquiry was sent to the US Fish and Wildlife Service (USFWS) office in Cortland, New York, requesting information on the occurrence of endangered or threatened species, or their critical habitat in the vicinity of the project site. In a reply letter dated 6 March 2000, Mark W. Clough of the USFWS stated that except for transient individuals, there are no known federally-listed or proposed endangered or threatened species under the jurisdiction of the USFWS in the vicinity of the project site. (See Appendix 6, "Letters of Record.")

A letter was also sent to the New York Natural Heritage Program requesting rare species information. In a response letter dated 4 May 2000, Betty A. Ketcham indicated that there are "no records of known occurrences of rare or state-listed animals or plants, significant natural communities, or other significant habitats, on or in the immediate vicinity of [the project site]." (See Appendix 6, "Letters of Record.")

Concern for several species of wildlife were raised at a scoping meeting prior to the preparation of this DEIS. Bird species mentioned specifically by commentors included the Peregrine Falcon, Bald Eagle, Cooper's Hawk, Bicknells Thrush, and Red-shouldered Hawk. Peregrine Falcons are listed as Endangered, Bald Eagles are listed as Threatened, and Red-shouldered Hawks and Cooper's Hawks are listed as Species of Special Concern in New York State. There was also concern expressed during the scoping process for a federally endangered mammal species, the Indiana Bat.

No suitable nesting habitat for the Peregrine Falcon was observed in any area within the Belleayre Resort site. In natural conditions (i.e., excluding city bridges), Peregrines typically select nest ledges on steep cliff faces that are located near a permanent water source. Likewise, no suitable Bald Eagle breeding habitat exists on the project site.

From a general habitat suitability standpoint, suitable breeding habitat for the Cooper's Hawk does exist on the site. These habitats include deciduous and mixed forest, woodlots, and riparian woodlands. Potential red-shouldered hawk habitat also can be found near the site (typically, but not always, bottomland forest). However, none of the above-named species or evidence of their occurrence were observed during extensive wildlife field surveys of the project site and surroundings.

Bicknell thrushes are known to occur in the Catskills at elevations above 3,000 feet AMSL. The project site does not include any developable lands above 2,750 feet AMSL.

One individual adult sharp-shinned hawk, a species listed by the New York State Department of Environmental Conservation as a "Species of Special Concern" was observed during field surveys in the westernmost section of the study area. The adult

hawk was seen flying in a westerly direction over Todd Mountain Road and off the project site. No nest, fledglings, or territorial behavior were observed in conjunction with the in-flight observation of the adult. Such behavioral patterns would be expected if there was an active nest site in close proximity to the observation location. Generally speaking, sharp-shinned hawks prefer mixed and coniferous forest habitat for breeding, often near a source of water (Johnsgard 1990). Although Sharp-shinned Hawks use mixed conifer-deciduous forests for nesting, most nests recorded in New York State have been located in conifers, with 80% of the nests found in hemlocks (Bull, 1974). The project site in the vicinity of the siting is Beech Maple Hardwood Forest, although small isolated stands of hemlocks are present on the project site adjacent to Todd Mountain Road. There was no open source of water in the vicinity of where the adult hawk was observed. Much larger stands of hemlocks are found off the project site northwest of where the sharp-shinned hawk was observed and well within a typical home range size recorded for the species.

No threatened or endangered amphibians or reptiles, including the state-listed timber rattlesnake or its denning habitat was observed during field surveys at the site. The nearest known timber rattlesnake den is located approximately 10 miles from the project site (R. Stechert, New York Timber Rattlesnake DEC Consultant, pers. comm.). Ten miles is well out of range for timber rattlesnake movements to the site. Approximately four miles is the maximum movement of a timber rattlesnake observed in New York State, and two miles is considered a typical seasonal dispersal range for the majority of timber rattlesnakes from a den (W.S. Brown, Timber Rattlesnake Researcher, pers. comm.). A snake species, the black rat snake, was found near the base of the southwestern slope of Big Indian Plateau at approximately 1,600 feet elevation, south of the area of impact. Outside of the Hudson River Valley region the occurrence of this species is described as scattered.

No rare mammals were observed during site visits by LA Group Biologists. A hibernaculum (winter retreat) of the federally endangered Indiana bat is located approximately 15 to 20 miles from the Belleayre Resort site. No known records of the Indiana bat, listed as an endangered species in New York State, occur within the project site. The site is, however, well within dispersal limits of female Indiana bats who establish maternity colonies during the summer (A. Hicks, DEC Endangered Species Biologist, pers. comm.). However, the habitats present on the project site are not suitable for Indiana bat maternity roosting.

Studies show that female Indiana bats typically select trees with a diameter at breast height (dbh) between 30 and >57 cm for their maternity colony roost trees (Clawson, 1996). The study suggests that Indiana bats do not establish maternity colonies in habitats whose trees are less than 30 cm dbh. Another study (Callahan et al., 1997) found that all primary roost trees were large-diameter snags averaging 58 cm dbh located in open areas.

Field investigations of the project site by LA Group Biologists found that the average dbh of trees at the Belleayre Resort site is less than 30 cm. The habitat on site is best

described as early to mid-successional forest dominated by beech and sugar maple. Therefore, although the site is well within dispersal limits of the Indiana bat, it is not likely that females would select the young successional forest habitat for use as maternity colony habitat. Additionally, recommended forest management practices for the Indiana bat that favor retention of mature, large-diameter trees would not be applicable on the Belleayre Resort property which has been logged regularly for at least the past 50 years.

A bobcat that was observed in the area of the proposed Wildacres Resort is a species listed in the CITES treaty (Convention on International Trade in Endangered Species of Wild Flora and Fauna), with the provision that a country's export of hides will be allowed only if the harvest has not been detrimental to the population. However, the bobcat is not listed as a rare, threatened, endangered, or special concern species by the New York State Department of Environmental Conservation. Their population in New York is considered stable, with healthy populations in three core areas: the Adirondacks, the Taconics, and the Catskills (M. Brown, NYSDEC Region 5 Senior Wildlife Biologist). In fact, legal trapping and hunting seasons for bobcats in the Catskills occur from 25 October to mid-February.

2. Birds

Bird surveys were conducted on 5, 10, 11, and 12 May and 7, 8, and 9 June 2000 in order to record both migrant and resident species. Also during a site visit on 19 April 2000, several species were recorded. Using a random search method, surveys took place in designated plant communities, including beech-maple mesic forest, hemlock-northern hardwoods forest, hemlock-hardwood swamps, and successional old fields. Birds also were noted if they were observed on mowed lawns, flying overhead, or on the periphery of the study area.

Field surveys documented a total of 71 species of birds at the proposed project site (see Table 3-27, "Bird Species Observed at the Belleayre Resort Site Spring 2000") and Table 3-28, "Bird Species Observed at the Belleayre Resort Site Summer 2000). Sixty-one species were recorded in May and 58 species were recorded in June. Many of the individuals observed in May could have been migrants as they were seen during migration dates of each species in New York State. Most species recorded are known to reside in the Catskills. Of the 58 resident species observed in June, all were potential breeders in the area.

Of the total number of birds observed on all survey dates, 17% (n = 10 species) were found in successional old field habitat (Table 3-27 and Table 3-28). Twenty-three (23%) percent of the total birds observed on all survey dates (n = 16 species) were found in hemlock-hardwood swamps (Table 3-27), 62% of the total birds observed on all survey dates (n = 44) were found in beech-maple mesic forest (Tables 3-27 and 3-28), and 35% of the total birds observed on all survey dates (n = 25) were found in hemlock-northern hardwoods forest habitat. Four species were observed flying over the study site. (Total of percentages exceed 100% because a number of species were recorded in two or more of the habitats.)

The most common species observed were the American Robin and Red-eyed Vireo; both species were recorded on all survey dates (5, 10, 11, and 12 May; 7, 8, and 9 June). The American Robin also was recorded during a site visit on 19 April, a date too early to encounter Red-eyed Vireos.

Several species were observed only once: Sharp-shinned Hawk, Purple Finch, and Blackburnian Warbler. The Sharp-shinned Hawk, a "Species of Special Concern" in New York State was observed at the very western end of the project site within an area that is not proposed to be developed (see the previous section).

Refer to Appendix 20 , "Bird, Reptile and Amphibian Surveys", for more details regarding ornithological survey methods, results, and discussion.

3. Reptiles and Amphibians

On-site amphibian and reptile surveys were conducted on 5, 10, and 11 May; 7, 8, and 9 June; and 6 July 2000. Diurnal surveys took place in designated plant community locations. Within these communities, areas of survey concentration took place in the following habitats: (1) brooks flowing through upland forests, (2) brook borders, (3) old logging roads and hiking trails, (4) around old buildings, and (5) targeted areas off logging trails where the observer went to nearby habitats such as rock outcrops that could be potential denning areas for certain species of snakes. Due to cool, dry weather conditions during the observer's site visits, only one nocturnal survey was conducted (on 11 May 2000).

Fourteen species of amphibians and reptiles were observed at the proposed project site. These species are listed in Table 3-29 , "Reptile and Amphibian Species Observed on the Belleayre Resort Site – Spring and Early Summer 2000." Of the 19 species reported within the four quadrangles of the project area during the NYS Amphibian and Reptile Atlas Project, 15 species were judged to be possible inhabitants of the project site.

Four snake species were observed during the Belleayre Resort surveys: the black rat snake, Northern brown snake, common garter snake, and red-bellied snake.

The only turtle species recorded during the survey was a common snapping turtle that was observed outside the project site. The snapping turtle was seen on Route 47, on the edge of the road. The turtle may use a pond on an off-site resident's property on Lasher Road, or it may have come from Birch Creek. But snapping turtles can move great distances (558 m from a drying pond to a stream; Klimstra, 1951) and therefore it is impossible to predict the exact location of the turtle's "home pond."

The most common amphibian species observed was the Allegheny Mountain dusky salamander. Salamanders of this species were found under rocks in shallow water or along brook borders in intermittent rocky stream wetlands or in streams that flowed through shallow emergent marshes. A congener, the Northern dusky salamander, was recorded in two of the seven locations. Additional salamander species observed at the

study site included the two-lined salamander, red-backed salamander, red-spotted newt, and slimy salamander.

Three anurans were observed in the study area: the green frog, spring peeper, and American toad. These three are among New York State's most common species, according to the Amphibian and Reptile Atlas Project data (1990 – 1998).

Refer to Appendix 20, "Bird, Reptile and Amphibian Surveys", for details regarding herpetological survey methods, results, and discussion.

4. Mammals

An opportunistic survey for mammals took place on the Belleayre Resort site, as mammalian species were observed in conjunction with other field work performed on the site in 1999 and 2000. LA Group Biologists recorded mammal observations during bird, reptile, and amphibian surveys, plant community surveys, and wetland delineations.

Opportunities to document mammals in the field often include the observation of visually detected sign (Cole et al., 1996). Mammals build structures for protection and rearing of their young (e.g., lodges, earthen mounds, leaf nests). Mammalian feeding activities also produce distinctive signs including browse on stems and branches, grass cuttings in rodent runways, and feces. Mammalian tracks are one of the most common signs used to record species presence data. Mammal surveys at the site combined records of direct observation of the animal itself with observations of visually-detected sign.

Common species such as the Eastern chipmunk was repeatedly observed near the trails in beech-maple mesic forest, a favored habitat of chipmunks. Both the red squirrel and the gray squirrel were often observed, as was their sign, including hemlock cone middens made by red squirrels and leaf nests constructed by gray squirrels. A red fox was observed in old field habitat, as were the pellets of an Eastern cottontail. Tracks and scat of raccoons and Eastern coyote were also observed on the property by several LA Group Biologists.

A bobcat was seen in the western section of the property. Another commonly encountered species was the porcupine. Individuals and their sign were observed in both beech-maple mesic forest and hemlock-northern forest habitat, including several areas where porcupine scat had accumulated in front of a den entrance.

Remains of a small beaver dam were found in a wetland area on the floodplain of Birch Creek, in an area dominated by willows. However, no current beaver activity was observed.

The tracks, scat, and browse of white-tailed deer also were observed. An inquiry was made to the NYSDEC Wildlife Manager, Region 4, requesting information on deer wintering areas in the vicinity of the project area. William N. Sharick, Senior Wildlife Biologist, responded (See Appendix 6, "Letters of Record" for a letter dated 16

December 1999) that the DEC was not aware of any active confined deer wintering activity within the Region 4 project area. An inquiry to NYSDEC Region 3 provided a similar reply. Likewise, no evidence of deer wintering areas were observed by LA Group Biologists during site visits to any section of the property. There are no significant areas of coniferous winter habitat on south facing slopes.

A black bear was observed on Route 47, and black bear scat and sign were observed in several areas on the property. Claw marks were observed on a telephone pole near the Brisbane Mansion that was probably used as a "bear tree," where a bear may have clawed the pole in order to mark the bear's height and dominance. Although the bear sighting on Route 47 was located approximately 1.0 mile from the easternmost boundary of the property, a black bear's home range typically encompasses 7.7 square miles (Whitaker and Hamilton, 1998). Although the bear seen on Route 47 could easily include the property as a part of its home range, no bear denning areas were observed during investigations by LA Group Biologists on the project site.

5. Aquatic Biota

As discussed previously in section 3.2, NYCDEP has provided the results of some macroinvertebrate sampling from Birch Creek, Tributary 2 of Emory Brook (DEP sampling site Bellel5), and a drainage near the Jake Moon Restaurant. Macroinvertabrate populations are good indicators of the water quality in which they are found. All sampling locations had macroinvertabrate populations typical of healthy cold water streams with midges, mayflies, stoneflies and caddisflies well represented in the samples. Table 3-29A, "Aquatic Invertebrates" lists the macroinvertebrates identified during the sampling.

Section 3.2 includes descriptions of fishes that occur in waters around the project site, including the results of electroshocking sampling conducted in 2000. NYSDEC electroshocking data forms from the year 2000 sampling, conducted as a result of this project being proposed, as well as similar NYSDEC data from the years 1936, 1956, 1957, 1965, 1976, 1988, 1989, 1993, and 1996 were provided to the Applicant's consultants by NYSDEC fisheries personnel. This original data is included in Appendix 20 of this DEIS. Generally speaking, trout are found in streams that are downstream of the project site including Lost Clove brook (brook and rainbow), Birch Creek (brook, brown and rainbow), Giggle Hollow brook (brook), Crystal Spring brook (brook), and Woodchuck Hollow brook (brook, brown and rainbow). Other species observed in local waters as part of DEC surveys included slimy sculpin *(Cottus cognatus),* white sucker *(Catostomus commersoni),* longnose dace (*Rhinichthys cataractae*), blacknose dace (*Rhinichthys atratulus*), and cutlips minnow (*Exoglossum maxillingua).*

B. Potential Impacts

1. General

The proposed project will result in a decrease in the amount of a ubiquitous, currently existing wildlife habitat, and an increase in other habitat types with potential for diversification of the local wildlife community. With diversification of wildlife habitat on the project site as a result of changes in habitat availability, it is expected that there will be a corresponding increase in the diversity of the wildlife community on the assemblage. Overall, it is anticipated that the habitat diversity of the assemblage, and the corresponding inhabitants thereof, will increase as a result of the proposed project.

Currently the assemblage consists of a nearly homogenous assemblage of wildlife habitat community (beech maple mesic forest) juxtaposed with small areas and scattered occurrences of different habitat. Wildlife surveys of the assemblage in its existing condition confirm that from a species richness standpoint, wildlife diversity increases in those habitats removed from or abutting the areas of beech maple mesic forest habitat. Currently there is very little existing edge habitat due to the primarily closed canopy nature of the great majority of the assemblage. This would not be of particular importance if it were not for the fact that extensive tracts of closed canopy forest exist locally and elsewhere in the Catskills within lands owned by New York State. Currently, the only opportunity that exists for potential diversification of wildlife habitat from a successional standpoint can only be achieved naturally through forest fires or artificially through logging activities which are prohibited on State land.

In general, within the area proposed to be disturbed, the project site will experience a decrease in unfragmented forested habitat and an increase in grassy area/forest edge habitat interspersed with forest fragments ranging from 0.1 to ten (10) acres in size within the development footprint. The majority of the assemblage that is outside of the proposed development footprint will remain undisturbed and allowed to proceed through successional development into mature forest. Some lands to remain undeveloped will be adjacent to State Forest Preserve lands, and legally restricting future development on these lands, as proposed, will have the affect of expanding wildlife habitat protected from development.

Impacts to wildlife on the proposed Belleayre Resort project site may include both direct and indirect impacts to common species of amphibians, reptiles, birds, and mammals. No impacts to any state-listed threatened or endangered species are anticipated, as none were observed on the site.

Due to the scope of the project and its potential impacts, an increasingly recognized national conservation issue regarding the observed decline of forest-interior neotropical migrant birds needs to be acknowledged. Forest fragmentation, increased brood parasitism, and increased nest predation are well documented as specific factors in this decline. A link between nesting success of interior forest birds, such as the American

Redstart, breeding in an unfragmented landscape and reduced yearling recruitment of this species breeding in fragmented forests, provides evidence for recent declines (Sherry and Holmes, in Hagan and Johnston, 1989). However, the potential affect of the project needs be considered in a larger landscape context when evaluating the overall affect of the project on wildlife. The project is set in the Catskill Park, with its approximately 700,000 acres, including 33,500 acres in the nearby Big Indian – Beaverkill Range Area that provides forever wild wildlife habitat in the region. It is also important to recognize that the most valuable habitat for some neotropical migrants in the Catskills are those habitats that are above 3,000 feet in elevation. None of the proposed project development is proposed on lands above 2,750 feet.

All species basically have three options if they are to survive in a fragmented landscape: (1) a species may thrive in the matrix of a fragmented landscape; (2) a species might survive by maintaining viable populations within individual fragments, as would be expected for species with very small home ranges; or (3) a species may survive in a fragmented landscape because the species is highly mobile and can move or disperse away from the fragmentation (Meffe and Carroll, 1994). (A forest fragment is typically defined as a 10-m (33-foot) break in a continuous forest habitat [Askins et al., in Rich et al., 1994]).

Those wildlife species that currently inhabit the region, but possibly not on the assemblage because certain habitat requirements (i.e., forest/grassland edge or open water/littoral zone habitat), are not currently available on the project site, are very likely to increase in their local abundance and increase the wildlife diversity of the assemblage.

The proposed project can potentially result in a decrease in numbers of the local populations of forest-interior species. The degree to which these populations will be affected will depend on a number of factors including home range size and the availability of nearby suitable habitat that is being utilized below its carrying capacity. If such area is not available then there is the potential for indirect mortality due to intraspecific or interspecific competition for habitat resources.

On the other hand, there will be increased habitat availability for certain species as a result of the project. Those species that are more edge-oriented in their habitat requirements will benefit from the availability of the transition from tall grass (golf course rough) to forested areas. Within this transition there will also be a band of denser understory habitat that will occur as a result of opening the forest canopy. The open grassy areas created by the project will also increase the amount of small mammal foraging opportunities for raptors.

2. Potential Bird Impacts Associated With Golf Course Pesticide Use

The pesticides proposed for use on the project golf courses are commonly used on golf courses throughout New York State.

The following is a list of those pesticides that could be used on the proposed golf courses as well as their toxicity to bird species expressed in milligram of pesticides per kilogram of bird body weight. Where avian toxicity values were not found in published literature sources, mammalian toxicity values are included in the table and indicated with an asterisk(*).

The USEPA and USDA rank toxicity values on the following scale.

LD_{50} (mg/kg)	Toxicity Class
<5	Extremely Toxic
5-49	Very Toxic
50-499	Moderately Toxic
500-4999	Slightly Toxic
>4999	Almost Non-toxic

Table 3-29B
Avian Pesticide Toxicity

Active Ingredient	Avian LD50	Toxicity Class
Chloroneb	>11,000*	almost non-toxic
Etridiazole	560	moderately toxic
Flutalonil	>5,000	almost non-toxic
Fosetyl Al	>5,000	almost non-toxic
Propamocarb	12,915->25,000	almost non-toxic
Propiconazole	2,223->5,620	slightly toxic to almost non-toxic
Quintozene	>5,000*	almost non-toxic
Vinclozolin	>5,000	almost non-toxic
Acephate	350-1000	moderately to slightly toxic
Bendiocarb	3.1	extremely toxic
Ethoprop	4.2-12.6	very to extremely toxic
Isofenfos	5-299	very to moderately toxic
Spinosad	N/A Biological	almost Non-toxic
2,4-D	2,000->2,025	slightly to toxic to almost non-toxic
2,4-DP	532	slightly toxic
benefin	>5,000	almost non-toxic
bensulide	770	slightly toxic
bentazon	720-2,000	slightly toxic
DCPA	>5,000	almost non-toxic
Dithiopyr	>2,250	slightly toxic to almost non-toxic
Ethofumesate	3,552-8,743	slightly toxic to almost non-toxic
Fenoxaprop	3,300-3,400*	slightly toxic
Glyphosate	>3,850	slightly toxic to almost non-toxic
Halosulfuron	>5,620	almost non-toxic
MCPA	>5000	almost non-toxic
MCPP	>5,000	almost non-toxic
MSMA	1,820*	slightly toxic

Active Ingredient	Avian LD50	Toxicity Class
Oxadiazon	>1,000-6000	slightly toxic to almost non-toxic
Prodiamine	>5,000	slightly toxic
Siduron	>10,000	slightly toxic
Triclopyr	1,698->5,000	slightly toxic to almost non-toxic
Trifluralin	>2,000	slightly toxic to almost non-toxic
Lambda cyhalothrin	>3,950	slightly toxic to almost non-toxic
Bifenthrin	1,800	slightly toxic
Trifloxystrobin	>2250	slightly toxic to almost non-toxic
Mefenoxam	1,172*	slightly toxic

The breakdown of the proposed pesticides is as follows.

- 12 almost non-toxic
- 10 slightly toxic to almost non-toxic
- 10 slightly toxic
- 1 moderately to slightly toxic
- 1 moderately toxic
- 1 very to moderately toxic
- 1 very to extremely toxic
- 1 extremely toxic

The most toxic pesticides proposed, as expected, are the insecticides. In accordance with the insecticide product labels, these products will be watered into the soil, eliminating the surficial route of potential exposure to birds.

Published scientific literature regarding this topic indicates the general safety of golf course pesticides to avian populations.

With respect to turf pesticides and avian species, detailed accounts of bird impacts are not abundant in the open literature, and available data generally indicates that bird populations on golf course areas are not adversely affected by the use of pesticides (Racke, 2000).

Evidence from large scale monitoring of bird populations on treated and untreated golf courses has demonstrated a lack of significant impacts for currently used products under most conditions (Potter et al, 1992; Rainwater et. al., 1995; Baron and Woodburn, 1995).

3. Potential Waterfowl Impacts Associated With Stormwater Basins

The proposed stormwater system micropool extended detention basins are not designed to provide large permanent pools and will not be particularly attractive to waterfowl. As per the DEC stormwater design manual, only 10% of the water quality volume (WQv) and 20% of the WQv are contained in the basin forebays and permanent pools, respectively. Because waterfowl are not expected to utilize the micropool extended detention basins to any significant degree due to their limited amount of open water, exposure to any contaminants will be minimal and not pose a threat to waterfowl.

The irrigation ponds will have larger areas of permanent open water and may be more attractive to waterfowl. Because waterfowl, particularly Canada geese, can become nuisances on golf course, many methods have been devised to deter Canada geese from becoming resident on golf courses and their irrigation ponds. One of the most effective methods commonly employed on golf courses is to use a border collie specially trained to harass waterfowl on a daily basis until geese eventually abandon the golf course and irrigation pond.

4. Blasting Impacts

Blasting will not cause any impacts to wildlife beyond those identified for the construction process as a whole. Blasting is a short-term temporary activity that will cause localized episodic sound production as well as very localized ground vibration that could potentially very temporarily affect wildlife activity patterns. Blasting activities will be part of overall construction activities that will be producing sound on a more regular basis during the construction process. There are no known rare, threatened, or endangered species occurring in the area that may be affected by occasional blasting activity during construction. Likewise there are no critical habitats on or around the site that could be potentially affected by construction activities, including blasting. Blasting is not proposed in the vicinity of any surface waters where blast vibrations could potentially impact aquatic biota. Blasting has been occurring at times during construction at the adjacent Belleayre Mountain Ski Center without any known impacts to local wildlife.

C. Mitigation Measures

In order to mitigate potential impacts to wildlife, the following measures are proposed.

No mitigation is offered for any threatened or endangered bird species, as none were observed on the site.

1. 71% of the 1,960 acre assemblage will remain undeveloped and protected from future development by deed restrictions or other similar manner.

2. Much of the land that will be protected from future development is in close proximity to State lands or adjacent to State lands. In effect, this will result in an increase of forest preserve type lands.

3. Over 4,000 indigenous trees are proposed to be planted on the project site.

4. Steps will be taken to insure the best possible wildlife management practices in the habitat remaining on the property, including the following.

   a. Enhancement Projects for Species that Prefer Open Habitats

   Previously unrecorded species on the site such as the Eastern Bluebird may be encouraged to occupy the newly-formed open habitat, including the proposed golf courses, as Bluebirds often can successfully breed on golf courses (Andrle and Carroll, 1988). Bluebirds also are confirmed breeders in the south, southeast, and northwest sections of the Catskill Peaks Subzone. It is likely that Eastern Bluebirds may be attracted to both of the proposed golf courses, provided that nesting houses designed specifically for this species are erected in open areas with a few remaining scattered trees. A bluebird nest box will be erected at a suitable location on each of the 36 golf holes. Nest boxes will be cleaned out annually.

   b. The Maintenance of Snags

   Some species, such as the Pileated Woodpecker observed on the site, have already adapted to fragmented landscapes (Meffe and Carroll, 1994). Many small avian enhancement projects that will benefit cavity nesting birds such as the Pileated Woodpecker include maintaining all dead snags and branches found on the property. Approximately 75 species of birds in the United States use dead trees and snags for nesting, food sources, perching sites, and territorial establishment (Dodson, 2000). When clearing the property, snags will be left standing in all areas except, of course, in the middle of the fairways. The multi-step process involved in clearing for the golf courses were discussed previously in the vegetation section of this EIS. During the final inspection to establish outer clearing limits, the presence of snag trees that will not be a safety hazard will be identified and left to remain.

   c. Maintenance of understory vegetation

   Two factors that may increase the risk of predation and possibly of brood parasitism are (1) the density and type of vegetation that provides potential nesting sites for impacted species, and (2) the density of predators or nest parasites in recently cleared areas. Resulting actions that stem directly from these factors are to (1) avoid extensive tree removal in surrounding habitats and (2) avoid clearing and removing the understory vegetation.

As discussed above, the transition from the tall grasses of the golf course rough areas to wooded areas will include an area at the forest edge with increased understory as a result of opening the tree canopy.

d. Wetland Avoidance

Wetland disturbance has been minimized so that less than 0.1 acres are disturbed by filling. Wetland habitat that is not proposed to be disturbed, but is in the vicinity of proposed disturbance, will be clearly marked to protect them from disturbance during construction. Erosion control measures will be utilized to minimize silt and sediment impacts to the wetland habitat. The wetland mitigation measures of protecting the wetlands on the Adelstein parcel as well as along the stream corridor in Giggle Hollow will also benefit wildlife that utilize these habitats.

e. Travel Corridors

Undisturbed areas are proposed to remain around and within the proposed areas of disturbance. This will provide travel corridors within some home ranges as well as dispersal corridors for young and adults.

f. Golf Course Habitat Enhancement

Mitigation on golf courses may include mounting bat houses for roosting and nesting sites. Since many bats prefer sites within a quarter mile of a stream (Dodson, 2000), bat boxes on the Big Indian Plateau site will be placed in close proximity of Giggle Hollow Brook. Bat boxes on the Wildacres site will be placed within close proximity to the brook that flows through the far western section of the proposed resort site.

g. Brush Piles

Since many mammals will be displaced, natural cover will be replaced by building brush piles in designated areas of the resort, away from public view. Brush accumulated from clearing activities will be piled into brush shelters. These piles will be placed along the perimeter of the open areas for wildlife species that normally use slash and debris. Brush piles may be constructed in a manner so that they provide certain species, such as cottontail rabbits, with optimal cover for resting and escape.

The proposed Integrated Turf Management Plan specifically designed for the two proposed golf courses, includes mitigation measures designed to further reduce potential impacts to non-target species, including avian populations. These measures include, using curative pesticide applications rather than preventative applications, and making curative applications only after pests reach high enough levels to warrant treatment after non-

chemical control measures have been first attempted and been ineffective in reducing pests. Only using spot treatments when applications of pesticides are necessary. All of these measures will serve to further reduce potential impacts to avian populations.

3.6 Soils

3.6.1 Existing Conditions

A detailed mapping of the soils on the assemblage on and around where development is proposed was prepared by an LA Group certified soil scientist. Figures 3-6 and 3-7, "Soils Map-Eastern Portion", and "Soils Map – Western Portion", illustrate this mapping. Below is a list of those soils mapped on the assemblage and their corresponding map symbols on Figures 3-6 and 3-7.

EKB Elka silt loam, 0 to 8 percent slopes
EKC Elka silt loam, 8 to 15 percent slopes

HRF Halcott-Rock outcrop complex, >25 percent slopes

HVB Halcott-Vly complex, 0 to 8 percent slopes
HVD Halcott-Vly complex, 15 to 25 percent slopes

LEB Lewbeach silt loam, very stony, 0 to 8 percent slopes
LEC Lewbeach silt loam, very stony, 8 to 15 percent slopes
LED Lewbeach silt loam, very stony, 15 to 25 percent slopes
LEF Lewbeach silt loam, very stony, >25 percent slopes

OSB Onteora-Suny soils, very stony, 0 to 8 percent slopes

TKB Tunkhannock very channery loam, 0 to 8 percent slopes
TKC Tunkhannock very channery loam, 8 to 15 percent slopes

VEB Vly-Elka complex, 0 to 8 percent slopes
VEC Vly-Elka complex, 8 to 15 percent slopes
VED Vly-Elka complex, 15 to 25 percent slopes
VEF Vly-Elka complex, >25 percent slopes

VHB Vly-Halcott complex, 0 to 8 percent slopes
VHC Vly-Halcott complex, 8 to 15 percent slopes
VHD Vly-Halcott complex, 15 to 25 percent slopes
VHF Vly-Halcott complex, >25 percent slopes

VYB Vly channery silt loam, 0 to 8 percent slopes
VYC Vly channery silt loam, 8 to 15 percent slopes
VYD Vly channery silt loam, 15 to 25 percent slopes

WmB Willowemoc channery silt loam 3 to 8 percent slopes
WmC Willowemoc channery silt loam 8 to 15 percent slopes
WmD Willowemoc channery silt loam, 15 to 25 percent slopes

The soils mapping outside of the areas proposed for development shown in Figures 3-6 and 3-7, are based upon the on-site soil survey as well as soils mapping prepared by the Ulster County and the Delaware County Soil Conservation Service.

A. General Soil Descriptions

The following is a general description of each of these soil series from Soil Conservation Service publications.

The Elka series consists of very deep, well drained soils formed in till. They are gently sloping to very steep soils on mountainous uplands. Permeability is moderate throughout the soil. Elka soils are a very channery silt loam and are very stony.

The Halcott series consist of shallow, somewhat excessively drained soils formed in till. They are nearly level to very steep soils on glaciated bedrock controlled uplands. Permeability is moderate or moderately rapid throughout. The Halcott soils are a very channery silt loam and are very stony.

The Lewbeach series consists of very deep, well drained soils formed in till derived from sandstone, siltstone and shale. They are gently sloping through steep soils on hillsides and hilltops in the uplands. Permeability is moderate in the surface, moderately slow or moderate in the subsoil and very slow or slow in the fragipan. Lewbeach soils are a reddish brown silt loam underlain by a yellowish red gravelly sandy loam.

The Onteora series consists of very deep, somewhat poorly drained soils formed in glacial till derived from sandstone, siltstone and shale. They are nearly level through strongly sloping soils on till plains and the lower parts of hillsides in the uplands at elevations of 1,750 to 2,500 feet. Slopes range from 0 to 15 percent. Permeability is moderate above the fragipan and slow or very slow in the fragipan and C horizon. Onteora soils are a reddish brown silt loam underlain by a reddish brown gravelly silt loam.

The Suny series consists of very deep, poorly drained soils formed in acid glacial till derived from sandstone, siltstone and shale. They are in level or slightly depressed parts of glaciated uplands. Slope ranges from 0 to 3 percent. Suny soils are a dark reddish brown fine sandy loam underlain by a reddish brown gravelly sandy loam.

The Tunkhannock series consists of very deep, well to somewhat excessively drained soils formed in water-sorted glacial material derived from reddish sandstone, siltstone, and shale. Slopes range from 0 to 60 percent. Permeability is moderately rapid in the solum and rapid in the substratum. Tunkhanock soils are a brown gravelly loam

underlain by a reddish brown extremely gravelly loamy sand and stratified loamy fine sand.

The Vly series consists of moderately deep, well drained or somewhat excessively drained soils formed in till. These soils are on glaciated bedrock controlled uplands. Slopes range from 0 to 55 percent. Vly soils are a reddish brown very channery loam.

The Willowemoc series consists of very deep, moderately well drained soils formed in till derived from sandstone, siltstone, and shale. They are nearly level through moderately steep soils on till plains and hillsides in the uplands. Permeability is moderate above the fragipan and slow or very slow in the fragipan. Willowemoc soils are a dark reddish brown silt loam underlain by a reddish brown gravelly loam.

Table 3-15, "Soil Characteristics and Limitations", provides a summary of Soil Conservation Service descriptions of the properties and constraints of each of the mapped soil types as they pertain to development.

B. Site Specific Soil Descriptions

The properties on and around the assemblage are mostly areas of shallow and moderately deep, very stony soils formed in glacial till soils derived from red shale and sandstone. There are some areas of deep glacial till soils that have a very firm fragipan. At the base of steep slopes along the outlet of small streams coming off the upper slopes there are some broad areas of very gravelly (actually channery and flaggy) glacial outwash. A few areas of the deep till do not have a fragipan.

The assemblage is located in both Ulster and Delaware Counties. The Ulster County soil survey was published in 1979. The field work for the Ulster County soil survey was done in the seventies, sixties and probably as far back as the fifties. The Delaware County soil survey is still in progress.

In the interim between the Ulster County published soil survey and the contemporary mapping being done in Delaware County, there has been some new soil classification conventions introduced. Soil temperature regimes were recognized in the early 1980's and most of the soils in the Adirondack and Catskill Mountains were determined to have "frigid" temperature regimes. Previously all soils in New York were classified as having mesic temperature regimes. The soils at the assemblage fall into the frigid temperature criteria.

While the physical properties of the soils did not change, entire new suites of soils were identified for the Catskills because the temperature regime has an effect on the agricultural productivity of similar soils in locations that have differing lengths of growing season. It seems appropriate to use the most recent and accurate soil mapping conventions for the soil maps for the assemblage. For that reason some of the soils named in this soil survey are not consistent with the soils named in the Ulster County Soil Survey, they are, however, currently being mapped in Delaware County.

In order to clarify this, a list of the frigid soil series names used in the mapping in the DEIS and their mesic equivalent series names from the Ulster County survey was prepared. This list is included in Appendix 12, "Soil Test Results." For example, the Elka series most closely corresponds to the Valois series in the Ulster County survey and the Halcot rock outcrop complex most closely corresponds with the Arnot rock outcrop series in the Ulster County survey. Also included in Appendix 12 are letters from Delaware County Soil and Water Conservation District and the USDA-NRCS State Soil Scientist of New York confirming that the mapping protocols used to produce the soils map contained in the DEIS are appropriate and correct.

The ridges and hillsides (particularly the very steep hillsides) are mostly shallow Halcott and moderately deep Vly soils. Typically these two soils occur in a pattern in the landscape that make consistently separating them nearly impossible. For that reason they are mapped as complexes. The first named soil in the name of the complex reflects which soil may be dominant within the complex. The second soil may occur in lesser amounts. Rock outcrops are common in broad areas of Halcott soils especially on very steep slopes and there is a map unit in the legend that complexes Halcott and rock outcrop. There may also be in mapping some minor inclusions of similar or even dissimilar soils included within each map delineation.

The published soil survey map exaggerates the amount of shallow and moderately deep soil on the site. The soil map originally prepared for the site exaggerated the extent of shallow soils and moderately deep soils because in some places the extremely large boulders were mistaken for bedrock outcrops. The map has been revised based on backhoe test pits and more accurately displays the soil on different landscape positions and also reduces the extent of soil on the site that may have bedrock near or at the surface.

The ponds near the proposed hotel on top of Big Indian Plateau will have to be blasted as will the area for the Resort and Spa building. While there will be some flagstone boulders that will have to be dealt with, there will not be extensive blasting necessary. There are less soil-related limitations at the Wildacres parcel in regard to depth to bedrock. There is a broad area of shallow Halcott soils on top of the parcel where the hotel is proposed. That will have to be blasted. The northern portion of the parcel appears to be mostly deep, very stony glacial till.

Deep glacial till soils commonly occupy the base area of steep slopes and the steep sides of ravines. Some of the deep soils have very firm fragipans. The deep soils with fragipan at the project site are well drained Lewbeach and moderately well drained Willowemoc soils. The deep glacial till soil without fragipan is well drained Elka.

On the nearly level terraces along Birch Creek the soil is mostly well drained, extremely stony or flaggy Tunkhannock soils. These soils are formed in glacial outwash and gravelly or flaggy outwash fan deposits from gravel dropped by water rushing off the steep adjoining slopes.

C. Test Pits, Percolation Tests and Soil Sample Analyses

Deep hole test pits and percolation tests were performed on the site in the Fall of 2000. Figures 3-19 and 3-20, "Soils Testing Map – Eastern Portion", and "Soils Testing Map – Western Portion", illustrate the locations of testing and soil sampling. Appendix 12, "Soil Test Results", includes test pit logs, percolation test results, as well as the laboratory reports from analyses of soil samples taken from the project site (sieve analyses and hydrometer testing). An additional set of deep hole test pits and percolation tests were conducted in September 2002 and are also located on Figures 3-19 and 3-20. The results from these tests are also included in Appendix 12

Most of the Lewbeach soils were found to have a fragipan at a depth of 16 to 40 inches with bedrock typically not encountered in the generally seven to eight foot deep test pits. Percolation tests performed above the fragipan had percolation rates that ranged from 5 minutes 35 seconds and 27 minutes. Percolation tests within the fragipan typically had percolation rates that were greater than 60 minutes. Typically there was no evidence of seasonal high ground water in the Lewbeach soils.

The Vly soils did not have a fragipan but bedrock was usually contacted in test pits excavated in Vly soils. Depth to bedrock in Vly soils ranged form 24 inches to 72 inches. Percolation tests performed above the bedrock boundary layer ranged from 5 minutes 10 seconds and fourteen minutes two seconds.

Two test pits were excavated in Willowemoc soils and they, like the Lewbeach and Vly soils, had characteristics consistent with County soil survey descriptions. Fragipan depth ranged form 28 to 40 inches and bedrock was not encountered. Mottling at 28 inches is indicative of the seasonal high water that occurs from October to May.

The test pits in Halcott soil confirmed their shallow depth to bedrock. In the five test pits in Halcott soil the depth to bedrock ranged from 12 to 22 inches. As a result of the test pit work done on the site the preliminary high intensity soils maps were revised to reflect a lesser amount of Halcott soils on the project site. Some of the areas originally mapped as Halcott rock outcropping were merely areas of other soils with large rock, rather than bedrock, on the soil surface.

A test pit excavated in Elka soils to confirm this mapping unit did confirm the correct soil series and characteristics described in the County soil survey. The characteristics include a bedrock depth greater than six feet and a very stony and channery soil profile.

Soil samples were taken from eight of the test pit locations and were submitted to Soil and Material Testing, Inc. for sieve analysis and hydrometer testing. These tests result in data that describes the amounts of various soil particle sizes in the soil sample. Table 3-30, "Soil Sample Sieve and Hydrometer Test Results", gives the particle size distribution for the samples analyzed (laboratory reports are contained in Appendix 12). Because the soils on the project site are mostly silts and silty loams, it was expected that the test

results would show a high percentage of smaller sized soil particles. The percentage of the soil sample passing the #200 sieve is the percentage that is silt and clay. Five of the eight samples had silt and clay contents between 50 and 60 percent. The last line of Table 3-30 gives the percentage of clays in the samples that remained in suspension for 24 hours. This ranged from 12 to 22 percent in the eight samples analyzed. The clay percentage and the rate at which the fine soil particles settle out in stormwater control devices, such as detention ponds, are important when planning for sediment and erosion control, particularly during construction.

The second set of test pits performed in September of 2002 was done in order to verify the soils properties used in the stormwater quality and stormwater quality analysis. Test pit and percolation tests were performed in the proposed location of the stormwater control basins. Based on the findings of these tests, particularly the deep perc tests and shallow perc tests, the exfiltration rates in the stormwater basins has been more precisely defined in the "Operational Phase Stormwater Quantity Management Plan" (Appendix 9A). Percolation test results for each of the proposed operational phase stormwater management locations are included on LA Group grading plan sheets, SG-1 through SG-10.

3.6.2 Potential Impacts

Grading of the site to realize the proposed improvements will involve the disruption of soils with an increased potential for erosion during construction. The re-grading of the site will result in a new configuration of surface grades. These grades, however, will allow proper drainage in conjunction with the stormwater management plan for the project (see Section 2.3.2).

Natural soil characteristics, such as soil bearing capacity and soil compaction, will be altered through earthwork activities associated with the construction of the project. In addition, the short-term removal of vegetation, and especially root systems from portions of the site, will create a greater susceptibility of exposed soils to erosive factors such as wind and rain. The soils on the project site subject to disturbance, as described in Section 3.6.1 of this DEIS, are generally shallow, moderately well drained loam soils which are not highly erodible. No significant adverse impact to agricultural resources is anticipated since the site is not in an agricultural district, and the site soils are not listed as prime farmland (refer to Appendix 12, "Soils Test Results," for additional details.

Blasting will not affect erosion and sedimentation. Areas to be blasted will be stripped of soils over rock prior to blasting. The blasting activities will involve solid rock and the rock fragmented by blasting which are not susceptible to erosion.

3.6.3 Mitigation Measures

The following measures will be implemented to mitigate, eliminate and/or minimize any potential impacts to soil resources and water resources due to soil disturbance and/or erosion. These measures were presented in greater detail in the earlier Surface Water

Resources section of this DEIS (Section 3.2.2 and 3.2.3) and additional detail can be found in Appendix 11, "Draft Construction Stormwater Pollution Prevention Plan."

1. As much existing site vegetation will remain as possible. Silt fencing and construction fencing will be used to physically define the limit of work. The limits of clearing are shown on LA Group Plan Sheets SG-1 through SG-10, "Grading and Drainage Plan." Silt fences will not be relied upon as a sole method of controlling erosion. Enhanced erosion control measures in the form of phasing and maintaining vegetation buffers, utilization of site-wide sediment basins, widespread use of temporary stabilization, and comprehensive stabilization planning will be implemented to prevent or reduce erosion.

2. Construction will occur in multiple Phases, Subphases, and Subcatchments which will reduce the potential for erosion by reducing the amount of soil exposed at any given time. Sediment retention basins capable of holding runoff from a 10 year storm on bare soil will be constructed and maintained throughout the site.

3. All soil stockpiles will be mulched with long fiber cellulose wood mulch such as Eco Aegis® or approved equal when not in use to prevent erosion of the stockpiled materials. Should stockpiles remain in place over the winter, they will be seeded with an annual rye grass or winter wheat mixture to stabilize the soil.

4. All erosion control measures will be checked regularly for proper functioning during construction and maintained as needed. A Certified Professional Erosion Control Specialist will be the superintendent overseeing day-to-day activities on the site, including making at least weekly inspections, and following any storm event of 0.5 inches or greater, to check erosion control devices. A crew of four to six people and the appropriate equipment per golf course will be under his direction and will be dedicated to installing, inspecting and maintaining erosion control devices. The Erosion Control Superintendent will have complete stop work authority and will have access to contractor equipment and manpower to maintain the erosion control system.

5. To minimize impacts due to wind erosion, natural vegetation at the limit of clearing will remain intact to serve as wind breaks. Access roads and haul roads will be watered as needed to reduce on-site dust and windborne erosion.

6. A stabilized construction entry of crushed stone will be prepared to minimize tracking of soil and mud onto adjacent roads. Also, periodic cleaning of the adjacent roads will be completed during construction and a regular street cleaning program will be implemented during construction.

3.7 Traffic Patterns

3.7.1 Access to the Site and Existing Conditions

Access to Big Indian Plateau will be provided via one access road adjacent to Belleayre Beach at Pine Hill Lake (day use area) located on Friendship Road off of NY Route 28. In addition, a primary emergency access will be provided off of Woodchuck Hollow Road and a secondary emergency access will be provided on the lower portion of Winding Mountain Road.

Access to Wildacres Resort will be provided via three site driveways off of County Road 49A; the first access will be located on the existing Gunnison Road, the second access servicing hotel traffic will be located across from the Belleayre Mountain Ski Center main (upper) driveway, and the third access will be located approximately 1,300 feet south of the Belleayre Mountain main (upper) driveway. Approximately 1,500 feet south of the third (most southern) Wildacres Resort access the Wilderness Activity Center will be developed on the east side of County Road 49A. In addition, a 21-lot subdivision of single family homes is proposed on County Road 49A approximately three quarters of a mile south of the Wildacres Resort.

To evaluate the traffic impact the following intersections were identified in the Final Scoping Document:

- NY Route 28/County Road 47
- NY Route 28/ Main Street
- NY Route 28/County Road 49A
- County Road 49A/ Belleayre Main (upper) Driveway
- Pine Hill Road/ Main Street/Bonnieview Avenue/Academy Street

Two additional intersections along NY Route 28 were added to the study at the request of NYSDOT Region 8 after their review of the initial project scope:

- NY Route 28/ NY Route 214
- NY Route 28/ NY Route 42

Additional intersections were considered for analysis which included roadways to the south of the project area on County Road 49A and west of the project area on NY Route 28. These intersections included roadways such as Dry Brook Road, Todd Mountain Road, Mill Brook Road, and Fleischmanns Heights. A review of the study area traffic volumes indicated that a maximum of 2 to 3 percent of the site traffic would use these

roadways so there would be no measurable impact. Similarly the impact of site traffic on Route 28 in the Town of Olive was reviewed. It was determined that approximately 3 additional vehicles per minute would be added to Route 28 traffic during the peak travel periods. The addition of three vehicles during the peaks will not have a significant effect on the Route 28 traffic. A more detailed discussion of the additional intersections and roadways considered are included in Response 1 and Response 27 of the Addendum to Appendix 25. The characteristics of the roadways and intersections serving the site are discussed below:

- NY Route 28 – NY Route 28 will serve as the primary means of access to the project area. NY Route 28 is a state-maintained roadway classified as a rural minor arterial. NY Route 28 extends from Kingston to the east and Oneonta to the west of the project. In the project area, NY Route 28 extends in an east-west direction with one twelve-foot wide travel lane in each direction and approximately six-foot wide shoulders. The statutory speed limit in the vicinity of the project site is 55 mph.

- NY Route 214 – NY Route 214 is a state-maintained roadway classified as a rural major collector. NY Route 214 begins at its intersection with NY Route 28 and extends northeast to NY Route 23A in Greene County. In the project area, NY Route 214 provides one twelve-foot wide travel lane in each direction with approximately eight-foot wide shoulders. The posted speed limit in the vicinity of the project is 30 mph.

- NY Route 42 – NY Route 42 is a state-maintained roadway classified as a rural major collector. NY Route 42 begins south of the project area at its intersection with NY Route 6 and NY Route 209 in Orange County and extends generally in a northeast direction and ends at the junction of NY Route 23A in Greene County. In the project area, NY Route 42 provides one ten-foot wide travel lane in each direction with approximately four-foot wide shoulders. The posted speed limit in the vicinity of the project is 45 mph.

- County Road 47 – County Road 47 is located southeast of the project site and is a two lane road extending in a north-south direction. At its intersection with NY Route 28, County Road 47 consists of approximately 10-foot travel lanes with approximately 3-foot shoulders. The speed limit in the vicinity of the project site is not posted and therefore assumed to be a statutory 55-mph.

- County Road 49A – County Road 49A is a two lane road extending in a north-south direction between County Road 49 and NY Route 28. County Road 49A is used primarily to provide access to Belleayre Mountain Ski Center and rural residential properties to the south. In the project area, County Road 49A consists of one nine-foot travel lane in each direction with three-foot shoulders. The speed limit in the vicinity of the project site is not posted and therefore assumed to be a statutory 55-mph.

- Main Street– Main Street is a local road that intersects NY Route 28 at a T-intersection. Main Street is a two-lane road extending in a north-south direction with 10.5-foot travel lanes and three-foot gravel shoulders. The posted speed limit on Main Street is 30-mph.

- Friendship Road—Friendship Road is a local road that intersects NY Route 28 in two locations at T-intersections. Friendship Road is a two-lane road with a total pavement width varying between 18 and 20-feet. There is no posted speed limit on this roadway; however, it is assumed that a 30-mph town road speed limit would apply.

The roadway classifications used to describe the study area roadways is a method of grouping highways by the character of service (i.e., volumes, density, roadway networks, etc.) they provide. The functional classifications for the State roadways were obtained from information provided in NYSDOT's *2002 Highway Sufficiency Manual.*

The geometry and traffic control of the study area intersections is as follows:

- NY Route 28/NY Route 214 – This intersection is a four-way intersection operating under stop sign control on the northbound South Street approach and the southbound NY Route 214 approach. All approaches to this intersection consist of a single lane with the exception of the NY Route 28 westbound approach which provides an approximately 140 foot long right-turn lane for vehicles entering NY Route 214 northbound.

- NY Route 28/NY Route 42 – This intersection is a three-leg intersection operating under stop sign control on the southbound NY Route 42 approach. The southbound approach to this intersection forms a 'Y' to separate left and right turn movements to and from NY Route 42. The NY Route 28 approaches to this intersection consist of single lanes and the southbound NY Route 42 approach consists of two lanes in each direction; however, quickly tapers to one lane in each direction at the base of the 'Y'.

- NY Route 28/County Road 47 – This intersection is a four-way intersection operating under stop sign control on the northbound and southbound County Road 47 approaches. Each approach of this intersection consists of a single lane.

- NY Route 28/Main Street – This intersection is a three-leg intersection operating under stop-sign control on the northbound Main Street approach. Each approach of this intersection consists of a single lane.

- NY Route 28/County Road 49A – This is a four-way intersection controlled by stop signs on the northbound County Road 49A approach and the southbound Owl Nest Road approach. The NY Route 28 eastbound approach consists of a left/through lane and a right-turn lane. The remaining three intersection approaches each consist of a single lane.

- County Road 49A/Belleayre Main (upper) Driveway – This is a three-leg intersection controlled by a stop sign on the westbound driveway approach. Each approach to this intersection consists of one travel lane.

- Main Street/Bonnieview Avenue/Academy Street – This is a four-way intersection controlled by stop signs on the Bonnieview Avenue and Academy Street approaches. Each approach to this intersection consists of one travel lane. This intersection is located southwest of the intersection of NY Route 28 and Main Street.

Due to existing seasonal variations in the traffic experienced in the project area, two seasonal traffic conditions were evaluated to select the peak period for the year. A winter period in January representing conditions during the peak ski season and a fall period in October representing traffic conditions when the proposed golf courses would be open. For the winter period, peak AM and PM peak hour weekend (Saturday) traffic conditions were analyzed. The AM peak hour captures the traffic on the study area roadways entering the existing Belleayre Mountain Ski Center, while the PM peak hour captures vehicles exiting the ski area at the end of the day. These two peak periods studied for the winter condition represent the worst-case background conditions on the study area roadways. The fall period was evaluated for a Friday PM peak and a Sunday PM peak. These two peaks were used to evaluate the traffic conditions during the peak fall leaf viewing weekend travel.

Traffic data for the winter conditions analysis were collected during the Martin Luther King Junior holiday weekend on Saturday, January 15, 2000 from 8:00 AM to 10:00 AM, 11:00 AM to 1:00 PM, and from 3:30 PM to 5:30 PM at most of the study area intersections. This day was an ideal ski day with the highest attendance at Belleayre Mountain Ski Center. The Saturday counts obtained in the field represent worst-case holiday weekend traffic during the winter. It was determined that the traffic volumes during the midday period from 11:00 AM to 1:00 PM were not critical to the analysis because the volumes were lower than the early and late peak hours. Supplemental counts were conducted at the Route 28 and 42 intersection and the Route 28 and 214 intersection on Saturday January 13, 2001 since it was suggested by NYSDOT that these intersections be included. A comparison of the volumes on Route 28 west of Route 214 from the 2001 counts and east of Route 49A from the 2000 counts shows that the volumes near Route 214 were 61 percent higher. This difference was consistent with traffic volumes on Route 28 observed in NYSDOT counts which indicated that traffic at Route 214 was typically 69 percent higher than traffic at Route 49A.

Traffic data for the fall season was collected during the Columbus Day holiday weekend on Friday, October 13, 2000 from 5:00 PM to 8:00 PM and on Sunday, October 15, 2000 from 4:00 PM to 7:00 PM. Due to travel in the project corridor to and from the Fall Festival and Craft Fair at the Belleayre Mountain Ski Center on this weekend, the data obtained in the field represents worst-case weekend traffic conditions for the fall. The turning movement traffic count data is included in Appendix 25, "Traffic Impact Study."

To verify the seasonal variations experienced in the traffic volumes in the project area, NYSDOT automatic traffic recorder data from June of 2000 was compared to traffic volume data collected in January and October by CME. These volume differences on NY Route 28 indicate that the January traffic volumes are up to 2.5 times higher than the June traffic volumes and the October traffic volumes are approximately 1.8 times higher. The results of this seasonal comparison confirm that winter and fall holiday weekend background traffic are appropriate to consider for the project area worst-case traffic analysis.

The following conclusions are evident from this field data:

- The collected data indicates that the existing Saturday afternoon peak hour in January yields the highest traffic volumes on the study area roadways with approximately 690 vehicles per hour on NY Route 28 and approximately 495 vehicles per hour on County Road 49A.

- An assessment of the three studied peak hours of the winter Saturday conditions indicated that the mid-day peak hour traffic is not as high as the AM and PM peaks. Therefore, the Saturday AM and PM peak hour conditions will be carried through the traffic study and analyzed for the winter traffic conditions of the proposed development.

- An analysis of summer traffic conditions was not conducted because the traffic volumes in the study area are considerably lower during the summer.

The total potential effects of the Belleayre Resort project when completely built out will be the projected addition of 2.32 vehicles per minute during the typical winter traffic peak hours and 3.12 vehicles per minute during the typical fall traffic peak hours. **The combined existing and additional Resort traffic flow at typical fall and winter traffic peak hours will utilize 30% of the rated capacity of NY Route 28.**

3.7.2 Potential Impacts and Mitigation Measures Analysis of Traffic Conditions with the Project

It is anticipated that the proposed project will open during the year 2006 and continue with construction through the year 2008. The analysis of the traffic conditions was completed as follows:

- The 2008 full buildout conditions will result in the highest traffic volumes; therefore, the full build out conditions were analyzed in the Traffic Impact Study to facilitate worst case traffic volumes. The traffic volumes for 2006, the year of opening with the facilities partially built and lower background traffic, would be less. Any traffic related mitigation will be constructed prior to opening of the project in 2006.

- A comparison was made between the future traffic volumes in 2008 with and without the traffic generated by the proposed resort for worst case fall and winter traffic conditions to determine the critical highest peak hours.

- It was assumed that background traffic on NY Route 28 would increase at a rate of 3% per year. This increase accounts for general traffic growth as well as the impact of growth of skier visits at Belleayre as well. The existing peak hour seasonal traffic volumes were increased by a 3 percent growth rate compounded for eight years to estimate 2008 No-Build traffic volumes. No-Build traffic volumes represent traffic conditions that would exist without the proposed resort.

- The trip generation for the resort was computed assuming full occupancy for a worse case condition.

- Traffic conditions during these peak hours were evaluated and recommendations were made to accommodate the projected traffic.

A. Trip Generation

Trip generation determines the quantity of traffic expected to travel to/from a given site. Two sources of trip generation were used -- The Institute of Transportation Engineers (ITE) *Trip Generation*, 6th edition, and counts of similar resort facilities. ITE provides trip generation data for the proposed development based on studies of similar types of existing developments located across the country. A comparison of the rates from the different sources is discussed below:

- Lodging and Club Membership Units: The closest ITE vehicle trip generation for the detached lodging units and club membership units was the land use code for recreational homes which is defined as homes, often second homes, usually located in a resort, used by the owner periodically or rented seasonally. This land use code best represents the time-share type lodging units proposed as part of this project. The ITE rate for the generator peak hour was 0.35 trips per unit. This rate is similar to the rate measured at a 216 unit project located at Mt. Snow where 0.31 trips per unit were measured. For analysis purposes, the slightly higher ITE rate will be used.

- Hotel: ITE's trip generation rate for a hotel reflects uses such as meeting rooms, banquet facilities, restaurants, club houses, coffee shops, retail, and recreational facilities and conference centers. The ITE trip generation rates include all trips expected to travel to and from a facility including employees, patrons, etc. The ITE hotel peak hour of generator rate is 0.72 trips per room. This rate is higher than the 0.326 rate recorded at a resort hotel and convention facility at the Sunday River Resort in Maine and the rate of 0.59 recorded at hotels near Killington. The Sunday River Hotel is similar to those proposed for this development. When the hotel was fully booked, a rate of 0.326 trips per room was measured for the peak hour. This rate is less than half of the ITE rate. However, to insure that adequate traffic mitigation measures are taken the higher ITE rate was used for the design analysis of

traffic conditions. The above estimated design trips simulate a worst case peak hour design condition at full buildout of the proposed project assuming 100% occupancy of all residential and club membership units.

- Golf Course : The golf course will be primarily for Resort guests but the general public will be allowed to use the course on a space available basis. The ITE rate for golf courses was used to estimate peak hour trips. It should be noted that the golf course trips were only added to the fall condition analysis (Friday PM peak hour and Sunday PM peak hour). Golf course trips were not included in the wintertime condition analysis (Saturday AM and PM peak hours) since this represents a time of year when the golf courses will not be operational.

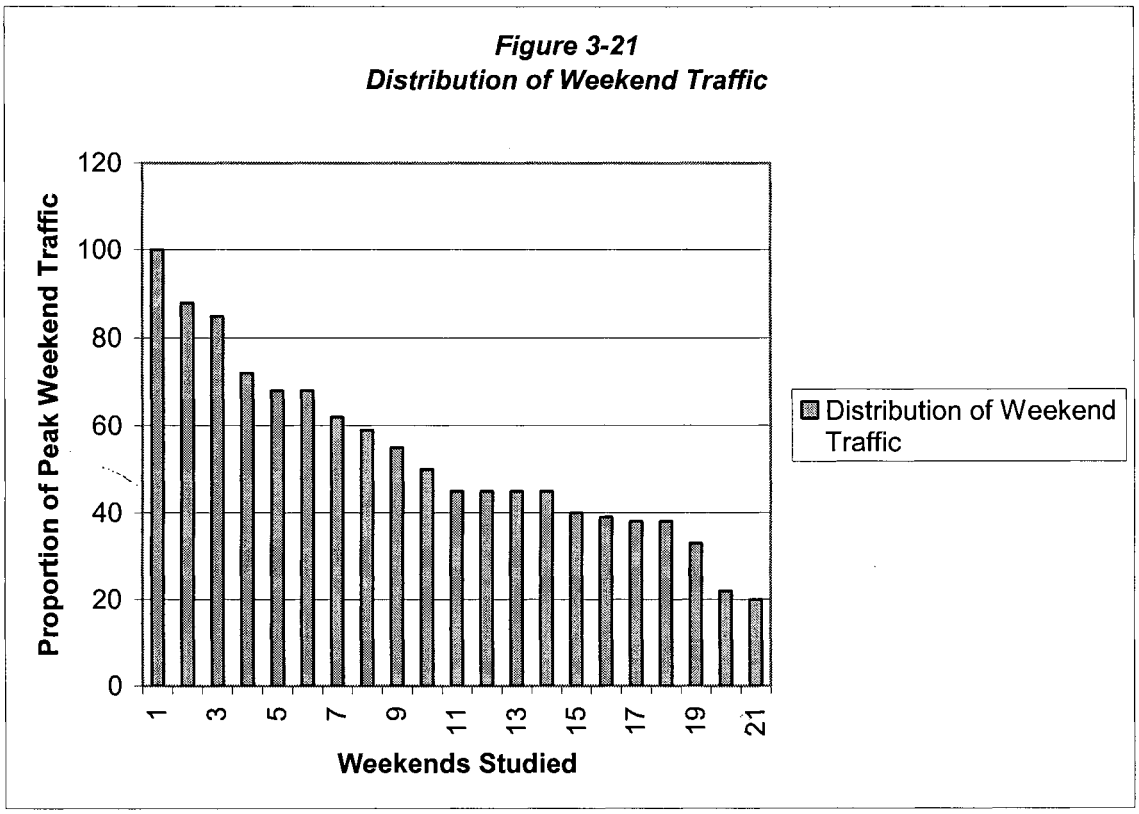
The ITE trip generation manual provides one peak hour trip rate for the peak hour of the generator for Saturday and Sunday conditions of the proposed resort-types of land uses. For the design analysis it was assumed that the peak hour of the generator would occur during the peak hours of adjacent street traffic. That is, the same higher number of trips were used for both the AM and PM Saturday peak hours for the wintertime analysis. Again this a conservative approach by adding the highest trip generation of the proposed uses to the highest seasonal background traffic conditions.

Shuttle buses will play a significant role in reducing the trips from the development. In the winter they will shuttle skiers to and from Belleayre and in the summer they will shuttle between Wildacres Resort, Big Indian Plateau, and the Wilderness Activity Center. As a conservative estimate it has been assumed that 40 percent of the trips to and from the golf courses on peak days will be made on the shuttle buses. In the winter the main activity will be skiing and it has been assumed that 50 percent of the peak hour trips generated by the Resort will be to and from Belleayre. Of these trips it has been assumed that 80 percent of them will be on the shuttle buses.

Another characteristic of this type of resort is the significant variation in trip making between different days of the season. Data on this variation is shown in Figure 3-21, "Distribution of Weekend Traffic." As can be seen weekend attendance during the ski season drops as low as 22 % of the maximum weekend. For the weekends measured the median trips generated was 45 % of the maximum. A discussion on the attendance trends at the Belleayre Mountain Ski Resort are included in Response 21 of the Addendum to Appendix 25.

A summary of the estimated trip generation for the Resort during for different peak periods is shown in Table 3-31, Table 3-32 and Table 3-33. The tables show the design volumes used for the traffic analysis based on ITE rates and the estimated maximum volumes based on other traffic counts at similar facilities for the peak hour of the peak day. More typical volumes that would occur at non-peak times of the year are shown as well.

Figure 3-21
Distribution of Weekend Traffic



Source: Mount Snow Traffic Study, Resource Systems Group, Data from 1996.

Table 3-31
Wildacres Resort Trip Generation

Wildacres Resort	Saturday Peak Trips			Friday PM Peak			Sunday PM Peak		
	Design	Estimated Maximum	Typical	Design	Estimated Maximum	Typical	Design	Estimated Maximum	Typical
168 Detached Lodging Units	49	42	19	44	38	17	60	52	23
250-Room Hotel	152	126	57	138	114	51	140	116	52
18-Hole Golf Course	-	-	-			14			23
Total Wildacres Resort	201	168	76	182	152	82	200	168	98

Design = Based on ITE rates used for traffic analysis
Estimated Maximum = Based on measured volumes at similar resorts
For the Design and Maximum Weekend it is assumed that all Golf Course Users will be internally generated by the resort
Typical = Based on median day of operation

Table 3-32
Big Indian Plateau Trip Generation

Big Indian Plateau	Saturday Peak Trips			Friday PM Peak			Sunday PM Peak		
	Design	Estimated Maximum	Typical	Design	Estimated Maximum	Typical	Design	Estimated Maximum	Typical
183 Club Memberships	55	47	21	48	41	18	67	58	26
150-Room Hotel	91	76	34	74	61	27	84	70	32
18-Hole Golf Course	-	-	-			14			23
Total Big Indian Plateau	146	123	55	122	102	59	151	128	81

Design = Based on ITE rates used for traffic analysis
Estimated Maximum = Based on measured volumes at similar resorts
For the Design and Maximum Weekend it is assumed that all Golf Course Users will be internally generated by the resort
Typical = Based on median day of operation

Table 3-33
Highmount Estates Trip Generation

Highmount Estates	Saturday Peak Trips			Friday PM Peak			Sunday PM Peak		
	Design	Estimated Maximum	Typical	Design	Estimated Maximum	Typical	Design	Estimated Maximum	Typical
21 Single Family Homes	17	17	8	25	25	11	17	17	8

Design = Based on ITE rates used for traffic analysis
Estimated Maximum = Based on measured volumes at similar resorts
Typical = Based on median day of operation

B. Trip Distribution

Trip distribution describes where traffic originates or where traffic is destined. The trip distribution patterns were based on the existing traffic patterns observed in the area during the two holiday weekends studied, as well as an assessment of the market area for the proposed resort. Based on the assessment, it was determined that the majority of the traffic traveling to and from the resorts will be coming from or destined to the greater metropolitan New York area.

The trip distribution patterns for Highmount Estates were developed based on the local trip distribution patterns.

C. Traffic Assignment

Traffic assignment combines the results of the trip generation and trip distribution and determines the specific path and roadway that will be used between various

origin/destination pairs. One access road is proposed off of Friendship Road for Big Indian Plateau. Since the traffic volumes on Friendship Road are very low, the intersection of Friendship Road and NY Route 28 was analyzed to determine any impacts from the project traffic. To provide a worst-case condition, it was assumed that all of the traffic to/from Big Indian Plateau would utilize the eastern leg of Friendship Road since this leg is closest to the proposed access road location on Friendship Road. Three driveways will provide access to Wildacres; one on the existing Gunnison Road, a second directly opposite the Belleayre Mountain Ski Center Main (upper) Driveway, and the third south of the Main (upper) Driveway intersection. The traffic assignment for each of the Wildacres driveways was determined based on an assessment of the internal site layout and the trips associated with each component of Wildacres.

D. 2008 Build Traffic

The results of the traffic assignment were added to the 2008 Background traffic volumes to develop the 2008 Build traffic volumes. An analysis of the total traffic at each intersection during the peak hour indicates that the Saturday PM Peak is the highest peak hour at the study area intersections. Therefore, this peak hour was analyzed to determine the impact of the development on future traffic conditions. The Saturday AM Peak hour was analyzed as well to determine the impact during a morning peak period when traffic patterns would be reversed.

E. Accident Analysis

An accident analysis was conducted for the portion of NY Route 28, included in the project scoping document, between County Road 47 to County Road 49A documenting the accident history in the study area during the past three years. The accident history for the NY Route 28 study area corridor was analyzed by summarizing the frequency of accidents and calculating accident rates. A comparison was then made between the calculated rate and the applicable statewide mean accident rate for state-maintained highways, as provided by NYSDOT. No intersection accidents were reported at the NY Route 28/Main Street and NY Route 28/Friendship Road intersections over the three-year study period. At the other two studied intersections one intersection accident occurred at each location during the three-year study period. The calculated rate for the NY Route 28/County Road 47 intersection is lower than the statewide mean rate for a four-way stop sign controlled rural intersection. Although only one accident was reported at the NY Route 28/County Road 49A intersection, the calculated rate is a fraction higher than the statewide mean rate for a four-way stop sign controlled rural intersection. Recommendations to this intersection to provide turn lanes on the westbound NY Route 28 approach and northbound County Road 49A approach presented later in this section, will improve the operation of this intersection by providing a separate storage area for vehicles turning at this intersection. The installation of a traffic signal to be used during peak wintertime travel in the project area will also help to improve the operation of this intersection. Although no accidents were recorded at the NY Route 28/Friendship Road intersection during the study period, recommendations at this intersection to provide a left-turn lane on NY Route 28 will improve the safety at this location by providing a separate storage area for vehicles turning into Friendship Road.

F. Sight Distance Analysis

An evaluation of the available sight distance at the proposed site driveway locations was conducted as part of the field visits to the project area. The intersection sight distance, measured from the perspective of a driver exiting the site looking in both directions along the mainline roadway, was compared to the distance recommended in the NYSDOT *Policy and Standards for Entrances to State Highways*, February 1998 and to the guidelines for the installation of intersection warning signs provided in *New York State Official Compilation of Codes, Rules, and Regulations (Title 17, Transportation)*. The NYSDOT recommended sight distance for a 55-mph speed is met at the intersection of NY Route 28 and Friendship Road. The existing speed limit on County Road 49A is 55-mph; however, there are currently no speed limit signs on this roadway. Field measurements of speeds conducted during the period from June 22, 2002 to June 27, 2002 using an Automatic Traffic Recorder (ATR) demonstrated that the County should post County Route 49A at 40 mph. The sight distance for the golf cart crossings was conducted using the local road speed limit on Gunnison Road of 30-mph. Based on these speeds sight distance was evaluated for four different movements: left out of the driveways, right out of the driveways, left into the driveways, and stopping on the County Route 49A to wait for a vehicle making a turn into or out of the driveways. Based on the above speeds, sight distance for all of movements at all of the locations meet the stopping sight distance criteria. Most locations also meet the desirable criteria for all three movements evaluated – left and right turns out of the driveway and left turns into the driveways. Mitigating measures to address locations that do not meet all of the sight distance criteria are discussed below. Also, see additional sight distance discussion and sight triangle figures included in Responses 6 and 8 of the Addendum to Appendix 25. An evaluation of stopping sight distance is included in Response 22 of the Addendum to Appendix 25.

- County Road 49A/Middle Driveway (across from Belleayre Main (upper) Driveway): Currently sight distance is limited by both vertical and horizontal curvature on County Road 49A. The current project site plans indicate that County Road 49A will be realigned in the vicinity of the Middle Driveway with the construction of this project. Refer to Figure 3-21A for a schematic drawing of the proposed County Road 49A roadway improvements. This realignment is expected to improve the sight distance at the Middle Driveway and the Belleayre Mountain Driveway approaches. Clearing of trees and shrubs within the County Road 49A right-of-way will be required to maximize the sight distance (no State lands are involved). With this reconstruction, there should be adequate sight distance but it is recommended that after construction is completed the sight distance be measured in the field to determine if advisory speed signs are required.

- County Road 49A/Southern Driveway: Looking left at the southern driveway on CR 49A exceeds the critical warning sign sight distance that would require the installation of warning signs. Sight distance is limited to less than the ideal distance by vertical and horizontal curves looking to the left and vertical

grades looking to the right. Clearing on the west-side of County Road 49A would improve the sight distance looking to the left. However, to further mitigate the sight distance deficiency due to the vertical profile, it is recommended that driveway ahead warning signs be installed on the northbound and southbound County Road 49A approaches to this intersection.

- County Road 49A/proposed Highmount Estates access: Sight distance is limited by both vertical and horizontal curvature of County Road 49A. It is recommended that the side slopes be cleared and graded to provide for additional sight distance. Advisory speed signs and intersection ahead warning signs should be installed on the County Road 49A approaches to this intersection.

G. Capacity/Level of Service Analysis

Intersection Level of Service (LOS) and capacity analysis relate traffic volumes to the physical characteristics of an intersection. Intersection evaluations were made using the latest highway capacity software (HCS version 4.1a) which automates the procedures contained in the 2000 *Highway Capacity Manual*. The results of the analysis provide a level of service rating from LOS A to LOS F based on the average delay per vehicle. In general, a LOS A represents the best operating conditions with drivers experiencing very little delay. A LOS F represents poorer operating conditions with typical vehicle delays in excess of one minute.

The relative impact of the Big Indian Plateau and Wildacres Resorts can be determined by comparing the Levels of Service during the 2008 design year for the Background and Build traffic volume conditions for the design peak hour. The following intersections will have levels of service of D or better on all approaches for the worst case design hour traffic with no improvements:

- NY Route 28/County Road 47
- NY Route 28/Main Street
- Main Street/Bonnieview/Academy St.
- County Road 49A/Wildacres South Driveway
- NY Route 28/Friendship Road

Other intersections with lower levels of service for the worst case design hour traffic are discussed below:

- NY Route 28/County Road 49A– If no improvements are made, this intersection will continue to experience a LOS F on the northbound approach of County Road 49A during the Saturday PM peak hour. To correct this

condition it is recommended that that a westbound left-turn lane on NY Route 28 and a northbound right-turn lane on County Road 49A be added. These turn lanes will provide a storage area for vehicles traveling westbound on NY Route 28 and turning left onto County Road 49A and for vehicles traveling north on County Road 49A turning right onto NY Route 28. Refer to Figure 3-21B for a schematic drawing of the proposed intersection improvements. In addition, it is recommended that a three-phase traffic signal be installed at this intersection. It is anticipated that the traffic signal would be fully operational during the winter months and on flash during the other months. With a traffic signal this intersection will operate at an overall level of service B in the AM and PM peak hours under the 2008 Build conditions. The above improvements are warranted for the Background condition before the development of the proposed project. They should therefore be completed before the project opening date of 2006. Since this project will add vehicles to the critical approaches to this intersection, it is recommended that a fair share contribution to these improvements be made as part of this project.

- NY Route 28/NY Route 42- Under the Build conditions the NY Route 28 approaches to this intersection will operate at a LOS B or better during the AM and PM peak hours. The NY Route 42 southbound approach will operate with a LOS D during the AM peak design hour and a LOS E during the PM peak design hour. During a typical winter weekend these approaches will be at a LOS C. Since the volumes on the southbound NY Route 42 approach are expected to be low, with less than 100 vehicles during the highest peak periods, a traffic signal is not warranted at this location, and therefore is not recommended.

- NY Route 28/NY Route 214- For 2008 background traffic conditions, without the development of the proposed project, a level of service F was projected for the southbound intersection approach. In 2008, during the design peak hour, this intersection's northbound and southbound approaches would operate at a level of service F and E during the AM peak hour and a level of service D and F during the PM peak hour, respectively. On a typical winter weekend day the approaches will be at a LOS D or better. There are only a few vehicles on the South Street northbound intersection approach during both peak hours; therefore, no mitigation is recommended for this approach. The NY Route 214 southbound approach also has a relatively low volume that is delayed by the higher NY Route 28 through volumes. It is not expected that the traffic conditions will meet the NYSDOT warrants for a traffic signal which are based on average conditions not worst case conditions. This consideration of both daily peaking of traffic and seasonal variations in traffic in the project area, indicate that a traffic signal is not warranted at this location. However, if there are other significant developments that occur in the area in the future, there should be a re-analysis of traffic warrants at this location.

- County Road 49A/Gunnison Road- Under the 2008 Build conditions, this intersection will operate with a level of service C or better on all approaches during the AM peak hour. During the PM peak hour, the eastbound Gunnison Road approach will experience a level of service F and the westbound Belleayre Lower Driveway will experience a level of service E for a short period of time as ski traffic exits. Some of this traffic may divert to another Belleayre access driveway. Since traffic signal warrants are not met, this is a short tem condition, Gunnison Road volume is low and the Belleayre Lower Driveway volumes are approximately 95% right-turn movements a signal is not recommended. To mitigate the potential for this delay, it is recommended that signs be placed within the Wildacres Resort to divert the exiting traffic to the southern resort driveway. This diversion would allow for vehicles to enter County Road 49A south of the congested Belleayre Mountain Ski Center access.

- County Road 49A/Belleayre Main (upper) Driveway- With the peak design hour traffic for 2008 this intersection will operate at a level of service B or better during the AM and PM peak hours on the northbound, southbound, and westbound intersection approaches. The Wildacres Resort eastbound driveway approach is expected to operate at a level of service D during the AM peak hour and at a level of service E during the PM peak hour. These levels are acceptable because County Road 49A traffic volume is low, the Belleayre driveway traffic opposing the Wildacres Resort driveway volumes consists of 95% right-turn vehicle movements, and the drop in level of service would only occur for a short time during the busiest winter weekends.

- NY Route 28/Friendship Road- This intersection will operate at a level of service C or better for all approaches during the 2008 peak design hour. However, due to the volume of left-turn traffic into Friendship Road from NY Route 28, it is recommended that a left-turn lane be installed on the westbound approach to this intersection on NY Route 28. If the operation of Friendship Road is changed to provide one-way traffic (from west to east) the location of the left-turn lane on NY Route 28 should be moved to the western leg of Friendship Road. It is recommended that this intersection be controlled with a stop sign on the Friendship Road northbound approach.

H. Blasting

Blasting on the Big Indian Plateau will not have any impact on traffic since the hotel and irrigation pond locations where blasting is required are well removed from any public roads.

The Wildacres Hotel location, the only other portion of the project site where blasting is required will be more than 300 feet from County Route 49A. Because of this distance, and implementation of other mitigation measures such as blast mats to prevent fly rock, it is not expected that any traffic delays will be required on County Route 49A. Prior to blasting operations the blaster shall coordinate with the Ulster County Department of

Roads and Bridges, review the blast locations, and allow the County to determine if they wish to have temporary traffic stoppages during the short periods before, during and shortly after charges are detonated. Even if these temporary stoppages are required they will occur at the frequency of at most one or two times per day and each stoppage would likely last for no more than five or so minutes. This is an insignificant, short-term and temporary impact and no mitigation measures, beyond coordinating with Ulster County are necessary.

I. Conclusions

Based on the results of the Traffic Impact Study conducted for the proposed Belleayre Resort at Catskill Park, the following conclusions are evident:

1. Traffic in the area varies significantly by season, time of day, and day of the week. The Belleayre Mountain Ski Center has a major impact on traffic volumes as evidenced by the fact that the highest peak hour volumes on NY Route 28 occur on winter weekends. This pattern will continue after the Big Indian Plateau and Wildacres Resort project is completed.

2. Provision of shuttle bus service by the Resort will have a positive impact on traffic conditions by eliminating most vehicle trips between the Resort and Belleayre Mountain Ski Center.

3. Traffic from the project will vary significantly by season, time of day, and day of the week. On a typical winter weekend the development will generate 139 peak hour trips. For the traffic design a worst case analysis was conducted that was based on estimates for the highest winter traffic weekend. For this worst case, Big Indian Plateau will generate 146 vehicle trips during the peak hour and Wildacres will generate 201 trips. During other times of the day (off peak), the number of generated trips will be less. Not all trips generated by the Resort will be new trips to the area. Some trips will be made between the various project components and similarly, some trips will be made between the project and the Belleayre Mountain Ski Center. It is anticipated that approximately 50 percent of the peak hour trips generated by the proposed Resort during the winter will be shared trips with the Belleayre Mountain Ski Center. Instead of adding these trips to the traffic stream on NY Route 28 traveling out of the project area, patrons will leave the Ski Center and travel directly to Wildacres Resort or Big Indian Plateau.

4. The traffic analysis presented in the report indicates that traffic volume increases at most locations along NY Route 28 from the proposed project will be between 3 and 4 vehicles a minute during the maximum peak hours during the winter season. Peak hour volume increases would be less than 2 vehicles per minute for more typical weekends. For example, the project generated trips at the NY Route 28/ County Road 49A intersection for the peak periods are shown below:

	Peak Design Saturday AM	Peak Design Saturday PM	Typical Saturday AM	Typical Saturday PM
Route 28 @ County Road 49A	202	198	76	76
Approx. trips/minute (Total trips ÷60 minutes)	3.4	3.3	1.3	1.3

This number of trips from the Resort would use less than 15% of the capacity of Route 28 during this worst case period. At other times they would use a smaller proportion of the roadway capacity. Similar results are found at the other study area intersections in the project corridor. An increase in traffic of this magnitude will typically not be noticeable.

It should also be noted that the peak design trip estimates assume that each of the proposed Resort facilities would be 100% occupied. Although this assumption follows the industry standard for trip generation in a traffic study, it is reasonable to assume that a percentage of the Resort will be unoccupied for much of the time. This indicates that typically, less Resort traffic will be on the roadway network most of the time. Also, in general, the project traffic will be limited to the main arterials through the project area (NY Route 28, County Road 49A). Traffic is not expected to increase on local roads, including the roadways in the Hamlet of Pine Hills.

5. Based on the sight distance analysis, a number of mitigating measures have been proposed.

6. Based on the results of the analysis presented in this report, the following mitigation is recommended:

   - NY Route 28/Friendship Road (east)- The construction of a westbound left-turn lane on NY Route 28 at its intersection with the easterly leg of Friendship Road. If the operation of Friendship Road is changed to provide one-way traffic (from west to east) the location of the left-turn lane on Route 28 should be moved to the western leg of Friendship Road.

   - NY Route 28/ County Road 49A- A fair share contribution towards the construction of a westbound left-turn lane on NY Route 28 and the construction of a northbound right-turn lane on County Road 49A. A fair share contribution towards the installation of a three-phase traffic signal at the NY Route 28/ County Road 49A intersection. It is anticipated that this signal would operate during the winter months and would be on flash mode during the other months.

7. To maintain smooth travel of vehicles on all the study area roadways, it is recommended that information signs be placed on the main roadways directing patrons on a direct path to their proper destination.

8. The Traffic Impact Study is based on worst case traffic operations during the peak seasonal and daily traffic volume conditions in this area. During most times of the year, the traffic volumes on NY Route 28 are significantly lower than during the peak ski weekend at Belleayre. As a result, there is significant reserve capacity on NY Route 28 to accommodate the proposed Resort project. Mainline improvements to NY Route 28 are not warranted.

9. In addition to the intersection improvements recommended, various transportation management initiatives are planned that will reduce traffic impacts. These include the use of a shuttle bus for guests and employees, remote park-and-ride lots for employees, and scheduling check in/out times at the hotels to occur during off-peak times.

10. The development of the proposed project has the potential for the background traffic to decrease due to a shift in employment opportunities within the project area. It is expected that the proposed Resort facilities will generate many new opportunities that may attract local residents for employment.

11. Finally, the project has the potential to reduce the longer distance daily commuting traffic coming to Belleayre. For example, peak days at the Ski Center typically attract 3,000 to 4,000 skiers. The proposed Resort has the capacity to house 40 to 50 percent of these skiers and therefore reduce the amount of daily skier commuting traffic on NY Route 28.

3.8 Land Use and Community Character

In addition to field investigations, a number other sources were used to compile the information contained in this Section. These sources included USGS Maps, hiking trail maps and trail guides, 1997 color infrared aerial photographs, and the various maps produced as part of the Route 28 Corridor Committee Study.

3.8.1 Existing Use of the Site

A. Existing Conditions

Current uses of the Crossroads assemblage are limited, due primarily to its generally undeveloped character. Uses that do currently occur on the site include logging, hunting, hotel operation and hiking.

Logging has occurred on the assemblage for at least the past 50 years and the most recent logging activities occurred as recently as during the 1990's.

Currently, and in the past, the project site has been used on a limited basis for hunting by the private owners and their guests. On the Big Indian Plateau there are two camps off of the extension to Winding Mountain Road. Typically these camps are in use between October and December with their owners/hunters sometimes occupying them for

weekends and sometimes for longer stays during deer season. Hunting likely occurs on other portions of the property by those trespassing on the private posted lands that comprise the assemblage.

Virtually all the other lands assembled for the project have been perennially posted by their previous private owners. The project represents no change in that pre-existing condition.

The Wildacres Hotel complex operated until very recently. There are a total of 17 rooms in the two hotel buildings, including (8) efficiency units. In the 1999-2000 ski season rooms were available for rent to skiers and occupancy rates on weekends ranged from 20% to 100%. During the week occupancy rates at the existing Wildacres facilities were less than 10%. In the summer of 2000 a not-for-profit educational camp for teens was in occupancy at Wildacres for two months. In addition to their activities at the Wildacres Resort portion of the project site they also used the former Highmount Ski Area for a number of outdoor and indoor activities.

Rental occupancy has also recently occurred at the Brisbane (Turner) Mansion.

Portions of New York State hiking trails exist on easements that pass through portions of the Big Indian Plateau at two locations. The locations of the State trails as they relate to the project are illustrated on Figures 3-22, "State Hiking Trails – Eastern Portion", and Figure 3-23, "State Hiking Trails – Western Portion."

Starting at the southern end of Woodchuck Hollow Road a trail continues onto the assemblage along the southern entrance driveway to the existing Tuner Mansion and the proposed Belleayre Highlands. The trail continues along the private driveway for approximately 0.3 miles before turning to the south into a wooded portion of the project assemblage and continuing on a woods road for approximately 0.5 miles before entering State Land. Many users of this trail park at the end of Woodchuck Hollow Road and start their hike from this point. New York New Jersey Trail Conference maps (1998) for the area show the trail actually starting further to the south at the intersection of Mill Street and Bonnieview Avenue in Pine Hill. The Adirondack Mountain Club's "Guide to Catskill Trails" (1994) states that the trail officially begins at a DEC signpost along NY Route 28 where Elm Street enters the Hamlet of Pine Hill. The 1998 UMP/EIS for Belleayre Mountain has as one of its objectives the construction of a 10 car hiking trailhead off of Station Road in Pine Hill. This work has not been undertaken to date.

The second State trail that crosses through the project site begins at a trailhead parking area off of Lost Clove Road. The trail goes to the east on the project assemblage for about one mile before entering onto State land. The trail passes through an open field before progressing on a woods road before joining the Biscuit Brook – Pine Hill Trail.

Use of these existing State trails will continue unimpeded and the developers intend to offer further opportunities for the State to create additional trails, where appropriate, over undeveloped portions of the project assemblage.

B. Potential Impacts

The project site provided very limited private hunting opportunities to its previous owners and their guests in the past. Hunting will not be allowed on the project site when the project is developed, including those lands protected from future development.

Use of these existing State trails will continue unimpeded and the developers intend to offer further opportunities for the State to create additional trails, where appropriate, over undeveloped portions of the assemblage.

While the improved access to the State trails and the potential expansion in use by resort guests may tend to increase usage of existing trails, most of these trails are quite steep and difficult, suggesting that any increase in use will not be significant. Additionally, the most recent Unit Management Plan prepared for the area these trails pass through, The Big Indian – Beaverkill Range Wilderness Area, states that the level of use of trails in the Area were "low."

C. Mitigation Measures

No, mitigation measures are required because no adverse impacts have been identified.

3.8.2 Adjacent Land Use and Community Character

A. Existing Conditions

1. Adjacent Land Use

Land use directly adjacent to the assemblage varies. A large portion of the lands around the assemblage are State-owned lands. Figure 3-24, "State Lands", shows the assemblage and its relation to State-owned lands, including the lands of Belleayre Mountain Ski Center and Belleayre Beach at Pine Hill Lake. State lands abut the former Highmount Ski Area, the northern portion of the Wildacres Resort site, to the south and west of Belleayre Highlands, and also to the southwest of the portion of the assemblage near Lost Clove Road. These State lands are contiguous with additional State lands that extend primarily to the south and east.

State-owned land makes up much of the lands in the general area of the assemblage. For the Town of Shandaken over 70% of the land is State-owned. Within 10 miles of the assemblage itself it is estimated that approximately 60% to 65% of the surrounding land is State-owned. Numerous hiking trails are present on the State-owned lands around the assemblage, some of which provide access to some of the higher peaks in the Catskills.

The Ski Center itself consists of 2,193 acres of terrain (170 acres of skiable terrain) with 7 lifts and 35 trails. The ski facility has the capacity to accommodate 5,500 people at one time. Also included in the ski facilities are three base lodges and a summit lodge. The

Belleayre Beach at Pine Hill Lake also provides an area for intensive recreational use. Its facilities include a swimming beach, bathhouse, and picnic pavilions.

There are some residential land uses that are adjacent to portions of the assemblage. Generally located on larger lots, these residences consist of both first and second homes. Progressing from west to east across the lands that comprise the assemblage, residences are located on Todd Mountain Road, Galli Curci Road/County Road 49A, and Gunnison Road in the vicinity of the Wildacres Resort portion of the project site. The residences off of Van Loan Road are on smaller lots. There are two residences off of Woodchuck Hollow Road that are adjacent to lands that comprise the Belleayre Highlands portion of the Big Indian Plateau. Similarly, there are a few residences adjacent to the Big Indian Plateau near Lasher Road and Lost Clove Road.

There are limited commercial uses adjacent to the site. These include the Belleayre Ski Shop and the Alpine Austeria Bed and Breakfast on County Road 49A and the Mattress Barn on NY Route 28.

Also located in proximity to the assemblage is a currently inactive railroad right-of-way that contains the remnants of the rail bed, train tracks, and associated bridges, culverts, etc. The proposed project includes one new at-grade crossing of the railroad to be created in the vicinity of Friendship Road. The existing at-grade crossing at Winding Mountain Road will be improved and will continue to be used as an at-grade crossing. There will be no impacts to any existing crossings, bridges or other existing features associated with the former Ulster and Delaware Railroad.

2. Community Character

The general character of the surrounding area is low density development within a mountainous region, with much of the surrounding lands being undeveloped and owned by New York State as part of the Catskill Forest Preserve. State-owned land makes up much of the lands in the general area of the assemblage. For the Town of Shandaken over 70% of the land is State-owned. Within 10 miles of the assemblage itself it is estimated that approximately 60% to 65% of the surrounding land is State-owned. Numerous hiking trails are present on the State-owned lands around the assemblage, some of which provide access to some of the higher peaks in the Catskills.
More concentrated development in the area occurs in the valleys, particularly in the hamlets that exist in the valleys through which NY Route 28 passes.

The existing community character reflects a mix of land uses associated with historical land uses within the Central Catskill Region including agriculture, forestry, tourist-related land uses, and residential uses.

The most significant land-use change that has occurred in the region since the mid-1960's has been an increase in residential population. The population of the Esopus Creek Basin upstream from the Ashokan Reservoir increased 147 percent between 1940 and 1980.

During the same time period, residential land use in the basin increased 230 percent, whereas commercial and agricultural land use decreased 80% (Freud, 1991).

The area still contains some agricultural lands located in the valleys and on lesser slopes removed from NY Route 28. Agricultural lands are more prevalent in Delaware County, especially west of Margaretville. In the vicinity of the assemblage there are some agricultural lands on Rider Hollow Road and to the west along Hog Mountain Road.

Forestry continues to be practiced on privately owned wooded areas in the area. The Route 28 Corridor Committee Study identifies some large blocks of land that are classified as vacant. The largest tracts of land classified as vacant are located on and around Fleischmanns Mountain to the west of the assemblage, lands on and around the assemblage to the west of the Ski Center, lands on and around Rose Mountain and some lands around the Hamlet of Phoenicia. These lands, for the most part, continue to be logged.

The area has a significant amount of land use associated with the tourism industry. However, the tourism that occurs today differs from the tourism that historically occurred in the Catskills. Beginning in the 19th century, visits of a week, a month, or even an entire season predominated and hundreds of inns and hotels aggregating 10,000± hotel beds proliferated. These facilities fell prey to the economic pressures generated by the onset of the "Great Depression" and their decline and disappearance accelerated down through the 1980's. The tourism land uses in the area around the project site generally provide services for travel-through tourism (i.e., foliage viewing) and day-trip tourism or short stay tourism activities (i.e., hiking, climbing, canoeing and kayaking, skiing, tubing, hunting and fishing, horseback riding, local train rides, and specialty shopping.) Most of the developed land uses serving tourism are concentrated in the hamlets along the NY Route 28 corridor including Phoenicia, Pine Hill, the Village of Fleischmanns, Arkville and Margaretville. Restaurants, museums, shops, specialty stores (sporting goods, clothing, antiques, etc.), convenience stores, gas stations, bed and breakfasts, some cabin colonies, campgrounds and smaller motels occur in these areas. Along NY Route 28 itself there are some facilities to serve tourists including gas stations and convenience stores. The popularity of fishing in the area is evidenced by a number of small parking areas available to anglers fishing the Esopus Creek as it generally parallels NY Route 28 in the area.

Concentrated commercial development to serve the more regular needs of local residents is scattered through some of the hamlets and along NY Route 28, but the areas where commercial development is concentrated is in Boiceville and Margaretville. It is there that services such as supermarkets, hardware stores, banks, etc., are located.

Residential use is also concentrated in the hamlets and along NY Route 28, but also occurs in lower densities further removed from the highway corridor. Generally speaking, the zoning ordinances of the Towns of Shandaken and Middletown have residential zones that increase in minimum lot size the further removed the lands are from major roads.

The assemblage includes lands in Shandaken that are zoned R-1.5, R-3, and R-5, with the great majority being located in R-5. The proposed project qualifies as a "Vacation Resort" under the Town of Shandaken Zoning Code. A Special Use Permit is required for Vacation Resorts in Shandaken. While the Town of Shandaken Zoning Code does not have specific density requirements for Vacation Resorts, the applicable density is listed under "Hotel or Lodge Development" And the regulation reads as follows: "Minimum residential lot area shown on the District Schedule of Area and Bulk Regulations for the zoning district in which the proposed hotel or motel is proposed to be located shall be increased by one hundred percent for each eight (8) guest rooms provided.

Table 3-34, "Big Indian Plateau Density", analyzes the proposed density of the Big Indian Plateau using three different methods. Under all three methods the proposed density is lower than what is allowed under current zoning. Lands on this 1,242 acre portion of the project are zoned R1.5 (8.9 acres), R3 (30.8 acres) and R5 (1,198.1 acres). A total of 333 lodging units are proposed. Applying the Hotel Lodging Unit Density Factor this equates to 41.6 (333/8) proposed.

In Table 3-34 it is assumed that all lands on the Big Indian Plateau is zoned R5, which permits the lowest density. For the 41.6 units proposed, 208 acres would be required under R5 zoning (41.6 x 5 acre zoning). As stated previously, there are 1,242 acres on the Big Indian Plateau. If lands over 20% are excluded from the 1,242 acres, there are 216 acres available, more than what is needed for the project. (The exclusion of 20% slopes applies to cluster subdivisions only, which this project is not.) Part 1.B in Table 3-34 looks at this same scenario of assuming all contiguous lands are zoned R5, and illustrates how what is being proposed is only 17% of what is allowed. Parts 2.A and 2.B of Table 3-34 analyze the density incorporating the allowance for doubling density with community water and sewer, as proposed for this project. Under 2.B it is shown how what is being proposed is 8.4% of what is allowed, even assuming that all lands are zoned R5.

Table 3-34A, "Wildacres Resort Density", provides a similar analysis for the western portion of the project site. Part 1 excludes lands with over 20% slope, Part 2 of Table 3-34A looks at all lands, and Part 3 incorporates the doubling of density allowed with community water and sewer. Under all three parts of Table 3-34A it is demonstrated that the proposed density is below what is allowed under the zoning ordinance.

In addition to meeting use and density requirements, the project also meets the coverage, height, frontage and setback requirements of the zoning ordinance.

The assemblage also includes lands in Middletown that are zoned R5 and R3, with most of the land in R5. "Resorts" in Middletown require a Special Use Permit in R3 and R5 zones. There are a total of 367 acres of land in Middletown that are not part of the proposed Highmount Estates Subdivision. Of the 367 acres, 350 are zoned R5 and 17 are zoned R3. A total of 14 hotel octoplex units are proposed in Middletown. Unlike

Shandaken's zoning ordinance, Middletown's zoning ordinance does not include a means for calculating density for hotel development. The project meets the coverage, height, frontage and setback requirements of the zoning ordinance.

Both Towns have within their respective zoning ordinances language regarding performance guaranties for new construction.

In Shandaken no certificate of occupancy or use will be issued until all improvements shown on the site plan are installed or sufficient performance guaranty has been posted for improvements not yet completed.

Similarly, in Middletown, the Planning Board may authorize the Code Enforcement Officer to issue a temporary Certificate of Occupancy. A letter of credit, or equal security, of sufficient amount to complete all unfinished improvements may be required by the Planning Board before a Temporary Certificate is authorized.

B. Potential Impacts

1. The proposed project will involve development of approximately 29% of the project site, or approximately 573 acres. The project will provide for most of the needs of its guests, including lodging, dining, recreation, spa facilities, etc. Because the Resort will be fairly self-contained there will not be an affect on community character.

2. **The proposed project will re-introduce resort development uses into an area that historically supported such development locally and on a large scale. Re-introducing the project in the vicinity of Belleayre Mountain Ski Center consolidates recreation oriented land use in the same general location within the community.**

3. Secondary and cumulative impacts, including from the standpoint of currently undeveloped land in the vicinity, and the type of future development of such lands should the project be developed, are discussed in detail in Section 7, "Secondary and Cumulative Impacts." Section 7 also discusses potential "re-development" of existing but abandoned developed lots in the vicinity of the project site. The following is an excerpt from Section 7.

Based upon the analyses of the environmental and regulatory constraints, an assessment of available land, an evaluation of existing businesses within the study area, as well as the projection of minimal new potential residential and commercial development that could be anticipated as a result of Belleayre Resort's construction and operation, the indication is that new business growth would have an insignificant impact on land use in the study area. Initially, the new demands for goods and services resulting from the Resort would tend to stimulate additional commerce in existing businesses, especially among gas stations, food and lodging establishments, general merchandise (including antiques, local crafts and souvenirs), as well as recreational facilities. However, there appears to be

adequate available capacity among existing businesses to accommodate significant new retail demands as would be generated by the Resort's employees and its visitors. The response of existing businesses in the study area would be seen in increased hours and/or days of operation, increased customer traffic, and increased inventory and product turnover. To the extent that the Resort directly stimulates new business growth, the analysis shows that it could be expected to generate a need for an additional 76,700 square feet of new commercial development in the study area. This need may be accommodated by improvements to existing businesses, re-occupancy of existing structures or in-fill development in hamlets and villages. It is not anticipated that there will be a significant amount of new construction.

C. Mitigation Measures

No significant impacts have been identified, and no mitigation measures are necessary.

3.8.3 Local and Regional Land Use Plans

A. Existing Conditions

The proposed project will require local Special Use Permit Review by both the Town of Shandaken and the Town of Middletown. Procedures and requirements for Special Use Permit applications are stated in the Zoning Ordinances of both Towns.

Neither Town has an adopted Master Plan/Comprehensive Plan. As of December 2002, the Town of Shandaken is in the process of developing a draft Comprehensive Plan.

Presently, the Ulster County Planning Board does not anticipate producing an update to its 1977 Land Use Plan in the near future. Delaware County has no such Plan in place at this time.

The 1985 Unit Management Plan for Belleayre Mountain Ski Center was last updated in 1998. It is anticipated that the next Unit Management Plan Update for the Ski Center will occur some time around 2003 (DEC policy is to update UMPs every 5 years). FOIL requests submitted to the DEC in December 2002 confirmed that a new draft UMP has not yet been prepared.

B. Potential Impacts

The project consists of proposed uses that require obtaining Special Use Permits in both Towns in which the project is located

C. Mitigation Measures

Applications to both town planning boards have been made. Additional materials will be submitted to both towns and additional meetings with both planning boards will occur following an issuance of a Notice of Complete application under SEQRA.

3.8.4 Visual Resources and Aesthetics

A. Visual Resources

1. Summary of Visual Resources Assessment

This section of the DEIS presents the methodology for performing the visual assessment of the proposed project, describes the significance of its visibility and the mitigation measures employed to reduce the project's potential visual impacts. Appendix 21, "Visual Impact Study," provides 24 photographs taken looking toward the project from 15 different mountain summits and the trails thereto which are beyond the 5 mile study area. One of these additional viewpoints located outside the 5 mile limit, Plateau Mountain, is evaluated and is presented in this section of the DEIS.

a. General Methodology

The Visual Impact Assessment (VIA) for the project evaluated two aspects of the project's potential visibility. The first aspect deals with the extent of the area within a five mile study limit where the project may be visible. The second aspect is a description of the character and significance of the project's visibility from the areas identified in the limits of visibility analysis. The first aspect is a quantitative estimate, the second aspect is more a qualitative description of the character of the project's visibility.

b. Study Area

Typically a VIA is conducted for an area within a five mile radius of a project site. The rationale behind the 5 mile radius is based on the accepted literature which states that beyond 5 miles, color values, detail and contrast are decreased toward uniformity and individual visual features and details become less apparent, (USDA, 1973).

The landscape within the five-mile study area for the Belleayre Resort project is predominantly forested with steep mountains cut by narrow valleys and steep hollows. Consequently, distant views of the project from the valleys are greatly restricted by the sharply dissected topography. The visual character of the landscape as viewed from the mountain tops is one of unbroken forest in the rugged, higher elevations, while in the lower ridges and valleys it is natural for the observer to see a patchwork of developed, cleared areas that contain the agricultural lands, hamlets and other development.

The majority of the five mile study area is within the Catskill Park. The northwestern portion of the area in Greene and Delaware Counties are outside of the Park. In this area the character of the terrain and historical use of the land is more open and agricultural in nature. The entire area is

sparsely settled except for the small hamlets in the larger valleys and along the major road corridors. Section 3.8.2 of the DEIS previously described the adjacent existing land uses as well as the overall community character in greater detail.

A significant amount of the land uses in the area have been associated with the tourism industry both historically and in the present day. An era of large hotels and inns has passed and again is beginning to return. The scenic mountains, forests, streams and agricultural landscape are the elements which have drawn people to the area from the cities since the 19th century.

In addition to the assessment of the 5 mile study area, this visual study included the review of 16 mountain summits outside the 5 mile radius, with summits ranging in distance from 5.5 miles to 19.5 miles from the project site. Appendix 21 of the DEIS includes 24 photographs and narrative descriptions of the views from trails on 15 different mountain summits. Photographs taken from Hunter Mountain, Tremper Mountain, and Overlook Mountain and included in Appendix 21 of the DEIS are from the fire towers on these mountains. These are the only mountains with fire towers in the list of peaks identified during the scoping process by ADK/New York New Jersey Trails Conference as those locations that should be evaluated for potential visual impacts.

Of the 24 locations included in Appendix 21, only 3 had any potential views of the project site. The summit of Plateau Mountain discussed in this section of the DEIS also has potential views of the project from a distance of 15 miles. **The project's visibility from these four sites were all at a distance greater than 15 miles, and as a consequence, any potential visual impact is insignificant.**

c. Limits of Visibility

The visual assessment process is sequential; first the extent of visibility is estimated through the limits of visibility mapping described in Section 3.8.4 A. 2. Secondly, the visibility maps are taken into the field to verify their accuracy and to locate and describe the potential visibility of the project through narratives and photography from known locations. The final step is to present a characterization of the significance of the project's visibility through narrative descriptions and the use of photo rendered visual simulations.

The process of visual assessment requires the selection of two distinct sets of points for consideration. The first set of points represent the *target* locations at the proposed project to be viewed. The second set of points represent the *observer* locations from which the project is being viewed.

The target points have been selected for their prominence or potential for greatest visibility. The observer points have been selected as the result of the initial limits of visibility analysis and field verification work. The selection of the observation points is intended to either be representative of views from a general area or represent specific known points of concern such as public use areas, parks and roadways. The 16 mountain summits outside the 5 mile study area were evaluated at the specific request of the Adirondack Mountain Club/New York New Jersey Trail Conference during the scoping for the DEIS.

d. Description of Project Visibility

Two Levels of Assessment

The description of the potential visibility of the project is broken down into two levels of detail. A total of 25 sites were selected to illustrate the nature of the project's visibility. Although many more sites were evaluated and documented during the field verification phase of the VIA (see Table 3-34C, "Inventory of All Documented Viewpoints"), the 25 selected sites were chosen because they were either representative of the types of views that could be seen from an area or because they were views from specific areas of concern as mentioned above. The first level of detail involved an evaluation and brief description of the views including distance to site from observer, observer position in relation to the project, and whether or not the project is visible, heavily filtered or blocked from view by vegetation. The second level of detail is used to describe those locations where views into the project site were possible. Photo simulations and narratives are presented later in the sections describing in detail the character of these views.

Level One Assessment (Background Visibility Zone)
The distance between the observer and the target has a great deal of influence on the level of significance regarding how a change in the landscape may be perceived. A view that looks off into the distance can be broken into three generalized zones and includes the foreground, middleground and background (USDA, 1973). The Foreground is usually considered to be located from the observer to about a ½ mile away. The Middleground zone encompasses the distance from ½ mile to approximately 3 miles away. Finally, the Background zone extends from about 3 miles away to infinity.

Research on what the eye can detect in each of these zones indicates that as distance increases, color value decreases toward uniformity, (USDA, 1973). Contrast, one of the principal influences which allows us to recognize an object, is created primarily by color values and since this

affect decreases with distance, the significance of the visibility of a project in the background zone is greatly diminished.

Of the 16 total sites located outside the 5 mile study area only 4 locations were considered to have views of the project. Fifteen (15) of the sites are described in Appendix 21 and 1 of the sites, Plateau Mountain, is discussed in this section of the DEIS. The position of the project in all the views from these 4 sites are in the Background with zone distances ranging between 15 to 19 miles. The pattern of tree clearing and the change of texture and color of forested area to potentially visible lawn areas is the general character of what will be visible in the Background zone. Views from the remaining 12 sites were blocked by either topography, vegetation or both. The 4 sites where visibility may be possible are at such a great distance that the changes in clearing limits and proposed buildings will not be discernable to the unaided eye. In other words, if binoculars were use to scan the horizon, the project technically would be visible as very slight changes in color and texture in the areas of new tree clearings. The actual detail of buildings and road surfaces would not be visible. However, to the unaided eye the clearings related to the proposed project would not be detected.

Level Two Assessment (Middleground and Foreground Distance Zones)
The second level of detail in the assessment process involved the evaluation of views from potential receptors closer to the proposed project. Table 3-34B includes the observation points which were evaluated at this level. Eight sites were selected and all can be characterized as being in the Middleground zone. As indicated in the table, the closest site is 0.95 miles away from the project and the furthest is 2.65 miles.

In general, changes in vegetation help define the distance zones. Vegetation in the foreground zone is seen in detail including individual leaves and branches. In the Middleground zone vegetation is more defined by groups or masses of trees defined by differences in texture and color. In the Background, the texture of the vegetation is diminished and is viewed more in terms of color on the landform. The sites reviewed in the level two assessment are all in the Middleground zone and are described in greater detail on a site by site basis since other variables other than distance influence the potential significance of a view.

Balsam Mountain
Two locations were documented with three different sets of simulations from the trails on Balsam Mountain. In short, views of the proposed project from the trail along the summit ridge of Balsam Mountain are very limited. The forested summit and approaching ridgelines afford very few opportunities for views from the trail. A number of small overlooks

do exist off of the trail, however, even these locations require an effort to look through the openings to find the site. Figure 3-32A illustrates the character of the views from the majority of the ridgeline. In this instance the observer location was selected because it was the best opportunity in the area to see the project. Views of the project from this location are not possible due to the intervening foreground vegetation. The density of the vegetation is so great that the project is not even visible during the leaf-off condition.

The second location is assessed during both the leaf-on and leaf-off condition in order to evaluate if the significance and character of the project visibility varies due to the seasons. Figure 3-34A depicts the potential visibility of the project in a leaf-on, fall condition. The observer position is superior to the project site and approximately 1.6 miles away. Again, it is important to understand that this vantage point was purposefully searched out to illustrate a potential view of the project and the visibility is heavily screened by Foreground vegetation.

A small sliver of fairway clearing along the ridgeline of the Big Indian Country Club will be visible. The design of the golf course and consequent clearing limits have been consciously designed so as not to break the vegetation across the ridgeline.

Specifically, the color and textural change of the edge of the clearing and grass fairway will contrast slightly with the existing forest vegetation. The clearing from this vantage point is linear and narrow. Other existing larger clearings and development are apparent in the same view and include the Hamlet of Big Indian with existing roads and buildings. The scale of the clearing is compatible with the other existing clearings within the view. The visibility of the fairway clearing will be slightly less during the leaf-on condition since the contrast in color between the lawn areas will be less in comparison to the adjoining forested canopy. In the leaf-off condition as illustrated in Figure 36A, the texture and color of the existing forest turns to a light brown which will contrast more with the fairway lawn areas.

A proposed detached lodging unit along the second fairway may be visible from this vantage point but is filtered by vegetation in the immediate foreground. More of the form and lines of the proposed buildings associated with the fairways may be visible during the leaf-off condition, however, the natural colors used for the building materials will tend to blend with the brownish tone of the leaf-off forest texture.

Big Indian Town Park off NY Route 28
The view of the project from the Shandaken town park is the closest of all views evaluated, just under a mile in distance. The observer is in a lower

position to the site which drastically reduces the potential visibility of the project. A person would have to look upward from the horizon greater than 30 degrees to see the small clearing area. Through the computer modeling process it has been verified that the small break in forest visible along the ridgeline is the result of the proposed clearing for the third fairway. As shown in Figure 3-38A, the fairway lawn will not be visible from this vantage point. The upper third of the trees of the opposing clearing edge will be visible and will constitute a change in texture and color. During the leaf-off condition the contrast between clearing edge and the canopy surface will be slightly less noticeable than during the leaf-on situation. During the leaf-on condition the contrast will be greater due to the difference in brownish color of the stems and branches to the green of the leafed canopy. A very small break in the forested ridgeline will be evident, however, the foreground trees during the leaf-on condition will filter the visibility significantly from most locations in the park. Therefore, the limited visibility of the clearing will be effectively filtered from view during the period when the park is most heavily used.

Owl's Nest

The Owl's Nest Restaurant is the type of location where the observer would not consider the viewing of resort development as undesirable. Presently, the restaurant is closed, however, it is apparent that the views of the Belleayre Mountain Ski Center are considered an important and positive feature from this location since it was constructed after the Ski Center was operating directly across the valley.

The distance to the project is approximately 2.6 miles which is at the far reaches of the Middleground zone. The visible clearings are perceived as changes in pattern, texture and color. Detailed forms and individual buildings at this distance are less noticeable than the patterns of clearings and lawned fairways.

The view of the proposed project is essentially normal, or at the same elevation. Consequently, the observer is not looking down into large open areas but rather across to the clearings which tend to follow the contour. Because the proposed clearings follow the contour they tend to appear smaller and fit the pattern of agricultural and other developed clearings in the local landscape. The scale and direction of the lines created by the ski trails by contrast constitute a more unnatural clearing. The observer's eye is, therefore, more drawn to the ski trails then to the less significant clearings of the proposed project.

The enhanced rendered view of the project, Figure 3-40A, overemphasizes the significance of the view because it focuses too narrowly on the project itself without considering the field of view that the observer would have from that location. Thus the view focuses on the clearings of the project

without the natural comparison to the existing Ski Center. Furthermore, the shade of green used for the building roofs in Figure 3-40A, and other simulation figures, overstates the visibility of the structure. Within the software used to create the simulations there are a somewhat limited number of colors and hues to choose from. Rather than selecting a color/hue that would tend to under-emphasize the visibility of the structure, a brighter green was used for the roofs to make the simulations more conservative in nature. The actual colors that will be used for the building roofs will be earth tones that will be less bright than what is shown in the simulations, which will further reduce the visibility of the buildings from the limited number of locations from which they can actually be seen.

Wood Road off Brush Ridge Road, Fleischmanns
The selected view is representative of the views from much of the rural residential and agricultural area to the north and west of the project site. The distance to the site from this location is approximately 1.3 miles and is the closest of the potential observation points this view represents. Hence this representative view is conservative from a visual assessment standpoint.

The observer position is generally at the same elevation as the project and consequently the issues of clearing orientation and scale in relation to the adjoining ski areas are similar to those described in the Owl's Nest description above. The visible, proposed clearings from this vantage point will be more extensive than the clearings in the view from Owl's Nest. The forms of the proposed buildings will be discernable from this location as well. The visibility of the proposed clearings vary depending on their position in relation to the observer. The clearings at the higher elevations of the project are slightly superior to the viewpoint and consequently reveal less of the groundplane while lower areas will reveal more.

The views from this area are in the context of an already developed Foreground landscape of agriculture and rural residential areas. Clearings in the area of the project already exist and the proposal is compatible with the resort type uses and scale of existing clearings created by existing ski trails and associated development.

Sunset Lodge on the Summit of the Ski Center Looking Towards Belleayre Highlands
The views from this location toward the project site are looking from and through the foreground development of the Belleayre Mountain Ski Center to the site approximately 1.2 miles away. The observer position is above the project site so the proposed clearings are similar in terms of orientation, character and size to the many existing developed areas in the valley beyond. The existing foreground of open ski trails, ski lifts and

trail lighting as well as middleground and background of development in and across the NY Route 28 corridor provides a context of development for the limited views into portions of Belleayre Highlands (8 to 9 quadplexes) and Wildacres (southern fairway clearings and 9 to 10 octoplex units). The number of potential observers from this location is estimated to be approximately 68,500 people during the 5 month period of the Ski Center's operation from late November to late April. This number represents approximately half of the total number of users of the Ski Center in a given year.

From this distance some individual buildings will be discernable, though the use of natural colored building materials will reduce the impact of the contrast. As shown in Figure 3-44A, the principal change to view from this location will be the opening of new clearings, the increase of shadow along the clearing edges, the change in color and texture from forest canopy to lawn area. The proposed development in this area occurs adjacent to the existing development of the Brisbane (Turner) Mansion.

Sunset Lodge Area Looking Towards Wildacres
The visibility of the Wildacres portion of the project from the Sunset Ski Lodge can be described in very similar terms to the Belleayre views from the same location. As shown in Figure 3-46A, the scale and type of proposed development is compatible with the existing land uses in the immediate vicinity.

Visibility from Roadways
The entire road network in the 5 mile study area was traveled by LA Group staff, reviewed and photographically documented for potential visibility. In general, the visibility of the project from the roads was considered to be insignificant due to the factors of distance, screening by roadside vegetation, short duration of views or the viewing angle in relation to the direction of travel.

A published annual traffic report for 2001 from the New York State Department of Transportation indicates that the annual daily traffic count (ADT) for the section of NYS Route 28 near the project site is 2,950 cars per day (see page 10 of the TIS, Appendix 25). This average count represents a generalized estimate of daily traffic flows on the highway for traffic traveling in both directions. The duration of the views to travelers is based on the posted speed limit of 55 miles per hour. **The visual assessment concludes that the project will not have a significant negative visual impact on existing visual resources.** The project components are sited within the existing mountainous terrain such that views are limited to those areas of NY Route 28 where there are fewer (or larger radius) curves in the highway and brief views of the project area may be present.

Another view point from NY Route 28 is in the area of the Hamlet of Pine Hill. A section of roadway here that is two miles long (10,900 feet) may have sporadic distant views of isolated breaks in the tree canopy for the proposed access road to Big Indian Plateau off Friendship Road. The Foreground near and Middleground views from NY Route 28 consist of existing development, including small stores, homes, the wastewater treatment plant, restaurants, etc. **There will be no views available of the proposed structures or of the ground floor.** Breaks in the tree canopy may be discernible. 3,600 feet of this distance is attributable to eastbound vehicles, and 7,300 feet to westbound travelers. At a speed of 55 mph eastbound or westbound, vehicle passengers could have views of these isolated breaks in the tree canopy, coming and going from view of eastbound travelers of a duration of 91 seconds (1 minute 31 seconds) and from westbound travelers of a duration of 45 seconds. This assumes that the travel is during the daytime and during good weather. The viewing angle toward the project will be upward and off to the side of the road at an angle ranging from 60 to 90 degrees. **No long duration, direct views aligned with the direction of travel will be available.**

Visibility from Trails

The DEIS describes the work done on the state hiking trails in order to document the potential visual impact on hikers. The potential visibility of the project was assessed from the public use trails within the five mile study area. All trails were reviewed, however, four sections were studied more closely due to their topographic position in relation to the project site. The trail sections include the, 1.9 mile section on the summit ridge of Belleayre Mountain, the 1.8 mile section from the summit of Belleayre to Balsam Mountain, a 1-mile section along the old jeep track which served the fire tower on Belleayre Mountain, and finally the 2.3 mile section which climbs up through Rochester Hollow.

According to the 1993 NYSDEC Unit Management Plan for Big Indian Beaver Kill Wilderness Area, there were 1,233 hikers to Balsam Mountain departing from the McKinley Hollow trailhead. There were 512 people registered at the Rider Hollow trailhead in 1991. Potential destinations from that trail head could include the Belleayre ridge trail section.

The visibility of the project from the Summit Ridge of Belleayre was limited primarily to a series of brief views along the quarter mile section across the top of the existing Ski Center. The views here are downward and toward the Belleayre Highlands portion of the Big Indian Plateau. The views are seen through the context of the developed ski area and are back dropped by the settlement along the NY Route 28 corridor. The remainder of this trail section did not afford any significant views of the project. The trail along the ridge line was not open but rather through

forest with trees averaging 45 feet in height. Much of the trail was through a forest of dense yellow birch that impeded visibility even during the leaf-off condition.

The trail section from Belleayre to Balsam Mountain follows a prominent ridge line and also passes through a similar dense forest restricting the visibility to small holes through the trees. Figure 3-31 illustrates the lack of significance of the view in a leaf-off condition.

Visibility of the project from either the Rochester Hollow trail or the jeep track climbing to the old tower site on Belleayre is obscured by dense forest. The ridgelines are detectable through the trees during the leaf-off condition, however, no detail or clearing would be possible to detect through the trees even during the leaf-off condition.

Other Factors Influencing Significance of Potential Visibility
The difference between leaf-on and leaf-off conditions is that during leaf-off conditions the study area has the potential to be more visible because the deciduous trees lose their leaves. The visual assessment was conducted during leaf-off conditions in order to present the most conservative assessment of the potential visual impacts of the project. During leaf-on conditions the views identified in the DEIS will be screened and filtered by the additional vegetation.

The reaction of travelers and hikers to the potential alterations in the visual landscape will depend on their respective familiarity with the area of the project site. People who have not visited the area before will not notice any change. For those who are familiar with the area, the potential visual effects of the project will be minor. The viewpoint with the most potential for noticing the changed landscape is located 2.5 miles from the hotel at Wildacres and 5.9 miles from the hotel at Big Indian Plateau across the valley of Birch Creek, on the north side of NY Route 28 at elevations similar to those of the project. This is an area consisting of local roadways, sparsely settled rural homes, and the Owl's Nest restaurant which is presently closed. The significance of the change in the views from this area will be greatly reduced by the influence of distance, particularly for the views of the Big Indian Plateau. The potential views of the Wildacres Resort area are located at the outer fringe of the Middleground zone and detail here is reduced as well. In addition, the proposed clearing will be largely consolidated with the existing development in the area of the Marlowe Mansion.

The study of visual impact is usually limited to the areas with the highest number of people who could see a project. This is usually state highways or state parks, or large bodies of surface water. In this particular case, the highly traveled areas of NY Route 28 and the state trail network which

have been studied intensively and the visual impact of the project on these resources will not be a significant one. It is the residents of the limited number of single family homes that have views to the south over the valley who will notice the changes to the visual resources of the area.

The difference between winter and summer uses is that there is likely to be fewer hikers, but this could be offset somewhat by people who like to snowshoe or cross country ski on the trails. There is of course a higher proportion of people who like to downhill ski who would be traveling to Belleayre Mountain Ski Center. During the winter, the snow cover on golf courses and ski trails tends to provide contrast to the forested areas.

e. Significance of Visual Impacts

The Belleayre Resort at Catskill Park will not create a significant impact on the visual resources of the region. Detailed limits of visibility mapping was performed and verified in the field. The results indicated that due to the mountainous terrain and sharply defined valleys, the extent of potential visibility is very limited. The visibility of the project from NY Route 28 is restricted to the entrance areas only. The actual core development areas will not be visible from the State Highway. The project will not be visible from any known designated scenic roadways or byways.

The visibility of the project from the peaks and trail systems outside the five mile study area are insignificant due to the effects of intervening distance, topography and screening by vegetation.

Numerous viewpoints within the five mile radius were assessed and the results presented. The assessment indicates that the visibility of the project from the locations such as the Owl's Nest Restaurant, Sunset Ski Lodge, Wood Road and the Town Park is compatible in terms of scale and type of uses already in existence in the local landscape. The visibility of the project from Balsam Mountain is minor due to the considerable screening effect of the existing vegetation on the mountain itself.

Table 3-34C, "Summary of Viewpoints with Potential Visibility of Project" lists those locations for which at least some element of the project may be visible.

2. Existing Conditions

In accordance with NYSDEC DEP-00-2, an inventory of aesthetic resources was conducted as part of the visual impact assessment prepared for the Belleayre Resort project. The following tasks were included as part of the inventory.

- File searches of the New York State Museum and the NYS Office of Parks Recreation and Historic Preservation were performed as part of the historical archeological investigations of the site and its surroundings. Additionally, the Village of Fleischmanns Historian was interviewed regarding the history of the site and its surroundings. These sources resulted in the identification of four properties listed on the National Register, including two stone bridges and two buildings in Pine Hill. The project will not be visible from these resources due to topography.

- File searches of the NYSDEC's databases were performed for Environmental Bond Act properties within the Visual Impact Assessment study area. These databases included Bond Act properties purchased under the Exceptional Beauty and Open Space categories. One such property, the former Reisser property, is located approximately three miles north of the Belleayre Resort project site at the northern end of Lower Birch Creek Road in the Town of Shandaken. The project will not be visible from this location due to intervening topography. Intervening vegetation, which provides additional screening, consists primarily of foreground trees on these State lands that are protected from removal.

- Review of USGS, NYSDOT, and a variety of electronically available maps for schools, churches, hospitals, the location of State and Federal lands (including Forest Preserve) and Parks, National Wildlife Refuges, State Game Refuges and State Wildlife Management Areas, National Parks and other federal lands were performed. Boundaries of State Lands in the area as well as local churches and schools were identified based on these maps.

- Trail maps of State hiking trails produced by the Adirondack Mountain Club/ New York – New Jersey Trails Conference showing trail locations and locations on the trails of Viewpoints and Lean-tos were also utilized. The Adirondack Mountain Club's "Guide to the Catskill Trails" (second edition) was used in conjunction with these maps to identify trail locations and viewpoints, including the public trails examined, both inside and outside of the five mile radius.

- The closest Urban Cultural Park is in the City of Kingston, removed from the project site.

- A windshield survey was conducted on all roads within five miles of the project site.

- For public gathering areas and public recreational areas, a local resident with over 30 years of residency and service in local government was interviewed (and participated in the windshield survey) as was a local land surveyor with over 10 years of local experience. Representatives of Belleayre Mountain Ski Center were also contacted during the preparation of the DEIS. These

inquiries identified the Town of Shandaken Park in Big Indian, the Belleayre Mountain Ski Center and the Belleayre Day Use Area near Pine Hill that were evaluated as part of the visual impact assessment. Other Town Parks were identified that did not have potential views in to the site based upon topography.

- Views from the Belleayre Mountain Ski Center were evaluated, including an evaluation during a balloon flight during leaf-off conditions. The DEIS has been updated to include simulations of views out from the area around the Sunset Lodge at the top of Belleayre's new Super Chief quad lift.

The existing visual character of the project site and environs consists of the wooded portions of the project site, located on the flanks of Belleayre Mountain. The sites are fairly heavily wooded, and have a number of logging trails crossing them. The railroad right-of-way located at the base of the mountain (crossing the project site and near the project site) is apparent due to the break in vegetation that exists in a linear trace. The ski trails at the former Highmount Ski Area are a prominent feature in the landscape from some vantage points, but not as prominent as the ski trails at the Belleayre Mountain Ski Center which are generally only visible on lands to the north of the NY Route 28 corridor.

NY Route 28, the main travel corridor in the area, is in many locations within a steep-walled valley. Views from the NY Route 28 corridor are confined in the project area by several large landforms including Mount Pleasant, Tremper Mountain, Romer Mountain, Garfield Mountain, Sheridan Mountain, Rose Mountain, Belleayre Mountain, Monka Hill, Brush Ridge, Fleischmann Mountain, Hog Mountain, Dry Brook Ridge, and Morris Hill. Housing and commercial land uses border the highway and these uses are generally limited to the valley floors due to increasing slopes, often times immediately above. **Views into the project site from NY Route 28 are generally limited to a small westbound section in Big Indian** where on a long sweeping turn there are views into the eastern portion of the Big Indian Plateau portion of the project site. **Otherwise, NY Route 28 parallels the ridgeline of Belleayre Mountain. Visual impact analysis conducted in accordance with NYSDEC guidelines for performing such analyses of the proposed project layout demonstrates that no structures or other development components will be visible from this area.** Similarly, computer generated animation studies reveal that due to the steep character of the lower portions of the assemblage and the mature forest that covers the site, virtually none of the developed portions of the Big Indian Plateau will be visible from NY Route 28.

Development is rural in character and is more concentrated in the Hamlets of Mt. Tremper, Phoenicia, Shandaken, Big Indian and Pine Hill, through which NY Route 28 passes.

In the evening the lights of the homes and businesses in the Hamlets and along the roadway are visible. In the winter months, lights are visible on and above the trails at Belleayre Mountain Ski Area as snowmaking operations are conducted.

Outside of the NY Route 28 corridor and within five miles of the proposed project site, lands comprising the project site are visible from other locations where elevation and orientation to the project site provide suitable views into the site. (Appendix 21, "Visual Impact Study", describes how the lands with potential views of the project site outside the five mile study area (the viewshed) were determined.) Generally speaking, views into the lands that comprise the portions of the project site proposed for development are described as follows.

Views into the project site are limited primarily to a few locations on the north side of NY Route 28, including views from the currently closed Owl's Nest as well as views from the low-density residential area on Wood Road.

Outside Five Miles

In addition to views of the lands that comprise the project site from areas within five miles there are some areas beyond five miles from which views to Belleayre Mountain are possible. A number of State hiking trails were hiked, including hikes to a number of peaks to examine the visibility of the project site. Of the 16 trails/peaks that were hiked, views to Belleayre Mountain were found to exist at six locations; Cornell Mountain, Overlook Mountain, Twin Mountain, Sugarloaf Mountain, Plateau Mountain and Balsam Mountain.

With the exception of Balsam Mountain, which is less than five miles from Belleayre Mountain, views to Belleayre Mountain consisted of distant views where the ridge forming Belleayre Mountain was discernable as one of the high points in the overall landform. Cornell Mountain is 9.5 miles from Belleayre Mountain while Plateau, Sugarloaf, Twin and Overlook Mountains are between 16.5 and 19.5 miles from the project site. Even though hikes were performed during the clearest of weather conditions, views from this distance into Belleayre Mountain are not distinct due to the distance alone.

In the views available into Belleayre Mountain from a generally north direction (Overlook, Twin, Sugarloaf and Plateau Mountains) the overall view included Belleayre Mountain ski trails as the most prominent landscape feature in the distant views.

Balsam Mountain

There are two views from Balsam Mountain to Belleayre Mountain. The first location is on the ascent from the north at an elevation of approximately 3,100 feet AMSL where views are available to the northwest. This view includes the high point of Belleayre Mountain as well as the former lookout tower site but views to lands that comprise the project site are obscured by vegetation. The second vantage point from Balsam Mountain to Belleayre Mountain is located between the two high points on Balsam Mountain. From a location off of the main trail there is a vantage point to the north-northeast that has views across the upper portion of Lost Clove to the easternmost portion of the

Belleayre Mountain ridgeline and with the hamlet of Big Indian in the background of the view.

3. Potential Impacts

The study of potential visual impacts of the project addresses the limits of visibility of the project through map analysis and field verification, by photographically presenting the nature of the views and character of the viewshed environs, and by then considering the potential visual effects of the proposed project. Simulations of the potential visual effects of the project are provided.

a. Factors Affecting Visibility

In general, visibility is controlled by the size and shape of a structure, its color, density and texture; the character of the structure's surroundings, landform, slope and type, size and condition of vegetation (dormancy or leaf-out). Visibility is also controlled by the frequency of view or number of view locations, the duration of the view, the number of viewers; the angle of the vista (vista width), the vertical angle and the horizontal viewing angle to travel/view direction.

In order to access the potential visual impact of the project, an understanding of the factors that contribute to visibility must be first described. Visibility of a structure occurs due to the interaction of a number of factors including:

- Structure size and form
- Structure color and material
- Slope of the site
- General topography of the area
- Distance to the view point
- Density, height and location of vegetation

None of the above factors in themselves absolutely control the degree of visibility.

The interaction of slope, topography, and color is demonstrated by residences in the NY Route 28 corridor in the vicinity of the project site. A white house is more visible than a brown house. Higher visibility is due to a more prominent position on the top of a ridge. Higher visibility is afforded by steep slopes and a lack of tree cover.

Tree cover plays an important role in reducing visibility, due to its screening effect and maintenance of a consistent vista.

The role that building size contributes to visibility is demonstrated by numerous buildings throughout the valley which are insufficiently screened due to the low vegetation heights. Structures at greater distances suffer less from ineffective screening due to the distance from the valley. Vegetation is only most effective when it forms a screen in between the view point and the structure. If the vegetation does not form a dense screen, then at times distance between the view point and structure may compensate.

To alleviate the potential problems caused by hillside development a number of conflicting needs must be mediated. These include the desirability of maintaining a natural setting for those who look toward the project as well as providing views to the natural setting below for those who occupy the development. The applicant recognizes the need to strike a middle ground on this issue and meet both of these needs by providing a program of limited view development that will accomplish the above goals without substantially disturbing the natural profile of the existing terrain. The approach toward view development will provide for a carefully planned and regulated program of view development rather than an indiscriminate and haphazard vegetation cutting.

The degree of clearing necessary to allow for construction of each individual building is estimated as approximately 40 feet from the exterior façade of each building. This amount of clearing is necessary due to the size of the buildings and the installation of utilities and the necessary grading. A lesser amount of clearing at building sites, however, would fail to preserve vegetation due to root zone disturbance and tree trunk damage. For the Highmount Estate Subdivision, specific clearing limits are proposed as part of draft deed covenants for the subdivision discussed in Section 2.4.4. For the Highmount Estates Subdivision, specific clearing limits are proposed as part of draft deed covenants for the subdivision discussed in Section 2.4.4. Under these proposed covenants, no trees in excess of 4" caliper or any shrubbery may be removed between any building set back lines and the property lines. Utility lines for water, sewer, stormwater and electric will be underground in the road right-of-ways. The view channels which are proposed will vary in length according to slope. The length of the cut is essentially non-visible from viewing points at grades lower than those which the cut transverses, therefore, a view channel cut traversing from elevation 2,500 to 2,200 would be visible from a similar elevation across the valley. At lower elevations the view channel will appear as a break in the forest canopy.

For a structure to be visible it must present itself in such a manner that it is not blocked by vegetation, slope constrictions or topographic changes.

The degree of visibility of structures will be limited by the height of surrounding trees, especially those which occupy the zone near the edge of the steeper inclines. These areas will remain undisturbed by construction activities and will be selectively thinned in order to develop views.

b. Viewshed Analysis

A viewshed analysis has been generated to identify the limits of visibility. Using USGS topographic maps, a five mile radius was investigated. The study area includes Big Indian Hollow to the south, the Hamlet of Allaben along NY Route 28 to the east, Hog Mountain and NY Route 28 at a point about 1.5 miles west of the Village of Fleischmanns to the west, and beyond the Greene County/Delaware County line to the north.

Initially, section lines were drawn at intervals radiating out from the proposed project's clearing limits. Cross-sectional drawings of the topographic condition along this section-line are constructed using elevations from the topographic map, and plotted at a 20:1 foot vertical exaggeration. The structure or structures of interest or area of clearing of interest is plotted on each section, with sight lines drawn. The sight line identifies areas from which views to the proposed structure are blocked by landforms and filtered or blocked by vegetation and those areas from which a structure or structures or areas of clearing could potentially be visible.

A Geographic Information System (GIS) was used to augment the visual assessment work for the Belleayre Resort. Specifically, the limits of visibility maps were created using ArcView 3.2 software augmented by the Spatial and 3D Analyst extensions. A meeting was held with representatives of the Lead Agency's visual consultant on January 10, 2001 to discuss the methodology for the visual assessment work. The proposed methodology was discussed in detail and agreed to in concept at that time.

Two separate study areas were created, one for each principal development area; Big Indian Plateau and Wildacres Resort. The size of the study areas for the limits of visibility analysis was extended to a radius of 5 miles from the center of each site. The study areas for this component of the analysis are indicated on Figure 3-25, "Viewshed Analysis – Viewpoints." The rationale behind the distance of 5 miles was based on the generally accepted literature which states that beyond that distance, color values, detail and contrast are decreased toward uniformity and

individual visual impacts become less apparent (USDA, 1973; NYSDEC, 2000).

A new Figure, Figure 3-25A, entitled "Viewshed Analysis – Potential Receptors Map, All Target Points" shows the location of the potential receptors which have been described previously. Because of the nature of the visual environment in the area around the project site, predominantly heavily wooded State-owned lands, it was not reasonable to provide an analysis of topography only without the additional screening affects of vegetation. The receptors that are mentioned as being points of specific concern such as discrete trails, overlooks, fire towers, ski lifts and ski trails have been assessed in the field and were found to confirm the limits of visibility as presented in the current mapping. The vegetation overlay used to define the limits of visibility maps was edited in the area of the ski trails at the Belleayre Mountain Ski Center in order to determine if visibility would be possible. The analysis indicates that the upper portion of the ski area may permit limited views of both the Wildacres and the Big Indian sites. Figures 3-44 and 3-44A illustrate the extent of the visibility.

Figure 3-25A illustrates the cumulative extent of visibility of the proposed project from all the target points (sample points) tested in the limits of visibility model. In general, the selection of the sample points was made by evaluating those points thought to be in the most prominent positions with the greatest potential for visibility. Typically this was based on selecting the points where the highest proposed objects were located on the highest terrain. The 13 sample points on the Big Indian Plateau considered to have the greatest potential for visibility included 3 points at the Hotel site, 4 points on the 18th fairway, 3 points on the 3rd fairway and 3 points on the proposed earthwork cuts of the access road from Friendship Road. Fewer points were considered to be necessary for the Wildacres Site due to its lower topographic position, lesser prominence in relation to a defined ridgeline and a more compact development plan. The points selected for the Wildacres Site include 1 sample point for the proposed Hotel, 1 sample point at the Golf Course Clubhouse and 1 sample point at the Marlowe Mansion.

Figure 3-25A is a viewshed analysis that illustrates the cumulative limits of potential visibility for all 16 sample points. Figures 3-26 and 3-27 are properly labeled as being viewshed analysis maps for the two respective hotel sites only.

Figure 3-25A illustrates the location of all potential receptors within the 5 mile study area which are further described in this section of the DEIS. The map also illustrates with a darker red tint where potentially visible areas intersect with public roadways within the study area. The approximation of USDA visibility distance zones have been placed on the

map as well. A Foreground delineation of approximately ½ mile and a Middleground delineation of 3 miles is indicated on the map.

c. Digital Elevation Model

The estimate of the areas where the project proposal may be seen and cannot be seen from was developed through the use of a digital elevation model or DEM. The DEM allows the user to view the topography of a given area in a three-dimensional computer model. It essentially creates a surface which represents the terrain of the study area. The surface can then be rotated and viewed from any direction and lines of sight assessed from anywhere inside the study area. A DEM is actually a grid composed of thousands of smaller grid cells, 30 feet on a side. The limits of visibility maps are generated by a computer program, which assesses whether or not each cell within the study area can either see or not see the project proposal. The analysis is performed for each individual cell in the study area and the limits of visibility are defined.

The source of the data to create the model was derived from the USGS with an accuracy estimated to be one half of the contour interval. The interval for the USGS quadrangles is 20 feet so the vertical accuracy is estimated to be plus or minus 10 feet. The DEM was revised by adding an additional height of 50 feet for those areas that were indicated as vegetated on the USGS quadrangles. This height was considered to be a conservative estimate with a tendency to indicate more area of potential visibility than if the trees were modeled at a greater height. The assumption was also made that the project proposals could not be seen from within any forested area as indicated by the USGS quadrangles. In other words, an observer looking toward the project site from within a forested area would not be able to see any elements of the proposed project.

A total of 16 of the more prominent points at the project site were tested to assess the extent of visibility of the proposal. Thirteen points were sampled at the Big Indian Plateau site and three points sampled at the Wildacres site. The analysis of the Big Indian Plateau site included four points along the center line of the proposed 18th fairway, three locations at the highest point of the proposed resort/spa site, three points along the center line of the proposed 3rd fairway and three points set along the most prominent cut slopes of the proposed access road from Friendship Road. Three points were also tested at the Wildacres site and included the buildings with the highest elevations on the project.

d. Field Verification

On October 6, 1999 a team of staff from the LA Group was sent into the field to verify the map analysis information regarding visibility limits, and record observations photographically. This was performed during "leaf-on" conditions. Two red balloons, both approximately 4 foot in diameter, were flown at the proposed northernmost limit of clearing at the Big Indian Resort and Spa, and two were flown at the southeast edge of the proposed limit of clearing at the Big Indian Resort and Spa. Local roads within the project area were traveled and investigated for views of the project site. The State hiking trails between the Belleayre Highlands portion of the site and Balsam Mountain, as well as the State trail along the ridge of Belleayre Mountain near the Ski Center were traveled on foot and investigated for views of the project site. Photographs were taken from numerous vantage points within the study area. These photographs were taken at locations with potential views into the project site as well as at locations where views into the site were not visible in order to document these conditions.

A second day of field verification was conducted on April 24, 2000. This was performed during "leaf-off" conditions. The six locations from which balloons were flown were located in the field with a geographic positioning system (GPS). These locations included the open field by the Leach farm at the location of the Proposed Highmount Estates Subdivision, the Diesch Motel across from the upper entrance to Belleayre Mountain Ski Center, off Van Loan Road at the north end of the Wildacres site, by the Brisbane (Turner) Mansion, and two locations along the ridgeline of Big Indian Plateau in the vicinity of the proposed hotel building. Local roads near the project area were traveled and investigated for views of the project site. The State hiking trails between the Belleayre Highlands portion of the site and Balsam Mountain, as well as the State trail along the ridge of Belleayre Mountain near the Ski Center were traveled on foot and investigated for views of the project site. Photographs were taken from numerous vantage points within the study area. These photographs were taken at locations with potential views into the project site as well as at locations where views into the site were not visible in order to document these conditions.

The locations that balloons were flown during the visual assessment were located by GPS and have been plotted on Figure 3-25A along with sample points.

Balloons were flown at either 100 feet or 150 feet and the height of each balloon was recorded. Since the balloons were flown above the tree

canopy, they were potentially visible from more locations than the actual project components.

The balloons were useful during the field verification process by providing a frame of reference for the project location within the overall landscape. The four-foot diameter red and blue balloons were visible from within the five mile radius with either the naked eye or binoculars. The balloons were used as a guide for framing photographs into the project site taken during the visual assessment.

In addition, many hikes were completed outside the 5-mile study area to consider the potential effects of the proposed project on views from fifteen mountain tops, and the trails leading up to them, in the Catskill Forest Preserve. These were all performed during the leaf-off period. Some are located quite far from the project site, such as Overlook Mountain which is over 19 miles away. The mountain tops include: Balsam, Tremper, Panther, Cornell, Slide, Table, Overlook, Twin, Sugarloaf, Plateau, Hunter, Westkill, North Dome, Bearpen and Fir Mountains.

A new figure, Figure 3-27A entitled "Location Plan, Supplemental Study Points" has been prepared. The map indicates the location of all study points outside the 5 mile study area. A total of 16 points are indicated and an associated table indicates the estimated distance between the study point and the project site.

Seven photographic simulations were prepared of the project proposal. Six simulations were prepared of the Big Indian Plateau site and one of the Wildacres site.

The selection of the photograph locations was based on the review of the limits of visibility maps, the results of field verification work and an estimate of those sites which would have the greatest potential for project visibility.

All photographs were taken from known locations and were plotted on USGS quadrangles. The photographs were taken with a 35 mm format camera using a 50 mm normal lens in order to best represent the field of view and visual acuity of a human observer. For more distant views photographs were also taken with zoom lenses (120-150 mm) in order to help orient viewers to the area of interest in the 50 mm photographs.

e. Visual Simulation Process

The creation of the simulations was a two step process and is illustrated in Figure 3-28, "Visual Simulation Process." The first step involved the creation and fitting of a wireframe terrain model to the perspective of the

selected photographs. The second step involved the rendering of the wireframe into the digital photograph, and selecting colors and textures that simulated the proposed building surfaces and site treatments such as golf holes and roads.

A wireframe model was created by combining the surrounding DEM surface with the more detailed grading plan of the actual site development proposal. AutoCAD and Softdesk 8 AEC tools were used to create the wireframe surfaces. The clearing limit lines developed in the engineering drawings were projected to the surface of the digital terrain model. A height of canopy was then created above the ground surface and both the top of the canopy and the edges of the clearings became part of the three-dimensional model. The project grading plans also include the proposed limits of vegetation that would exist following construction. The proposed limits of vegetation were also incorporated into the visual impact assessment model.

The known photograph location and target points were selected in the wireframe model and a draft perspective from each selected viewpoint was created. The perspective wireframe was fitted to the photograph by aligning ridgelines, valleys, existing structures and summits. The perspective photograph locations and target points were occasionally adjusted slightly to get the best match between the wireframe and the photograph.

The fitted wireframe and photograph were superimposed on two separate layers in a raster editing software known as Corel Draw. The character of the proposed surfaces such as building surfaces, clearing limits and fairways were then rendered into the scene to create the final photo simulations. Figure 3-25, "Viewshed Analysis-Viewpoints," shows the location of the vantage points for which simulations were prepared.

The visual simulations were prepared to try and convey as accurately as possible the significance of the potential visibility of the project. The determinations made in the visual analysis were developed from the evaluation of many different forms of study and did not rely solely on the visual simulations. Specifically, the analysis is the result of assessing the results from the limits of visibility mapping, extensive field work, photographic documentation as well as the visual simulations.

The quality of the visual simulations do rely on the factors such as the level of detail of the digital model, the resolution of the base photographs, presentation scale and the quality of the simulation output. Great care was taken to provide as much detail in the model as practical. The resolution of the grids used to create the three dimensional model for the proposed development areas was quite detailed at a cell size of 25 ft. All

photography was performed using high quality lenses and 35 mm format cameras. The resolution of the photo scanning was performed at 300 dpi, the same resolution used for the final output.

At middleground distances between 1/2 mile and 3 miles detail becomes less sharp and "visual simplification of vegetative surfaces into textures takes place and color contrasts become softer" (USDA, 1973). In preparing simulations, our experience has found that it is very difficult to blend the contrast between the existing conditions and the proposed development without making the new development stand out more than it would in reality.

Panoramic montages are presented instead of single prints because a person's cone of vision is not static, it is constantly changing and a single photo only provides a limited view of what a person sees. Providing a panoramic view presents a more realistic picture of what one would see from these points. The DEIS currently includes the panoramic simulations followed by single photo prints of each panoramic visual simulation. The single photo prints have been enlarged and fitted on 11x17 inch pages, and the figure numbers for the enlarged figures have an "A" suffix (i.e., 3-30A, 3-32A, etc.).

f. Plateau Mountain Simulation

Figures 3-29 and 3-30, "Visual Simulation Plateau Mountain, Enhanced and Rendered," respectively, represent the view from Plateau Mountain under existing and proposed (leaf-off) conditions. The enhanced simulation in Figure 3-29 shows the wireframe which is color-enhanced to make the proposed condition more visible. The rendered view presented in Figure 3-30 is the view under proposed conditions without the color-enhanced wireframe superimposed on the simulation. Figures 3-30 and 3-30A show that it is possible that the area of the site may be detectable but no details of the proposed development will be discernable.

g. Balsam Mountain Simulation

Figures 3-31, 3-32 and 3-32A are simulations from Balsam Mountain and represent the enhanced and rendered views under leaf-off conditions as defined above, respectively. Details of the project site will not be visible, though the clearing created for the 18th fairway may appear as a linear feature in the canopy if one intentionally searched for the site under leaf-off conditions. It may be possible to see the edge of the canopy cut for the 18th fairway of the Big Indian Country Club clearing through the branches of the foreground vegetation. The edge shows as a thin green strip at the left portion of the grid overlay. This edge is only a few pixels thick and, therefore, it is hard to see in the simulation photo.

Since Balsam Mountain was deemed one of the most sensitive receptors with the five mile radius study area, photographs and simulations were performed during both the leaf-on and leaf-off condition.

Other trail and mountain views that were investigated outside of the five mile radius study area were examined during leaf-off periods only because this would represent the time when views into the site would be more likely to occur.

The leaf condition of foreground vegetation, as shown in the Balsam Mountain simulations, can have a greater impact on the visibility of the site components for distant views as opposed to vegetation in and around the site.

Figures 3-33, 3-34, 3-34A, 3-35, 3-36 and 3-36A are also from Balsam Mountain (see Figure 3-25, "Viewshed Analysis-Viewpoints") from an elevation similar but further south of the 3-31/3-32 location. The simulations indicate that from this vantage point on Balsam Mountain, the site clearing created for the 2nd and 3rd fairway will likely be visible as a linear feature, the edge of canopy and the fairways, and that it is possible that one or two of the detached lodging units to be situated proximate to the golf course planned for the eastern portion of the site may also be visible. Three to four detached lodging units may be visible during leaf-off conditions.

h. Town Park Simulation

Figures 3-37 and 3-38 show the wireframe superimposed on the existing view from the Big Indian Town Park off NY Route 28, and the rendering from this point, respectively. These simulations show that the clearing proposed for the 3rd fairway will be visible near the skyline from this vantage point. The edge of the clearing in the canopy (the sides of the trees which remain) will be visible, but the floor of the fairway itself will not be visible.

i. Owl's Nest Simulation

Figure 3-28 illustrated the methodology used in all the simulations. The photographs in Figure 3-28 were taken from the Owl's Nest and the visual impact simulation from this receptor is illustrated in DEIS Figures 3-39, 3-40 and 3-40A. Figures 3-39, 3-40 and 3-40A are simulations from the Owl's Nest Restaurant, located north of NY Route 28 across from Belleayre Mountain Ski Center as shown in Figure 3-25, "Viewshed Analysis-Viewpoints." The Owl's Nest Restaurant is currently closed. The simulations show that the clearing for fairways and residential units in

the area of the Brisbane (Turner) Mansion will be visible. Five to six of the 22 quadplex units at Belleayre Highlands may be partially visible, and seven to eight of the detached lodging units south of the clearing for holes 12, 13 and 14 of the Big Indian Country Club will be all or partially visible.

The areas cleared for the fairways and detached lodging units will be visible, but not to the degree of current visibility of Belleayre Mountain Ski Center. This is due to the wide clearings at the Ski Center which exist in a vertical line, from the top of the mountain ridge to the bottom, as opposed to the lower-lying horizontal clearing proposed for the projects golf courses and roads which appear to be narrower due to the perspective of the restaurant vantage point.

j. Wood Road Simulation

Figures 3-41, 3-42 and 3-42A are simulations from Wood Road, located north of NY Route 28. These simulations show that the clearing for the development of the Wildacres site will be visible from Wood Road, and will be back-dropped by the existing Belleayre Mountain Ski Center ski trail/lift clearings and the former Highmount Ski Area ski trail/lift clearings. The Wildacres Hotel will be visible as will five octoplexes at the northwest corner of the site, and seven octoplex units to the southeast will also be partially visible. Portions of the Highmount Golf Club will also be visible. Wood Road is a local dirt road owned and maintained by the town. There are approximately 10 houses along this road with potential views into the project site that also include the ski slopes at Belleayre Mountain Ski Center and the ski slopes at the former Highmount Ski Area.

Both the Big Indian Plateau and Wildacres Resort (Owls Nest and Wood Road) visual simulations show clearings with structures in or at the edge of the clearing. Visually these conditions will not change significantly with either leaf-on or leaf-off. The foreground vegetation for the Big Indian Plateau simulation is below the views of the clearings and structures and as such has no impact on the views into the site because the foreground vegetation provides no screening of site components during leaf-on conditions. In the case of the Wildacres site the foreground vegetation at the right corner of the view (next to the foreground house) screens views into the sites. This foreground vegetation consists of coniferous trees so leaf-on and leaf-off conditions are not an issue with these plantings. The foreground vegetation for the rest of the Wildacres simulation is below the view and as such does not impact the view.

k. Ski Center Sunset Lodge Simulation

Figures 3-43, 3-44, 3-44A, 3-45, 3-46 and 3-46A are simulations from Sunset Lodge at the Belleayre Mountain Ski Center. Simulation Figures 3-43, 3-44 and 3-44A show that eight to nine quadplex units at Belleayre Highlands will be all or partially visible. The view is foregrounded by light poles for the Ski Center. Simulations 3-45, 3-46 and 3-46A show that the southern clearings for the fairways of Wildacres site will be visible from the Lodge. Nine to ten octoplex units and a clubhouse at the southern end of the site will be all or partially visible. One views the Wildacres development through the chair lift and numerous ski trails in the foreground.

l. Site Lighting

Lighting will be used at the site adjacent to roadways and structures. A balance will be made between pole height, light fixture wattage and the number of pole and building-mounted fixtures and economics in order to provide a safe level of lighting that is tasteful and as unobtrusive as possible. Refer to DEIS Section 2.2.8, Project Description-Lighting. The existing level of lighting at the Belleayre Mountain Ski Area can be used for comparison. Site lighting will not be of the intensity of the lighting used at the Ski Center. Although residents will desire easy access to the Ski Center, it will be necessary to carefully site residential structures planned near the Ski Center in order to avoid conflicts with residential night time use and ski area trail maintenance activities which include snowmaking and grooming. With regard to the simulations discussed above, it is not anticipated that the mountain vantage points will be frequented by hikers during the evening hours, nor will the Big Indian Town Park be impacted as the fairways will not be lit. The Owl's Nest Restaurant and Wood Road vantage points overlook Belleayre Mountain Ski Area and already have night time views of the area. The Owl's Nest Restaurant is currently closed.

These same two locations also have views into Belleayre Mountain Ski Center, which is extensively lit at night during snowmaking operations, which makes the ambient conditions anything but "quite dark." Not only are the lights themselves directly visible from these locations, but there is significant light scattering off of blowing snow, and light bounce from the snow-covered ski trails.

The areas that could be potentially impacted by direct glare or reflected illumination from internal building lights will be those same limited receptors which may have daytime views into the buildings of the project

site. These include the currently closed Owl's Nest restaurant and the approximately 10 single-family homes located on Wood Road.

The areas that could be potentially impacted by "night glow" within the 5-miles radius are the same as those receptors that have views into the site during the daytime. Outside the 5-mile radius the potential impacts of site "night glow" are diminished due to distance from sources, contribution to "night glow" by other sources and the reduced likelihood of distance viewpoints being inhabited. The potential for "night glow" will be significantly reduced by lighting only important street intersections and parking areas at the minimum required levels for pedestrian safety and security.

The DEIS contains the mitigative measure of using non-reflective glass to mitigate potential glare. Because the Resort will have its own private security and there will be some downcasting exterior lighting, there should not be a need to have unoccupied buildings with interior lights on for safety purposes.

Figures 3-47 and 3-48 illustrate the nature of the proposed lighting plan for the Big Indian Plateau and Wildacres Resort respectively. The plans illustrate the very limited nature of the proposed outdoor lighting scheme. The grey tone areas depict the locations where .75 foot-candles of light will be distributed on the ground. **The .75 foot candle lighting level is the lowest level that is considered adequate to maintain a safe, secure feeling for people walking from the parking areas to the primary buildings.**

It should also be noted that site lighting will not be provided for the residential areas within the project. In general, the scheme is intended to provide minimal levels of lighting at important street intersections and key parking areas and walkways. **In all cases the proposed height of the lighting is at 20 feet, the lowest practical mounting height for parking areas and roads.** The low mounting height is also intended to provide a more human scale and feeling to the development. In addition, the lighting will be specified to be a low wattage with full cut-off fixtures to minimize any potential glare. Finally, the visibility of the lighting will be further mitigated by the proposed street trees and other landscaping in the areas.

4. Mitigation Measures

A building layout that fits the site, and the existing slopes, creates less of a disturbance in grade and vegetation canopy. The materials selected for exterior treatment will include natural stone and natural wood, both of which blend with the adjoining landscape. Finally, a landscaping plan that preserves native vegetation will effectively screen

structures. The following specific measures have been integrated into the project to minimize project visibility.

1. All proposed buildings will be no more than 35 feet tall at the midpoint between the building ridge and eve of the roof..

2. No clearcutting for the purpose of creating views is proposed. Filtered views may be provided by selective removal of individual small trees or by pruning up lower branches on existing trees.

3. Non-reflective glass will be installed in buildings.

4. Proposed building exteriors will be constructed of wood, stone and other natural materials. Earth tones will be used where exterior finishes (paint, stain) are needed.

5. The applicant has gone to extraordinary lengths to insure that any visual impact of the Big Indian Resort and Spa from even the few and relatively inaccessible viewpoints on Balsam Mountain are kept to an insignificant minimum. In response to scoping comments solicited from various hiking groups, the applicant abandoned the original design of the facility and retained Emilio Ambasz, widely considered to be at the forefront of the world's "green architecture" movement, to supply a design by virtue of which the major Resort structure would be rendered practically invisible. The pioneering design which resulted tucks the entire facility into the very contours of the Big Indian plateau and, further, overplants the tiers with rooftop greenery which mimics the flora of the adjacent forest floor. Most of the formally exposed parking areas were consolidated into the structure as a covered parking garage. By virtue of these redesign improvements, the impact at the ridgeline is, thus, virtually eliminated, and the impact from Balsam Mountain is rendered insignificant.

6. The Big Indian Resort and Spa building has also been designed in such a way so that the ridgeline on which it is located retains its current silhouette.

7. The proposed access road to the Big Indian Plateau is located perpendicular to NY Route 28 in order to reduce visibility. An alternative access off of Lasher Road was examined earlier in the design of the project but was not chosen as the preferred scheme because of potential visual impacts from the bend in NY Route 28 in Big Indian.

8. At Wildacres the hotel/conference center was originally designed as four separate units. Consolidating them into a single hotel/conference center reduced impervious areas. Areas proposed for buildings and associated parking were greatly reduced by putting 77% of the parking underground and in parking garages thereby decreasing the amount of clearing and allowing more of the existing vegetation to remain and reducing potential light pollution. The design

for the hotel/conference center has attempted to minimize any increase in the profile of the new hotel from the original hotel design when viewed from across the valley. This is to be accomplished by building the hotel/conference center into the topography so as to maintain the earlier proposed hotel elevations.

9. The proposed plans call for extensive replanting of over 4,100 trees on the site. In addition, extensive ornamental landscaping, including thousands of trees and shrubs are proposed in direct proximity of the proposed buildings. Most of the revegetation is proposed in areas near buildings where grading will be necessary to develop building footprints.

10. Side slopes for grading necessary to construct the proposed access road to Big Indian Plateau were increased to 1.5:1 to reduce the impacts to topography for construction of the access road.

B. Lighting

As noted in DEIS Section 2.2.8, Lighting, lighting for the proposed development has been designed to provide for appropriate safe and secure operation of the proposed roads, parking lots and pedestrian areas while having a minimum amount of impact on the surrounding environment. The proposed lighting plan for the project is illustrated on Sheets LL-1 through LL-14, "Landscaping and Lighting Plan." Lighting has been concentrated in the high traffic areas where facilities will be used at night. Proposed area lighting will employ metal halide, sharp cut-off fixtures with house shields, to reduce the amount of light pollution beyond the edges of intended areas. Sharp cut-off fixtures will also limit the amount of night-glow from the development when viewed from a distance. Poles will be set at a maximum height of twenty feet which will also limit the amount of light trespass and enable the use of 250 watt fixtures. Using lower wattage fixtures at lower heights will help to distribute the lighting more evenly and eliminate pockets of bright light. By comparison, the typical commercial center uses 400-1000 watt fixtures placed on 45-foot poles.

Each road intersection will be lit with one, twenty foot high sharp cut-off fixture. This is necessary for the Resort guests to safely navigate the roads at night. Low level (70 watt) six foot, lamp posts will be located at each detached lodging unit driveway for safety and security.

1. Highmount Estates

Proposed lighting for the twenty-one lot subdivision will be limited to lighting the two proposed road intersections, the new proposed road intersecting with County Road 49A, and the proposed intersection created by the two new cul-de-sacs. Each new home will utilize residential lamp posts at their driveways. The street lights used at the two intersections will be designed to acceptable standards to both towns reviewing the subdivision.

2. Wildacres Resort

The proposed lighting at the Wildacres Resort will be limited to access drives located at the Hotel, parking area lighting at the golf course clubhouse, the Marlowe Mansion Restaurant parking and at the Clubhouse/Pool and tennis area. Lighting at the individual units will utilize the six foot lamp posts and all road intersections will be lit. The average light levels across the parking areas will be 0.75 foot candle. As a point of reference one-half foot candle is the equivalent of a clear night with a full moon.

3. Big Indian Plateau

The proposed lighting in this part of the development will be restricted to the gate-house entrance and turn-around and the Woodchuck Hollow interior gate and turnaround, the parking areas at the Big Indian Resort and Spa and golf clubhouse, the pool, tennis cabana area and parking, the small lot at the Brisbane Mansion, all road intersections and the two employee parking areas. The parking areas and the entry area will be lit with sharp cut-off fixtures on twenty-foot poles. The average light levels across the parking areas will be one-foot candle. This level is the minimum necessary for the safety of the users. The sharp cut-off fixtures will ensure that the light will be directed down and not glow or spill over, especially from a distance.

Each road intersection will be lit with one, pole mounted sharp cut-off fixture. Low level residential lamp posts will also be used at each driveway entering the proposed detached lodging units.

C. Sound Resources

1. Existing Conditions

a. Construction Phase Sound Study

A complete Sound Impact Study for the project construction was conducted and is included in its entirety in Appendix 22.

Ambient sound levels were determined by conducting a sound level survey in the community surrounding the Project. Potential sound levels due to the construction of the Project were predicted based on acoustical modeling of the Project's major construction noise sources. The predicted Project construction sound levels in the community were used to assess the expected community impact of the Project construction noise.

Ambient sound levels were measured at five locations (sites) in the community surrounding the Project.

A-weighted and one-third octave band sound levels were measured in general accordance with ANSI S1.13 at approximately five feet above grade using an ANSI S1.4 Type 1 portable real-time sound level meter and

one-third octave band filter set equipped with an omnidirectional vertically-oriented microphone.

In general, sound levels were measured for eight 30-minute periods at each monitoring site. Monitoring periods were distributed during the daytime and nighttime, and during weekdays (beginning Sunday 10 PM) and weekends (beginning Friday 10 PM) as follows:

- 2 weekday days (7 AM to 10 PM)
- 2 weekday nights (10 PM to 7 AM)
- 2 weekend days (7 AM to 10 PM)
- 2 weekend nights (10 PM to 7 AM)

A limit for noise impacts is not specifically defined in the NYSDEC policy document. However, according to the NYDEC policy document, sound sources increasing the ambient sound level by 6 dBA may cause complaints, but that in some instances increases of greater than 6 dBA may be acceptable. The NYSDEC Policy document specifies that "an increase in 10 dBA deserves consideration of avoidance and mitigation" (NYSDEC, 2000). Therefore, the Project construction noise assessment assumes that increases in ambient sound level due to the Project construction of 10 dBA or more (very noticeable) indicate a potentially significant temporary noise impact that requires further consideration and possible mitigation.

b. Operational Phase Sound Study

The project site is within a setting that could be defined as rural residential or wooded residential. As such, sound levels in the area are generally low with a somewhat limited number of sound producers. Sound producers generally can be classified as one of three types; fixed equipment or processes, mobile equipment or processes, and transport movement of products.

Sound pressure levels (SPL) or perceived loudness is expressed in decibels (dB) or A-weighted decibel (dBA) scale that is weighted towards those portions of the frequency spectrum to which the human ear is most sensitive.

Decibels can be used to describe the sound environment in a number of ways. The Day Night Average Sound Level (Ldn) is the 24 hour average sound level. The Equivalent Sound Level (Leq) is the average sound level for any particular time period under consideration. The time period may

be a particular peak hour of sound or typical time periods for sound producers, such as over a given work day or other regular period of operation.

Sound levels in the project area can generally be expected to range from between 40 and 65 dBA depending on their location. USEPA (1979) provides typical Ldn sound levels of 40 dBA for rural residential areas and 50 dBA for wooded residential areas. Certain locations along NY Route 28 could experience Leq in the range of 65 dBA due to vehicle traffic.

Besides local vehicle traffic, snowmaking at Belleayre Mountain Ski Center is a seasonal source of sound in the area around the project site. Sound associated with snowmaking can generally be heard in Highmount as well as in Pine Hill as well as some areas further west along NY Route 28.

2. Potential Impacts

a. Construction Phase – Construction Equipment & Blasting

Maximum noise impacts due to construction traffic are expected to occur along CR 49A and the site access roads, due to the proximity of residences and relatively low volumes of traffic. Construction vehicles are expected during construction season and during daytime construction periods only. Most construction traffic will occur during the first three years of construction.

Excavation for the Wildacres Resort, the Big Indian Resort and Spa, and the Big Indian Country Club ponds will include some explosive blasting of bedrock. The size of the explosive charges to be used is not yet determined. However, instantaneous sound levels from typical construction blasting has been documented as approximately 93 to 94 dBA at a distance of 50 feet (Hoover and Keith, 1981), which is only a few decibels higher than the expected reference sound level from several of the Project construction activities. In comparison with other construction sound, the sound from blasting will be brief and relatively infrequent. Furthermore, previous blasting has been conducted on Belleayre Mountain by New York State without noise impact on the community (Crossroads, 2001).

The nearest blasting to receptors is expected to occur for the underground parking area of the Wildacres Hotel, approximately 1500 feet south of Receptor 7 (R7). R7 will be shielded from the blast by terrain and woods, and the brief sound level of the blast at R7 is estimated to be only 46 dBA, which is 4 dBA below the existing ambient daytime average sound level.

Therefore, blasting for this project is not expected to significantly contribute to overall Project construction noise.

The change in sound levels resulting from Project construction at Big Indian Plateau is presented in Table 3-36, "Big Indian Plateau Construction Noise Impacts and Mitigation." Since trucking of the 90,000 cubic yards of cut/fill between Wildacres and Big Indian will no longer be required, the noise associated with transporting this material will be eliminated. Temporary construction noise impacts are predicted to occur during portions of the access road construction. **All other construction is estimated to result in temporary increases in sound level of 9 dBA or less, which indicates insignificant noise impacts that do not require mitigation in this context.**

The change in sound levels resulting from Project construction at Wildacres Resort is presented in Table 3-37. Temporary construction noise impacts are predicted to occur during portions of the following construction activities:

- Access Roads
- Highmount Golf Club
- Highmount Estates Lodging Units
- Golf Maintenance Facility and Golf Maintenance Satellite Facility

All other construction is estimated to result in temporary increases in sound level of 9 dBA or less, which indicates an acceptable level of temporary noise impacts that do not require mitigation in this context.

b. Operational Phase - Traffic Noise

An assessment of traffic noise impacts due to the proposed project was conducted for review under the State Environmental Quality Review Act (SEQRA). The noise assessment was conducted based on information provided in Chapter 3A of the NYSDOT Environmental Procedures Manual, NYSDEC's Program Policy for assessing and mitigating noise impacts, and the New York Code of Rules and Regulations. Below is a review of the assessment and results.

A review of the traffic volume data included in the Traffic Impact Study prepared for this project indicate that the peak seasonal traffic volumes on NY Route 28 and County Road 49A occur during the winter months. This peak is due to the additional travel in the project area from activity at

the Belleayre Mountain Ski Center. A further review of the traffic study indicates that traffic volumes during the ski season are expected to increase by no more than 50% during limited peak hours with the development of the proposed project. Since traffic volumes are highest during the winter peak traffic counts, this condition would represent the highest traffic noise levels. A traffic volume increase of 50% typically creates an increase in noise levels in the magnitude of 2 decibels (dBA). A 2 dBA increase in noise levels is barely perceivable in a laboratory with instruments and is not detectable by the human ear. A decibel increase of 4 dBA is the level at which the human ear can distinguish. Based on the above, it is not expected that the development of the project will create a noticeable increase in the traffic noise on NY Route 28 and County Road 49A in the vicinity of the proposed project.

To verify the above assumptions, two methodologies were used to estimate the existing and future projected noise levels in the project area. A noise receiver was chosen at a location along NY Route 28, just east of Main Street in Pine Hill, approximately 200 feet from the roadway edge. Worksheet C, Roadway Noise, found in "The Noise Guidebook" published by the U.S. Department of Housing and Urban Development (HUD) was completed for existing and build conditions. The results of the analysis indicate an existing noise level of <58 dBA and a future noise level of approximately 58 dBA. This methodology estimates the average day/night noise level based on average daily traffic. The results of this methodology were compared to HUD standards, which indicate that day/night noise levels less than 65 dBA are considered acceptable.

A second analysis was conducted using FHWA's Traffic Noise Prediction Model, June 1991, to calculate the existing and future noise levels along NY Route 28 at the same receiver location. This methodology calculates the average noise levels for a specified peak period. The noise levels for the winter Saturday AM peak hour condition was estimated to be 52.1 dBA for the existing conditions and 54.8 dBA for the future conditions. The average noise levels for the winter Saturday PM peak hour condition were estimated to be 58.8 dBA for the existing conditions and 61.1 dBA for the future conditions. These noise levels were compared to FHWA standards which indicate that a noise impact exists if a project causes a 6 dBA increase in noise levels over the existing conditions or if the project causes the noise levels to come within 1 dBA of FHWA's Noise Abatement Criteria (NAC). NAC are sound levels that are used to represent absolute levels where abatement of noise must be considered and give an idea of acceptable average noise levels for different land uses. Table 3-35 , "Noise Abatement Criteria", summarizes the NAC equivalent sound levels for different types of land uses.

Table 3-35
Noise Abatement Criteria (NAC)

Activity Category	L_{eq} (dBA)	Description of Category
A	57 (Exterior)	Quiet and serene lands where it is important to preserve the character of the land in order to continue to serve its intended purpose.
B	67 (Exterior)	Picnic areas, recreational areas, playgrounds, residences, motels, hotels, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands not found in Category A or B.
D	----	Undeveloped lands
E	52 (Interior)	Residences, motels, hotels, schools, churches, libraries, hospitals, and auditoriums.

The project area in and around NY Route 28 would be classified as Activity Category B. Based on the results of the average noise level calculations the Build noise levels for the peak Saturday conditions are well below the 67 dBA NAC levels with 54.8 dBA during the AM peak hour and 61.1 dBA during the PM peak hour Build conditions. Also, the increase in noise levels between the existing and Build conditions was estimated to be less than 3 dBA in both the AM and PM conditions indicating that both sets of criteria are satisfied and there is no noise impact. The above information supports the original assumption that the increase in traffic due to the proposed development will not cause a noticeable or significant impact on the noise levels in the project area.

As part of the construction noise analysis for the proposed project, ENSR conducted field noise measurements at five different receiver locations in the project area. The measurements were taken February 22 through February 27, 2001 during weekday and weekend daytime and nighttime peak time periods. One of the receivers measured levels at a location approximately 200 feet to NY Route 28, similar to the receiver location used in the above two analyses. The existing average noise levels at this receiver were measured in the field to be approximately 46 dBA during the weekend Saturday AM peak hour. The existing levels measured in the field are more than 6 dBA lower than the existing levels calculated using the above methodologies (<58 dBA and 52.1 dBA). The methodologies used above estimate the general effect of the noise in the project area and do not totally account for specific site characteristics of the area including terrain, buildings, landscaping, as well as meteorological characters. The field measurements indicate that the actual levels are lower than what is predicted indicating that both existing and future noise levels are expected to be of lower magnitude than what is shown above.

3. Mitigation Measures

Mitigation of the Wildacres access roads would be similar to the mitigation recommended for the Big Indian access road by minimizing on-site equipment usage when within 500 feet of residences.

Highmount Golf Club. Noise from construction of the Highmount Golf Club will occur during construction Years 1 and 2, and is, at times, expected to impact residences at receptors W-8, W-6, and to a lesser degree other nearby Wildacres Resort receptors with a line-of-sight view of construction. As a result, mitigation is recommended in order to reduce the noise impacts to an insignificant level.

Mitigation of the Highmount Golf Club construction noise impacts is recommended in two steps. Mitigation of noise at distances of greater than 500 feet from the line-of-sight to a receptor may be accomplished by maintaining a 500 foot vegetative barrier between the construction and the receptor.

For distances within 500 feet of a residence, a mitigative barrier and reduced equipment usage is recommended. To provide satisfactory sound reduction, the barrier should be located within 150 feet of either the receptor or the construction area, and it should extend at least 10 feet above the line-of-sight between the construction noise sources and the receptor.

Golf Maintenance Facility and Satellite Maintenance Facility. Noise from construction of Wildacres Resort Golf Maintenance Facility and the Wildacres Resort Golf Maintenance Satellite Facility will occur during construction Years 1 and 2, and are, at times, estimated to impact nearby receptors. Mitigation of noise impacts from the two golf maintenance facilities can be accomplished by minimizing on-site equipment usage and by constructing barriers between their construction sound sources and respective receptors.

Table 3-38, "Cumulative Construction Noise Impacts and Mitigation", presents a tabular summary of the mitigative measures described in greater detail in Appendix 22, "Sound Impact Study."

No operational phase impacts have been identified, and no operational phase mitigation measures are required.

3.9 Community Services

The following section provides a description of those municipal service providers that will provide services to the proposed project.

3.9.1 Emergency Services

A. Existing Conditions

1. Fire

The project site falls under the jurisdiction of three (3) fire departments, these include Fleischmanns Fire Department, Big Indian Fire Department, and Pine Hill Fire Company. Each department has a mutual aid agreement with the others. Big Indian and Pine Hill have an automatic mutual aid when a call comes in. The three fire departments combined draw upon a total of 69 volunteer fire fighters.

2. Ambulance

The Town of Shandaken Ambulance Service is New York State certified and approved to operate at the paramedic level. Equipment includes 3 ambulances and a response vehicle, each is equipped with drug boxes and defibrillators/monitors. The service is manned 24 hours/day, 7 days/week with paid employees, which consist of 2 full-time and several part-time members. The service is dispatched from the Ulster County 911 Emergency Dispatch Center in Kingston. Service is provided to and mutual aid received from Olive, Lexington, and Hunter. These same towns also have an agreement with Community Medical Transport in Kingston for mutual aid paramedic services. Patients may be transported to Kingston, Benedictine or Margaretville Hospitals.

3. Hospital

The Margaretville Memorial Hospital is located approximately 10 miles from the project site. The facility contains 221 beds, operates a 24 hour emergency room, and a volunteer ambulance service. The ambulance service has 2 vehicles. The emergency room is staffed with a physician's assistant with an MD on-call. There are no coronary or intensive care units. The hospital is adequate but modernization and upgrades are needed. The Margaretville Family Health Center is a family practice, open Monday – Saturday. The Roxbury Family Health Center is a family practice, open Monday – Friday.

Kingston Hospital and Benedictine Hospital and located in Kingston, approximately 35 miles east of the project site. Both hospitals are fully staffed including emergency room staff and intensive care staff. Both hospitals are open 24 hours a day, seven days a week.

B. Potential Impacts

The proposed project may increase demands for these emergency service providers. However, all these service providers were contacted, and all these service providers have indicated that they are fully capable of serving the project with their current resources.

C. Mitigation Measures

No mitigation measures are required since all emergency service providers have responded to written inquiries stating that they possess adequate capacity to serve the project with their existing resources. Appendix 6, "Letters of Record", includes correspondence or interview records with the following emergency service providers indicating that they have the capacity to serve the project; Shandaken Rescue, Kingston, Benedictine and Margaretville Hospitals, and Big Indian, Pine Hill, and Fleischmanns Fire Departments. All three of the Chiefs representing the three fire departments responded that with their mutual aid response they do have adequate resources to serve the project with their current resources.

All of the fire districts and emergency or ambulance service corps in the Towns of Shandaken and Middletown, as well as surrounding similar organizations that provide mutual aid, are volunteer. These service providers in the Towns of Shandaken and Middletown have indicated their ability to serve the proposed Belleayre Resort. All of these organizations depend upon volunteers to fulfill their missions. To help ensure that volunteers are available to serve with these organizations, the Belleayre Resort will actively encourage the participation of its employees as volunteer fire fighters and EMTs. The program will include offering incentives and training to employees who qualify to serve in these positions.

3.9.2 Police

A. Existing Conditions

The project site falls under the jurisdiction of 5 police departments, these include two State, two County and one Local police department. The site has police coverage from the NY State Police Barracks located in Delaware and Ulster Counties, the County Sheriffs from both Ulster and Delaware Counties and the Town of Shandaken. Coverage for the region is currently 24 hours a day/ 7 days per week with the region employing a total of 128 full-time and 21 part-time police officers. The closest police department is located in the Town of Shandaken and currently has 3 full-time police officers and 8 part time officers. Correctional Facilities are located in Kingston, NY, at the Ulster County Sheriff Department, and in Delhi, NY at the Delaware County Sheriff Department.

B. Potential Impacts

The proposed project may increase demands for these service providers. However, all these service providers were contacted, and all these service providers have indicated that they are fully capable of serving the project with their current resources.

C. Mitigation Measures

No mitigation measures are required since all police service providers do have adequate capacity to serve the project with their existing resources. Appendix 6, "Letters of

Record", includes correspondence or interview records with the following police service providers indicating that they have the capacity to serve the project; Shandaken Police Department, Ulster and Delaware County Sheriffs Departments, and the New York State Police. In addition, both portions of the project site will supply their own internal security force on a 24-hour a day 7-day a week basis.

3.9.3 Potable Water

A. Existing Conditions

As stated previously in Sections 2.2.3, "Potable Water Supply", the Village of Fleischmanns Water System has capacity to serve the Wildacres Resort and Highmount Estates portion of the project site. The rest of the project site will not require that water be supplied from an existing municipal water supply system.

B. Potential Impacts

Section 2.2.3 as well as Appendix 7, "Water Supply Reports", describe how the Village of Fleischmanns water system has adequate capacity to serve the Wildacres/Highmount Estates portion of the project site.

The Village of Fleischmanns Water System serves only customers within the Village. Currently, there are approximately 350 full-time residents. The source of supply for the Village's water system is a combination of three (3) groundwater wells and a series of springs located in the southern portion of the Village. The daily supply is derived primarily from the springs with the wells used as backup or during high demand periods or drought. Raw water from the source(s) is treated to reduce the corrosively and to add disinfectants.

Starting in October 2000, Alpha Geoscience, Inc. performed an evaluation of the Village's water supply for the purpose of determining the overall capacity of the sources and to determine if the springs could be considered "under the influence" of surface water. The results of this evaluation are included in the December 21, 2000 report with a January 2002 Letter Addendum entitled, *Water Supply Evaluation, Village of Fleischmanns, Delaware County, New York.* The report indicates that the total daily capacity of the Village's sources exceed 570,000 gallons. In late August of 2002, the Village of Fleischmanns repaired several major leaks in the water distribution system identified as part of a survey conducted to locate the existing water lines. Daily log sheets completed by the water system operator (included at the end of the design report entitled *Wildacres Resort and Highmount Golf Club/ Highmount Estates Water Supply, Treatment and Distribution* in Appendix 7) show that after the major leaks were repaired, the amount of water treated by the Village to serve all customers including residences and commercial establishments dropped from 225,000 gpd to an average 55,916 gpd. Therefore, given an available capacity of approximately 572,640 gpd, and a Village demand of 55,916 gpd on average, the remaining water resource is approximately 516,724 gpd. If the Village provides raw water from its existing sources to the Wildacres

Resort, the Resort's average day demand of 109,308 would leave 407,416 gpd of water available to the Village for additional allocation or growth. As an alternative to the Resort being supplied from existing Village-owned sources, a new groundwater well could be established by the Village, the capital cost for which would be paid by the Resort. A hydrogeological evaluation of the development of a new well near the existing Village Well #3 indicates that the well would provide a water supply that would not impact the Village's springs or Emory Brook

The project will not utilize the Pine Hill Water Company for its potable water supply, nor will the project's potable water supply affect the amount of water available to the Pine Hill Water Company. See Section 2.2.3 and Appendix 7.

C. Mitigation Measures

No adverse impacts have been identified, therefore, no mitigation measures are required.

3.9.4 Wastewater

A. Existing Conditions

Wastewater treatment/disposal from the proposed project will not involve any municipal systems. See Section 2.2.4, "Wastewater Disposal", as well as Appendix 8, "Conceptual Design for Wastewater Treatment and Disposal."

B. Potential Impacts

No potential impacts have been identified.

C. Mitigation Measures

No mitigation measures are necessary.

3.9.5 Solid Waste/Recycling

A. Existing Conditions

The Delaware County Landfill has a life expectancy of 15 years. Solid waste generated within the County is brought to transfer stations by homeowners or private haulers. The stations are located in Andes, Colchester, Davenport, Hancock, Middletown and Roxbury. The nearest station to the site is in Middletown. Waste is transported from the stations to the landfill located on NY Route 10 outside of Walton, N.Y. The average amount of residential waste generated in the County is approximately 100 tons/day. An additional 50 tons/day of recyclables is generated and the daily average of Construction & Demolition waste is 10 tons/day. Recyclables are collected and sold to buyers from the Materials Recovery Facility.

Delaware County has a solid waste management facility that is opened for the use of Delaware County residents only. No tipping fee is charged because County residents pay for this service by ad valoreum taxes. Residents of the properties located in Delaware County are not required to take their solid waste to the County facility. Some of the property for the project, and in particular, the detached lodging units are located in the Town of Middletown in Delaware County. The Project Sponsor does not intend, however to segregate wastes, i.e., separate Delaware County waste from non-Delaware County waste, because it would be difficult to do so in a cost effective and efficient manner. Given these circumstances, all of the waste from the proposed Resort will be managed and treated as waste generated from properties located outside Delaware County and therefore no waste will be delivered from the project to the Delaware County municipal solid waste facility.

Ulster County Resource Recovery Agency administers the disposal of solid waste within the County. Solid waste generated within the County is brought to transfer stations by homeowners or private haulers. The stations are located in Kingston and New Paltz. The amount of residential waste generated in the County is approximately 85,519 tons of municipal solid waste per year. The amount of Construction & Demolition waste generated is not available. Recyclables are collected and sold to buyers. Waste collected at transfer stations is transported to disposal sites in Keystone, PA or Ontario, Canada.

B. Potential Impacts

In the event that existing service providers did not have sufficient capacity to meet the demands of the project, the project could potentially generate a need for an increase in staff, equipment or facilities serving the project.

C. Mitigation Measures

No mitigation measures are required since the Ulster County Resource Recovery Agency have indicated that they have adequate capacity to serve the project. Correspondence from both agencies are included in Appendix 6 "Letters of Record."

3.9.6 Utilities

A. Existing Conditions

Electric service, both single-phase and three-phase in the area is provided by New York State Electric and Gas.

Telecommunication services in the area are provided by Verizon, Margaretville Telephone Company, and Time Warner Cable.

B. Potential Impacts

In the event that existing service providers did not have sufficient capacity to meet the demands of the project, the project could potentially generate a need for an increase in staff, equipment or facilities serving the project.

C. Mitigation Measures

No mitigation measures are required since Verizon, Margaretville Telephone, Time Warner Cable, and New York State Electric and Gas have all indicated their ability to serve the project site with utility services. Correspondence from these companies is contained in Appendix 6, "Letters of Record."

3.9.7 Schools

A. Existing Conditions

The Margaretville Central School District services the Towns of Middletown, Andes, Bovina and Roxbury in Delaware County; Lexington and Halcott in Green County; and Shandaken and Hardenburgh in Ulster County. The student to teacher ratio is currently 20.5:1. The district has one main building, two portable classrooms and two classrooms in a neighboring annex. Schools are beyond capacity and voters have approved a major renovation that will add 16 classrooms, a new gym, a new library/media center and renovation of the existing building. The project should be completed in 2002. The school district has stated that they do have capacity to serve the proposed project (see Appendix 6, "Letters of Record").

The Onteora School District services the Towns of Olive, Shandaken, Hurley, Woodstock, and Marbletown in Ulster County and the Towns of Lexington in Greene County. The teacher to student ratio is currently 13:1. The district has 4 elementary schools, a middle school and a high school. The Phoenicia Elementary School, the only unit serving the Town of Shandaken, is currently functioning somewhat below capacity. This under utilization is greatest in the lower grades and is expected, over time, to move up through the higher grades. Projections of the Onteora School District forecast that enrollment is expected to decline increasingly over the next decade. The School district has indicated that they do have the capacity to serve the proposed project. (See Appendix 6, "Letters of Record").

B. Potential Impacts

No adverse impacts have been identified. No potential impacts have been identified, the school districts have the capacity to serve the project.

C. Mitigation Measures

No mitigation measures are proposed since no impacts have been identified.

The vast majority of employees in the hotel industry are young, mostly in their 20's and mostly childless. Those who have children typically have very young children.

3.9.8 Recreation Facilities

A. Existing Conditions

There are a number of recreational opportunities in the vicinity of the project site. These include skiing and other activities at the Belleayre Mountain Ski Center, hiking and camping on Catskill Park State Lands, including the nearby Big Indian Beaverkill Wilderness Area, fishing on many of the area's streams, and swimming and picnicking at the Belleayre Beach at Pine Hill Lake. Local recreational opportunities exist at a Shandaken Town Park in Big Indian, Glennbrook Park off of County Road 42, Phonecia Park, Fleischmanns Village Park, Margaretville Village Park, and facilities at Margaretville Central School also exist. The extent of the recreational facilities at these parks varies, but overall they include general use fields, pavilions, baseball, softball and soccer fields, basketball and tennis courts, playground equipment and temporary ice skating areas.

B. Potential Impacts

Resort guests will utilize recreational facilities outside of the project as well as those associated with the project. Availability of quality off-site recreational opportunities, particularly the opportunities at Belleayre Mountain Ski Center and on the large expanses of Catskill Park State Lands, enhance the attractiveness of the proposed Resort project to potential Resort guests.

The proposed project could potentially impact off-site recreational facilities if the project results in an increase in the numbers of people utilizing a particular recreational resource to the point where other users' enjoyment of the resource is diminished due to overcrowding or a change in a user's particular experience when utilizing a recreational facility.

C. Mitigation Measures

Belleayre Mountain Ski Center has in the recent past implemented many improvements to increase ski visitation to accommodate a peak attendance goal of 4,500 skiers per day. This goal was reached only on four days this past year, and none of these days were on weekdays. While Resort guests will utilize the Ski Center on weekends, it is anticipated that the largest increases in the percentage of skiers utilizing the Ski Center as a result of the project will be during the week when attendance rates are currently lowest. In order

to mitigate any potential impacts to parking at the Ski Center, Resort guests will be shuttled to and from the Ski Center on shuttle buses operated by the Resort.

Resort guests will utilize hiking trails on state lands including those on the nearby Big Indian-Beaverkill Range Wilderness Area. Like the Ski Center, this Area has the capacity to serve additional recreators. According to the most recent Unit Management Plan prepared for this area, the area currently experiences low levels of public use. While individual guests utilizing the Resort will obviously be free to utilize State Park land, most Resort-generated use of State Park Lands will be coordinated through the project's Wilderness Activity Center. Employees at the Wilderness Activity Center will be proficient and experienced in outdoor recreation including hiking and camping and the pertinent rules and regulations of the Catskill State Park. These employees will lead small groups on hiking and camping expeditions and teach such activities and subjects as low impact camping, orienteering, gear selection, etc. Expeditions will be held throughout the Catskill Park and will not necessarily be concentrated on those lands and trails closest to the project site.

The Wilderness Activity Center will also serve as the Resort's focal point for implementing some of the goals of the August 1999 Catskill Forest Preserve Public Access Plan, including identifying opportunities to enhance the quality and enjoyment of the forest preserve experience, encouraging cooperation between the public and private sectors in enhancing the use, enjoyment and protection of the forest preserve, and to support and encourage forest preserve uses that contribute to the economics of local communities in a manner consistent with the Catskill Park State Land Master Plan and Article XIV of the New York State Constitution.

In addition to the Wilderness Activity Center's efforts of promoting access to the State Park, the Hotel at the Wildacres Resort will contain a chamber of commerce/tourist information center that will supply Resort guests with information about recreational opportunities and other services and attractions in the Catskill State Park. Included in the information available to Resort guests will be fishing guide information. Directing Resort guests to fishing guide services will allow Resort guests to be educated about fishing locations that may be more removed from some of the more popular areas.

According to the 1989 UMP prepared for the Belleayre Beach at Pine Hill Lake, the carrying capacity of the facility is 400 persons. In the UMP it was projected that for the period 1990 to 1995 the average daily occupancy would range from a low of 5% in May up to 30% of the 400 person capacity (120 persons) in the months of July and August. Recent attendance rates for the facility obtained from personnel at the Ski Center ranged from 8,977 people in 1999 to 14,653 people in 2000. Averaging this over a 90 day period (June, July and August) would place average daily attendance at 100 to 163 people per day. This is well below the carrying capacity of the Belleayre Beach at Pine Hill Lake. The primary recreational focus of the Belleayre Beach at Pine Hill Lake is swimming. Provision of swimming pools at the Resort will mitigate most, if not all, of the demand for swimming that might otherwise occur at the Belleayre Beach at Pine Hill Lake by Resort guests.

While it is envisioned that the proposed Resort will include in its programming organized use of the aforementioned recreational facilities, use of local recreational facilities will likely occur independently by Resort guests. Because use is anticipated to be sporadic and at low levels, and given the fact that there are a number of local recreational areas available, it is not anticipated that the proposed project will result in any significant increase in the usage of local recreational facilities. Therefore, no mitigation measures are necessary.

3.9.9 Roadways

A. Existing Conditions

Maintenance of the roads in the vicinity of the project site are the responsibility of a number of agencies including the New York State Department of Transportation, Ulster and Delaware Counties, and the Towns of Shandaken and Middletown.

B. Potential Impacts

If any of the proposed roads were to become public roads then there would be an increase in demand for local road maintenance services.

C. Mitigation Measures

No mitigation measures are proposed since all of the new roads introduced as part of this project will be private roads and privately maintained. There will be no additional demand for road maintenance as a result of the proposed project.

Existing State, County and Town roads were studied in the Traffic Impact Analysis (see Appendix 25 and Section 3.7 of this DEIS) and mitigation measures for such roads suggested.

3.10 Socio-Economic Setting

3.10.1 Existing Conditions

This section presents an overview of economic trends and existing conditions for the area potentially affected by the proposed Belleayre Resort at Catskill Park. The analysis establishes the economic baseline for the region and describes characteristics of the current workforce and tourism-related industries. It begins with an explanation of the methodology and geographic study area. Demographic characteristics of the region are described, including population and household trends, average household income, and a comparison of income distribution throughout the region. The section then presents a discussion of the workforce in the study area, outlining overall labor supply and labor force demographics, and defining several challenges specific to a rural workforce. The section concludes with a quantitative and qualitative discussion of the region's tourism-

based industry, outlining trends in the retail trade and service sectors. For a more comprehensive presentation of the applicable data see Appendix 26, "Economic Benefits and Growth Inducing Effects."

The analyses contained in the economic study for this DEIS (Appendix 26, "Economic Benefits and Growth Inducing Effects") were primarily completed in 2001, prior to the economic uncertainty that has been growing regionally and nationally, most notably since the September 2001 attack. The construction costs, employment and fiscal generation, and the overall assessment of short- and long-term economic consequences of the project are expected to remain unchanged from what is described in this report. **The applicant remains confident of the core market strength of the project (in fact, part of the post- September 2001 trend is a retrenchment of locally-based travel) and in the financial projections and the ability to secure project financing. However, employment opportunities and fiscal stability in New York State have proven to be more at risk and makes a private investment such as the proposed Belleayre Resort at Catskill Park an even more important strategic investment for the region and state.**

A. Methodology

The analysis of existing economic conditions focuses on an economic study area, which is the area most likely to be affected by the proposed project. The study area used in this section is defined by a collection of 15 zip code areas that stretch along NY Route 28 from the Bovina area north of Andes on the west to the Shokan area along the Ashokan Reservoir to the east (see Figures 3-49 and 3-50, "Study Area."). Based on a geographic evaluation of the region and patterns identified through journey-to-work data, it was determined that a majority of the employment and other economic impacts related to the proposed project would be expected to occur within this 15 zip code study area. Therefore, the baseline economic conditions presented in this section focus on the 15 zip code study area when possible, with comparative information provided for New York State, as well as Ulster, Delaware, and Greene Counties, the three counties that encompass the study area.

Various sources have been used to prepare this section. In rural areas such as this, in which there are few employers in particular industry categories, the Census Bureau and Bureau of Labor Statistics follow a common policy to suppress industry-specific data for any jurisdiction that might inadvertently reveal information about a specific firm which by itself employs a substantial share of the workforce in that industry. This problem of suppression of data arose frequently in evaluations of business data at the municipal level. Given these limits and the changing nature of the economy under examination, data were collected from multiple sources and at a variety of municipal levels in an effort to present the most accurate data available. In several cases, county level data were used to ensure that the information presented was as robust as possible. In addition to analyzing existing data from the U.S. Census Bureau and the Bureau of Labor Statistics, data from Claritas, Inc.-a market research firm-were used to provide industry-specific data for the study area along NY Route 28.

In addition, the chapter relies upon interviews conducted with individuals involved in business operations, housing, employment and employment training, as well as county officials and New York State Department of Labor analysts. An extensive business field survey was conducted by the applicant through which business owners and operators throughout the study area were individually visited and interviewed, and questionnaires were completed (See Appendix 28, "Local Surveys and Letters of Support"). Data collected included numbers of employees, days and hours or operation, and general observations about the business climate and trends, both long-term and seasonal. This field survey was further supplemented by numerous follow-up interviews. This qualitative data provided a practical and up-to-date verification of other data sources, and provided local input and perspective absent in more readily obtainable data sources.

B. Demographic Characteristics of the Study Area

Claritas, Inc. estimates that the 2000 population in the study area was 10,552, growing less than 1 percent since 1990. In 2000 the study area accounted for approximately 4 percent of the total population within the three counties that encompass the study area. As shown in Table 3-39, the population of the three counties was about 274,000 in 2000, growing 6.5 percent since 1990, significantly faster than the study area. Greene County has seen the largest population growth in the region, with an approximately 7.5 percent increase between 1990 and 2000.

According to Claritas, Inc. the number of households in the study area in 2000 was approximately 4,454, a 2.7 percent increase since 1990. The number of households in the tri-county area grew at a faster rate of 10.5 percent. In 2000 there were approximately 105,025 households in the three counties, with Ulster County accounting for a majority of those households with 67,499.

The household figures described above and shown in Table 3-39 include a large proportion of second homes in the area. In 1990, approximately 16.4 percent of all housing units within the tri-county area were classified as units for seasonal, recreational, or occasional use.* The percentage of these "second home" units is significantly higher within the study area. For example, in 1990, 43.0 percent of all housing units in the Town of Shandaken (Ulster County) were for seasonal, recreational, or occasional use, while 45.2 percent of all housing units in the Town of Middletown (Delaware County) were for seasonal, recreational, or occasional use. Second-home owners and users are not accounted for in the population figures cited above and in Table 3-39.

Interviews with local real estate professionals, including local affordable housing developers and advocates, were conducted to obtain information about residential sales

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* These are vacant units used or intended for use only in certain seasons or for weekend or other occasional use throughout the year. Seasonal units include those used for summer or winter sports or recreation, such as hunting cabins. Seasonal units also may include quarters for such workers as loggers. Interval ownership units, sometimes called shared-ownership or time-sharing condominiums, are also included.

and rentals in the study area and in the general Catskill mountain region. All individuals interviewed perceived an increasing trend of second home creation, with buyers maintaining primary residences in the New York City metropolitan area dominating the market. It was reported that during the 1990's the second home buyer tended to be a wealthy professional seeking a country retreat, rather than the an outdoor-oriented (hunting and fishing) individual who characterized the buyer of the 1970's and 1980's.

As shown in Table 3-40, the 2000 average household income in the study area, at approximately $39,524 (in constant 2000 dollars), decreased in real terms by 2.8 percent between 1990 and 2000. This decrease was similar to that in the larger tri-county area, which experienced a 2.7 percent decrease in average household income over the same period. The average household income in the study area is less than that for all the individual counties, about $7,500 less than the tri-county region, and $26,600 less than New York State overall.

Family household income in the study area is also more heavily weighted toward lower income brackets than is household income in the tri-county area and New York State overall. As shown in Table 3-41, over 54 percent of the study area's households earn less than $40,000 annually, 5 percent higher than for New York State as a whole. The study area also has a lower percentage of families earning over $60,000 annually than the tri-county area and New York State.

C. Workforce Capacity and Opportunities

Over the long term, labor force and employment growth in the three counties that encompass the study area have been variable. As shown in Table 3-42 below, all three counties experienced overall gains in the labor supply between 1980 and 1990, with Greene and Ulster Counties above the growth rate for the State. However, between 1990 and 1999, overall labor force trends shifted dramatically compared to the previous decade, with both Delaware and Ulster Counties experiencing decreases in total labor force and with Greene County experiencing only modest gains.

Employment growth in Greene and Ulster Counties was also well above the overall rate for New York State during the 1980's (see Table 3-43). However, the three counties were particularly hard hit by the recession of the late 1980's and early 1990's, resulting in declines in both the residential employment and the overall workforce. All three counties have been slow to recover from this recession, resulting in net decreases in labor force and employment in Delaware and Ulster Counties between 1990 and 1999.

As shown in Table 3-44 from 1990 to 1999 Greene County maintained the highest rate of unemployment among the three counties from 1990 to 1999. Over the decade, the tri-county area mirrored the general unemployment trends for the State as a whole.

D. Labor Force Demographics

Levels of education and income are often used to evaluate the ability of a workforce to meet the challenges of high-value-added occupations. Existing high levels of education and income provide workers with the foundations needed to maintain their competitive edge in the workforce. A review of the demographic composition of the tri-county region reveals a labor force that generally falls below state averages in secondary educational attainment and economic benchmarks.

Delaware and Greene Counties are about on par with New York State in the proportion of the population over 25 years old with a high school diploma (see Table 3-45, below). Ulster County's apparent strength (by approximately two percentage points) may only be a reflection of the presence of a State University of New York (SUNY) four-year institution in New Paltz. The proportion of the population in the three counties graduating college, however, is behind the New York State average. Among all New Yorkers, over 27 percent of those over 25 have a four-year college degree. In Ulster County, the proportion is only 25 percent, while in Delaware and Greene Counties, respectively only 16.6 and 16.4 percent of the population over 25 have four-year college degrees.

As discussed previously and shown in Table 3-40, "Average Household Income", incomes in the study area are substantially lower than the state average. The average household income in the NY Route 28 corridor is less than that for all the individual counties, about $7,500 less than the tri-county region, and $26,600 less than New York State overall. The potential problems associated with relatively low levels of education and income are exacerbated by labor force dynamics typically associated with rural areas: a geographically dispersed economy, global competitive pressures on manufacturing, and the out-migration of young people.

Like many rural areas, the NY Route 28 corridor and surrounding area is one of wide dispersion of activities limiting the informal connections and cross-sectoral contacts that promote economic innovation and growth in more metropolitan areas. The commuting patterns shown in 3-46 suggest that the area's workforce is dispersed among at least three different labor markets. It is clear that there is a substantial labor market that is highly localized in nature. Data from the 1990 Census indicate that the proportion of residents that work in the town or village in which they live ranges from 33 percent in Ulster County to 52.4 percent in Delaware County.

In addition, while over 20 percent of the residential workforce commuted to work outside their respective home counties, relatively little inter-county commutation appears to take place between the three counties. As shown in Table 3-47, the major destinations for out-commuters from each of the three counties in the region are dispersed among counties in the Capital District (Albany), Southern Tier (Broome, Otsego), and Hudson Valley (Dutchess, Orange). The one notable exception is commuters from Greene County to Ulster County.

According to a 2000 employer survey for Ulster County, most Ulster County employees (including County residents and non-residents), live in Ulster County (77 percent).* Non-resident employees or "in-commuters" typically reside in Dutchess County and Orange County, as opposed to the other study area counties (Greene and Delaware). The survey results on in-commutation, differing markedly from the 1990 Census results, indicated that in-commutation increased significantly during the 1990s.

According to a recent employer survey for Columbia and Greene counties combined, 57 percent of the area's employees live in the counties.* (An employer survey for Greene County alone is not available.) In-commuters typically come from Albany County (12.4 percent), followed by Rensselaer (8.3 percent) and Dutchess (6.8 percent) counties. Only 5.1 percent of Columbia-Greene employees reside in Ulster County. An employer survey for Delaware County is currently being prepared by the New York State Department of Labor, the results of which have not been released yet.

These trends were confirmed by discussions with representatives of the M-Ark Project and SHARP, in Middletown and Shandaken, respectively. These nonprofit community development organizations offered anecdotal evidence that workers living in these two communities commute long distances to places of employment, with many workers commuting the approximately 30 miles to jobs in Kingston. Delhi and Oneonta were also cited as employment destinations, with Stamford and Walton being referenced, as well. Out-commutation was noted to occur due to the low number of available jobs in the Shandaken/Middletown vicinity.**

For most of the century, rural areas were a haven for low-productivity, low-value-added manufacturing. This has changed over the last 30 years as a consequence of the globalization of the job market. In addition to traditional rivals in the American South, rural manufacturing firms in the Northeastern United States are now facing competitors in Mexico, Latin America, and Asia. In response to these pressures, evidence suggests that high-skill manufacturing jobs are growing at the expense of lower-skill jobs throughout the area. The most current county-level data available on occupations from 1990 suggest that, during the relative prosperity of the 1980's, each of the counties experienced an increase in the number of relatively high-skilled precision production, craft, and repair occupations (see Table 3-48). Yet, even in the midst of the economic expansion, there were dramatic declines in such lower-skilled manufacturing occupations as operators, fabricators, laborers, assemblers, and inspectors (see Table 3-49).

The below average college graduation rates among the region's adult population may reflect the fact that nation-wide problems associated with an aging workforce are

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* New York State Department of Labor. *An Analysis of the Ulster County Employer Survey*. December 2000. p. 26.

* Telephone interview with M.A. Wiltse. Columbia-Greene Community College, Office of Employment and Training, June 12, 2002.

** Telephone interviews with Jennifer Gould, M-Ark Project, and Jane Todd, SHARP, June 17, 2002.

exacerbated in rural areas where many of the "best and brightest" young people leave to seek better opportunities. Each of the three counties is home to local institutions that tend to involve a younger population. Consequently, the migration figures tend to understate the nature of the problem for the area. The data for Delaware County show a substantial out-migration among the 25 to 29 year olds, which can only be partially accounted for by the exodus of SUNY Delhi graduates returning to their home counties. This out-migration of the "best and brightest" young people may account for the workforce's low education level, despite the strength of the area's public schools.

The below average college graduation rates reflected in the 2000 Census among the region's population may also reflect the relatively high proportion of jobs in the region that do not require higher education. For example, construction, manufacturing and other "blue collar" jobs require job-specific training and a high school diploma.* As shown in Table 2-12, the construction and manufacturing sectors combined represent 16.7 percent of total employment in the tri-county region. Although such jobs may not require high-level academic skills, high-level technical skills in these industrial sectors are important. Moreover, as compared to other sectors in the region, blue collar jobs pay higher annual wages (see Table 2-13). Higher education is also less important for retail trade and some of the service-industry jobs, which account for most of the tri-county region's employment.

E. Characteristics of the Unemployed

To assess the characteristics of the region's unemployed population, data on unemployment insurance beneficiaries were provided by the New York State Department of Labor. According to the Department, these "experienced unemployed" members of the labor force typically represent about one third of the total unemployed population. In all three counties, most of the unemployment insurance beneficiaries were between the ages of 25 to 35 and 45 to 54 (see Table 3-49A).

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* New York State Department of Labor. *An Analysis of the Ulster County Employer Survey.* December 2000. p. 16.

Table3-49A

Unemployment Insurance Beneficiaries:
Age Breakdown (2001)

Age	Delaware		Greene		Ulster	
	Number	%	Number	%	Number	%
Under 20	6	1.7	3	0.7	13	1.1
20 to 24	35	10.2	25	6.2	69	5.6
25 to 35	83	24.2	86	21.4	240	19.5
35 to 39	49	14.3	59	14.7	179	14.5
40 to 44	43	12.5	53	13.2	168	13.6
45 to 54	71	20.7	89	22.2	298	24.2
55 to 59	28	8.2	39	9.7	106	8.6
60 to 64	10	2.9	17	4.2	61	5.0
65 and Over	10	2.9	23	5.7	60	4.9
Unknown Age	8	2.3	7	1.7	37	3.0
Total	**343**	**100.0**	**400**	**100.0**	**1,230**	**100.0**

Source: New York State Department of Labor, Division of Research and Statistics, June 2002.

Among the types of work experience that unemployment insurance beneficiaries had in 2001, blue collar work experience was the most prevalent, ranging from 48.1 percent of beneficiaries in Ulster County to 67.9 percent in Delaware County (see Table 3-49B). These types of jobs were followed by clerical and kindred jobs, and service/executive/private jobs.

Table 3-49B

Unemployment Insurance Beneficiaries:
Previous Work Experience (2001)

Occupation	Delaware		Greene		Ulster	
	Number	%	Number	%	Number	%
Professional	17	5.0	23	5.8	114	9.3
Technical	8	2.3	16	4.0	66	5.4
Managerial	15	4.4	31	7.8	96	7.8
Clerical & Kindred	22	6.4	44	11.0	195	15.9
Sales	7	2.0	15	3.8	51	4.1
Blue Collar	233	67.9	209	52.3	592	48.1
Farm, Forest, Fish	0	0.0	1	0.3	2	0.2
Service Executive Private	40	11.7	59	14.8	110	8.9
Private Household	1	0.3	2	0.5	4	0.3
Total	**343**	**100.0**	**400**	**100.0**	**1,230**	**100.0**

Source: New York State Department of Labor, Division of Research and Statistics, June 2002.

Similar to the residential population as a whole, unemployment insurance beneficiaries in all three counties generally have a total of 12 years of education. In Greene County, 75 percent of the beneficiaries in 2001 had 12 years of education or less, followed by Delaware County (71 percent), and Ulster County (63 percent).

F. Economic Trends and Conditions

This section provides a portrait of the region's business and industrial base, particularly as it relates to the retail trade and service sectors. These are the sectors most likely to be affected by the proposed Belleayre Resort at Catskill Park.

As shown in Table 3-50, in 1999 the services and retail trade sectors comprised well over half the jobs in the tri-county area. Services, including education, accounted for 38.4 percent of all jobs, while retail trade accounted for almost 20 percent of all employment in the counties. The services sector has been a major source of employment growth in the tri-county area with an approximately 19.6 percent increase from 1990 to 1999, slightly higher than the state's overall 16.8 percent job growth for the sector. Retail trade also showed significant employment growth over the decade, with about 8.6 percent growth from 1990 to 1999, compared to only 3.1 percent retail employment growth for the state as a whole. Other major sectors include manufacturing, with 13.5 percent of the employment, and public administration, with 10.9 percent of the employment for the three counties. Both these sectors are slightly higher than the state percentages.

While the tri-county area experienced employment growth in the retail and service sectors above the New York State rate, the 1999 wages and the change in real wages for retail and services were below the State figures. As shown in Table 3-51, the average annual retail sector wage in the tri-county area was $15,484 in 1999, over $4,000 less than the State average. The average annual services sector wage in the tri-county area was $24,181, over $12,000 less than the State average. Retail trade has the lowest average annual wages of all the SIC sectors, followed by agriculture and mining and the services sector.

From 1990 to 1999, the three counties collectively experienced a 5.1 percent decrease in real wages within retail trade, which lies in sharp contrast to the state's 5.4 percent increase in retail sector wages over the same period (see Table 3-52). Greene County saw the largest decrease in real wages for the sector with an 8.3 percent decline over the decade. Real wages in the services sector increased by only 0.2 percent for the three counties, far less than the state's overall 7.6 percent increase in the sector. While Delaware and Greene Counties experienced moderate increases in real wages in the services sector, there was a 1.7 percent decline in Ulster County during the period. The tri-county area outperformed the State in terms of real wages in only one sector—construction—largely due to a 35.9 percent increase in real construction wages in Delaware County.

As shown in Table 3-53, tourism accounted for more than $395 million of the tri-county area's economy in 1997. This tourist expenditure figure includes spending on hotels,

transportation, food/dining, shopping, and entertainment and miscellaneous expenditures comprising elements of both the service and retail sectors. Nearly 70 percent of the tourist dollars spent in the three counties are generated in Ulster County.

As shown in Table 3-54, total retail employment in the three counties increased 5.4 percent between 1993 and 1997. There was great variation among the three counties, with a 14.1 percent decrease in total retail sector employment in Delaware County, a 2.0 percent drop in Greene County, and a 12.5 percent increase in total retail employment in Ulster County. With the exception of miscellaneous retail, Delaware County saw decreases in employment in every reported retail sector over the five-year period. In contrast, Ulster County reported employment gains in every reported retail sector except apparel and accessory stores.

As shown in Table 3-55, total service employment in the three counties decreased 2.3 percent between 1993 and 1997. There was great variation among the three counties, with a 0.8 percent increase in total service sector employment in Delaware County, a 20.2 percent decrease in Greene County, and a 2.0 percent increase in total service employment in Ulster County.

Table 3-56 displays estimated 2000 business data for retail sector categories in Delaware, Greene, and Ulster Counties. As shown in Table 3-56, there are approximately 2,838 retail establishments in the three counties, with sales of approximately $2.6 billion and almost 22,000 employees. The largest retail sector in terms of employment is eating and drinking places, with over 7,100, or 32.7 percent of all retail employees. The largest retail sector in terms of sales is food stores, with an estimated $669.1 million in 2000 sales.

Table 3-57 reports the same information as Table 3-56 for the study area. As shown in Table 3-57, the study area has an estimated 224 retail establishments, with over 1,000 employees and an estimated $107.6 million in sales. The study area includes about 7.9 percent of all retail establishments for the three counties, but only 4.8 percent of the total employees and 4.2 percent of the sales, indicating that the retail establishments within the study area are, on average, smaller than those in the tri-county area as a whole. As with the three counties, eating and drinking places are the largest retail employers, while the 26 food stores account for the greatest sales among retail sectors with an estimated $30.7 million. However, eating and drinking places account for a larger percentage of the total retail employment in the study area (34.6 percent compared to 32.7 percent for the three counties), and a larger percentage of total retail sales (17.8 percent compared to 12.9 percent for the three counties).

Table 3-58 displays estimated 2000 business data for service sector categories in Delaware, Greene, and Ulster Counties. As shown in Table 3-58, there are an estimated 2,099 service establishments in the three counties, with sales of approximately $1.2 billion and about 19,000 employees. The largest service sector in terms of employment is hotels and other lodging places, with over 10,730, or 55.8 percent of all retail employees.

The largest service sector in terms of sales is business services, with an estimated $516.9 million in 2000 sales.

Table 3-59 reports the same information as Table 3-58 for the study area. As shown in Table 3-59, the study area has an estimated 176 service establishments, with almost 1,100 employees and an estimated $78.6 million in sales. The study area includes about 8.4 percent of all service establishments for the three counties, but only 5.7 percent of the total employees and 6.4 percent of the sales, indicating that the service establishments within the study area are, on average, smaller than those in the tri-county area as a whole. As with the three counties, the largest service sector in terms of employment is hotels and other lodging places, accounting for 49.7 percent of total service employment in the study area. However, unlike the three counties, hotels and other lodging places also has the largest estimated sales of all services with $29.5 million, or 37.5 percent of the total sales for services in the study area. As might be expected, lodging and recreation services make up a higher percentage of overall service employment and sales in the study area than in the tri-county region as a whole.

3.10.2 Potential Impacts

3.10.2.1 Construction Phase

A. Introduction

1. Overview of Methodology

Construction of the Belleayre Resort at Catskill Park would result in considerable activity in the regional and New York State economies. Effects during construction would stem from the direct construction employment and spending from the project, as well as the secondary, or indirect, economic activity generated throughout the economy by the direct spending (often referred to as the "ripple" effect). This analysis examines the effect of the project in terms of employment, wages and salaries, and tax dollars generated during the projected eight-year construction period.

For this analysis, the method used for modeling the direct and indirect (or generated) effects of construction activity on the state's economy was the Regional Input-Output Modeling System, known as RIMS II, developed by the U.S. Department of Commerce, Bureau of Economic Analysis. The model contains data on 490 economic sectors, showing how each sector affects every other sector as a result of a change in the quantity of its product or service. The model based on recent data, has been further adjusted to reflect changes in the consumer price index. Using the model and the specific characteristics of the proposed construction of the Belleayre Resort, the total economic effect of the project has been estimated.

2. Construction Cost

The development of the proposed Belleayre Resort would be undertaken by the private investment of funds into the area. Based on preliminary estimates, the private investment for construction of Belleayre Resort is estimated to equal about $235.8 million (in 2001 dollars). This amount reflects the cost of physical improvements to the property, including site preparation and hard costs (actual construction), and design, legal, and related costs. The $235.8 million estimate therefore excludes other values (such as financing, the value of the land, marketing, etc.) not directly a part of the expenditures for construction. The total cost—including financing, the value of the land, management, initial marketing expenditures, and similar expenditures—would be substantially more.

In addition to direct expenditures for the construction of Belleayre Resort, construction expenditures would include amounts by third-party purchasers of the subdivided lots for housing construction. For the purpose of this analysis, these construction costs are assumed to average $250,000 and to total $5.25 million. Including these costs with those for the construction of Belleayre Resort, the total construction cost associated with the proposed project is estimated to equal about $241.0 million.

Table 3-60 provides a breakdown of the estimated construction costs for the proposed project among the various project components.

B. Economic Benefits

Jobs during the construction period for any particular component of the project would include many different specialty contractors, some employed for only a brief period and others, such as those employed by the general contractors, employed for most of the eight-year construction period. For this reason, jobs during the construction period are measured in "person-years." A person-year is the equivalent of one person working full-time for one year.

Table 3-61 presents an overview of the projected employment and economic activity in the region as a result of the construction activities for the proposed project. The table shows the estimated cumulative effects of the project investments over the eight-year construction period, and models the projected benefits on an annual basis. Table 3-62 presents the same information broken out by each of the major components of the project.

1. Employment

Based on $241.04 million in direct construction expenditures, the RIMS II model estimates that the Resort's capital program would generate demand for 2,114 person-years of employees over the eight-year construction period. As shown on Table 3-61, on average during the period the project would directly support approximately 264 person-years of employment annually.

In addition to the direct employment resulting from construction activities, the total employment resulting from construction expenditures includes jobs in businesses providing goods and services to contractors and workers, thereby resulting in the creation of indirect, or generated employment. As shown in Tables 3-61 and 3-62, based on the economic multipliers for the state's industrial sectors, construction would indirectly generate another 1,765 person-years of employment, or an average of 221 jobs annually. In total, the project's construction would create an estimated 3,879 person-years of employment, or an average of 485 jobs annually.

2. Wages and Salaries

The direct and indirectly-generated employment attributed to the construction activities would result in the creation of wages and salaries earned by the workers. Direct wages and salaries generated by the capital improvement expenditures are estimated at $81.09 million. The eight years of construction activities are expected to directly support wages and salaries valued at an average of $10.14 million per year. In total, including indirect and generated wages and salaries, construction of the proposed project is projected to have wages and salaries equaling approximately $145.49 million, or an average of $18.19 million per year.

3. Economic Activity

Based on the RIMS II model for New York State, the total economic activity, including indirect expenditures, is estimated at $451.08 million. This figure is a measure of the estimated output, or demand, for State industries, and expresses the amount of total effect of the proposed project on the economy in constant 2001 dollars.

Although construction of the proposed project is projected to have a substantial economic effect on the regional economy in southern New York State, it would be expected to have a positive, but more marginal, effect on the local economy within the NY Route 28 corridor. This is because the existing construction sector of the local economy is relatively small, with (according to the New York State Department of Labor) Delaware County's entire construction sector averaging 359 workers in 1999, and Ulster County's averaging 1,983. In addition, much of the existing construction in the local economy is oriented toward construction of single-family homes, as well as contracting for municipal and county governments on road, water and sewer, and similar project. The single-family homes component of the proposed project, as well as other portions of the project that would employ specialty trades that currently occur, but are underemployed locally, would be expected to have the largest local effect.

As a result, the economic effects (though not necessarily the fiscal effects) from construction of the proposed project would, to a large degree, not be localized but would occur throughout the regional economy in southern New York State. With the exception of those trade specialties mentioned above, construction workers would be expected to travel fairly long distances to work at the project site, as there are not enough specialized construction workers locally within Delaware and Ulster Counties. Vendors and

businesses serving the construction activities would also be expected to be drawn from a wide area. Construction activity is not permanent but is temporary; therefore construction workers would not be expected to relocate closer to the site. Rather, the construction workers and suppliers who would serve the construction activities would come from a broad area. Therefore, construction of the proposed project would not be expected to induce permanent growth in the construction industry at the state, county, or local levels.

C. Fiscal Benefits

Sales tax revenues would accrue as a result of the project's direct construction expenditures. In addition, sales taxes would be generated by indirect spending resulting from the construction project (e.g., workers' expenditures, secondary purchases made by direct suppliers, etc.). Further, construction activity generates for the state corporate and business taxes, personal income taxes, utility taxes, and other taxes and fees.

Based on the projected economic activity from the project and applicable tax rates, the sales tax revenues from the project have been projected for Delaware and Ulster Counties (the two counties in which construction is occurring) and New York State. Table 3-63 summarizes these fiscal benefits resulting from the construction project.

In cumulative figures, based on aggregate data and tax receipts for the New York State economy, it is estimated that upon completion of the proposed project, Delaware County would be projected to receive approximately $95,800 in construction-related taxes, and Ulster County would be projected to receive approximately $732,100. New York State would be projected to receive revenues equal to approximately $10.57 million. In total, upon completion, construction of the Belleayre Resort would generate an estimated nearly $11.4 million in direct tax revenues and approximately $4.95 million in indirect tax revenues for Delaware and Ulster Counties and New York State. Of these amounts, the largest portions would be derived from sales tax, personal income taxes, and corporate, business, and related taxes on the direct and indirect economic activity.

3.10.2.2 Operational Phase

A. Introduction

This section estimates the economic benefits of the Belleayre Resort's operations upon full completion of its development. It addresses the direct and indirect effects of Resort operations, the Resort's projected sales and real property tax effects, and the effects of visitors and guests.

The direct economic benefits of the Resort's operations would include direct employment, generation of wages and salaries, and gross revenues from operations. Annual tax revenues also would be generated from the operation of the Resort, primarily through personal income taxes paid by employees, as well as corporate and sales taxes paid by vendors. Direct economic benefits generate additional indirect economic benefits

as funds are re-circulated through the local and regional economy. In addition, the operation of the Resort would be expected to generate property tax revenues for Shandaken and Middletown Townships and their local school and other taxing districts. The Resort would also be expected to result in other, more qualitative, effects, as a result of its presence in the Catskills as an attractive destination for tourists and visitors.

While the analysis estimates the total, or cumulative economic effects of the Resort during full operation, the Resort would be built in phases over an eight-year period, during which completed elements would begin to generate economic activity. For the purposes of this analysis, all operations are assumed to begin only after full construction of the Resort's planned amenities. This is a more conservative approach to estimating future economic benefits, as it does not account for the economic benefits of Resort amenities that would be operational during the eight-year construction period.

B. Direct Economic Benefits

1. Direct Employment

Based on employment projections provided by Crossroads Ventures, LLC, it is estimated that the Resort would ultimately provide full-time employment to approximately 542 workers (see Table 3-64, below). Full-time employment opportunities at the Resort would span a wide range of career fields, from management positions at the Resort's hotels, to restaurant chefs and retailers. Given the seasonal nature of many of Belleayre Resort's planned amenities, it is projected that the Resort is also projected to hire approximately 330 seasonal and part-time workers. Most aspects of the Resort's operations would require additional workers during peak seasons, including golf-related activities as well as hotel and restaurant operations. Assuming that part-time employment averages 30-hours per week for a full year, while those employed seasonally work 40-hour weeks for 7 months of the year, the Belleayre Resort would directly generate an estimated 747 full-time equivalent positions when fully operational.

Data available through the New York State Department of Labor indicate that there are approximately 76,843 total employees in Delaware and Ulster Counties, including County residents and non-residents. According to the federal Bureau of Labor Statistics, these two counties contained an average labor force or supply (residents only) of 100,689 members in the year 2001.* Based upon the project proponent's commitment to enhancing the overall business climate and economy of the Catskill region, it is reasonable to assume that the Resort management would make every effort to hire for all positions from within this two-county region.

When complete, Belleayre Resort would represent one of the region's largest private sector employers, as it would employ nearly 1.0 percent of the total workforce. However, full-time employment demand is not anticipated to overburden the existing labor supply. Similarly, and moreover, part-time and seasonal workers would likely be drawn from

* ftp://146.142.4.23/pub/special.requests/la/laucounty.txt June 10, 2002.

existing labor markets which, as is common in resort communities, are comprised of workers who take on more than one part-time job during the course of the year.

In either case, the two counties contain a sufficient number of unemployed persons who may acquire jobs at the proposed Resort. Within the 2001 labor force, about 3,700 members were unemployed.** Of this amount, 1,573 were "experienced unemployed" persons, or those who receive unemployment insurance.*** In addition to these potential workers, workers who are currently employed may choose to pursue a job at the proposed Resort.

To estimate the size of the labor force that resides in the 15-zip-code study area along NYS Route 28, the proportion of each county's 2001 labor force was calculated as a percentage of 2001 total population. Applying the average (43.87) to the study area's 2000 population (10,552), a local labor force of 4,629 was estimated. Applying the average 2001 two-county unemployment rate of 3.9, approximately 181 persons were unemployed in the study area.

Local labor pools are expected to be larger than conventional data reveal, although precise estimations are difficult, if not impossible, to obtain. However, anecdotal information derived from interviews with labor analysts at the New York State Department of Labor indicate that unemployment data generally underestimates the true number of unemployed persons in any given labor market.**** One of the main reasons that this is the case is that unemployment data are derived principally from unemployment compensation rosters, and not all unemployed individuals apply for unemployment benefits. In addition, unemployment data do not include "under-employed" persons who hold part-time jobs and produce at less then their potential and/or desired capacity. These individuals represent a highly mobile segment of the workforce who are seen as ready, willing, and able to take stable jobs close to home. As noted in Chapter 2: Existing Economic Conditions, many Middletown and Shandaken-area workers commute long distances to jobs in Kingston, Oneonta, Delhi, and other employment centers. The commuting workers represent a volatile segment of the labor pool likely to change jobs in favor of a closer to home job. This assessment is confirmed by interviews with the Department of Labor and with leaders of community development organizations close to employment training and placement issues.* These individuals, plus the resident unemployed and "under-employed" are seen as a primary labor pool from which employees of the Resort will be drawn.

** Ibid.

*** Frank M. Surdey, Principal Economist, New York State Department of Labor. June 2002.

**** Frank M. Surdey, Principal Economist, New York State Department of Labor. June 2002.

* Telephone interview with M.A. Wiltse. Columbia-Greene Community College, Office of Employment and Training, June 12, 2002, and telephone interviews with Jennifer Gould, M-Ark Project, and Jane Todd, SHARP, June 17, 2002.

2. Direct Wages and Salaries

As shown in Table 3-65, the total Belleayre Resort payroll is anticipated to be approximately $20.5 million not including employee non-wage benefits. This estimate includes salaries from full-time employees and the average hourly wages of part-time and seasonal employees. As would be expected given the employment distribution described above, the hotel/lodging and restaurant components of the Resort's operations would have the highest total payrolls. Overall, the median annual wages per full-time-equivalent position at the Resort would be approximately $27,272, well above the 1999 average annual wages for both Delaware ($18,993) and Ulster ($23,220) Counties. Full-time employment would include a wide variety of positions, including hotel and restaurant management, waitstaff, room attendants, sales and marketing, property maintenance, and groundskeeping. The annual salaries for full-time employees would be expected to range from $16,390 for guest services to $150,000 for hotel executives and golf management. Around 15 percent of the full-time jobs could entail annual salaries of over $60,000. The largest proportion of jobs (almost 63 percent) would include an annual salary ranging between $20,000 and $30,000 not including employee non-wage benefits.

3. Projected Annual Revenues

The projected gross annual revenues that would be generated during full operation of the Resort is shown in Table 3-66. Overall, the Resort is projected to generate approximately $43.4 million in gross annual revenues.

C. Indirect Economic Benefits

1. Overview of Methodology

The discussion above examined the direct economic effects of the Belleayre Resort's annual operations and its projected employment of staff and purchase of goods and services. The following discussion projects the indirect economic effects of the Resort's operations.

Indirect economic effects are derived from two types of secondary economic activities. The first type, referred to as "induced" or "generated" activities, includes increases in employment and incomes created by successive rounds of spending. For example, the take-home income earned by Resort employees would be spent on food, housing, and other goods and services. Some of this spending translates into income for local businesses, business owners, and their employees. Part of these second round incomes are, in turn, spent locally and thus become income to another set of individuals. As successive rounds of spending occur, additional income is created. Since it is projected that a high proportion of the Resort's employees would be local residents, and since a high proportion of its expenses are incurred locally, this induced effect is expected to be

concentrated in the immediate area within Delaware and Ulster Counties, and within the Towns of Shandaken and Middletown, as well as in surrounding towns and villages.

For this economic evaluation, the model used to analyze this type of indirect economic activity was a Regional Input-Output Modeling System (RIMS II) model of Delaware, Ulster, and Greene Counties, developed by the U.S. Department of Commerce, Bureau of Economic Analysis. The model was developed for the project using the latest available data in November of 2000. Using the model and the projected direct permanent jobs, earnings and other direct spending at the Resort, the total annual, recurring economic effects of Belleayre Resort operations were projected. As noted below, however, the analysis presents an accurate, yet conservative estimation of employment-related effects since the latest employment projections for the Resort are somewhat higher than those upon which the RIMSII analysis is based.

The RIMS II sectors utilized for this analysis included hotels (Sector 72.0101), other lodging places (Sector 72.0102), membership sports and recreation clubs (Sector 76.0205), retail trade (Sector 69.0200), eating and drinking places (Sector 74.0000), and amusement and recreational services, other (Sector 76.0206).

The other type of secondary activities include those that originate entirely off-site but are attributable to the operations of the Resort. These activities include services provided to Resort visitors by local service and retail establishments. For example, visitors to the Resort that spend money at off-site businesses (e.g., gas stations, restaurants, lodging establishments, etc.) are considered to be creating an indirect economic impact because money generated from these expenditures would be dispersed into the local and regional economy. This type of secondary activities will be analyzed subsequently.

2. Employment

As shown in Table 3-67, based on a projected direct employment of 665 full-time equivalent employees, and the RIMS II model's economic multipliers, the Resort would be expected to generate another 211 jobs off-site within the Delaware/Ulster/Greene County Catskill region, bringing total employment to 876 full-time equivalent jobs*.

3. Wages and Salaries

Table 3-68 outlines the Resort's anticipated payroll (wages and salaries) at the project completion stage. Based upon the RIMS II model, the indirectly supported wages and salaries resulting from these direct earnings are estimated to be $7.43 million, bringing total wages and salaries to $26.24 million.*

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* The RIMSII calculation of indirect wages and salaries is based on June 2001 projections of direct wages and salaries totaling $18.81 million. As discussed in the sections above, the direct wages and salaries have been revised upwards $20.5 million, an increase of just under 10%. Consequently, the estimation of the indirect wages and salaries are conservative and underestimate the benefits of the project since the indirect employment and wages and salaries generated by the

4. Total Economic Impact

Table 3-69 summaries the Resort's projected total annual effect on the local economy, measured as economic output or demand for local industries. In these figures, as required by the RIMS II model, sales at the project's retail trade component are measured as "margin," or the local component of trade. Based upon the RIMS II model, the annual direct economic activity on site of $41.18 million would indirectly support off-site economic activity of $21.11 million, bringing the projected total annual effect of the project on the Delaware/Ulster/Greene County region to $62.29 million.

D. Fiscal Impacts

The proposed Belleayre Resort project would provide sales tax revenues to Ulster and Delaware Counties and the state, as well as significantly increase the market value of the property on which the project is located, resulting in an increase of the property's valuation, which is the basis on which property taxes are assessed. This section identifies the incremental fiscal benefits that would result from the proposed Belleayre Resort project in terms of increased tax revenues to specific taxing jurisdictions, and projects the likely annual sales tax revenue upon project completion. It also presents the existing property tax revenues generated by the land parcels that make up the proposed project site, and presents estimates of future property tax revenues generated by the Belleayre Resort once it is operational.

1. Sales Tax

The sales at the hotel, retail, and restaurant components of the project would provide sales tax to the counties and the state. Table 3-70 presents a summary of the Resort's projected annual sales tax revenue. Based on the projected sales, and the assumption that one-third of retail sales would be clothing items less than $110 that would be exempt from New York State and Delaware County sales tax (Ulster County does not have such an exemption), the estimated taxable sales and resulting sales tax are shown for each jurisdiction.

Ulster County is projected to receive more than $718,000 annually and Delaware County is projected to receive more than $238,000 annually, while New York State is projected to receive revenues of about $1.21 million annually. In total, sales tax revenues from the proposed project are projected at approximately $2.17 million annually. Based on the anticipated patterns of visitation (drawing from a wide area, including much of southern New York State), much of this revenue might not be new for the state, but rather would reflect revenues from purchases already occurring in the state that would be transferred to the site. However, based on the anticipated patterns of visitation, the vast portion of revenue would be new to Ulster and Delaware Counties.

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project would likely be greater than shown due to the increase in direct employment and wages and salaries.

2. Existing Property Taxes

The collection of land parcels that comprise the proposed Belleayre Resort project site are currently taxed based on existing value of the land and improvements made to that land. For property taxation purposes, the Middletown and Shandaken tax assessors define the project site as comprising land parcels totaling approximately 2,058 acres in size, with about 1,671 acres (81 percent of the total acreage of the proposed project) located in the Town of Shandaken in Ulster County, and the remaining 387 acres (19 percent) located in the Town of Middletown in Delaware County.

Based on real property tax and school tax bills for fiscal years 2000 and 2001, the property within Shandaken has an estimated current assessed value of $1,968,500 and generates a total property tax levy of approximately $107,096 per year. As shown in Table 3-71 below, this tax revenue is allocated to a number of different taxing districts. While all of the parcels provide tax revenues to Ulster County, the Town of Shandaken, and Shandaken Highways, parcels differ in their fiscal obligations to other jurisdictional districts depending on a parcel's location.

The approximately 387 acres of property located within the Town of Middletown have an estimated current assessed value of $945,181 and generate a total property tax levy of approximately $17,965 per year. Table 3-72 provides a breakdown of the tax revenues among taxing districts. Unlike the parcels in Shandaken, all the concerned land parcels within Middletown provide tax revenues to the same collection of taxing districts (listed in 3-72).

Between the two towns, the properties on which the proposed Belleayre Resort would be located have a total current assessed value of approximately $2,913,681, generating a total of about $125,061 in annual tax revenues. Of this amount, school-related taxes account for $67,219 or about 54 percent of the total tax revenue.

3. Future Property Tax Revenues with the Proposed Project

The proposed Belleayre Resort would include development of: Big Indian Plateau, a 5-star Resort vacation club with a 150-room hotel, detached lodging units, and country club; Wildacres Resort, including a 250-room hotel, conference center, detached lodging units, and golf club; Highmount Estates, a 21-lot subdivision for private homeownership; and a Wilderness Activity Center. These development components would add value to existing land parcels which would, consequently, add value to the real estate property tax base, resulting in higher property taxes generated by the Resort.

While real property valuation and assessment is ultimately the responsibility of local assessors, the estimates presented below were prepared in consultation with the Shandaken and Middletown Assessors and the New York State Office of Real Property Services. The first step in calculating future tax revenues was estimating a full market value for the Resort's planned components. Given the varied nature of the Resort's

amenities, several approaches were taken to assess full market value. For example, the estimate of full market value for the two proposed golf courses is based on a per-hole valuation rate of $160,000,* while the estimated full market value for other Resort components, including the hotels, detached lodging units, club houses, and conference center, was based on 60 percent of the cost of construction. The Highmount Estates subdivision was valued based on the full cost of the land and the projected cost of the homes that would be built on the land. Table 3-73 shows a breakdown of estimated full market value by project component.

Table 3-73 also displays the estimated assessed value that would be applied to each of the project's components. The assessed value is the basis for a municipality's tax base, and is calculated by applying the equalization rate of the municipality in which a property is located to the full market value of the property. The proposed Belleayre Resort project site is spread out between two municipalities—Middletown and Shandaken—which have different equalization rates. Therefore, the full market value of project components located within Shandaken were multiplied by Shandaken's equalization rate of 50 percent to arrive at an estimate of the assessed value. Middletown currently has a 100 percent equalization rate, so all project components on property located in Middletown are assessed at their full market value. In cases where a project component would fall within both towns, the full market value for the components was divided among the two townships in proportion to the percentage of a component's overall construction costs within each township. As shown in Table 3-73, the estimated total assessed value of the project is approximately $100 million, representing a 3,318 percent increase in the assessed value of the property compared to its existing value of $2.91 million.

New commercial development projects like the proposed Belleayre Resort are often provided a business investment exemption which shields a percentage of the new assessed value from taxation for a period of 10 years. Individual municipalities have the authority to waive the exemption, or vary the extent to which the exemption will apply to a particular project. The Middletown and Shandaken Assessors' Offices agreed that the full business investment exemption would likely apply for the Belleayre Resort. The exemption would provide a 50 percent deduction in the assessed value after the first re-assessment, with deductible amount decreasing by 5 percent each year for 10 years, after which the project would pay property taxes based on the full assessed value. The business investment exemption would apply to all taxing districts within the municipalities with the exception of fire districts.

The real property tax projections for the proposed Belleayre Resort project are shown in Tables 3-74 and 3-75. The tables show estimates of the future tax revenues, and summarize how these revenues would be apportioned among the taxing districts in which the proposed Belleayre Resort would be located. The tables also present the amount that tax revenues would be expected to increase each year for the first 10 years after

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* The $160,000 rate was provided by Laura Chase, Vice-Chair of the Greene County Assessors' Association. This rate was in the range of values suggested by the Middletown and Shandaken Assessor's Offices.

reassessment due to the decreasing tax shield provided by the business investment exemption.

The figures presented herein are preliminary, and the actual values and tax levies might vary, and would be determined from the assessments and the then-prevailing tax rates. The estimates presented assume that the New York State equalization rates for Shandaken (50 percent) and Middletown (100 percent), and that the tax rates for each district remain constant. Given the Belleayre Resort project's property within Shandaken is not uniformly taxed by the same taxing districts, the total assessed value of property within the town was distributed among taxing districts by the percentage of acreage currently falling within each district. For example, Town of Shandaken property tax records show that roughly 40 percent of the Belleayre property in Shandaken is within the Highmount Fire District. Consequently, for future tax revenue estimations, 40 percent of the total assessed value of the property within Shandaken was allocated to the Highmount Fire District.

These taxes would incrementally increase each year throughout the proposed construction period as new buildings come on line and are valued by the Shandaken and Middletown Assessors for property taxation purposes. It has been the practice of both towns to re-appraise land parcels as they are improved.

As shown in Table 3-75, the estimated future tax revenues generated by the Belleayre Resort project in Shandaken would total approximately $1.61 million, or about $1.50 million more than currently generated by the properties. Of this amount, Ulster County would receive over $200,000 through general taxes. The Onteora Central School District would receive approximately $794,000 in tax revenues from the project (a 1,545 percent increase over current revenues), while the Margaretville School District would receive almost $124,000 annually (a 1,053 percent increase). In addition, with the exception of fire districts, the revenues would increase every year for the first ten years as shown.

Table 3-76 shows that the estimated future tax revenues generated by the Belleayre Resort project within Middletown would total approximately $544,500, or about $526,500 more than currently generated by the Middletown properties. Of this amount, Delaware County would receive approximately $163,500 through general taxes. Margaretville School District would receive approximately $244,000 in tax revenues from the project, an increase of about $235,900 compared to current revenues.

Overall, it is projected that the proposed Belleayre Resort project would generate approximately $2.15 million annually after reassessment, with this amount increasing by about $126,500 each year for ten years. The $2.15 million in tax revenues represents a 1,620 percent increase over the current tax revenues of approximately $125,000. School districts within the towns would collectively receive approximately $1.16 million annually.

E. Effects of Resort Visitors and Guests

This section discusses how the anticipated users and visitors of the Resort might contribute to economic activity in the region. It examines the characteristics of the prospective Resort visitors, projects their numbers, and estimates their expenditures while in the region. The projections made in this section are derived primarily from data provided by Crossroads, L.L.C, with econometric and analytical information provided by industry, government, and academic sources. The estimation of visitor numbers and economic activity is an inexact science, and the assumptions, approximations, and conclusions contained herein are based upon available studies and sources of information describing comparable economic and consumer behavior.

1. Projected Resort Visitation

The proposed Belleayre Resort would generate new visitor trips into the NY Route 28 corridor area as a result of the timeshare and vacation club units, hotel accommodations, and on-site amenities offered by the Resort. The visitors attracted by the Resort would generate economic activity on account of their purchases of goods and services as they acquire supplies, meals, and souvenirs, and as they travel to and from, as well as within, the Resort's region. The economic activity generated on-site is accounted for in the economic analysis of the Resort's operations described earlier in this section. These on-site revenues result from visitor expenditures for Resort goods and services, including hotel rooms, food and beverages, recreational fees (e.g., greens fees), and other purchases, such as spa services and pro shop purchases.

The proposed Resort is expected to attract into the study region timeshare owners/club members and parties that use timeshare units through a rental or exchange service. The Resort would also attract overnight and weekend visitors lodging at the Resort's hotels. In addition, the Resort's amenities would attract day visitors, including tourists and recreational users coming to the Resort to enjoy on-site and/or off-site amenities, such as the championship golf courses.

In addition to newly-attracted visitors, the existing population of Catskill residents, as well as seasonal residents and weekend and day visitors to the Catskills, would find the Resort's on-site amenities an attraction, and would be expected to make on-site purchases, thereby contributing to revenues and to overall regional economic activity. These parties would be expected to include visits to the Resort among their leisure time activities. In particular, the Resort's golf courses, restaurants, retail outlets, and spas would be expected to draw from the existing population of Catskill visitor parties. While these existing parties currently contribute to the Catskill economy, the proposed Resort's amenities (restaurants, golf courses, etc.) would likely induce additional spending on their part, thereby generating additional economic activity for the region.

Due to the uniqueness of the facilities at the Resort—especially the timeshare and high-end vacation club units, championship golf courses, and array of restaurants—the Resort

would attract a significant new visitor population into the study area. These visitors are described below.

2. Timeshare and Vacation Club Visitation

Timeshare Visitation

The Belleayre Resort would establish timeshare ownership opportunities. At this point in time, few comparable timeshare vacation opportunities exist within the New York metropolitan area, with Villa Roma in Calicoon, Sullivan County, being the closest; other timeshare opportunities exist in the southern Berkshires of Massachusetts.

Timesharing enables individuals to purchase vacation resort properties, often in the form of attached dwelling or townhouse-like units, in intervals of one or more weeks per year. The property is divided along the time dimension, enabling purchasers to acquire a unit for a specific period or amount of time.

Typically, timeshare units are placed in a pool of comparable units located in other geographic areas, nationally or internationally. Timeshare owners receive an exchange privilege through which they exchange their unit intervals for intervals in comparable timeshare units elsewhere, enabling them to travel widely among attractive vacation locales. The Belleayre Resort anticipates a timeshare management structure to enable this sort of exchange. The exchange system would assure a higher rate of unit occupancy throughout the year, and would introduce into the region a continuous stream of new visitors, possibly from distant geographic areas who are unfamiliar with the Catskill territory and its visitor amenities.

The proposed Belleayre Resort timeshare units would consist of 168 two-bedroom units in the Wildacres Resort section of the development. Each unit would be available to prospective timeshare unit purchasers on the basis of 50 one-week. The average timeshare interval purchaser is expected to acquire two one-week intervals (resulting in an estimated 25 owners per unit). As projected by Crossroads, L.L.C, and as shown in Table 3-77, there would be an expected 4,200 individual owners acquiring a total of 8,400 intervals, yielding gross timeshare interval sales revenues of approximately $100.8 million. In addition, 50 of the 250 rooms/suites at the Wildacres Resort Hotel would be 2-3 bedroom units with kitchens. If there is market demand, these 50 lodging units could be sold as timeshare units, thereby adding to the number of timeshare opportunities offered at the Resort. For the purposes of this analysis, however, they are considered as hotel units.

Timeshare visitors and Big Indian Country Club members would be attracted to Belleayre Resort on account of a combination of the Resort amenities and off-site amenities. Belleayre Resort would provide many visitor amenities that are aimed at its timeshare visitors, particularly its on-site dining opportunities and golf courses. But the Resort would also provide an important and high-quality jumping-off point for visitors to

explore the greater Catskill region, and to sample the outdoor recreation, cultural, shopping, and dining amenities that the region has to offer.

According to RCI Consulting, Inc., a leader in timeshare ownership and management, it is estimated that the Resort's two-bedroom units would have an expected occupancy rate of 85 percent, or 310 nights per year, and it is anticipated that an average of 3.5 persons would occupy each 2-bedroom unit per visitor stay (an overnight visit). At this rate, there would be a total visitation of 182,280 persons per year, or a total of 52,080 visitor parties (see Table 3-77).

Vacation Club Visitation

In addition to the timeshare units available at the Wildacres Resort, the proposed project would include 183 luxury detached lodging units available to members of the Big Indian Country Club. These units would include 35 four-bedroom single family detached resort units and 20 three-bedroom triplex units at Big Indian Plateau, as well as 22 two-bedroom quadplex units at Belleayre Highlands. These detached lodging units would be operated by the hotel as a high-end vacation club, which is distinct from a timeshare management concept. As a resort club, the units would be sold on a membership basis. Unlike the timeshare management system, the high-end vacation club members would acquire fractional ownership shares (membership shares) of their units, ranging from 10 percent, or five-week shares, to 25 percent, or three-month shares, versus the one-week intervals comprising the timeshare ownership units.

The club membership system is designed to accommodate members who generally experience longer stays at the Resort. It enables members to enjoy a higher degree of luxury and obtain special privileges available only to club members, including reduced greens fees at the Big Indian Country Club. Members would be expected to consider their fractional ownership share—up to three months or longer, in some cases—as the equivalent of vacation or seasonal home ownership. Club members would not be expected to rotate their vacations among differing club or timeshare locations on a formal, contractual basis as would timeshare owners.

Club members, would, however, be expected to rotate their vacation time among more than one seasonal home, with an additional seasonal home being in the form of another vacation club membership, or as a more traditional vacation home or condominium. As seen in the case of nearby Windham, many vacation condominium owners in this Catskill locale also have a third vacation home in a distinctly different geographic location, such as at the beach or in a Southern state, such as Florida.

As shown in Table 3-78, the number of individual owners per unit is distinctly less than that of the timeshare units, resulting in a greater sense of "ownership." Further, the members' investment in their ownership share would be considerably greater than that of the timeshare unit owner.

According to interviews conducted with real estate brokers in the NY Route 28 corridor region, the proposed cost of Big Indian Country Club membership compares favorably with the expense of purchasing a traditional seasonal vacation home in the Catskills. According to interviews with Jeff Prince, a Village of Hunter-based real estate broker, and with Eric Wiedemeier, of Caldwell Banker, in Delhi, both of whom have extensive experience in seasonal and residential sales in the Catskill mountain region, the majority of the single-family homes on the market in the region fall within the $100,000 to $500,000 price range of Big Indian Country Club interval ownership interests.*

The Big Indian Country Club, however, would offer prospective vacation property buyers a choice that the region presently does not offer. Traditional seasonal home owners become property managers and acquire a year-round set of responsibilities attendant to home ownership. This, combined with the investment potential and the complete independence to visit and remodel, has been, in fact, a motivating reason for traditional seasonal home ownership. Club membership, on the other hand, appeals to a vacation home market segment that prefers the luxury of leaving maintenance to another, and wishes to partake of the leisure of a club atmosphere. In this sense, the Big Indian Country Club offers a truly unique vacation product that does not compete with the traditional second home market in the region. It would, however, attract into the region a vacationer currently not present in the area due to the absence of comparable opportunities.

Based upon RCI Consulting's timeshare and high-end vacation club research, the Wildacres timeshare units, as well as Big Indian Plateau and Belleayre Highlands club membership units, would be expected to be occupied by vacationing families and their guests at the rate of 6.0 persons per four-bedroom unit, 4 persons per three-bedroom unit, and 3.5 persons per two-bedroom unit. As shown on Table 3-78, based upon the number of units, projected occupancy rates, and average number of occupants per unit, an estimated 435,860 persons would stay at the timeshare and Club interval ownership units per year. This results in a total of 108,810 individual visitor parties utilizing the timeshare and membership club units.

Due to the luxury nature, the targeted marketing thrust, and the larger interval ownership percentage (e.g., investment) per unit, Big Indian Country Club members would be expected to stay at the Resort property for longer periods of time, and, as mentioned earlier, they would view their interval ownership units as though they were seasonal homes. As a result of their longer anticipated stays, Big Indian Country Club members would be expected to purchase staples, such as groceries , for example, and it could be expected that many would make regular purchases of daily necessities, such as clothing, newspapers, and magazines. Due to their more settled vacation pattern, however, Club members would be expected to prepare food for themselves on a regular basis, and would eat out at restaurants less frequently. They would, though, be expected to seek sophisticated dining opportunities when they did dine out.

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* Interviews conducted November 30, 2000, and June 14 and June 17, 2002.

In contrast to Club members, Wildacres' timeshare owners and exchange visitors would generally be expected to have shorter vacation visits, and many of the exchange visitors would include one-time visitors. Timeshare visitors, in general, would be reliable purchasers of recreational experiences, and would be likely to rent or buy sports and outdoor equipment, pay entrance fees, and participate in the region's offerings. Many of these purchases would be made on-site, as one of the major attractions to the Resort would be the championship golf courses. Many timeshare owners and exchange visitors buy into a timeshare arrangement specifically to sample golf courses and enjoy on-site Resort amenities, such as swimming pools, tennis courts, restaurants, and spa facilities. Timeshare visitors would be expected to dine out at on-site restaurants, with occasional ventures to off-site restaurants, and would be expected to only occasionally prepare meals in their timeshare units. Exploring new regions and shopping for local crafts, artwork, and souvenirs would be an expected activity of timeshare visitors.

As is typical in the timeshare industry, Wildacres' Resort's timeshare and Big Indian Country Club membership units would be fully furnished. Consequently, the individual share owners or Club members would not be likely to make purchases of furnishings (furniture, carpets, etc.). The shared nature of the individual units among share owners or members would reduce the likelihood that individuals would be making significant purchases to decorate or otherwise personalize their units. By the same token, all physical aspects of the units would be overseen by the Resort management, making it impossible for individual owners to modify, expand, or otherwise improve their units. Therefore, share owners or club members would not be expected to purchase major appliances or home improvement services.

Industry surveys conducted by RCI Consulting, Inc. suggest that the occupants and owners of these units would be expected to have a median age of 51 years, with nearly 42 percent being under 50 years of age. Their median income would be $71,000, yet nearly 24 percent of them would have a median income over $100,000. Timeshare purchasers would predominately be married couples (88 percent), and nearly 26 percent would have children under the age of 18.

According to RCI, and corroborated by comparable vacation research conducted by Donald Stynes, of the University of Michigan, individual visitor parties likely to become Wildacres timeshare owners and Big Indian Country Club members would be expected to spend, on average, $170 per day while vacationing in their timeshare or club membership unit, regardless of the size of the individual party. The average expenditure reflects smaller parties spending more per person, primarily because of more frequent restaurant visitation, and larger parties spending less per person, primarily because of less frequent restaurant visitation. Further, larger visitor parties would be expected to include younger children, who would represent sources of lower expenditures per person.

Given the relatively captive nature of timeshare and vacation club members, the anticipated expenditure patterns for timeshare and vacation club members would suggest that the Resort complex would absorb the majority of the visitors' spending. The timeshare and club member spending for on-site meals, recreation, and other amenities,

such as spas, is included in revenue projections for proposed on-site facilities, and was analyzed in previous sections of this section.

A review of vacationer expenditure research by Stynes, D.K. Shifflet, Inc., and others indicates that off-site spending would primarily be expected to involve purchases of gas and oil, recreational fees for off-site attractions, occasional groceries and liquor, newspapers and magazines, and souvenirs. In addition, these visitors would be expected to purchase antiques or other items unique to the Catskill region, particularly crafts and artwork, the purchases of which would likely occur off-site. Considering the captive on-site purchases and the anticipated off-site purchases, it is estimated by Allee King Rosen & Fleming, Inc. for the purposes of this analysis that approximately half, or 50 percent, of timeshare owner and vacation club member spending would occur off-site.

Assuming that half of the spending of timeshare visitors and Big Indian Country Club members would occur on-site, and half off-site, Table 3-79 shows that these visitors would account for an estimated $9.2 million of on-site purchases. It could be expected that the primary on-site expenditures made by these visitors would be for restaurant meals, golf fees, and other miscellaneous on-site purchases, including spa services, pro shop purchases, and items purchases from on-site retail outlets. A like amount, approximately $9.2 million, would be spent off-site by timeshare and Big Indian Country Club members. As described above, consumer expenditure patterns suggest that the primary off-site expenditures by these visitors would primarily be for restaurant meals, groceries, gas and oil, local shopping, including souvenirs, and fees for recreation and cultural activities.

3. Hotel Visitation

Accompanying the timeshare units and the Big Indian Country Club membership units would be 400 hotel rooms and suites. These overnight lodging accommodations would be divided between the Big Indian Resort and Spa at Big Indian Plateau, and the Wildacres Resort. These lodging facilities would be expected to draw overnight and weekend visitors coming into the Catskills to enjoy the Resort's golf courses, ski at the adjacent Belleayre Mountain Ski Center, and to enjoy the natural and cultural resource opportunities in the surrounding area. The Resort is also expected to attract overnight and weekend visitors seeking a relaxing and luxurious resort experience, including in their stays visits to the spa, restaurants, health clubs, pools, and other visitor amenities.

Big Indian Resort and Spa, associated with the Big Indian Country Club, would consist of 150 rooms and/or suites. The hotel would be closely tied into the Big Indian Golf Course, and would house two restaurants of 150 and 75 seats, a 50-seat bar, a spa with 15 treatment rooms and pool, meeting rooms, a pro shop, and locker rooms. The hotel's guests would be expected to be drawn primarily from golfers and parties looking for a top quality resort hotel experience.

Wildacres Resort, which would be closely associated with the adjacent Belleayre Mountain Ski Center, would consist of 250 rooms located immediately across from the

main entrance of the ski area. As discussed above, 50 of the units in the hotel would be 2 - 3 bedroom suites, complete with kitchen facilities. Should there be market demand, these 50 units could be available on a timeshare basis. This hotel would house two restaurants of 150 and 300 seats, a beverage lounge seating 100, and up to 13,000 square feet of Resort-related retail shops. The retail elements would be expected to include a news/smoke shop, general gifts, men's and women's clothing, outdoor outfitter, sporting goods, crafts, a fine arts gallery, and a local chamber of commerce/regional information outlet. In addition, the hotel would contain an interfaith chapel, a full service spa with lap pool, a conference center with a 500-seat ballroom/auditorium, a 200-seat ballroom, meeting rooms, and a facility-wide laundry. The Wildacres Resort Complex would also include an indoor pool, two outdoor tennis courts, a Children's Center, and access to an upscale restaurant of 150 seats at the adjacent Marlowe Mansion.

The Belleayre Resort would be designed as a destination resort, with its two high-quality on-site championship golf courses, first-rate restaurants, spas, and other amenities, all set in the splendor of the Catskill Mountains. Additionally, the surrounding Catskill region offers its own set of attractions and amenities, including the Belleayre Mountain Ski Area, hiking trails, and other tourist-related elements. The Resort's lodging opportunities would be expected to attract overnight and weekend visitors wishing to enjoy this rich range of opportunities and activities. The hotel and lodging facilities at the Resort would be expected to serve visitors attracted primarily to the Resort's facilities or the adjacent ski area, and secondarily to the amenities offered in the surrounding Catskill region.

As discussed above, the timeshare and high-end vacation club units would provide lodging opportunities for club members, timeshare owners, and timeshare exchange visitors managed through a national, if not international network of affiliated interval ownership facilities. The resulting projected occupancy rate, as discussed earlier, would be in the neighborhood of 85 percent for these units. The high occupancy rate is partially accounted for due to the somewhat captive nature of the timeshare owner/club member, who has made an investment in the unit or the timeshare/vacation exchange system, and is therefore committed to utilizing detached lodging units found within the network. Given this commitment, the timeshare owner is expected to be more likely to use their unit or participate in an exchange, and would be therefore less likely to book a stay at a hotel.

The clientele of the hotels , however, differ from the timeshare owner/club member in the sense that they have not made a similar investment in interval ownership or club membership, and would therefore be somewhat more freely selective about their weekend and short-term vacation destination and lodging choices: they would not be compelled by investment in a timeshare unit or exchange network to stay within the network. Consequently, the hotel facilities would be expected to have frequent turnover and would have to compete with all other similar facilities to attract visitors. The proposed Belleayre Resort amenities would likely give the Wildacres Resort and Big Indian Resort and Spa facilities a dramatic competitive advantage over other lodging choices throughout the Catskill region. Nonetheless, the year-round occupancy rates of the hotel enterprises would not be expected to reach the levels of the timeshare and club

membership units. According to Crossroads, L.L.C, the projected average year-round occupancy rates of the overnight hotel facilities at the Resort are expected to be 60 percent for Big Indian Resort and Spa, and 70 percent for Wildacres Resort.

Further, whereas the timeshare and vacation club membership units are anticipated to favor family visits, with average overnight visitor parties ranging from 3.5 to 6 persons in size, the hotels are expected to accommodate visitors arriving as smaller family units or couples. For the purposes of this analysis, Allee King Rosen & Fleming, Inc. calculates the average size of hotels parties at 2.0 persons. Given these factors, Table 3-80 estimates the overall visitation rates of the hotel lodging units proposed for Belleayre Resort.

On-site expenditures of hotel guests for food, lodging, recreation (e.g., golf), souvenirs, and other goods and services are reflected in the revenue projections of the various Resort components discussed previously in this section. Allee King Rosen & Fleming, Inc. assumes for the purposes of this analysis that an average visitor party daily expenditure would be approximately $100 per day, excluding lodging expense, and further assumes that 75 percent of the visitor spending would occur on-site by hotel guests. The remaining 25 percent of expenditures are expected to be incurred off-site. Table 3-81 estimates the overall off-site expenditures of these visitors. Vacation consumer behavior surveys by D.K. Shifflet Associates and others indicate that the offsite expenditures, estimated at $2.42 million, would include shopping in the local area (antiques, crafts, etc.), restaurant meals, gas and oil, recreational fees for off-site amenities, and cultural attractions.

4. Highmount Estates

The Highmount Estates component of the Resort complex would consist of 21 detached single-family residences that would be built by purchasers of the lots within the subdivision. This element of the proposed project would represent the only private home ownership option available to Resort clients. The homes projected to be constructed on the lots would be high-quality lodge-style buildings averaging four bedrooms, with an estimated construction cost of at least $250,000. These homes would be built by individuals seeking to enjoy the amenities offered at the Big Indian Country Club, Wildacres, the Belleayre Mountain Ski Center, as well as the greater Catskill region. Seasonal home owners would differ from club members and timeshare owners in the sense that their preference would be to own a more traditional stand-alone seasonal vacation home.

Unlike the other overnight lodging opportunities at the Belleayre Resort, which would be managed to attain high occupancy levels through a timeshare or club membership exchange network, Highmount Estates occupancy would be completely dependent upon the vacation schedules of the individual home owners. As is seen among the established community of high-end seasonal home owners in nearby Windham, the Highmount Estates homes would likely be vacant when the owners are not in occupancy. Further, based on the case study research conducted by Allee King Rosen & Fleming, Inc on the

Windham high-end seasonal home market (Chapter 6 in Appendix 26, "Economic Benefits and Growth Inducing Affects"), it is anticipated that each home would be occupied for approximately 12 weeks per year, representing an approximately 25 percent occupancy rate on an annualized basis (see Table 3-82). Highmount Estates owners would be expected to use Highmount homes during ski season, and during prime golf months. As a result, the anticipated 12 weeks of occupancy would occur in several blocks of time, including occasional weekends, spread throughout the year. The estimation of 12 weeks per year exceeds the national average of 27 days (3.8 weeks) per year determined by the Opinion Research Institute, and reflects the high-end quality of the proposed seasonal homes and an anticipated higher income and the correspondingly liberal leisure time and discretionary income profile of anticipated Highmount Estates owners.

In addition, reflecting the high-end nature of these properties and the experiences noted in the case study sites, Highmount Estates homeowners could be expected to have another vacation home, either owned outright, or in the form of a timeshare or club membership, in another location, most likely in a coastal setting.

As seasonal home owners, the owners of homes at Highmount Estates would be expected to stock their homes with foodstuffs while in residence, and it would be expected that they would prepare a significant proportion of their meals for themselves. However, like Big Indian Country Club members, Highmount Estates home owners would be expected to frequent quality restaurants, such as those proposed for Belleayre Resort, on a regular and recurring basis. Although the Highmount Estates owners would be independent of the timeshare and club membership networks, they would likely consider themselves Resort patrons, and enjoy Resort facilities to the extent permitted by their relationship to the Resort. Highmount Estate homeowners would be expected to make local and regional purchases to fully furnish their homes with the full array of furniture, carpeting, and other home decorations.

Based upon research conducted by the U.S. Census Bureau, the anticipated median age of buyers of Highmount Estates-type properties would be 52. According to research prepared by the National Association of Realtors and Prudential Real Estate Advisors, those second home buyers with an average age range of 36 through 54 without children at home would represent the largest number of prospective buyers, and approximately 79 percent would be expected to be married couples. Given this profile of the anticipated Highmount Estate homeowner, Allee King Rosen & Fleming, Inc. estimates that the visitor parties residing here would, therefore, be expected to have an average size of 3.5 persons.

Visitor parties anticipated to vacation at their Highmount Estates homes would be expected to have consumer behavior patterns similar to those of similar seasonal home owners in other resort areas. National research conducted by the University of Michigan (Stynes, et. al.) indicates that second home owners in mountainous vacation areas could be expected to spend from approximately $120 to $212 per day, per visitor party, or an average of $166 per day. Their gross purchasing behavior is similar to the $170 per

visitor party per day as estimated by RCI Consulting, Inc. for timeshare residents of Wildacres, Big Indian Country Club members, and Belleayre Resort hotel visitors.

However, unlike timeshare, vacation club, and hotel visitors, the Highmount Estates parties would represent the least captive group of Belleayre Resort visitors. This group would likely be more mobile, and, in the manner of seasonal home owners everywhere, would be more likely to consider themselves Catskill seasonal residents rather than Belleayre Resort visitors. The consequent economic effect is that Highmount Estates residents would make a considerably greater proportion of their expenditures outside of Resort facilities. Certain purchases would be made off-site by necessity, as groceries, for example, would not be available on-site. But other off-site expenditures, such as occasional meals, would be made as these seasonal home owners endeavored to integrate local flavor and color into their vacation lifestyles. Nonetheless, it could be expected that Highmount Estates residents would frequently use the Highmount and Big Indian golf courses, and dine at Resort restaurants on a regular basis. In sum, it is estimated by Allee King Rosen & Fleming, Inc. that approximately 60 percent of the Highmount Estates visitor-party spending would occur off-site. The estimated off-site spending is presented in Table 3-83. The 40 percent on-site Resort spending (approximately $0.13 million) is reflected in the revenue analysis presented previously in this section.

5. Conference Center

The proposed Wildacres Resort conference facilities would host an estimated 100 conferences and meetings annually, with approximately 120 persons attending each conference. These conference visitors are expected to be day and overnight visitors to the Resort. Conference visitors generally are captive to the conference location, and would be expected to enjoy the on-site facilities and amenities, including especially the restaurants and golf courses. All overnight conference visitors would be expected to lodge on-site. During winter, however, it would be anticipated that a certain number of conference planners would include free time in their conference and meeting schedules for conference visitors to enjoy the adjacent Belleayre Mountain Ski Center. The presence of the ski area and the on-site amenities, such as golf, are expected to make this conference location competitive with other non-urban conference locations within the Greater New York City-Albany metropolitan region.

The revenues generated by the conference center, as well as the on-site expenditures of conference visitors are reflected in the revenue projections for the conference center, hotel, restaurant, golf, and other facilities provided on-site, as discussed previously in this section. Further, due to the captive nature of conference visitors, the effect of conference visitors on businesses in the study area is anticipated to be negligible.

6. Wilderness Activities Center and Children's Center

Belleayre Resort would feature a Wilderness Activities Center based at the former Highmount Ski Area. The four-season facility would offer programs in outdoor education, environmental workshops, and organized outdoor activities, including

mountain biking, hiking, cross country skiing, and rock climbing. The center is intended to appeal primarily to young adults vacationing with parents. However, the activities would be open to all age groups, and corporate retreats and challenge courses also would be offered through the Wilderness Activities Center.

The Wilderness Activities Center's clientele is expected to be drawn largely from families already vacationing at the Belleayre Resort, and is not anticipated to generate a substantial customer base as a stand-alone attraction. Therefore, the incremental effect of the Wilderness Activities Center on businesses in the study area is anticipated to be negligible.

Wildacres Resort would include a Children's Center, offering a range of programs and activities for children from toddlers to teenagers (up to age 15). The children participating in the Children's Center's activities are expected to be drawn entirely from within the overall Resort complex. The Center is an amenity offered to families staying at the Resort. Such features are an integral part of marketing for a family-oriented Resort.

7. Restaurant Visitors

The various club house and lodging facilities at Belleayre Resort would feature a wide range of restaurant and dining options for Resort visitors and the public. It is anticipated that the majority of the customers of the Resort's restaurants would be drawn from on-site hotel and timeshare visitors, Big Indian Country Club members, as well as from day visitors to the Resort's golf courses and Belleayre Mountain Ski Center visitors. In addition, the Resort's restaurants are expected to draw from among Catskill day visitors, seasonal overnight visitors (e.g., Highmount Estates home owners), and residents of the Catskill region.

The proposed Belleayre Resort complex would include a total of 11 new dining facilities, with a combined total of 1,120 restaurant seats, as shown on Table 3-84. The restaurants would range from snack bars, as proposed for the Brisbane (Turner) Mansion at Belleayre Highlands and the Highmount Golf Club, to high-end restaurants, as proposed for the Marlowe Mansion and Big Indian Resort and Spa. The economic effects of the restaurant revenue and employment is accounted for previously in this section.

8. Summary of Effects of Resort Visitors

As described above, the primary effects of visitors to the proposed Resort result from two sources of visitor spending: on-site spending (meals, recreational fees, lodging expenses, etc.), and off-site spending (purchases of goods and services). Wildacres timeshare owners, Big Indian Country Club members, hotel visitors, and Highmount Estates home owners are the primary groups of visitors expected to generate off-site spending.

Table 3-85 summarizes the combined annual off-site spending by the primary visitor parties to the Belleayre Resort. The anticipated on-site spending, totaling an estimated

$16.59 million, is accounted for in the analysis of the Resort facility revenues earlier in this section. The off-site spending would occur throughout the NY Route 28 corridor, most particularly in the village and hamlet centers where businesses and shops are concentrated.

The overall breakdown of Belleayre Resort visitors' off-site spending is shown in Table 3-86. The estimated $11.81 million spent by Resort visitors is expected to primarily be spent at area restaurants, recreational facilities, stores and shops, and for purchases of gas and oil. These estimates are based on composite averages of spending behavior of timeshare owners, seasonal home owners, golfers, and overnight visitors to resort regions.

3.10.3 Mitigation Measures

No mitigation measures are required since all identified impacts are positive. **Municipal revenues generated by the project will greatly exceed any costs from the limited increase in demands imposed on service providers.**

3.11 Cultural Resources

3.11.1 Existing Conditions

A Stage 1A Literature Review and Archeological Sensitivity Assessment was prepared for the project in March 2000. A copy of the Phase 1A report is included in Appendix 23, "Stage 1A and Stage 1B Cultural Resources Investigation."

The Stage 1A report did not identify any known archeological sites or any sites on the State or National Registers of Historic Places on the project site.

Three resources on the project site were identified as having potential historical significance. These were (1) the Turner/Brisbane Mansion and associated caretaker's house, gate and carriage barn, (2) the Marlowe Mansion, and the (3) Leach farmhouse and barn on Galli Curci Road. The Stage 1A report also identified some other resources off the project site as having potential historical significance.

The Stage 1A report was submitted to the New York State Office of Parks Recreation and Historic Recreation for their review (OPRHP). The three resources described above were determined to be eligible for listing on the State and National Historic Registers of Historic Places. OPRHP concurred with the findings and recommendation of the Phase 1A report that Phase 1B testing should take place on those areas of the project site that both would be disturbed as part of the project plans and have potential for containing archeological resources.

A Stage 1B Cultural Resource Survey was prepared for the project in August 2001. A copy of the Stage 1B report is included in Appendix 23. Testing for the Stage 1B survey was done in accordance with the testing plan described in the Phase 1A report and approved by OPRHP.

The Stage 1B report and supporting letter report were submitted to OPRHP for their review. The Stage 1B report identified a number of features with potential for historical or archeological significance. The majority of the resources identified are 20th – century sites. Based upon these identifications some minor modifications to the project layout and grading plans were made in order to avoid impacting some of the identified resources. OPRHP's review of the Stage 1B materials led them to state "OPRHP has no further issues regarding project ground disturbance and archeology: additional archeological study is not warranted." (See Appendix 23.)

In January 2002 additional Phase 1B field reconnaissance work was performed for the area of the proposed employee parking area off of Lasher Road. No historically significant archeological deposits were discovered, and it was deemed that no further archeological investigation is warranted. A copy of the February 2002 report for this area is included as an addendum to Appendix 23.

OPRHP also is also reviewing the project from the standpoint of its potential affects on the three resources identified in the Stage 1A report as having met the criteria for inclusion in the State and National Registers of Historic Places. In its April 11, 2002 letter, OPRHP stated that "the OPRHP does not have substantial concerns regarding potential impacts to existing historic resource." …."it is noteworthy that the mansions and the outbuildings would not suffer losses to the integrity of their setting. …. Although a substantial project is planned for the mountainside, the use of local materials, low building heights, and judicious site selection have minimized negative impact to the properties to a great extent. It was noted that the design has utilized available space and plant materials to help screen the project from the new development." See Appendix 6, "Letters of Record".

3.11.2 Potential Impacts

Cultural resources may potentially be disturbed when constructing the utility trench for lot 21 of the Highmount Estates subdivision. This was identified as the P. Robison site in the Stage 1B report.

Development of the proposed project and adaptive reuse of the Brisbane (Turner) Mansion, the Marlowe Mansion and the Leach farmhouse and barn could potentially impact the historical character and context of these register-eligible structures.

Resources identified in the Stage 1B report which have been avoided by plan revisions could potentially be impacted if not protected from construction vehicles that could stray outside the proposed work limits or area of potential affect (APE).

3.11.3 Mitigation Measures

1. Excavation of the utility trench along the proposed driveway designed to avoid known resources within lot 21 of the Highmount Estates subdivision (P. Robison site) will be monitored by a qualified professional archeologist.

2. The Leach farmhouse and barn will remain on a separate lot within the Highmount Estates subdivision. Any repairs to these structures will maintain the historical character of the buildings.

3. Resources identified in the Stage 1B report that are in proximity to the proposed limits of work shall be protected with orange construction fence and proper exclusion signage prior to beginning construction in the vicinity. Locations where this mitigation measure will be implemented include Dump #3 near the Turner Mansion, the Monroe ice house, and the Monroe carriage house.

4. At the remains of the Monroe house the existing chimney and metal debris in the vicinity will be placed within the existing cellar hole and the cellar hole will be filled with clean fill material to preserve its archeological character in place.

5. Golf course grading plans around the Monroe Coach house and ice house have been modified to allow for in-situ preservation of the identified standing structures, including stone walls. The subterranean vaults at the coach house will be preserved and protected. The vaults will be filled with clean fill by hand in order to preserve their integrity and ensure the safety of Resort guests.

6. The foundation walls at the Three Cabins Site will be preserved intact, no subsurface impacts are proposed. The rather deep foundation remains of Cabins 1 and the root cellar will be partially filled by hand with clean fill to preserve the archeological information the site possesses.

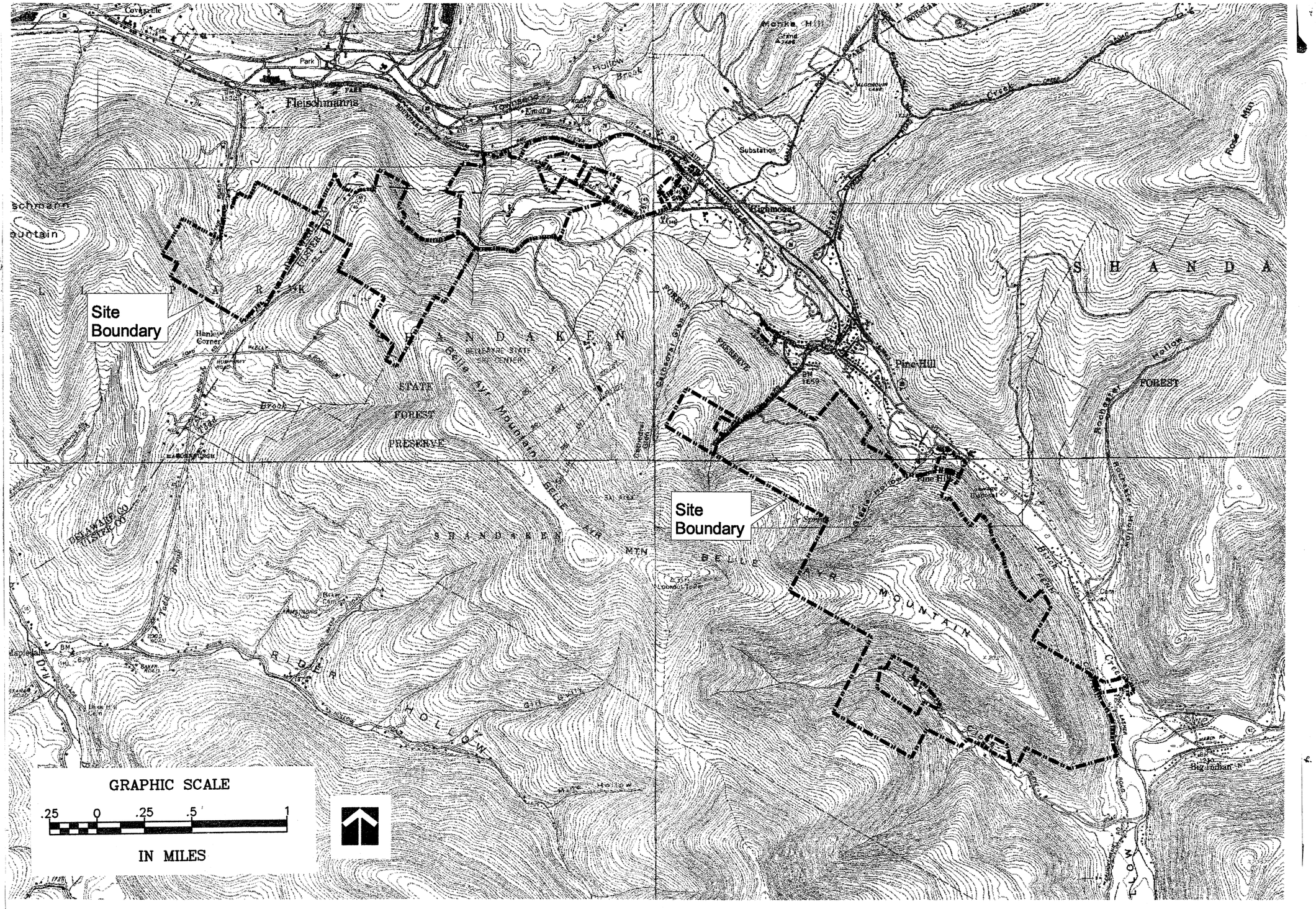
7. The cellar hole of the original home on the Ruttson Green site will be similarly filled with clean fill to protect Resort guests and preserve the archeological information the site possesses. The large flagstone walk, including the flagstone with the year 1904 carved into it will be preserved in-situ.

8. The design of the golf course has been modified so that the Hiram Robinson Site is outside the area of potential effect.

9. Before renovating the Marlowe and Brisbane mansions, architectural renovation plans will be submitted to OPRHP for their review and approval.

10. The existing outbuildings associated with the Brisbane mansion, a caretaker's cottage and a carriage barn have been incorporated into the site design and will function as administration and maintenance under the proposed development

scenario. The layout of the proposed structures, the architectural character of the proposed structures and the proposed landscape plantings around them were designed so that the new construction will be in the same "context" as the existing buildings. This was confirmed by OPRHP during their review of the project.



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Landscape Architecture and Engineering, P.C.

40 Long Alley
Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0180

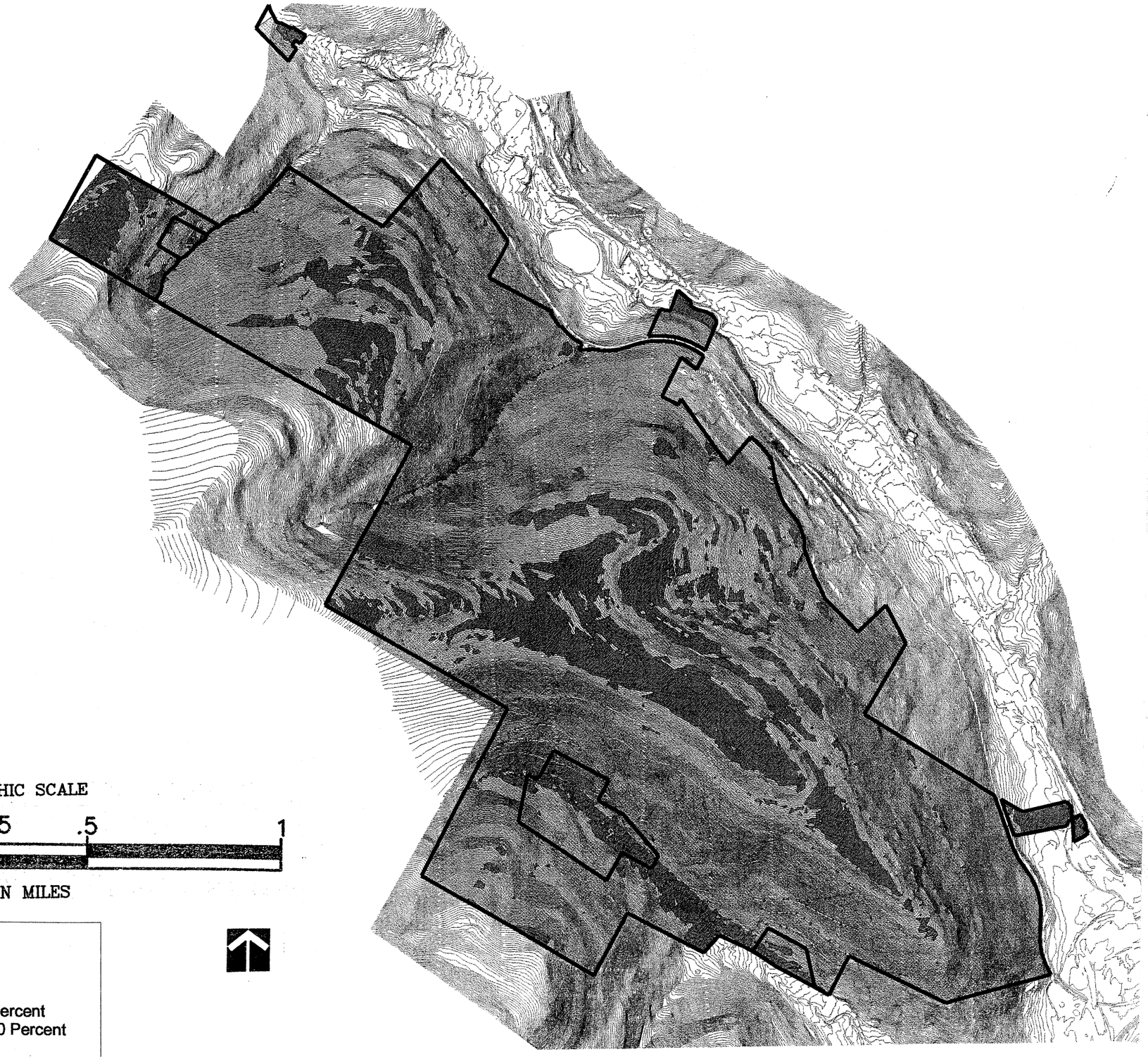
BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

TOPOGRAPHY

Project: 00052
Date:

Figure 3-1



GRAPHIC SCALE

.25 0 .25 .5 1

IN MILES

LEGEND

Slope Less Than 20 Percent

Slope Greater Than 20 Percent

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Saratoga Springs
New York 12866
518/587-8100
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BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

SLOPE MAP EASTERN PORTION

Project: 00052
Date:

Figure 3-4

LEGEND
- Slope Less Than 20 Percent
- Slope Greater Than 20 Percent

GRAPHIC SCALE

.25 0 .25 .5 1

IN MILES

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New York 12866
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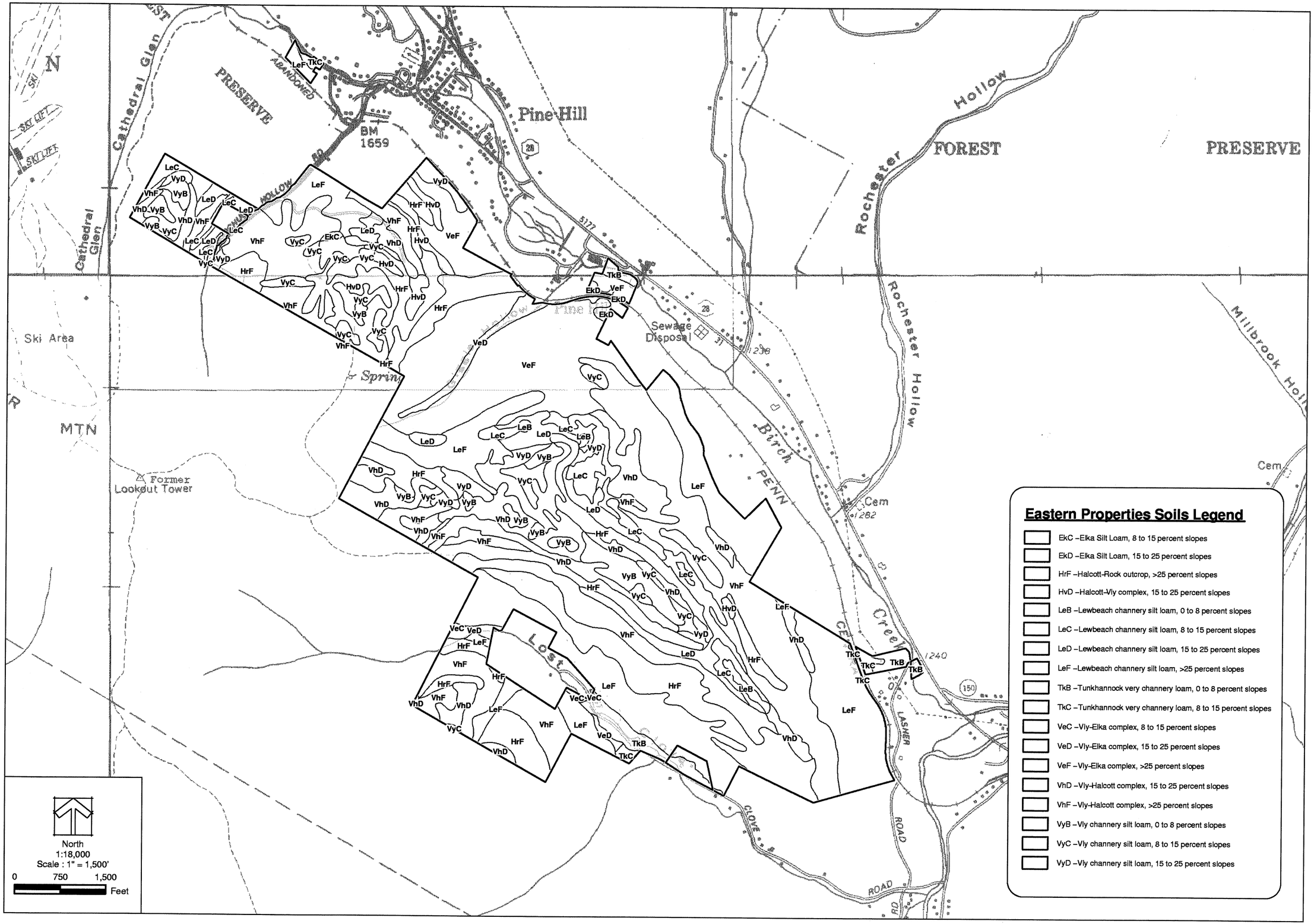
BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

SLOPE MAP WESTERN PROTION

Project: 00052
Date:

Figure 3-5



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New York 12866
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Telefax 518/587-0180

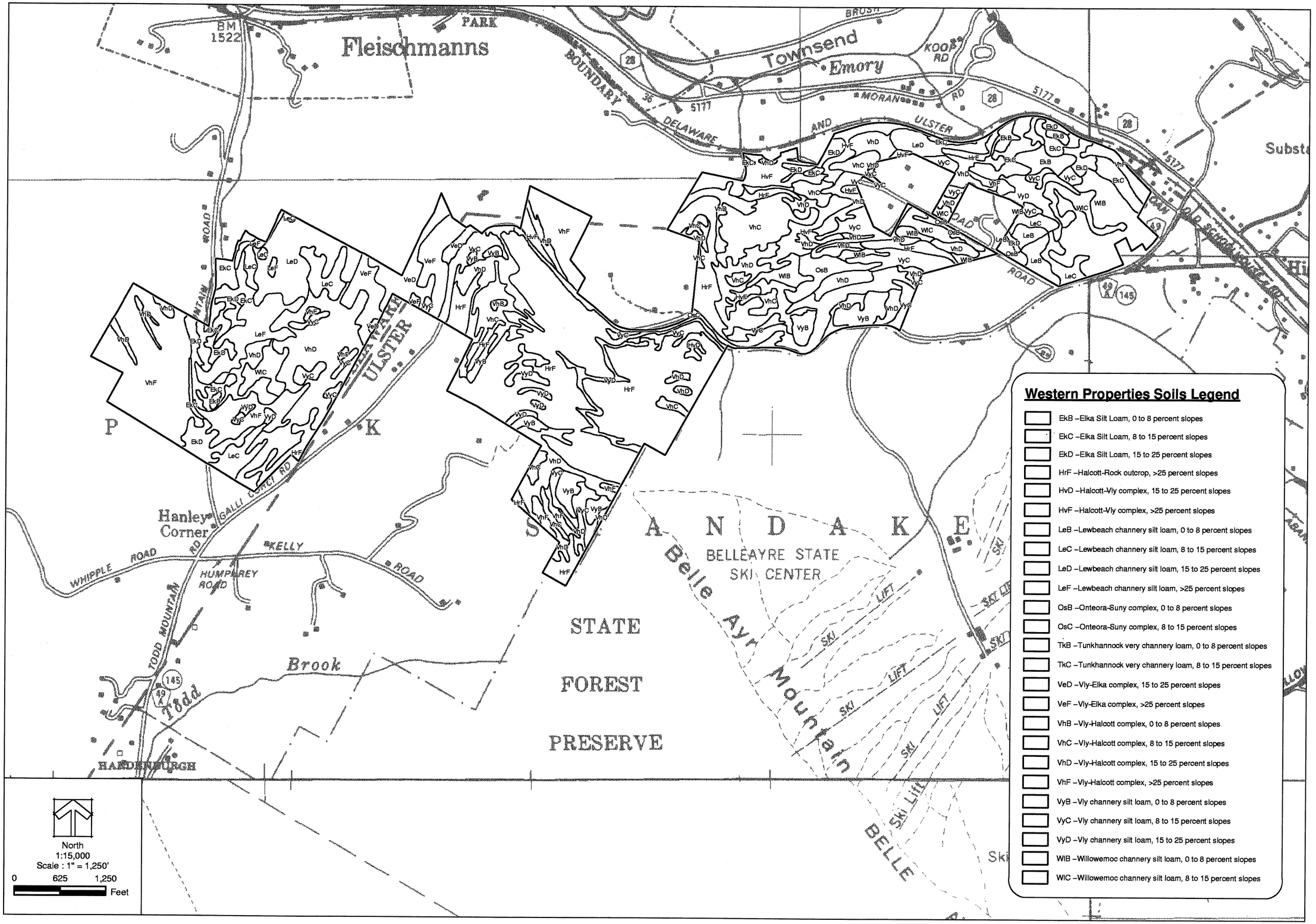
BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

SOILS MAP EASTERN PORTION

Project: 00052
Date: 12/12/02

Figure: 3-6



Western Properties Soils Legend

- EkB –Elka Silt Loam, 0 to 8 percent slopes
- EkC –Elka Silt Loam, 8 to 15 percent slopes
- EkD –Elka Silt Loam, 15 to 25 percent slopes
- HrF –Halcott-Rock outcrop, >25 percent slopes
- HvD –Halcott-Vly complex, 15 to 25 percent slopes
- HvF –Halcott-Vly complex, >25 percent slopes
- LeB –Lewbeach channery silt loam, 0 to 8 percent slopes
- LeC –Lewbeach channery silt loam, 8 to 15 percent slopes
- LeD –Lewbeach channery silt loam, 15 to 25 percent slopes
- LeF –Lewbeach channery silt loam, >25 percent slopes
- OsB –Onteora-Suny complex, 0 to 8 percent slopes
- OsC –Onteora-Suny complex, 8 to 15 percent slopes
- TkB –Tunkhannock very channery loam, 0 to 8 percent slopes
- TkC –Tunkhannock very channery loam, 8 to 15 percent slopes
- VeD –Vly-Elka complex, 15 to 25 percent slopes
- VeF –Vly-Elka complex, >25 percent slopes
- VhB –Vly-Halcott complex, 0 to 8 percent slopes
- VhC –Vly-Halcott complex, 8 to 15 percent slopes
- VhD –Vly-Halcott complex, 15 to 25 percent slopes
- VhF –Vly-Halcott complex, >25 percent slopes
- VyB –Vly channery silt loam, 0 to 8 percent slopes
- VyC –Vly channery silt loam, 8 to 15 percent slopes
- VyD –Vly channery silt loam, 15 to 25 percent slopes
- WlB –Willowemoc channery silt loam, 0 to 8 percent slopes
- WlC –Willowemoc channery silt loam, 8 to 15 percent slopes

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Landscape Architecture and Engineering, P.C.

40 Long Alley
Saratoga Springs
New York 12866
518/567-8100
Telefax 518/587-0180

BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

SOILS MAP WESTERN PORTION

Project: 00052
Date: 12/12/02

Figure: 3-7

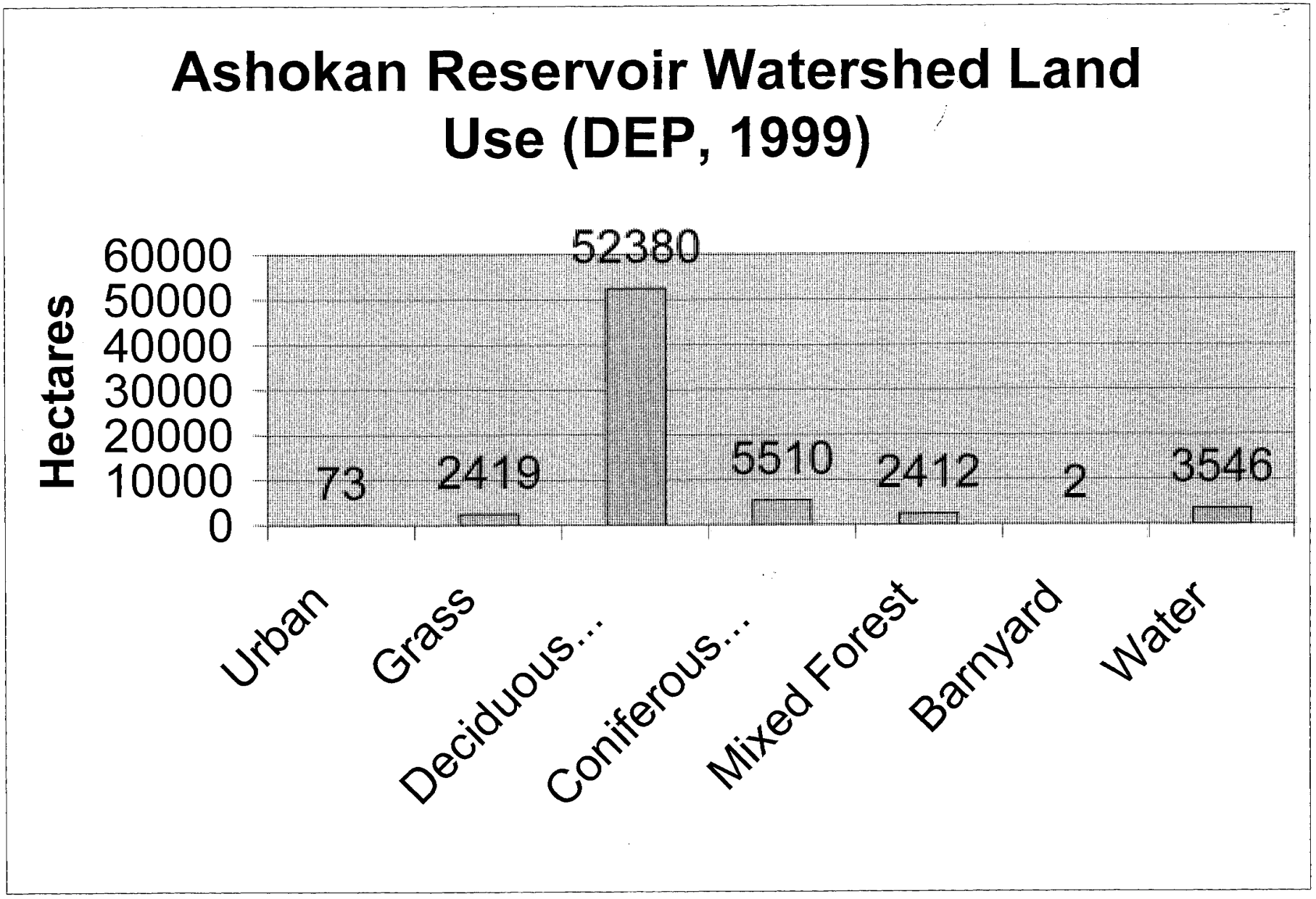
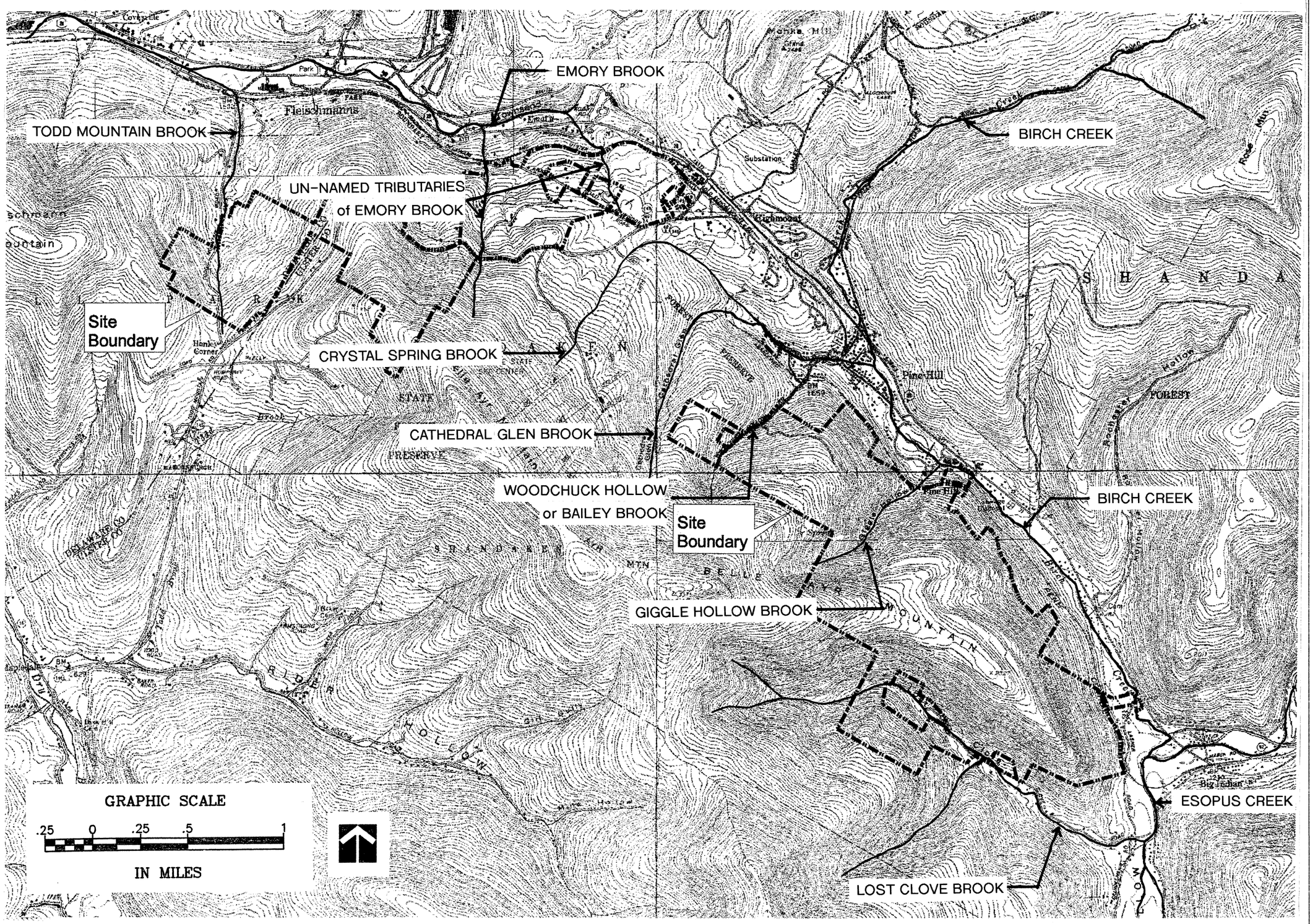

Ashokan Reservoir Watershed Land Use (DEP, 1999)
Hectares
60000
50000
40000
30000
20000
10000
0
73
2419
52380
5510
2412
2
3546
Urban
Grass
Deciduous...
Coniferous...
Mixed Forest
Barnyard
Water

Figure 3-8

Pepacton Reservoir Watershed Land Use
70000
60000
50000
40000
30000
20000
10000
0
66
6610
12800
3
345
7
59440
14240
0
13
2499
Urban
Grass/Shrub
Grass
Bare Soil
Corn
Alfalfa
Deciduous...
Coniferous...
Mixed Forest
Barnyard
Water

Figure 3-9



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New York 12866
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BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

SURFACE
WATER
RESOURCES

Project: 00052
Date:

Figure
3-10

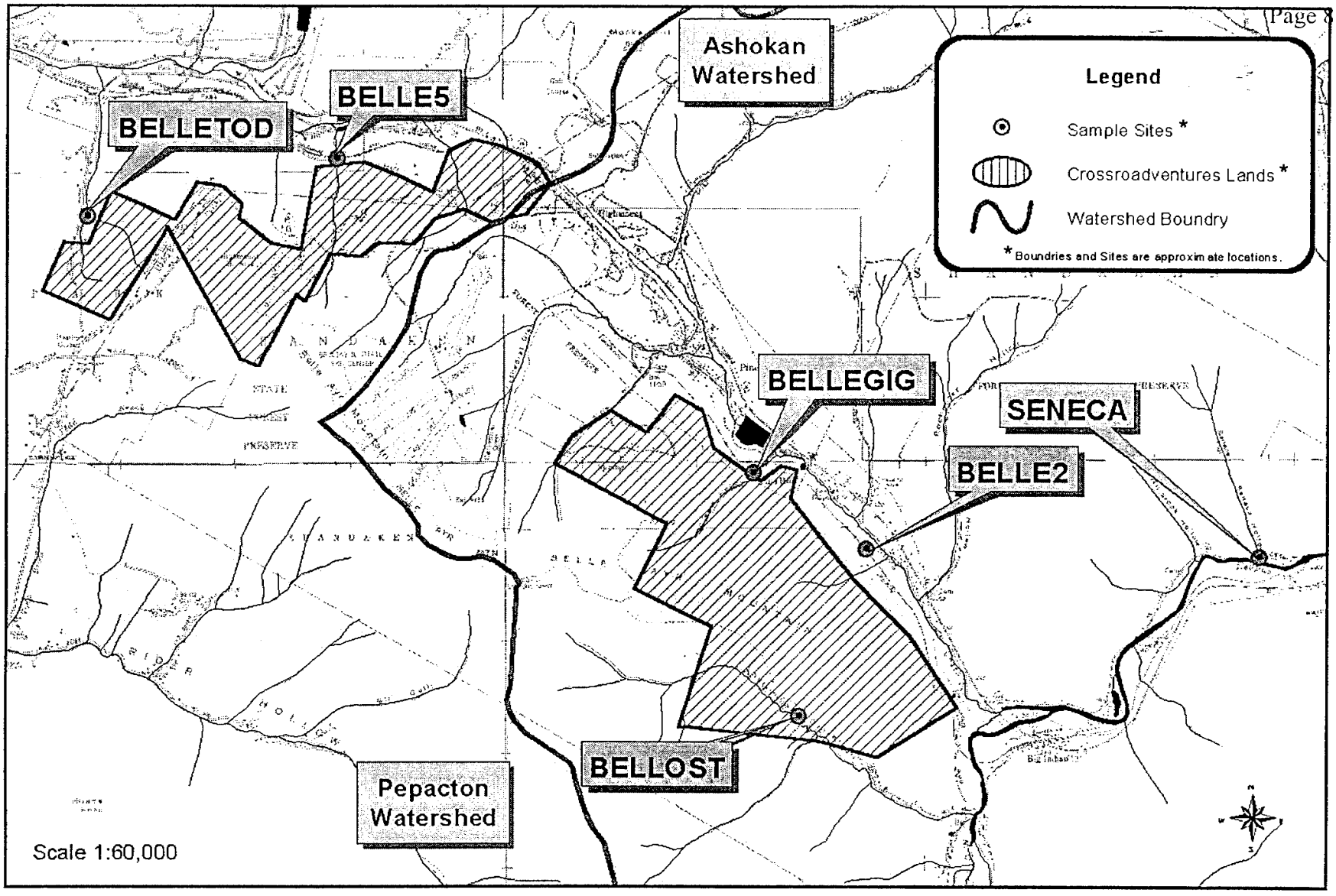

Figure 1. Map of Proposed Sampling Sites Located to Monitor Impacts from the Crossroads Ventures Development

Draft 7 July 2000

SOURCE:
NYCEP Draft Quality Assurance Plan for Phase I Exploratory Monitoring of Tributaries Draining Properties for the Proposed Crossroads Ventures Development on Belleayre Mountain

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40 Long Alley
Saratoga Springs
New York 12866
518/587-8100
Telefax 518/584-0180

BELLEAYRE RESORT AT CATSKILL PARK
DRAFT ENVIRONMENTAL IMPACT STATEMENT
LOCAL SAMPLING LOCATIONS 1999
NYC WATERSHED RANDOM SAMPLING PROGRAM

Date:
Project: 00057
Figure 3-11

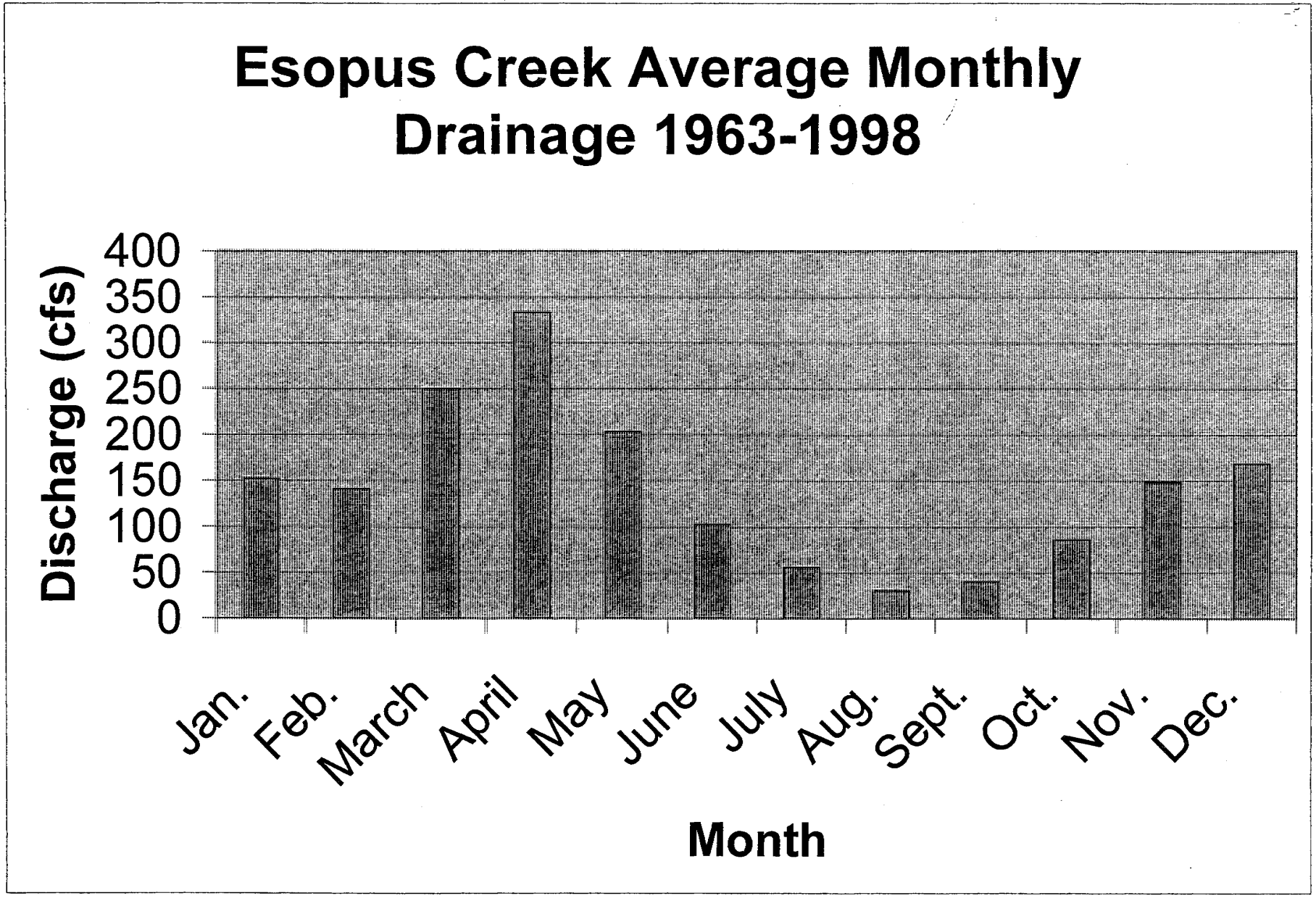
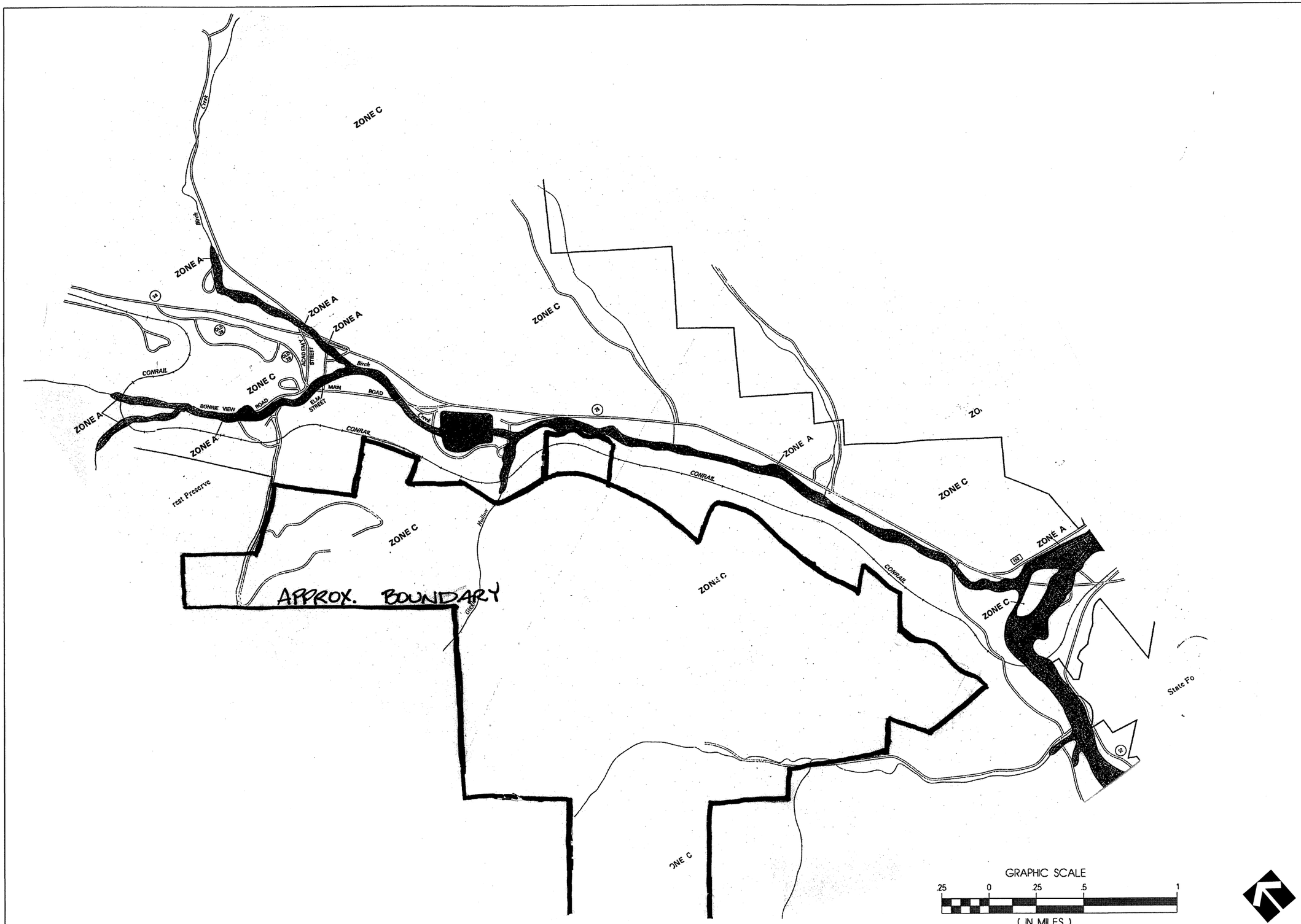

Esopus Creek Average Monthly Drainage 1963-1998
Discharge (cfs)
400
350
300
250
200
150
100
50
0
Jan.
Feb.
March
April
May
June
July
Aug.
Sept.
Oct.
Nov.
Dec.
Month

Figure 3-12



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and Engineering, P.C.

40 Long Alley
Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0180

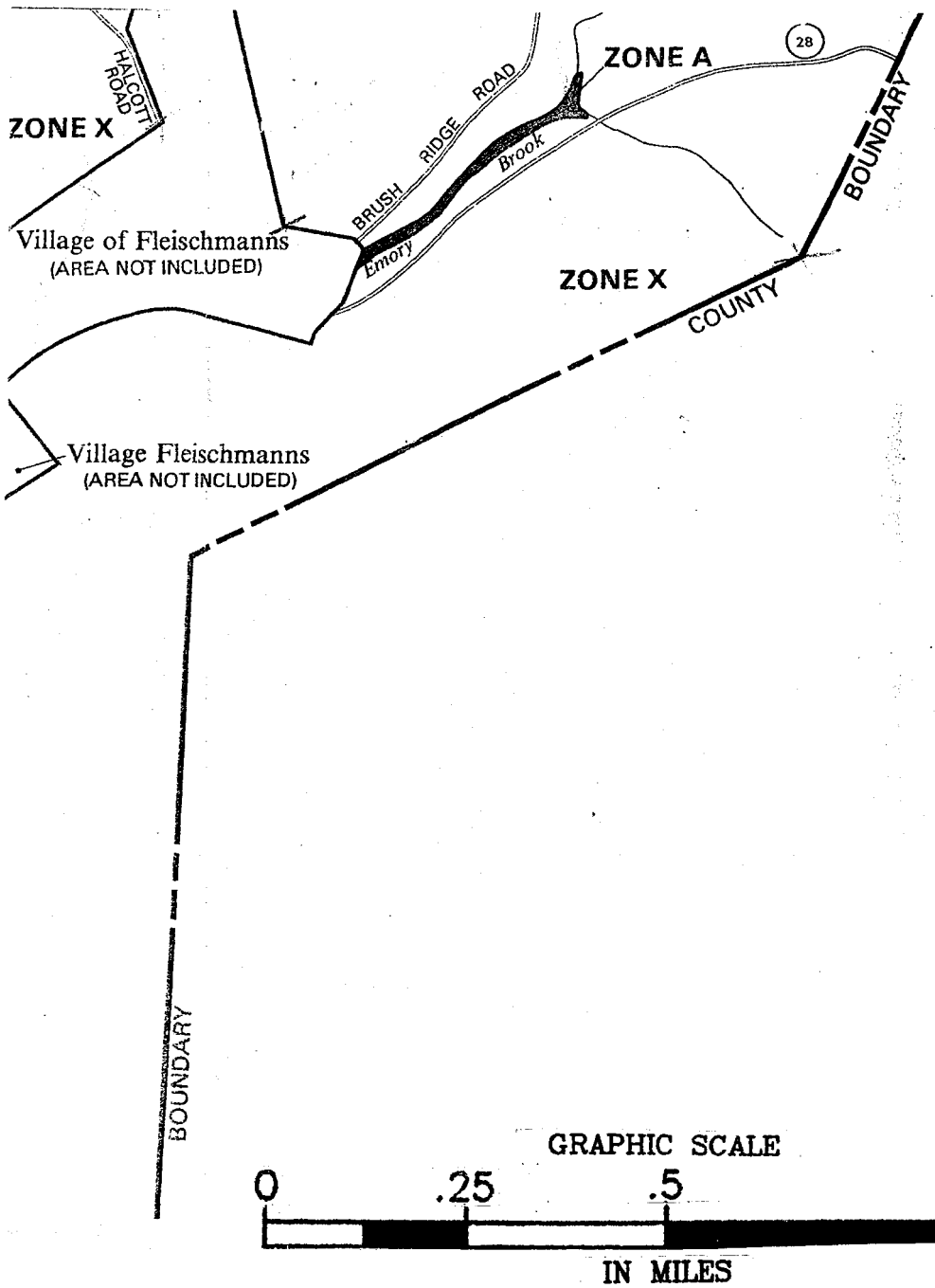
BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

FLOOD PLAINS
EASTERN
PORTION

Project: 00052
Date:

Figure
3-13



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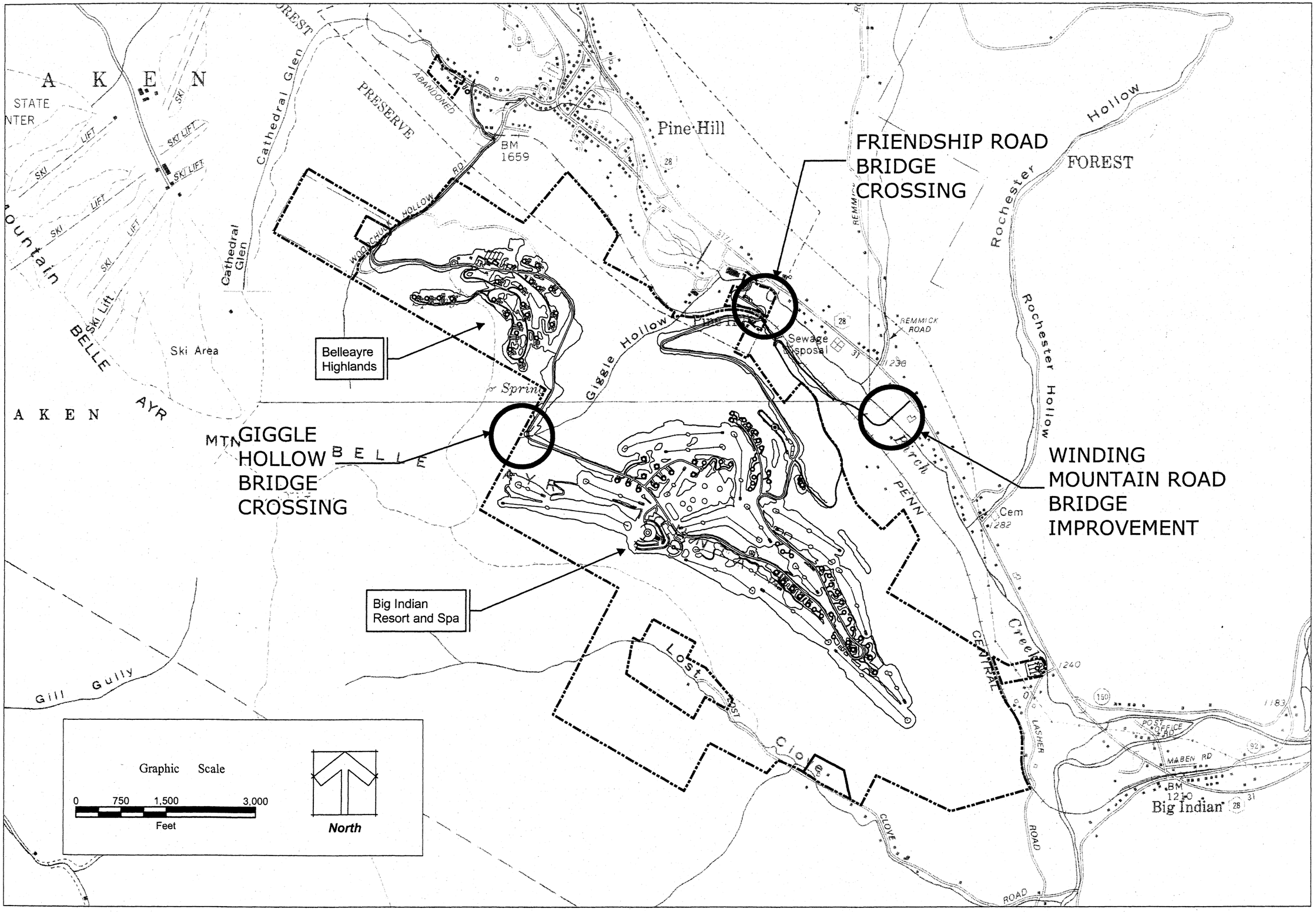
[illegible] Alley
Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0180

BELLEAYRE RESORT AT CATSKILL PARK
DRAFT ENVIRONMENTAL IMPACT
STATEMENT

EMORY BROOK FLOODPLAIN

Date:
Project: 00052
Figure
3-14



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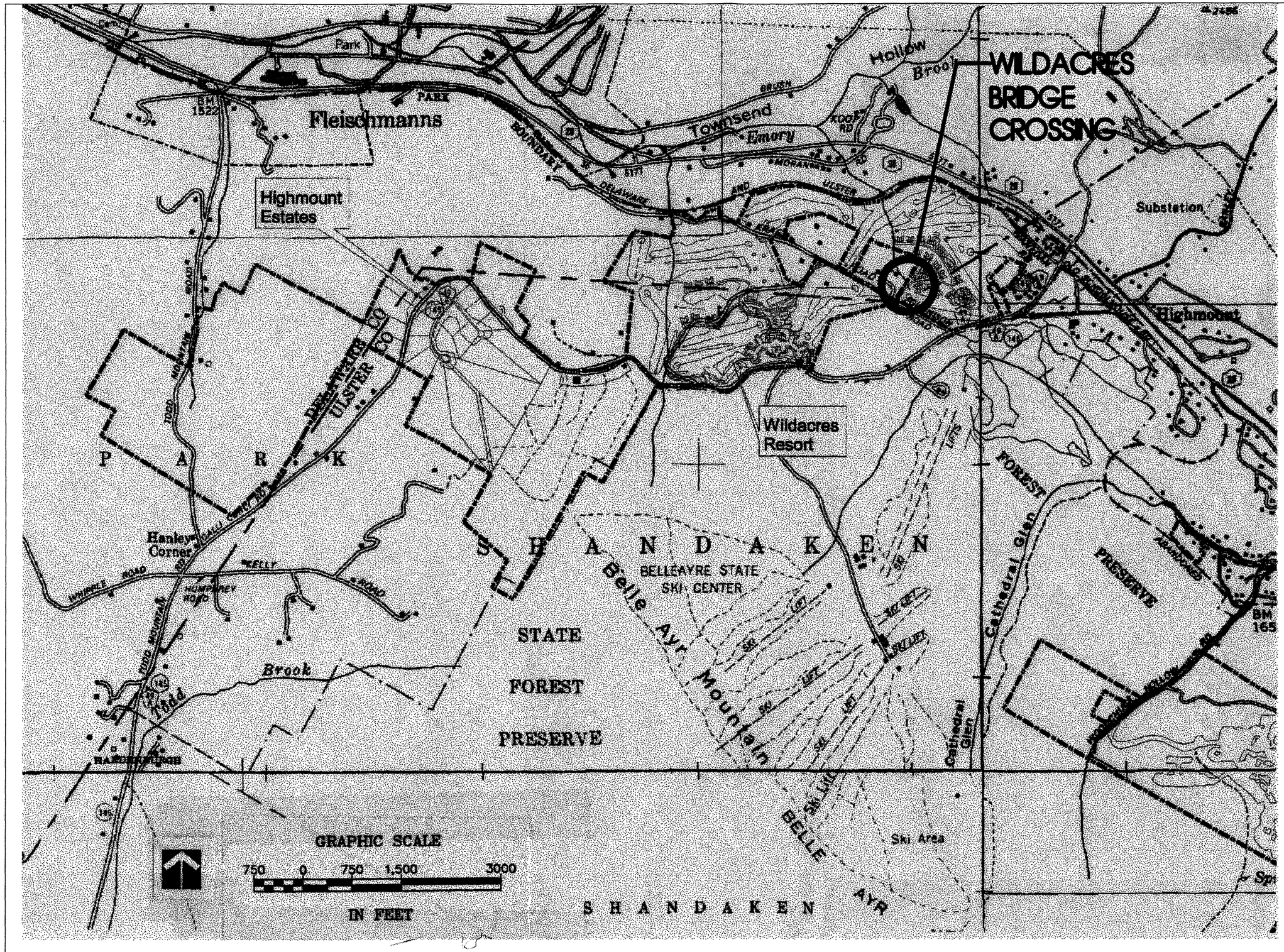
BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

BIG INDIAN PLATEAU BRIDGES

Project: 00052
Date: 12/10/02
Figure: 3-15



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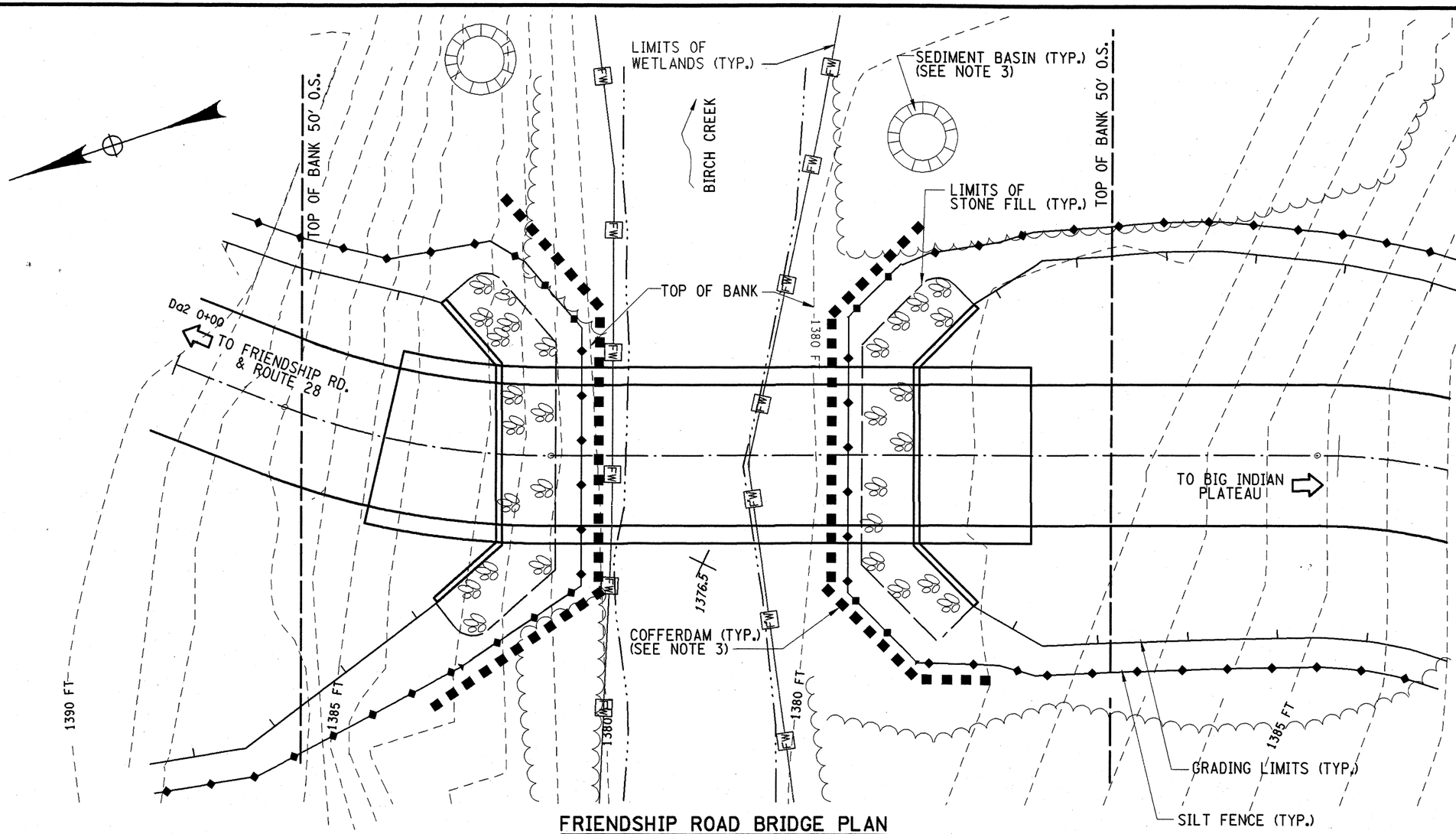
BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

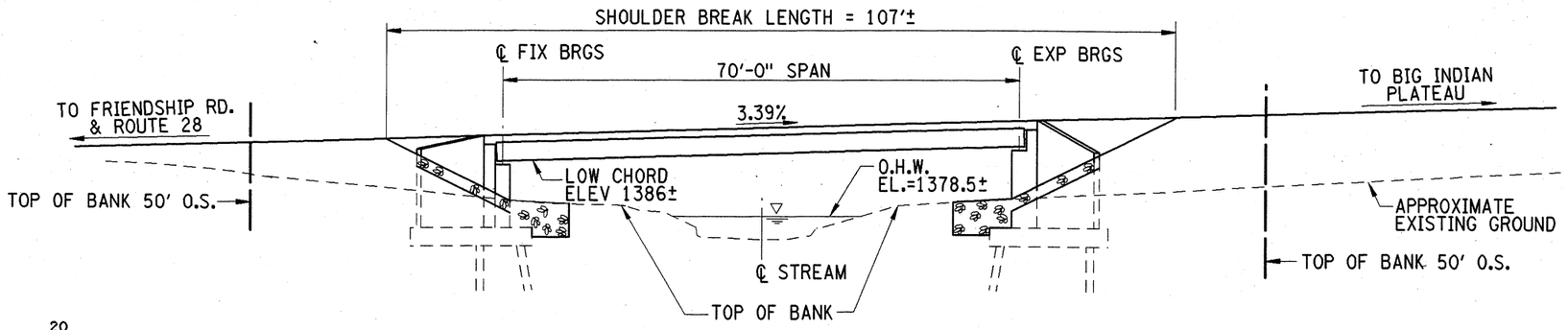
WILDACRES
RESORT
BRIDGE

Project: 00052
Date:

Figure
3-15A



FRIENDSHIP ROAD BRIDGE PLAN



0 10 20
1 INCH = 20 FT.

DATUM=1360.00

FRIENDSHIP ROAD BRIDGE ELEVATION

NOTES:

1. 1' CONTOUR INTERVAL
2. ANY OPERATION OF MACHINERY WITHIN THE STREAM CHANNEL IS STRICTLY PROHIBITED.
3. FOR SEDIMENT BASIN AND COFFERDAMS SEE DETAILS, LOCATE ON FLAT LAND A.O.B.E.
4. EXISTING VEGETATION BETWEEN BASIN AND STREAM SHALL REMAIN UNDISTURBED.

FEDERAL WETLAND IMPACTS= 0
STREAM DISTURBANCE= 0

STREAM CROSSING DETAILS
FRIENDSHIP ROAD BRIDGE
PLAN & ELEVATION

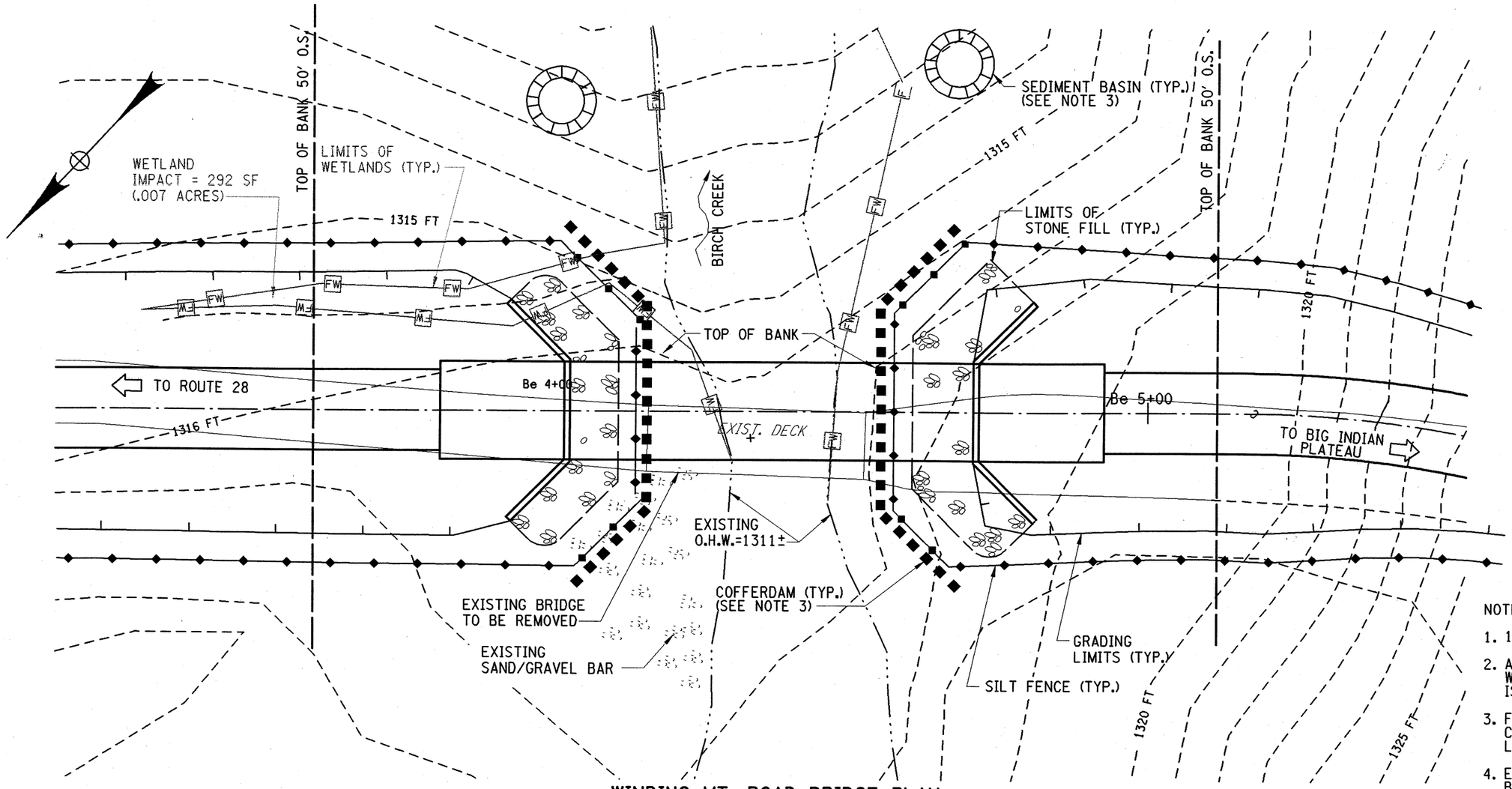
BELLEAYRE RESORT AT CATSKILL PARK
TOWNS OF SHANDAKEN AND
MIDDLETOWN, NEW YORK

CREIGHTON MANNING ENGINEERING, LLP
4 AUTOMATION LANE, ALBANY, NY 12205

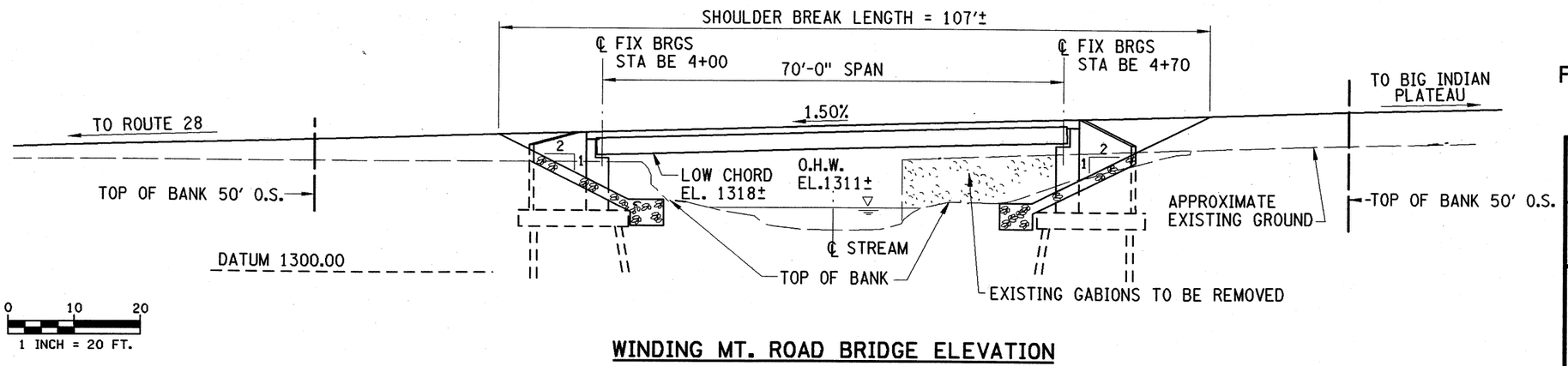
PROJECT: 99-057	SCALE: 1"= 20'	DATE: 07/02

Figure 3-15B

h:dfor\projects\e99-057A\cad\dsgn\fdec_plnelv.dgn



WINDING MT. ROAD BRIDGE PLAN



WINDING MT. ROAD BRIDGE ELEVATION

NOTES:

1. 1' CONTOUR INTERVAL
2. ANY OPERATION OF MACHINERY WITHIN THE STREAM CHANNEL IS STRICTLY PROHIBITED.
3. FOR SEDIMENT BASIN AND COFFERDAMS SEE DETAILS, LOCATE ON FLAT LAND A.O.B.E.
4. EXISTING VEGETATION BETWEEN BASIN AND STREAM SHALL REMAIN UNDISTURBED.

FEDERAL WETLAND IMPACTS= 292 SF (.007 ACRES)
STREAM DISTURBANCE= 0

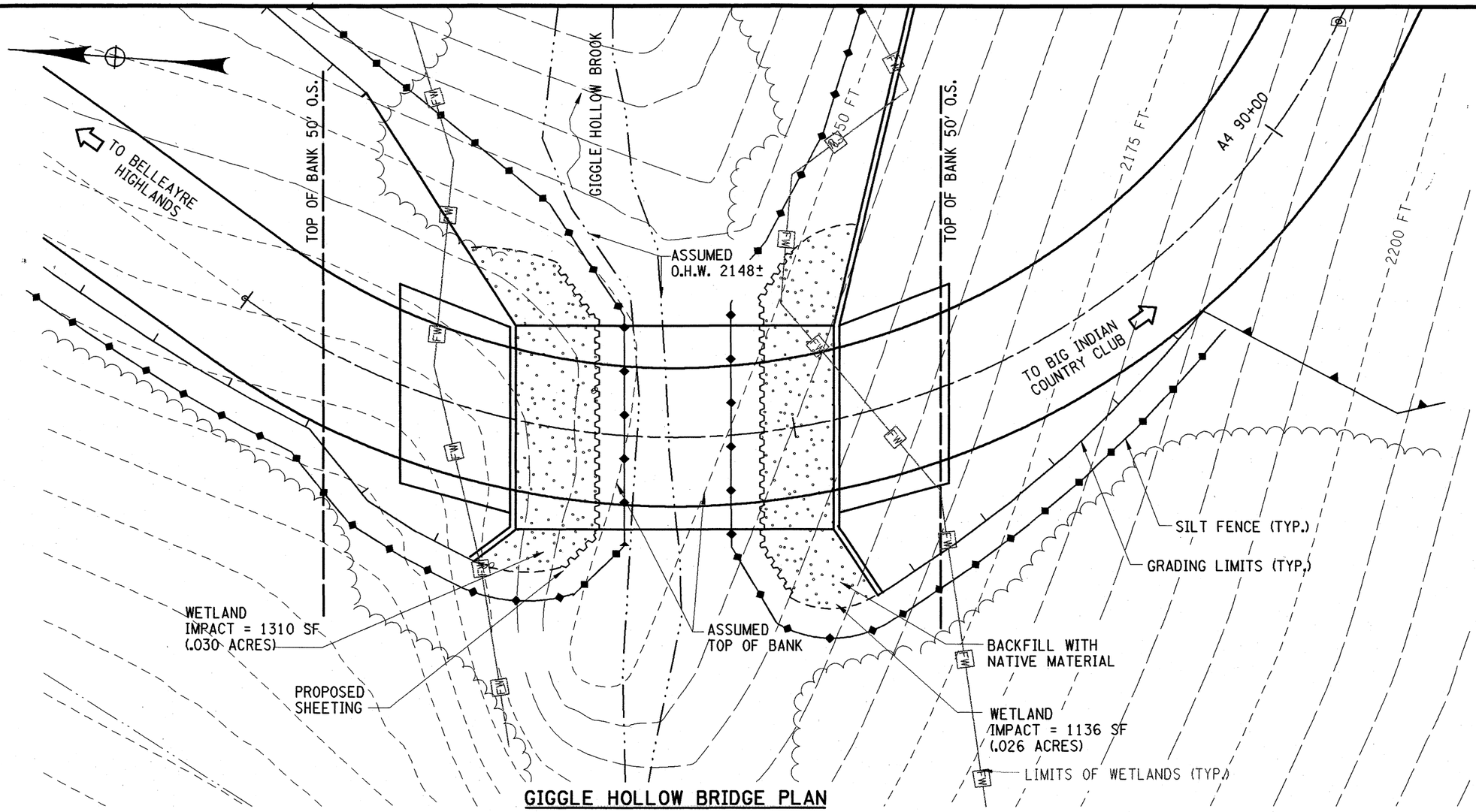
STREAM CROSSING DETAILS
WINDING MT. ROAD BRIDGE
PLAN & ELEVATION

BELLEAYRE RESORT AT CATSKILL PARK
TOWNS OF SHANDAKEN AND MIDDLETOWN, NEW YORK

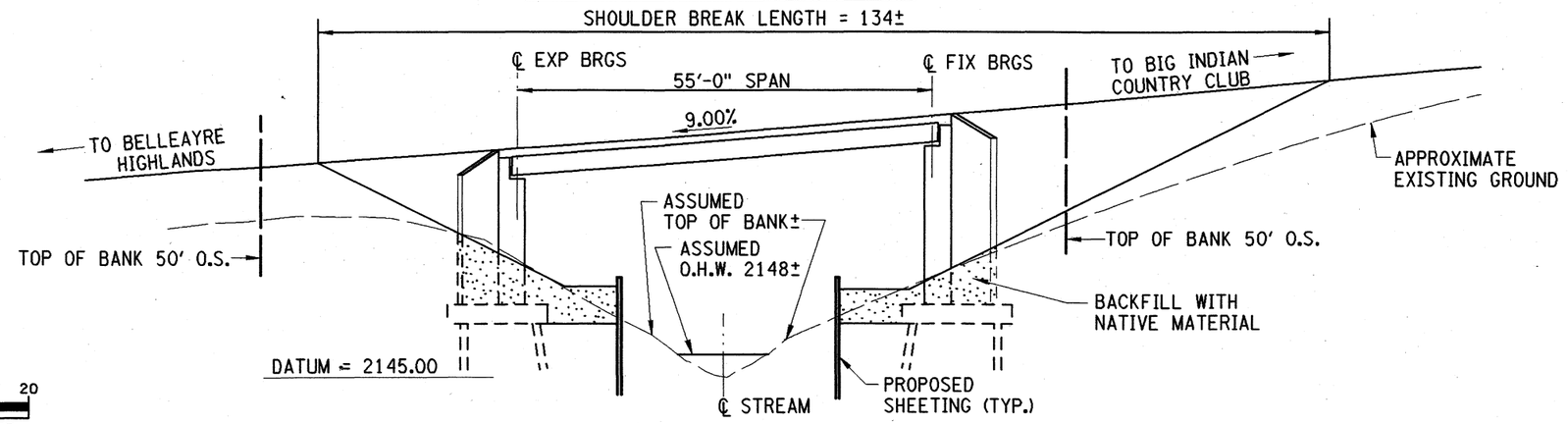
CREIGHTON MANNING ENGINEERING, LLP
4 AUTOMATION LANE, ALBANY, NY 12205

PROJECT: 99-057 | SCALE: 1"= 20' | DATE: 07/02

Figure 3-15C



GIGGLE HOLLOW BRIDGE PLAN



GIGGLE HOLLOW BRIDGE ELEVATION

0 10 20
1 INCH = 20 FT.

NOTES:

1. 5' CONTOUR INTERVAL
2. ANY OPERATION OF MACHINERY WITHIN THE STREAM CHANNEL IS STRICTLY PROHIBITED.

FEDERAL WETLAND IMPACTS= 2446 SF (.056 ACRES)
STREAM DISTURBANCE= 0

STREAM CROSSING DETAILS
GIGGLE HOLLOW ROAD BRIDGE
PLAN & ELEVATION

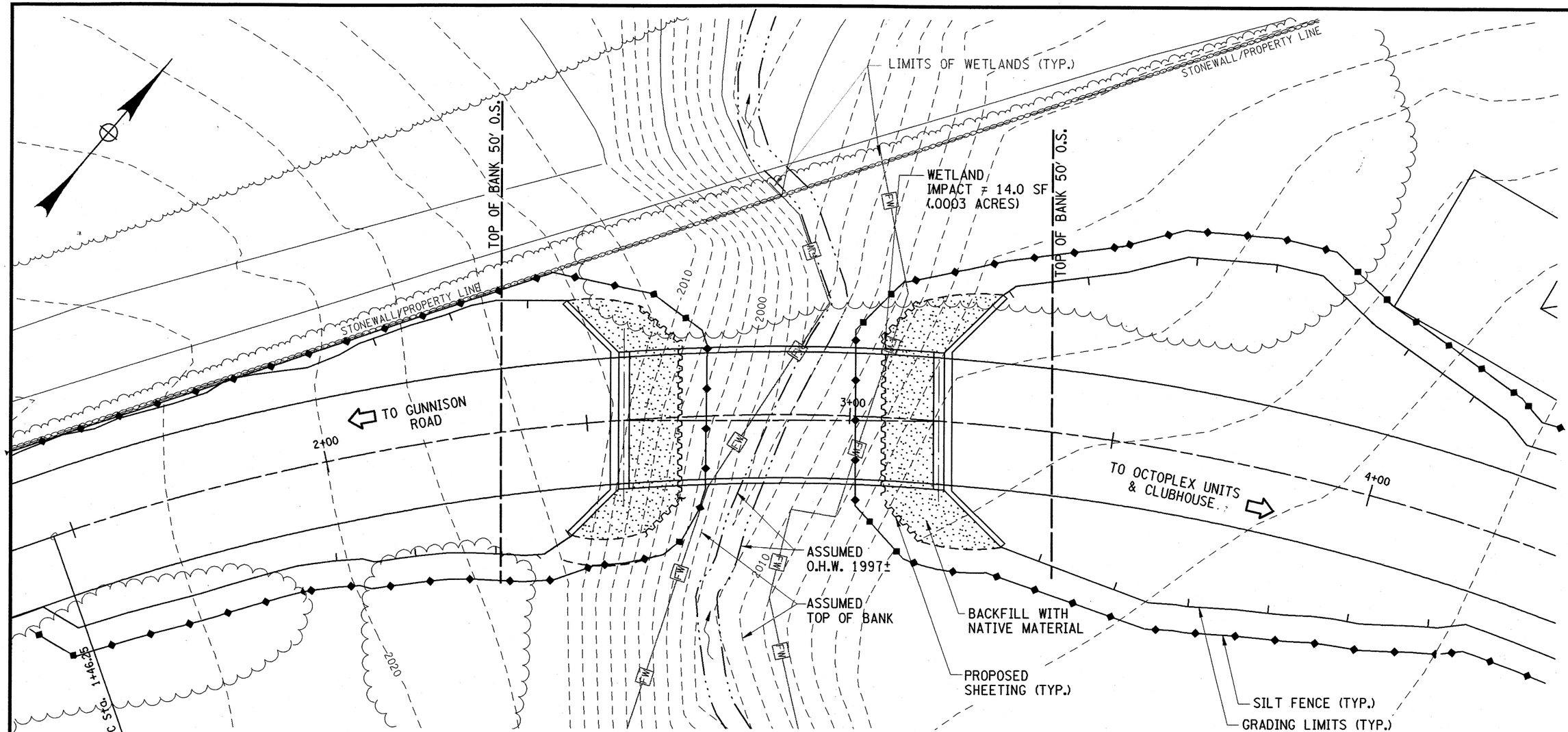
BELLEAYRE RESORT AT CATSKILL PARK
TOWNS OF SHANDAKEN AND
MIDDLETOWN, NEW YORK

CREIGHTON MANNING ENGINEERING, LLP
4 AUTOMATION LANE, ALBANY, NY 12205

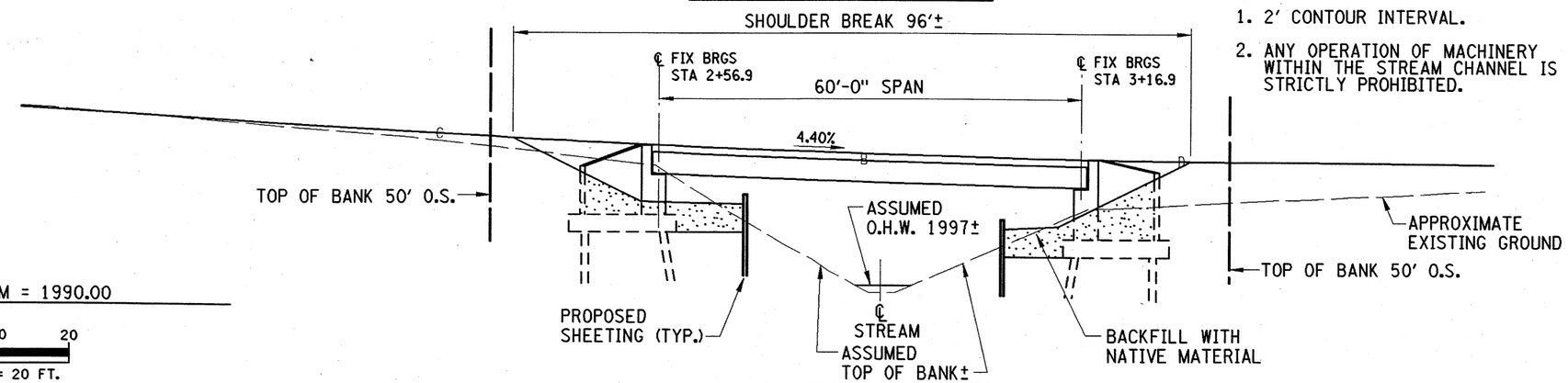
PROJECT: 99-057	SCALE: 1"= 20'	DATE: 07/02

h:\projects\99-057\cadd\dgn\dec_plnele.dgn

Figure 3-15D



WILDACRES BRIDGE PLAN



WILDACRES BRIDGE ELEVATION

DATUM = 1990.00

0 10 20

1 INCH = 20 FT.

NOTES:

1. 2' CONTOUR INTERVAL.
2. ANY OPERATION OF MACHINERY WITHIN THE STREAM CHANNEL IS STRICTLY PROHIBITED.

FEDERAL WETLAND IMPACTS= 14 SF (.0003 ACRES)
STREAM DISTURBANCE= 0

STREAM CROSSING DETAILS
WILDACRES BRIDGE
PLAN & ELEVATION

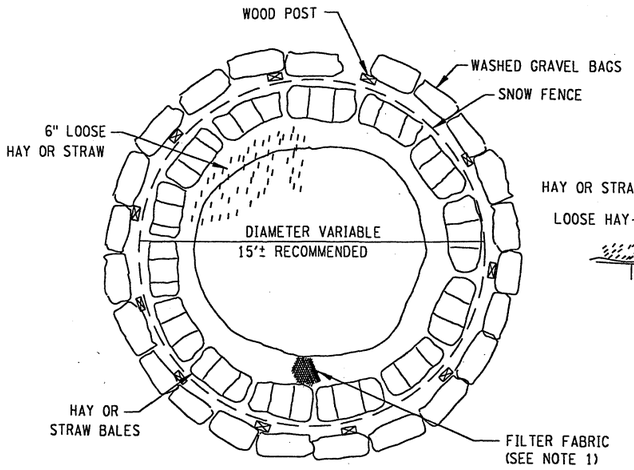
BELLEAYRE RESORT AT CATSKILL PARK
TOWNS OF SHANDAKEN AND MIDDLETOWN, NEW YORK

CREIGHTON MANNING ENGINEERING, LLP
4 AUTOMATION LANE, ALBANY, NY 12205

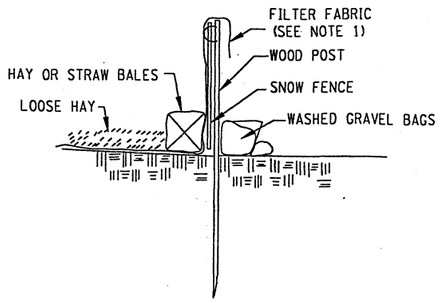
PROJECT: 99-057	SCALE: 1"= 20'	DATE: 07/02

h:\projects\99-057\cadd\dgn\dec_plnele.dgn

Figure 3-15E



PLAN



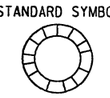
SECTION

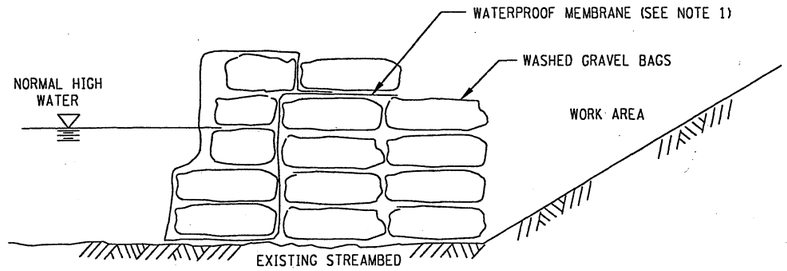
NOTES : 1. FILTER FABRIC SHALL BE ON THE APPROVED LIST FOR GEOTEXTILES SILT FENCE ISSUED BY THE DEPARTMENT'S MATERIAL BUREAU.

2. WHEN SEDIMENT BASIN IS REQUIRED IN CONJUNCTION WITH ITEM 552.07nnnn COFFERDAM (WATER DISCHARGE CONTROL) COST SHALL BE INCLUDED IN COFFERDAM ITEM.

SEDIMENT BASIN

STANDARD SYMBOL

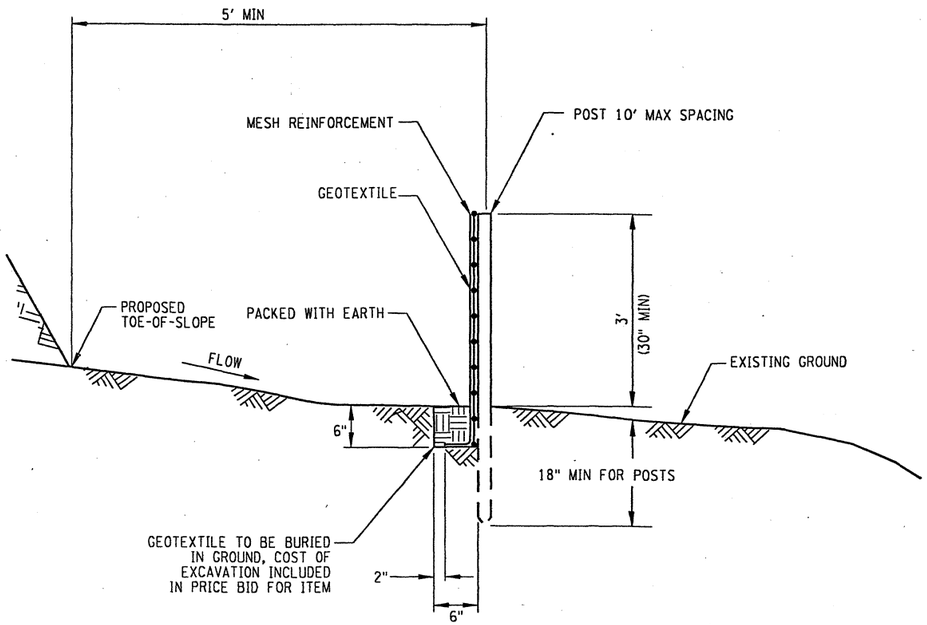




NOTES:
1. WATERPROOF MEMBRANE SHALL BE ON THE APPROVED LIST FOR GEOMEMBRANES ISSUED BY THE COUNTY.
2. GRAVEL THAT IS PLACED IN BAGS SHALL BE STONE SIZE 1A-2 AND BE PREWASHED AS NOT TO ALLOW SMALL PARTICLES TO BE EMITTED INTO THE WATERWAYS. GRAVEL BAGS SHALL BE REMOVED IN THEIR ENTIRETY AT THE COMPLETION OF THE PROJECT.
3. INTERLOCK AND OVERLAP GRAVEL BAGS.
4. MAXIMUM HEIGHT 3.0' AND AS APPROVED BY THE ENGINEER-IN-CHARGE.

COFFERDAMS
ITEM 552.07

STANDARD SYMBOL



SECTION
SILT FENCE

STREAM CROSSING DETAILS
FRIENDSHIP ROAD BRIDGE
EROSION CONTROL DETAILS

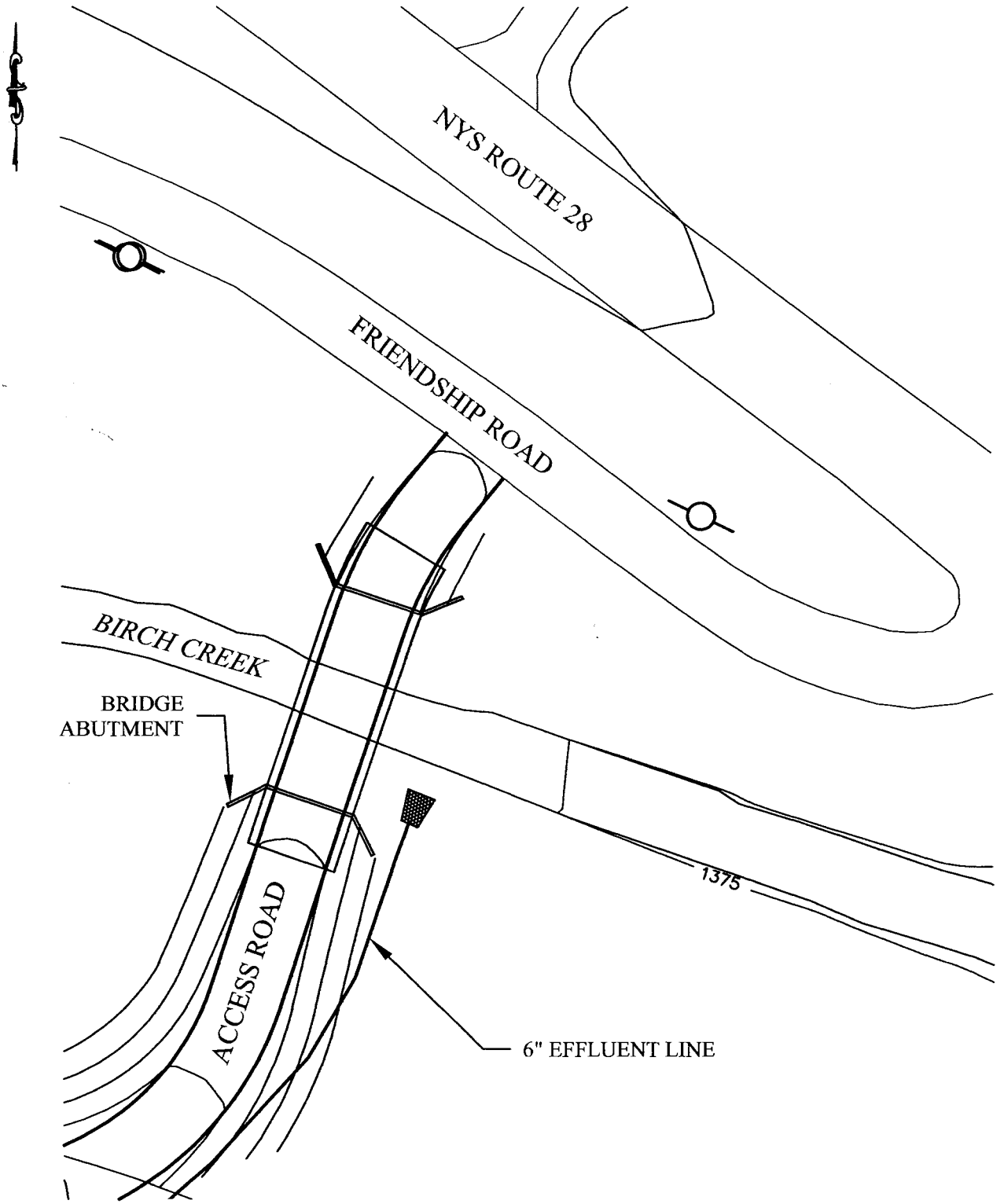
BELLEAYRE RESORT AT CATSKILL PARK
TOWNS OF SHANDAKEN AND
MIDDLETOWN, NEW YORK

CREIGHTON MANNING ENGINEERING, LLP
4 AUTOMATION LANE, ALBANY, NY 12205

PROJECT: 99-057 | SCALE: 1"= 20' | DATE: 05/02

Figure 3-15E1

f:\6or\projects\99-057\ccddfdgn\fdec_details.dgn



LOCATION MAP

SCALE: 1" = 50'

FIGURE 3-15E2

DELAWARE ENGINEERING, P.C.

28 Madison Avenue Extension
Albany, New York 12203

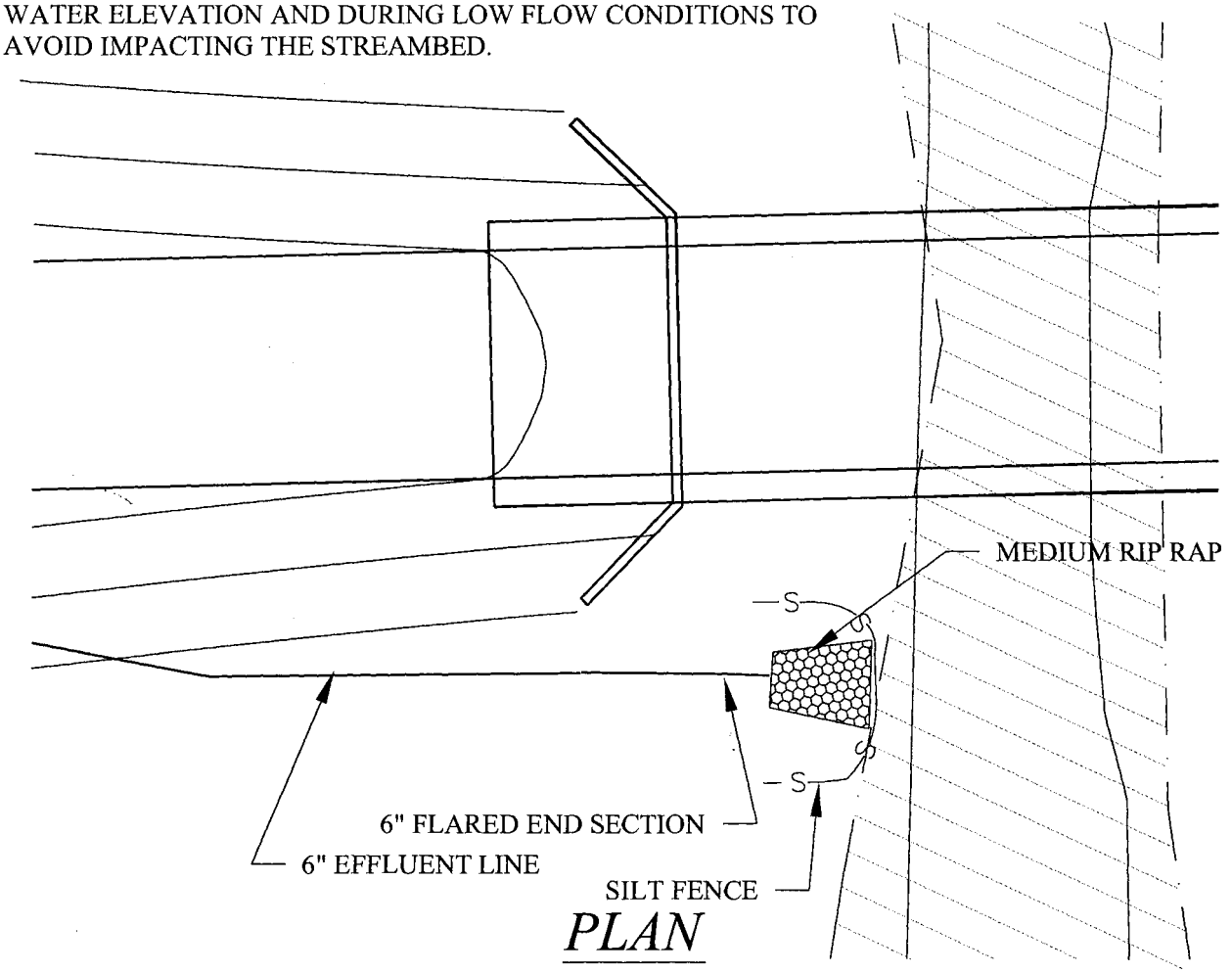
Phone 518-452-1290
FAX 518-452-1335

BIG INDIAN PLATEAU - LOCATION - EFFLUENT OUTFALL

DECEMBER 2002

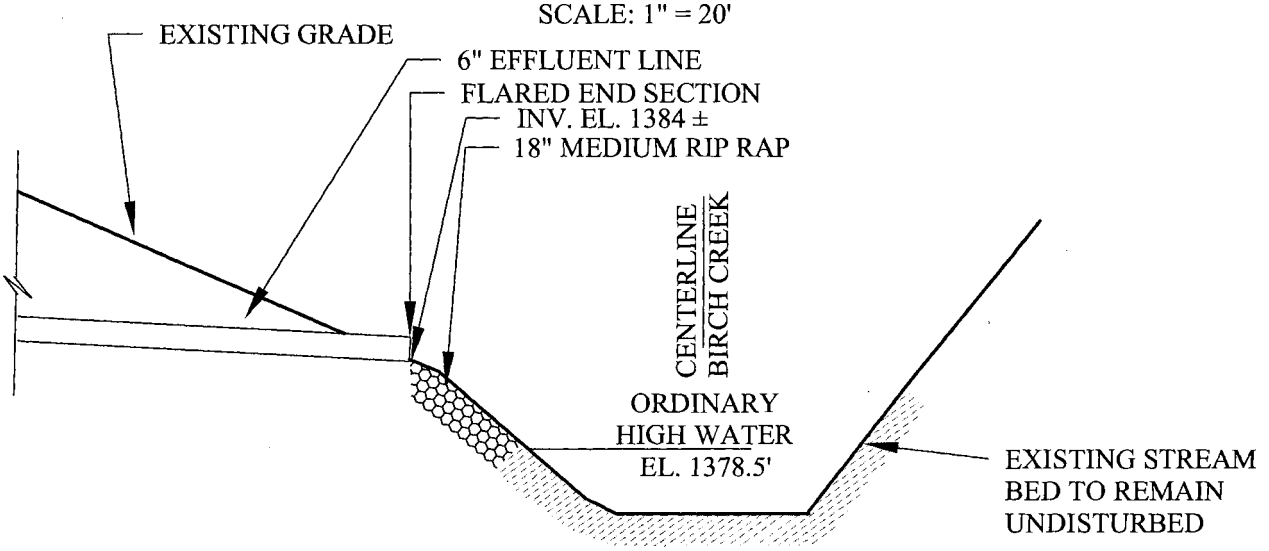
FILENAME: CROSSROADS.DWG

NOTE: ALL WORK WILL BE PERFORMED ABOVE THE ORDINARY HIGH WATER ELEVATION AND DURING LOW FLOW CONDITIONS TO AVOID IMPACTING THE STREAMBED.



PLAN

SCALE: 1" = 20'



SECTION

SCALE: 1" = 20' HORIZONTAL
1" = 10' VERTICAL

FIGURE 3-15E3

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28 Madison Avenue Extension
Albany, New York 12203

Phone 518-452-1290
FAX 518-452-1335

BIG INDIAN PLATEAU - PLAN & SECTION EFFLUENT OUTFALL

11/17/03
DECEMBER 2002

20' LENGTH
MEDIUM RIP RAP

6" EFFLUENT
DISCHARGE LINE OUTFALL

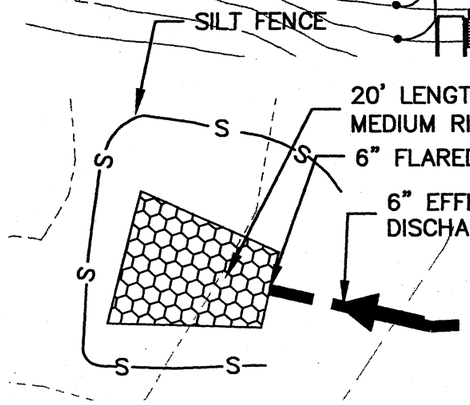
OUTFALL 001
42°-08'-52"
74°-30'-17"

SEE DETAIL "A"

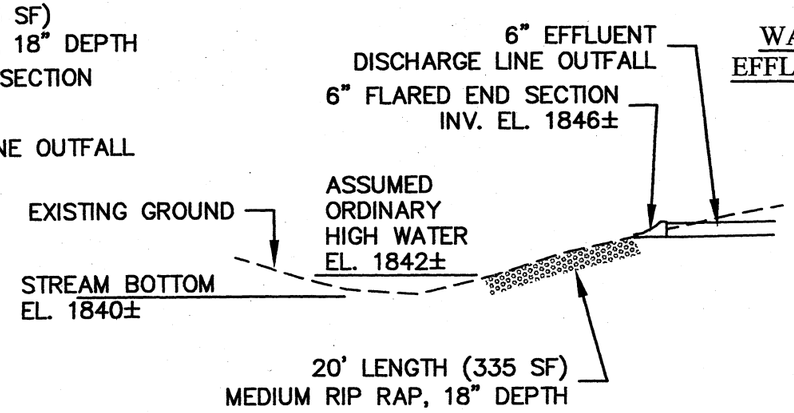
CART PATH

1825
1850
1875
1900
1870

3
4
14
15
16
17



DETAIL "A"



SECTION OF OUTFALL

LOCATION OF
WASTEWATER TREATMENT PLANT
EFFLUENT LINE - SURFACE DISCHARGE

0' 50' 100'

Figure 3-15E4

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FAX 518-452-1335

EFFLUENT OUTFALL LOCATION AND DETAIL

WILDACRES RESORT / HIGHMOUNT GOLF COURSE / HIGHMOUNT ESTATES

NOVEMBER 2003

Figure 3-15F
Project Construction Phasing

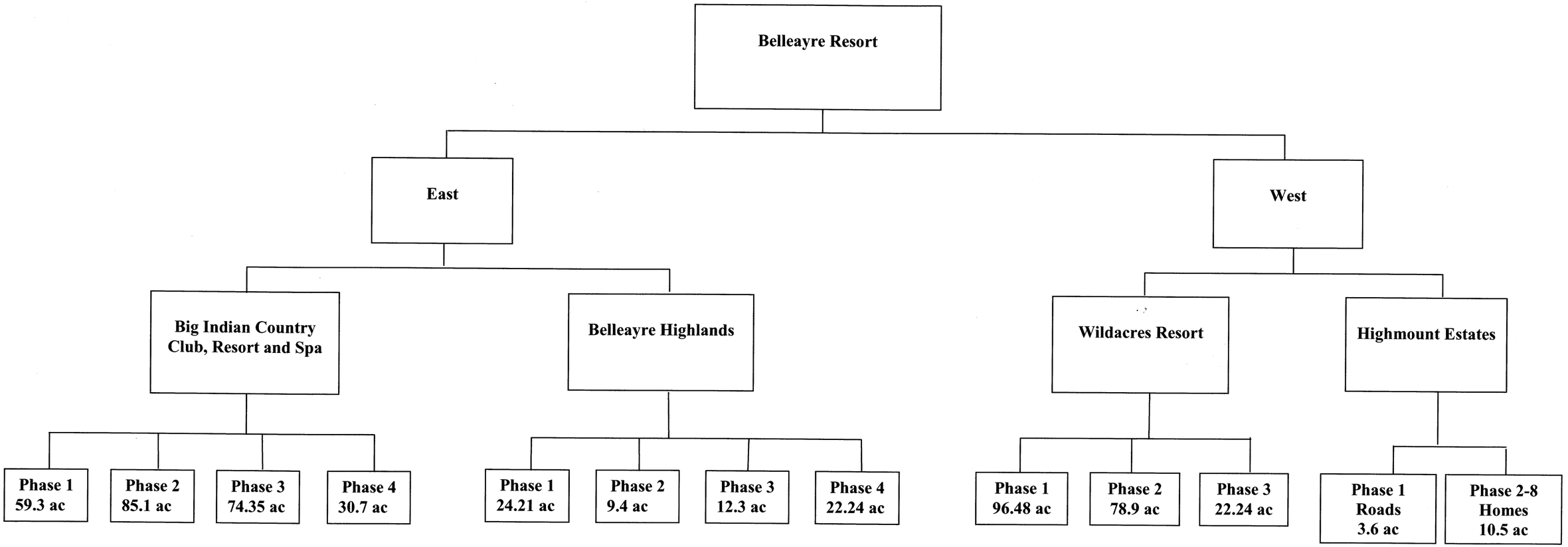
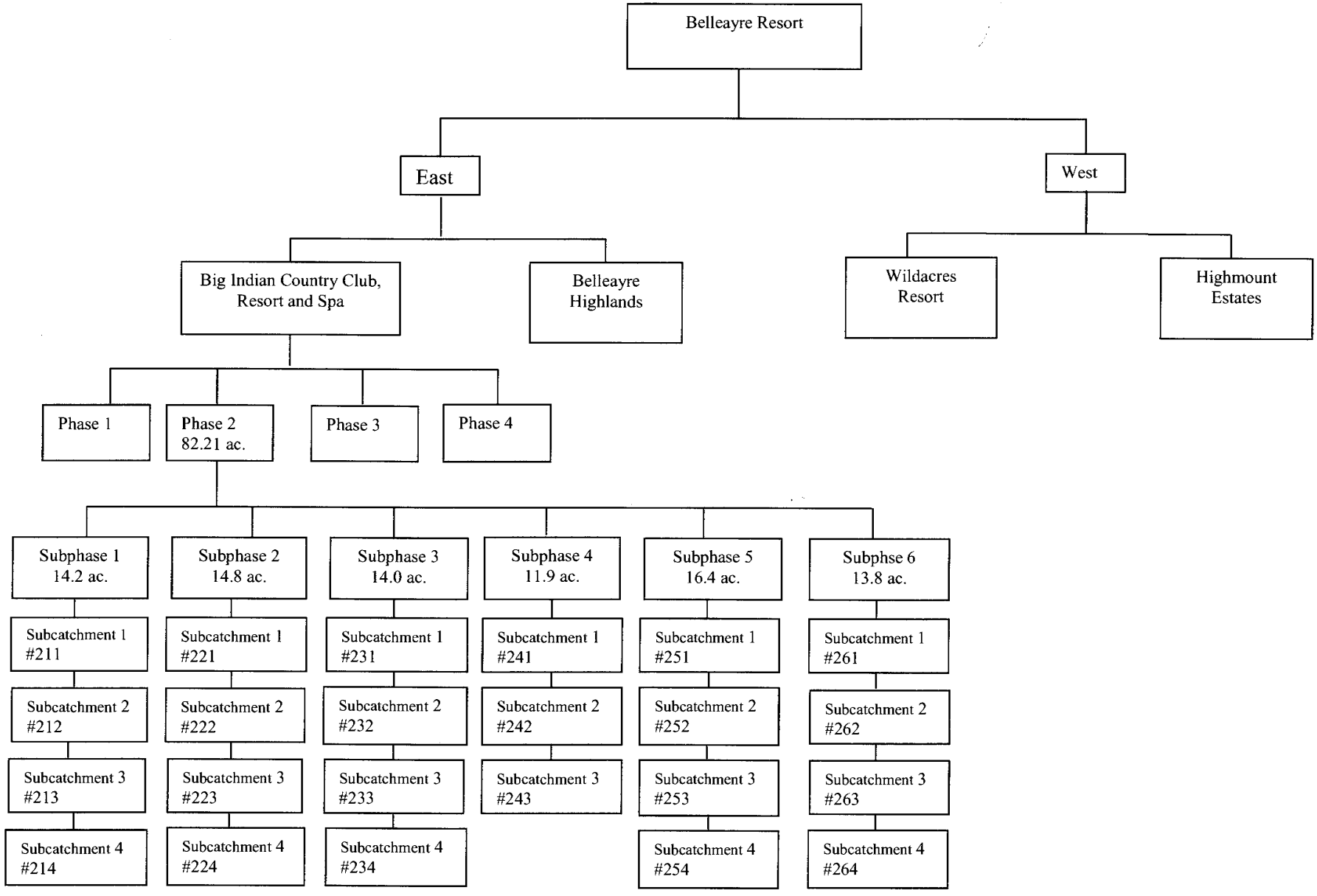


Figure 3-15G
Construction Components Big Indian Country Club Phase 2



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PHASE 2 CONSTRUCTION PHASING PLAN

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Project 00052
Date 07/25/00
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Fig.3-15H

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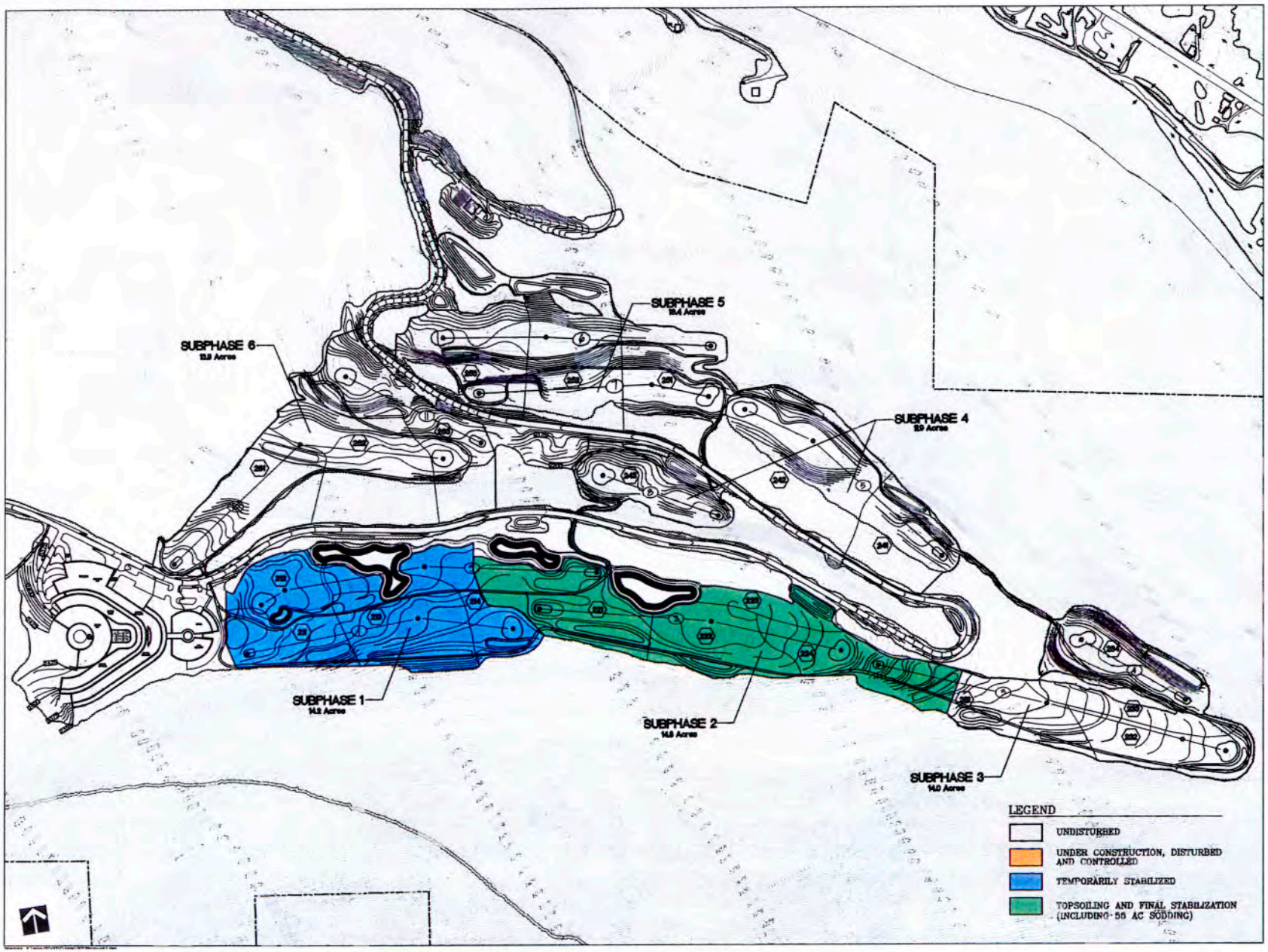

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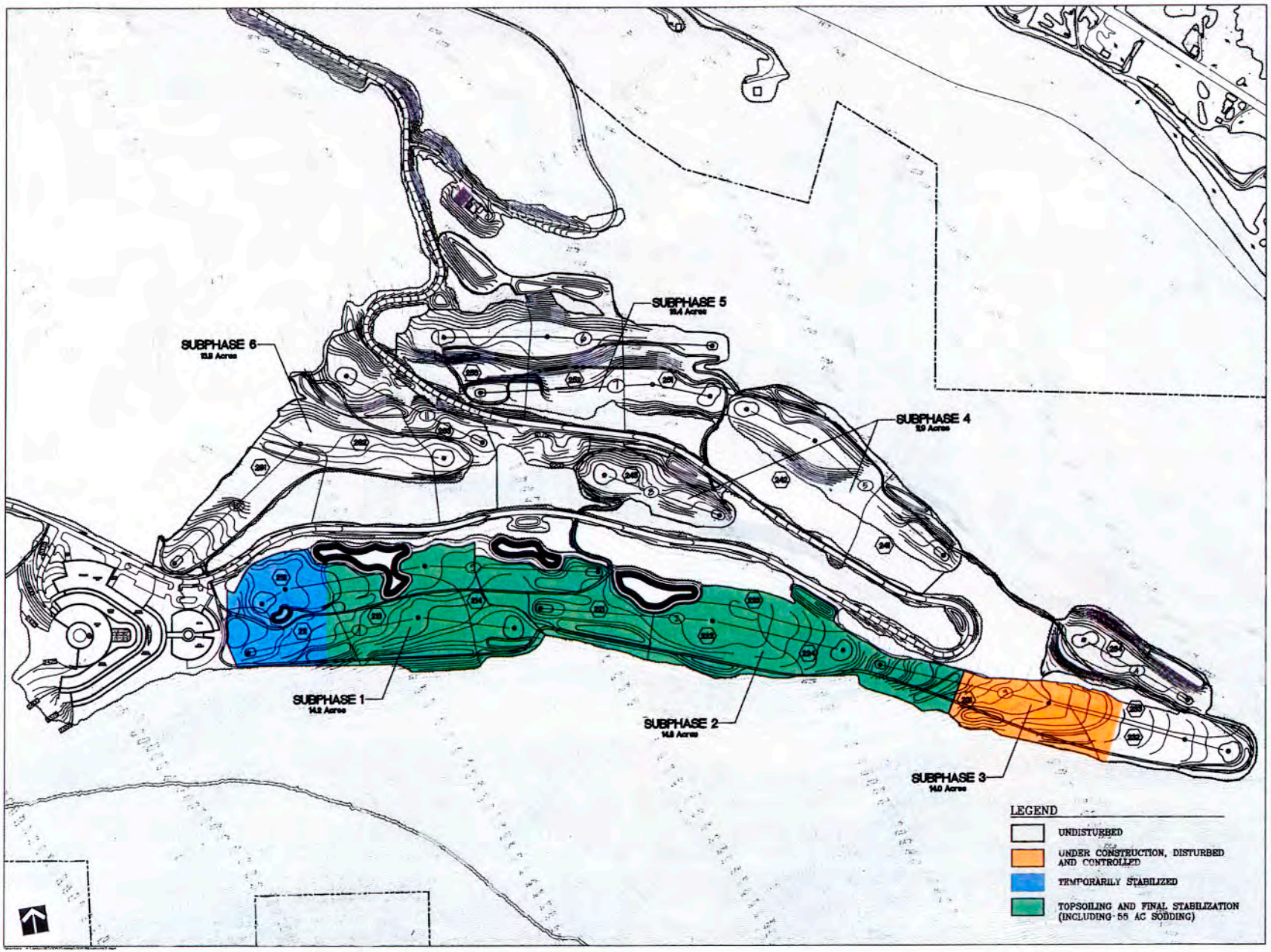
Fig 3-15J



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CAD #
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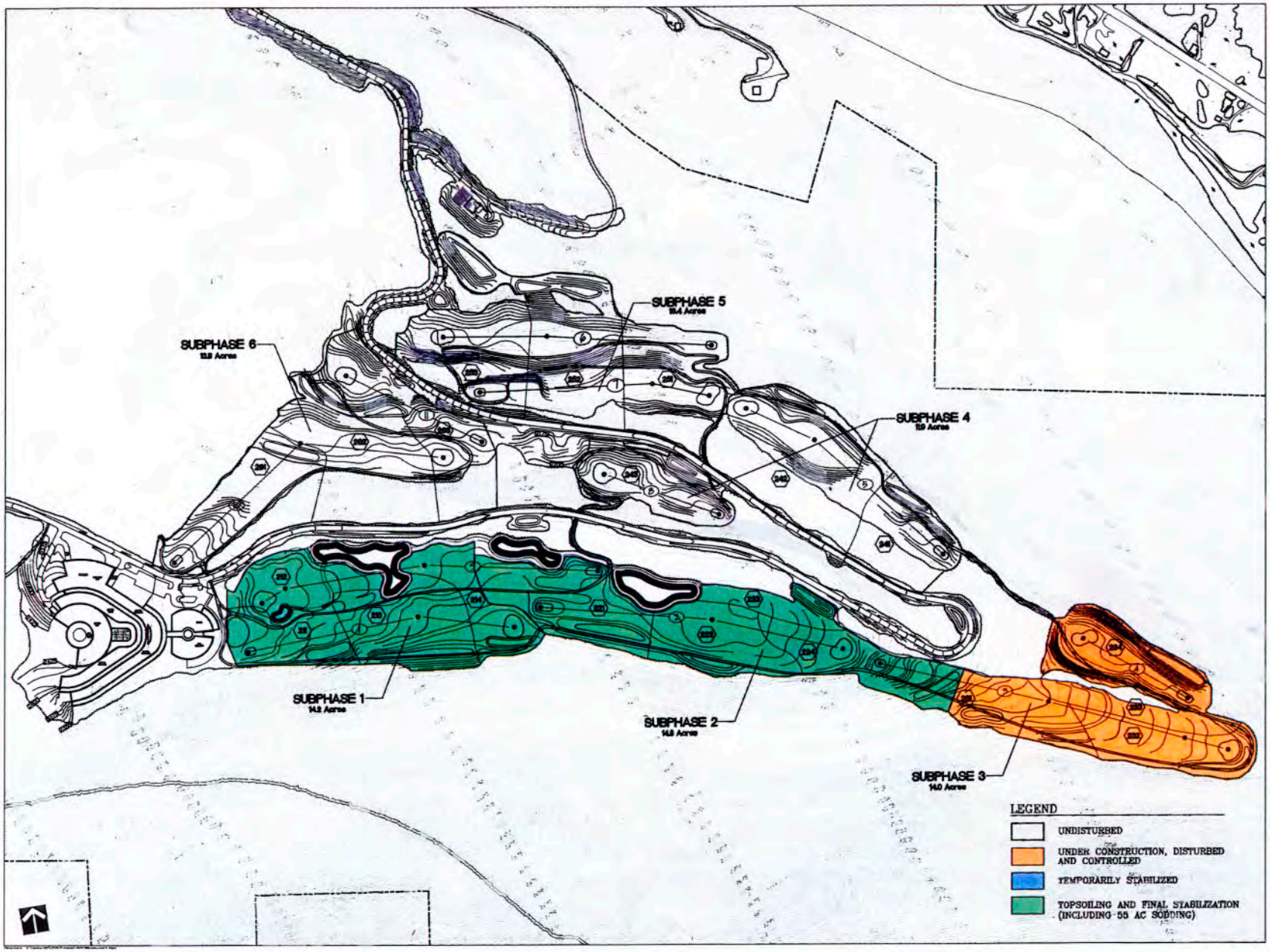

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Fig.3-15L

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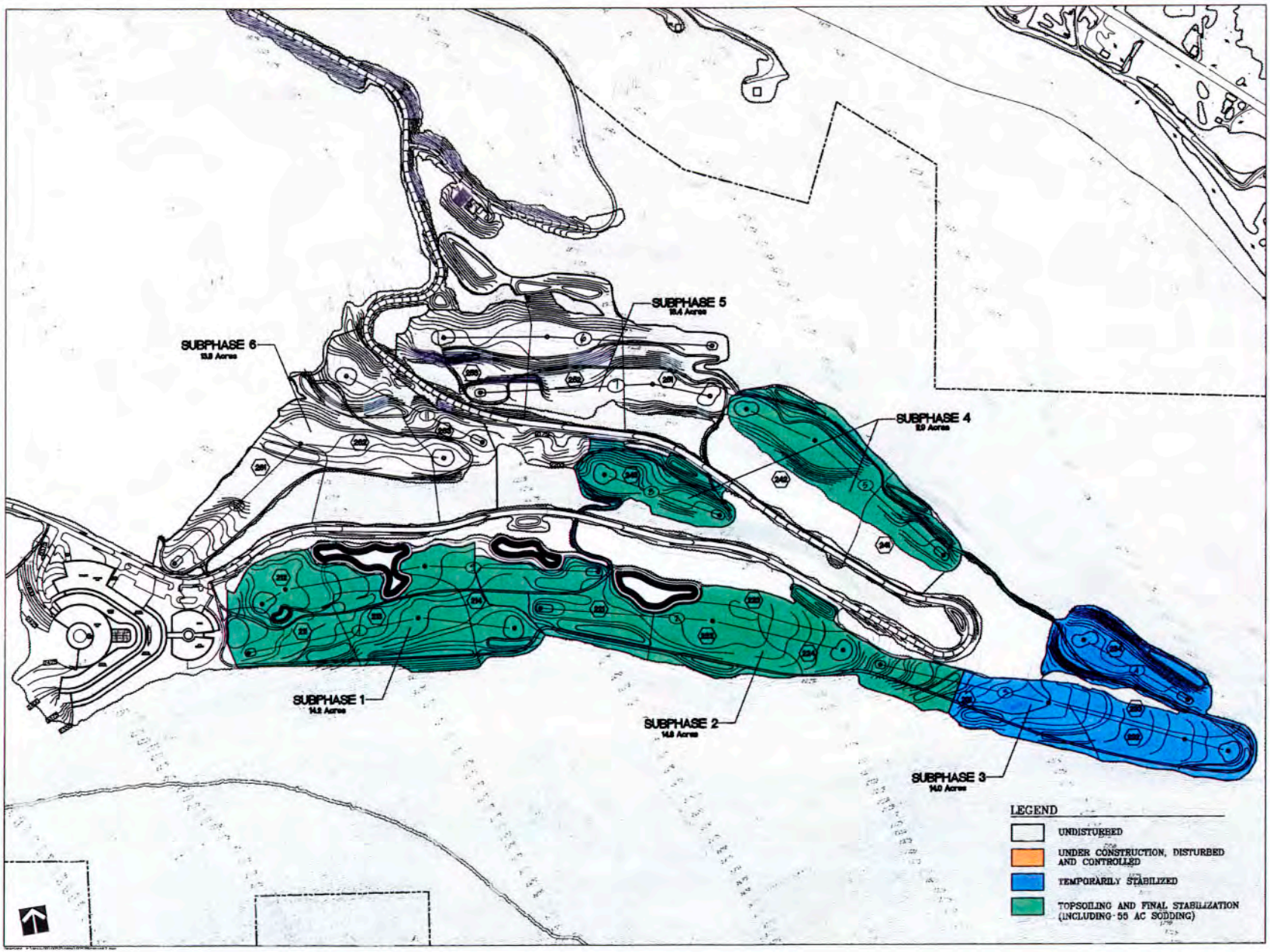
Date 07/24/08
CAD #
Drawing
Fig.3-15M



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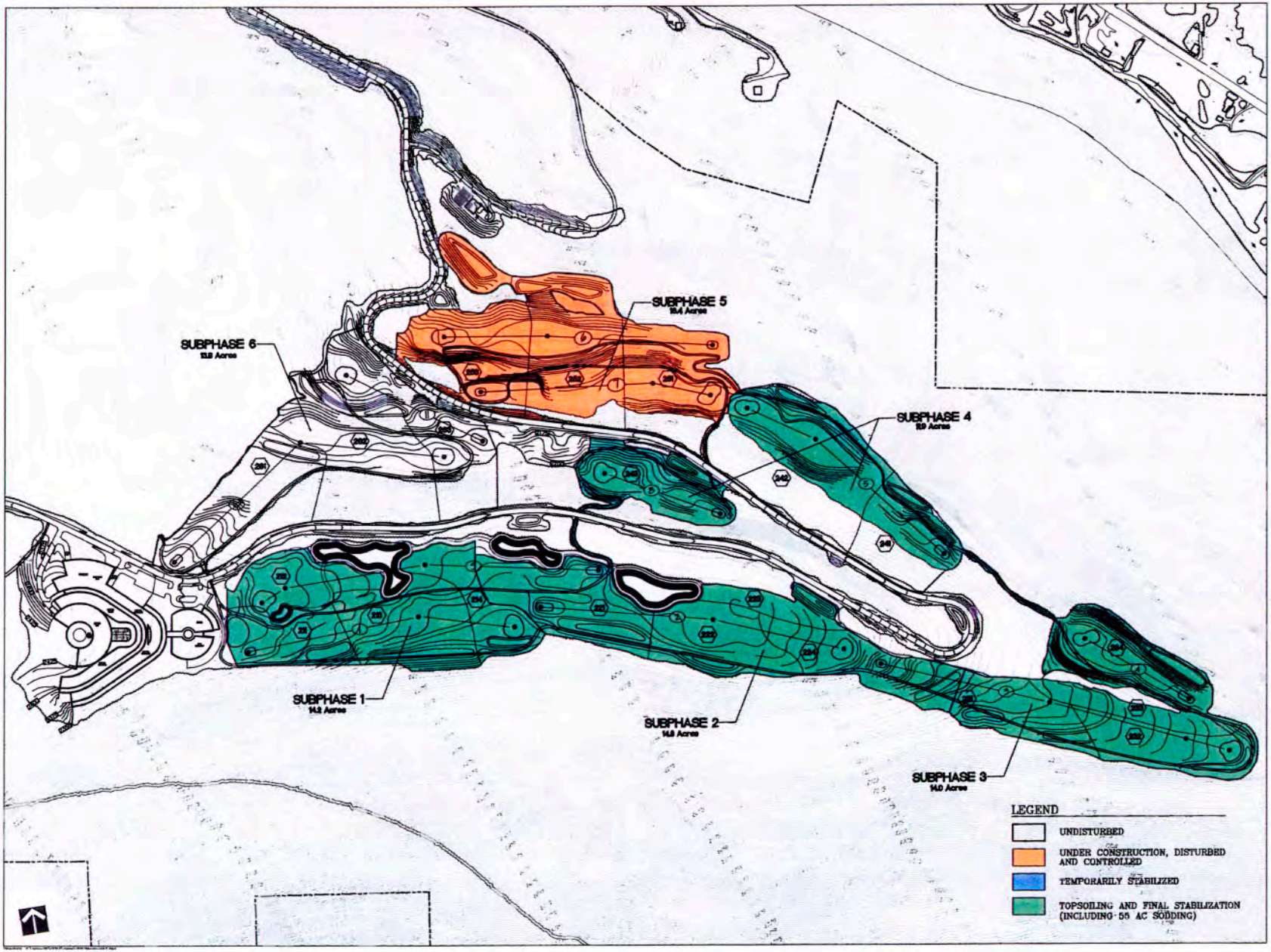
CAD #

Drawing
Fig.3-150



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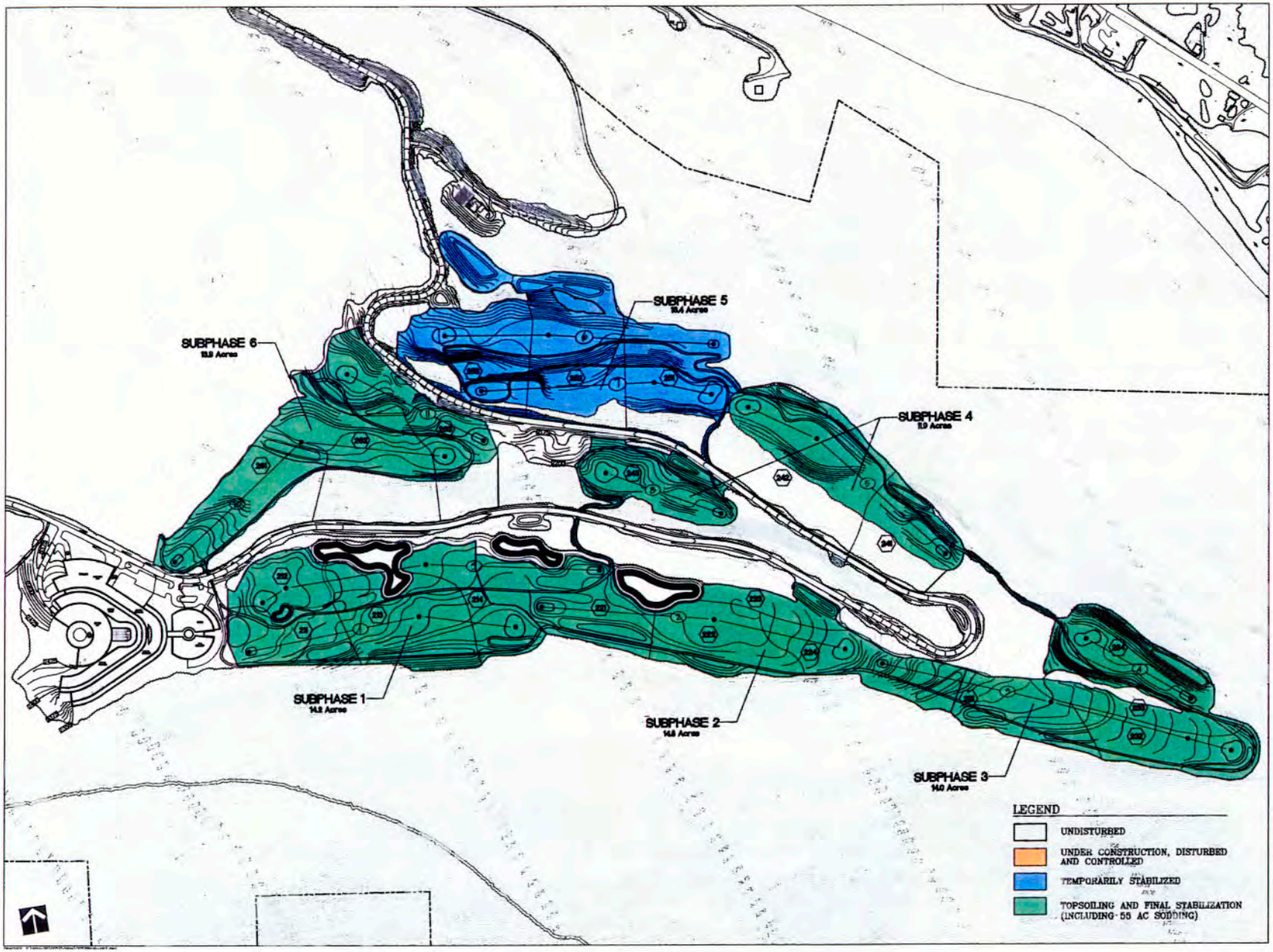
CAD #
Drawing
Fig.3-15P



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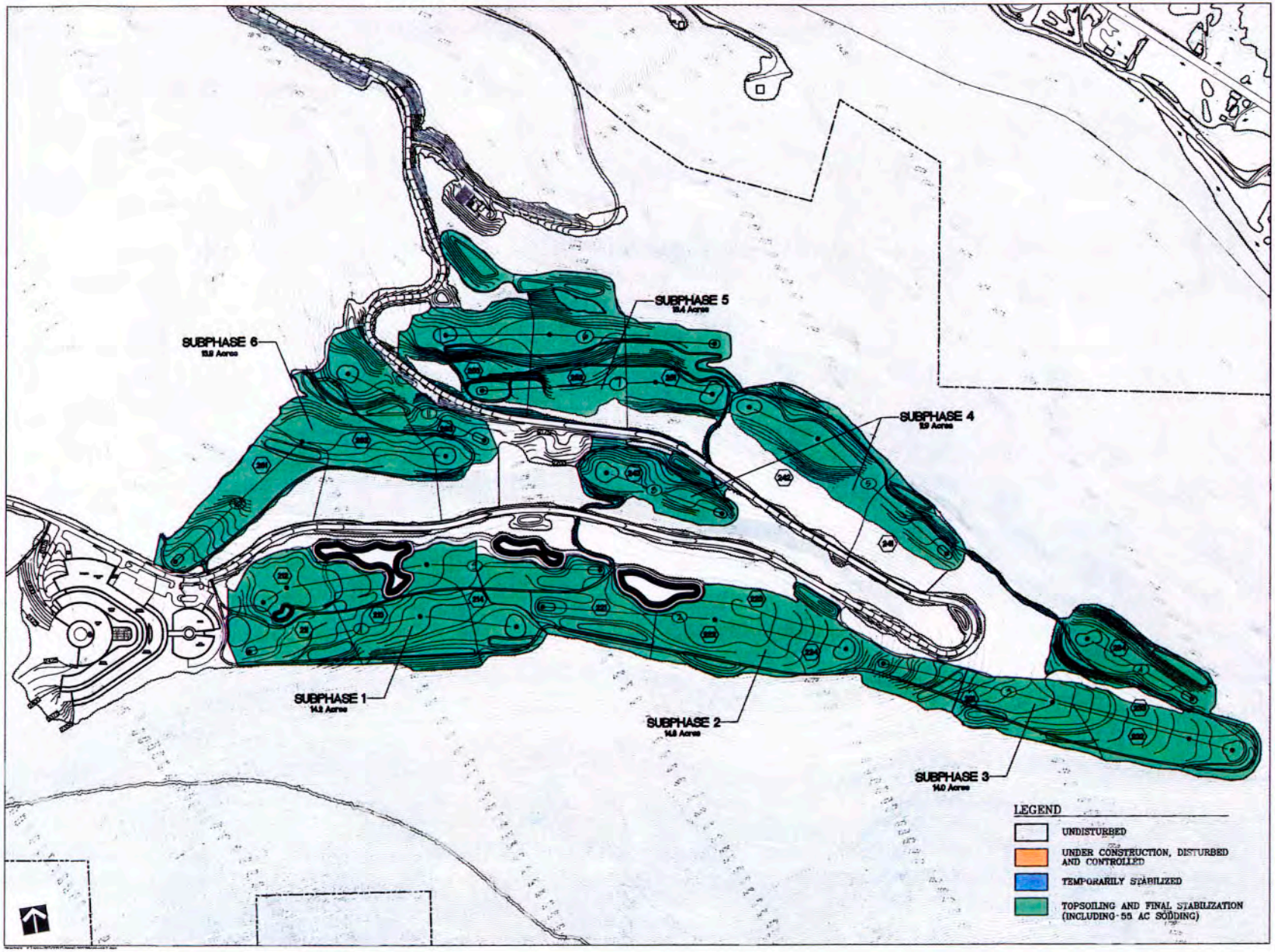
Date 07/24/09
CAD #
Drawing
Fig3-15P2



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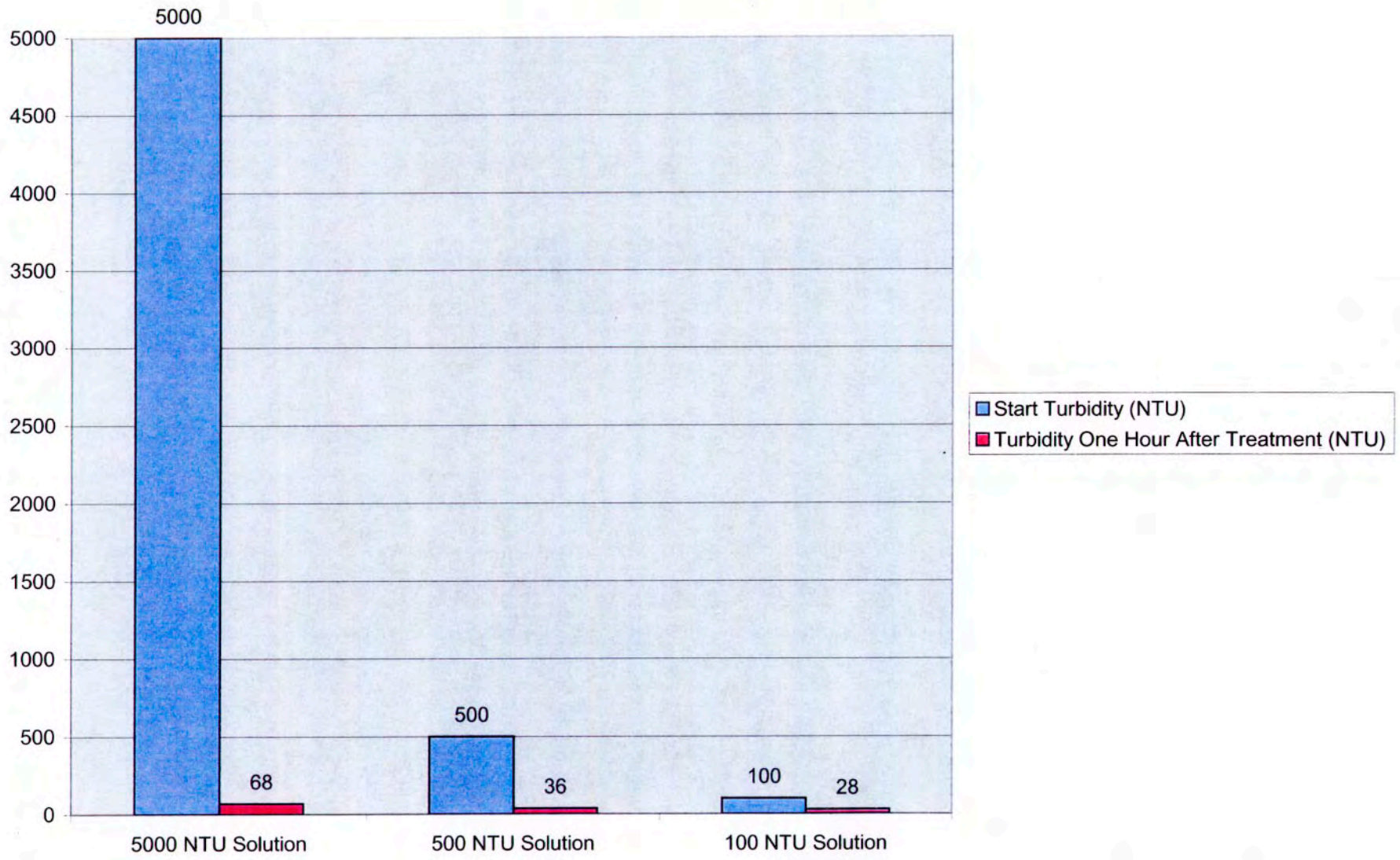
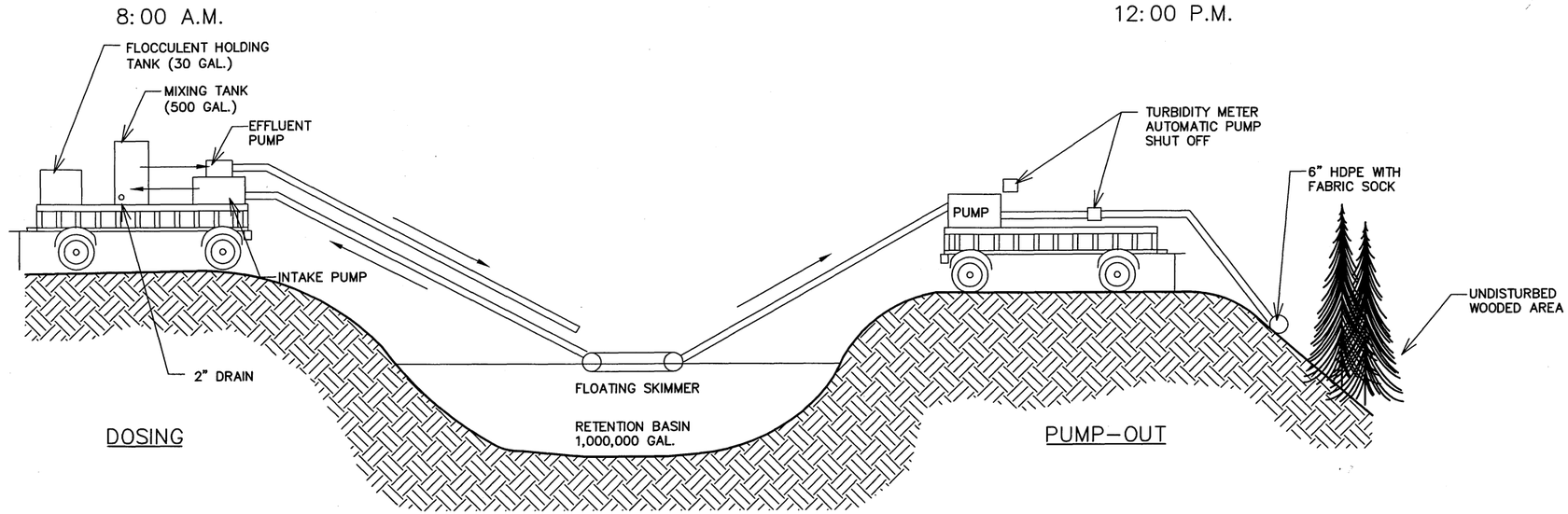
Date 07/24/09
CAD # 00052sc.cal
Drawing
Fig.3-15P3

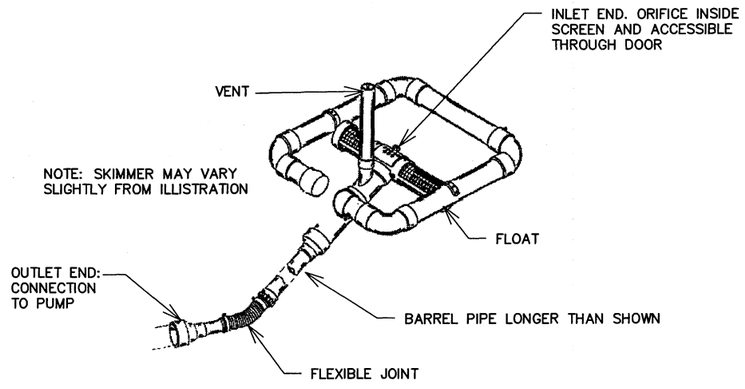
Figure 3-15Q Chitosan Testing





SCHEMATIC SECTION OF RETENTION BASIN

N.T.S.



TYPICAL FLOATING SKIMMER DETAIL

N.T.S.

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Saratoga Springs
New York 12866
518/587-8100
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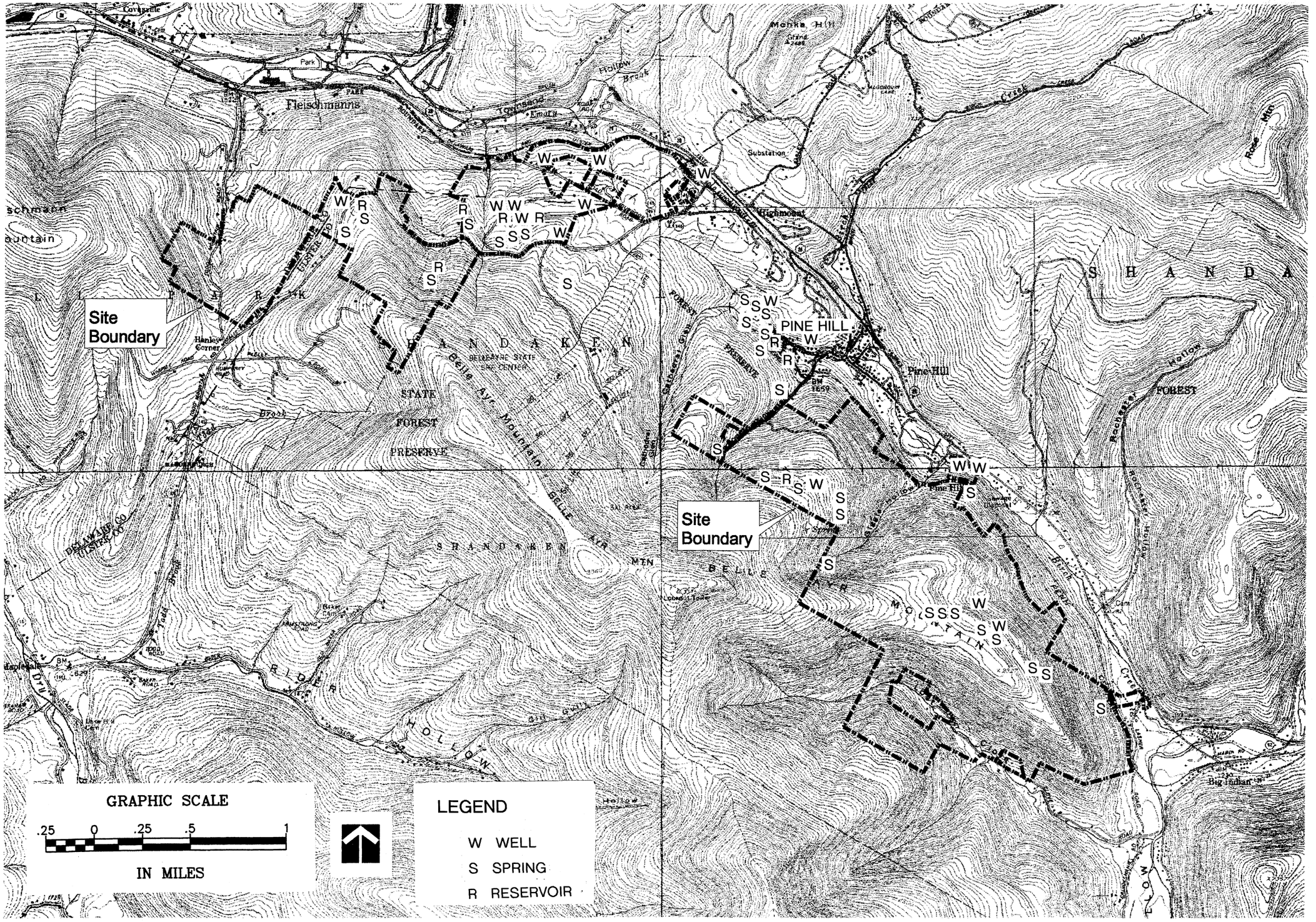
BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

FLOCCULENT DELIVERY SYSTEM

Project: 00052
Date: 12/11/02

Figure 3-15R



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BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

WELL LOCATION MAP

Project: 00052
Date:

Community Symbol	Community Name
BM	Beech-maple mesic forest
HH	Hemlock-northern hardwoods forest
HS	Hemlock-hardwood swamp
ML	Mowed lawn with trees
MS	Midreach stream
OF	Successional old field
RH	Rocky headwater stream
RS	Intermittent rocky stream wetland
SB	Shrub swamp
SM	Shallow emergent marsh

Belleayre Resort at Catskill Park
Ecological Community Map
Eastern Property

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and Engineering, P.C.
40 Long Alley
Saratoga Springs
New York 12866

North
1 : 15,000
Scale : 1" = 1,250'
0 750 1500 Feet

Printed Date: January 11, 2002
Project # 98093
Project Apr: Hydrg 98093Hydrosurveyprotection.apr

Community Symbol	Community Name
BM	Beech-maple mesic forest
HD	Hardwood swamp
HH	Hemlock-northern hardwoods forest
HS	Hemlock-hardwood swamp
ML	Mowed lawn with trees
OF	Successional old field
PP	Pine plantation
RS	Intermittent rocky stream wetland
SB	Shrub swamp
SH	Successional northern hardwoods forest
SM	Shallow emergent swamp
SS	Ski slope

Belleayre Resort at Catskill Park
Ecological Community Map
Western Property

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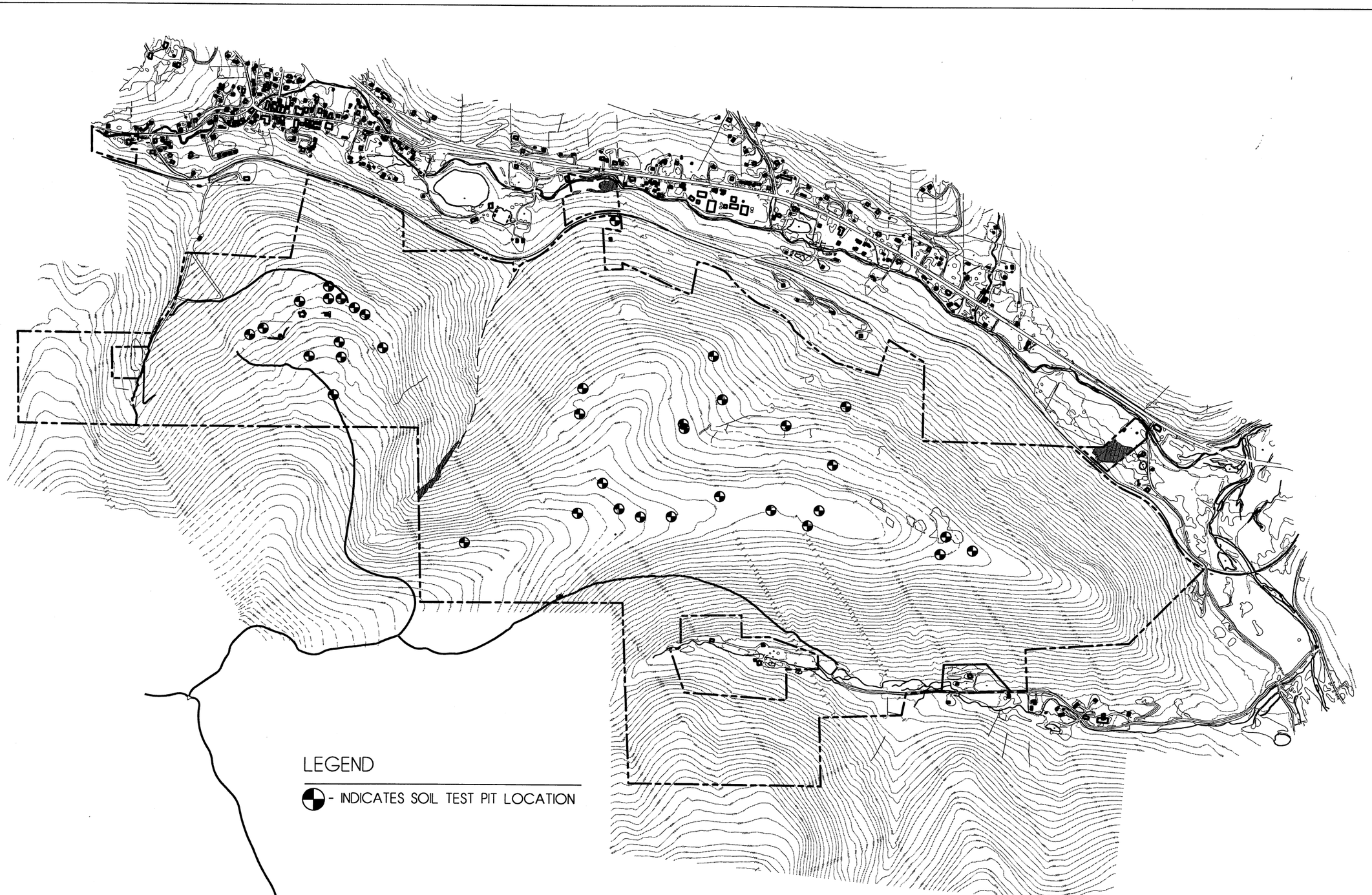
and Engineering, P.C.
43 Long Alley
Saratoga Springs
New York 12866

North
1 : 12,200
Scale 1" = 1,000'
0 500 1000 Feet

Printed Date: January 11, 2012
Project # 28080
Project Apr - J:\proj-80\28080\gis\vegetation.apr



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BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

SOILS
TESTING
MAP
EASTERN
PORTION

Project: 00052
Date:

Figure
3-19

LEGEND

- INDICATES SOIL TEST PIT LOCATION

625 0 625 1250 2500

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BELLEAYRE RESORT AT CATSKILL PARK

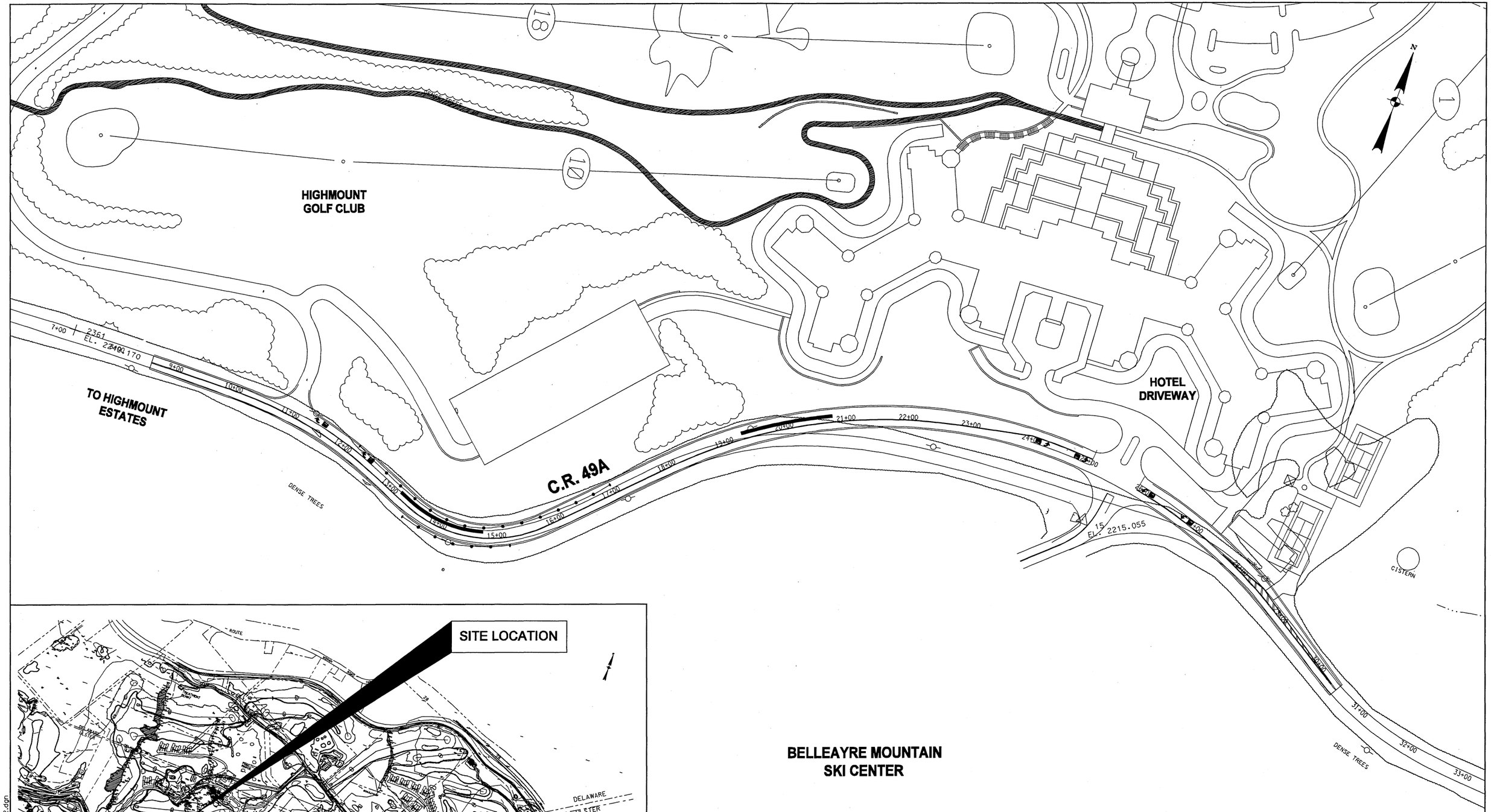
DRAFT ENVIRONMENTAL IMPACT STATEMENT

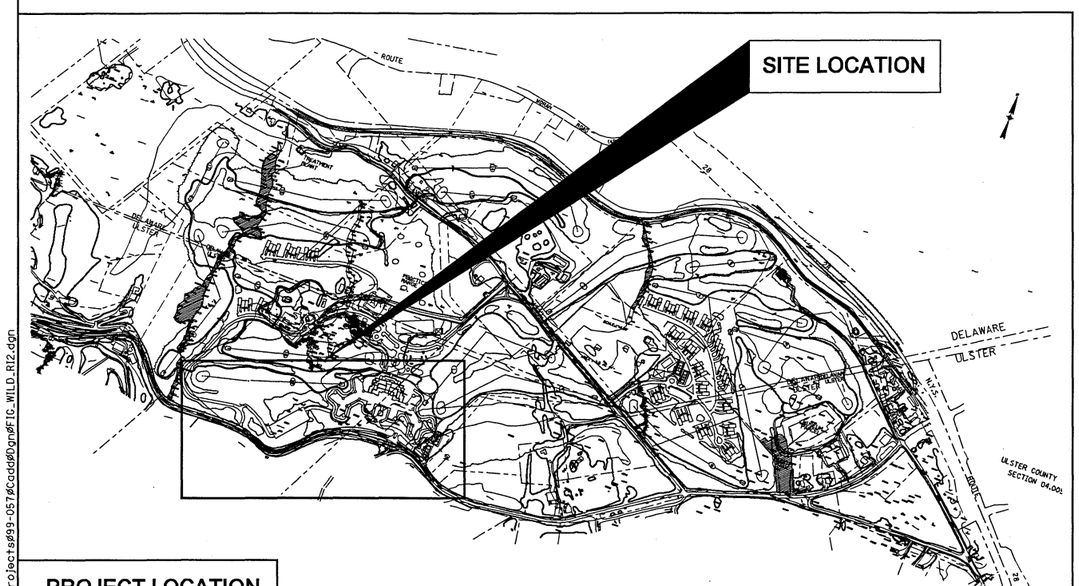
SOILS TESTING MAP WESTERN PORTION

Project: 00052
Date:

Figure 3-20

Directory: z:\proj-00\0052\wildacres\0052wild.dwg LX: soils





PROJECT LOCATION

BELLEAYRE MOUNTAIN
SKI CENTER

0 75 150
(IN FEET)
1 INCH = 150 FT.

PROPOSED ROADWAY IMPROVEMENTS
COUNTY ROAD 49A
AT WILDACRES MAIN DRIVEWAY

BELLEAYRE RESORT AT CATSKILL PARK
TOWN OF SHANDAKEN AND
MIDDLETOWN, NEW YORK

CREIGHTON MANNING ENGINEERING, LLP
4 AUTOMATION LANE, ALBANY, NY 12205

PROJECT: 99-057 | DATE: 8/03 | FIGURE: 3-21A

H:\Projects\99-057\Cadd\Dgn\FIG_WILD_R12.dgn

NYS ROUTE 28

28

C.R. 49A

SITE LOCATION

PROJECT LOCATION

ROUTE

DELAWARE

ULSTER

ULSTER COUNTY SECTION 04.00

0 75 150

(IN FEET)
1 INCH = 150 FT.

PROPOSED IMPROVEMENTS
NYS ROUTE 28/COUNTY ROAD 49A

BELLEAYRE RESORT AT CATSKILL PARK
TOWN OF SHANDAKEN AND
MIDDLE TOWN, NEW YORK

CREIGHTON MANNING ENGINEERING, LLP
4 AUTOMATION LANE, ALBANY, NY 12205

PROJECT: 99-057 | DATE: 8/03 | FIGURE: 3-21B

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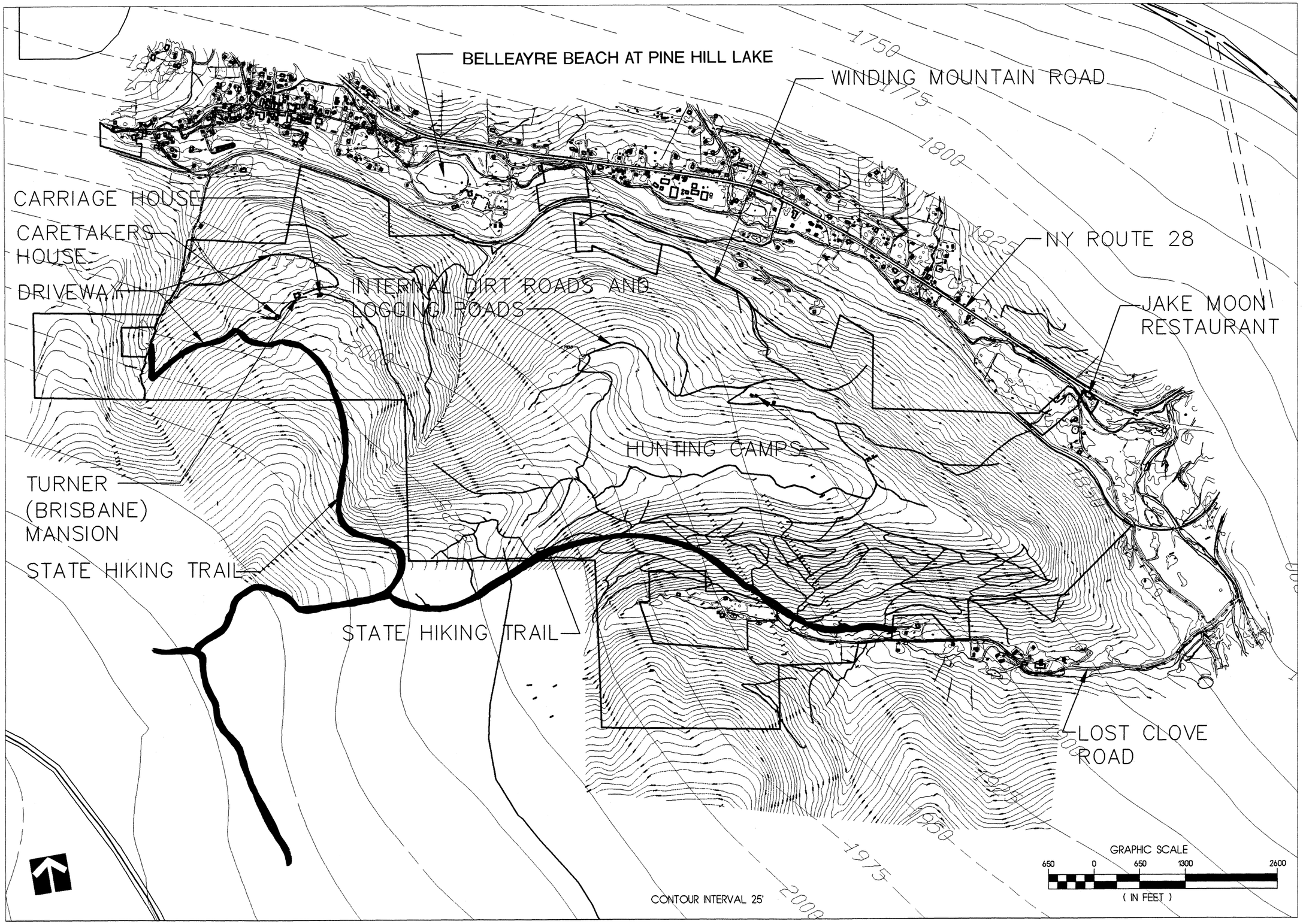

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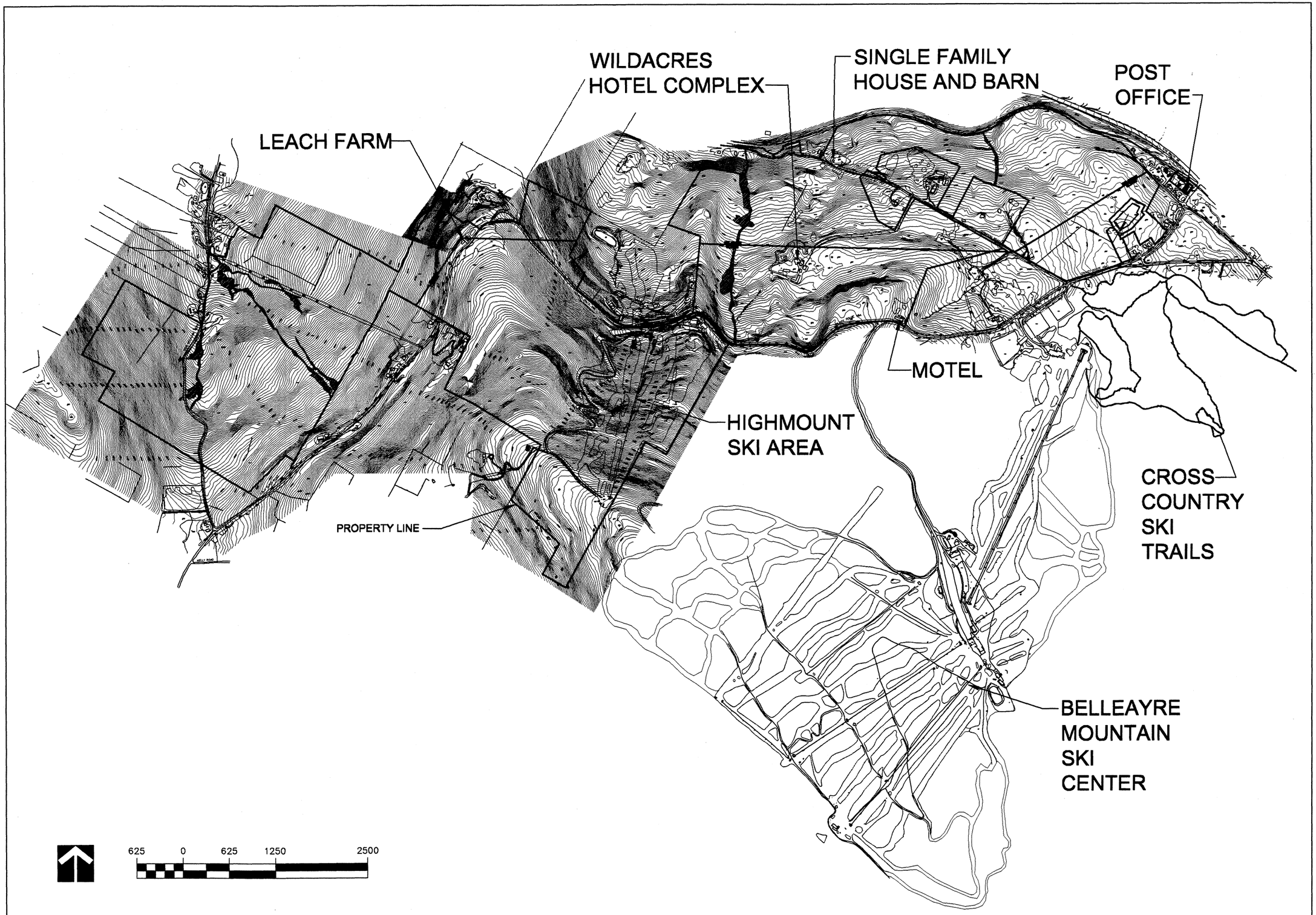
BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

STATE HIKING TRAILS EASTERN PORTION

Project: 00052
Date:

Figure
3-22



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Lx: Exisitng

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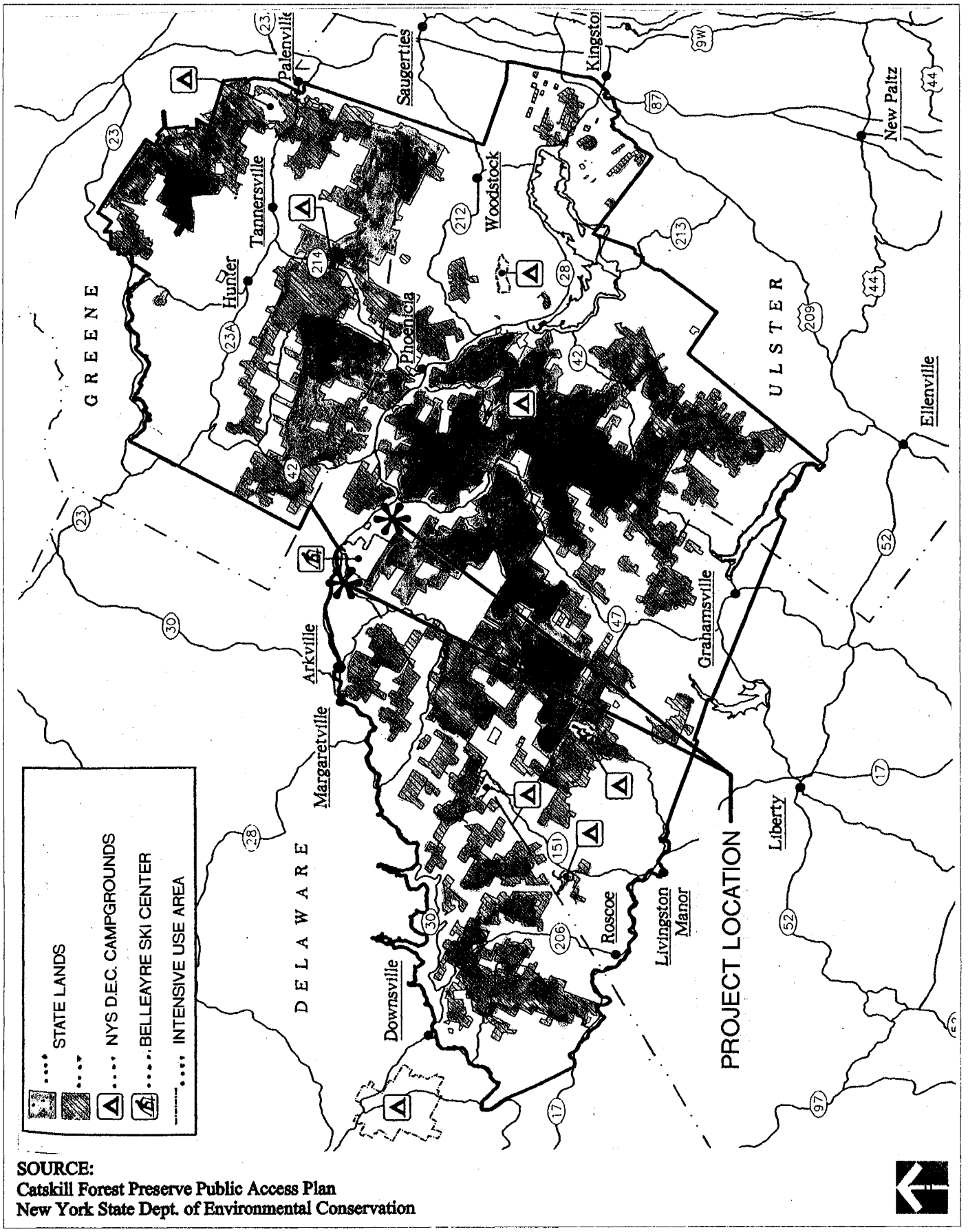
BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

STATE
TRAILS
WESTERN
PORTION

Project: 00052
Date:

Figure
3-23



SOURCE:
Catskill Forest Preserve Public Access Plan
New York State Dept. of Environmental Conservation

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BELLEAYRE RESORT AT CATSKILL PARK
DRAFT ENVIRONMENTAL IMPACT
STATEMENT

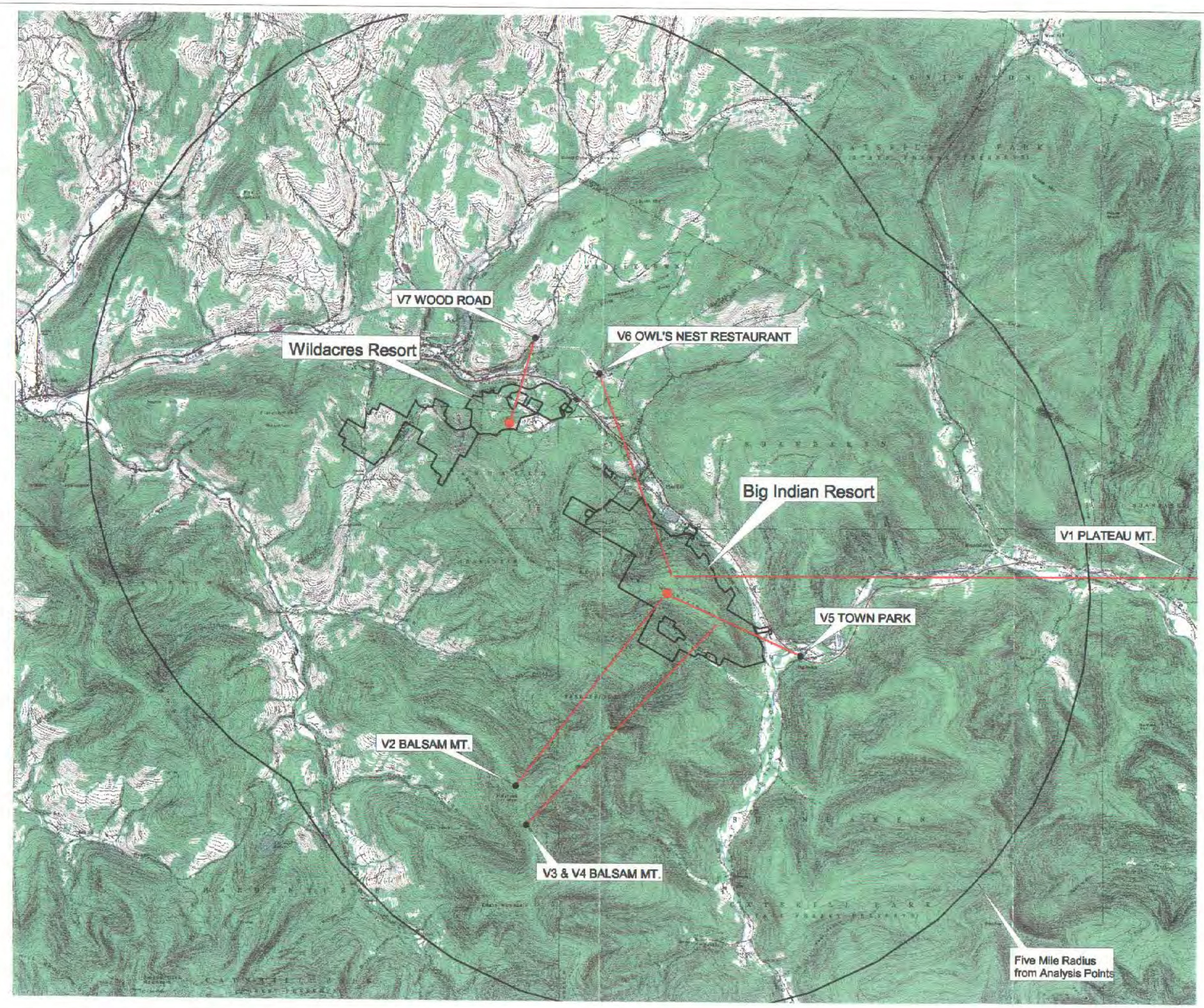
STATE LANDS

Date:

Project: 00057

Figure

3-24



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BELLEAYRE
RESORT AT
CATSKILL PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

VIEWSHED
ANALYSIS -
VIEWPOINTS

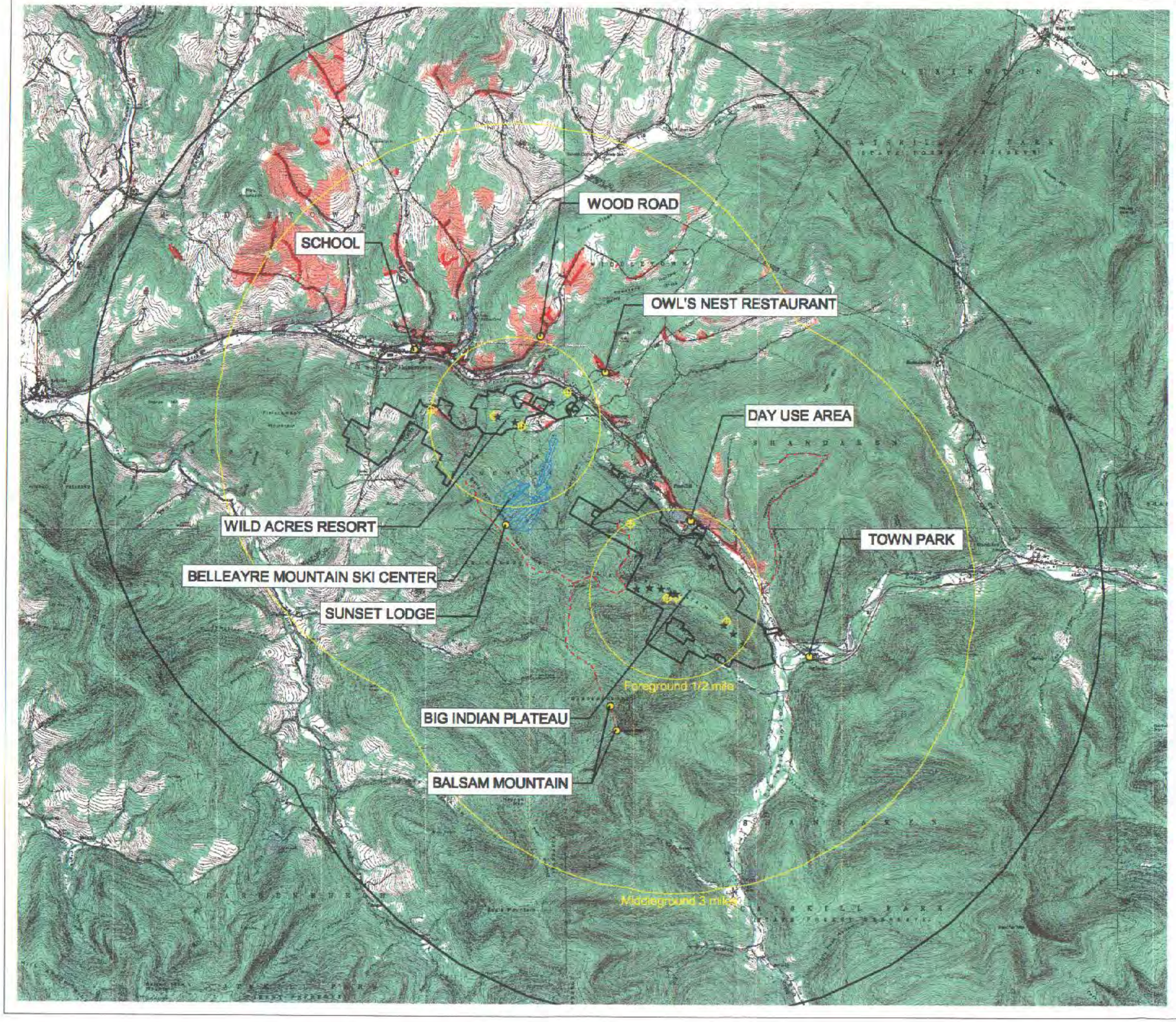
BIG INDIAN and
WILDACRES
RESORTS

North

0 6000 Feet

Scale: 1"=6,000'

Project: 00052
Date: 10/01
GIS#:
00052VISUAL2.apr



Legend

- 5 Mile Study Area
- Balloon Locations
- Visibility Target Points
- Receptor View Points

Potential Trail Receptors

- Hiking Trail
- Ski Trail
- Potentially Visible Areas Along Roadways
- Potentially Visible Areas Based on Vegetation

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BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

VIEWSHED ANALYSIS
ALL TARGET POINTS

IDENTIFY POTENTIAL RECEPTORS

BIG INDIAN and WILDACRES RESORTS

North

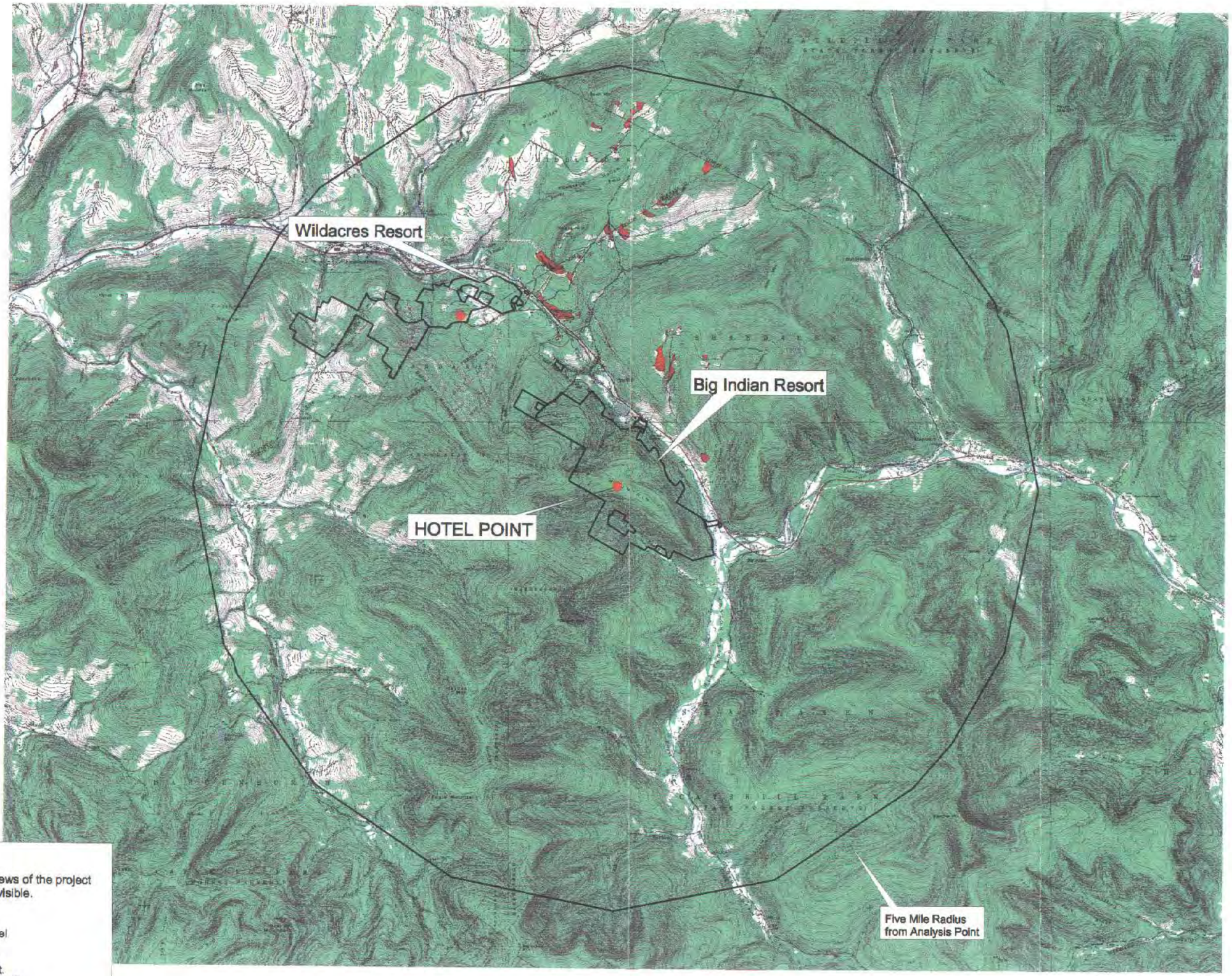
0 6000 Feet

Scale: 1"=6,000'

Project: 00052
Date: 11/11
GIS#:

00052VISUAL2.apr

3-25A



LEGEND

Areas where views of the project are potentially visible.

Notes

Point ID: Big Indian Hotel
Target Height: 40 ft.
Observer Height: 4.5 ft.
Tree Cover Height: 50 ft.
DEM Name: vegclr_wardg2

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BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

VIEWSHED ANALYSIS

BIG INDIAN RESORT

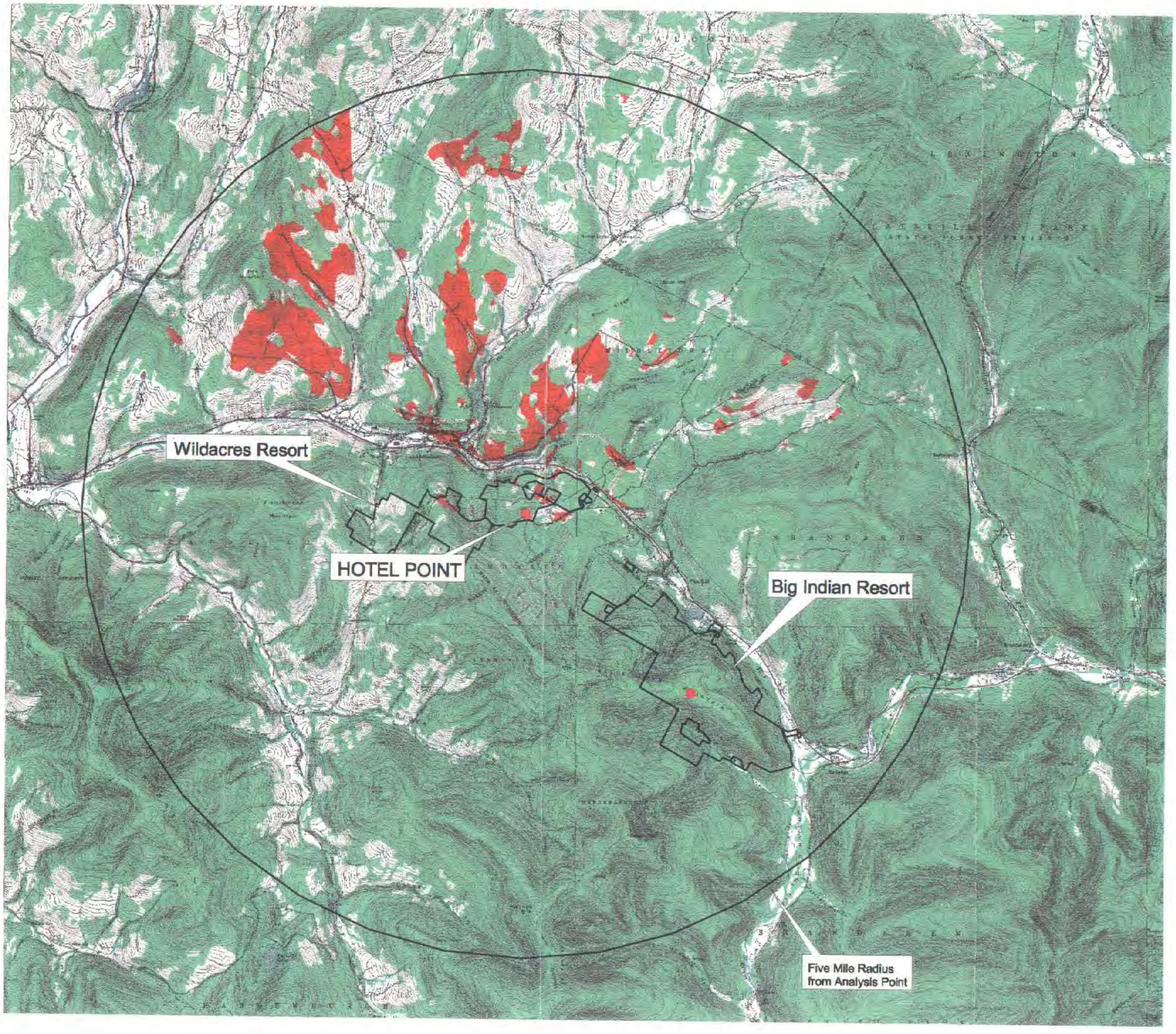
HOTEL SITE

North

0 3000 Feet

Scale: 1"=3,000'

Project: 00052
Date: 10/01
GIS#: 00052VISUAL2.apr



LEGEND

Areas where views of the project are potentially visible.

Notes

Point ID: Wild Acres Hotel
Target Height: 49 ft.
Observer Height: 4.5 ft.
Tree Cover Height: 50 ft.
DEM Name: vegclr_wardg2

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BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

VIEWSHED ANALYSIS

WILDACRES RESORT

HOTEL SITE

North

0 6000 Feet

Scale: 1"=6,000'

Project: 00052
Date: 10/01
GIS#:
00052VISUAL2.apr

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BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

Location Plan: Supplemental Study Points

Project: 02017.09
Date: <Date>

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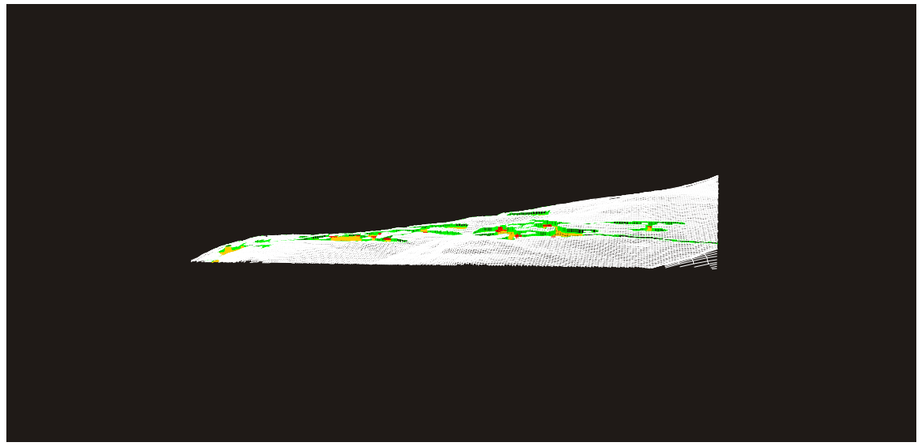
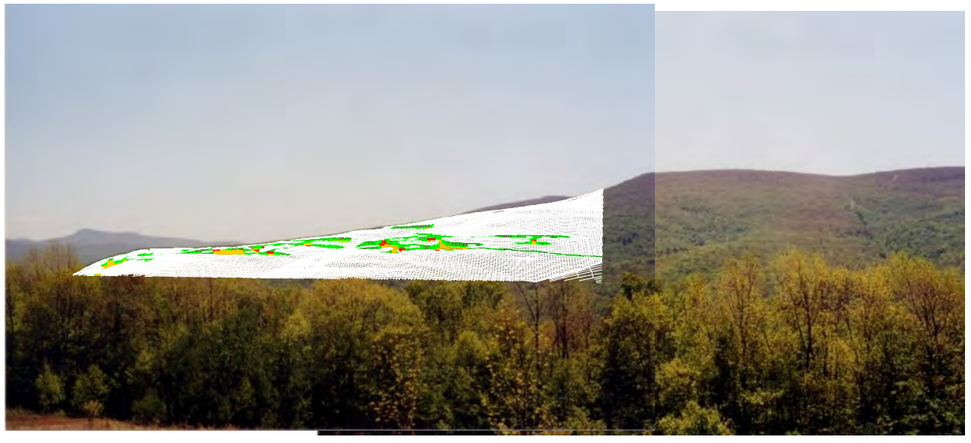
IDENTIFY AND PHOTOGRAPH THE VIEW



DEVELOP A 3D MODEL OF THE VIEW



OVERLAY THE 3D MODEL ON TO THE PHOTOGRAPH

RENDER PHOTOGRAPH WITH PROPOSED DEVELOPMENT

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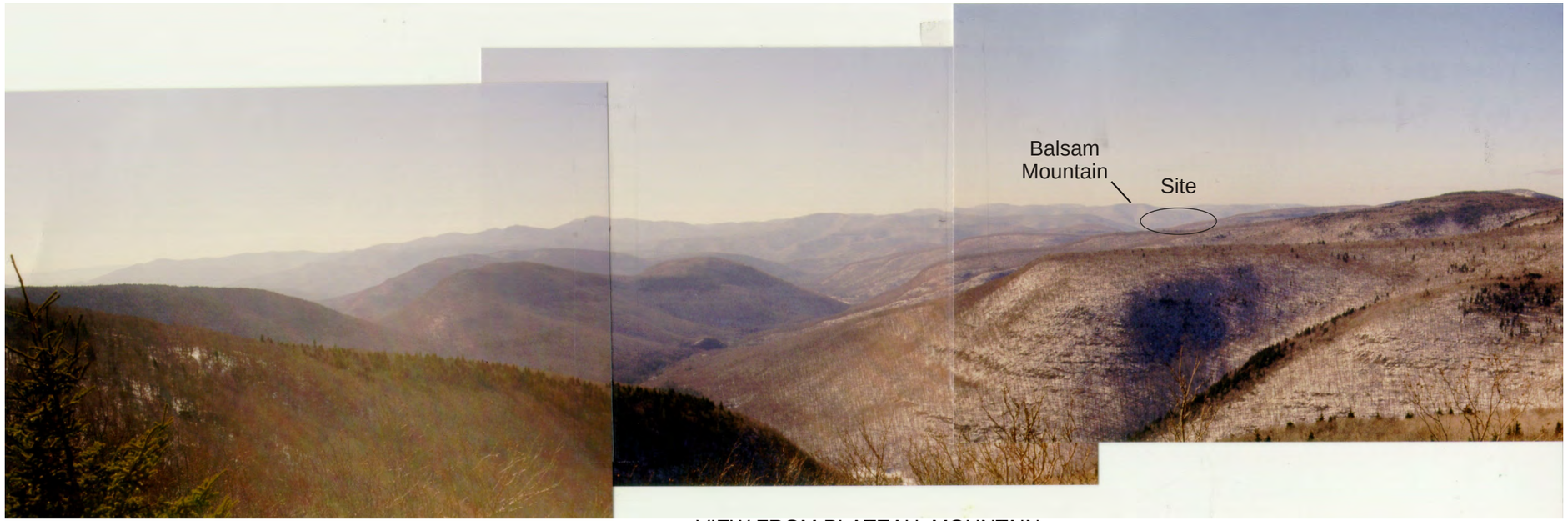
BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

VISUAL SIMULATION PROCESS

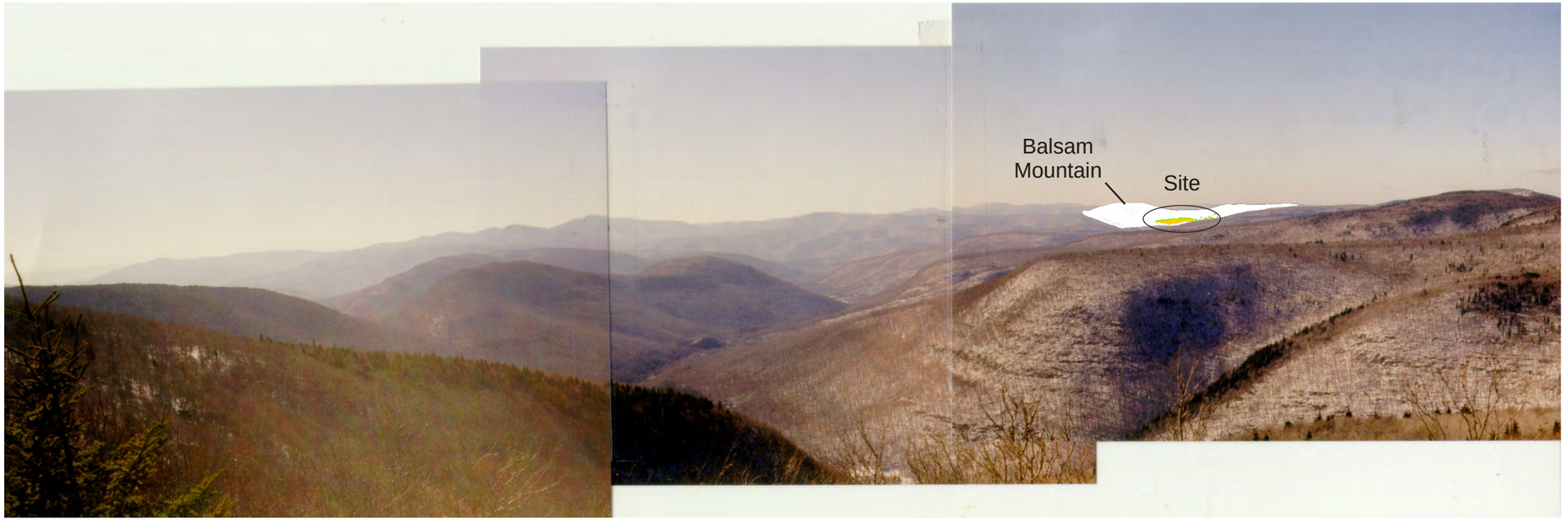
Project: 00052
Date:

Figure
3-28



EXISTING CONDITIONS

VIEW FROM PLATEAU MOUNTAIN
(Based on 50 mm) LOOKING WEST
View distance (15 miles)



PROPOSED CONDITIONS

VIEW FROM PLATEAU MOUNTAIN
(Based on 50 mm) LOOKING WEST ENHANCED
View distance (15 miles)

FINISHED GROUND
CANOPY EDGE
WIREFRAME OF CANOPY

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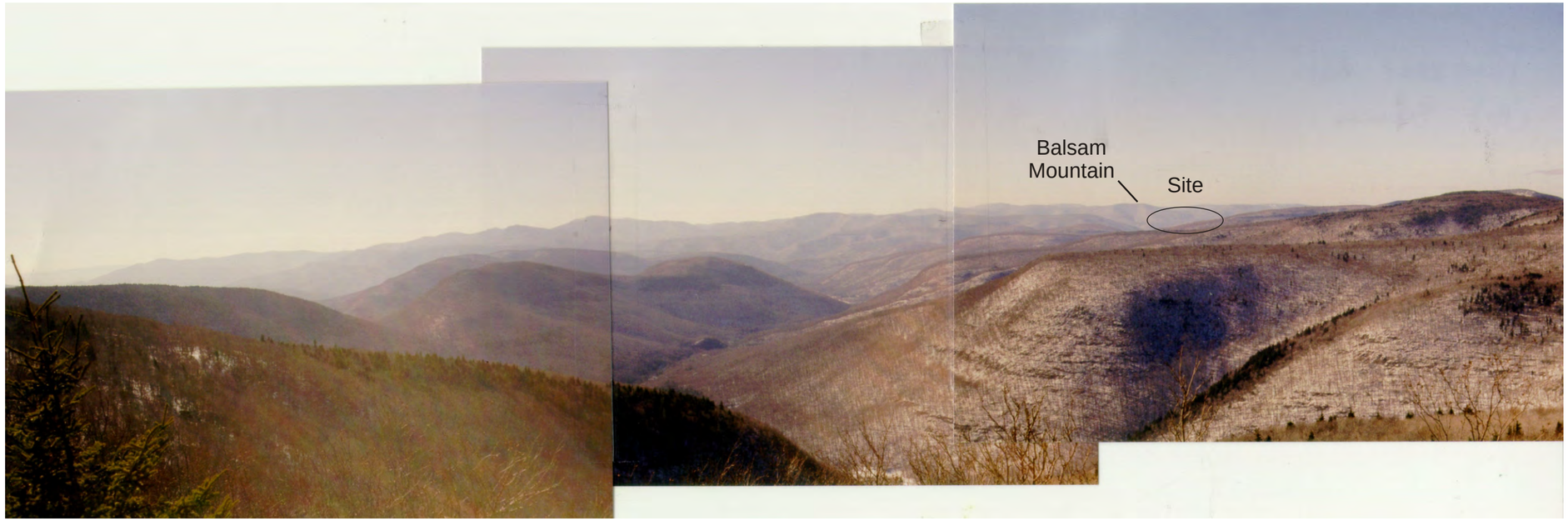
BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

VISUAL
SIMULATION
PLATEAU
MOUNTAIN
ENHANCED

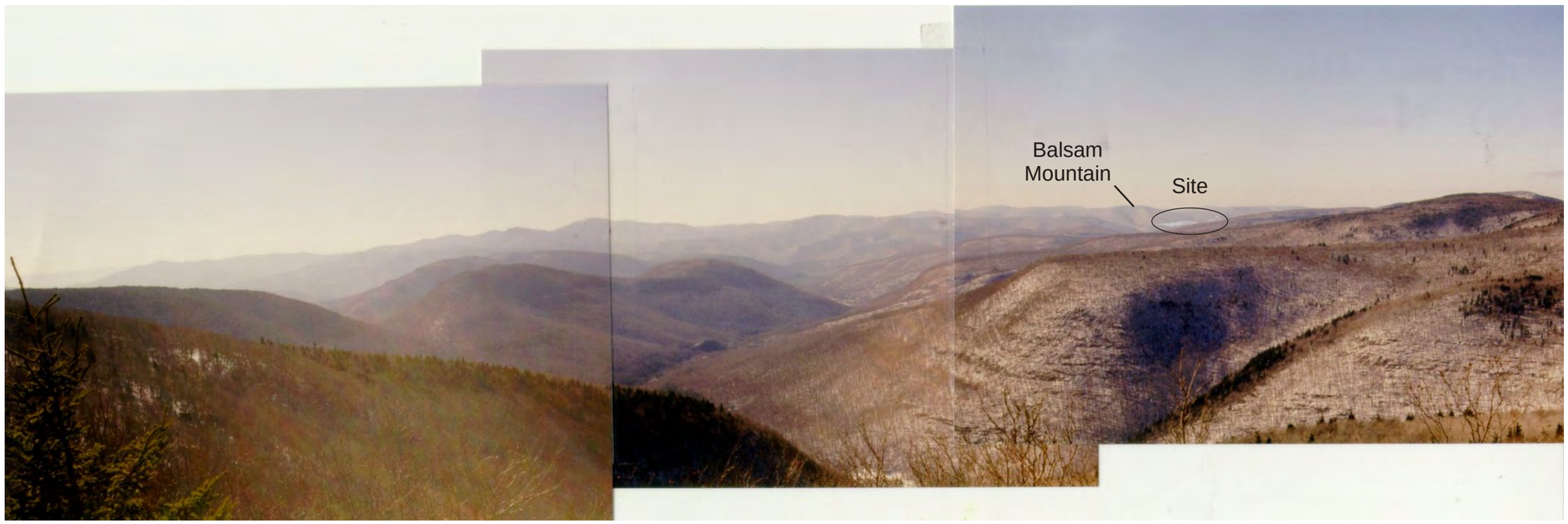
Project: 00052
Date:

Figure
3-29



EXISTING CONDITIONS

VIEW FROM PLATEAU MOUNTAIN
(Based on 50 mm) LOOKING WEST,
View distance (15 miles)



PROPOSED CONDITIONS

VIEW FROM PLATEAU MOUNTAIN
(Based on 50 mm) LOOKING WEST RENDERED,
View distance (15 miles)

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BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

VISUAL
SIMULATION
PLATEAU
MOUNTAIN,
RENDERED

Project: 00052
Date:

Figure
3-30

PROPOSED CONDITIONS

VIEW FROM PLATEAU MOUNTAIN (Based on 50 mm) LOOKING WEST
ENLARGED RENDERED, View distance (15 miles)

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RESORT AT
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PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

VISUAL
SIMULATION
PLATEAU
MOUNTAIN,
ENLARGED
RENDERED

Project: 00052
Date:

Figure
3-30A

EXISTING CONDITIONS

VIEW FROM BALSAM MOUNTAIN (Based on 50 mm)
LOOKING NORTHEAST, View distance (1.33 miles)

Big Indian Resort and Spa

PROPOSED CONDITIONS

VIEW FROM BALSAM MOUNTAIN
(Based on 50 mm) LOOKING NORTHEAST
ENHANCED, View distance (1.33 miles)

BUILDINGS
FINISHED GROUND
CANOPY EDGE
WIREFRAME OF CANOPY

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BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

VISUAL
SIMULATION
BALSAM
MOUNTAIN
ENHANCED

Project: 00052
Date:

Figure
3-31

EXISTING CONDITIONS

VIEW FROM BALSAM MOUNTAIN (Based on 50 mm)
LOOKING NORTHEAST, View distance (1.33 miles)

Big Indian Resort and Spa

PROPOSED CONDITIONS

VIEW FROM BALSAM MOUNTAIN (Based on 50 mm)
LOOKING NORTHEAST
RENDERED, View distance (1.33 miles)

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BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

VISUAL
SIMULATION
BALSAM
MOUNTAIN
RENDERED

Project: 00052
Date:

Figure
3-32

PROPOSED CONDITIONS

VIEW FROM BALSAM MOUNTAIN (Based on 50 mm)
LOOKING NORTHEAST, ENLARGED
RENDERED, View distance (1.33 miles)

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BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

VISUAL
SIMULATION
BALSAM
MOUNTAIN
ENLARGED
RENDERED

Project: 00052
Date:

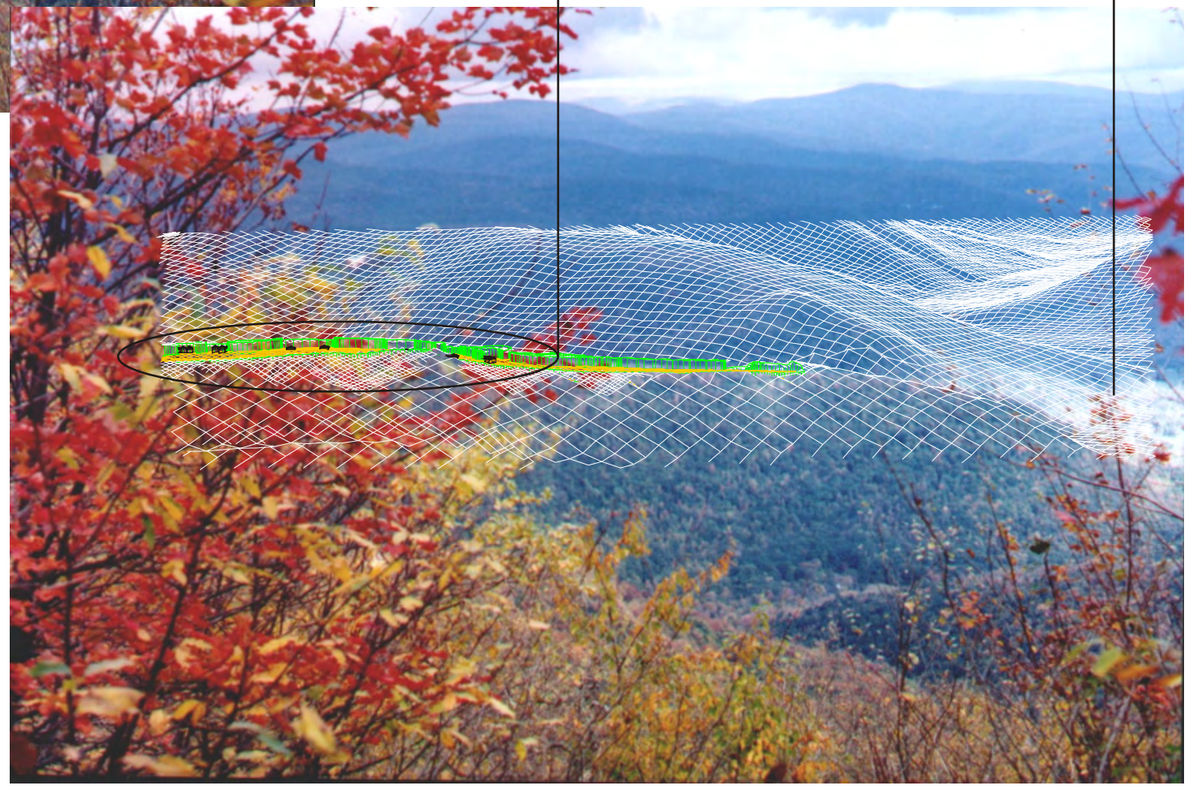
Figure
3-32A

EXISTING CONDITIONS

VIEW FROM BALSAM MOUNTAIN
(Based on 50 mm) LOOKING NORTHEAST,
View distance (1.60 miles)

Detached Hotel Lodging Units on the Northeast Side on Fairway # 2 Big Indian County Club

Hamlet of Big Indian



BUILDINGS
FINISHED GROUND
CANOPY EDGE
WIREFRAME OF CANOPY

VIEW FROM BALSAM MOUNTAIN
(Based on 50 mm) LOOKING NORTHEAST
ENHANCED, View distance (1.60 miles)

PROPOSED CONDITIONS

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BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

VISUAL SIMULATION BALSAM MOUNTAIN LEAF-ON ENHANCED

Project: 00052
Date:

Figure
3-33

EXISTING CONDITIONS

VIEW FROM BALSAM MOUNTAIN
(Based on 50 mm) LOOKING NORTHEAST,
View distance (1.60 miles)

Detached Hotel Lodging Unit on the Northeast Side on Fairway # 2 Big Indian County Club

Hamlet of Big Indian

VIEW FROM BALSAM MOUNTAIN
(Based on 50 mm) LOOKING NORTHEAST
RENDERED, View distance (1.60 miles)

PROPOSED CONDITIONS

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BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

VISUAL SIMULATION BALSAM MOUNTAIN LEAF-ON RENDERED

Project: 00052
Date:

Figure
3-34

PROPOSED CONDITIONS

VIEW FROM BALSAM MOUNTAIN
(Based on 50 mm) LOOKING NORTHEAST,
ENLARGED RENDERED, View distance (1.60 miles)

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BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

VISUAL
SIMULATION
BALSAM
MOUNTAIN
ENLARGED
RENDERED

Project: 00052
Date:

Figure
3-34A

VIEW FROM BALSAM MOUNTAIN
(Based on 50 mm) LOOKING NORTHEAST,
View distance (1.60 miles)

EXISTING CONDITIONS

VIEW FROM BALSAM MOUNTAIN
(Based on 50 mm) LOOKING NORTHEAST
ENHANCED, View distance (1.60 miles)

BUILDINGS
FINISHED GROUND
CANOPY EDGE
WIREFRAME OF CANOPY

PROPOSED CONDITIONS

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BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

VISUAL
SIMULATION
BALSAM
MOUNTAIN
LEAF-OFF
ENHANCED

Project: 00052
Date:

Figure
3-35

VIEW FROM BALSAM MOUNTAIN
(Based on 50 mm) LOOKING NORTHEAST,
View distance (1.60 miles)

EXISTING CONDITIONS

VIEW FROM BALSAM MOUNTAIN
(Based on 50 mm) LOOKING NORTHEAST
RENDERED, View distance (1.60 miles)

PROPOSED CONDITIONS

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BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

VISUAL
SIMULATION
BALSAM
MOUNTAIN
LEAF-OFF
RENDERED

Project: 00052
Date:

Figure
3-36

PROPOSED CONDITIONS

VIEW FROM BALSAM MOUNTAIN (Based on 50 mm) LOOKING
NORTHEAST, ENLARGED RENDERED, View distance (1.60 miles)

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BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

VISUAL
SIMULATION
BALSAM
MOUNTAIN
LEAF-OFF
ENLARGED
RENDERED

Project: 00052
Date:

Figure
3-36A

EXISTING CONDITIONS

VIEW FROM TOWN PARK OFF ROUTE 28
HAMLET OF BIG INDIAN(Based on 50 mm)
LOOKING NORTHWEST, View distance (.95 miles)

Cut For Fairway 3
Big Indian County Club

CANOPY EDGE
WIREFRAME OF CANOPY

VIEW FROM TOWN PARK OFF ROUTE 28
HAMLET OF BIG INDIAN(Based on 50 mm)
LOOKING NORTHWEST
OVERLAY GRID, View distance (.95 miles)

PROPOSED CONDITIONS

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BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

VISUAL
SIMULATION
PARK OFF
ROUTE 28
GRID

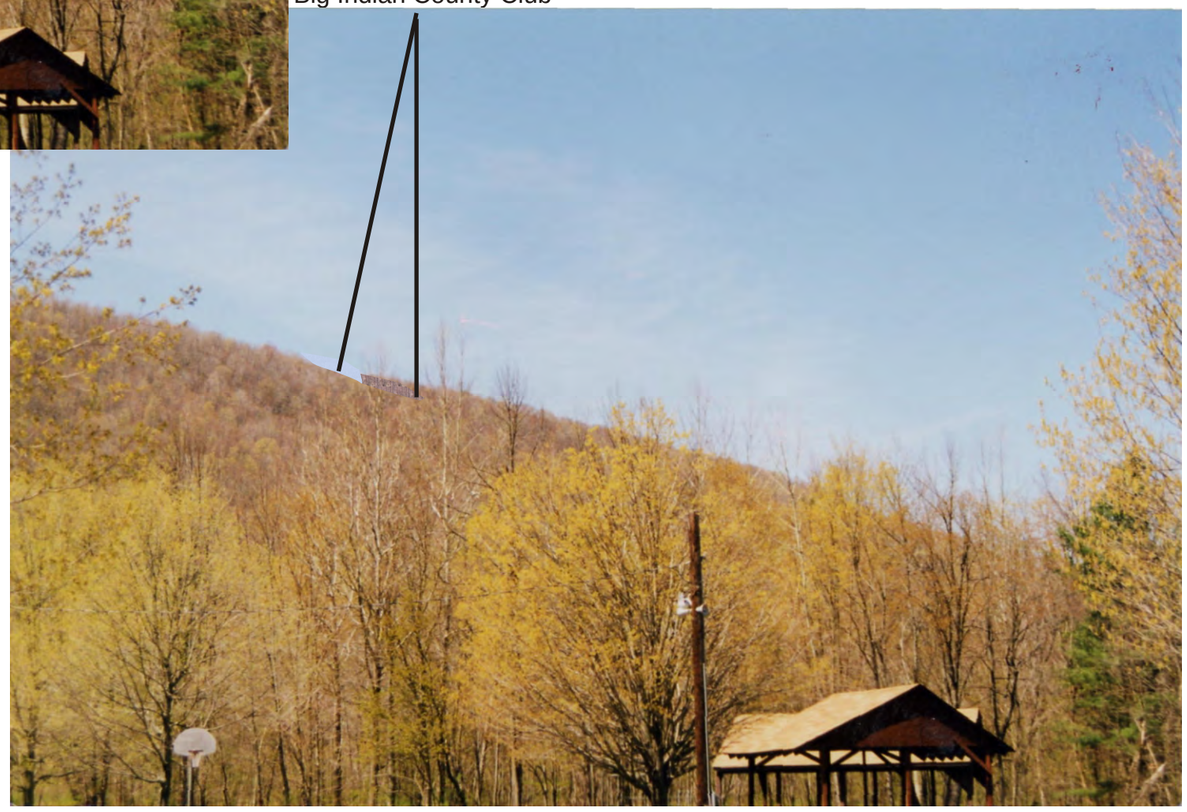
Project: 00052
Date:

Figure
3-37

EXISTING CONDITIONS

VIEW FROM TOWN PARK OFF ROUTE 28
SOUTH OF BIG INDIAN(Based on 50 mm)
LOOKING NORTHWEST, View distance (.95 miles)

Cut For Fairway 3
Big Indian County Club



VIEW FROM TOWN PARK OFF ROUTE 28
SOUTH OF BIG INDIAN(Based on 50 mm)
LOOKING NORTHWEST
RENDERED, View distance (.95 miles)

PROPOSED CONDITIONS

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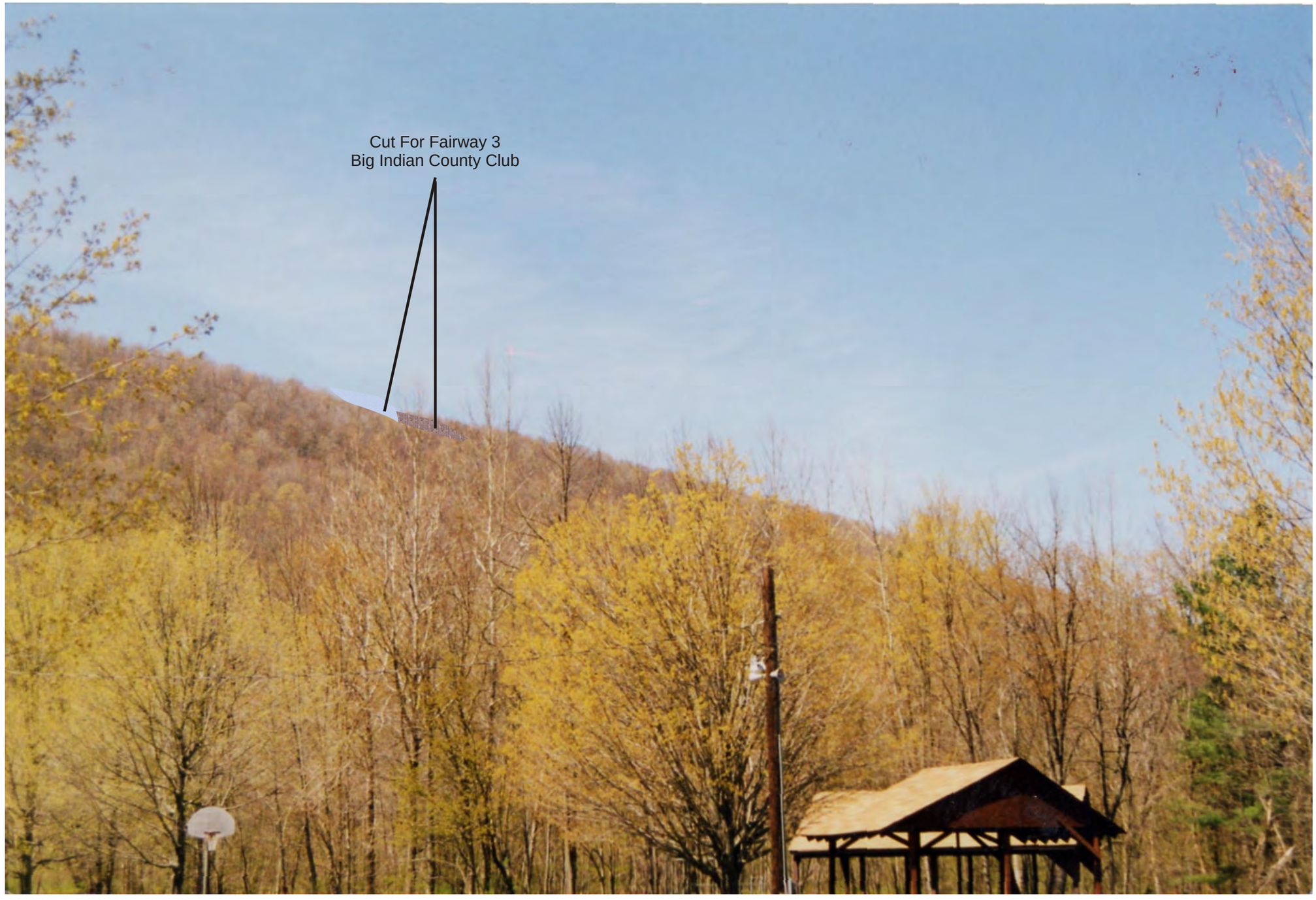
BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

VISUAL
SIMULATION
PARK OFF
ROUTE 28
RENDERED

Project: 00052
Date:

Figure
3-38



PROPOSED CONDITIONS

VIEW FROM TOWN PARK OFF ROUTE 28 SOUTH OF BIG INDIAN(Based on 50 mm)
LOOKING NORTHWEST, ENLARGED RENDERED, View distance (.95 miles)

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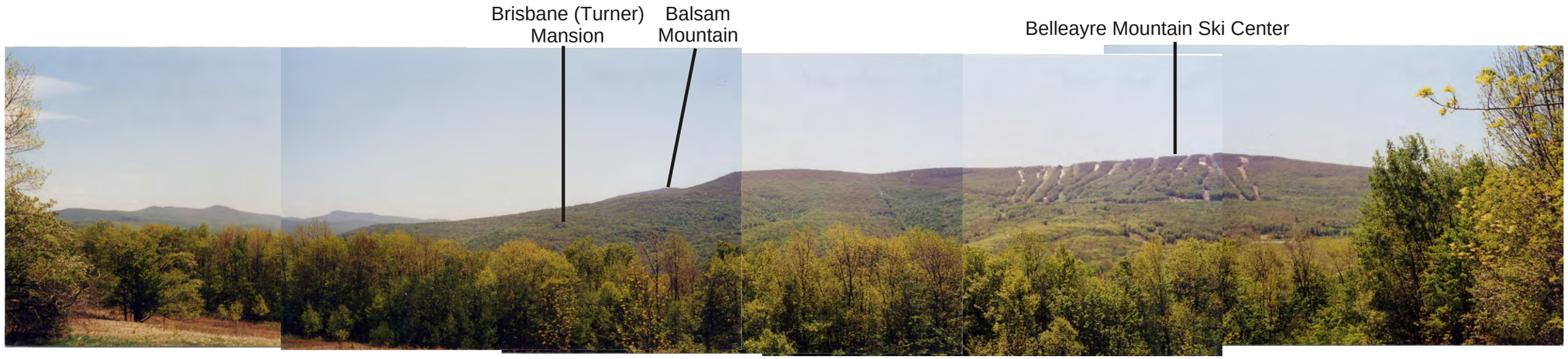
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

VISUAL
SIMULATION
PARK OFF
ROUTE 28
ENLARGED
RENDERED

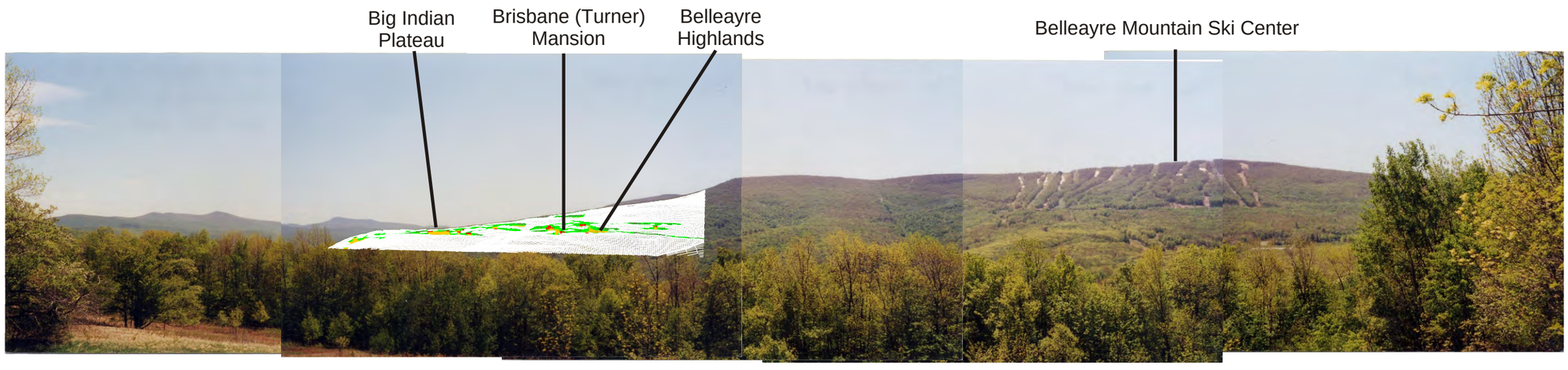
Project: 00052
Date:

Figure
3-38A



EXISTING CONDITIONS

VIEW FROM OWL'S NEST RESTAURANT (based on 50 mm) LOOKING SOUTH, View distance (2.65 miles)



PROPOSED CONDITIONS

VIEW FROM OWL'S NEST RESTAURANT
(Based on 50 mm) LOOKING SOUTH
OVERLAY GRID, View distance (2.65 miles)

BUILDINGS
FINISHED GROUND
CANOPY EDGE
WIREFRAME OF CANOPY

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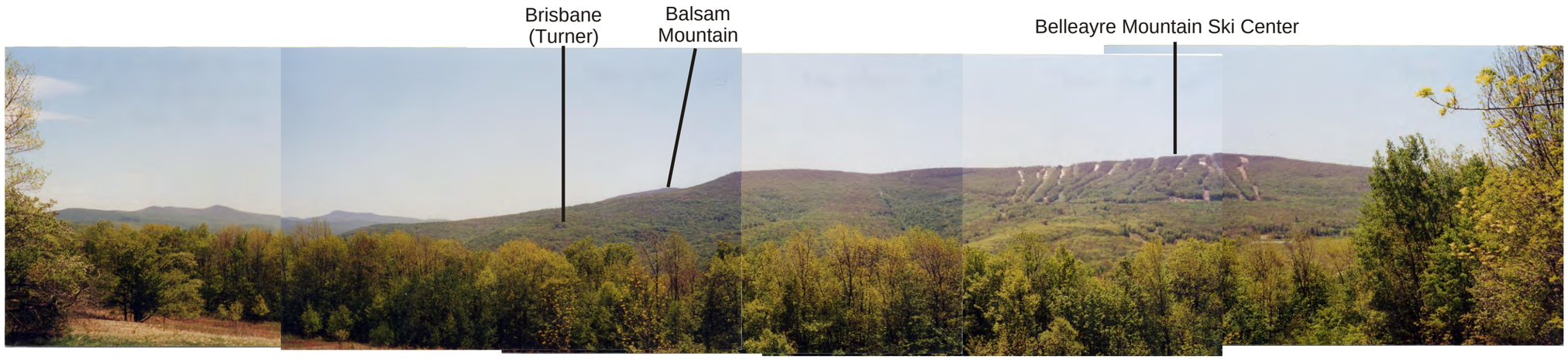
BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

VISUAL SIMULATION OWL'S NEST RESTAURANT ENHANCED

Project: 00052
Date:

Figure
3-39



EXISTING CONDITIONS

VIEW FROM OWL'S NEST RESTAURANT
(Based on 50 mm) LOOKING SOUTH, View distance (2.65 miles)

PROPOSED CONDITIONS

VIEW FROM OWL'S NEST RESTAURANT
(Based on 50 mm) LOOKING SOUTH
RENDERED, View distance (2.65 miles)

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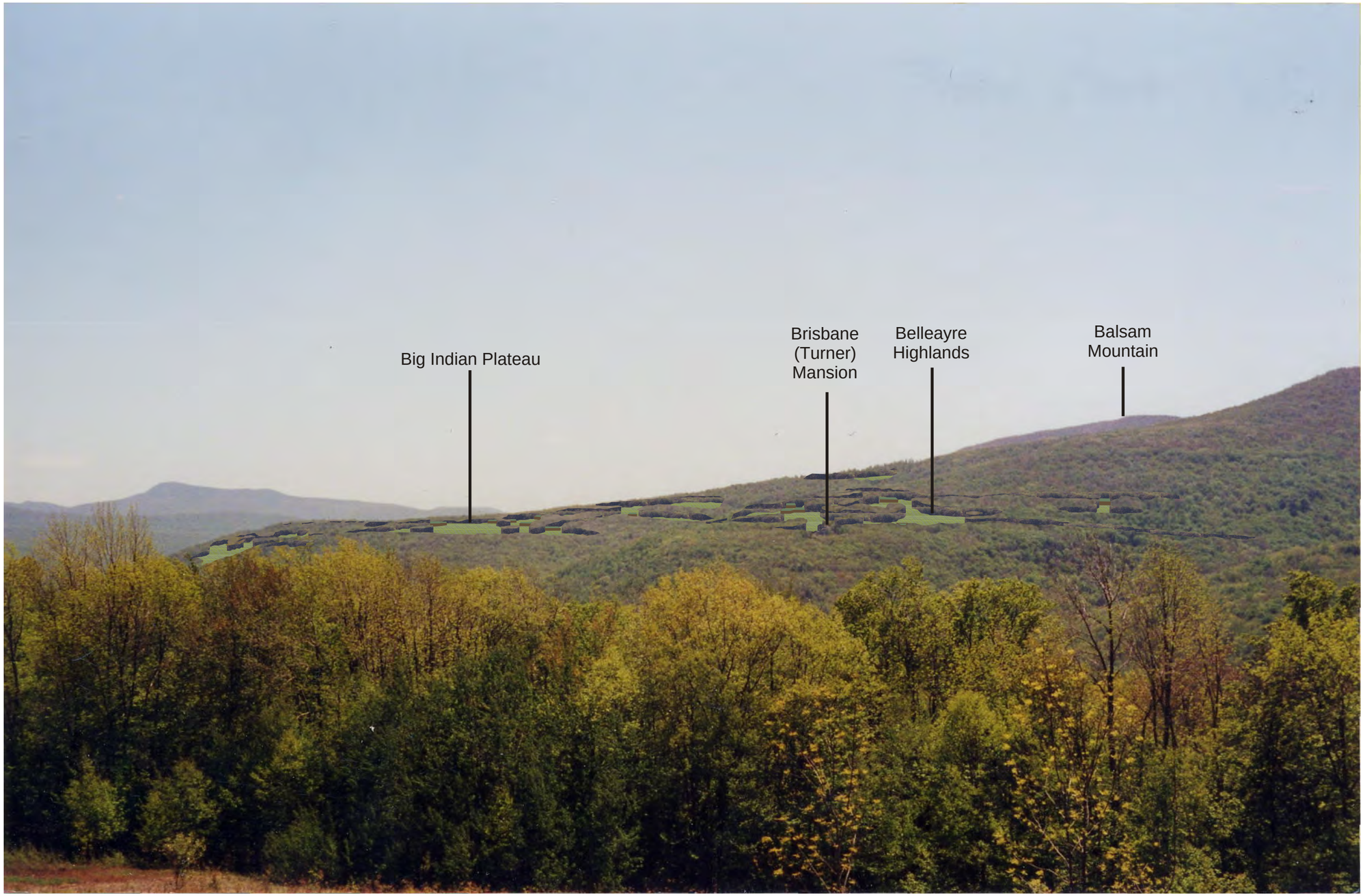
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

VISUAL
SIMULATION
OWL'S NEST
RESTAURANT
RENDERED

Project: 00052
Date:

Figure
3-40



PROPOSED CONDITIONS

VIEW FROM OWL'S NEST RESTAURANT
(Based on 50 mm) LOOKING SOUTH, ENLARGED
RENDERED, View distance (2.65 miles)

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DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

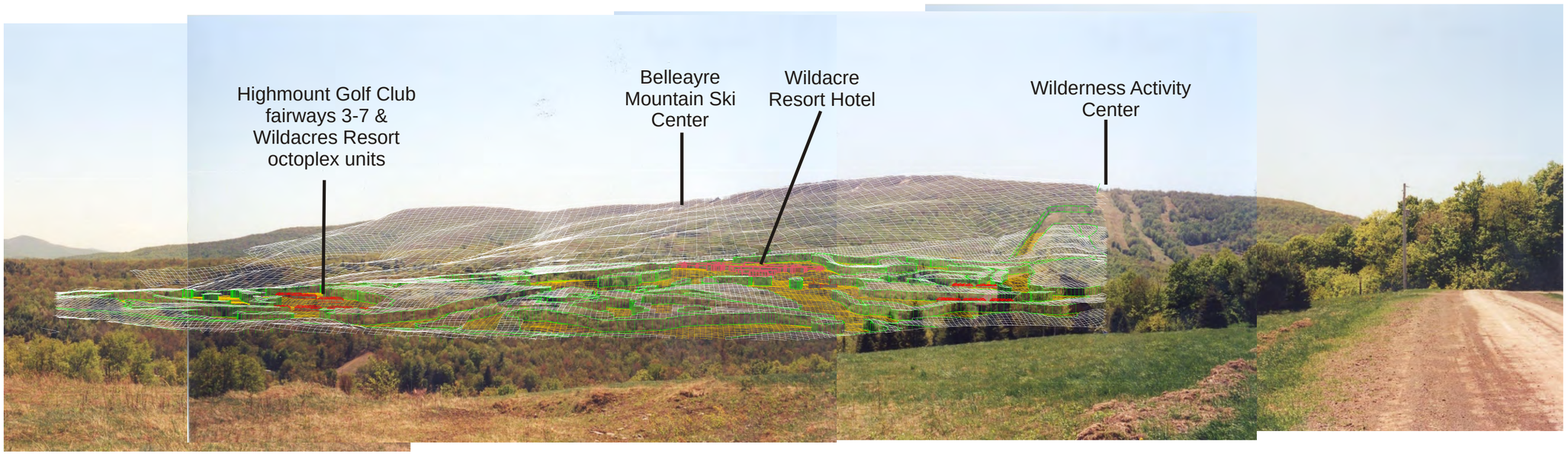
VISUAL
SIMULATION
OWL'S NEST
RESTAURANT
ENLARGED
RENDERED

Project: 00052
Date:

Figure
3-40A

EXISTING CONDITIONS

VIEW FROM WOOD ROAD (Based on 50 mm)
LOOKING SOUTHWEST TOWARD WILDACRES SITE,
View distance (1.25 miles)



PROPOSED CONDITIONS

VIEW FROM WOOD ROAD (Based on 50 mm)
LOOKING SOUTHWEST TOWARD
WILDACRES SITE RENDERED, View distance(1.25 miles)

BUILDINGS
FINISHED GROUND
CANOPY EDGE
WIREFRAME OF CANOPY

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BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

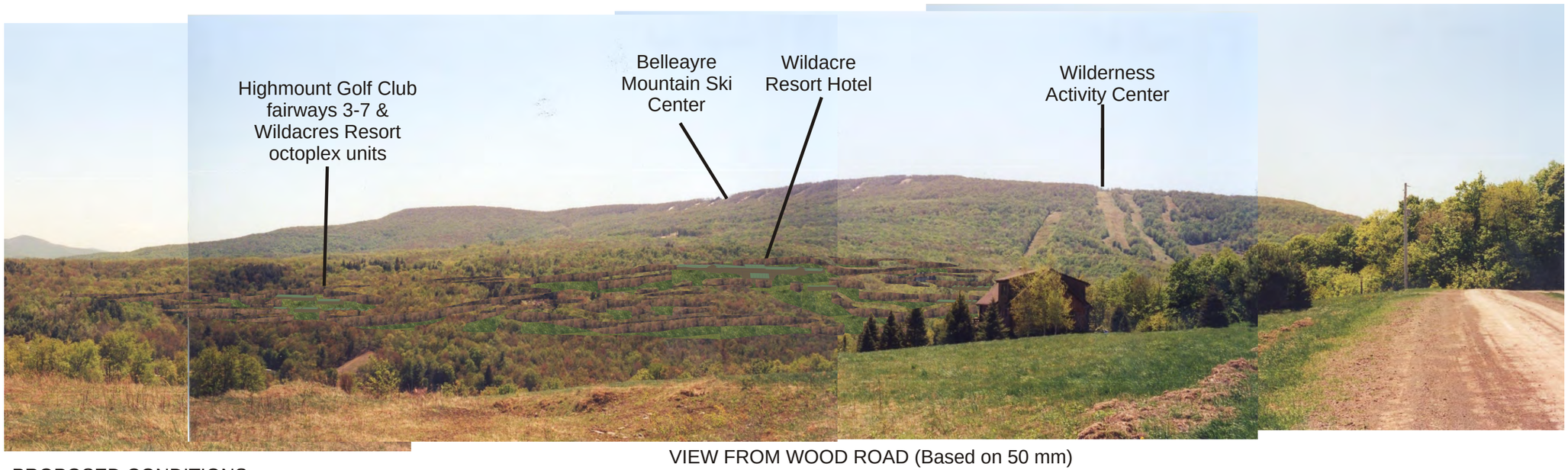
VISUAL
SIMULATION
WOOD ROAD
ENHANCED

Project: 00052
Date:

Figure
3-41

EXISTING CONDITIONS

VIEW FROM WOOD ROAD (Based on 50 mm)
LOOKING SOUTHWEST TOWARD WILDACRES SITE,
View distance (1.25 miles)



PROPOSED CONDITIONS

VIEW FROM WOOD ROAD (Based on 50 mm)
LOOKING SOUTHWEST TOWARD
WILDACRES SITE RENDERED, View distance(1.25 miles)

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BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

VISUAL
SIMULATION
WOOD ROAD
RENDERED

Project: 00052
Date:

Figure
3-42

PROPOSED CONDITIONS

VIEW FROM WOOD ROAD (Based on 50 mm)
LOOKING SOUTHWEST TOWARD
WILDACRES SITE, ENLARGED RENDERED, View distance(1.25 miles)

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BELLEAYRE
RESORT AT
CATSKILL
PARK

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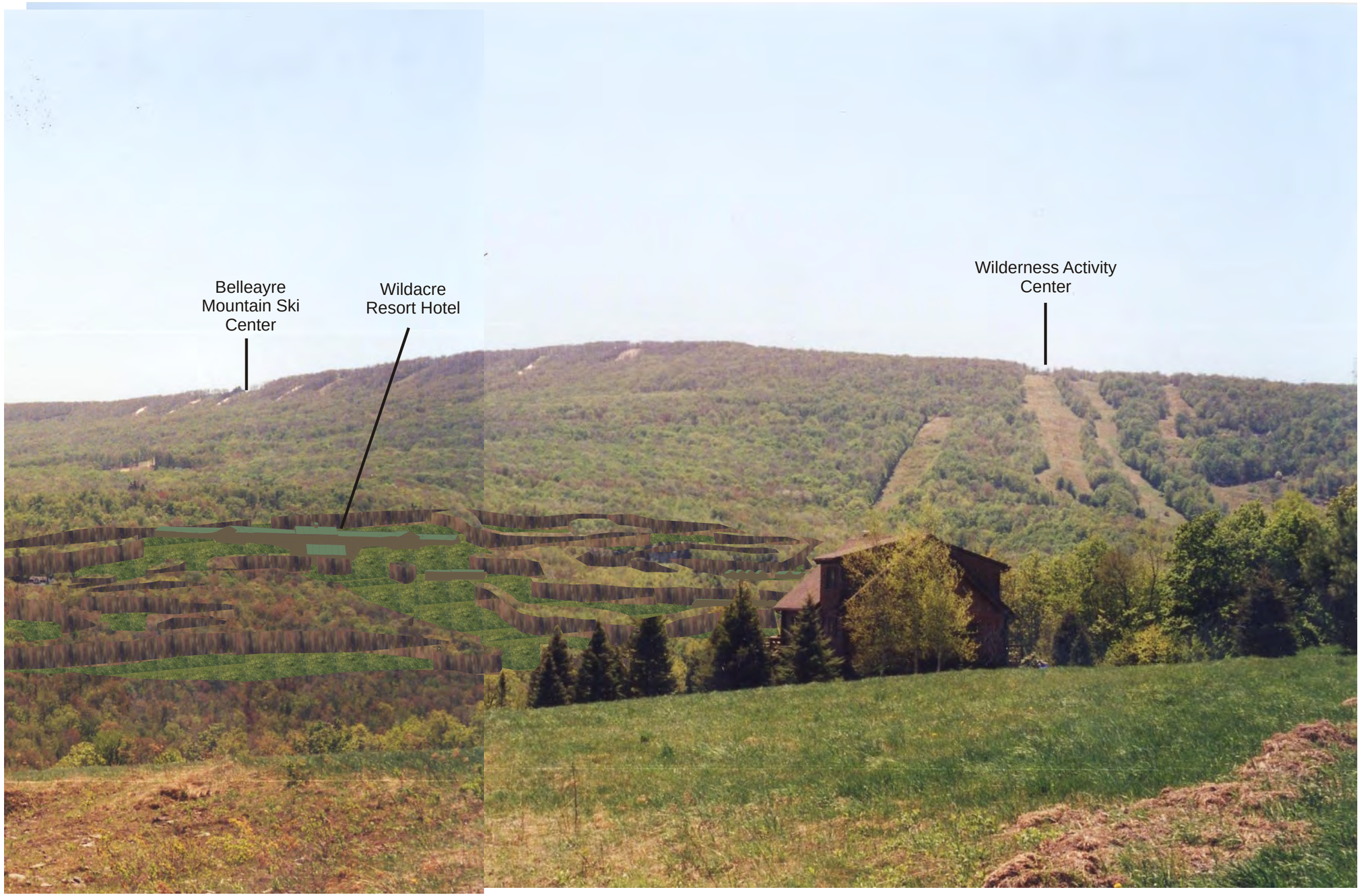
ENVIRONMENTAL
IMPACT
STATEMENT

VISUAL
SIMULATION
WOOD ROAD
ENLARGED
RENDERED

Project: 00052
Date:

Figure
3-42A



PROPOSED CONDITIONS

VIEW FROM WOOD ROAD (Based on 50 mm)
LOOKING SOUTHWEST TOWARD
WILDACRES SITE, ENLARGED RENDERED, View distance(1.25 miles)

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New York 12866
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Telefax 518/587-0180

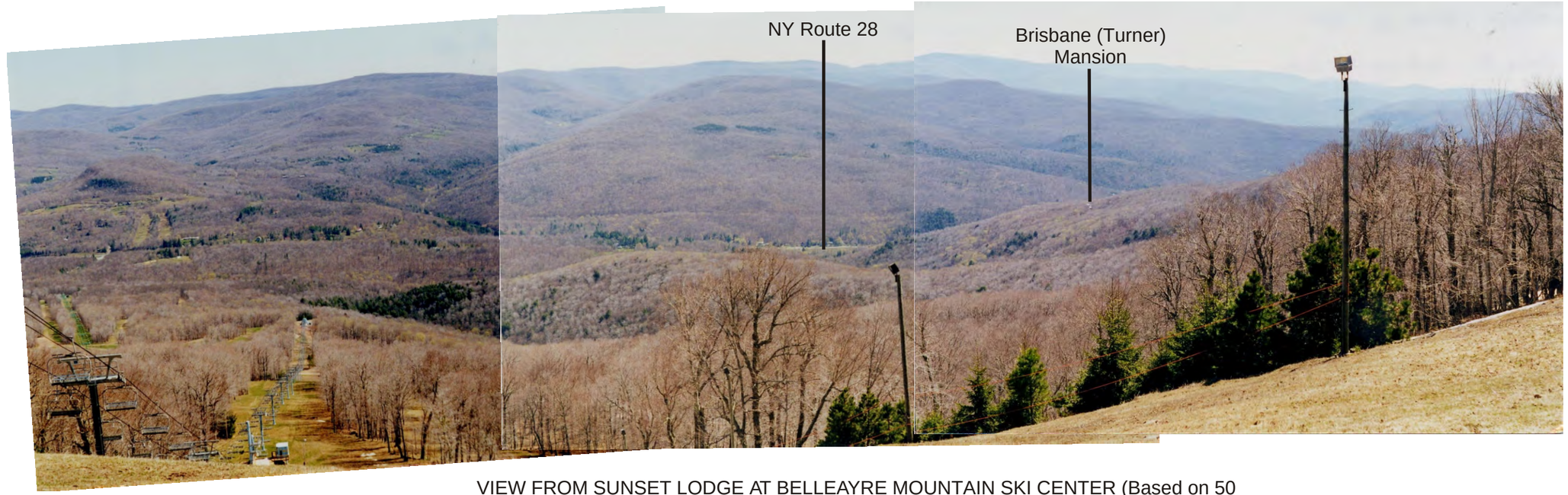
BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

VISUAL
SIMULATION
WOOD ROAD
ENLARGED
RENDERED

Project: 00052
Date:

Figure
3-42B



EXISTING CONDITIONS

VIEW FROM SUNSET LODGE AT BELLEAYRE MOUNTAIN SKI CENTER (Based on 50 mm) LOOKING SOUTHEAST AT BELLEAYRE HIGHLANDS, View distance (1.25 miles)

PROPOSED CONDITIONS

VIEW FROM SUNSET LODGE BELLEAYRE MOUNTAIN SKI CENTER (Based on 50 mm) LOOKING SOUTHEAST TOWARD BELLEAYRE HIGHLANDS OVERLAY, View distance (1.25

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Saratoga Springs
New York 12866
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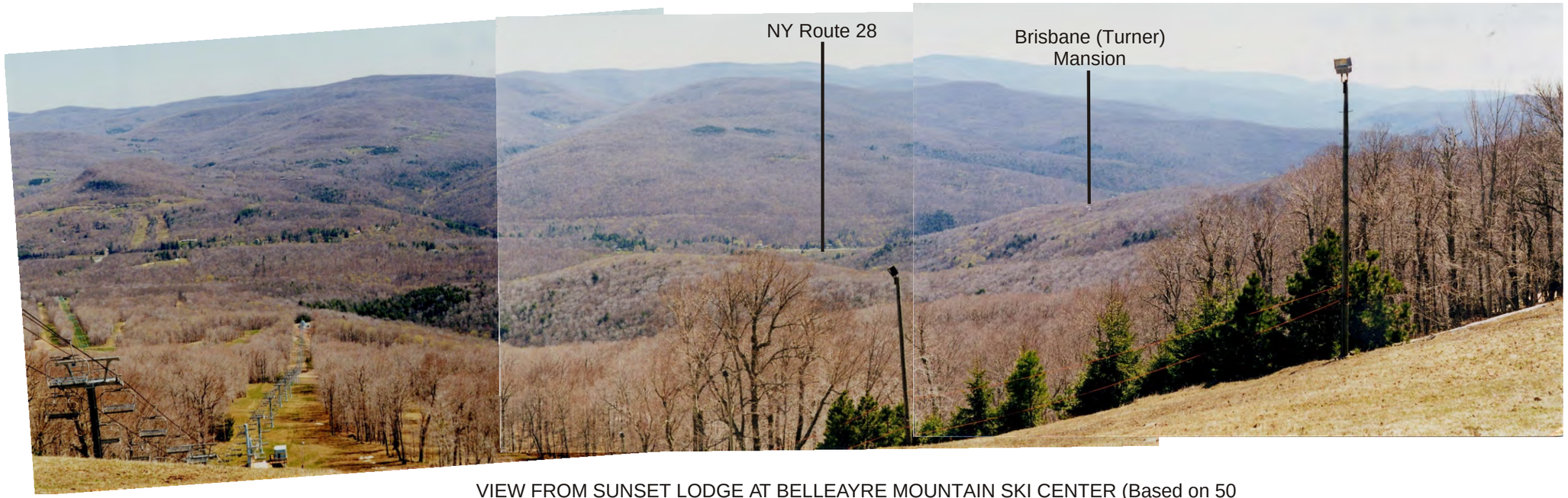
BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

VISUAL SIMULATION VIEW FROM SUNSET LODGE ENHANCED

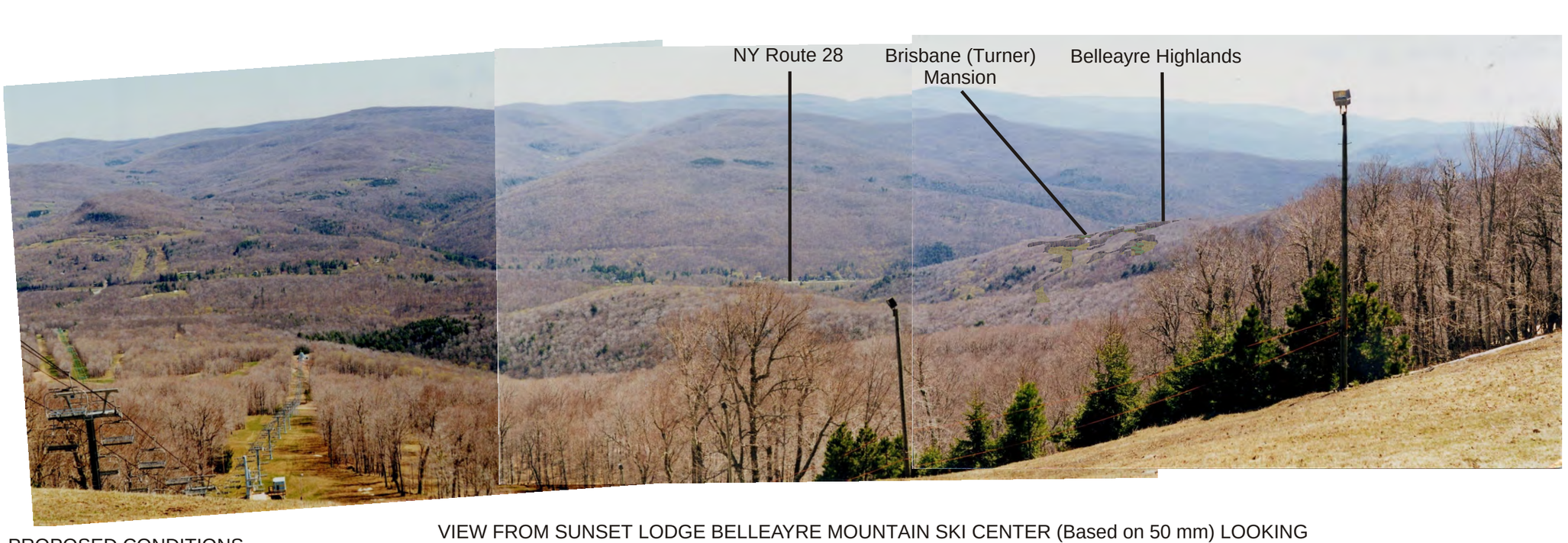
Project: 00052
Date:

Figure
3-43



EXISTING CONDITIONS

VIEW FROM SUNSET LODGE AT BELLEAYRE MOUNTAIN SKI CENTER (Based on 50 mm) LOOKING SOUTHEAST AT BELLEAYRE HIGHLANDS, View distance (1.25 miles)



PROPOSED CONDITIONS

VIEW FROM SUNSET LODGE BELLEAYRE MOUNTAIN SKI CENTER (Based on 50 mm) LOOKING SOUTHEAST TOWARD BELLEAYRE HIGHLANDS RENDERED, View distance (1.25 miles)

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BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

VISUAL SIMULATION VIEW FROM SUNSET LODGE GRID OVERLAY

Project: 00052
Date:

Figure
3-44

PROPOSED CONDITIONS

VIEW FROM SUNSET LODGE BELLEAYRE MOUNTAIN SKI CENTER (Based on 50 mm) LOOKING SOUTHEAST TOWARD BELLEAYRE HIGHLANDS, ENLARGED RENDERED, View distance (1.25 miles)

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Saratoga Springs
New York 12866
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Telefax 518/587-0180

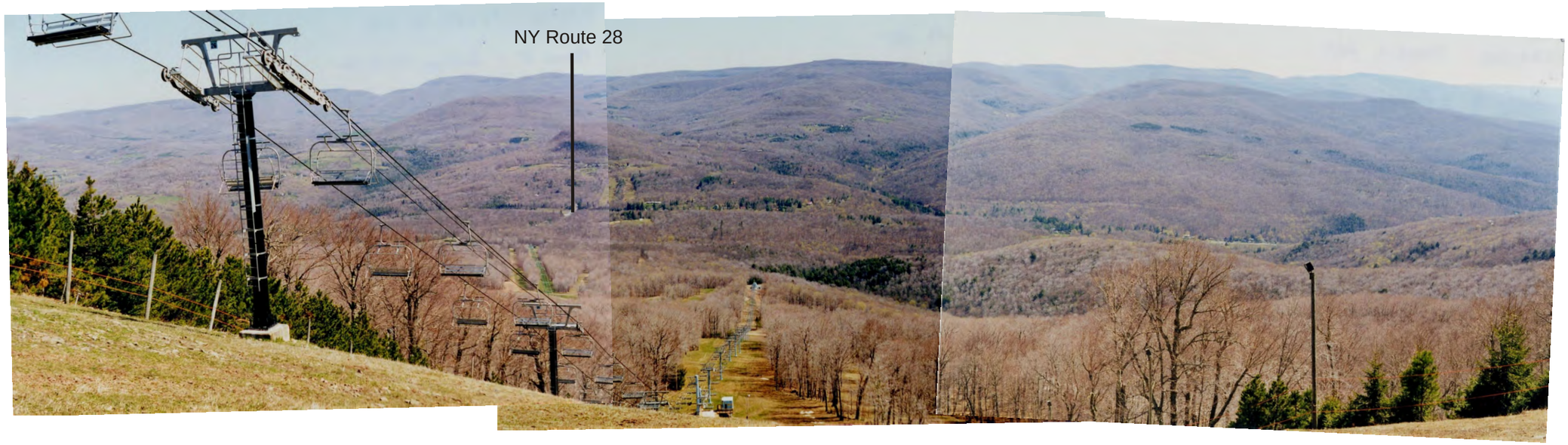
BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

VISUAL
SIMULATION
VIEW FROM
SUNSET LODGE
ENLARGED
RENDERED

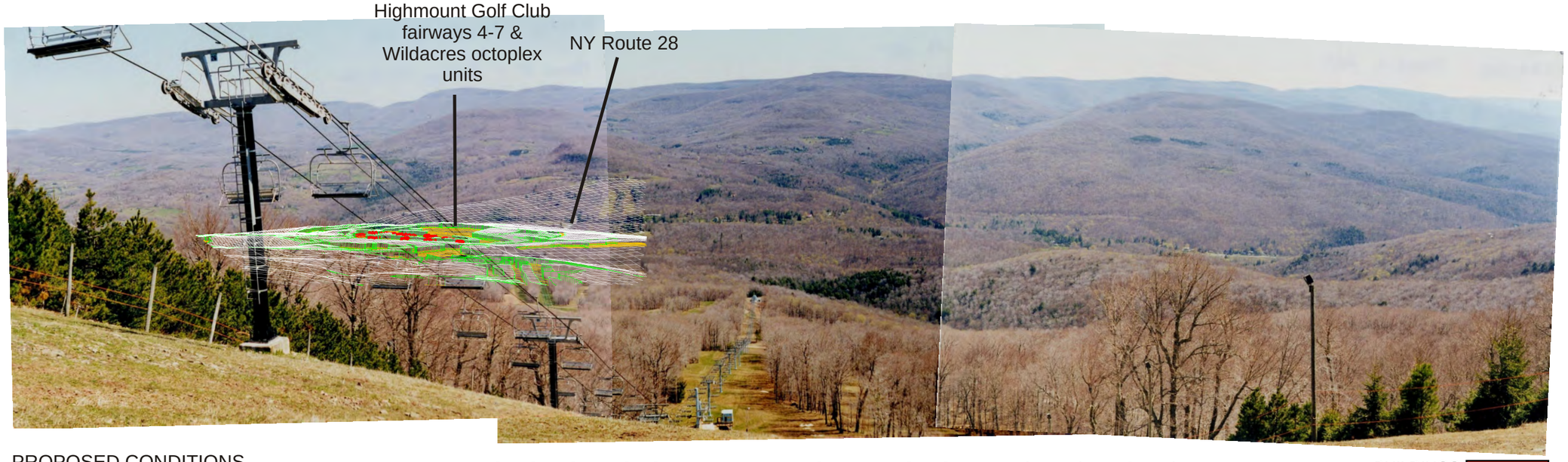
Project: 00052
Date:

Figure
3-44A



EXISTING CONDITIONS

VIEW FROM SUNSET LODGE AT BELLEAYRE MOUNTAIN SKI CENTER (Based on 50 mm) LOOKING NORTHEAST AT WILDACRES, View distance (1.25 miles)



PROPOSED CONDITIONS

VIEW FROM SUNSET LODGE BELLEAYRE MOUNTAIN SKI CENTER (Based on 50 mm)
LOOKING NORTHEAST TOWARD WILDACRES GRID OVERLAY, View distance (1.25 miles)

BUILDINGS
FINISHED GROUND
CANOPY EDGE
WIREFRAME OF CANOPY

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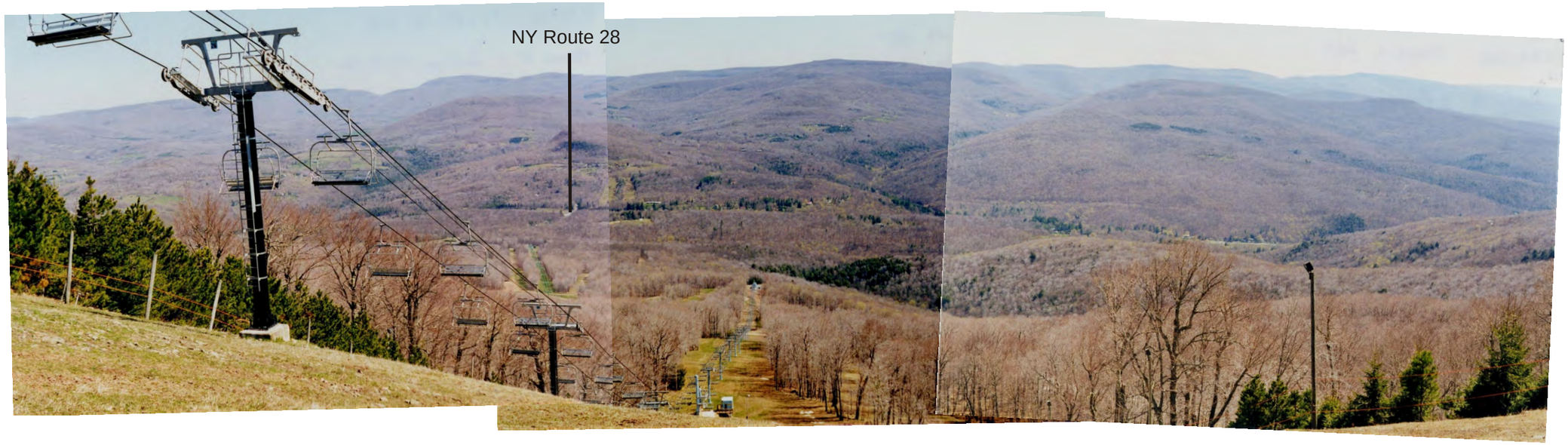
ENVIRONMENTAL
IMPACT
STATEMENT

VISUAL
SIMULATION
VIEW FROM
SUNSET LODGE
GRID

Project: 00052
Date:

Figure
3-45



EXISTING CONDITIONS

VIEW FROM SUNSET LODGE AT BELLEAYRE MOUNTAIN SKI CENTER (Based on 50 mm) LOOKING NORTHEAST AT WILDACRES, View distance (1.25 miles)

PROPOSED CONDITIONS

VIEW FROM SUNSET LODGE BELLEAYRE MOUNTAIN SKI CENTER (Based on 50 mm)
LOOKING NORTHEAST TOWARD WILDACRES RENDERED, View distance (1.25 miles)

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Saratoga Springs
New York 12866
518/587-8100
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BELLEAYRE
RESORT AT
CATSKILL
PARK

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ENVIRONMENTAL
IMPACT
STATEMENT

VISUAL
SIMULATION
VIEW FROM
SUNSET LODGE
GRID

Project: 00052
Date:

Figure
3-46

PROPOSED CONDITIONS

VIEW FROM SUNSET LODGE BELLEAYRE MOUNTAIN SKI CENTER (Based on 50 mm) LOOKING NORTHEAST TOWARD WILDACRES, ENLARGED RENDERED, View distance (1.25 miles)

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40 Long Alley
Saratoga Springs
New York 12866
518/587-8100
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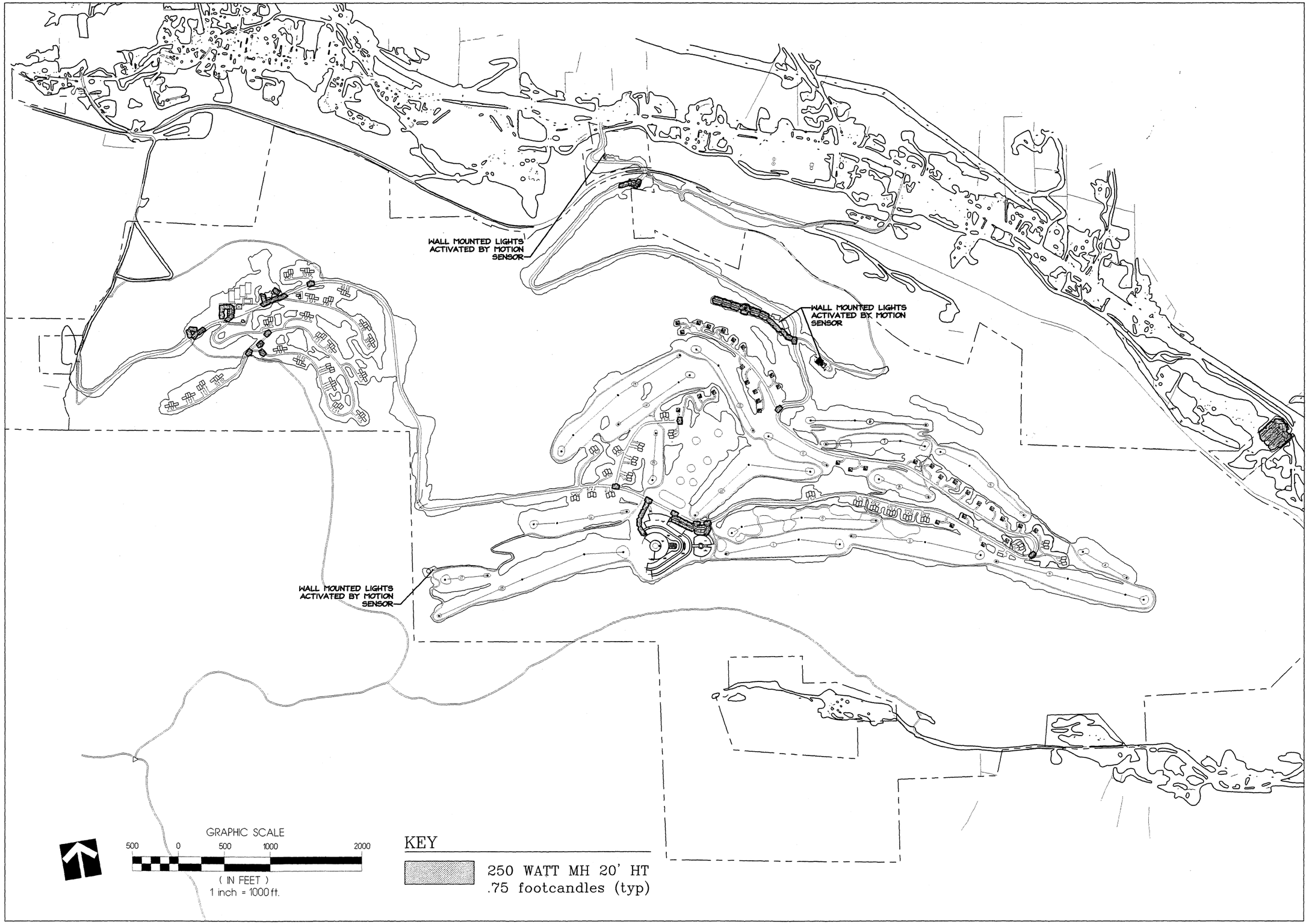
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

VISUAL
SIMULATION
VIEW FROM
SUNSET LODGE
ENLARGED
RENDERED

Project: 00052
Date:

Figure
3-46A



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40 Long Alley
Saratoga Springs
New York 12866
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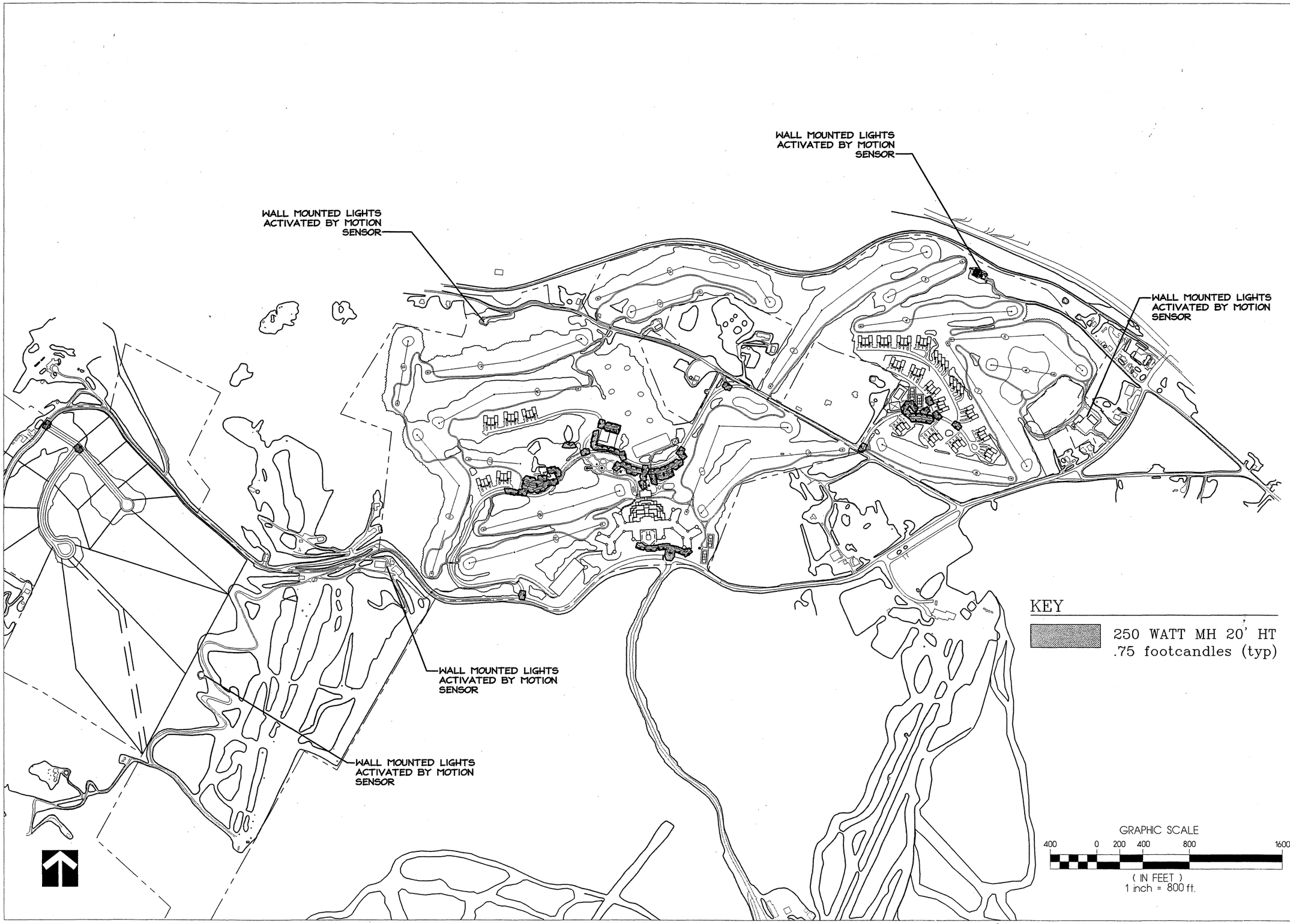
BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

EASTERN PORTION LIGHTING PLAN

Project: 00052
Date:

Figure
3-47



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40 Long Alley
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New York 12866
518/587-8100
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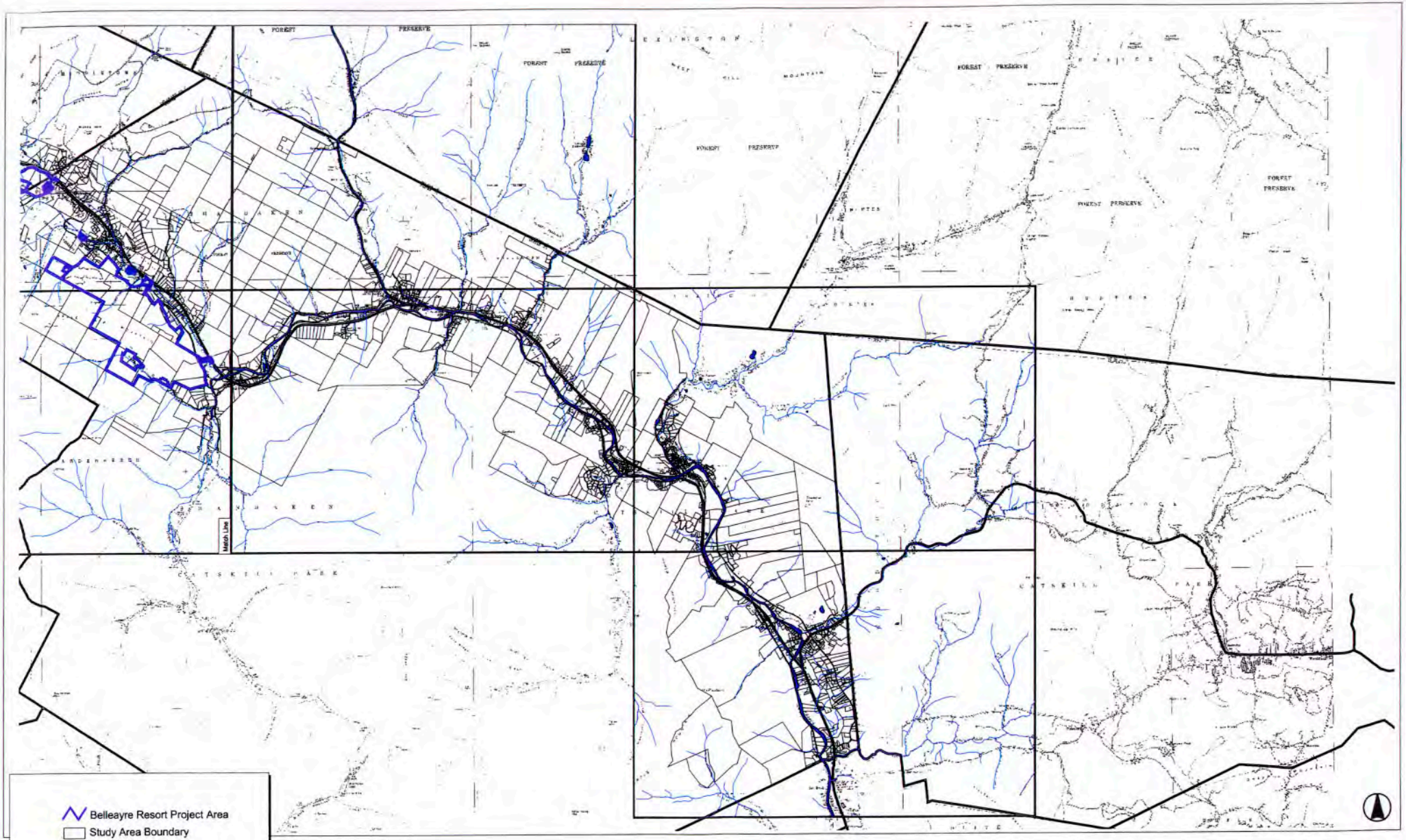
BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

WESTERN PORTION LIGHTING PLAN

Project: 00052
Date:

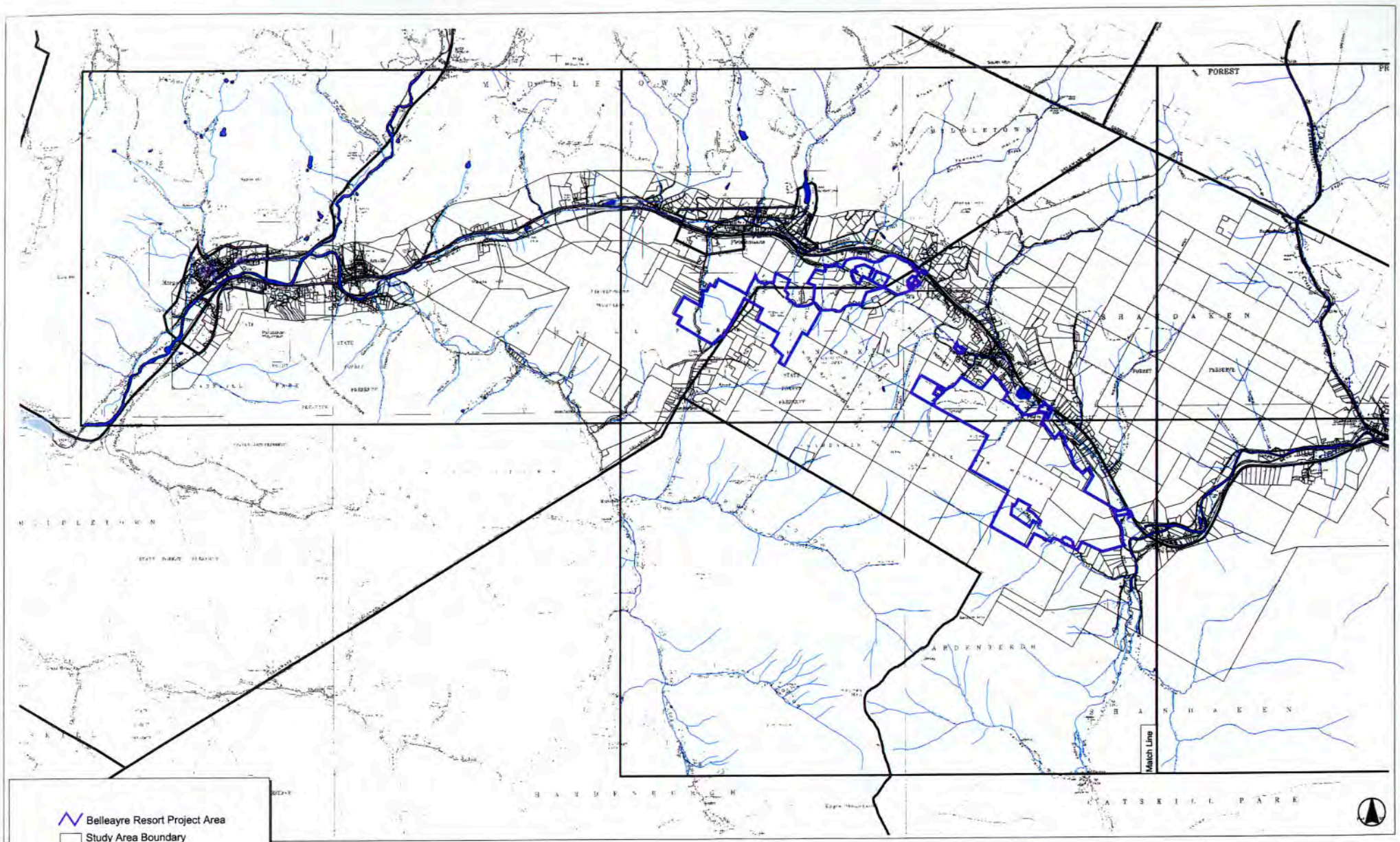
Figure
3-48



BELLEAYRE RESORT *at Catskill Park*

Study Area

Figure 3-49



BELLEAYRE RESORT *at Catskill Park*

Study Area
Figure 3-50

Table 3-2
Surface Water Descriptions

Name: Lost Clove Brook
WIN: H-171-53
Drainage: Esopus, Ashokan
Classification: B(T)
Watershed Size: 1,960
Watershed on Site: 410
Flow Regime: perennial
Trout Fall 2000: Yes, brook and rainbow trout

Name: Birch Creek
WIN: H-171-52
Drainage: Esopus, Ashokan
Classification: B(TS)
Watershed Size: 8,415 acres
Watershed on Site: 802
Flow Regime: perennial
Trout Fall 2000: Not tested 2000, 1996 brook brown and rainbow trout

Name: Giggle Hollow Brook
WIN: H-171-52-3
Drainage: Birch, Esopus, Ashokan
Classification: B(T)
Watershed Size: 360 acres
Watershed on Site: 230 acres
Flow Regime: intermittent
Trout Fall 2000: Yes, brook trout

Name: Crystal Spring Brook
WIN: H-171-52-4
Drainage: Birch, Esopus, Ashokan
Current Classification: B(T)
Watershed Size: 1,630 acres
Watershed on Site: 12 acres
Flow Regime: perennial
Trout Fall 2000: Yes, brook trout

Name: Woodchuck Hollow Brook
WIN: H-171-52-4-1
Drainage: Crystal Spring, Birch, Esopus, Ashokan
Classification: C
Watershed Size: 360 acres
Watershed on Site: 104 acres
Flow Regime: intermittent
Trout Fall 2000: Yes, brook, brown and rainbow trout

Table 3-2 Continued

Name: Cathedral Glen Brook
WIN: H-171-52-4-1A
Drainage: Crystal Spring, Birch, Esopus, Ashokan
Classification: C
Watershed Size: 650 acres
Watershed on Site: 0 acres
Flow Regime: perennial
Trout Fall 2000: Yes, brook and rainbow

Name: Unnamed Tributary of Bush Kill (Todd Mountain Brook)
WIN: D-70-80-10
Drainage: Bush Kill, Delaware, Pepacton
Classification: B(T)
Watershed Size: 880 acres
Watershed on Site: 290 acres
Flow Regime: intermittent
Trout Fall 2000: No

Name: Unnamed Tributary of Emory Brook
WIN: D-70-80-12-2
Drainage: Emory, Bush Kill, Delaware, Pepacton
Classification: B
Watershed Size: 181 acres
Watershed on Site: 80 acres
Flow Regime: intermittent
Trout Fall 2000: No

Name: Unnamed Tributary of Emory Brook
WIN: D-70-80-12-3
Classification: B
Watershed Size: 140 acres
Watershed on Site: 15 acres
Flow Regime: intermittent
Trout Fall 2000: No

Table 3-3
NYSDEC Region 3 Water Quality Data

Creek	Date	Temperature (degrees F)	Conductivity (umhos)	Dissolved Oxygen (mg/l)	pH	Allkalinity (mg CaCO3/l)
Birch	9/16/1996	60	105	9	7	4
	9/16/1996	59	120			
	9/16/1996	58.5	100			
Birch	11/9/1993		80	10	6.3	13.7
	11/9/1993					
	11/9/1993		143			
Birch	10/6/1989					
Birch	9/9/1988	61	110	10	7.2	27.2
	9/9/1988	59	100	10	7.1	27.2
Birch	7/3/1980	54				
	7/3/1980	65	25	9	7	
Birch	8/27/1956	56				
	8/27/1956	63				
	8/27/1956	64				
	8/27/1956	63				
Birch	6/24/1936	62				
	6/24/1936	55				
	6/24/1936	62				
Birch	8/3/1936	57				
Giggle	9/25/2000	48				
Giggle	6/24/1936	53				
Crystal	6/24/1936	53				
Crystal	9/25/2000	53				
Lost	9/26/2000	51				
Lost	8/27/1957	66				
Lost	9/3/1936	60				
Cathedral	9/25/2000	53				

Table 3-4
Selected 1999 Region 4 Water Quailty Data

	3SE 9/30	1PE 9/30	2PE 9/30	1TE 9/21	3SE 10/21	1PE 10/20	2PE 10/20	1TE 10/20
FIELD PARAMETERS								
pH (SU)	6.6	6.8	6.99	6.55	6.37	6.08	5.99	6.18
pH	7.47	6.98	7.12	7.09	6.88	6.76	7.05	7.17
cond (umhos/cm)	87	60	66	64	69	48.9	52.9	51.9
cond	91	61	67	64	70	72	77	78
temp (C)	12.45	13.76	14.11	13.44	7.98	8.64	9	9.08
DO (mg/l)	9.15	9.11	9	8.92	10.07	11.62	12.6	11.97
NUTRIENTS AND SOLIDS (mg/l)								
NO3/NO2	0.244	0.137	0.158	0.263	0.0693	0.0412	0.047	0.0392
NO3/NO2	0.253		0.164	0.277	0.069	0.0407	0.0466	0.0405
nitrate	0.244	0.132	0.152	0.263	0.0693	0.05	0.05	0.05
nitrate			0.161	0.277	0.069	0.05	0.05	0.05
nitrite	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
nitrite	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
TKN	0.05	0.0804	0.12	0.187	0.186	0.05	0.12	0.05
Ammonia	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
TP	0.0089	0.0311	0.0268	0.0201	0.00687	0.0089	0.00812	0.00936
Diss P	0.0074		0.014	0.016	0.00571	0.00623	0.0057	0.00627
Turbidity (NTU)	1	4.5	4.8	2.6	0.75	1.2	0.75	1.5
Total Solids	51	48	52	50	48	50	50	49
TDS	41	37	31		33	37	32	24
TSS	1	8.44	6.4	2	1	1.1	1	1
MINERALS AND HARDNESS (mg/l)								
Chloride	7.33	3.76	4.22	3.71	7.42	3.71	3.82	3.84
Fluoride	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
sulfate	6.42	5.94	6.1	6.42	6.57	6.38	6.52	6.5
total alk.	10.4	14.1	15.7	14.3	10.9	13.9	15.9	15.4
toal hard.	17.8	21.9	22.5	23	20.2	21	22.1	22.7
METALS (ug/l)								
Alum.	61	211	179	50.4	30.3	34.2	34.2	34.2
Alum.	42.6		59.1	20	34.2	30.3	30.3	30.3
Antimony	2.94	2.9	2.94	2.94	3.08	3.08	3.08	3.08
Antimony	2.94		2.94	2.94	3.08	3.08	3.08	3.08
Arsenic	3.43	3.4	3.43	3.6	5.52	5.52	9	5.52
Arsenic	3.43		3.43	3.43	3.71	5.52	5.52	5.52
Barium	10.8	10.8	14.2	13.1	11.1	9.8	12.8	13
Barium	10.4		11.8	11.5	9.3	15.2	13.2	13
Beryllium	0.12	0.12	0.12	0.17	0.19	0.19	0.31	0.19
Beryllium	0.12		0.12	0.12	0.41	0.19	0.19	0.19
Cadmium	0.84	1.2	0.84	0.84	0.62	0.62	0.84	0.62
Cadmium	0.84		0.84	0.88	0.62	0.62	0.84	0.62
Calcium	4820	5930	6460	6720	5690	5910	6460	6500
Calcium	4860		6490	6480	5670	6500	6490	7390
Chromium	0.31	0.38	0.4	0.67	0.22	0.41	0.4	0.42
Chromium	0.31		0.31	0.31	1.9	0.6	0.31	0.22
Cobalt	1.7	1.7	1.7	1.7	1.51	1.51	1.7	1.51
Cobalt	1.7		1.7	1.7	2.2	1.7	1.7	1.51
Copper	2.85	3.1	3.1	3.2	1.78	1.78	3.1	3.6
Copper	3.6		2.85	4.6	1.78	3.2	2.85	2.1
Iron	66.6	355	304	116	23.7	78.3	304	101
Iron	32.2		53.1	46.6	46.7	49	53.1	45.9

Table 3-4 (continued)
Selected 1999 Region 4 Water Quailty Data

	3SE 9/30	1PE 9/30	2PE 9/30	1TE 9/21	3SE 10/21	1PE 10/20	2PE 10/20	1TE 10/20
Lead	2.92	2.9	2.92	3.1	4.8	0.49	2.92	0.95
Lead	2.92		2.92	1.29	0.66	2.84	2.92	2.84
Magnesium	1180	1240	1240	1190	1340	1240	1240	1210
Magnesium	1170		1200	1150	1380	1390	1200	1360
Manganese	15.5	58.5	37.2	18.2	17.3	26.7	37.2	12.3
Manganese	12		14.4	10.9	17.1	22.9	14.4	11.7
Mercury	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Mercury	0.04		0.06	0.04	0.04	0.04	0.06	0.04
Nickel	1.55	1.5	1.55	55.3	1.13	1.13	1.55	2.3
Nickel	1.55		1.55	1.55	1.8	2.3	1.55	1.13
Potassium	707	762	1030	857	900	508	1030	504
Potassium	707		707	857	900	900	707	900
Selenium	4.15	4.2	4.15	4.15	3.78	1.61	4.15	1.61
Selenium	4.15		4.15	4.15	1.61	3.78	4.15	3.78
Silver	1.33	1.3	1.33	1.33	0.67	0.67	1.33	0.67
Silver	1.33		1.33	1.33	0.67	0.67	1.33	0.67
Sodium	2920	2320	2400	2650	4780	2120	2400	2290
Sodium	2810		2510	2650	3760	3140	2510	3750
Thallium	5.06	5.1	5.06	5.06	4.38	4.71	5.06	4.71
Thallium	5.06		5.06	5.06	4.71	6.1	5.06	4.38
Vanadium	1.47	1.5	1.47	1.47	1.07	1.07	1.47	1.07
Vanadium	1.47		1.47	1.47	1.07	1.6	1.47	1.07
Zinc	11.8	9.7	12.7	15.5	5.1	6.7	12.7	29.4
Zinc	9.9		10.8	5	4.5	6.5	10.8	4.6

Table 3-5
Alpha Geoscience Field Water Quality Data

Monthly Sampling October 2000 through October 2001														
		Sampling Location (see below)												
Parameter	**Units**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
Temperature	F	35-59	34-61	44.6-48	37-52	35.6-58	45-47	35.6-57	44.6-46.4	44-47	35-56	34-68	36.5-48	35-68
Specific Conductivity	mS	3-187.5	60.5-321	106.1-234.0	110.4-217	49.2-164.7	66.1-273	13.2-109.7	37.5-121.5	101.7-210	30.9-144.2	78.8-231	32.9-59.5	40.0-237
pH	SU	6.2-7.1	6.07-7.5	5.8-6.97	6.22-7.28	6.22-7.43	6.0-6.8	6.37-7.19	5.68-6.8	5.41-6.7	5.82-6.98	5.92-7.2	5.62-6.9	6.43-7.2
ORP	mV	-18-28	-16-36	-014-69	-8-103.9	-021-201.3	0-105.6	-031-26	0-213.6	040-75	7-122.2	-014-52	-012-69	-012-186.7
Turbidity	NTU	0.29-3.41 (9.71)	0.23-2.14	0.02-0.59	0.14-2.66	0.28-5.34(54.2)	0.03-1.1	0.15-3.26	0.12-1.95	0.01-0.38	0.10-2.31	0.22-7.2	0.06-4.23	1.23-37.6
Dissolved Oxygen	ppm	8.4-12.4	8.1-12.2	8.1-10.1	7.4-11.7	6.9-12.3	8.5-10.8	7.1-11.8	8.4-11.5	7.8-10.8	6.1-12.3	7.4-12.2	6.6-11.6	8.6-12.6
Note:														
Values in parentheses represent turbidity readings from September 2001 that are outside the range due to the active draining of the Belleayre Mountain Ski Area backup snowmaking pond.														
Sampling Locations														
1. Crystal Spring Brook above Birch Creek														
2. Birch Creek above Crystal Spring Brook														
3. Railroad Spring														
4. Crystal Spring Brook above Cathedral Brook														
5. Cathedral Brook above Crystal Spring Brook														
6. Silo A														
7. Woodchuck Hollow (Bailey) Brook														
8. Silo B 4-inch pipe														
9. Pine Hill water supply overflow														
10. Lost Clove Brook														
11. Birch Creek at Covered Bridge														
12. Giggle Hollow														
13. Birch Creek below WWTP														

Table 3-6
Alpha Geoscience Analytical Water Quality Data

October 2000 through October 2001 Sampling Results														
		Sampling Location (see below)												
Parameter	**Units**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**
E. coli	/100 ml	1-20	0	0	0	0-2	0	2-4	0	0	0-<10	0-40	0	0-30
Total Coliform	/100 ml	2-70	0->60	0-2	1-30	1-2	0-1	4->60	0	0-25	0-<10	1-40	0-1	1-50
B.O.D./5 day	mg/l	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2	<2
Chloride	mg/l	9.8-25	6.3-8.6	22-29	20-25	8.7-13	14-17	5.5-6.9	<3-5.4	22-28	<3-3.8	8.5-49	<3-4	8.7-42
Nitrite	mg/l	<0.01-0.07	<0.01-0.07	<.01-.06	<0.01-0.12	<0.01-0.06	<0.01-0.07	<0.01-0.06	<0.01-0.07	<0.01-0.05	<0.01-0.08	<0.01-0.06	<0.01-0.07	<0.01-0.08
Nitrate	mg/l	0.29-0.47	0.14-0.31	0.47	0.30-0.33	0.36-0.49	0.4-0.45	.14-.39	0.37-0.38	0.47-0.52	0.19-0.40	0.15-0.4	0.4-0.49	0.28-0.8
Iron	mg/l	0.007-0.092	0.01-0.022	0.007-0.014	0.01-0.027	0.023-0.031	0.008-0.036	0.013-0.037	0.008-0.011	0.006-0.007	0.002-0.012	0.028-0.091	0.01-0.012	0.026-0.468
Sodium	mg/l	4.5-11.1	3.11-3.4	11-12	10.1-10.3	3.8-4.29	6.7-6.97	2.2	0.74-0.8	11	0.45-1.23	4.5-18	0.36-0.4	5.3-16
Total Phosphorus	mg/l	<0.01-0.041	0.028-0.039	0.035-0.037	0.033-0.04	0.022-0.039	0.031-0.047	0.032-0.033	0.025-0.05	0.043-0.048	<0.01-0.035	<0.01-0.047	0.034-0.047	<0.01-0.043
Total Dissolved Solids	mg/l	34-88	27-29	71-72	54-68	32-38	51-57	22-33	20-23	68-75	6.5-99	45-92	14-65	44-90
Total Suspended Solids	mg/l	<5-6	<5	<5	<5	<5	<5	<5	<5	<5	<5-8	<5-6	<5	<5-13
Pesticides 8081	mg/l	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Only locations 1, 10, 11, and 13 were sampled in January, July, and October 2001.
Pesticides were not tested for in October 2001

Sampling Locations

1. Crystal Spring Brook above Birch Creek
2. Birch Creek above Crystal Spring Brook
3. Railroad Spring
4. Crystal Spring Brook above Cathedral Brook
5. Cathedral Brook above Cyrstal Spring Brook
6. Silo A
7. Woodchuck Hollow (Bailey) Brook
8. Silo B 4-inch pipe
9. Pine Hill water supply overflow
10. Lost Clove Brook
11. Birch Creek at covered bridge
12. Giggle Hollow
13. Birch Creek below treatment plant

Table 3-7
Summary of NYCDEP Water Quality Data

Sampling Period August 22, 2000 through March 11, 2003							
		Sampling Location (see below)					
	Units	BELLE2	BELLE5	BELLEGIG	BELLETOD	BELLLOST	SENECA
Field Parameter							
Temperature	C	3.44-13.8	0.1-13.9	0.9-14.1	0.14-14.5	1.4-13.1	0.0-17.5
Dissolved Oxygen	mg/l	7.1-13.0	6.37-13.5	6.2-13.3	3.2-12.7	7.46-12.5	6.2-13.5
pH	SU	6.29-7.27	6.31-7.3	6.2-7.21	5.93-7.03	6.07-7.17	6.35-7.27
Specific Conductivity	umhos/cm	24-45	29-60	25-42	27-56	24-45	23-40
Lab Parameter							
Turbidity	NTU	0.2-1.9	0.1-20	0.1-6.2	0.2-14	0.2-210	0.2-12
Total Suspended Solids	mg/l	<0.4-59.4	<0.4-59.4	<0.4-13.8	<0.4-29	<0.4-113.1	<0.4-27.2
Volatile Suspended Solids	mg/l	<0.4-0.6	0.4-0.6	<0.4-1.4	0.4-0.8	<0.4-1.7	<0.4-1.1
Ammonia	mg/l	<0.01-0.04	<0.01-0.03	<0.01-0.06	<0.01-0.03	<0.01-0.03	<0.01-0.03
Nitrite	mg/l	<0.002-<0.01	<0.004 - 0.003	<0.002-0.003	<0.002-<0.01	<0.004-0.003	<0.004-0.06
Nitrate	mg/l	0.13-0.50	<0.01-0.78	0.22-0.84	<0.01-0.35	0.10-0.71	<0.01-0.31
Total Phosphorus	ug/l	<5-38	<5-104	<5-70	<5-62	<5-94	<5-67
Fecal Coliforms	CFU/100 ml	<1-130	<1-260	<1-360	1-TNTC*	<1-120	<1-320

Sampling Locations (see Figure 3-11)
Belle2 = unmapped trib to Birch Creek
Belle5 = trib 2 of Emory Brook
Bellegig = brook in Giggle Hollow
Belletod = Todd Mountain Brook
Belllost = Lost Clove Brook
Seneca = Seneca Hollow (control stream)

*TNTC = too numerous to count

02017/wp/table3-7.dep.wq.data

Table 3-8
Monthly and Annual Average Discharges on Esopus Creek
at Gage 01362198

	bold = less than tennant method of 30% of grand mean											
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1963										**11.64**	191.42	185
1964	201.1	98.66	369.48	222.7	75.97	**25.73**	**10.8**	**6.25**	**4.21**	**4.18**	5.69	49.4
1965	57.97	138.7	74	230.37	98.81	**19.37**	**8.94**	**15.16**	**24.83**	73.48	38.17	78.5
1966	56.94	77.68	326.71	142.57	117	62.27	**17**	**7.55**	**13.63**	**26.55**	126.37	86.9
1967	130.55	111.61	118.65	338.37	176	52.23	**36.9**	**19.17**	**10.86**	43.06	120.67	196
1968	70.1	67.97	369.06	224.05	260	172	67.8	**18.52**	**11.99**	**11.36**	116.3	140
1969	91.42	73.11	109.16	427.2	167	90.17	195	86.26	**17.53**	**13.97**	189.23	135
1970	54.16	250.82	69.9	577.53	154	**40.33**	**27.6**	**21.87**	**23.13**	146.45	123.27	80.6
1971	62.77	133.54	222.61	420.57	254	**40.37**	**15.7**	43.35	114.37	60.48	81.3	299
1972	163.03	79.31	282.48	378.23	215	350	208	**33.81**	**12.19**	**29.05**	346.27	329
1973	188.67	219.59	244.33	306.41	327	369	126	**35.33**	**16.76**	**19.53**	55.1	509
1974	180.48	152.5	193.42	370.3	215	87.47	53.9	**34.03**	92.5	82.61	136.83	297
1975	179.23	200.14	257.65	266.13	218	119	82.3	47.26	80.93	166.48	153.4	122
1976	289.84	330	185.81	155.6	198	66.9	46.6	**34.9**	18.63	170.68	97.33	125
1977	29.39	63.32	552.9	330.47	216	54.9	**17**	**13.35**	96.86	369.74	313.57	233
1978	358.32	90.07	208.32	436.43	388	104	50.5	**28.9**	**18.6**	**34.52**	49.13	104
1979	358.13	84.68	531.16	233.57	205	84.6	**21.1**	**18.81**	113.2	204.55	234.83	105
1980	79.87	33.59	460.06	350.23	129	45.5	61.6	**11.61**	**6.01**	**9.28**	30.4	92.1
1981	19.42	358.21	95.29	137.5	232	51.1	64.9	**18.81**	**20.59**	70.39	88.1	72.6
1982	82.39	141.61	148.77	354.03	78.39	188	58.8	**14.17**	**14.88**	**12.07**	52.43	101
1983	133.84	229.79	399.39	524.1	202	101	**17.9**	**12.25**	**9.92**	**7.49**	56.93	316
1984	89.77	356.17	126.55	600.03	322	128	**25.2**	**18.65**	**14.61**	**10.3**	22.01	108
1985	47.32	80.89	146.65	127.07	92.71	46.27	**33.7**	**24.71**	68.36	86.32	197.5	150
1986	108.16	95.64	411.42	173.5	215	141	52.5	82.2	**15.06**	**20.16**	179	166
1987	60.16	29.61	301.23	683.5	67.3	**33.4**	54	50.9	213.23	207.97	145.8	112
1988	41.77	138.4	196.13	154.83	235	60.3	**37.3**	**25.1**	**17.33**			
MEAN	125.392	145.4244	256.0452	326.6116	194.3272	101.3164	55.6416	28.9168	42.0084	75.6924	126.042	167.684
GRAND MEAN	137.0918											

Table 3-9
Erosion Control Products

Erosion Control Technology	Manufacturer (Distributor)	Intended Slope	Price($/sf)
100% or Steeper slope (1:1+)			
Sod			
Erosion Control Blanket			
CF072RR-Double Net Coconut (100)	Greenfix America (ECT)	100% and steeper	0.19
CF072B-Double Organic Net Coconut (100)	Greenfix America (ECT)	100% and steeper	
BioD-Mat (Bristle Coir Woven Blanket)	RoLanka	100% and steeper	0.13
BioD-Mesh (Mattress Coir Woven Blanket)	RoLanka	100% and steeper	0.14
BioD-OCF (Biodegradable Coir Stiched Blanket)	RoLanka	100% and steeper	0.13
C 125 coconut fiber matrix (36 months)	North American Green (EJ Prescott)	100% and steeper	0.2
C 125 BN coconut fiber matrix (24 months)	North American Green (EJ Prescott)	100% and steeper	0.2
Webs/Grids/Walls			
EnviroGrid (Cellular Confinement System)2",3",4",6",8"	American Excelsior Company (ECT)	100% and steeper	
Geoweb Cellular Confinement System	Presto	100% and steeper	
Tenax Tenweb Geocells	Tenax Corporation (ECT)	100% and steeper	
Evergreen Retaining Wall	Evergreen	100% and steeper	
Tensar (Geogrid)	Tensar Earth Technologies, Inc.	100% and steeper	
Tensar (Gabions)	Tensar Earth Technologies, Inc.	100% and steeper	
Slopetame	Invisible Structures, Inc.	100% and steeper	
Modular Gabion Systems	MGS (ECT)	100% and steeper	various
TerraCell (Cellular Confinement System)	Webtec, Inc. (ECT)	100% and steeper	1.08
TerraGrid Geogrid	Webtec, Inc. (ECT)	100% and steeper	
Rip Rap			$8/SF $75/SY
Gabion			$5/SF $30/SY
50% to 100% Slope (1:2 - 1:1)			
Sod			
Erosion Control Blanket			
CFS072R-Double Net Straw Coconut (70/30)	Greenfix America (ECT)	50%-100%	0.14
CFS072B-Double Organic Net Straw Coconut (70/30)	Greenfix America (ECT)	50%-100%	0.15
SC 150 30%coconut/70% straw fiber matrix (24 months)	North American Green (EJ Prescott)	50%-100%	0.11
SC 150 BN 30%coconut/70%straw fiber matrix (18 months)	North American Green (EJ Prescott)	50%-100%	0.17
Curlex I (wood fiber, brown)	American Excelsior Company (ECT)	66% 5f/s	0.07
Curlex QuickGRASS (wood fiber, green)	American Excelsior Company (ECT)	66% 5f/s green	0.07
Curlex II (Double Sided)	American Excelsior Company (ECT)	66% 7f/s sandy	0.07

Table 3-9 (continued)
Erosion Control Products

Erosion Control Technology	Manufacturer (Distributor)	Intended Slope	Price($/sf)
33% to 50% Slope (1:3 - 1:2)			
Sod			
Enkamat (7000, 7200, 7900, S, and Composite)	Colbond (ECT)	33%-100%	0.35
S150 straw fiber matrix (10 months)	North American Green (EJ Prescott)	33%-66%	0.08
DS 150 straw fiber matrix (45-60 days)	North American Green (EJ Prescott)	33%-66%	0.09
WS072-Double Net Straw	Greenfix America (ECT)	33%-50%	0.07
WS072B-Double Organic Net Straw	Greenfix America (ECT)	33%-50%	0.08
S 150 BN straw fiber matrix (10 months)	North American Green (EJ Prescott)	33%-50%	0.14
20% to 33% Slope			
Sod			
S75 straw fiber matrix (10 months)	North American Green (EJ Prescott)	20%-50%	0.06
DS75 straw fiber matrix (45-60 days)	North American Green (EJ Prescott)	20%-50%	0.07
S75 BN straw fiber matrix (10 months)	North American Green (EJ Prescott)	20%-50%	0.10
TerraJute	Webtec Inc. (ECT)	<50%	0.05
10% to 20% Slope			
Sod			
WS05-Single Net Straw	Greenfix America (ECT)	0-33%	0.06
CF072RP-Nylon Reinforced Coconut (100)	Greenfix America (ECT)	0-33%	
Curlex III (HV)	American Excelsior Company (ECT)	0-33%	0.12
Tenax Radix (Erosion Control Netting)	Geotenax Corp. (ECT)	0-33%	0.01
Woven Coir-Synthetic Turf Reinforcement Mat	RoLanka	0-33%	
TerraGuard	Webtec Inc. (ECT)	0-33%	
Tackifier			$.76/SY $.09/SF
Poly Mesh			$1.45/SY $.16/SF
5% to 10% Slope			
Sod			
Jute			
Paper Mulch			
Hydro Seed			
Tractor Seed			
0052:erosioncontrolbyslope.xls			

Table 3-12

PESTICIDE SCREENING PROCESS

USEPA REGISTERED

NYSDEC REGISTERED

CORNELL COOPERATIVE EXTENSION RECOMMENDED

WINPST MODELING

SITE SPECIFIC MODELING

RUNOFF – CREAMS (USDA) LEACHING – LEACHM (CORNELL)

STEEPEST GOLF HOLE FOR RUNOFF
HIGH ANNUAL RAINFALL
INTENSE STORM EVENTS
ALL MAPPED SOIL SERIES FOR LEACHING
HIGHEST LABEL ALLOWED APPLICATION RATES
MULTIPLE APPLICATIONS
UNDILUTED CONCENTRATIONS IN RUNOFF OR LEACHATE
LOWEST TOXICITY OR HEALTH VALUES

53 PESTICIDES MODELED – 17 NOT TO BE USED
AMONG THOSE NOT TO BE USED IS AN ORGANIC INSECTICIDE

FOR FERTILIZERS, SAME CONDITIONS MODELED
ADJUSTED PHOSPHORUS APPLICATION TO MATCH NYCDEP "LAWN" EXPORT COEFFICIENT

Table 3-15
Soil Characteristics and Limitations[1]

Soil Series	Characteristics: Seasonal High Groundwater	Characteristics: Erosion Potential	Characteristics: Bedrock Depth	Limitations: Golf Fairways	Limitations: Buildings	Limitations: Roads	Limitations: Below Ground Utilities	Limitations: On-Site Septic Systems	Limitations: Pond Reservoir Areas
Elka (EkB, EkC)	>6 ft.	Slight	>60 in.	Moderate; small stones	Slight to Moderate; slope	Moderate; frost action	Slight to Moderate; slope	Moderate; slow perc.	Moderate; seepage,slope
Halcott (HvB, HvD	> 6 ft.	Slight to Moderate	10-20 in.	Severe; depth to rock	Severe; depth to rock	Severe; depth to rock	Severe; depth to rock	Severe; bedrock	Severe; depth to rock
Lewbeach (le)	2-4 ft. March - May	Slight	>60 in.	Moderate; small stones, droughty	Moderate to Severe; wetness	Moderate; wet, frost action	Severe; wetness	Severe; wet slow perc.	Moderate; seepage,slope
Onteora (OsB)	0.5-1.5 ft. Nov. - Apr	Slight	>60 in.	Severe; wetness, droughty	Severe; wetness	Severe;wetness frost action	Severe; wetness	Severe; wet, slow perc.	Moderate; slope
Suny (OsB)	0-0.5 Nov.-Apr.	Slight	>60 in.	Severe; wetness, droughty	Severe; wetness	Severe;wetness frost action	Severe; wetness	Severe; wet slow perc.	Slight
Tunkhannock (Tk)	> 6ft.	Slight to Moderate	>60 in.	Severe; small stones	Moderate; large stones	Moderate; large stones	Severe; cutbanks cave	Severe; poor filter	Severe; seepage
Vly (Ve, Vh, Vy)	>6 ft.	Slight to Moderate	20-40 in.	Severe; small stones, droughty	Moderate to Severe; bedrock	Moderate; bedrock, frost	Severe; depth to rock	Severe; bedrock	Moderate; seepage, rock
Willowemoc (Wl)	1.5-2.5 Oct-May	Slight	>60 in.	Moderate; large stones	Moderate to Severe; wetness	Severe; frost action	Severe; wetness	Severe; slow per, wet	Moderate; seepage

[1]Source: U.S. Department of Agriculture Soil Conservation Service
According to SCS: The limitations are considered *slight* if soil properties and site features are generally favorable for the indicated use and limitations are minor and easily overcome; *moderate* if soil properties or site features are not favorable for the indicated use and special planning, design, or maintenance is needed to overcome or minimize the limitations; and *severe* if soil properties or site features are so unfavorable or so difficult to overcome that special design, signficant increases in construction costs, and possibly increased maintenance are requried.

Table 3-16
Big Indian Country Club Irrigation With Well R1 Replenishment

BIG INDIAN IRRIGATION "WATER BALANCE" WITH 57 GPM WELL AND 250,000 GALLONS PER IRRIGATION EVERY OTHER DAY (WORST CASE)						EVERY THREE DAYS			
day	pond volume	57 gpm well	take irrigation	daily net		pond volume	57 gpm well	take irrigation	daily net
1	7,400,000	82,080	-250,000	-167,920		7,400,000	82,080	-250,000	-167,920
2	7,232,080	82,080	0	82,080		7,232,080	82,080	0	82,080
3	7,314,160	82,080	-250,000	-167,920		7,314,160	82,080	0	82,080
4	7,146,240	82,080	0	82,080		7,396,240	82,080	-250,000	-167,920
5	7,228,320	82,080	-250,000	-167,920		7,228,320	82,080	0	82,080
6	7,060,400	82,080	0	82,080		7,310,400	82,080	0	82,080
7	7,142,480	82,080	-250,000	-167,920		7,392,480	82,080	-250,000	-167,920
8	6,974,560	82,080	0	82,080		7,224,560	82,080	0	82,080
9	7,056,640	82,080	-250,000	-167,920		7,306,640	82,080	0	82,080
10	6,888,720	82,080	0	82,080		7,388,720	82,080	-250,000	-167,920
11	6,970,800	82,080	-250,000	-167,920		7,220,800	82,080	0	82,080
12	6,802,880	82,080	0	82,080		7,302,880	82,080	0	82,080
13	6,884,960	82,080	-250,000	-167,920		7,384,960	82,080	-250,000	-167,920
14	6,717,040	82,080	0	82,080		7,217,040	82,080	0	82,080
15	6,799,120	82,080	-250,000	-167,920		7,299,120	82,080	0	82,080
16	6,631,200	82,080	0	82,080		7,381,200	82,080	-250,000	-167,920
17	6,713,280	82,080	-250,000	-167,920		7,213,280	82,080	0	82,080
18	6,545,360	82,080	0	82,080		7,295,360	82,080	0	82,080
19	6,627,440	82,080	-250,000	-167,920		7,377,440	82,080	-250,000	-167,920
20	6,459,520	82,080	0	82,080		7,209,520	82,080	0	82,080
21	6,541,600	82,080	-250,000	-167,920		7,291,600	82,080	0	82,080
22	6,373,680	82,080	0	82,080		7,373,680	82,080	-250,000	-167,920
23	6,455,760	82,080	-250,000	-167,920		7,205,760	82,080	0	82,080
24	6,287,840	82,080	0	82,080		7,287,840	82,080	0	82,080
25	6,369,920	82,080	-250,000	-167,920		7,369,920	82,080	-250,000	-167,920
26	6,202,000	82,080	0	82,080		7,202,000	82,080	0	82,080
27	6,284,080	82,080	-250,000	-167,920		7,284,080	82,080	0	82,080
28	6,116,160	82,080	0	82,080		7,366,160	82,080	-250,000	-167,920
29	6,198,240	82,080	-250,000	-167,920		7,198,240	82,080	0	82,080
30	6,030,320	82,080	0	82,080		7,280,320	82,080	0	82,080
31	6,112,400	82,080	-250,000	-167,920		7,362,400	82,080	-250,000	-167,920
32	5,944,480	82,080	0	82,080		7,194,480	82,080	0	82,080
33	6,026,560	82,080	-250,000	-167,920		7,276,560	82,080	0	82,080
34	5,858,640	82,080	0	82,080		7,358,640	82,080	-250,000	-167,920
35	5,940,720	82,080	-250,000	-167,920		7,190,720	82,080	0	82,080
36	5,772,800	82,080	0	82,080		7,272,800	82,080	0	82,080
37	5,854,880	82,080	-250,000	-167,920		7,354,880	82,080	-250,000	-167,920
38	5,686,960	82,080	0	82,080		7,186,960	82,080	0	82,080
39	5,769,040	82,080	-250,000	-167,920		7,269,040	82,080	0	82,080
40	5,601,120	82,080	0	82,080		7,351,120	82,080	-250,000	-167,920
41	5,683,200	82,080	-250,000	-167,920		7,183,200	82,080	0	82,080
42	5,515,280	82,080	0	82,080		7,265,280	82,080	0	82,080
43	5,597,360	82,080	-250,000	-167,920		7,347,360	82,080	-250,000	-167,920
44	5,429,440	82,080	0	82,080		7,179,440	82,080	0	82,080
45	5,511,520	82,080	-250,000	-167,920		7,261,520	82,080	0	82,080
46	5,343,600	82,080	0	82,080		7,343,600	82,080	-250,000	-167,920
47	5,425,680	82,080	-250,000	-167,920		7,175,680	82,080	0	82,080
48	5,257,760	82,080	0	82,080		7,257,760	82,080	0	82,080
49	5,339,840	82,080	-250,000	-167,920		7,339,840	82,080	-250,000	-167,920
50	5,171,920	82,080	0	82,080		7,171,920	82,080	0	82,080
51	5,254,000	82,080	-250,000	-167,920		7,254,000	82,080	0	82,080
52	5,086,080	82,080	0	82,080		7,336,080	82,080	-250,000	-167,920
53	5,168,160	82,080	-250,000	-167,920		7,168,160	82,080	0	82,080
54	5,000,240	82,080	0	82,080		7,250,240	82,080	0	82,080
55	5,082,320	82,080	-250,000	-167,920		7,332,320	82,080	-250,000	-167,920
56	4,914,400	82,080	0	82,080		7,164,400	82,080	0	82,080

Table 3-16 (continued)
Big Indian Country Club Irrigation With Well R1 Replenishment

BIG INDIAN IRRIGATION "WATER BALANCE" WITH 57 GPM WELL AND 250,000 GALLONS PER IRRIGATION EVERY OTHER DAY (WORST CASE)						EVERY THREE DAYS			
day	pond volume	57 gpm well	take irrigation	daily net		pond volume	57 gpm well	take irrigation	daily net
57	4,996,480	82,080	-250,000	-167,920		7,246,480	82,080	0	82,080
58	4,828,560	82,080	0	82,080		7,328,560	82,080	-250,000	-167,920
59	4,910,640	82,080	-250,000	-167,920		7,160,640	82,080	0	82,080
60	4,742,720	82,080	0	82,080		7,242,720	82,080	0	82,080
61	4,824,800	82,080	-250,000	-167,920		7,324,800	82,080	-250,000	-167,920
62	4,656,880	82,080	0	82,080		7,156,880	82,080	0	82,080
63	4,738,960	82,080	-250,000	-167,920		7,238,960	82,080	0	82,080
64	4,571,040	82,080	0	82,080		7,321,040	82,080	-250,000	-167,920
65	4,653,120	82,080	-250,000	-167,920		7,153,120	82,080	0	82,080
66	4,485,200	82,080	0	82,080		7,235,200	82,080	0	82,080
67	4,567,280	82,080	-250,000	-167,920		7,317,280	82,080	-250,000	-167,920
68	4,399,360	82,080	0	82,080		7,149,360	82,080	0	82,080
69	4,481,440	82,080	-250,000	-167,920		7,231,440	82,080	0	82,080
70	4,313,520	82,080	0	82,080		7,313,520	82,080	-250,000	-167,920
71	4,395,600	82,080	-250,000	-167,920		7,145,600	82,080	0	82,080
72	4,227,680	82,080	0	82,080		7,227,680	82,080	0	82,080
73	4,309,760	82,080	-250,000	-167,920		7,309,760	82,080	-250,000	-167,920
74	4,141,840	82,080	0	82,080		7,141,840	82,080	0	82,080
75	4,223,920	82,080	-250,000	-167,920		7,223,920	82,080	0	82,080
76	4,056,000	82,080	0	82,080		7,306,000	82,080	-250,000	-167,920
77	4,138,080	82,080	-250,000	-167,920		7,138,080	82,080	0	82,080
78	3,970,160	82,080	0	82,080		7,220,160	82,080	0	82,080
79	4,052,240	82,080	-250,000	-167,920		7,302,240	82,080	-250,000	-167,920
80	3,884,320	82,080	0	82,080		7,134,320	82,080	0	82,080
81	3,966,400	82,080	-250,000	-167,920		7,216,400	82,080	0	82,080
82	3,798,480	82,080	0	82,080		7,298,480	82,080	-250,000	-167,920
83	3,880,560	82,080	-250,000	-167,920		7,130,560	82,080	0	82,080
84	3,712,640	82,080	0	82,080		7,212,640	82,080	0	82,080
85	3,794,720	82,080	-250,000	-167,920		7,294,720	82,080	-250,000	-167,920
86	3,626,800	82,080	0	82,080		7,126,800	82,080	0	82,080
87	3,708,880	82,080	-250,000	-167,920		7,208,880	82,080	0	82,080
88	3,540,960	82,080	0	82,080		7,290,960	82,080	-250,000	-167,920
89	3,623,040	82,080	-250,000	-167,920		7,123,040	82,080	0	82,080
90	3,455,120	82,080	0	82,080		7,205,120	82,080	0	82,080
91	3,537,200	82,080	-250,000	-167,920		7,287,200	82,080	-250,000	-167,920
92	3,369,280	82,080	0	82,080		7,119,280	82,080	0	82,080
93	3,451,360	82,080	-250,000	-167,920		7,201,360	82,080	0	82,080
94	3,283,440	82,080	0	82,080		7,283,440	82,080	-250,000	-167,920
95	3,365,520	82,080	-250,000	-167,920		7,115,520	82,080	0	82,080
96	3,197,600	82,080	0	82,080		7,197,600	82,080	0	82,080
97	3,279,680	82,080	-250,000	-167,920		7,279,680	82,080	-250,000	-167,920
98	3,111,760	82,080	0	82,080		7,111,760	82,080	0	82,080
99	3,193,840	82,080	-250,000	-167,920		7,193,840	82,080	0	82,080
100	3,025,920	82,080	0	82,080		7,275,920	82,080	-250,000	-167,920
101	3,108,000	82,080	-250,000	-167,920		7,108,000	82,080	0	82,080
102	2,940,080	82,080	0	82,080		7,190,080	82,080	0	82,080
103	3,022,160	82,080	-250,000	-167,920		7,272,160	82,080	-250,000	-167,920
104	2,854,240	82,080	0	82,080		7,104,240	82,080	0	82,080
105	2,936,320	82,080	-250,000	-167,920		7,186,320	82,080	0	82,080
106	2,768,400	82,080	0	82,080		7,268,400	82,080	-250,000	-167,920
107	2,850,480	82,080	-250,000	-167,920		7,100,480	82,080	0	82,080
108	2,682,560	82,080	0	82,080		7,182,560	82,080	0	82,080
109	2,764,640	82,080	-250,000	-167,920		7,264,640	82,080	-250,000	-167,920
110	2,596,720	82,080	0	82,080		7,096,720	82,080	0	82,080
111	2,678,800	82,080	-250,000	-167,920		7,178,800	82,080	0	82,080
112	2,510,880	82,080	0	82,080		7,260,880	82,080	-250,000	-167,920

Table 3-16 (continued)
Big Indian Country Club Irrigation With Well R1 Replenishment

BIG INDIAN IRRIGATION "WATER BALANCE" WITH 57 GPM WELL AND 250,000 GALLONS PER IRRIGATION EVERY OTHER DAY (WORST CASE)						EVERY THREE DAYS			
	pond	57 gpm	take	daily		pond	57 gpm	take	daily
day	volume	well	irrigation	net		volume	well	irrigation	net
113	2,592,960	82,080	-250,000	-167,920		7,092,960	82,080	0	82,080
114	2,425,040	82,080	0	82,080		7,175,040	82,080	0	82,080
115	2,507,120	82,080	-250,000	-167,920		7,257,120	82,080	-250,000	-167,920
116	2,339,200	82,080	0	82,080		7,089,200	82,080	0	82,080
117	2,421,280	82,080	-250,000	-167,920		7,171,280	82,080	0	82,080
118	2,253,360	82,080	0	82,080		7,253,360	82,080	-250,000	-167,920
119	2,335,440	82,080	-250,000	-167,920		7,085,440	82,080	0	82,080
120	2,167,520	82,080	0	82,080		7,167,520	82,080	0	82,080
121	2,249,600	82,080	-250,000	-167,920		7,249,600	82,080	-250,000	-167,920
122	2,081,680	82,080	0	82,080		7,081,680	82,080	0	82,080

Table 3-17
Vegetation Communities
Eastern Portion

Vegetation Symbol	Community Name	Sum of Acres	Percentage of Acres
BM	Beech-maple mesic forest	1024.70	82.67%
HH	Hemlock-northern hardwoods forest	201.69	16.27%
HS	Hemlock-hardwood swamp	0.21	0.02%
ML	Mowed lawn with trees	0.98	0.08%
MS	Midreach stream	0.10	0.01%
OF	Successional old field	4.30	0.35%
RH	Rocky headwater stream	0.16	0.01%
RS	Intermittent rocky stream wetland	4.20	0.34%
SB	Shrub swamp	2.99	0.24%
SM	Shallow emergent marsh	0.13	0.01%
Total:		1239.47	100.00%

Table 3-18
Vegetation Communities
Western Portion

Vegetation Symbol	Vegetation Community	Sum of Acres	Percentage of Acres
BM	Beech-maple mesic forest	573.04	79.47%
HD	Hardwood swamp	2.38	0.33%
HH	Hemlock-northern hardwoods forest	70.69	9.80%
HS	Hemlock-hardwood swamp	4.35	0.60%
ML	Mowed lawn with trees	3.64	0.50%
OF	Successional old field	5.10	0.71%
PP	Pine plantation	5.05	0.70%
RS	Intermittent rocky stream wetland	5.03	0.70%
SB	Shrub swamp	1.19	0.16%
SH	Successional northern hardwoods forest	6.89	0.96%
SM	Shallow emergent swamp	3.07	0.43%
SS	Ski slope	40.66	5.64%
	TOTAL	721.09	100.00%

Table 3-19
Existing Vegetation

Ecological Community	Acreage on Eastern Property	Acreage on Western Property	Total Acreage	Percentage of Total Area
Beech-maple mesic forest	573.0	1,024.7	1,597.7	81.5%
Hardwood swamp	2.4		2.4	0.1%
Hemlock-northern hardwoods forest	70.7	201.7	272.4	13.9%
Hemlock-hardwood swamp	4.4	0.2	4.6	0.2%
Mowed lawn with trees	3.6	1.0	4.6	0.2%
Midreach stream		0.1	0.1	0.0%
Successional old field	5.1	4.3	9.4	0.5%
Pine plantation	5.1		5.1	0.3%
Rocky headwater stream		0.2	0.2	0.0%
Intermittent rocky stream wetland	5.0	4.2	9.2	0.5%
Shrub swamp	1.2	3.0	4.2	0.2%
Successional northern hardwoods forest	6.9		6.9	0.4%
Shallow emergent swamp	3.1	0.1	3.2	0.2%
Ski slope	40.7		40.7	2.1%
TOTALS	721.1	1,239.5	1,960.6	100.0%

TABLE 3-20
FLORA OF THE BELLEAYRE RESORT SITE

Scientific Name[1]	Common Name
Trees	
Acer platanoides	Norway maple
Acer rubrum	red maple
Acer saccharum	sugar maple
Betula alleghaniensis	yellow birch
Betula lenta	black birch
Betula papyrifera	paper birch
Betula populifolia	gray birch
Carpinus caroliniana	hornbeam
Carya ovata	shag-bark hickory
Crataegus sp.	hawthorn
Fagus grandifolia	American beech
Fraxinus americana	white ash
Fraxinus pennsylvanica	green ash
Malus sylvestris	wild apple
Ostrya virginiana	hop-hornbeam
Picea abies	Norway spruce
Picea rubens	red spruce
Pinus resinosa	red pine
Pinus strobus	white pine
Populus grandidentata	bigtooth aspen
Populus tremuloides	quaking aspen
Prunus pensylvanica	fire cherry
Prunus serotina	black cherry
Quercus rubra	red oak
Salix nigra	black willow
Tilia americana	basswood
Tsuga canadensis	hemlock
Ulmus americana	American elm
Shrubs and Vines	
Acer pensylvanicum	striped maple
Acer spicatum	mountain maple
Amelanchier sp.	shadbush
Berberis thunbergii	Japanese barberry

TABLE 3-20 (continued)
FLORA OF THE BELLEAYRE RESORT SITE

Scientific Name[1]	Common Name
Shrubs and Vines (continued)	
Caulophyllum thalictroides	blue cohosh
Claytonia virginica	spring-beauty
Cornus florida	flowering dogwood
Cornus foemina	stiff dogwood
Corylus americana	American hazel-nut
Diervilla lonicera	bush honeysuckle
Hamamelis virginiana	witch hazel
Juniperus communis	common juniper
Lonicera tatarica	tartarian honeysuckle
Rhus hirta	staghorn sumac
Ribes sp.	currant
Rosa canina	dog rose
Rubus allegheniensis	northern blackberry
Rubus idaeus	red raspberry
Rubus odoratus	pink thimbleberry
Salix discolor	pussy willow
Sambucus canadensis	black elderberry
Spiraea alba	narrow-leaf meadow-sweet
Spiraea tomentosa	steeple-bush
Viburnum lantanoides	hobblebush
Viburnum recognitum	northern arrow-wood
Herbaceous plants, Low Woody Plants	
Achillea millefolium	common yarrow
Actaea pachypoda	white baneberry
Adiantum pedatum	maidenhair fern
Alliaria petiolata	garlic mustard
Allium tricoccum	wild leek
Anaphalis margaritacea	pearly everlasting
Anemone quinquefolia	wood-anemone
Anthriscus sylvestris	wild chervil
Aralia nudicaulis	wild sarsaparilla
Arisaema triphyllum	Jack-in-the-pulpit
Asarum canadense	wild ginger
Asclepias syriaca	common milkweed
Aster acuminatus	mountain aster
Aster divaricatus	white wood aster
Aster prenanthoides	zig-zag aster

TABLE 3-20 (continued)
FLORA OF THE BELLEAYRE RESORT SITE

Scientific Name[1]	Common Name
Herbaceous plants, Low Woody Plants (continued)	
Aster puniceus	purple-stemmed aster
Aster umbellatus	flat-top white aster
Athyrium filix-femina	lady fern
Brachyelytrum erectum	bearded shorthusk
Caltha palustris	marsh marigold
Cardamine diphylla	two-leaved toothwort
Carex bromoides	sedge
Carex crinita	sedge
Carex debilis	sedge
Carex laxiflora var. *laxiflora*	sedge
Carex lurida	sedge
Carex platyphylla	broad-leaf sedge
Carex scoparia	pointed broom-sedge
Carex stricta	tussock-sedge
Caulophyllum thalictroides	blue cohosh
Chrysosplenium americanum	golden saxifrage
Cinna latifolia	drooping woodreed
Dactylis glomerata	orchard grass
Dalibarda repens	dewdrop
Dennstaedtia punctilobula	hay-scented fern
Deparia acrostichoides (=*Athyrium thelypteroides*)	silvery spleenwort
Dicentra canadensis	squirrel-corn
Dryopteris carthusiana (= *D. spinulosa*)	spinulose wood fern
Dryopteris clintoniana	Clinton's shield fern
Dryopteris marginalis	marginal wood fern
Epilobium coloratum	purple-leaf willow-herb
Epipactis helleborine	helleborine
Erythronium americanum	troutlily
Eupatorium rugosum	white snakeroot
Euthamia graminifolia	bush goldenrod
Festuca filiformis	hair fescue
Festuca subverticillata (= *F. obtusa*)	nodding fescue
Fragaria virginiana	wild strawberry
Galeopsis tetrahit	hemp-nettle
Galium mollugo	white bedstraw
Gaultheria procumbens	wintergreen
Geranium robertianum	herb-robert
Geum sp.	avens
Glechoma hederacea	ground-ivy

TABLE 3-20 (continued)
FLORA OF THE BELLEAYRE RESORT SITE

Scientific Name[1]	Common Name
Herbaceous plants, Low Woody Plants (continued)	
Glyceria melicaria	melic manna grass
Glyceria striata	fowl manna-grass
Hieracium kalmii	hawkweed
Huperzia lucidula (= *Lycopodium lucidulum*)	shining firmoss
Hypericum punctatum	dotted St. John's-wort
Impatiens capensis	spotted touch-me-not
Impatiens pallida	pale jewelweed
Juncus acuminatus	sharp-fruited rush
Juncus effusus	soft rush
Laportea canadensis	wood-nettle
Lycopodium annotinum	stiff clubmoss
Lycopodium obscurum	ground pine
Lycopodium tristachyum	ground cedar
Lycopus virginicus	water-horehound
Lysimachia ciliata	fringed loosestrife
Lythrum salicaria	purple loosestrife
Maianthemum canadense	wild lily-of-the-valley
Mentha X *piperita*	peppermint
Mitchella repens	partridge-berry
Myosotis scorpioides	true forget-me-not
Myosoton aquaticum	giant chickweed
Oenothera biennis	evening primrose
Onoclea sensibilis	sensitive fern
Osmunda cinnamomea	cinnamon fern
Osmunda claytoniana	interrupted fern
Oxalis montana	common wood sorrel
Parthenocissus quinquefolia	Virginia creeper
Poa compressa	Canada bluegrass
Polygonatum pubescens	Solomon's seal
Polygonum cilinode	fringed bindweed
Polygonum cuspidatum	Japanese knotweed
Polygonum sagittatum	arrow-leaf tear-thumb
Polypodium virginianum	common polypody
Polystichum acrostichoides	Christmas fern
Potentilla simplex	old field cinquefoil
Prunella vulgaris	heal-all
Pycnanthemum incanum	mountain-mint
Ranunculus sp.	buttercup
Rubus pubescens	dwarf raspberry

TABLE 3-20 (continued)
FLORA OF THE BELLEAYRE RESORT SITE

Scientific Name[1]	Common Name
Herbaceous plants, Low Woody Plants (continued)	
Rudbeckia sp.	black-eyed-Susan
Rumex obtusifolius	bitter dock
Sanicula canadensis	sanicle
Saponaria officinalis	bouncing-bet
Scirpus microcarpus	bulrush
Scutellaria lateriflora	mad-dog skullcap
Senecio aureus	golden ragwort
Smilacina racemosa	false Solomon's-seal
Solidago bicolor	white goldenrod
Solidago caesia	wreath goldenrod
Solidago canadensis	common goldenrod
Solidago flexicaulis	zig-zag goldenrod
Solidago gigantea	late goldenrod
Solidago nemoralis	rough goldenrod
Solidago rugosa ssp. *rugosa*	tall hairy goldenrod
Stellaria media	common chickweed
Streptopus roseus	twisted-stalk
Thalictrum sp.	meadow-rue
Thelypteris noveboracensis	New York fern
Tiarella cordifolia	foamflower
Trientalis borealis	starflower
Trillium sp.	trillium
Veronica chamaedrys	bird's eye speedwell
Veronica officinalis	speedwell
Viola sp.	violet

[1]Nomenclature used here follows Mitchell, and Tucker (1997).

Mitchell, R. S. and G. C. Tucker. 1997. Revised Checklist of New York State Plants. New York State Museum Bulletin No. 490, 400 pp.

Table 3-21
Vegetation Disturbance
Total Site

Community Symbol	Community Name	east total	west total	east disturbed	west disturbed	east undisturbed	west undisturbed	total undisturbed	percent unisturbed
BM	Beech-maple mesic forest	1024.49	572.83	277.89	152.81	746.60	415.99	1162.59	72.78%
HS*	Hemlock-hardwood swamp	0.22	4.35	0.12	2.22	0.10	2.13	2.23	48.80%
HH	Hemlock-northern hardwoods forest	202.62	70.66	12.31	50.05	190.31	23.61	213.92	78.28%
RS*	Intermittent rocky stream wetland	4.20	5.02	0.55	1.44	3.65	3.58	7.23	78.42%
MS*	Midreach stream	0.10	0.00	0.00	0	0.10	0	0.10	100.00%
ML	Mowed lawn with trees	0.98	3.64	0.00	0.13	0.98	3.51	4.49	97.19%
RH*	Rocky headwater stream	0.17	0.00	0.01	0	0.16	0	0.16	94.12%
SM*	Shallow emergent marsh	0.13	3.07	0.01	0.08	0.12	2.99	3.11	97.19%
SB*	Shrub swamp	3.00	1.19	0.04	0	2.96	1.19	4.15	99.05%
OF	Successional old field	4.30	5.11	0.31	0.36	3.99	4.75	8.74	92.88%
HD	Hardwood Swamp	0	2.38	0.00	0.59	1.79	0	1.79	75.21%
SS	Ski Slope	0	40.64	0.00	0	0	40.64	40.64	100.00%
SH	Successional northern hardwoods forest	0	6.88	0.00	3.21	0	3.67	3.67	53.34%
PP	Pine Plantation	0	5.05	0.00	0.83	0	4.22	4.22	83.56%
	TOTAL	1240.21	720.82	291.24	211.72	950.76	506.28	1457.04	74.30%
	* all of these areas not necessarily jurisdictional wetlands								

Table 3-22
Vegetation Disturbance
Eastern Portion

Vegetation Symbol	Vegetation Name	total	disturbed	undisturbed	percent undisturbed
BM	Beech-maple mesic forest	1026.28	277.89	748.39	72.92%
HS*	Hemlock-hardwood swamp	0.22	0.12	0.10	45.45%
HH	Hemlock-northern hardwoods forest	202.62	12.31	190.31	93.92%
RS*	Intermittent rocky stream wetland	4.20	0.55	3.65	86.90%
MS*	Midreach stream	0.10		0.10	100.00%
ML	Mowed lawn with trees	0.98		0.98	100.00%
RH*	Rocky headwater stream	0.17	0.01	0.16	94.12%
SM*	Shallow emergent marsh	0.13	0.01	0.12	92.31%
SB*	Shrub swamp	3.00	0.04	2.96	98.67%
OF	Successional old field	4.30	0.31	3.99	92.79%
	TOTALS	1242	291.24	950.76	76.55%
	* all of these areas not necessarily jurisdictional wetlands				

Table 3-23
Vegetation Disturbance
Western Portion

Vegetation Symbol	Vegetation Community	total	disturbed	undisturbed	percent undisturbed
BM	Beech-maple mesic forest	567.01	152.81	414.20	73.05%
HD*	Hardwood swamp	2.38	0.59	1.79	75.21%
HS*	Hemlock-hardwood swamp	4.35	2.22	2.13	48.97%
HH	Hemlock-northern hardwoods forest	73.66	50.05	23.61	32.05%
RS*	Intermittent rocky stream wetland	5.02	1.44	3.58	71.31%
ML	Mowed lawn with trees	3.64	0.13	3.51	96.43%
PP	Pine plantation	5.05	0.83	4.22	83.56%
SM*	Shallow emergent swamp	3.07	0.08	2.99	97.39%
SB*	Shrub swamp	1.19		1.19	100.00%
SS	Ski slope	40.64		40.64	100.00%
SH	Successional northern hardwoods forest	6.88	3.21	3.67	53.34%
OF	Successional old field	5.11	0.36	4.75	92.95%
	TOTALS	718.00	211.72	506.28	70.51%
* all of these areas are not necessarily jurisdictional wetlands					

TABLE 3-24B

XERISCAPE PLANT LIST

	Zone
Achillea filipendula	4-5*
Achillea millefolium	4-5*
Alyssum, Sweet	4-5
Amelanchier alnifolia	4-5
Aronia arbutifolia	4-5
Artemisia absinthum	4-5
Artemisia ludoviciana	4-5*
Asclepias tuberosa	4-5*
Aurinia saxatilis	4-5
Basket of Gold	4-5
Beardtongue	4-5*
Beebalm	4-5*
Bellflower	4-5
Bergenia	4-5
Bergenia cordifolia	4-5
Blanketflower	4-5*
Blazing Star	4-5*
Blue Mist Shrub	5
Blue Fescue	4-5
Blue Oat Grass	5
Buddleia davidii	4-5
Butterfly Weed	4-5*
Calamagrostis acutiflora	5
Campanula carpatica	4-5
Campis radicans	5
Caryopteris x clandonensis	5
Catmint	4-5
Cerastium tomentosum	5
Chokeberry	4-5*
Clematis paniculata	5
Coreopsis verticillata	4-5
Cotoneaster divaricatus	4-5*
Cotoneaster	4-5*
Cytisus scoparius	5
Daylily	4-5
Dwarf Fountain Grass	5
Echinacea purpurea	4-5*
Eschscholzia californa	4-5*

TABLE 3-24B (continued)

XERISCAPE PLANT LIST

Euphorbia epithymoides	4-5
False Sunflower	5
Feather Reed Grass	5
Fescue	5
Festuca ovina glauca	4-5
Feverfew	4-5
Flax	4-5*
Fountain Grass	5
Gaillardia aristata	4-5*
Geranium	Annual
Goldenrod	Annual
Gomphrena globosa	Annual
Helictotrichon sempervirens	4-5
Heliopsis helianthoides	4-5
Hemerocallis	4-5
Heuchera micrantha	4-5
Hosta	4-5
Hypericum frondosum	4-5
Iris siberica	4-5
Juniperus scopulorum	4-5*
Juniperus squamata	4-5*
Juniperus horizontalis	4-5*
Kniphofia hybrida	4-5
Lamb's Ears	4-5
Lavandula officinalis	4-5
Lavatera trimestris	Annual
Lavender	4-5
Liatris spicata	4-5*
Linium perenne	4-5*
Live Forever, Never Die	4-5*
Lobularia maritima	5
Maiden Grass	8
Mallow	Annual
Meadow Sage	Annual
Microbiota decussata	4-5
Miscanthus sinensis	4-5
Monarda didyma	4-5
Nasturtium	Annual
Nepata fasenii	4-5

TABLE 3-24B (continued)

XERISCAPE PLANT LIST

Oenothera missouriensis	4-5
Origanum onites	4-5
Panicum virgatum	
Pennisetum alopecuroides	5
Penstemon digitalis	4-5
Penstemon ambiguus	4-5
Perovski atriplicifolia	4-5
Physostegia virginia	4-5*
Polystichum acrostichoides	5
Porcupine Grass	5
Portulaca grandiflora	Annual
Potentilla fruticosa	4-5*
Potentilla	4-5
Purple Maiden Grass	5
Red Hot Poker	4-5
Rudbeckia fulida	4-5
Russian Arborvitae	
Russian Sage	4-5
Salvia nemerosa	4-5
Salvia officinalis	4-5
Sanvitalia procumbens	Annual
Scotch Broom	5
Shadbush	4-5
Snow-in-Summer	5
Solidago rugoso	4-5
Stachys byzantina	4-5
Stone crop	4-5
Sundrop	4-5
Sweet Autumn Clematis	4-5
Tanacetum parthenium	5
Tradescantia x andersoniana	4-5
Tropaeolum majus	Annual
Trumpet Vine	5
Veronica spicata	4-5
Veronica longiolia	4-5
Viburnum Korean Spice	4-5
Zinnia, Narrowleaf	Annual
Zinnia augustifolia	Annual
Zinnia, Creeping	Annual

Table 3-25

Wetlands Table - Eastern Property

Wetland Group Location and Watershed	Wetland ID Number and Boundary Lines Defining the Wetland	Ecological Communities in Wetland[1]	Principal Values & Functions[2]	Area of wetlands (acres)	Isolated wetland?
Area West of Giggle Hollow; Woodchuck Hollow Brook, tributary of Birch Cr.	**(25) A** – Intermittent stream course	RS	AR, RC	0.05	yes
	(26) B/C – Intermittent stream course/wetland	RS, SM	AR, RC	0.17	yes
	(27) Woodchuck Hollow Brook (not delineated)	RH	AB, FW, RC	0.57	no
Wetlands along Birch Creek and in its valley.	**(28) D/E/F** – Birch Creek Adjacent to Route 28, Near Belleayre Day Use Area.	SB, SM, MS	AB, FL, FW, RC	1.45	no
	(29) G – Wetland on Birch Creek floodplain	SM	AR, FL, FW	0.09	no
	(30) BQ/BR – Wetland near Lasher Road	SB, SM	AR, FL, FW	2.26	no
	(31) BV/BX – Birch Creek at Lasher Road bridge.	MS	AB, FW, RC	0.30	no
Giggle Hollow Brook and other intermittent streams joining Birch Creek.	**(32) BG/BH/BI** – upper part of Giggle Hollow Brook	RS	RC	1.33	no
	(33) BK – Small wetland pocket next to access road	SM	FL	0.04	yes
	(34) BJ/BL/BM – Wetland and streamcourse near access road	RS, SM, HS	FW, RC	1.28	yes
	(35) BN/BO – Wetland and streamcourse near access road	RS, SM, HS	FW, RC	0.51	yes
			Total acreage of all wetlands	**8.05**	
			Total acreage of non-isolated wetlands	**6.00**	
			Total acreage of isolated wetlands	**2.05**	

[1]Ecological communities:
- HD = hardwood swamp
- HS = hemlock–hardwood swamp
- RH = rocky headwater stream
- RS = intermittent rocky stream wetland
- SB = shrub swamp
- SM = shallow emergent marsh

[2]Values and Functions:
- AB = aesthetic benefits
- AR = aquifer recharge
- FL = flood mitigation and stormwater control
- FW = fish and wildlife habitat
- RC = resource cycling and export

Table 3-26

Wetlands Table - Western Property

Wetland Group Location and Watershed	Wetland ID Number and Boundary Lines Defining the Wetland	Ecological Communities in Wetland[1]	Principal Values & Functions[2]	Area of wetlands (acres)	Isolated wetland?
Western part of site, near Todd Mountain Road; Bush Kill watershed.	**(1) AB/AC** – wetland	RH, SM	FL, RC	1.73	no
	(2) AD – wetland/ watercourse	RS, SM	FL, AR	0.58	no
	(3) AE – wetland	SM	FL, AR	0.30	yes
	(4) AF/AG/AI/AJ – wetland/ stream system	RS, SB	FL, RC	3.07	no
	(5) AH – wetland	RH	RC, AB	0.01	no
	(6) AK – wetland parallel to AI	SM, RS	FL, AR	0.64	no
	(7) AL – wetland	HD	FL, AR	1.79	yes
	(8) AM – wetland	SM	FL	0.04	no
	(9) AN – wetland	SM	FL	0.02	no
	(10) AO – wetland	SM	FL	0.08	yes
	(11) AP – wetland	SM	FL	0.03	yes
Highmount Ski Area and northward; Emory Brook watershed.	**(12) HA/HB** – wetland	SM, RS	FL, RC	0.10	no
	(13) HC – wetland	SM	RC	0.08	no
	(14) HD – drainage ditch	RS	FL	0.09	no
	(15) HE – wetland/watercourse	SM, RS	FL	0.14	no
	(16) M/N – stream and seepy areas	RH, HS	FL, RC	3.64	no
Area East and South of Wildacres Hotel; Emory Brook watershed	**(17) CA** – seepy area & stream	HS	FL, FW	0.37	yes
	(18) CB/CC – seepy area and stream	HS	FL, FW	0.22	yes
	(19) H – forested wetland	HS	FL, FW	0.38	yes
	(20) I – forested wetland	HS	FL, FW	1.26	yes
	(21) K/L – segment of stream draining wetlands H and I	RS	RC	0.56	yes
	(22) Y/Z – segment of stream draining wetlands H and I	RS	RC	0.06	yes
	(23) Q/R – rocky streamcourse	RS	RC	0.54	no
	(24) HN/O/P – seepy stream headwaters, rocky streamcourse	RS, SM	RC, FL	0.29	no
Total acreage of all wetlands				**16.02**	
Total acreage of non-isolated wetlands				**10.97**	
Total acreage of isolated wetlands				**5.05**	

See Table 3-25 for footnotes.

Table 3-26A Projected Impacts to Wetlands on the Belleayre Resort Site

			Impacts to Non-Isolated Wetlands		Impacts to Isolated Wetlands	
Wetland ID no. & Boundary Lines	**Impact ID no. and Location**	**Drawing no.**	**Wetland Fills (acres)**	**Vegetation Clearing (acres)†**	**Wetland Fills (acres)**	**Vegetation Clearing (acres)**
Wildacres Area		MP-1				
(16) M/N	16a. Golf Hole no. 11	SG-1		0.41		
	16b. Golf Hole no. 13	SG-1		0.50		
	16c. Golf Hole no. 16	SG-1		0.88		
(17) CA	17. Parking garage	SG-1, 3			0.29	
(18) CB/CC	18a. Road grading	SG-3			0.01	
	18b. Golf Hole no. 10	SG-1				0.004
(19) H	19a. Road grading	SG-1			0.01	
	19b. Golf Hole no. 18	SG-1			0.34	
(20) I	20a. Golf Hole no. 18	SG-1			0.21	
	20b. East side of wetland	SG-1				0.09
	20c. Road grading	SG-1			0.01	
(21) K/L	21a. Golf Hole no. 13	SG-1				0.03
	21b. Golf Hole no. 16	SG-1			0.15	0.10
	21c. Area near road	SG-1				0.02
(22) Y/Z	22. Road & stormwater basin	SG-1			0.06	
(23) Q/R	23a. Golf Hole no. 2	SG-2		0.18		
	23b. Golf Hole no. 4	SG-2		0.04		
(24) HN/O/P	24a. Golf Hole no. 8	SG-2		0.28		
	24b. Bridge crossing	SG-2	0.0003			
Subtotals			**0.0003**	**2.29**	**1.08**	**0.25**
Big Indian Plateau Area		MP-4				
(26) B/C	26. Road grading	SG-5			0.01	
(29) G	29. Access road grading	SG-6	0.036			
(32) BG/BH	32. Giggle Hollow bridge	SG-8	0.056	0.22		
(33) BK	33. Golf Hole no. 11	SG-9			0.04	
(34) BJ/BL/BM	34a. Winding Mt. Road	SG-7			0.02	
	34b. Road & stormwater basin	SG-9			0.34	
(35) BN/BO	35. Road grading	SG-7			0.00	
(36) WMA	36. Bridge over Birch Creek	SG-7	0.007			
Subtotals			**0.0990**	**0.22**	**0.41**	**0.00**
Totals for entire property			**0.0993**	**2.51**	**1.49**	**0.25**

†All raised cart paths are included within areas of vegetation clearing. Support posts for raised cart paths will occupy only 15 sq. ft. in non-isolated wetlands and 5 sq. ft. in isolated wetlands.

Table 3-27
Bird Species Observed at the Belleayre Resort Site – Spring 2000.[1]

Species		
Common Name	**Scientific Name**	**Habitat Type[2]**
Great Blue Heron	*Ardea herodias*	FO
Turkey Vulture	*Cathartes aura*	FO
Broad-winged Hawk	*Buteo platypterus*	HH
Ruffed Grouse	*Bonasa umbellus*	BM
Wild Turkey	*Meleagris gallopavo*	BM
Mourning Dove	*Zenaida macroura*	OF
Barred Owl	*Strix varia*	HS
Chimney Swift	*Chaetura pelagica*	FO
Belted Kingfisher	*Ceryle alcyon*	BM, OW
Yellow-bellied Sapsucker	*Sphyrapicus varius*	BM,HS
Downy Woodpecker	*Picoides pubescens*	BM,HH,HS
Hairy Woodpecker	*Picoides villosus*	BM,HH
Northern Flicker	*Colaptes auratus*	BM,HS
Pileated Woodpecker	*Dryocopus pileatus*	BM,HH,HS
Least Flycatcher	*Empidonax minimus*	BM,HH
Great-crested Flycatcher	*Myiarchus crinitus*	SS,HH
Tree Swallow	*Tachycineta bicolor*	FO
Blue Jay	*Cyanocitta cristata*	BM,OF
American Crow	*Corvus brachyrhynchos*	OF,ML
Black-capped Chickadee	*Parus atricapillus*	BM,HH,HS
Tufted Titmouse	*Parus bicolor*	BM
White-breasted Nuthatch	*Sitta carolinensis*	BM
Brown Creeper	*Certhia americana*	HH
Winter Wren	*Troglodytes troglodytes*	HH,HS
House Wren	*Troglodytes aedon*	OF
Golden-crowned Kinglet	*Regulus satrapa*	HH,BM
Veery	*Catharus fuscescens*	BM,HS
Hermit Thrush	*Catharus guttatus*	BM
Wood Thrush	*Hylocichla mustelina*	BM,HS
American Robin	*Turdus migratorius*	BM,HH,OF
Gray Catbird	*Dumetella carolinensis*	OF
Blue-headed Vireo	*Vireo solitarius*	BM
Red-eyed Vireo	*Vireo olivaceus*	BM,HH,HS
Yellow Warbler	*Dendroica petechia*	SS,HH,HS,BM
Chestnut-sided Warbler	*Dendroica pensylvanica*	HH,BM
Black-throated Blue Warbler	*Dendroica caerulescens*	HH,BM
Yellow-rumped Warbler	*Dendroica coronata*	BM,HH,HS

Table 3-27 (continued)
Bird Species Observed at the Belleayre Resort Site – Spring 2000.[1]

Species		
Common Name	**Scientific Name**	**Habitat Type[2]**
Black-throated Green Warbler	*Dendroica virens*	BM,HH,HS
Blackburnian Warbler	*Dendroica fusca*	BM
Pine Warbler	*Dendroica pinus*	HH
Prairie Warbler	*Dendroica discolor*	OF
Northern Parula warbler	*Parula americana*	BM
Nashville Warbler	*Vermivora ruficapilla*	BM
Black-and-white Warbler	*Mniotilta varia*	HS,HH.BM
American Redstart	*Setophaga ruticilla*	HS,HH,BM
Ovenbird	*Seiurus aurocapillus*	HH,HS,BM
Common Yellowthroat	*Geothlypis trichas*	SS,BM
Scarlet Tanager	*Piranga olivacea*	BM,HH
Northern Cardinal	*Cardinalis cardinalis*	OF,BM
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	BM,HH,HS
Eastern Towhee	*Pipilo erythrophthalmus*	BM
Chipping Sparrow	*Spizella passerina*	OF
Song Sparrow	*Melospiza melodia*	BM,OF
Dark-eyed Junco	*Junco hyemalis*	HH,BM
Red-winged Blackbird	*Agelaicus phoeniceus*	SS
Common Grackle	*Quiscalus quiscula*	ML
Brown-headed Cowbird	*Molothrus ater*	OF
Baltimore Oriole	*Icterus galbula*	BM
House Finch	*Carpodacus mexicanus*	OF
American Goldfinch	*Carduelis tristis*	FO, BM
House Sparrow	*Passer domesticus*	ML

[1]Field visits took place on 19 April, and 5, 10, 11, and 12 May 2000. All habitat types were located within the study area except OW (open water) and SS (scrub-shrub wetland), both of which were located on the periphery of the study area.

[2]Habitat types in which birds were observed at the Belleayre study site:

BM – Beech-Maple Mesic Forest
HH – Hemlock-Northern Hardwoods Forest
ML – Mowed lawn
OF – Successional Old Field
HS – Hardwood Swamp
FO – Observed Flying Overhead

Table 3-28
Bird Species Observed at the Belleayre Resort Site – Summer 2000.[1]

Species		
Common Name	**Scientific Name**	**Habitat Type[2]**
Turkey Vulture	*Cathartes aura*	FO
Sharp-shinned Hawk	*Accipiter striatus*	BM
Broad-winged Hawk	*Buteo platypterus*	ML, HH
Red-tailed Hawk	*Buteo jamaicensis*	BM
Mourning Dove	*Zenaida macroura*	OF
Ruby-throated Hummingbird	*Archilochus colubris*	BM
Belted Kingfisher	*Ceryle alcyon*	OW
Yellow-bellied Sapsucker	*Sphyrapicus varius*	BM
Downy Woodpecker	*Picoides pubescens*	BM
Hairy Woodpecker	*Picoides villosus*	HH
Northern Flicker	*Colaptes auratus*	BM
Pileated Woodpecker	*Dryocopus pileatus*	BM
Eastern Wood-Peewee	*Contopus virens*	BM
Least Flycatcher	*Empidonax minimus*	BM
Eastern Phoebe	*Sayornis phoebe*	OF,ML
Barn Swallow	*Hirundo rustica*	FO
Blue Jay	*Cyanocitta cristata*	BM
American Crow	*Corvus brachyrhynchos*	FO
Common Raven	*Corvus corax*	FO
Black-capped Chickadee	*Parus atricapillus*	BM,HH
Tufted Titmouse	*Parus bicolor*	BM,OF
Red-breasted Nuthatch	*Sitta canadensis*	BM
White-breasted Nuthatch	*Sitta carolinensis*	BM
Brown Creeper	*Certhia americana*	HH
Winter Wren	*Troglodytes troglodytes*	HH
House Wren	*Troglodytes aedon*	OF
Golden-crowned Kinglet	*Regulus satrapa*	BM
Veery	*Catharus fuscescens*	BM,HH
Hermit Thrush	*Catharus guttatus*	BM
Wood Thrush	*Hylocichla mustelina*	BM
American Robin	*Turdus migratorius*	OF,BM
European Starling	*Sturnus vulgaris*	ML
Blue-Headed Vireo	*Vireo solitarius*	HH
Red-eyed Vireo	*Vireo olivaceus*	BM, RS
Blue-winged Warbler	*Vermivora pinus*	BM
Yellow Warbler	*Dendroica petechia*	SS,BM
Chestnut-sided Warbler	*Dendroica pensylvanica*	HH

Table 3-28 (continued)
Bird Species Observed at the Belleayre Resort Site – Summer 2000.[1]

Species		
Common Name	**Scientific Name**	**Habitat Type[2]**
Black-throated Blue Warbler	*Dendroica caerulescens*	BM
Black-throated Green Warbler	*Dendroica virens*	BM
Common Yellowthroat	*Geothlypis trichas*	HH
Northern Parula warbler	*Parula americana*	BM
Black-and-White Warbler	*Mniotilta varia*	BM
American Redstart	*Setophaga ruticilla*	BM
Ovenbird	*Seiurus aurocapillus*	BM
Scarlet Tanager	*Piranga olivacea*	BM
Northern Cardinal	*Cardinalis cardinalis*	OF
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	HH,BM
Chipping Sparrow	*Spizella passerina*	OF
Song Sparrow	*Melospiza melodia*	OF
Dark-eyed Junco	*Junco hyemalis*	BM
Red-winged Blackbird	*Agelaicus phoeniceus*	SS
Common Grackle	*Quiscalus quiscula*	ML
Brown-headed Cowbird	*Molothrus ater*	ML
Baltimore Oriole	*Icterus galbula*	BM
Purple Finch	*Carpodacus purpureus*	HH
House Finch	*Carpodacus mexicanus*	OF
American Goldfinch	*Carduelis tristis*	BM
House Sparrow	*Passer domesticus*	ML

[1] Field visits took place on 7, 8, and 9 June 2000. All habitat types were located within the study area except OW (open water) and SS (scrub-shrub wetland), both of which were located on the periphery of the study area.

[2]Habitat types in which birds were observed at the Belleayre study site:

BM – Beech-Maple Mesic Forest
HH – Hemlock-Northern Hardwoods Forest
ML – Mowed lawn (with shrubs/trees)
OF – Successional Old Field
HD – Hardwood Swamp
RS – Intermittent Rocky Stream Wetland
FO – Observed Flying Overhead
OW – Open water

Table 3-29
Reptile and Amphibian Species Observed on the Belleayre Resort Site – Spring and Early Summer 2000

Species	Habitat	Date Observed
Salamanders:		
Notophthalmus viridescens	Beech-Maple Mesic Forest	
	Intermittent Rocky Stream Wetland	8 June
Desmognathus ochrophaeus	Intermittent Rocky Stream Wetland	5 May, 8, 9 June
Desmognathus fuscus	Intermittent Rocky Stream Wetland	5 May, 8, 9 June
Eurycea bislineata	Intermittent Rocky Stream Wetland	5 May
Plethodon cinereus	Intermittent Rocky Stream Wetland	10 May, 8 June
Plethodon glutinosus	Beech-Maple Mesic Forest	6 July
Anurans:		
Rana clamitans	Intermittent Rocky Stream Wetland	5 May, 8 June
Pseudacris crucifer	Scrub-shrub Swamp	5, 11 May
Bufo americanus	Roadway through Hemlock-Northern Hardwood Forest	11 May
Snakes:		
Thamnophis sirtalis	Beech-Maple Mesic Forest	5 May, 6 July
Elaphe obsoleta	Beech-Maple Mesic Forest	6 July
Storeria occipitomaculata	Beech-Maple Mesic Forest	6 July
Storeria dekayi	Beech-Maple Mesic Forest	6 July
Turtles:		
Chelydra serpentina	Roadway near Birch Creek	28 June

TABLE 3-29A
AQUATIC INVERTABRATES

Order	Family	Genus Species
Coleoptera	Elmidae	Undetermined Elmidae
Coleoptera	Elmidae	Optioservus sp.
Diptera	Chironomidae	Thienemannimyia gr. Sp.
Diptera	Chironomidae	Cricotopus bicinctus gr.
Diptera	Chironomidae	Cricotopus sp.
Diptera	Chironomidae	Eukiefferiella pseudomontana gr.
Diptera	Chironomidae	Micropsectra sp.
Diptera	Chironomidae	Orthocladius sp.
Diptera	Chironomidae	Parametriocnemus sp.
Diptera	Chironomidae	Polypedilum aviceps
Diptera	Chironomidae	Tvetenia bavarica gr.
Diptera	Chironomidae	Tvetenia vitracies gr.
Diptera	Tipulidae	Hexatoma sp.
Diptera	Chironomidae	Cricotopus tremulus gr.
Diptera	Chironomidae	Eukiefferiella brevicalcar gr.
Diptera	Chironomidae	Rheotanytarsus distinctissimus gr.
Diptera	Chironomidae	Synorthocladius sp.
Diptera	Chironomidae	Cricotopus bicinctus gr.
Diptera	Chironomidae	Eukiefferiella devonica gr.
Diptera	Chironomidae	Orthocladius sp. Complex
Diptera	Chironomidae	Sublettea sp.
Diptera	Chironomidae	Tanytarsus sp.
Diptera	Tipulidae	Dicranota sp.
Diptera	Chironomidae	Diamesa sp.
Diptera	Chironomidae	Eukiefferiella gracei gr.
Diptera	Chironomidae	Parachaetocladius sp.
Diptera	Chironomidae	Paraphaenocladius sp.
Diptera	Chironomidae	Potthastia gaedii gr.
Diptera	Chironomidae	Stilocladius sp.
Diptera	Chironomidae	Thienemanniella sp.
Diptera	Simuliidae	Prosimulium sp.
Diptera	Simuliidae	Stegopterna sp.
Diptera	Ceratopogonidae	Ceratopogon sp.
Diptera	Ceratopogonidae	Undetermined Ceratopogoninae
Diptera	Chironomidae	Brillia sp.
Diptera	Chironomidae	Limnophyes sp.
Diptera	Dixidae	Dixa sp.
Ephemeroptera	Baetidae	Acentrella sp.
Ephemeroptera	Baetidae	Baetis tricaudatus
Ephemeroptera	Heptageniidae	Rhithrogena sp.
Ephemeroptera	Leptophlebiidae	Paraleptophlebia sp.

Table 3-29A Continued

Order	Family	Genus Species
Ephemeroptera	Oligoneuriidae	Isonychia sp.
Ephemeroptera	Baetidae	Diphetor hageni
Ephemeroptera	Ephemerellidae	Undetermined Ephemerellidae
Ephemeroptera	Heptageniidae	Stenonema sp.
Ephemeroptera	Baetidae	Acentrella turbida
Ephemeroptera	Baetidae	Plauditus sp.
Ephemeroptera	Heptageniidae	Cinygmula sp.
Ephemeroptera	Heptageniidae	Epeorus sp.
Ephemeroptera	Siphlonuridae	Ameletus sp.
Hoplonemertini	Prostomatidae	Prostoma sp.
Lumbricina	Undetermined Lumbricina	Undetermined Lumbricina
Plecoptera	Leuctridae	Undetermined Leuctridae
Plecoptera	Peltoperlidae	Tallaperla sp.
Plecoptera	Capniidae	Paracapnia sp.
Plecoptera	Chloroperlidae	Sweltsa sp.
Plecoptera	Perlodidae	Undetermined Perlodidae
Plecoptera	Leuctridae	Leuctra sp.
Plecoptera	Nemouridae	Amphinemura sp.
Plecoptera	Nemouridae	Paranemoura perfecta
Plecoptera	Perlodidae	Isoperla sp.
Plecoptera	Nemouridae	Undetermined Nemouridae
Trichoptera	Hydropsychidae	Cheumatopsyche sp.
Trichoptera	Hydropsychidae	Hydropsyche slossonae
Trichoptera	Hydropsychidae	Hydropsyche sp.
Trichoptera	Philopotamidae	Dolophilodes sp.
Trichoptera	Rhyacophilidae	Rhyacophila fuscula
Trichoptera	Rhyacophilidae	Rhyacophila sp.
Trichoptera	Hydropsychidae	Hydropsyche sparna
Trichoptera	Lepidostomatidae	Lepidostoma sp.
Trichoptera	Limnephilidae	Neophylax sp.
Trichoptera	Limnephilidae	Undetermined Limnephilidae
Trichoptera	Rhyacophilidae	Rhyacophila invaria gr.
Trichoptera	Hydropsychidae	Parapsyche apicalis
Tricladida		Undetermined Turbellaria
Tubificida	Enchytraeidae	Undetermined Enchytraeidae
Tubificida	Naididae	Nais variabilis
Veneroidea	Sphaeriidae	Sphaerium sp.

Table 3-30
Soil Sample Sieve and Hydrometer Test Results

			% PASSING							
	Sieve	Hydrometer	Sample	Sample	Sample	Sample	Sample	Sample	Sample	Sample
Seive	Size (mm)	Time (min.)	T11906	WA120	R1180010	T119004	T119002	R1180010	T119005	T119008
2"	50.8		100%	100%	100%	100%	100%	100%	100%	100%
1"	25.4		100	100	75.1	100	100	74.6	83.5	92.3
1/2"	12.7		94.4	91.9	52.7	91.7	88.6	68.5	79.6	79.9
1/4"	6.4		83.4	84.4	41.5	87.2	80.2	64	70.7	64.9
#10	2		74.9	73.8	37	80.7	73.3	62.4	68	55.2
#40	0.42		63.7	61.9	35	66.7	63.2	60	64	43.1
#100	0.15		62.7	46	33	62	61	58.6	60	35.1
#200	0.075		59	42	31	60	58	54.5	56	32.5
	0.04636	1	54	38	30	58.7	56	52	52	30.9
	0.032278	2	54	36	28	57.9	56	48	48	29.2
	0.02117	5	48	36	28	56	54	46	46	27.5
	0.0168	8	46	34	26	54.3	52	42	42	26
	0.01515	10	44	32	24	53.9	48	40	40	24
	0.01246	15	42	30	24	53	44	36	36	22
	0.00885	30	40	30	20	52	40	32	32	21.3
	0.00649	60	28	28	20	46	36	30	30	20
	0.00462	120	26	24	19	42	30	24	24	19
	0.00328	240	24	20	14	34	26	22	22	17
	0.00235	480	20	16	12	31	24	18	18	16
	0.00136	1440 (24 hr.)	18%	14%	12%	22%	20%	14%	14%	15%

Table 3-34 BIG INDIAN PLATEAU DENSITY

333 TOTAL HOTEL LODGING UNITS PROPOSED *1

- 183 Detached Hotel Lodging Units
- 150 Hotel Lodging Units

333 / 8 = **41.6 Hotel Lodging Unit Density Factor Proposed**
(Zoning Code Section 116-40(O))

1.A

Assume Entire Area Zoned R5 *2
41.6 Hotel Lodging Unit Density Factor x 5 acres required per unit =
208 acres required
Conservative Estimate of Lands Less than 20% Slope *3 =
216 acres available

1.B

Entire Big Indian Plateau Area = 1,231 Contiguous Acres in Shandaken *4

Assume Entire Area Zoned R5 *2
1,231 Contiguous Acres in Shandaken Total / 5 Acre Zoning =
246.2 Hotel Lodging Unit Density Factor Allowed
41.6 Hotel Lodging Unit Density Factor Proposed
(17% of allowed is being proposed)

Allowance for Doubling Density With Community Water and Sewer Credit

2.A

Assume Entire Area Zoned R5 (2.5 acres instead of 5 acres) *2
41.6 Hotel Lodging Unit Density Factor x 2.5 acres required per unit =
104 acres required
Conservative Estimate of Lands Less than 20% Slope *3 =
216 acres available

2.B

Assume Entire Area Zoned R5 (2.5 acres instead of 5 acres) *2
1,231 Contiguous Acres in Shandaken Total / 2.5 acres
492.4 Hotel Lodging Unit Density Factor Allowed
41.6 Hotel Lodging Unit Density Factor Proposed
(8.4% of allowed is being proposed)

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*1. No lodging units proposed in Brisbane (Turner) Mansion.
Two hunting cabins to be demolished not included.

*2. Entire area does contain 31 acres of R3 and 8 acres of R1.5 which would allow more "density factors" than in the table above.

*3. Only applies to "cluster development" which this project is not.

*4. Assumes merger of any internal lot lines
Non-contiguous Silo "A" parcel not included.
Six acre subdivision parcel in Lost Clove not included
Jake Moon Restaurant not part of project and not included.

Table 3-34A WILDACRES RESORT DENSITY [*1]

306 TOTAL HOTEL LODGING UNITS PROPOSED IN SHANDAKEN *2

- 56 Detached Hotel Lodging Units
- 250 Hotel Lodging Units

306 / 8 = **38.25 Hotel Lodging Unit Density Factor Proposed**
(Zoning Code Section 116-40(O))

1. Lands In Shandaken Less Than 20% Slope [*3]

Calculate Hotel Lodging Unit Density Factor Allowed Using Zoning Classifications

30.9 Acres Zoned R1.5
30.9 Acres / R1.5 Zoning = **20.6** Hotel Lodging Unit Density Factor Allowed

56.3 Acres Zoned R3
56.3 Acres / R3 Zoning = **18.8** Hotel Lodging Unit Density Factor Allowed

22.8 Acres Zoned R5
22.8 Acres / R5 Zoning = **4.6** Hotel Lodging Unit Density Factor Allowed

TOTAL
20.6 + 18.8 + 4.6 = 44 Hotel Lodging Unit Density Factor Allowed
38.25 Hotel Lodging Unit Density Factor Proposed

2. Lands in Shandaken Regardless of Slope

Assume Entire Lands in Shandaken Zoned R5 [*4]

220.4 Acres in Shandaken / 5 Acre Zoning
44.1 Hotel Lodging Unit Density Factor Allowed
38.25 Hotel Lodging Unit Density Factor Proposed

3. Allowance for Doubling Density With Community Water and Sewer Credit

(Allowable numbers from above can be doubled)

88 (44 x 2) allowable using <20% slopes in Shandaken [*3]
88.2 (44.1 x 2) allowable using all lands in Shandaken
38.25 Hotel Lodging Unit Density Factor Proposed

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*1 Does not include proposed subdivision lands on old Leach Farm.
Does not include Highmount Post Office lands.

*2 No lodging units proposed in Marlowe Mansion. No lodging units proposed in Wildacres Motel or former Rashid house which will be demolished.

*3 Only applies to "cluster development" which this project is not.

*4 Entire Area does contain 31.5 acres of R1.5 and 97.3 acres of R3 which would allow more "density factors" than in the table above.

*5 Assumes merger of any internal lot lines.

Table 3-34B
Inventory of All Documented Viewpoints

Section 3 - DEIS and Revisions						
Figure #	**Description**	**Illustration Type**	**Observer Position**	**Distance (mi.)**	**Visible**	**Influences on Visibility**
3-29	Plateau Mountain Looking West	Existing View and Wireframe Overlay	Superior	15.00	Yes	Distance
3-30	Plateau Mountain Looking West	Existing View and Photo Rendered	Superior	15.00	Yes	Distance
3-30A	Plateau Mountain Looking West	Enlarged Rendered View	Superior	15.00	Yes	Distance
3-31	Balsam Mountain Looking NE	Existing View and Wireframe Overlay	Superior	1.33	Yes	Heavily filtered by foreground vegetation
3-32	Balsam Mountain Looking NE	Existing View and Photo Rendered	Superior	1.33	Yes	Heavily filtered by foreground vegetation
3-32A	Balsam Mountain Looking NE	Enlarged Rendered View	Superior	1.33	Yes	Heavily filtered by foreground vegetation
3-33	Balsam Mountain Looking NE	Existing View and Wireframe Overlay	Superior	1.60	Yes	Partially filtered by foreground vegetation
3-34	Balsam Mountain Looking NE	Existing View and Photo Rendered	Superior	1.60	Yes	Partially filtered by foreground vegetation
3-34A	Balsam Mountain Looking NE	Enlarged Rendered View	Superior	1.60	Yes	Partially filtered by foreground vegetation
3-35	Balsam Mountain Looking NE	Existing View and Wireframe Overlay	Superior	1.60	Yes	Partially filtered by foreground vegetation
3-36	Balsam Mountain Looking NE	Existing View and Photo Rendered	Superior	1.60	Yes	Partially filtered by foreground vegetation
3-36A	Balsam Mountain Looking NE	Enlarged Rendered View	Superior	1.60	Yes	Partially filtered by foreground vegetation
3-37	Town Park on NY28 Looking NW	Existing View and Wireframe Overlay	Inferior	0.95	Yes	Partially filtered by foreground vegetation
3-38	Town Park on NY28 Looking NW	Existing View and Photo Rendered	Inferior	0.95	Yes	Partially filtered by foreground vegetation
3-38A	Town Park on NY28 Looking NW	Enlarged Rendered View	Inferior	0.95	Yes	Partially filtered by foreground vegetation
3-39	Owl's Nest Looking South	Existing View and Wireframe Overlay	Same Elevation	2.65	Yes	See Narrative Description
3-40	Owl's Nest Looking South	Existing View and Photo Rendered	Same Elevation	2.65	Yes	See Narrative Description
3-40A	Owl's Nest Looking South	Enlarged Rendered View	Same Elevation	2.65	Yes	See Narrative Description
3-41	Wood Road Looking SW	Existing View and Wireframe Overlay	Same Elevation	1.25	Yes	See Narrative Description
3-42	Wood Road Looking SW	Existing View and Photo Rendered	Same Elevation	1.25	Yes	See Narrative Description
3-42A	Wood Road Looking SW	Enlarged Rendered View	Same Elevation	1.25	Yes	See Narrative Description
3-42B	Wood Road Looking SW	Enlarged Rendered View	Same Elevation	1.25	Yes	See Narrative Description
3-43	Sunset Lodge Looking SE	Existing View and Wireframe Overlay	Superior	1.25	Yes	See Narrative Description
3-44	Sunset Lodge Looking SE	Existing View and Photo Rendered	Superior	1.25	Yes	See Narrative Description
3-44A	Sunset Lodge Looking SE	Enlarged Rendered View	Superior	1.25	Yes	See Narrative Description
3-45	Sunset Lodge Looking NE	Existing View and Photo Rendered	Superior	1.25	Yes	See Narrative Description
3-46A	Sunset Lodge Looking NE	Enlarged Rendered View	Superior	1.25	Yes	See Narrative Description
Appendix 21						
BE-1	Bearpen Mountain	Existing View	Normal - on horizon	11.70	No	Blocked by Vegetation
BU-1	Buck Ridge Overlook	Existing View	Normal - on horizon	10.20	No	Blocked by Vegetation
WE-1	Westkill Mountain	Existing View	Normal - on horizon	10.20	No	Blocked by Vegetation
CO-1	Cornell Mountain	Existing View	Normal - on horizon	9.40	No	Distance
FI-1	Fir Mountain	Existing View	Normal - on horizon	5.70	No	Distance and Vegetation
GI-1	Giant Ledges	Existing View	Normal - on horizon	5.50	No	Distance and Vegetation
GI-2	Giant Ledges	Existing View	Normal - on horizon	5.50	No	Distance and Vegetation
GI-3	Giant Ledges	Existing View	Normal - on horizon	5.50	No	Distance and Vegetation
HU-1	Hunter Mountain	Existing View	Normal - on horizon	13.50	No	Blocked by Vegetation
NO-1	North Dome Mountain	Existing View	Normal - on horizon	7.60	No	Blocked by Vegetation
OV-1	Overlook Mountain Mountain	Existing View	Normal - on horizon	19.50	Yes	Distance
PA-1	Panther Mountain	Existing View	Normal - on horizon	5.50	No	Blocked by Vegetation
PA-2	Panther Mountain	Existing View	Normal - on horizon	5.50	No	Blocked by Vegetation
SL-1	Slide Mountain	Existing View	Normal - on horizon	8.80	No	Blocked by Vegetation
SL-2	Slide Mountain	Existing View	Normal - on horizon	8.80	No	Blocked by Vegetation
SU-1	Sugarloaf Mountain	Existing View	Normal - on horizon	16.70	Yes	Distance
TA-1	Table Mountain	Existing View	Normal - on horizon	11.00	No	Distance and Vegetation
TR-1	Tremper Mountain	Existing View	Normal - on horizon	10.30	No	Distance, Topography and Vegetation
TR-2	Tremper Mountain	Existing View	Normal - on horizon	10.30	No	Distance, Topography and Vegetation
TR-3	Tremper Mountain	Existing View	Normal - on horizon	10.30	No	Distance, Topography and Vegetation
TR-4	Tremper Mountain	Existing View	Normal - on horizon	10.30	No	Distance, Topography and Vegetation
TR-5	Tremper Mountain	Existing View	Normal - on horizon	10.30	No	Distance, Topography and Vegetation
TW-1	Twin Mountain	Existing View	Normal - on horizon	17.80	No	Distance
TW-2	Twin Mountain	Existing View	Normal - on horizon	17.80	Yes	Distance

Table 3-34C
Summary of Viewpoints with Potential Visibility of Project

Section 3 - DEIS and Revisions						
Figure #	**Description**	**Illustration Type**	**Observer Position**	**Distance (mi.)**	**Distance Zone**	**Existing Influences on Visibility**
3-30	Plateau Mountain Looking West	Existing View and Photo Rendered	Superior	15.00	Background	Distance
3-32	Balsam Mountain Looking NE	Existing View and Photo Rendered	Superior	1.33	Middleground	Heavily filtered by foreground vegetation
3-34	Balsam Mountain Looking NE	Existing View and Photo Rendered	Superior	1.60	Middleground	Partially filtered by foreground vegetation
3-36	Balsam Mountain Looking NE	Existing View and Photo Rendered	Superior	1.60	Middleground	Partially filtered by foreground vegetation
3-38	Town Park on NY28 Looking NW	Existing View and Photo Rendered	Inferior	0.95	Middleground	Partially filtered by foreground vegetation
3-40	Owl's Nest Looking South	Existing View and Photo Rendered	Same Elevation	2.65	Middleground	See Narrative Description
3-42	Wood Road Looking SW	Existing View and Photo Rendered	Same Elevation	1.25	Middleground	See Narrative Description
3-44	Sunset Lodge Looking SE	Existing View and Photo Rendered	Superior	1.25	Middleground	See Narrative Description
3-45	Sunset Lodge Looking NE	Existing View and Photo Rendered	Superior	1.25	Middleground	See Narrative Description
Appendix 21						
OV-1	Overlook Mountain	Existing View	Near horizon	19.50	Background	Distance
SU-1	Sugarloaf Mountain	Existing View	Near horizon	16.70	Background	Distance
TW-2	Twin Mountain	Existing View	Near horizon	17.80	Background	Distance

Table 3-36

Big Indian Plateau Construction Noise Impacts and Mitigation

Construction Activities	Years	Nearest Receptor	Project Sound Level (dBA)	Ambient Sound Level (L_d – dBA)	Total Sound Level (dBA)	Ambient Sound Level Change (dBA)	Mitigative Action/ Estimated Reduction (dBA)	Mitigated Ambient Sound Level Change (dBA)
Off-site Traffic	1-3	B-3	54	48	55	7	None Required	
Access Road – within 500 feet of a receptor (est. <2 weeks/receptor)	1	B-3	45 to 83	48	50 to 83	2 to 35	Use minimum Equipment On-site: -3 dBA	1 to 32
Access Road – Typical	1	B-3	22	48	48	0	None Required	
Access Roads – Rock Crushing	1	B-4	33	48	48	0	None Required	
Golf Course	1-3	B-4	38	41	43	2	None Required	
Golf Maintenance Facility and Satellite Facility	1,2	B-4						
Resort Spa and Country Club	1,2	B-4	27	41	41	0	None Required	
Lodging Units	1-8	B-4	33	41	42	1	None Required	
Belleayre Highlands Lodging Units		B-1	32	41	42	1	None Required	
Brisbane Mansion and Facilities	1,2	B-1	35	41	42	1	None Required	

[a] Average daytime sound level (L_d).

Table 3-37

Wildacres Resort Construction Noise Impacts and Mitigation

Construction	Years	Nearest Receptor	Project Sound Level (dBA)	Ambient Sound Level (L_d - dBA)	Total Sound Level (dBA)	Ambient Sound Level Change (dBA)	Mitigative Action/ Estimated Reduction (dBA)	Mitigated Ambient Sound Level Change (dBA)
Off-site Traffic	1-3	W-11	56	50	57	7	None Required	
Access Roads – within 500 ft. of a receptor (est. 1.5 months/receptor)	1	W-7	47 to 72	50	52 to 72	2 to 22	Use minimum Equipment On-site: -3 dBA	1 to 19
Access Roads – Typical	1	W-7	46	50	51	1	None Required	
Access Roads. – Rock Crushing	1	W-7	48	50	52	2	None Required	
Highmount Golf Club – Worst Case: Closest part of nearest hole	1,2	W-8	79	50	79	29	Under 500 feet: Use minimum equipment On-site: -3 dBA Barrier[a]: -20 dBA Over 500 feet 500-foot vegetative receptor buffer: -23 dBA	7
Highmount Estates Lodging Units	3-8	W-2	68	50	68	18	None. Zoned for residential construction.	-
Resort and Facilities	1,2	W-7	49	50	53	3	None Required	
Lodging Units	1-8	W-11	58	50	59	9	None Required	
Golf Maintenance Facility	1, 2	W-11	71	50	71	21	Use minimum equipment On-site: -3 dBA Barrier[b]: -15 dBA	4
Golf Maint. Satellite Facilty	1, 2	W-6	65	50	65	15	Use minimum equipment On-site: -3 dBA Barrier[c]: -9 dBA	4
Clubhouse and Facilities	1, 2	W-9	36	50	50	0	None Required	
Marlow Mansion	1, 2	W-5	47	50	52	2	None Required	
Children's Center	1, 2	W-7	52	50	54	4	None Required	
Clubhouse	1, 2	W-7	52	50	54	4	None Required	
Sewage Treatment Fac.	1, 2	W-10	38	48	48	0	None Required	
Wilderness Act. Center	1, 2	W-4	54	50	55	5	None Required	

[a] Barrier: Assumption: within 150 feet of residence, extending 10 feet above receptor/noise source line-of-sight (See Enclosure 2, Barrier W1 and Barrier W2).

[b] Barrier: Assumption: within 100 feet of construction noise sources, extending 9 feet above receptor/noise source line-of-sight (See Enclosure 2, Barrier W3)

[c] Barrier: Assumption: within 100 feet of construction noise sources, extending 6 feet above receptor/noise source line-of-sight (See Enclosure 2, Barrier W4)

Table 3-38
Cumulative Construction Noise Impacts and Mitigation

Location	Receptor	Potential Cumulative Construction	Years	Total Mitigated Project Sound Level (dBA)	Ambient Sound Level (L_d - dBA)	Total Sound Level (dBA)	Ambient Sound Level Change (dBA)	Mitigative Action/ Estimated Reduction (dBA)
Big Indian Plateau	B-3	Offsite-traffic and Access Road Construction	1	54 to 83	48	54 to 83	6 to 35	None. Impact cumulative duration estimated at <2 weeks
Wildacres Resort	W-6	Golf Maint. Satellite Fac.and Highmount Golf Club	1-2	53 + 56 = 57	50	58	8	None Required
	W-7	Highmount Golf Club, Rock Crushing, Children's Center, and Clubhouse	1-2	56+48+50+50 = 60	50	59	9	None Required
	W-11	Golf Maintenance Facility, Highmount Golf Club, and Off-site traffic	2	53+56+56 = 60	50	61	10	None. Maximum cumulative impact duration estimated to be 4 weeks.

[a] Barrier: Assumption: within 150 feet of residence, extending 10 feet above receptor/noise source line-of-sight (See Enclosure 2, Barrier W1 and Barrier W2).
[b] Barrier: Assumption: within 100 feet of construction noise sources, extending 6 feet above receptor/noise source line-of-sight (See Enclosure 2, Barrier W3)

Table 3-39

Population and Household Trends and Projections

Area	1990	2000	1990-2000 percent growth	2005	2000-2005 percent growth
Population					
Delaware County	47,225	48,055	1.8	45,504	-5.3
Greene County	44,739	48,195	7.7	49,729	3.2
Ulster County	165,304	177,749	7.5	167,687	5.7
Tri-County	257,268	273,999	6.5	262,920	-4.0
Study Area	10,472	10,552	0.8	10,570	0.2
Study Area as a percent of Tri-County Area	4.1	3.9	-5.4	4.0	4.4
Households					
Delaware County	17,646	19,270	9.2	17,627	-0.2
Greene County	16,596	18,256	10.0	18,741	3.8
Ulster County	60,807	67,499	11.0	63,380	1.5
Tri-County	95,049	105,025	10.5	99,748	1.6
Study Area	4,339	4,454	2.7	4,520	1.5
Study Area as a percent of Tri-County Area	4.6	4.2	-7.1	4.5	-0.1

Source: U.S. Census 2000; study area population and projected populations from Claritas, Inc., December 2000; Allee King Rosen & Fleming, Inc., December 2000.

Table 3-40

Average Household Income

Area	1990	2000	1990-2000 percent growth	2005	2000-2005 percent growth
Delaware County	$38,886	$40,341	3.7	$45,703	13.3
Greene County	43,616	44,733	2.6	50,148	12.1
Ulster County	52,329	49,583	-5.2	53,825	8.6
Tri-County	48,319	47,029	-2.7	51,699	9.9
Study Area	40,654	39,524	-2.8	42,528	7.6
New York State	$58,198	$66,124	13.6	$78,234	18.3
Study Area as a percent of Tri-County Area	84.1	84.0	-0.1	82.3	-2.1

Note: Incomes in constant 2000 dollars.
Sources: Claritas, Inc., December 2000; Allee King Rosen & Fleming, Inc., December 2000.

Table 3-41

2000 Family Household Income Distribution Estimates (percent)

	Study Area	Tri-County	New York State
Less than $10,000	6.3	4.1	8.8
$10,000-$25,000	23.8	16.9	19.0
$25,000-$40,000	24.0	22.1	21.2
$40,000-$60,000	23.5	25.3	22.8
$60,000-$100,000	17.3	23.7	19.5
$100,000-$150,000	3.8	5.5	5.6
$150,000 and up	1.4	2.4	3.1
Source: Claritas, Inc., December 2000.			

Table 3-42

Average Annual Labor Force Trends 1980-1999

Area	1980	1990	1980-1990 percent growth	1999	1990-1999 percent growth
Delaware County	21,100	21,800	3.3	20,800	-4.6
Greene County	18,600	21,200	14.0	21,800	2.8
Ulster County	67,300	85,000	26.3	82,000	-3.5
New York State	7,978,000	8,843,000	10.8	8,883,000	0.5
Source: New York State Department of Labor, December 2000.					

Table 3-43

Employment Trends 1980-1999

Area	1980	1990	1980-1990 percent growth	1999	1990-1999 percent growth
Delaware County	17,100	20,700	4.5	19,700	-4.8
Greene County	15,200	20,100	20.4	20,600	2.5
Ulster County	56,600	81,900	32.3	79,100	-3.4
New York State	7,063,000	8,375,000	13.5	8,424,000	0.6
Source: New York State Department of Labor, December 2000.					

Table 3-44

Unemployment Rate 1990-1999 (percent)

Area	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Delaware County	5.0	6.7	7.8	6.7	6.4	5.5	5.3	5.3	4.5	5.3
Greene County	4.8	7.8	9.0	8.4	8.3	7.5	6.8	6.2	5.4	5.4
Ulster County	3.6	6.0	6.7	7.3	6.6	5.5	4.5	4.1	3.5	3.6
New York State	5.3	7.35	8.6	7.8	6.9	6.3	6.2	6.4	5.6	5.2
Source: New York State Department of Labor, December 2000.										

Table 3-45

Education Level for Persons over 25

Area	Percent High School Graduates	Percent College Graduates
Delaware County	79.9	16.6
Greene County	78.6	16.4
Ulster County	81.7	25.0
New York State	79.1	27.4
Source: U.S. Census Bureau, 2000.		

Table 3-46

Location of County Residents' Workplaces in 1990

Area	Percent in Town or Village of Residence	Percent in County of Residence	Percent Outside County
Delaware County	52.4	77.1	22.9
Greene County	38.6	64.2	35.8
Ulster County	33.0	71.9	28.1
Source: U.S. Census Bureau, STF 3a, 1990.			

Table 3-47

Major Destination Counties for Out-Commuters in Three Area Counties

County	Total Out-Commuters	Major Destination Counties	Total Commuters
Delaware	4,519	Otsego	1,977
		Broome	451
		Sullivan	443
Greene	6,563	Albany	3,309
		Ulster	1,105
Ulster	22,122	Dutchess	9,971
		Orange	6,559
Source: U.S. Census Bureau, STF 3a, 1990.			

Table 3-48

Change in Precision Production, Craft, and Repair Operations Jobs 1980-1990

Area	1980	1990	1980-1990 (percent)
Delaware County	2,451	2,969	21.1
Greene County	2,345	2,563	9.3
Ulster County	8,366	9,466	13.1
Source: U.S. Census Bureau, STF 3a, 1990.			

Table 3-49

Change in Machine Operators, Fabricators, Laborers, Assemblers, and Inspectors Jobs 1980-1990

Area	1980	1990	1980-1990 Percent Change
Delaware County	6,410	5,095	-20.5
Greene County	4,497	3,776	-16.0
Ulster County	18,021	14,110	-21.7
Source: U.S. Census Bureau, STF 3a, 1990.			

Table 3-50

Job Distribution by SIC Sectors, 1999 (percent)

SIC Sector	Delaware County	Greene County	Ulster County	Tri-County	New York State
Agriculture, Mining, and Unclassified	1.6	1.2	2.3	2.0	0.8
Construction	2.2	4.0	3.3	3.2	3.7
Manufacturing	27.6	8.6	10.8	13.5	10.7
Transportation and Utilities	2.3	5.4	4.8	4.4	6.7
Wholesale Trade	3.0	4.2	3.6	3.6	5.4
Retail Trade	17.3	20.1	20.5	19.8	15.2
Finance, Insurance, and Real Estate	3.7	2.9	4.5	4.1	9.2
Services	31.9	34.7	41.0	38.4	42.1
Public Administration	10.4	18.8	9.4	10.9	6.1

Source: New York State Department of Labor, December 2000.

Table 3-51

Average Annual Wages by SIC Sectors, 1999

SIC Sector	Delaware County	Greene County	Ulster County	Tri-County	New York State
Agriculture, Mining, & Unclassified	$20,802	$19,303	$18,017	$18,746	$25,416
Construction	$33,144	$21,383	$27,886	$27,609	$41,241
Manufacturing	$38,142	$31,709	$36,793	$36,089	$47,890
Transportation & Utilities	$31,559	$31,930	$31,645	$31,683	$46,270
Wholesale Trade	$28,152	$29,959	$31,529	$31,529	$50,719
Retail Trade	$15,586	$14,256	$15,484	$15,484	$19,505
Finance, Insurance, and Real Estate	$24,224	$26,638	$31,323	$29,203	$93,631
Services	$23,937	$21,761	$24,951	$24,181	$36,558
Public Administration	$25,849	$34,111	$32,883	$31,883	$40,605

Note: Wages in 1999 dollars.
Source: New York State Department of Labor, December 2000; Allee King Rosen & Fleming, Inc., December 2000.

Table 3-52

Change in Real Wages by SIC Sectors: 1990-1999 (percent)

SIC Sector	Delaware County	Greene County	Ulster County	Tri-County	New York State
Agriculture, Mining, and Unclassified	-12.9	1.4	-7.5	-7.2	-3.6
Construction	35.9	-16.6	1.1	3.6	0.9
Manufacturing	22.8	-0.8	-23.4	-14.3	14.4
Transportation and Utilities	-4.0	-3.2	-0.2	-1.4	5.0
Wholesale Trade	10.4	17.7	3.0	6.5	9.8
Retail Trade	1.4	-8.3	-5.9	-5.1	5.4
Finance, Insurance, and Real Estate	11.7	2.2	11.7	10.1	65.9
Services	6.0	2.5	-1.7	0.2	7.6
Public Administration	7.6	1.9	1.2	2.5	4.7

Source: Bureau of Labor Statistics, December 2000; Allee King Rosen & Fleming, Inc., December 2000.

Table 3-53

Tourism Spending in the Three Area Counties, 1997

County	Tourist-Based Revenues
Delaware County	$17,196,136
Greene County	$103,186,210
Ulster County	$275,185,129
Total	**$395,567,475**

Source: Based on data developed by D.K. Shiffet & Associates for the New York State Department of Economic Development, 1997.

Table 3-54

Change in Retail Sector Employment by SIC Category: 1993-1997 (percent)

SIC Sector	Delaware County	Greene County	Ulster County	Tri-County
Total Employment	-5.4	-10.3	2.3	-1.1
Total Retail	-14.1	-2.0	12.5	5.4
Building materials and garden supplies	-21.9	2.1	10.8	0.3
General merchandise stores	-38.5	-6.5	21.0	7.8
Food stores	-9.7	-17.6	3.6	-2.6
Automotive dealers and service stations	-5.7	13.3	12.9	8.6
Apparel and accessory stores	NA	-56.8	-11.9	NA
Furniture and home furnishings	NA	20.7	NA	NA
Eating and drinking places	-12.3	-1.2	12.2	5.8
Miscellaneous retail	2.6	16.3	29.3	23.0

Source: Bureau of Labor Statistics, 1997; Allee King Rosen & Fleming, Inc., December 2000.

Table 3-55

Change in Service Sector Employment by SIC Category: 1993- 1997 (percent)

SIC Sector	Delaware County	Greene County	Ulster County	Tri-County
Total Employment	-5.4	-10.3	2.3	-1.1
Total Service	0.8	-20.2	2.0	-2.3
Hotel and other lodging places	18.5	61.7	-4.4	11.5
Personal services	NA	25.3	-8.4	NA
Business services	0.0	73.5	-37.1	-26.1
Auto repair, services, and parking	-9.8	-50.3	18.5	-7.4
Miscellaneous repair services	-37.9	NA	-8.5	NA
Motion pictures	-18.9	-18.5	-11.6	-13.4

Source: Bureau of Labor Statistics, December 2000; Allee King Rosen & Fleming, Inc., December 2000.

Table 3-56

Current Business Data for Retail SIC Categories in the Three Area Counties

SIC Sector	Total Establishments	Total Employees	Sales (in $ millions)
All Retailing (SIC 52-59)	2,838	21,721	$2,592.3
52 Building material and garden supplies	195	1,397	222.2
53 General merchandise stores	51	1,627	177.0
54 Food stores	332	4,219	669.1
55 Automotive dealers and service stations	291	1,966	556.0
56 Apparel and accessory stores	124	610	39.5
57 Furniture and home furnishings	231	906	174.7
58 Eating and Drinking Places	762	7,108	334.9
59 Miscellaneous Retail	852	3,888	$418.9
Source: Claritas, Inc., December, 2000.			

Table 3-57

Current Business Data for Retail SIC Categories in the Study Area

SIC Sector	Total Establishments	Total Employees	Sales (in $ millions)
All Retailing (SIC 52-59)	224	1,034	$107.6
52 Building material and garden supplies	13	62	10.0
53 General merchandise stores	1	1	0.1
54 Food stores	26	180	30.7
55 Automotive dealers and service stations	14	44	8.5
56 Apparel and accessory stores	8	47	2.9
57 Furniture and home furnishings	24	57	8.0
58 Eating and Drinking Places	54	358	19.2
59 Miscellaneous Retail	84	285	$28.2
Source: Claritas, Inc., December, 2000.			

Table 3-58

Current Business Data for Service SIC Categories in the Three Area Counties

SIC Sector	Total Establishments	Total Employees	Sales (in $ millions)
All Services (SIC 70-79)	2,099	19,218	1,235.1
70 Hotels and other lodging places	387	10,730	330.1
72 Personal services	490	1,276	66.5
73 Business services	370	3,462	516.9
75 Auto repair, services, and parking	396	1,156	91.4
76 Miscellaneous repair services	140	402	46.2
78 Motion pictures	65	342	42.2
79 Amusement and recreation services	251	1,850	141.8
Source: Claritas, Inc., December, 2000.			

Table 3-59

Current Business Data for Service SIC Categories in the Study Area

SIC Sector	Total Establishments	Total Employees	Sales (in $ millions)
All Services (SIC 70-79)	176	1,098	78.6
70 Hotels and other lodging places	63	546	29.5
72 Personal services	27	105	5.6
73 Business services	30	130	16.2
75 Auto repair, services, and parking	24	50	4.3
76 Miscellaneous repair services	7	38	2.5
78 Motion pictures	5	13	2.3
79 Amusement and recreation services	20	216	18.2
Source: Claritas, Inc., December, 2000.			

Table 3-60

Construction Costs and Expenditures

Component	Capital Cost ($ millions)
Infrastructure	$16.75
Golf Course Construction	$18.00
Residential Construction	$96.70
Hotels	$93.00
Conference Center	$5.20
Clubhouses	$3.70
Wilderness Center (Highmount)	$1.00
Children's Center	$1.43
Subtotal	**$235.78**
Construction on Subdivided Lots*	5.25
Total Construction Cost	**$241.03**

Notes: All estimates are shown in 2001 dollars. Costs include estimates of labor and materials, site development, general conditions, construction management fees, and contingency. Costs exclude land costs and financing costs, such as interest on construction loans and long-term financing, and financing fees.

* For the subdivided lots, third party lot purchasers would be responsible for construction on the lots. For the purpose of this analysis, the figures assume 21 lots and a very conservative construction cost of $250,000.

Source: Except as noted, figures are based on construction cost and expenditure estimates provided by Crossroads Ventures, LLC, December 2001.

Table 3-61

Overview of Economic Benefits from Construction Activities

	Total in New York State During 8-Year Construction Period	Average Amount Per Year
Employment (person-years)[1]		
Direct employment (construction)	2,114	264
Indirect employment	1,765	221
Total employment	3,879	485
Wages and Salaries ($ millions)		
Direct (construction)	$81.09	$10.14
Indirect (secondary/induced)	$64.40	$8.05
Total wages and salaries	$145.49	$18.19
Economic Output or Demand ($ millions) [2]		
Direct (construction)	$241.04	$30.13
Indirect (secondary/induced)	$210.04	$26.26
Total Economic Output or Demand	$451.08	$56.39

Notes:

[1] A "person-year" is the equivalent of one person working full-time for a year.

[2] The economic output or total effect on the regional economy derived from the direct construction spending as measured by the RIMS II model. The figures are measures of the estimated output, or demand, for regional industries, as such, they express the total dollar amounts of direct, indirect and total effect on the economies. The totals include direct construction expenditures in Delaware and Ulster Counties, plus indirect output generated by the direct expenditures.

Source: Figures are based on construction cost and expenditure estimates provided by Crossroads Ventures, LLC., and on the Regional Input-Output Modeling System (RIMS II), Bureau of Economic Analysis, U.S. Department of Commerce.

Table 3-62

Economic and Fiscal Effects by Component from Construction of the Proposed Belleayre Resort at Catskill Park

Component	Employment (Person-Years)			Wages and Salaries (Millions of 2001 Dollars)			Economic Output (Millions of 2001 Dollars)			Non-Property Tax Revenues (Thousands of 2001 Dollars)		
	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total
Infrastructure & Golf Course Construction	279	286	565	$10.70	$8.52	$19.22	$34.75	$30.83	$65.58	$658.8	$873.9	$1,532.7
Residential Construction:												
Big Indian Plateau Single-Family	134	73	207	$5.13	$3.64	$8.77	$16.80	$15.73	$32.53	$316.0	$408.2	$724.2
Big Indian Plateau Attached	157	116	273	$6.04	$4.74	$10.78	$19.80	$15.62	$35.42	$372.4	$478.2	$850.6
Big Indian Plateau/Belleayre Highlands	210	154	364	$8.06	$6.32	$14.38	$26.40	$20.83	$47.23	$496.6	$637.5	$1,134.1
Wildacres	281	206	487	$10.77	$8.45	$19.22	$35.29	$27.84	$63.13	$655.1	$852.2	$1,507.3
Hotel Construction:												
Big Indian Resort and Spa	393	354	747	$15.10	$12.30	$27.40	$40.00	$36.70	$76.70	$848.8	$1,195.5	$2,044.3
Wildacres - Upper Lodge	258	232	490	$9.91	$8.07	$17.98	$26.25	$24.09	$50.34	$566.3	$784.6	$1,350.9
Wildacres - Lower Lodge	224	201	425	$8.59	$6.99	$15.58	$22.75	$20.88	$43.63	$490.8	$680.0	$1,170.8
Convention Center, Clubhouses, Children's Center, and Wilderness ActivitiesCenter (Highmount)	136	121	257	$5.19	$4.23	$9.42	$13.75	$12.61	$26.36	$295.7	$411.0	$706.7
Subtotal	**2,072**	**1,743**	**3,815**	**$79.49**	**$63.26**	**$142.75**	**$235.78**	**$205.13**	**$440.92**	**$4,700.5**	**$6,321.1**	**$11,021.6**
Housing Construction on Subdivision Lots*	42	22	64	$1.60	$1.14	$2.74	$5.25	$4.91	$10.16	$251.7	$127.6	$379.3
TOTAL	**2,114**	**1,765**	**3,879**	**$81.09**	**$64.40**	**$145.49**	**$241.03**	**$210.04**	**$451.08**	**$4,952.2**	**$6,448.7**	**$11,400.9**

Notes: Assumes sales tax exempt on construction materials, except for the subdivision lots. The indicated tax revenues do not include property-related payments during the construction period, which would be additional.

* For the subdivided lots, third-party lot purchasers would be responsible for construction on the lots. For the purpose of this analyses, the figures assume 21 lots and an average construction cost of $250,000.

Source: The characteristics and construction cost of the components of the proposed project; the Regional Input-Output Modeling System (RIMS II), U.S. Department of Commerce, Bureau of Economic Analysis; and the tax rates by applicable jurisdiction.

Table 3-63
Cumulative Fiscal Benefits Resulting from Construction

	Tax Revenues		
	Direct	Indirect	Total
Delaware County	$43,100	$52,700	$95,800
Ulster County	$185,300	$546,800	$732,100
New York State	$4,723,800	$5,849,200	$10,573,000
Total Tax Revenues	$4,952,200	$6,448,700	$11,400,900

Source: Figures are based on construction cost and expenditure estimates provided by Crossroads Ventures, LLC; the Regional Input-Output Modeling System (RIMS II), Bureau of Economic Analysis, U.S. Department of Commerce; and applicable tax rates.

Table 3-64

Belleayre Resort Employment

Project Component	Employment		
	Full-Time	Part-Time/ Seasonal	Full-Time-Equivalent
Golf	9	87	68
Hotel/Lodging/Conference Center	284	86	334
Retail	14	0	14
Restaurants	164	157	260
Timeshares	46	0	46
Wilderness Activity Center	5	0	5
Children's Center	20	0	20
TOTAL:	**542**	**330**	**747**

Source: Figures are based on data provided by Crossroads Ventures, L.L.C., November 2001.

Table 3-65

Belleayre Wages and Salaries

Project Component	Annual Wages & Salaries
Golf	$1,845,380
Hotel/Lodging/Conference Center	$9,450,715
Retail	$302,640
Food Service (see note)	$7,154,251
Timeshares	$993,637
Wilderness Activity Center	$147,814
Children's Center	$591,256
TOTAL:	**$20,485,693**

Source: Figures are based on data provided by Crossroads Ventures, L.L.C., November 2001.

Note: Includes all retail restaurant and food service workers, as well as workers supporting non-restaurant food service functions and facilities, e.g., conference center and ballroom events.

Table 3-66

Belleayre Gross Annual Revenues

Project Component	Gross Annual Revenues
Golf	$3,150,000
Hotel/Lodging/Conference Center	$20,858,187
Retail	$3,360,000
Restaurants	$7,169,087
Timeshares	$8,720,000
Wilderness Activity Center	$125,000
TOTAL:	**$43,382,274**

Source: Figures are based on data provided by Crossroads Ventures, L.L.C., December 2000.

Table 3-67

Projected Direct and Indirect Employment

	Project Completion
Employment (full-time equivalent)	
Direct employment	665
Indirect employment	211
Total employment	876

Source: Figures are based on data provided by Crossroads Ventures, L.L.C. in June 2001 (direct employment has since been revised upwards to 747 due to program changes, as a result, the indirect and total employment effects are conservative), and on the Regional Input-Output Modeling System (RIMS II), Bureau of Economic Analysis, U.S. Department of Commerce, April 2001.

Table 3-68

Projected Annual Payroll

	Project Completion
Direct wages and salaries	$18.81 million
Indirect wages and salaries	$7.43 million
Total wages and salaries	$26.24 million

Source: Figures are based on data provided by Crossroads Ventures, L.L.C., in June 2001 (direct wages and salaries has since been revised upwards to $20.5 million due to program changes, and as a result the indirect and total effects are conservative), and on the Regional Input-Output Modeling System (RIMS II), Bureau of Economic Analysis, U.S. Department of Commerce, April 2001.

Table 3-69

Projected Annual Total Effect on the Local Economy

	Project Completion
Direct economic output or demand	$41.18 million
Indirect economic output or demand	$21.11 million
Total economic output or demand	$62.29 million

Note: The sales at the project's retail trade component assumed at an average margin of 34.6 percent.

Source: Figures are based on data provided by Crossroads Ventures, L.L.C. in June 2001 (direct employment has since been revised upwards due to program changes), and on the Regional Input-Output Modeling System (RIMS II), Bureau of Economic Analysis, U.S. Department of Commerce.

Table 3-70

Projected Annual Sales Tax Revenue from Belleayre Resort (2001 Dollars)

Taxing Jurisdiction	Estimated Taxable Sales	Rate	Sales Tax
Ulster County	$19,147,100	3.75%	$718,016
Delaware County	$11,920,200	2.00%	$238,404
New York State	$30,267,300	4.00%	$1,210,692
Total Sales Tax			**$2,167,112**

Note: Assumes one-third of retail sales would be clothing items costing less than $110 that would be exempt from New York State and Delaware County sales tax.

Source: Based on data provided by Crossroads Ventures, L.L.C. on annual sales, applicable tax rates, and Allee King Rosen & Fleming, Inc., April 2001.

Table 3-71

Belleayre Resort Parcel Taxing Districts, Acreage, Assessed Value, Tax Rates, and Tax Payments—Town of Shandaken (Ulster County)

Taxing District	Acreage in Taxing District	Assessed Valuation	Tax Rate/$1,000	Estimated Total Tax Paid 2001
Ulster County General Tax	1,670.66	$1,968,500	$7.658730	$15,076
Shandaken Town General Tax	1,670.66	$1,968,500	$6.080500	$11,969
Shandaken Town Highway Tax	1,670.66	$1,968,500	$7.244250	$14,260
Highmount Fire	659.63	$1,163,100	$4.551805	$5,294
Big Indian Oliverea Fire	962.14	$689,400	$1.485846	$1,024
Pine Hill Fire	48.89	$116,000	$2.581984	$300
Pine Hill Light	48.89	$116,000	$1.415434	$164
Onteora Central School	1,410.66	$1,382,200	$34.902573	$48,242
Onteora School Library	1,410.66	$1,382,200	$0.029156	$40
Margaretville School	260.00	$586,300	$18.293622	$10,726
TOTAL TAXES PAID				**$107,096**

Source: Real Property Tax and School Tax Bills provided by Crossroads Ventures, L.L.C. for fiscal years 2000 and 2001; Allee King Rosen & Fleming, January 2001.

Table 3-72

Belleayre Resort Parcel Taxing Districts, Acreage, Assessed Value, Tax Rates, and Tax Payments—Town of Middletown(Delaware County)

Taxing District	Acreage in Taxing District	Assessed Valuation	Tax Rate/$1,000	Estimated Total Tax Paid 2001
Delaware County General	387.22	$945,181	$5.819174	$5,500
Middletown Town	387.22	$945,181	$2.729093	$2,579
Highway Outside Village	387.22	$945,181	$1.221006	$1,154
General Outside Village	387.22	$945,181	$0.076313	$72
Middletown FD#1	387.22	$945,181	$0.474813	$449
Margaretville School	387.22	$945,181	$8.686914	$8,211
TOTAL TAXES PAID				**$17,965**

Source: Real Property Tax and School Tax Bills provided by Crossroads Ventures, L.L.C. for fiscal years 2000 and 2001; Allee King Rosen & Fleming, January 2001.

Table 3-73

Full Market Value and Assessed Value of Belleayre Resort Components

Project Component	Estimate of Full Market Value	Estimate of Assessed Value
Golf Courses	$5,760,000	$4,320,000
Highmount Estates Subdivision	$12,600,000	$9,450,000
Infrastructure	$10,048,800	$6,037,800
Detached Lodging Units	$58,008,000	$35,230,687
Hotels	$55,800,000	$40,800,000
Conference Center	$3,120,000	$1,560,000
Clubhouses	$2,220,000	$1,329,000
Wilderness Activity Center	$600,000	$300,000
Children's Center	$858,000	$429,000
TOTAL	**$149,014,800**	**$99,456,487**

Source: Crossroads Ventures, L.L.C Allee King Rosen & Fleming, Inc., January 2001.

Table 3-74

Existing and Future Property Tax Revenues Generated by Belleayre Resort Project—Town of Shandaken (Ulster County)

Taxing District	Existing 2001 Tax Revenue	Estimated Future Tax Revenue (2001 Dollars*)	Annual Tax Revenue Increase
Ulster County General Tax	$15,076	$201,853	$186,777
Shandaken Town General Tax	$11,969	$160,246	$148,277
Shandaken Town Highway Tax	$14,260	$190,916	$176,656
Highmount Fire	$5,294	$97,511	$92,217
Big Indian Oliverea Fire	$1,024	$24,536	$23,512
Pine Hill Fire	$300	$11,630	$11,330
Pine Hill Light	$164	$5,420	$5,242
Onteora Central School	$48,242	$793,788	$745,546
Onteora School Library	$40	$663	$623
Margaretville School	$10,726	$123,687	$112,961
TOTAL TAXES PAID	**$107,096**	**$1,610,250**	**$1,503,154**

Source: Allee King Rosen & Fleming, Inc., January 2001.
* Tax revenues from the project will increase from these levels 5 percent each year for the 10 years after the project is complete.

Table 3-75

Existing and Future Tax Revenues Generated by Belleayre Resort Project—Town of Middletown (Delaware County)

Taxing District	Existing 2001 Tax Revenue	Estimated Future Tax Revenue (2001 Dollars)	Annual Tax Revenue Increase
Delaware County General	$5,500	$163,513	$158,013
Middletown Town	$2,579	$76,685	$74,106
Highway Outside Village	$1,154	$34,309	$33,155
General Outside Village	$72	$2,144	$2,072
Middletown FD#1	$449	$23,692	$23,243
Margaretville School	$8,211	$244,094	$235,883
TOTAL TAXES PAID	**$17,965**	**$544,437**	**$526,472**

Source: Allee King Rosen & Fleming, Inc., January 2001.

Table 3-76

Timeshare Unit Ownership

	# Units	Owners /unit	Total Owners	Total Sales Revenue
Wildacres Resort Timeshare Units	168	25	4,200	$100.8 million

Note: Number of owners per unit assumes 50 one-week intervals per unit, with each owner purchasing two one-week intervals.
Source: Crossroads Ventures, L.L.C., December 2000.

Table 3-77

Estimated Timeshare/Vacation Club Visitation

	# Units	Persons /Visit	Total Visitor Nights/Year	Total Visitor Parties/Year
Big Indian Plateau—Single Units (4 br.)	35	6.0	65,100	10,850
Big Indian Plateau—Triplex Units (3 br.)	60	5.0	93,000	18,600
Belleayre Highlands—Quadraplex Units (2 br.)	88	3.5	95,480	27,280
Wildacres Timeshare Units—(2 br.)	168	3.5	182,280	52,080
Total	**351**		**435,860**	**108,810**

Note: Estimates based upon projected 85 percent occupancy (310 days per year).
Source: Crossroads Ventures, L.L.C., RCI Consulting, Inc.

Table 3-78

Vacation Club Membership

	No. Units	Owners /Unit	Total Owners	Total Membership Revenue
Big Indian Plateau— Single Units (4 bedroom)	35	4	140	$70 million
Big Indian Plateau— Triplex Units (3 bedroom)	60	6	360	$90 million
Belleayre Highlands— Quadraplex Units (2 bedroom)	88	10	880	$88 million
Totals	**183**		**1,380**	**$248 million**
Source: Crossroads Ventures, L.L.C., December 2000.				

Table 3-79

Off-Site Spending by Timeshare Visitors and Big Indian Country Club Members

	Visitor Parties/Year	Average Off-site Spending per Visitor Party	Annual Off-site Visitor Spending
Big Indian Plateau/Single Units (4 br.)	10,850	$85	$.9 million
Big Indian Plateau/Triplex Units (3 br.)	18,600	$85	$1.6 million
Belleayre Highlands/Quadraplex Units (2 br.)	27,280	$85	$2.3 million
Wildacres Timeshare Units (2 br.)	52,080	$85	$4.4 million
Total	**108,810**		**$9.2 million**
Source: Crossroads, L.L.C.., RCI Consulting, Inc., Allee King Rosen & Fleming, Inc., February 2001.			

Table 3-80

Estimated Hotel Visitation

	Rooms/ Suites	Occupancy Rate	Persons/ Party	Total Visitor Nights/Year	Total Visitor Parties/Year
Big Indian Resort and Spa	150	60%	2.0	67,500	32,850
Wildacres Resort	250	70%	2.0	127,750	63,825
Totals	**400**			**195,250**	**96,675**
Source: Crossroads Ventures, L.L.C., Allee King Rosen & Fleming, Inc., February 2001.					

Table 3-81

Estimated Off-Site Spending by Hotel Visitors

	Visitor Parties/Year	Average Off-Site Spending per Visitor Party	Annual Off-Site Visitor Spending
Big Indian Resort and Spa	32,850	$25.00	$.82 million
Wildacres Resort	63,875	$25.00	$1.60 million
Total	**96,725**		**$2.00 million**

Source: Crossroads Ventures, L.L.C., Allee King Rosen & Fleming, Inc., February 2001.

Table 3-82

Estimated Highmount Estates Visitation

	Homes	Occupancy Rate	Persons/ Party	Total Visitor Nights/Year	Total Visitor Parties/Year
Highmount Estates Subdivision	21	25%	3.5	6,707	1,916

Source: U.S. Census Bureau, Crossroads, L.L.C., Allee King Rosen & Fleming, Inc., February 2001.

Table 3-83

Estimated Off-Site Spending by Highmount Estate Visitors

	Visitor Par ties/Year	Average Off-Site Spending per Visitor Party	Annual Off-Site Visitor Spending
Highmount Estates (21 single-family seasonal homes)	1,916	$99.60	$0.19 million

Source: Stynes, et. al., University of Michigan Research Station, Allee King Rosen & Fleming, Inc., February 2001.

Table 3-84

Restaurant Capacity

	Seating Capacity
Big Indian Country Club—Snack Bar	40
Belleayre Highlands/Brisbane—Snack Bar	25
Big Indian Resort and Spa—Restaurant #1	75
Big Indian Resort and Spa—Restaurant #2	150
Big Indian Resort and Spa—Bar	50
Highmount Golf Club—Snack Bar	40
Wildacres Resort—Restaurant #1	300
Wildacres Resort—Restaurant #2	150
Wildacres Resort—Beverage Lounge	100
Marlowe Mansion—Restaurant	150
Wildacres Octoplex Clubhouse—Snack Bar	40
Totals	**1,120**

Source: Crossroads Ventures, L.L.C., October 2001.

Table 3-85

Summary of Overall Spending by Belleayre Resort Visitors

	Visitor Parties/ Year	Annual Off-Site Visitor Spending	Annual On-Site Visitor Spending	Total Visitor Spending
Wildacres Timeshare and Big Indian Country Club members	108,810	$9.2 million	$9.2 million	$18.4 million
Hotel visitors	96,725	$2.42 million	$7.26 million	$9.68 million
Highmount Estates (21 single family seasonal homes)	1,916	$0.19 million	$0.13 million	$0.32 million
Total	**205,535**	**$11.81 million**	**$16.59**	**$28.4 million**

Source: Stynes, et. al.,Univ. of Michigan, Golf Research Institute, Inc., Halcyon, Ltd., D. K. Shifflet Associates, Allee King Rosen & Fleming, Inc., February 2001.

Table 3-86

Belleayre Resort Visitor Off-Site Spending

Trip Spending Category	Timeshare/Big Indian Country Club Member	Hotel/Lodging Visitor	Highmount Estates Resident	Total
Restaurants	$2.39 million	$0.82 million	$0.04 million	$3.23 million
Groceries	$1.75 million	$0.00 million	$0.04 million	$1.79 million
Gas and Oil	$1.38 million	$0.36 million	$0.03 million	$1.77 million
Recreation Fees	$0.64 million	$0.31 million	$0.01 million	$0.96 million
Shopping and Souvenirs	$1.29 million	$0.63 million	$0.03 million	$1.95 million
Other	$1.75 million	$0.29 million	$0.05 million	$2.09 million
Total	**$9.20 million**	**$2.42 million**	**$0.19 million**	**$11.81 million**

Sources: Stynes, et. al.,Univ. of Michigan, Golf Research Institute, Inc., Halcyon, Ltd., D. K. Shifflet Associates, Allee King Rosen & Fleming, Inc., February 2001.

SECTION 4 UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS

4.1 Vegetation

Approximately 529 acres of existing vegetation, comprising approximately 27% of the site, will be removed in order to construct the project. Lands comprising the assemblage and the project site have been comprehensively and repeatedly logged over the last century, including as recently as the 1990's. Approximately 80% is second growth beech-maple mesic forest with the remainder being a mix of different second growth forest communities. **No rare plant species or unique plant communities will be affected.** Once the construction is complete approximately 86% of the area disturbed during construction will be revegetated. This is in addition to the 4% of the 1,960 acres assemblage that was never disturbed during construction.

4.2 Wildlife

The loss of vegetation described above will result in a loss of forested wildlife habitat. This will result in a localized decrease in carrying capacity for forest interior species that currently utilize the portions of the site proposed to be affected. There will be some localized shift in the local wildlife community with a slight decrease in forest interior species and an increase in forest edge species due to an increase availability of forest edge habitat around the golf course. No rare, threatened or endangered wildlife species will be affected nor will any critical wildlife habitat be affected. **Also, over 70% of the project assemblage will remain undisturbed and preserved, thus preventing any future disturbance of these wildlife habitats.**

4.3 Erosion

A careful and comprehensive conceptual phasing plan along with a Stormwater Pollution Prevention Plan has been set forth in this DEIS (see Section 2.3, "Construction Activities," 3.2, "Surface Water Resource," and Appendix 11, "Draft Construction Stormwater Pollution Prevention Plan").

This plan limits the size of each active construction phase to roughly 25 acres within each reservoir watershed and uses of a wide variety of erosion control materials to reduce the erosional loss of soils on the site. Temporary stormwater basins designed to capture and hold the 10-year event are proposed to be constructed to protect all construction areas. In the event that a storm of greater intensity than the 10 year event occurs it is possible under these unlikely conditions that soil materials will escape beyond the perimeter controls that serve as a backup to the stormwater retention ponds. In the unlikely event that this does occur, any fugitive soil materials will be excavated and the area stabilized to reduce future erosion.

4.4 Fugitive Dust

The handling of gravel materials including rock crushing, cement processing, truck transport of materials and truck movement on unimproved roads will lead to fugitive dust. During periods of time when extremely dry conditions are occurring, dust emissions may escape normal control. This will be a short-term impact and can be remediated by use of dust control agents. See Appendix 22A, "Air Quality Assessment of Construction Activities."

4.5 Sound

During construction large earth moving equipment including payloaders, pan scrapers, off-road dump trucks, bulldozers and trackhoes will operate throughout the development site creating noise within areas previously not frequently subject to such activity and associated sound. The off-site impacts of the construction noise have been fully assessed and determined to be within acceptable limits for this type of project (see Appendix 22, "Sound Impact Study"). Nonetheless, construction will cause new sounds in an area that has been a forest with very limited sources of motorized sound during recent years except for periodic logging.

4.6 Visual

The visual character of the site will be slightly changed by this project. The project site that is now predominately second growth forest that was logged as recently as 10 years ago will stay forest, become landscape areas, turf areas, paved parking lots, and a limited number of buildings. Views of the site from regional vantage points will not change significantly and for the majority of individuals, changes will not be readily apparent (see Appendix 21, "Visual Impact Study," and Section 3.8.4). From Balsam Mountain a limited portion of two fairways and a few detached lodging units may be seen from a significant distance of 2± miles. **Therefore, given the distance at which the project can be viewed from Balsam, the regional visual character will not suffer any unavoidable adverse impacts.** From the 16 other representative or important vantage points and from NY Route 28, the site will not be readily visible. Only from a very limited low-density locations on the north side of NY Route 28 will the project site be visible in the context of the ski slopes at Belleayre Mountain Ski Center.

4.7 Traffic

Construction of the Belleayre Resort at Catskill Park will result in some additional trucks and passenger vehicles traveling local roadways. Some additional traffic delays can be expected during construction as the result of trucks entering or exiting the site. Based on information provided in Appendix 22, Sound Impact Study, it is expected that the peak construction truck traffic (during the first three years of construction) will occur during year two with approximately 60 trucks per day. Assuming a ten-hour workday, this equates to approximately six trips per hour. The addition of six trips and hour will not be

noticeable and will not have an impact on the adjacent roadway system. Currently, the average annual daily traffic on Route 28 is 2,520 vehicles. The addition of 60 trips equates to a maximum overall daily increase in traffic of less than 2.5%.

During the operational phase of the project, specific mitigative measures have been identified to relieve traffic impacts (see Section 3.7 and Appendix 25, "Traffic Impact Study").

SECTION 5 ALTERNATIVES

5.1 Alternative Locations

Prior to proposing the Belleayre Resort project at the project site the Applicant considered other lands in the area that could have potentially met the Applicant's objectives of providing a high quality resort to complement the existing recreational facilities at Belleayre Mountain Ski Center, providing a four-season destination resort, and spurring the revitalization of the economy, especially in Shandaken and Middletown.

Alternative locations were limited by the fact that they had to be within a reasonable distance to the Ski Center in order to provide the mutually beneficial relationship between the proposed project and the Ski Center.

Alternative locations were also limited by the fact that the majority of lands in the vicinity of the proposed project site are not private lands, but rather lands controlled by New York State or New York City and upon which development is precluded. In the remaining areas topography provides very few parcels suitable for development.

One alternative location that was given consideration was approximately 1,000 acres to the west of the proposed project site. These lands are on and around Fleischmann Mountain. This alternative was not pursued after it was determined that the owner was not interested in selling the property.

Lands in the hamlet of Shokan known as the Pitcairn Estate were investigated as a possible site. The lands have frontage along NY Route 28 and include Kenozia Lake. The reasons for not pursuing this alternative included extensive freshwater wetlands on the property as well as the fact that the Ashokan Reservoir is located just on the other side of NY Route 28 from the Pitcairn Estate.

A third site that was investigated was an assemblage of properties in Lanesville, Greene County, off of Harry Sickler Road. This site was not chosen for three reasons. Much of the area was prone to flooding. The largest parcel in the assemblage could not be acquired. Development of this parcel would not provide the needed economic benefits to Ulster and Delaware Counties.

Following the investigation into these three alternative sites the Applicant approached the Shandaken Town Assessor and requested a list of all properties in the Town that were available and had sufficient acreage. The intent of this request was an attempt to locate two or more parcels each of sufficient size on which to construct a Resort and related amentias. A number of properties were identified but were determined to be unsuitable for a number of reasons. A number of parcels located at lower elevations were identified but these parcels either contained or were adjacent to perennial streams and/or contained 100-year floodplains. Alternative parcels of suitable size identified in higher elevations were either on unavailable land owned by New York State, were private lands unsuitable

for development because of topographical constraints (lands were simply too steep to support development) or were accessible only by narrow and inadequate Town roads.

5.2 Alternative Use of the Site

Alternative uses that could occur on the Crossroads assemblage are dictated by the Zoning Ordinances of the Town of Shandaken and the Town of Middletown.

There are approximately 1,563 acres of the assemblage in the Town of Shandaken and approximately 397 acres in the Town of Middletown. All of the land in the eastern portion of the assemblage is in the Town of Shandaken, while the western portion of the assemblage is split approximately evenly between the two Towns. Lands in the Town of Shandaken are zoned residential R5 (approximately 1,363 acres), R3 (approximately 159 acres), R1.5 (approximately 440 acres), and HC (1 acre). Lands in the Town of Middletown are also zoned residential, including R5 (approximately 380 acres) and R3 (approximately 17 acres).

Table 5-1, "Land Use and Zoning," lists those uses that are allowed by the two Town's zoning ordinances, including permitted uses and those other uses requiring special use permits. Permitted uses are similar for the two Towns and include one- and two-family dwellings, mobile homes on individual lots, and agriculture. Other permitted uses in Shandaken include public parks and recreation, home occupations, and non-commercial horse stables. Government buildings/uses are also permitted in the R-3 and R1.5 zones in Shandaken. In Middletown forest management practices and wildlife management practices are also permitted uses.

Because the lands comprising the project site are zoned residential, an alternative sketch-plan design showing as-of-right residential development of the project site was prepared. The project site was divided into building lots meeting minimum lot sizes of the Towns' zoning ordinances of 2.5 acres. The zoning code of the Town of Shandaken expressly states that in the R5 and R3 zones that lot sizes may be reduced by half when lots are served by common sewer. The Town of Middletown does not have such a density provision in its zoning ordinance. Figures 5-1, "Residential Alternative – Sheet 1", Figure 5-2 "Residential Alternative- Sheet 2", and Figure 5-3, "Residential Alternative – Sheet 3" illustrate a conceptual 445-lot residential subdivision of the project site.

The applicant's objective is to develop a world class four season destination resort which cannot be achieved by residential development. Moreover, this as-of-right alternative is less economically attractive and less financially feasible than the one proposed in this document. The previously referenced figures are included in this DEIS for illustrative purposes only.

5.3 Alternative Layouts

A number of alternative layouts were considered for the project site.

There has been some contention earlier in the SEQRA process that the proposed project site, particularly the Big Indian Plateau portion of the site, is unsuitable for a golf course due to its location and elevation. This contention is unfounded based upon local land use history, the geographic distribution of existing golf courses and ecological principles.

Up until the 1960's a number of golf courses existed close to the project site. These included the nine hole course at the Grande Hotel, the nine hole Takanassee golf course in Fleischmanns and the nine hole golf course at the Shandaken Inn. The former golf course at the Grande Hotel was roughly at the same elevation as the Highmount Golf Club (1,900 – 2,200 feet AMSL). By comparison, the Big Indian Country Club golf course is between an elevation of 1,990 to 2,740 feet AMSL. The Tennanah Lake golf course in the Town of Roscoe (Sullivan County) is located at an elevation that is even higher than the proposed Big Indian Country Club.

Portions of the Big Indian Country Club golf course are approximately 550 feet higher in elevation than the former Grande Hotel golf course. On average, temperatures in mountainous regions decrease about 0.5 degrees Celsius for every elevation increase of 100 meters (328 feet) (Darbenmire, 1974). Therefore, the temperature difference between the elevation of the former Grande Hotel course and the proposed Big Indian Country Club can be expected to be less than one degree Celsius. This difference in temperature certainly is not enough to make a difference in the successful establishment and growth of turf on the proposed golf course.

When constructing new ski trails at the Ski Center, portions of which are at higher elevations up to 3,330 feet, a seed mix is used that contains some of the same grasses proposed to be used at the proposed golf courses. The Blue Seal Feeds® Conservation Mix is composed of more than 33% fine fescue and almost 10% Kentucky bluegrass. These are the two grass species proposed on the fairways of both golf courses. Fine fescue, Kentucky bluegrass, and creeping bentgrass are all species native to New York State (Mitchell and Tucker, 1997) and areas further north, including Canada (Gleason and Cronquist, 1963). Figure 2-6 , "Turf on Belleayre Mountain Ski Slopes", previously illustrated how turf can be grown at higher elevations, even under the low intensity maintenance implemented on the ski slopes at the Ski Center.

Temperature regimes and the ability to grow and maintain golf course turf will vary not only with altitude but also with latitude. More northerly climates will generally have colder temperature regimes and shorter growing seasons. However, unlike the altitudinal and temperature (climatological) relationship described above, there is not a precise correlation of temperature changes with latitude.

In New York State there are a number of golf courses in the Adirondack Region of New York that are at altitudes comparable to the proposed Big Indian Country Club Golf Course. There are two golf courses at elevations over 1,900 feet located approximately 160 miles to the north in the Lake Placid area (latitude 44 degrees 15 minutes, versus 42 degrees 7 minutes for the Big Indian Country Club). At about the same latitude as the Lake Placid golf courses there is a golf resort in Michigan called Crystal Mountain

Resort. The golf course superintendent at this course reports excellent playing conditions on the 18 hole course, including a successful grow-in during 1997. Seeded in August of 1997, this golf course was ready for play in June of the following year.

One can even go much further north than Lake Placid or Michigan to find successful golf courses. The Anchorage Golf Course, an 18-hole, 6,616 yard, par 72 golf course was constructed in 1987 and offers play between May 15th and October 1st. Another example is Mountain Acres Golf Club in Sainte-Agathe Quebec, Canada. Located in a "picturesque mountain setting" (Golffacts, 1995) this 18 hole, par 70 course requires reservations one week in advance in order to play, a testimony to its high quality.

Also substantiating the site's suitability for growing golf course turf is the US Department of Agriculture's Hardiness Zone Map for plants in the United States. As previously illustrated in Figure 2-7, "Hardiness Zone Map", the country is divided into a number of zones corresponding to different ranges in average annual minimum temperatures for each zone. The project site occurs in zone five (5), with a minimum of average temperature of –20 to –10 degrees Fahrenheit. By comparison, the Lake Placid region and the locations for the Anchorage Golf Course and Crystal Mountain Resort in Michigan are all within zone four (4) with average annual minimum temperature of –30 to –20 degrees Fahrenheit.

It is recognized that these zones are mapped on a large scale and there can be some local variability. However, an analysis of actual minimum daily temperatures at Slide Mountain and Lake Placid climatological monitoring stations for a five year period (1989-1993) confirms the hardiness zone mapping. During this period minimum daily temperature at Slide Mountain averaged –10 degrees Fahrenheit (-10, -9, -9, -9, -13 degrees), while the minimum daily temperature reported at Lake Placid was –24.8 degrees Fahrenheit (-29, -15, -27, -22, -31 degrees). The data corroborate the variability of the temperatures with literature discussed previously. The lower temperatures at Lake Placid were recorded at an elevation of 1,998 feet while temperatures at Slide Mountain are measured at an elevation of 2,650 feet.

Thus, from an alternatives standpoint, golf course development on Big Indian Plateau certainly is a viable alternative use of this portion of the project site.

5.3.1 Alternative Layouts of the Proposed Golf Courses.

Since the golf course layouts are dictated by the site topography, there were not a large variety of feasible alternative layouts advanced for the two proposed golf courses.

For the Big Indian Country Club the golf course layout has remained essentially unchanged since its initial design. There were some minor modifications made around the 18th green area to accommodate alternative hotel designs that were given consideration. The tee location on hole 18 was also moved slightly to the west to avoid a potential archeological feature.

For the Highmount Golf Club, alternative golf layouts were developed primarily as a result of adding more lands to the project site. Most of these lands that were added were north of Gunnison Road, but a small parcel was also added on the south side of the road. Figures 5-4 and 5-5, "Highmount Golf Club Alternatives 1 and 2", respectively are alternative layouts from April 3, 2000 and September 28, 2000, respectively. In the first alternative the eastern portion of the golf course was the last nine holes, and the driving range was located north of Gunnison Road. The old Rashid property and the small lot across Gunnison Road from it were not part of the original project site. These two areas were part of the project site in the September 28 layout plan. The September 28, 2000 layout plan is similar to the proposed layout with the eastern portion of the golf course being the first nine holes and the driving range being south of Gunnison Road. Changes made between the September 28 version and the current golf course layout include the movement of hole 17 to the south and slightly moving the 13th green and 16th tees to avoid potential archeological sites.

5.3.2 Alternative Buildings and Building Layouts

The proposed Big Indian Resort and Spa building is the third of three buildings designed at that same location. One of the earlier versions is illustrated on Figures 5-6, "Alternative Big Indian Hotel Building Elevation." The two earlier alternatives consisted of approximately the same floor areas and contained the same functions as the proposed Resort and Spa. In response to concerns expressed during the scoping process over the potential for visual impacts, including those concerns expressed by the Adirondack Mountain Club and the New York - New Jersey Trails Conference, these earlier design were replaced by the current Emilio Ambasz design in order to mitigate potential visual impacts

The proposed hotel at Wildacres represents the combination of a number of buildings that were one time separate buildings. As illustrated in Figure 5-7, "Wildacres Resort Alternative Upper Lodge", and Figure 5-8, "Wildacres Resort, Lower Lodge", a previous alternative of the Wildacres Hotel consisted of separate upper and lower hotels, and additional stand alone buildings for the conference center and the golf clubhouse. This previously considered alternative layout was replaced by the current single hotel building in order to improve the ease and efficiency of operations of the various resort functions and reduce the amount of impervious area.

The hotel at Wildacres was originally envisioned as having more of a village or hamlet type character. At one time up to 100,000 square feet of retail use was considered at this location. Due to concerns expressed by local area business people about the introduction of such a substantial amount of additional retail space, the various iterations of this area saw decreases in the amount of square footage down to 60,000, then 20,000 and now to the currently proposed 13,000 square feet of strictly hotel-related shops.

The initial scope of the project as presented at a public meeting of the Shandaken Town Board in 1999 contemplated approximately 900 lodging units. In the current plan in response to public expressions that the project was too large, the total number has now

been reduced to 772 (including the hotels and 21 lot subdivision), a reduction of approximately 15%.

5.3.3 One Golf Course and One Hotel Complex Alternative

Separating the project such that a single hotel complex was in one location, such as the western portion of the project site adjacent to the Ski Center exit road, and a single golf course was in the eastern portion of the site, the better golf course site (or vise versa) is not practical and would not provide a desirable product for potential Resort guests. Golf courses are frequently combined with Resort or residential development in order to realize the natural benefits that each component can gain from the combination. A value premium is created wherein the value of the combined golf course and residential and resort uses is greater than the sum of the uses as separate elements (Demay, 1998).

The impetus behind the project is to create a four-season recreational destination resort. Separating a golf course from the lodging component is contrary to the major objective of the project. The recreation and lodging components need the interconnectedness so that guests realize the sense of place when the two general uses are combined in close proximity to each other.

5.3.4 Either an "East Resort" or a "West Resort" Alternative

A. Overview

The proposed Belleayre Resort at Catskill Park is an integrated singular development project although its major components (Wildacres and Big Indian) are physically separated to the west and east of Belleayre Mountain Ski Center. If the Ski Center were not subject to "Forever Wild" restrictions prohibiting the construction of roads, the project would, in all probability, have been able to reserve rights-of-way connecting the two elements.

As set forth in the Scoping Document, the DEIS includes this alternative evaluation of reducing the size of the project by pursuing development of only the eastern or western component of the project. The intended purpose of such an alternative would be to eliminate the physical disturbance in total to one tract of land or the other and thereby avoid the potential environmental impacts associated with site development. However, as examined in detail for the proposed action, it is noted that the extensive investment in terms of site design and construction planning already minimize or avoid environmental impacts associated with the full construction of the site.

Table 5-2, "Alternatives Table – Summary of East and West Project Components", summarizes a number of the facets of the overall project as well as the eastern and western components of the project.

At the same time that physical disturbance would be reduced, there would be significantly less economic benefit accruing to the Town (or Towns depending on which site were not developed), County, and State in terms of construction period benefits or the

annual increase in property and sales taxes associated with the project itself and the spillover economic activity generated in the Route 28 Corridor.

Most important, detailed market and fiscal analyses undertaken by the applicant show that it is not a reasonable or feasible alternative to the proposed action in that any reduction or elimination of a project element results in either an increased risk to overall marketability and financial viability, or an unacceptably low financial return on investment. The market-based and financial analysis that underlies this conclusion are summarized below, and presented in full in Appendix 27 "Fiscal and Marketing Information," including reports by the National Golf Foundation Consulting, Inc. (NGF) regarding the market-based need for two full golf courses, and by HVS Consulting Services regarding the fiscal evaluation.

B. Market Analysis

The market evaluation and financial analyses conducted to determine project viability also included an assessment of whether the project can be scaled back so that it includes only the eastern portion of the proposed project (DEIS Figure 2-1) or only the western portion of the proposed project (DEIS Figure 2-2).

As detailed in Appendix 27, the marketability of the project is fatally compromised if the western or eastern portions of the project are removed. This is particularly focused on the market-place factors suggesting two full service golf courses are necessary to make the project viable. From a market demand standpoint the proposed project cannot consist of either the eastern portion of the project or the western portion of the project site. The project must make an approach to the broadest segment of the market. The project must be of sufficient scale and quality to make a recognizable impact of the target market's impression of the area. The project must offer a variety of activities and facilities to accommodate all members of the family and all levels of proficiency at the various activities. These statements have been consistently supported by various land use and economic analyses of the proposed project performed by various experts in resort development, particularly resorts that involve golf. The analyses found in Appendix 27 that contain these findings are summarized below.

Over the recent decades, the Catskill Region has not enjoyed a similar reputation as a desirable destination for significant numbers of potential tourists from the New York metro region. From a marketing standpoint, it would be unwise to select a single socio-economic segment of the potential market. The current plan involving a 3 ½ star family hotel and a 5 star luxury hotel targets both the large population segment in the middle of the market and the largest disposable income segment at the top of the market. This strategy is consistent with the HR&A "West of Hudson Development Study" previously discussed in Section 1.3.2 that states that "expansion of the tourist economy (of the NYC watershed) demands an adequate supply of high quality facilities serving a range of target markets."

The National Golf Foundation (NGF) Consulting, Inc. performed an analysis of the proposed project. NGF is a specialized consulting group that provides assistance to clients regarding the feasibility of potential development projects. The National Golf Foundation has long been recognized as the US golf industry's primary source for golf business information because of their vast golf-related databases and extensive experience in consulting to the golf industry.

The NGF's annual surveys throughout the country ascertain the habits of golfers and the basic operational characteristics of golf facilities. Among the key aspects of NGF's golf facility research is the industry standard classification of golf facilities, including golf resorts. It is clear from NGF Consulting research and experience that the most successful golf resorts tend to include multiple golf courses, each with distinguishable design and identity characteristics, that can serve a wide range of golfer skills and desires. The following is a summary of NGF's findings as they relate to the proposed project.

"As discussed the appropriate number of golf courses to be included in a new resort is dependent on several factors. In examining each of these factors as they relate to the proposed Crossroads resort proposal, each factor appears to indicate that more than one golf course is warranted in the overall master plan. First, the proposed facility is in immediate proximity to the New York Metropolitan area, which NGF Consulting data indicates is the most undersupplied golf market in the country. This proximity has made attraction of these underserved golfers a key element of the overall Crossroads plan and handling these golfers during limited peak demand periods will be a key success issue for the new Resort.

The variety of offerings at the proposed Resort is consistent with the offerings of several competing resort properties in the area, many of which have two or more golf courses. Further, the program and marketing plan for the proposed project is consistent with a high golf orientation and is expected to include a significant corporate golf outing and event component. As these programs will be key in the overall marketing and potential success of the proposed facility, providing an adequate inventory of premium, peak-demand tee times appears to be a critical element in the overall success of the Crossroads Resort project.

Based on the NGF Consulting examination of the feasibility and business plan documents provided by Crossroads, coupled with our extensive experience in new golf facility consulting, NGF Consulting is of the belief that a minimum of two golf courses is not only warranted for the Crossroads resort concept, but will be critical to the success of the overall development. Put as simply as possible, without an adequate inventory of golf tee times the lodging components cannot be filled, and without filling the lodging components the recent efforts to improve visitation in this local area cannot be sustained."

Brian McCallen, Senior Editor of Golf Magazine, Senior Travel Editor of Golf Magazine and author of "Top 100 Golf Courses You Can Play" and "Golf Resorts of the World" has commented extensively in his letter dated August 10, 2001 on the desirability of

multiple courses in a destination resort. Fully 87% of the courses listed in the "Top 100 Golf Courses You Can Play" have an excess of 18 holes and virtually all of the resorts in "Golf Resorts of the World" have in excess of 18 holes. Mr. McCallen's letter including his warm assessment of the economic prospects of the Belleayre Resort as proposed is included in Appendix 27.

In addition to the NGF and McCallen assessments of the need for more than one golf course, Gail Flannigan Associates, with marketing experience for golf destinations of over 25 years, also provided input on the proposed project. Ms. Flannigan concurred that more than one golf course was necessary, especially with related conference components of the proposed project. The following is a portion of Gail Flannigan Associates' assessment of the proposed project. (The full assessment is included in Appendix 27, "Fiscal and Marketing Information.")

"The most successful golf resorts are those which offer a minimum of 36 holes of golf – a fact that marketing studies have contributed to the fierce competition among all resorts to garner the very valuable meetings and incentive industry – estimated at upwards of $200 billion worldwide.

Also, from a practical perspective, if a large group has limited time during meetings to play golf, it is extremely desirable to have more than one course in order to do "shot gun" starts. Thus, the attendees can play at the same time and return to the meeting quickly. Large groups who are staying for several days also enjoy the variety of playing a different course on a different day."

Ms Flannigan's conclusions are supported by further communication from Mr. Peter B. Redfield, President of Events Enhancement of West Norwalk, Connecticut, a major meeting and conference organizing firm.

Edwin McMullen, Senior Partner of E.H. McMullen & Associates, past chairman of the American Resort Development Association, as well as a member of the Resort Development Council to the Urban Land Institute has also reviewed the scope of the proposed project. Mr. McMullen has been a developer of large scale mixed use resort real estate developments in Florida, California, Nevada, Hawaii, Colorado, Arizona and South Carolina as well as in Mexico, Canada and the Caribbean. Mr. McMullen, in his review of the project, states that "thirty six holes of golf is the absolute minimal to create the overall resort you have planned" and "no major resort developer is likely to demonstrate real interest in a project that has less than 36 holes of golf."

C. Financial Analysis

As set forth above, the marketability and demand-based viability of the proposed project requires the full breadth of project components, including both hotels to fully cover the marketplace from a 3 to 5 star hotel, two golf courses, and the time share units. As analyzed by the consulting arm of the Hotel Appraisals, LLC (HVS Consulting Services),

this market-driven need for all components to be considered as an integrated whole, is also reflected in the financial performance of the proposed project (see Appendix 27).

HVS is the leading national consulting firm providing appraisal and financial consulting services to the hotel industry. Their report examines the future financial performance of the proposed development under a variety of scenarios that enable a comparison of the proposed full development to that of reduced scale scenarios that reflect the *East or West Development Alternative.*

HVS examined the potential development of the Belleayre Resort by examining detailed estimates of initial project costs and future revenues and expenses once the Resort was operational. By relating the financial performance of the Resort (i.e., net income after expenses) and then relating this performance to the initial cost of the development, the project's return on initial investment can be measured. HVS applied the industry standard real estate evaluation technique known as the "Internal Rate of Return (IRR)" which determines the ratio of aggregated present value of future net income (for a 10 year period) over total development costs. The resulting ratios (typically expressed as a percentage figure) are then evaluated against industry typical yields that would be expected for a specific type of real estate project.

The first step in the analysis was to carefully define and determine the construction costs, income projections and operating projections for the project components. The analysis specifically looked at the two hotels, the golf courses, and the detached lodging units (club membership and timeshare). This enabled the study to evaluate five key scenarios for which scenarios 4) and 5) reflect the *East or West Development Alternative:*

1. All four property components constructed (The Proposed Action);
2. Elimination of the golf club at Wildacres
3. Elimination of the country club at Big Indian
4. Elimination of all of Wildacres
5. Elimination of all of Big Indian

Development costs considered in the analysis are based on those presented and used in other sections of the DEIS. Net income is the gross revenues less all fixed and operating expenses. The HVS study provides detail projection of income based on all revenue producing components of the project (i.e., room charges, food, golf, spa, retail sales, conference fees) applying regionally adjusted industry benchmarks in terms of rates, occupancy, and golf rounds played. Expenses, also benchmarked to industry standards, included fixed costs (i.e., property taxes, insurance, operating reserves) and variable operating costs (including labor, supplies, marketing, administrative, fees, and others). Income and expense streams over the 10 year analysis period were adjusted based on historical inflation trends as calculated by the Consumer Price Index and an average rate of 3 percent per year was utilized.

For each of the scenarios other than the full project, the study examines how reductions in development elements affect the future performance of the facility. These include

variations in revenue opportunities (i.e., no golf course revenues) or in the occupancy or other characteristics of visitors and guests. Annual operating expenses also vary considerably by the elements eliminated and by the reduced fixed costs (such as no property tax increases on the east or west tract if it remains undeveloped. Development costs (which are the base value of the IRR calculation) clearly vary by the degree that project elements are eliminated, particularly given the significant investment in infrastructure and road development.

It is noted in the HVS report that the detached lodging units are analyzed separately as distinct from the hotel and golf course projects based on their unique real estate development characteristics. Essentially, the detached lodging units are only viable if the golf courses and other facilities are developed, so they are tied to the success of the other project components. However, the detached lodging units alone do not adequately support the golf facilities which, as noted above, require the demand generated by the hotels, day users, country club members, and detached lodging patrons. From a financial performance standpoint, they are also distinct in that the development costs are recouped on the initial sale of the units and then more marginally on the subsequent but smaller income and expenses associated with managing the properties on behalf of the future owners. Thus, detached lodging units reflect more the direct relationship of sales price to construction prices (which also makes the units very sensitive to construction cost fluctuations) and as a result, require a proportionately higher IRR to be considered a viable real estate project.

Table 5-3 presents a summary of the financial IRR analysis conducted by the HVS Consulting group. As shown in the table, for the key components of the project (exclusive of the detached lodging units) only the proposed project yields an IRR sufficient to attract equity investment and to secure financing. It is important to note that IRR cannot be compared to typical consumer investment returns such as bank interest rates which don't reflect long term risk factors and the balancing of equity and debt necessary undertake real estate development.

Table 5-3
Summary of Financial IRR Analysis

Project Scenario	Calculated Internal Rate of Return	Industry Threshold of Viability	Comment
1) Proposed Project (exclusive of detached lodging units)	14.7%	14%	Generally meets the industry threshold for a financially sound project. Addition of detached lodging units add to overall viability.
2) No golf @ Wildacres (exclusive detached lodging units)	8.3%	14%	Would not meet threshold, would not generate sufficient return to attract equity investors or financing. Addition of detached lodging units would not add sufficient viability to overcome low IRR
3) No country club @ Big Indian (exclusive of detached lodging units)	8.3%	14%	Same as above
4) No Wildacres (exclusive of detached lodging units)	8.4%	14%	Same as above, slightly higher IRR based on reduced development costs
5) No Big Indian (exclusive of detached lodging units)	10.7%	14%	Same as above, higher IRR based on reduced development costs Addition of detached lodging units would still not be sufficient to overcome lower IRR.
6) Detached Lodging Units @ Wildacres	33.5%	25%	Well exceeds industry threshold
7) Detached Lodging Units @ Big Indian	41.6%	25%	Same as above
Source: "Economic Evaluation: Belleayre Resort at Catskill Park" HVS Consulting Services, September 2002			

Based on this financial analysis as well as their in-house market data and review of other documents prepared for the Belleayre Resort project, the HVS Consulting study concludes that the proposed project – namely, full development of all project components – is the only feasible and viable approach. This is based on the following findings:

1. Development of 36 golf holes is arguably the single most critical element of the project program.
2. Critical mass is essential to attracting sufficient patron demand and market awareness for the Resort. This is critical to overcome the current limitations of the surrounding area.

3. Economies of scale generated by the operating efficiencies of co-operatively operating the two facilities is important to providing enough expense sharing contributing to the overall feasibility of the project.
4. Elimination of market segmentation, thereby allowing for both middle and top elements of the target marketplace to create customer base.

D. Conclusion

The *East or West Alternative* is not considered a reasonable or feasible alternative based on the information on market and financial viability summarized above and found in their entirety in Appendix 27 of the DEIS. It is unlikely that this alternative would ever attract sufficient equity investment or financing or, if built, would be marginally performing or scaled back to a substantially lower quality development without the integration of well designed and high performance environmental standards.

Further, based on the extensive investment in design details and mitigation measures to minimize or avoid adverse impacts associated with full development of the project, the need for further consideration of the *East or West Alternative* has not been established.

5.3.5 Limitations Affecting Alternatives

The primary factor limiting alternative development scenarios is topography. The components of the project that require the greatest amount of land with suitable topography are the two golf courses. Siting two golf courses together on either the eastern area of the proposed project or the western side of the proposed project is not feasible given the slope constraints of the overall project site. While it is true that at one time during the planning phase of the project there were two golf courses being given consideration on the western portion of the project site, the grading necessary to construct the second golf course would have been quite extensive. For instance, a portion of the once-considered second golf course in the western portion of the project site would have partially consisted of lands comprising the former Highmount Ski Center. The grading necessary to create golf holes from ski trails would have required extensive cuts and fills on already steep slopes, creating benches in the existing topography, rather than utilizing existing topographic benches as proposed for the Big Indian Country Club in the eastern portion of the project site.

As discussed previously, another limitation affecting potential alternatives is the availability of privately owned lands in the vicinity of Belleayre Mountain Ski Center. With almost ¾ of the Town of Shandaken owned by either the State of New York or the City of New York, alternative locations or alternative layouts are limited.

5.3.6 Additional Golf Courses

Among the alternatives considered was an alternative that included a total of four eighteen hole golf courses.

In addition to the proposed Highmount Golf Club and the Big Indian Country Club, an additional 18 hole golf course was located on lands comprised of a portion of the Highmount Ski Area, the area currently proposed as Highmount Estates, and also the lands further to the west that are now proposed to remain undeveloped. Figure 5-9," Third 18-Hole Golf Course (Not Proposed)", illustrates the location of this additional golf course.

The fourth eighteen hole golf that was under consideration at one time was a par three course proposed to be located at Belleayre Highlands. One of the earliest alternative designs for Belleayre Highlands incorporated a contingency plan for ski trails should Belleayre Mountain expand to the east. Ski trails were incorporated into this design so that skiers would start on State lands south of Belleayre Highlands, ski through Belleayre Highlands and then down into Pine Hill. The 18-hole par three golf course made use of the gentler slopes on the ski trails on Belleayre Highlands. Figure 5-10, "Fourth 18-Hole Golf Course (Not Proposed)", illustrates the early concept plan for Belleayre Highlands that included the golf course and the ski trails.

5.4 Alternative Water Supply

Various water supply alternatives were reviewed in order to determine the most feasible, reliable, and available water supply for the Resort. The primary options considered included the following:

1. Development of separate on site sources (individual on-lot wells).
2. Development of consolidated source/s that would serve the needs of large portions of the project "neighborhoods."
3. Development of a combination of individual and consolidated sources.
4. Development of individual and consolidated sources augmented by a neighboring existing public water supply.
5. Water service supplied to the developments, as 'out-of-district-users' by a neighboring existing public water supply.
6. Extension of an existing public water district to include the developments.

The pros and cons of each option were evaluated.

Individual on-lot wells are feasible. Preliminary testing indicated that an adequate supply of groundwater is present throughout the proposed developments. Unfortunately, in order to access the water, the depth of the wells would have to be quite deep.

Private consolidated supplies require that sources of water be of a quantity and at a location that would allow for cost effective and efficient water treatment and distribution. The consolidated sources could be comprised of a series of wells (well field), a series of localized springs, or a combination of the two. This alternative also requires that a transportation corporation be formed and a water supply permit be issued. Lands belonging to Crossroads for the proposed Big Indian Plateau development do contain localized high producing springs and wells. Wildacres Resort, however, does not.

Augmenting a private water supply with a public water supply would also be a viable future alternative for Big Indian Plateau. Many factors would have to be evaluated prior to implementing this approach. They include the quantity of water needed to supplement the private supply, the quantity of excess water available from the public supply, and the cost to purchase the water. This alternative has been rejected for the Wildacres site due to the lack of on-site and/or consolidated private water resources.

Purchasing water as an 'out-of-district-user' from an existing, neighboring public water supply was evaluated extensively for the proposed Resort developments.

Utilizing this alternative for the Big Indian Plateau portion of the developments was rejected due to the current condition and capacity of the existing Pine Hill Water Company (PHWC) treatment and distribution system. Given the current sources of supply, permit, and infrastructure of the PHWC, substantial upgrades and improvements would be required to accommodate the demand of the development. Further, the feasibility of the consolidated supply alternative makes this option less desirable.

For the Wildacres Resort, however, this alternative is quite desirable. Based upon an investigation by Alpha Geoscience (Alpha) of Clifton Park, NY, the neighboring Village of Fleischmanns has an abundance of water resources and while this water system is in need of improvements irrespective of the potential sale of water to the Resort, the lack of private water resources makes this an appealing option. This option is also beneficial to the Village. The revenue generated from the sale of water will provide a new revenue stream that could be used for capital improvements or to pay down debt associated with future water system improvements.

The final alternative that was evaluated was the extension of an adjacent water district. In turn, the developments could be provided water service as 'in-district-users'. Big Indian Plateau and Wildacres Resort would need to apply to the appropriate water districts for a district extension, the district would submit a new public water supply permit application, receive Department of Health and Department of Environmental Conservation approvals, go through the public referendum process, etc.

Although feasible, the required improvements to the PHWC system and the time intensive process together with the availability of the private consolidated system make this a less desirable option.

For Wildacres, this is as viable an option as service supplied by an 'out-of-district-user'. The Village could issue a conditional approval, given the need for system improvements and the district extension process.

As detailed in the following subsections , the two alternatives that were focused upon for further evaluation were private consolidated supplies for the Big Indian Plateau and 'out-of-district-users' for the Wildacres Resort.

5.4.1 Big Indian Plateau

Alpha Geoscience (Alpha) of Clifton Park, NY was hired by Crossroads Ventures to conduct an investigation of the local potential water supplies. The primary objective of the investigation was to determine if any of the local springs/wells had the capacity to meet the water demand of the proposed Big Indian Plateau developments. Alpha evaluated the water supplies by collecting baseline water quality data and quantified the available yields from the springs/wells. To that end, Alpha conducted monthly flow measurements from January 2000 through December 2001 on the various springs/wells located in close proximity or within the proposed development properties. Information regarding the flow measurements and analytical results are included in the report entitled Big Indian Plateau Water Supply, Treatment and Distribution.

"Recommended Standards For Water Works-Great Lakes Upper Mississippi River Board of State Public Health & Environmental Managers" dictates that a potable water source must have a capacity such that, "the total developed groundwater source capacity shall equal or exceed the design maximum day demand" (1.65 x design average day demand) "and equal or exceed the design average day demand with the largest producing well out of service."

During the assessment of potential water sources, Delaware Engineering and Alpha evaluated the primary sources based on the design maximum daily demand of 151,558 gpd, which takes the 20 percent reduction for use of water saving fixtures into account. Further, the back-up or emergency sources were reviewed based on the design average day demand of 91,854 gpd.

The evaluations of the potential water sources are described below.

A. Rosenthal Well #2

A test well was installed northeast of the NYSDEC's Belleayre Beach at Pine Hill Lake on property previously owned by the Rosenthal family. The well was drilled into bedrock and has a total depth of 274 feet. A 72-hour pump test was performed to determine the sustainable capacity of the well. The capacity was found to be 118,080 gpd (82 gpm). This capacity indicates that the well is suitable for use as a primary or back-up source and the well's construction meets the requirements of the "Recommended Standards for Water Works-Great Lakes Upper Mississippi River Board of State Public Health & Environmental Managers."

The pumping test report contained in the Conceptual Design Report Appendix describes a relationship between Well R2 and an adjacent well designated R1 which is to be used for irrigation water. The water level in Well R1 dropped during the pumping test of Well R2. This relationship between the wells does not preclude the use of Well R1 for irrigation and Well R2 for potable water supply. It is anticipated that well R2 will be pumped both individually and simultaneously with well R1. At times, irrigation pond

replenishment is anticipated to coincide with potable water demand, resulting in the pumping of the wells simultaneously.

A Simultaneous Test of wells R1 and R2 was performed to better characterize the nature of the observed relationship between the water resources. Specifically, the combined well yield, aquifer response to pumping both wells simultaneously and water quality were analyzed. The wells were pumped for 72 hours at average rates of 57 gpm and 71 gpm for wells R1 and R2 respectively. Pumping at these rates did not affect Birch Creek and the water in R2 was deemed to be of potable quality based on laboratory analysis. Simultaneous Testing demonstrated that well R1 is capable of sustaining a long term irrigation pond replenishment rate of 57 gpm and well R2 is capable of sustaining a long term average daily potable demand of 64 gpm without adversely impacting neighboring water supplies and surface water bodies.

Part 5 analysis of Well R2 water indicates that it is suitable for use as a drinking water supply and will require treatment for both corrosion control and to address taste and odor associated with the presence of sulfur in the water in addition to disinfection. The slightly corrosive nature of the water and the presence of sulfur do not pose health risks. This well is designated as the primary source of potable water for the Big Indian Plateau development.

B. Silo A Spring

Silo A is located on Bonnie View Avenue, southwest of the Hamlet of Pine Hill and approximately 1,600 feet northwest of the Belleayre Highlands development, at an elevation of 1,660 feet AMSL and approximately 700 feet downgradient of Belleayre Highlands. Silo A is owned by Crossroads Venture, LLC.

Silo A was one of the springs monitored by Alpha. This monitoring was performed from January 2000 through December 2001. The values of October through December 2001 represent measurements during a statistically defined drought. The results of the monitoring indicated a sustainable capacity of 99,792 gpd (69 gpm) during drought conditions. This source has a capacity sufficient to be either the primary or back-up potable water source for Big Indian Plateau.

The water quality analytical results reveal that the water will require minimal treatment for disinfection and pH adjustment purposes. If this source is utilized, the spring water will be collected and protected from potential pollutants by constructing a reinforced concrete basin (similar to a large diameter manhole with an open bottom) over the source. This water source is designated as the backup source for the Big Indian development.

C. Upper Spring (Woodchuck Hollow Spring)

The Upper Spring is located approximately 1,400 feet southwest of the intersection of Woodchuck Hollow Road and Depot 'Station' Road, at an elevation of 1,830 feet AMSL, on lands owned by Crossroads Ventures, LLC. The State of New York owns all the

immediately surrounding lands. The owner of the spring has a conveyance easement through the State lands to access the waters.

This spring was monitored from June through December 2000 and again from April through October 2001. The August 2001 flow measurement was 12 gpm (17,280 gpd). This value alone does not have the required capacity necessary to meet either the primary or back-up potable water source. This source is not proposed for use to supply water to the Big Indian Plateau development.

D. Silo B Spring

The Silo B Spring is located approximately 300 feet southeast of the Bonnie View Avenue and Depot 'Station' Road intersection. This spring was formerly owned by The Silk Road Organization NY, Inc., the managing member of Crossroads Ventures, LLC. Silo B has been sold to the Town of Shandaken and is now an asset of the Town's Pine Hill Water District.

The production capacity of this spring was measured by taking flow readings from the Silo B 4-inch pipe and the Silo B overflow and adding them together. The month that demonstrated the lowest Silo B flow was August 2001. Therefore, 27.5 gpm was used for the analysis. This source alone does not meet the required capacity necessary to be the primary or back-up potable water source for Big Indian Plateau.

Additionally, the water quality analytical results reveal that the water will require minimal treatment for disinfection and pH adjustment purposes. A reinforced concrete basin would be constructed over the source to protect and preserve the water quality.

E. Railroad Spring

Railroad Spring is located approximately 500 feet southwest of the Bonnie View Springs, along the abandoned railroad tracks and between Crystal Spring Brook and Cathedral Glen Brook. Railroad Spring is on Ulster County property.

This spring was monitored from May through December 2001. This spring ran dry during the drought in July of 2001. Should this source be considered for supplementary use, the water quality analytical results reveal that the water will require minimal treatment for disinfection and pH adjustment purposes and a reinforced concrete basin would be constructed over the source to protect and preserve the water quality. This source is not proposed for use to supply water to the Big Indian Plateau development.

F. Rosenthal Well R1

A second well was installed on the same property as the well designated R2. Well R1 was installed approximately 170 feet north of Well R2 and is also a bedrock well and is 224 feet deep. A subsequent 24-hour pumping test indicated that the well has an

individual well capacity of 100 gpm or 144,000 gpd. This capacity demonstrated the well's potential to meet the primary or back-up source capacity criteria.

Step rate and constant rate pump test of water production from well R1 were performed to evaluate the well's drawdown characteristics, performance, water quality and yield. Well R1 was pumped for 72 hours at an average rate of 77 gpm. Pumping of well R1 at this rate did not affect Birch Creek. Laboratory analysis of water quality measures indicated that well R1 is suitable for use as a source of irrigation water. The constant rate test of well R1 demonstrates that well R1 is capable of sustaining a long term pond replenishment rate of 57 gpm without adversely impacting neighboring water supplies and surface water bodies.

If identified as a back-up potable water source, the well would be upgraded and tested to adhere to the "Recommended Standards for Water Works-Great Lakes Upper Mississippi River Board of State Public Health & Environmental Managers." This well will supply irrigation water for the "Big Indian Resort and Spa/ Big Indian Country Club" development. Well information is provided in Exhibits H and I of Appendix 7, "Water Supply Report.".

G. Existing On-Site Wells

The historic water supplies for the existing developed areas of the site consisted of wells and springs. The well located adjacent to Brisbane Mansion is estimated to be approximately 15 years old. The capacity is not known. A spring fed concrete reservoir with the capacity to hold 22,440 gallons of water is located south of the mansion. Another well is the 'Rashid' well, which is located along side of Gunnison Road and is a 6-inch diameter well, 475 deep that produces 1.5 gpm.

An additional well, the 'mid-road' well, was installed in shale in October of 1999. The 6-inch diameter well was constructed southeast of the main entrance at an elevation of 1700 feet AMSL. This well was installed to a depth of 698 feet below ground surface and yields 6 gpm.

These wells could be utilized to meet localized landscape irrigation needs.

H. Pine Hill Water Company

The Pine Hill Water Company (PHWC) owns a series of three springs known as the Bonnie View Springs (#1-#3) (on a 0.787-acre parcel) and Depot 'Station' Road Spring (on a 0.6-acre parcel). In addition, the PHWC owns two drilled wells and leases a third bedrock well from an adjacent property. PHWC also owns two reservoirs, known as the Bonnie View Reservoir and the Depot 'Station' Road Reservoir, and a 0.9 acre parcel of unimproved land.

The neighboring Hamlet of Pine Hill receives their potable water from the PHWC and specifically the Bonnie View Springs. The three springs are situated at the end of Bonnie

View Avenue parallel to Crystal Spring Brook. They are located at an elevation of approximately 1,550 feet AMSL. The water generated at each of the three springs is directed to the PHWC treatment system. The water receives treatment for corrosion and disinfection prior to being discharged into the Pine Hill distribution system.

The Bonnie View Springs were one of the sources monitored by Alpha. The flow could not be monitored directly due to the source protection covering the spring, known leaks in the collection piping and overflow losses of the spring and PHWC reservoir. Therefore, the maximum potential spring production was calculated by measuring the flow of Crystal Spring Brook below the spring minus Crystal Spring Brook flow above the spring and adding Bonnie View side ditch flow (overflow), Pine Hill Water Supply flow, and Pine Hill water supply overflow. Alpha compiled the flow measurements for each of these locations individually. Delaware calculated the maximum potential spring production from those values. In order to provide a more conservative estimate of the springs production, the associated flow measurements for the month of August (low flow month 2001) were used. The conservative flow rate used was 85 gpm (125,280 gpd).

Depot 'Station' Road Spring is located approximately 1,700 feet southeast of the Bonnie View Springs, adjacent to where Bonnie View Avenue intersects Station Road. Depot 'Station' Road Spring and its adjacent reservoir are currently in a state of disrepair. Neither of the assets are connected to the existing water supply system or operational, nor have they been for some time. This spring has the potential to produce a conservatively estimated 39,600 gpd (low flow August 2001). This value is based on subtracting the flow from the adjacent Station Road ditch above the spring from the flow below the spring and subtracting out Silo B production. The spring could be accessed in a relatively short period of time to temporarily serve the Hamlet in times of emergency by utilizing a portable pump, a generator, overland pipe, and temporary casing. Use of this source in an emergency would also require a boil water order since no treatment would be provided.

An 'Application for Modification of a Public Water Supply Permit' was submitted to the NYSDEC in April 2001. The permit application requested approval for the taking of up to 210,000 gpd of water. This total taking provides for both the demand of the current system customers (average 75,407 gpd in 2001) and reserve capacity for the system. A Water Supply Permit was issued on September 12, 2002 based on this application. The permit is approved with a total taking of 211,000 gpd. Therefore, the PHWC has an excess capacity of up to approximately 135,593 gpd (211,000 gpd total taking minus 75,407 gpd average use). This value is sufficient to meet the back-up potable water source requirements of the Big Indian Plateau development. As required by Shandaken Zoning, inquiries as to the availability of PHWC as a source of supply to the development were conducted. The PHWC has determined that it will reserve its excess capacity at this time and will not approve any application to serve the development.

The assets of the PHWC were recently sold to the Town of Shandaken; therefore, the water resources of the PHWC as well as the Station Road Well and Silo B Spring are now owned by the Town's Pine Hill Water District.

I Proposed Water Supply Sources

Upon analysis of the potential sources of potable water supply, Rosenthal Well R2 (118,080 gpd) and Silo A (99,792 gpd) are proposed to provide the potable water system for the Big Indian Plateau development.

Utilization of this well and spring meets the potable water source criteria set-forth in the "Recommended Standards For Water Works-Great Lakes Upper Mississippi River Board of State Public Health & Environmental Managers."

Rosenthal Well R1 is proposed to meet irrigation demands along with effluent from the Big Indian wastewater treatment plant. Captured stormwater will also be used for irrigation purposes.

Rosenthal Well R2 is located down gradient of the proposed development, near the NYSDEC Belleayre Beach at Pine Hill Lake on Friendship Manor Road in Pine Hill. The immediate area near Well R2 is undeveloped. The well is located 70 feet from Birch Creek.

Silo A spring is located in a relatively secluded area adjacent to secondary roads (Bonnie View Avenue that services the PHWC, Depot 'Station' Road, and Woodchuck Hollow Road). Immediately up-gradient to the south and west are heavily forested State lands. Approximately 2.5 miles to the southwest is the State owned and operated Belleayre Mountain Ski Center. The closest surrounding developments are residential housing downgradient and to the north in Pine Hill and the proposed Belleayre Highlands development portion of Big Indian Plateau, which is 0.7 miles to the southeast. Silo A is located approximately 150 feet north of the historically utilized railroad tracks.

To ensure that the spring source will not be compromised by potential pollutants, a reinforced concrete basin is proposed to be constructed over and around the source. It will be constructed pursuant to design details set-forth in standards established by the NYSDOH, found in the "Rural Water Supply" handbook. An additional advantage of the spring location is the proximity to the aforementioned roadways. This allows easy access to the pumps and treatment equipment that will be needed to transfer and treat the water for the Big Indian Plateau during operation and maintenance activities.

Source protection for both Well R2 and Silo A are anticipated to be conditions of a water supply permit. Source protection will include measures to prevent pollution of the ground or groundwater by direct ownership, protective easements or use restrictions in the immediate area surrounding each ground water source. The areas designated for source protection will be protected from pollution by surface waters through the construction of suitable diversion ditches or embankments. In addition, Well R2 is grouted and sealed to prevent surface water intrusion and the collection box for Silo A spring will be similarly protected from surface contamination and/or vector intrusion. Measures to limit access to the groundwater source sites such as fencing and locked well/spring housing structures are planned.

Use of these selected sources will not diminish the quality or impact the production of the spring waters from the PHWCs' Bonnie View Springs (#1-#3), Crystal Spring Brook or Birch Creek as demonstrated in the Surface Water and Ground Water Assessment for Big Indian Plateau that is contained in Exhibit G of Appendix 7 entitled "Big Indian Plateau Water Supply, Treatment and Distribution."

5.4.2 Wildacres Resort and Highmount Estates

"Recommended Standards For Water Works-Great Lakes Upper Mississippi River Board of State Public Health & Environmental Managers" dictates that a potable water source must have a capacity such that, "the total developed groundwater source capacity shall equal or exceed the design maximum day demand" (1.65 x design average day demand) "and equal or exceed the design average day demand with the largest producing well out of service".

During the assessment of potential water sources, Delaware Engineering evaluated the primary sources based on the design maximum daily demand of 180,358 gpd, which takes the 20 percent reduction for use of water saving fixtures into account. Further, the back-up or emergency sources were reviewed based on the design average day demand of 109,308 gpd.

The following potential water sources were evaluated:

A. Village of Fleischmanns Water Supply

The neighboring Village of Fleischmanns receives their potable water from a combination of springs and wells. The springs are located on the north-facing lower slopes of Belleayre Mountain to the southeast of the Village. The springs are in the vicinity of the Delaware and Ulster railroad tracks, approximately 200 feet east of a north flowing tributary to Emory Brook. Two of the wells (Well #1 and Well#2) are located along Emory Brook on the east end of the Village. Well #3 is located near the northern base of the Belleayre Mountain hillside, approximately halfway between the springs and NY Route 28.

Water from the springs is accumulated in an enclosed 180,000-gallon reservoir structure. Well #3 water is utilized to maintain an appropriate water level in the reservoir. The reservoir feeds the Village system. When higher demands are required, Well #2 is put into service. Well #1 is currently out of service due to the need for minor structural repairs, however, it can be placed in service easily once repairs are effected.

Alpha Geoscience (Alpha) of Clifton Park, NY was hired by Crossroads Ventures with the permission of the Village of Fleischmanns to conduct an investigation of the Village of Fleischmanns' water supply. The primary objective of the investigation was to determine the total capacity of the Village water sources. In turn, it could be determined if capacity exists to meet the water demand of the proposed WRHGC/ Highmount Estates

developments. Alpha evaluated the Village's water supply by collecting baseline water quality data and quantified the available yields from the springs and the three wells. Additionally, Titan Drilling of Arkville, NY (the Village of Fleischmanns' well contractor) and the NYSDOH were contacted to gain insight on the existing wells and the regulatory status of the Village's system, respectively.

Specifically, the springs were monitored once a week for one month in late 2000 and again in December of 2001 at drought stage. Monitoring included flow measurements and field analysis of the water quality. Samples from Catch Basin #1 and #2 and Well #1, #2, and #3 were sent to a laboratory for analysis. Step-drawdown pumping tests were conducted on Well #1 and #2. A constant-rate pumping test was then conducted on Well #2 based on the results of the Well #2 step-drawdown test. Well #3 capacity was quantified by observing pumping cycles, well discharge, village water use records, and spring flow measurements.

Analytical results from the water quality investigation and NYSDOH file review are incorporated in a Table in Appendix 7 entitled "Wildacres Resort and Highmount Golf Club/Highmount Estates Water Supply, Treatment and Distribution." The Table compares the results to the maximum contaminant levels (MCL's) set-forth in the drinking water standards.

The components of the Village's water supply were found to have the following conservatively estimated capacities:

Well #1:	94 gpm (135,360 gpd)
Well #2:	180 gpm (259,200 gpd)
Well #3:	60 gpm (85,920 gpd)
Springs:	64 gpm (92,160 gpd)*

*Measurement from December 2001 drought.

In recent years, the Village of Fleischmanns has treated an average of 225,000 gallons of water per day. Given the population and the number and type of commercial uses within the water service area, this value has been viewed as excessive by the Village's water system operator as well as the New York State Department of Health. The corrosive nature of the Village's water supply requires treatment prior to distribution to avoid leaching of lead and copper from aging service connections and plumbing within buildings.

In late August of 2002, the Village of Fleischmanns repaired several major leaks in the water distribution system identified as part of a survey conducted to locate the existing water lines. Daily log sheets completed by the water system operator (included at the end of the design report entitled *Wildacres Resort and Highmount Golf Club/ Highmount*

Estates Water Supply, Treatment and Distribution in Appendix 7) show that after the major leaks were repaired, the amount of water treated by the Village to serve all customers including residences and commercial establishments dropped to an average 55,916 gpd. Therefore, given an available capacity of approximately 572,640 gpd, and a Village demand of 55,916 gpd on average, the remaining water resource is approximately 516,724 gpd. If the Village provides raw water from its existing sources to the Wildacres Resort, the Resort's average day demand of 109,308 would leave 407,416 gpd of water available to the Village for additional allocation or growth.

Notwithstanding the aforementioned repairs to the water mains, the Village water system is still in need of additional improvements. Those improvements include the need to rehabilitate and reconnect the two out of service groundwater wells, improve treatment facilities, rebuild and secure the spring water collection system, and incorporate additional storage in the system, as well as continuing repairs and maintenance to the distribution system. The Village has applied for subsidized funding from the Drinking Water State Revolving Fund (DWSRF) to finance the needed water system improvements and expects to receive a confirmation letter discussing the terms of the project financing during 2003. These upgrades and repairs the Village water system would be conducted and funded by DWSRF regardless of the proposed Wildacres Resort project and request for water.

The Wildacres Resort could receive raw water from the Village of Fleischmanns existing sources, which would then be pumped to a treatment facility located on Crossroads Ventures land, treated to reduce corrosivity and disinfected, then pumped to a storage tank located at a high elevation on the Resort lands and through the distribution system for use by patrons and employees of the Wildacres facilities. The engineering, permitting, construction and equipment necessary to pump raw water from the Village system to the Resort would be paid to the Village by the Resort. It has been assumed that the Village of Fleischmanns would treat the Resort as an "out of district" water user and bill the Resort for the water supplied accordingly. Since the Village would not be treating the water, the on-going cost to supply the water to the Resort would be minimal (e.g., power to operate pumps), providing an opportunity for the Village to gain revenue from the sale.

As an alternative to the Resort being supplied from existing Village-owned sources, a new groundwater well could be established by the Village, the capital cost for which would be paid by the Resort. A hydrogeological evaluation of the development of a new well near the existing Village Well #3 indicates that the well would provide a water supply that would not impact the Village's springs or Emory Brook (See Appendix 7, Exhibit D). Should such a well be drilled, an evaluation of the well would be conducted including pumping tests to assess potential impact to the existing area water resources.

The alternative of a new well source is offered for several reasons. While it has been demonstrated that the Village of Fleischmanns has more than enough excess water capacity to supply both residents and businesses within the existing service area and the Wildacres Resort, a new groundwater source developed to serve the Resort exclusively

would leave the Village with all its current water resources at its full discretionary disposal. In addition, it may be easier for the Village to supply raw water, maintain and monitor Resort water use if the source of supply is separate from the existing Village system. The Wildacres Resort would still require an interconnection to the existing Village system in order to have a "back-up;" however, the connection could be valved and opened either automatically or manually during an emergency.

A Water Budget Analysis was used to evaluate pre-development and post-development infiltration rates. The analysis indicates that the post-development infiltration rate will minimally exceed the pre-development rate. This effect is caused by the positive infiltration characteristics of the golf course outweighing the negative infiltration characteristics of the post-development impervious surfaces. The results of the Water Budget Analysis indicate that the use of the Village water sources to supply the Resort combined with the effects of the golf course and impervious structures will not limit, and will potentially increase, the amount of water available to recharge those water resources.

B. Highmount Spring

Alpha also conducted monthly spring flow measurements from January 2000 through September 2000 on various springs located in close proximity or within the proposed development properties.

Highmount Spring was one of the springs monitored. It is located northwest of the former Highmount Ski Area on the south side of Galli Curci Road in Ulster County. The flow measurement recorded ranged from 0.5 gpm in September to 23 gpm in April. The average monthly flow recorded was found to be 9.1 gpm (13,104 gpd). This flow rate is far below the estimated potable demand of 109,308 gpd for the developments. The low flows and the inconsistency make Highmount Spring inadequate as a major potable water source. However, Highmount Spring could contribute to landscape irrigation flow.

C. Wildacres #3 Spring

Wildacres #3 Spring was also one of the springs monitored by Alpha during 2000. It is located approximately 500 feet due east of Highmount Spring adjacent to a stream. The flow measurement recorded ranged from 4.8 gpm in September to 17.5 gpm in March and April. The monthly average flow recorded was found to be 9.8 gpm (14,064 gpd). This flow rate is a fraction of the estimated potable demand of 109,308 gpd for the developments. The low flows and the inconsistency make Wildacres #3 Spring inadequate as a major potable water source. As with Highmount Spring, Wildacres #3 Spring could provide landscape irrigation flow.

D. Existing On-Site Wells

The historic water supplies for the existing developed areas of the site consisted of two wells. One of the wells is located 400 feet northwest of the hotel structure (Marlowe Mansion) and the second one is on the south side of the hotel. The capacities of these

wells are 4 gpm and <2 gpm, respectively. Another bedrock well, the 'Rashid' well is located along Gunnison Road. It is 6-inch diameter well, 475 feet deep that produces 1.5 gpm.

Two additional bedrock wells have been installed. A 6 inch diameter well, the 'pool well', constructed northeast of the hotel in October 1999 was set to a depth of 498 feet below ground surface and has a capacity of 25 to 30 gpm. In November 2000, a second 6-inch diameter well, the 'Janis East' well, was installed adjacent to Van Loan Road above the railroad tracks. This well was installed to a depth of 698 feet below ground surface and yields 30+ gpm.

All the wells discussed could be utilized to meet localized landscape irrigation needs.

E. Proposed Water Supply Source

The results of the Alpha investigation demonstrated that the Village of Fleischmanns has a more than adequate existing supply of water to meet their needs, their estimated future needs, and the raw water needs of the WRHGC/Highmount Estates developments. Alternatively, raw water could be supplied to the Resort by the Village from a new well.

Since the Village will have no capital expenses associated with the provision of the water and very little operation and maintenance on the facilities required to supply the Resort raw water, the revenue generated by water sale to the Resort will be excess to the Village and should assist in creating a positive cash flow for the Village's water system. The report entitled "The Wildacres Resort and Highmount Golf Club/Highmount Estates Water Supply, Treatment and Distribution" presented in Appendix 7, "Water Supply Report," Exhibit F, includes correspondences between Crossroads, the Village, Delaware Engineering and the New York State Department of Health in support of the Village of Fleischmanns sale of water to Crossroads Ventures.

5.5 Alternative Wastewater Disposal

5.5.1 Big Indian Plateau

Several alternatives have been evaluated for the disposal of wastewater from these proposed developments. These alternatives include: individual subsurface disposal systems; a regional subsurface disposal system to accommodate the wastewater from both portions of the development; subsurface disposal systems with pretreatment units, wastewater treatment plant to serve specific areas of the development; a combination of the above; and installing a collection network to convey all the wastewater to the New York City owned and operated Pine Hill Wastewater Treatment Plant.

A. Alternatives

1. Alternative 1 – Individual Subsurface Disposal Systems

Subsurface disposal systems would be designed and constructed in accordance with NYCDEP regulations stated in, "Rules and Regulations for the Protection from Contamination, Degradation and Pollution of the New York City Water Supply and its Sources, NYSDEC standards set forth in Design Standards for Wastewater Treatment Works – Intermediate Sized Sewerage Facilities (1988)" as well as "Recommended Standards for Individual Sewage Systems" by the Ten States Standards. They would most likely include a grease trap (if wastewater was from a source such as restaurants), septic tank, dosing tank or distribution box and absorption trenches. These systems would vary in size based on the anticipated hydraulic loading.

2. Alternative 2 - Pre-Treatment Systems with Regional Subsurface Disposal

A number of large subsurface disposal fields could be constructed to treat and discharge wastewater from a number of proximal structures. For this project, a specific concern is the introduction of high amounts of nitrogen into the subsurface and the inability of subsurface disposal systems to adequately assimilate the nitrogen. A pre-treatment system could be required by regulatory agencies to reduce the nitrogen loading to subsurface treatment systems by using a biological process to breakdown the nitrogen to nitrates and nitrites. Preliminary treatment utilizes a variety of treatment technologies or methods to partially treat wastewater to remove specified compounds or contaminants. A pre-treatment system would be selected to supplement subsurface disposal methods. Pre-treatment systems are available in a variety of technologies and can be constructed from pre-engineered (package) systems or assembled from components.

Pre-treatment systems require regular operation and maintenance. Electric power is required to operate pumps and controls which adds to the capital and operation and maintenance costs and the degree of difficulty and complexity of operation.

3. Alternative 3 - Consolidated Discharge

The Hamlet of Pine Hill utilizes a state-of-the-art wastewater treatment plant (WWTP) (owned and operated by the NYCDEP) to treat their wastewater. Of the 500,000-gpd permit capacity the WWTP has, Pine Hill utilizes approximately 50,000 gpd plus the Belleayre Mountain Ski Center discharging 35,000 gpd for a total seasonal discharge of 85,000. The WWTP is located 800 feet down-gradient and 2,000 feet away from the proposed Big Indian Resort and Spa/Big Indian Country Club/Belleayre Highlands development. Given the close proximity and the fact the Pine Hill WWTP is designed and permitted to treat wastewater of the same nature as would be generated by the proposed resort developments, discharging all of the development generated wastewater to the WWTP is a viable alternative from an engineering and regulatory perspective. Sewer collection systems would be designed and constructed in accordance with

NYCDEP regulations stated in, "Rules and Regulations for the Protection from Contamination, Degradation and Pollution of the New York City Water Supply and its Sources, NYSDEC standards set forth in Design Standards for Wastewater Treatment Works – Intermediate Sized Sewerage Facilities (1988) as well as Recommended Standards for Individual Sewage Systems" by the Great Lakes – Upper Mississippi River Board of State Sanitary Engineers.

4. Alternative 4 - On-Site Wastewater Treatment Plant

An on-site wastewater treatment plant would be designed and constructed in accordance with NYCDEP regulations stated in, "Rules and Regulations for the Protection from Contamination, Degradation and Pollution of the New York City Water Supply and its Sources, NYSDEC standards set forth in Design Standards for Wastewater Treatment Works – Intermediate Sized Sewerage Facilities (1988) and the Recommended Standards for Wastewater Facilities" by the Great Lakes – Upper Mississippi River Board of State Public Health and Environmental Managers. Treatment of the wastewater through an on-site wastewater treatment plant would likely involve the following processes: preliminary treatment to remove large solids and oil and grease; primary treatment to remove settleable solids; secondary or biological treatment to reduce the organic loading; tertiary treatment to remove suspended solids, phosphorus, nitrogen and pathogens; and disinfection. The size of such a treatment system would vary depending on the hydraulic loading and the level of treatment necessary would vary depending on the effluent discharge permit requirements. The options for discharge of the wastewater effluent are surface discharge to a receiving stream, subsurface discharge to an absorption field, or surface discharge to a holding area for spray irrigation. The option selected will dictate the effluent quality as specified in the State Pollution Discharge Elimination System (SPDES) permit issued by the NYSDEC.

B. Evaluation Considerations of Alternatives

Some of the factors to consider in the evaluation and selection of an alternative for the disposal of wastewater from these developments are:

- Estimated hydraulic and organic loadings (see Section 3.1.1)
- Loading fluctuations
- Influent wastewater quality
- Effluent quality requirements (see Section 3.1.2)
- Surface/subsurface discharge points
- Site conditions (see also Section 3.1.3)
- Constructability

The following sections provide a more detailed discussion of some of the evaluation considerations. By utilizing the information presented in these sections, the treatment alternatives can be compared and assessed for applicability.

1. Estimated Hydraulic and Organic Loading

Based upon the calculated estimates of the hydraulic and organic loading, the proposed wastewater treatment alternative must be capable of handling influent flow, from the Big Indian Plateau development, at a design average flow of 86,772 gpd with a design average BOD_5 of 329.3 lb./dy.

2. Estimated Effluent Quality Requirements

The following are estimated SPDES permit limits. These limits are comparable to other wastewater treatment facilities of similar size. This list was prepared in consultation with the NYSDEC. These parameters would be the design basis if a wastewater treatment plant were proposed.

PERMIT PARAMETER	PERMIT LIMIT
Design Ave. Flow (gallons per day)	86,772
BOD_5 (mg/l)	5
Suspended Solids (mg/l)	10
pH	6.5-8.5
Temperature (°F)	70
Solids, Settleable (ml/l)	0.1
Ammonia (mg/l as NH3)	1.1
Dissolved Oxygen (mg/l)	7
Phosphorus, Total (mg/l)	0.5
Turbidity (95% of the time)	0.5
Turbidity (maximum value)	5

3. Site Conditions

Big Indian Plateau is located in the Town of Shandaken. Per Shandaken Code, these lands are currently zoned Residential District R5 with some sections of R1.5. R5 is described in Article III Section 116-5 C1 of the Code. R1.5 is described in Article III, Section 116-5c3.

The topography of the lands that make up the proposed Big Indian Plateau has local variations in slope degree and direction. However, in general Big Indian Resort and Spa/Big Indian Country Club are located on a plateau at the crest of a hill and the ground surface decreases in elevation to the north, east, and south. The southwest portion of the site is located at the highest elevation, 2,720 feet AMSL. The lowest elevation of developed land will be to the northeast at an elevation of approximately 2,000 feet AMSL. Belleayre Highlands will occupy lands ranging in elevations of 2,175 feet AMSL in the north to and 2,350 feet AMSL in the south.

Based on the soil survey conducted for this DEIS, the Big Indian Plateau site includes mostly areas of shallow and moderately deep, very stony soils formed in glacial till soils that are derived from red shale and sandstone. The Big Indian Plateau site currently contains rock outcrops. Those that are present in the Big Indian Resort and Spa/Big Indian Country Club primarily are positioned from the west to east. For further information, see the DEIS Section 3.6.

Twenty test pits and twelve percolation tests were conducted in November 2000 in various locations throughout the proposed Big Indian Plateau development to further characterize the subsurface conditions. The findings indicated that at every test pit location, the typical boundary condition was an impervious layer (fragipan) at 25 to 35 inches below the surface. The upper layers of soil are made of browner glacial soils that are loamier and "perced". Deeper percolation tests revealed that the underlying soils were made of redder glacial till. These soils are derived from red shale and silt and contain more clay. Flagstone and boulders can be witnessed in the bottom of a majority of the test pits. Seasonal high groundwater elevations could be inferred in three of the twenty test pits (one on Big Indian Resort and Spa/Big Indian Country Club and two on Belleayre Highlands). The shallowest depth to groundwater measurement was 27 inches in Big Indian Resort and Spa/Big Indian Country Club.

Other conditions of the development that influence the alternatives analysis for wastewater treatments methods include the nature of the proposed development and the sources and uses of water resources.

The site layout for Big Indian Resort and Spa, the Big Indian Country Club and Belleayre Highlands encompasses 331 acres of land. The Big Indian Plateau provides a natural boundary to the primary golf-related development and the existing Brisbane Mansion provides a location for the clustering of club membership units. The layout is uncluttered and is designed to follow the natural spaciousness of the plateau. Given this layout, significant green space is planned between and around the facilities

The source of water for the Big Indian Plateau is ground water, with two sources that will be owned and operated as a private water company, serving only the Resort, Country Club and Highlands. This is an important consideration in the evaluation of alternatives for wastewater treatment as some alternatives provide direct recharge to the ground water system, while others provide less direct, but equally important opportunities for reuse of treated wastewater for irrigation. With private water supplies, there are no other users of the water supply, therefore, the resources could be used for irrigation without restriction beyond the demands of the Resort and the NYSDEC water supply permit total taking.

C. Subsurface Disposal Systems

To evaluate whether or not subsurface treatment was a feasible option, site reconnaissance and preliminary soil percolation tests were performed at potential absorption system locations throughout Big Indian Plateau in November 2000. The tests

were conducted according to the standards of the New York State Department of Conservation (NYSDEC) and witnessed by a representative of the NYCDEP. An average percolation rate of 15.75 minutes per inch was calculated from the test results. The fastest percolation rate was 5.25 minutes per inch and the slowest was 27.0.

Based on the NYSDEC standards set forth in "Design Standards for Wastewater Treatment Works – Intermediate Sized Sewerage Facilities (1988)" and the NYCDEP regulations stated in, "Rules and Regulations for the Protection from Contamination, Degradation and Pollution of the New York City Water Supply and its Sources," the range of percolation results of 5.25 to 27.0 minutes per inch fall within the allowable range set by the NYCDEP of 3 to 60 minutes per inch. However, when deeper percolation tests were conducted at some of these same locations, percolation rates exceeding 60 minutes per inch resulted. Soil conditions on the site vary both in terms of composition and depth. It is possible that the actual locations for the absorption systems may have less than adequate soil conditions. In this event, it may be necessary to move acceptable soil from other areas of the site or import them, which provide an acceptable percolation rate.

Many subsurface disposal systems are constructed with modifications to the conventional design to ensure proper percolation rates, such as imported soils and the construction of extended treatment zones. Given the nature of the soils encountered during the preliminary soil tests, subsurface treatment systems can be constructed on site, using proven construction methods that enhance treatment beyond conventional designs. For the Big Indian Plateau, wastewater would be gravity or pressure fed to localized septic tanks then to dosing tanks. The wastewater would accumulate in a dosing tank until the dose volume was reached and a high level sensor activated a pump. The dosing tank pumps would distribute the wastewater to the absorption systems constructed in accordance with the capacity required by NYSDEC standards, NYCDEP regulations, and EPA guidelines.

Absorption trenches would be constructed by placing a layer of soil three-feet thick that extends beyond the field perimeter by five feet on all sides. The soil would have a percolation rate of less than 10 minutes per inch. The soil layer would be constructed by placing site soils in a manner that meets the required percolation rates. A priority is placed on using site soil to the extent possible and then to import soil. The noise and traffic impacts of the trucking of imported soil have been addressed in Appendices 22 "Sound Impact Study" and 25 "Traffic Impact Study." Prior to constructing the trenches, test pads would be prepared under controlled conditions, and a construction quality control plan developed to assure that the trenches constructed satisfy the design percolation rates.

Under this alternative, the three feet of soil under the trench and a five-foot perimeter buffer zone would act as the treatment zone. As the treated wastewater percolates downward from the bottom of the soil treatment zone it would enter the more permeable native soils beneath and enter the local groundwater system. Due to the higher

permeability of the underlying soils, groundwater mounding due to disposal is very unlikely.

If the average flow of 108,465 gpd were used, a total of 120,517 square feet of primary absorption trenches would be required to treat the site wastewater by subsurface treatment. In addition to the 120,517 square feet required for the primary raised absorption trenches, an additional 120,517 square feet would be required as a reserve or back up area. The average flow and area required for absorption field can be reduced by 20 percent, since water saving plumbing fixtures will be used. It should be noted that no one field would receive more than 30,000 gpd of wastewater to avoid triggering additional treatment requirements.

Pre-treatment prior to subsurface discharge is also considered part of this alternative as it may be required by regulatory agencies. The pre-treatment for the Big Indian Plateau would consist of the installation of BioClere or similar biological units after grease separators and septic tanks and prior to discharge to subsurface trenches. BioClere treatment units are packaged trickling filters and would serve to breakdown nitrogen into nitrates and nitrites prior to final treatment through the subsurface fields. The fields would be designed the same as specified for disposal without pre-treatment. The pre-treatment units would add a significant level of conservatism to the wastewater treatment, and would increase the operation and maintenance costs of the overall facilities. In addition, given the potential fluctuations in seasonal flows, operational challenges will exist with maintaining any biological treatment system. The challenges are not insurmountable as proven by the use of BioClere units at many seasonal private camps and homes in the Adirondacks.

D. Consolidated Discharge

Another consideration is the proximity of existing publicly-owned treatment works (POTW) and the availability of treatment capacity at these facilities. The Pine Hill WWTP is located approximately 2,000 feet away and 800 feet down gradient from the Big Indian Resort and Spa/Big Indian Country Club development. The Pine Hill WWTP is designed and permitted to treat wastewater of the same nature as would be generated by the proposed resort developments. The NYCDEP owned and operated plant discharges treated wastewater to Birch Creek. Under a SPDES permit issued by the NYSDEC, the plant is permitted to discharge up to 500,000 gallons per day. Currently, the WWTP is discharging approximately 85,000 gallons per day. If the plant were to accept the design average flow of 86,772 gpd from the Big Indian Plateau, it would still have an excess capacity of approximately 328,228 gpd.

Use of the Pine Hill WWTP would achieve the same results as the construction of an on-site wastewater treatment facility, but with added benefits. Treatment and discharge of the Resort wastewater through the Pine Hill plant would eliminate the need to construct a separate wastewater treatment facility on-site and would eliminate the need for an additional surface outfall within the drainage basin.

In addition, significant control is gained by regulators when all wastewater in an area is treated in one treatment plant. Oversight is accomplished more efficiently. Given the lack of licensed treatment plant operators in the Watershed, the operation of fewer, larger treatment plants makes the best use of the limited personnel resources.

With a design flow significantly higher than the permitted plant flow and the actual flow at less than 6 percent of the permitted flow, the additional flow from the Big Indian Plateau would assist the operators of the Pine Hill WWTP in operating more efficiently and in maintaining permit compliance.

Further, effluent generated by the plant could be used by Crossroads for irrigation purposes during the months of April through October. Although sufficient quantities of water are available to the development to serve the irrigation needs, the use of effluent from the PHWWTP for irrigation is considered an option as it offers an environmental benefit. Effluent would be pumped to a surface impoundment where it would be distributed throughout the golf course. If agreements could be reached with the operators of the Belleayre Mountain Ski Center, this effluent could also be provided to the Ski Center for snow making during the winter months. In discussions with the NYCDEP, Crossroads proposed to pay for the equipment and operation/maintenance costs to pump effluent from the City owned plant to the golf course irrigation ponds at Big Indian Plateau.

Despite the synergy between the characteristics of the wastewater from the proposed Big Indian Plateau and the treatment capabilities of the NYC-owned Pine Hill WWTP, discussions with the NYCDEP during the preparation of this report resulted in the City of New York stating that consolidation of the wastewater flow from the Crossroads development with the Pine Hill wastewater is not allowable at this time due to liability concerns. See Appendix 8, "Conceptual Design Reports for Wastewater Treatment and Disposal," Exhibit D.

E. Wastewater Treatment Plant

Construction of an on-site wastewater treatment facility is a feasible alternative for wastewater treatment. The streams within the developments are considered intermittent. Birch Creek is the closest non-intermittent stream and is located approximately 2,000 feet from the nearest point in the development. Regardless of discharge to an intermittent or non-intermittent stream, the Rules and Regulations for the Protection from Contamination, Degradation, and Pollution of the New York City Water Supply and Its Sources will require treatment to intermittent stream standards, which is achieved through design and construction of a sewer treatment plant with primary, secondary and tertiary components. Tertiary treatment, which accomplishes filtration, must be accomplished through a NYCDEP approved technology. Design and construction of an on site treatment plant for the Big Indian Plateau is feasible under these conditions. The treatment plant would add a new discharge to Birch Creek through an outfall structure designed to achieve all regulatory standards. The construction of a new point source discharge adds to the regulatory responsibilities of the state and regional agencies.

To minimize land disturbance, collection piping, and treatment equipment, a single treatment system to handle the flow from both developments is the best approach. This would also facilitate the collection of effluent for recycling as irrigation water. Since the irrigation water would be used at the golf course on the Big Indian Country Club portion of the development, the Big Indian Resort and Spa/Big Indian Country Club development area is the best location for a regional treatment system.

F. Proposed Alternative

Given an evaluation of wastewater disposal alternatives, an on-site wastewater treatment plant is offered as the preferred alternative. Weighing factors associated with effectiveness and technical implementability, this alternative is judged superior to individual on-lot septic systems and regional subsurface disposal systems and second to treatment at the PHWWTP. The PHWWTP is currently operating and has excess capacity. In addition, the construction of an on-site wastewater treatment plant will require construction of both the collection system and the plant facilities, whereas discharge to the PHWWTP requires only construction of the collection system. Treatment of the resort wastewater through the existing PHWWTP requires less construction, less on-going regulatory oversight, and is more cost effective.

However, the most critical and overriding factor in determining which alternative is favored is the administrative implementability, specifically the indication by the NYCDEP that discharge to the PHWWTP would not be allowed (See Exhibit D of Appendix 8). Without this approval, the implementation of the use of the PHWWTP is not possible and for this reason, an on-site wastewater treatment plant is judged the most favored and is therefore the proposed alternative.

Construction and operation of an on-site wastewater treatment plant is supported as the preferred wastewater disposal alternative for the *Big Indian Plateau* by:

1. Collection and conveyance piping can be designed and constructed to meet regulatory requirements with a minimum of adverse construction challenges;
2. The technologies proposed for use in the treatment train are demonstrated as effective in treating wastewater with the characteristics anticipated for the resort;
3. There is adequate land controlled by Crossroads Ventures, LLC that is located downgradient from the primary development to be used as the site of the wastewater treatment facility eliminating the need for extensive pumping and force main to convey wastewater to the treatment facility;
4. Several outfall options are available for effluent, including a surface discharge and irrigation water storage ponds, providing operational flexibility; and
5. Although greater care, skill, and operator certification is required to operate the WWTP, effluent quality is most assured.

5.5.2 Wildacres Resort and Highmount Estates

Several alternatives have been evaluated for the disposal of wastewater from these proposed developments. These alternatives included: individual household subsurface disposal systems; a regional subsurface disposal system to accommodate the wastewater from both developments; treatment systems to serve specific areas of the development; and a combination of the above.

A. Alternatives

1. Alternative 1 - Subsurface Disposal Systems

Subsurface disposal systems would be designed and constructed in accordance with NYCDEP regulations stated in, "Rules and Regulations for the Protection from Contamination, Degradation and Pollution of the New York City Water Supply and its Sources, NYSDEC standards set forth in Design Standards for Wastewater Treatment Works – Intermediate Sized Sewerage Facilities (1988") as well as "Recommended Standards for Individual Sewage Systems" by the Great Lakes – Upper Mississippi River Board of State Public Health and Environmental Managers (Ten States Standards). They would most likely include a grease trap (if wastewater was from sources such as restaurants and snack bars), septic tank, dosing box and absorption trenches. These systems would vary in size based on the anticipated hydraulic loading.

2. Alternative 2 - On-Site Treatment Systems

On-site wastewater treatment systems would be designed and constructed in accordance with NYCDEP regulations stated in, "Rules and Regulations for the Protection from Contamination, Degradation and Pollution of the New York City Water Supply and its Sources, NYSDEC standards set forth in Design Standards for Wastewater Treatment Works – Intermediate Sized Sewerage Facilities (1988) and the Recommended Standards for Wastewater Facilities" by the Great Lakes – Upper Mississippi River Board of State Public Health and Environmental Managers. Treatment of the wastewater in on-site treatment system(s) would likely involve the following processes: preliminary treatment to remove large solids and oil and grease; primary treatment to remove settleable solids; secondary or biological treatment to reduce the organic loading; tertiary treatment to remove suspended solids, phosphorus, nitrogen and pathogens; and disinfection. The size of such a treatment system would vary depending on the hydraulic loading and the level of treatment necessary would vary depending on the effluent discharge permit requirements. The options for discharge of the wastewater effluent are, surface discharge to a receiving stream, subsurface discharge to an absorption field, or surface discharge to a holding area for spray irrigation. The option selected will dictate the effluent quality as specified in the State Pollution Discharge Elimination System (SPDES) permit issued by the NYSDEC.

3. Alternative 3 - Consolidated Discharge

The neighboring Village of Fleischmanns historically and currently utilizes individual subsurface absorption systems for their sewage disposal/treatment needs. However, the Village has submitted a Facility Plan to the NYSDEC and New York City Department of Environmental Protection (NYCDEP) for review and approval to construct a WWTP with a capacity to meet the Village's needs. Discharging all the development generated wastewater to the Village's WWTP is a viable alternative assuming the WWTP is sized to accommodate the flow from the development and is constructed and operational within the time frame of the Resort construction schedule. An additional opportunity for consolidated discharge may exist at the New York City owned Pine Hill Wastewater Treatment Plant.

B. Evaluation Considerations for Alternatives

Some of the factors to consider in the evaluation and selection of an alternative for the disposal of wastewater from these developments are:

- Estimated hydraulic and organic loading (Section 3.1.1)
- Influent wastewater quality
- Effluent quality requirements (Section 3.1.2)
- Surface/subsurface discharge points
- Site conditions (Section 3.1.3)
- Constructability

The following sections provide a more detailed discussion of some of the evaluation considerations. By utilizing the information presented in these sections, the treatment alternatives can be compared and assessed for applicability.

1. Estimated Hydraulic and Organic Loading

Based upon the calculated estimates of the hydraulic and organic loading, the proposed wastewater treatment alternative must be capable of handling influent flow from the Wildacres Resort at a design average flow of 112,348 gpd with an average BOD of 534.8 lb./dy.

2. Estimated Effluent Quality Requirements

The following are estimated SPDES permit limits. These limits are comparable to other wastewater treatment facilities of similar size. This list was prepared in consultation with

the NYSDEC. These parameters as determined in a SPDES permit would be the design basis if a wastewater treatment plant were proposed.

PERMIT PARAMETER	PERMIT LIMIT
Flow (average gallons per day)	112,435
BOD5 (mg/l)	5
Suspended Solids (mg/l)	10
PH	6.5-8.5
Temperature (°F)	70
Solids, Settleable (ml/l)	0.1
Ammonia (mg/l as NH3)	1.1
Dissolved Oxygen (mg/l)	7
Phosphorus, Total (mg/l)	0.5
Turbidity (95% of the time)	0.5
Turbidity (maximum value)	5

3. Site Conditions

The northern portion of Wildacres Resort, which encompasses 112 detached lodging units, clubhouse (including a pool, two tennis courts, game room, health club, reception, sales and operational offices, and snack bar), the Children's Center, and 12 holes of the golf course, lie in Delaware County in the Town of Middletown. Pursuant to Middletown Code, these lands are currently zoned Rural V (R-5) with the exception of the northern strip of land in *WRHGC*, which is zoned Rural III (R-3). R-5 is described in Section 405 of the Code. R-3 is described in Section 404 of the Code.

The southern portion of Wildacres Resort, which encompasses the remainder of the development, is located in Ulster County in the Town of Shandaken. Pursuant to Shandaken Code, these lands are currently zoned Residential District R3 and R5 with the exception of the far southeast portion of WRHGC, which is zoned Residential District R1.5. R5 is described in Article III Section 116-5 C1 of the Code. R3 is described in Article III, Section 116-5C2 of the Code. R1.5 is described in Article III Section 116-5 C3 of the Code.

The topography of the land proposed for the Wildacres Resort generally slopes in varying degrees from the south to the north. Specifically, WRHGC development will occupy land that slopes from an approximate elevation of 2,300 feet AMSL in the southern lands adjacent to County Road 49A to 1,800 feet AMSL to the north along NY Route 28. The proposed Highmount Estates development slopes radially out from an elevation of 2,800 feet AMSL at its southern most point to 2,400 feet AMSL at the limits of the western most planned lot.

Based on the soil survey conducted for the DEIS, the Ulster County portion of the WRHGC site is mostly areas of shallow and moderately deep, very stony soils formed in glacial till soils that are derived from red shale and sandstone. There are some areas of deep glacial till soils that have a very firm fragipan. A few areas of the deep till do not

have fragipan. The deep soils with fragipan are well drained Lewbeach and moderately well drained Willowemoc soils. The deep glacial till soil without fragipan is well drained Elka. At the base of steep slopes along the outlet of small streams coming off the mountain there are some broad areas of very gravelly glacial outwash. The Highmount Estates development is comprised of mostly shallow Halcott and moderately deep Vly soils. Portions of the Wildacres Resort spill over into Delaware County. The Delaware County soil survey is still not completed. Soil characteristics similar to Ulster County's can be found in the Delaware County segments of WRHGC and Highmount Estates. For further information see the DEIS Section 3.6 on Soils.

Eleven test pits and three percolation tests were conducted in November 2000 in various locations throughout the proposed WRHGC development to further characterize the subsurface conditions. The findings indicated that at every test pit location the typical boundary condition was an impervious layer (fragipan) at 25 to 35 inches below the surface. The upper layers of soil are made of browner glacial soils that are loamier and "perced". Deeper percolation tests revealed that the underlying soils were made of firm layers of glacial till. These soils are derived from shale and silt and contain more clay. Bedrock was overlain by flagstone anywhere from 16 to 72 inches below ground surface. No seasonal high groundwater elevations could be inferred from the eleven test pits. Further, no groundwater was encountered during test pit procedures.

Other conditions of the development that influence the alternatives analysis for wastewater treatments methods include the nature of the proposed development and the sources and uses of water resources.

The site layout for the Wildacres Resort encompasses only 242 acres of land. The large wetland and sloped areas of the former Highmount Ski Center provide a natural boundary for the primary golf-related and detached lodging unit developments. The layout is therefore compact, with facilities in close proximity to each other, wrapped by the golf course.

The source of water for the Wildacres Resort is proposed to be ground water from the neighboring Village of Fleischmanns. The Village operates a public water supply for which excess capacity has been established. The water supply to be used by the Wildacres Resort would serve not only the Resort, but the Village as well. This is an important consideration in the evaluation of alternatives for wastewater treatment as some alternatives provide direct recharge to the ground water system, while others provide less direct, but equally important opportunities for reuse of treated wastewater for irrigation. With private water supplies, there are no other users of the water supply; therefore, the resources could be used for irrigation without restriction beyond the demands of the Resort and the NYSDEC water supply permit total taking. As with any situation where a public entity supplies water to an out-of-district user for any purpose (potable or non-potable), the public entity, through a water supply contract, may reserve the right to restrict the supply of water to out-of-district users in times of emergency or drought. Given this common contractual situation, the reuse of wastewater effluent for irrigation is further supported.

C. Subsurface Disposal Systems

To evaluate whether or not subsurface treatment was a feasible option, site reconnaissance and preliminary soil percolation tests were performed at potential absorption system locations in the northeastern corner of WRHGC, on lands located in Delaware County, in November 2000. The tests were conducted according to the standards of the New York State Department of Health (NYSDOH) and witnessed by a representative of the NYCDEP. An average percolation rate of 7.5 minutes per inch was calculated from the test results. The fastest percolation rate was 5.5 minutes per inch and the slowest was 9.5 minutes per inch. Exhibit B of Appendix 8 contains the test pit logs and percolation test results.

Based on the NYSDEC standards set forth in "Design Standards for Wastewater Treatment Works – Intermediate Sized Sewerage Facilities (1988) and the NYCDEP regulations stated in, Rules and Regulations for the Protection from Contamination, Degradation and Pollution of the New York City Water Supply and its Sources," the range of percolation results of 5.5 to 9.5 minutes per inch fall within the allowable range set by the NYCDEP of 3 to 60 minutes per inch Soil conditions on the site vary both in terms of composition and depth. It is possible that the actual locations for the absorption systems may have less than adequate soil conditions. In this event, it may be necessary to move acceptable soil from other areas of the site or import them, which provide an acceptable percolation rate.

Many subsurface disposal systems are constructed with modifications to the conventional design to ensure proper percolation rates, such as imported soils and the construction of extended treatment zones. Given the nature of the soils encountered during the preliminary soil tests, subsurface treatment systems can be constructed on site, using proven construction methods that enhance treatment beyond conventional designs. For the Wildacres Resort, wastewater would be conveyed to an untreated wastewater wet well and then transferred by a duplex pump station to localized septic tanks. After leaving the septic tank the wastewater would accumulate in a dosing tank until the dose volume was reached and the high level sensor activated the pumps. The dosing tank pumps would distribute the wastewater to the absorption systems constructed in accordance with the capacity required by NYSDEC standards, NYCDEP regulations, and EPA guidelines.

The absorption trenches would be constructed by placing a layer of soil three feet thick that extends beyond the stone bed perimeter by five feet on all sides. The soil would have a percolation rate of less than 10 minutes per inch. The soil layer would be constructed by placing site soils in a manner that meets the required percolation rates. A priority is placed on using site soil and then to import soil. The noise and traffic impacts of the trucking of imported soil have been addressed in Appendices 22 "Sound Impact Study" and 25 "Traffic Impact Study." Prior to constructing the fields, test pads would be prepared under controlled conditions, and a construction quality control plan

developed to assure that the trench bases constructed satisfied the design percolation rates.

Under this alternative, the three feet of soil under the trench and the five-foot thick buffer zone would act as the treatment zone. As the treated wastewater percolates downward from the bottom of the soil treatment zone it would enter the native soils beneath and enter the local groundwater system.

If the average flow of 140,435 gpd is used, a total of 156,039 square feet of primary absorption fields would be required to treat the site wastewater by subsurface treatment. In addition to the 156,039 square feet required for the primary raised absorption trenches, an additional 156,039 square feet would be mandatory for the reserve area. The average flow and area required for absorption trenches can be reduced by 20 percent, since water saving plumbing fixtures will be used. It should be noted that no one system would receive more than 30,000 gpd of wastewater to avoid enacting additional treatment requirements.

D. Consolidated Discharge

While the consolidation of the Wildacres Resort wastewater treatment with the yet-to-be constructed treatment plant in the Village of Fleischmanns offers several benefits, including reducing the number of point source discharges in the basin, providing better regulatory control and making better use of the licensed operational staff available in Delaware County, incorporation of the two discharges is infeasible. The primary cause of infeasibility is the lack of space for the Village to construct a larger treatment facility than that planned to accommodate the Village residents. A secondary cause is the need to time construction of the treatment plant with construction of the Resort. The community may have long term concerns regarding construction of a plant that is larger than their needs. Oversizing of wastewater treatment plants leads to operational and potential compliance problems over time. The option to consolidate the Wildacres Resort wastewater into the Pine Hill Wastewater Treatment Plant was eliminated by the City of New York's refusal to entertain accepting the discharge from the Big Indian Plateau.

E. Wastewater Treatment Plant

Construction of an on-site wastewater treatment facility is a feasible alternative for wastewater treatment. There are a number of opportunities for effluent discharge including an on-site intermittent stream, subsurface disposal systems, or a pond constructed to retain water for golf course irrigation. Regardless of the discharge location, the Rules and Regulations for the Protection from Contamination, Degradation, and Pollution of the New York City Water Supply and Its Sources will require treatment to intermittent stream standards, which is achieved through design and construction of a sewer treatment plant with primary, secondary and tertiary components. Tertiary treatment, which accomplishes filtration, must be accomplished through a NYCDEP approved technology. Design and construction of an on site treatment plant for the Wildacres Resort is feasible under these conditions.

To minimize piping, equipment, space requirements, and outside water supply sources for irrigation, a single treatment system to handle the flow from the western developments is the best approach. This would also facilitate the collection of effluent for recycling as irrigation water during the growing season. Since the irrigation water would be used at the golf course on *WRHGC*, the *WRHGC* is the best location for a regional treatment system. Additionally, when the effluent is not needed for irrigation (rain storms, late fall, winter, early spring), the water could be discharged to subsurface absorption fields or a surface discharge. Since the effluent would be treated, the reserve absorption field area could be reduced by 50 percent. The wastewater treatment plant and absorption systems would be designed and constructed per Ten States, NYSDEC, and NYCDEP standards. The wastewater treatment plant would be designed, constructed and operated to comply with tertiary treatment standards set by the NYSDEC.

F. Proposed Alternative

Considering all of the factors associated with the treatment and disposal of wastewater from Wildacres Resort, the wastewater generated by the development should be collected and conveyed to a single regional treatment facility. The facility could be located in the northeast corner of the WRHGC development (see Drawing 8 in Exhibit A of Appendix 8. The treated effluent may be discharged to either an on-site, lined storage pond during the growing season or to a surface outfall at a tributary to Emory Brook when it is not needed for irrigation.

Factors influencing the selection of a wastewater treatment plant to treat Resort wastewater include:

1. Consolidation with the neighboring publicly owned treatment works is infeasible due to severe spatial constraints at the Village treatment plant site that inhibit the construction of a system large enough to treat the Resort wastewater.
2. The water supply for the development is public, restricting the use of groundwater as an irrigation supply and emphasizing the importance of treated wastewater effluent for recycling.
3. The compact site design limits opportunities for numerous subsurface systems.
4. Collection systems for the wastewater can be constructed without excessive ground disturbance given the close proximity of all the facilities.
5. A number of options for discharge of the treated wastewater are available, building in operational flexibility and providing improved treatment efficiency.

The advantages of utilizing the single treatment facility in combination with surface discharge and effluent recycling to manage the wastewater are the following: flexibility to operate the plant under a variety of flow conditions; ability to recycle the effluent as irrigation water or discharge it to a surface outfall as conditions warrant (low flow conditions, rain events, golf off-season); equipment, operation and maintenance activities would primarily be located and occur at one location; and there is an adequate amount of relatively remote property available for the facility and absorption systems.

5.6 Alternative Site Access

5.6.1 Big Indian Plateau

A. Access From Existing Roads

The eastern portion of the project site (Big Indian Plateau) has alternative access points from Woodchuck Hollow Road, Friendship Road, NY Route 28 via Winding Mountain Road, NY Route 28/Lasher Road, and Lost Clove Road. Alternative access locations and routes, including the proposed access plan is illustrated in Figure 5-11, "Access Alternatives Big Indian Plateau."

Woodchuck Hollow Road is a two-lane, unsurfaced Town of Shandaken Road that dead ends at the project site. Access to the project site via Woodchuck Hollow Road would require vehicles to pass through the Hamlet of Pine Hill after turning off of NY Route 28. Woodchuck Hollow Road is proposed to be used to access the project site, but for emergency purposes only. The desire to avoid routing non-emergency traffic through the higher density residential area of Pine Hill precluded Woodchuck Hollow Road from being considered a preferred primary access route. Also, Woodchuck Hollow Road is used by many hikers as the starting point for the trails along Belleayre Mountain and beyond. By limiting project traffic to emergency vehicles only, potential negative hiker/vehicle interactions have been avoided.

The eastern portion of the project site has approximately 240 feet of frontage on Friendship Road. Friendship Road is a two-lane Town of Shandaken Road that connects on either end with NY Route 28. Friendship Road near its western end provides access to Belleayre Beach at Pine Hill Lake as well as two residences. Friendship Road, near its eastern end, is the preferred alternative access point for serving the operational access needs of the project. In order to provide access to the project site a new bridge will need to be constructed to span Birch Creek This bridge will not require any structures in the creek itself. An access road of approximately 7,500 feet between Friendship Road and the area proposed to be developed as the Big Indian Resort and Spa building is required in order to meet Town road slope requirements. (The access road is a private road but was designed to meet Town of Shandaken road standards.) This access road originally was planned as having a double switchback alignment towards its lower end. After further analysis, the proposed design, employing a single switchback, is proposed. The single switchback still avoids wetland impacts, reduces the amount of road surface (impervious surface) required, and provides suitable grades for accessing this portion of the project site.

Having the main access point off of Friendship Road was not the original access point planned for this portion of the project site. Originally, it was planned to access the Big Indian Plateau from an access road off of Lasher Road. Lasher Road is also a two-lane Town of Shandaken Road that connects with NY Route 28 next to the existing Jake Moon Restaurant. The originally planned access road would have intersected Lasher

Road at a point just beyond the bridge over Birch Creek. An access road of approximately 8,450 feet between Lasher Road and the area proposed to be developed as the Big Indian Resort and Spa building is required in order to meet road slope requirements. The reason that this alternative was not selected as the preferred access location was the potential for visual impacts from the clearing and grading necessary to construct a road at this location. Unlike the Friendship Road access road that is located perpendicular to NY Route 28, there would be direct views into the Lasher Road access from NY Route 28 when traveling from the east through Big Indian producing significant visual impacts. This access would also require additional impervious area since it is almost 0.2 miles longer than the alternative access from Friendship Road.

Access to the Big Indian Plateau currently exists via Winding Mountain Road. This road is a private road over which the applicant has an easement to access their property. Winding Mountain Road is not surfaced, on some locations is quite steep, and in most places is only wide enough for one way travel. Winding Mountain Road is proposed as the main access road for the construction phase of the project. Routing construction traffic onto Winding Mountain Road will avoid having potentially louder construction vehicles utilize the access via Friendship Road which is in proximity to the Belleayre Beach at Pine Hill Lake. It is also planned to have Winding Mountain Road serve as an emergency egress road during the operational phase of the project . Should conditions prohibit people from leaving the project site via Friendship Road and the bridge over Birch Creek, people will be able to leave on Winding Mountain Road by traveling on a proposed short connector road to be constructed between the proposed access road off of Friendship Road and Winding Mountain Road.

Lost Clove Road is also located adjacent to the western portion of the project site. Unlike the alternative access points off of Friendship Road, Lasher Road and Winding Mountain Road, access via Lost Clove Road would be much less direct from NY Route 28. In order to access the project site at this location, one would have to travel approximately 1.75 miles on County Road 47 and Lost Clove Road, passing a number of residences along the way, before getting onto the project site. Once on the site, an access drive of over 8,300 feet would be required to get onto the portion of the site to be developed as the Big Indian Country Club. Access at this location would also be adjacent to a State hiking trail trailhead parking area and would require crossing the State hiking trail on the portion of the trail located on the project site. Locating an access road at this location could also have created significant visual impacts from State Lands including Balsam Mountain which is located approximately 2 miles to the south and across Lost Clove from this alternative access point.

In September 1999 Creighton Manning Engineering examined the sight distances at the various alternative access points off of NY Route 28. Examined locations included both ends of Friendship Road, Winding Mountain Road, Lasher Road, and County Road 47. Their investigation concluded that existing sight distances were adequate except for the left (west) sight distance from Winding Mountain Road and the left (west) sight distance from Lasher Road. Vegetation clearing within these two sight distance triangles could mitigate these shortcomings and provide adequate sight distances.

B. Internal Site Access

Internal site access on this portion of the project requires that there be a road crossing of the intermittent stream in Giggle Hollow that connects the Big Indian Country Club, Resort and Spa and Belleayre Highlands. Road standards in the Town of Shandaken limit access roads with only a single direction of travel (i.e., cul-de-sacs) to be no more than 1,200 feet in length. Therefore, without the connection across Giggle Hollow that provides access to locations at Woodchuck Hollow Road and Friendship Road, it would only be possible to build an access road 1,200 feet into the project site from each of the existing Town roads. The proposed bridge road crossing in Giggle Hollow is located near the highest elevation on the property. This minimizes the amount of elevation change when making the crossing. An alternative location could have been selected but this would have required construction on longer, and possibly steeper, slopes. The connector road passing through Giggle Hollow also allows club members staying at Belleayre Highlands to drive to the Big Indian Country Club without having to travel on the local public road network, including the roads through Pine Hill.

5.6.2 Wildacres Resort and Highmount Estates

A. Access From Existing Roads

Access to this portion of the project is available from Ulster County Road 49A (which is known as Galli Curci Road after the road passes into Delaware County), Gunnison Road, and Van Loan Road. The proposed project makes use of almost all of these roads to access various project components

County Road 49A is a two lane road extending in a north-south direction between County Road 49 and NY Route 28. County Road 49A is used primarily to provide access to Belleayre Mountain Ski Center and rural residential properties to the west. This two-lane road has a posted speed limit that varies between 30 and 45 mph in the vicinity of the project. As the major collector road in this area of the project site it is a logical alternative for providing access to this part of the project. Five access points are proposed on this road.

The golf course maintenance facility is proposed to be located off of County Road 49A approximately 600 feet south of Van Loan Road. An alternative location was examined approximately 500 feet to the north, but it was determined that this alternative location would not meet sight distance requirements without grading encroachment onto adjoining property that is not part of the project site.

The second access point is located across County Road 49A from the upper entrance to the Ski Center. This is the main access to the Hotel. This location was selected to facilitate traffic flows from the project site as well as the Ski Center. An alternative location to the north or south, and not forming a four-way intersection would complicate traffic flows in the area.

The access to the southern portion of the interior of the Wildacres Resort site is located approximately ¼ mile further up County Road 49A. Horizontal and vertical curves exist on County Road 49A to the west of the upper Ski Center driveway. The proposed access road into the parking garage for the Hotel, the service entrance and the interior of Wildacres Resort was located to minimize the effects of the shortcomings imposed by the vertical and horizontal curves in County Road 49A. Even with this minimization it will still be necessary to construct improvements to the road in order to improve sight distances and safety. Alternative access locations along County Road 49A would have more significant sight distance limitations.

The access to the proposed Wilderness Activity Center proposed for the existing Highmount Ski Area will utilize the existing driveway to the ski area. Access locations for the Wilderness Activity Center alternative to the existing driveway were discounted because of the topography along the road frontage and the desire to limit additional disturbances that would be required at an alternative location. Access to the Wilderness Activity Center will be provided by the projects shuttle service based out of the Wildacres Resort and the Big Indian Resort and Spa. This will eliminate the need for the construction of additional parking at the Wilderness Activity Center, thus reducing disturbance and introduction of additional impervious area.

The last access point proposed off of County Road 49A is the single access point for the Highmount Estates subdivision. This access location was identified by Creighton Manning Engineering as having the best sight distance along County Road 49A frontage. Alternative access locations to the east or north would have lesser sight distances due to vertical and horizontal curves in County Road 49A.

There are three access points to the Wildacres Resort proposed off of Gunnison Road. Gunnison Road is a two-lane Town Road with portions in both the Town of Shandaken and Middletown. This road provides access to the existing Wildacres Hotel and residential properties to the north and west.

The access off of Gunnison Road closest to County Road 49A provides access to the collection of detached lodging units north of Gunnison Road. Alternative locations for accessing this portion of the project site exist along Gunnison Road as well as off of County Road 49A, but the proposed location was chosen because it was the closest location to the existing Wildacres Hotel driveway access point that was not proposed for golf course use.

The access point at the existing driveway for the Wildacres Hotel will be used as a secondary access point to the portion of the Wildacres Resort that is south of Gunnison Road as well as provide a public access route to the Highmount Golf Club. This access drive is continuous with the access road off of County Road 49A, providing a through-road through the southern portion of the Wildacres Resort. Alternative locations for accessing the southern portion of Wildacres Resort exist both to the east and the west on Gunnison Road. However, in order to incorporate the existing Wildacres Hotel into the

project design, it was decided that using the existing driveway access location was preferred.

Van Loan Road is a Town of Middletown road that is two lanes wide and dead ends near the northeastern corner of Wildacres Resort portion of the project site. A dirt road then extends another 600 feet into the project site. This road will provide access to the on-site wastewater treatment plant that is proposed to serve the Wildacres Resort and Highmount Estates. The existing dirt road extension to Van Loan Road would be improved and extended another 250 feet into the site to provide access to the plant. The plant has been located so that it is at the lowest elevation on the site and can be fed by gravity lines. This location could alternatively be accessed via a connection to either the golf course maintenance area or from the roads servicing the detached lodging units north of Gunnison Road. Accessing the plant via the golf course maintenance area would require construction of 900 feet of road through a wooded area and the paving of this additional 900 feet, and this road would tie into the existing dirt road extension still 800 feet from the plant. The alternative of accessing the plant through the roads serving the detached lodging units would require that 1,200 feet of road be construct between golf holes and to tie into the existing dirt road extension 600 feet before the plant. These alternative access routes are much less desirable than the existing Van Loan Road because they are much more disruptive than utilizing the existing access.

B. Internal Site Access

Internal access location at the Wildacres Resort is dictated by the entrance drive locations, the location of the Marlowe Mansion that will be retained as part of the project, the location of golf holes, and the location of suitable land for detached lodging units, Children's Center and the lower portion of the Hotel that contains the golf course clubhouse. There is not an alternative internal access plan that would provide suitable access to these different components.

The subdivision lots at Highmount Estates could have been accessed in a different manner. As currently designed, 12 lots have frontage on County Road 49A/Galli Curci Road. Currently only the four lots west of the road (lots 17, 18, 19 and 20) and one lot south of the road (lot 21) are proposed to have individual driveways onto the adjoining road, when conceivably there could have been up to 13 individual driveways. In order to reduce the number of access points (curb cuts) onto the road with its sight distances challenges, 16 of the 21 lots share internal access via the proposed cul-de-sacs and the single access point onto County Road 49/Galli Curci Road.

5.7 Alternative Golf Course Management Practices

Appendix 14 of the DEIS, "Integrated Turf Management Plan", describes a number of steps that have been taken to reduce the need for pesticide and fertilizer use.

5.7.1 Grass Species Selection

The types of grasses that are proposed for the golf courses will reduce the need for pesticide and fertilizer use. The types of grasses proposed for the golf course fairways have lower fertilizer requirements and lower levels of pest infestations than those alternative grasses typically used on most high quality golf courses in the northeast. The proposed fairway grasses also provide a somewhat lesser quality from a golf playability standpoint. By agreeing to sacrifice the quality of the playability of the fairways somewhat, the project sponsor has made a commitment that will significantly reduce fertilizer and pesticide use on the largest portions of the golf courses.

The grass species chosen for the golf course were chosen for their ability to grow well in the region at the mowing heights required on the golf courses. Other factors include their resistance to diseases and lower fertilizer requirements. The choice that would be effective for the fairways and roughs is that of Kentucky bluegrass and fine fescues. The tees, greens and approaches to the greens would consist of creeping bentgrass. These are species that belong to the group of grasses known as the cool-season grasses. The cool season grasses are generally adapted to the temperate and sub-arctic climates. Kentucky bluegrass, the bentgrasses and fine fescues are native to and widely used throughout much of the northern United States and Canada (Christians and Engelke, 1994)

Creeping bentgrass is, by far, the most commonly used grass species on golf courses in the northeast (Emmons, 1984). The widespread use of creeping bentgrass is a reflection of its tolerance of low mowing heights even as low as the heights required on putting greens. Even at mowing heights less than 1/4 inch creeping bentgrass can still form a stand with extremely high shoot density. However, there are some disadvantages associated with creeping bentgrass.

Creeping bentgrass has one of the highest fertility requirements of the cool season turfgrasses.

Creeping bentgrass is also the most susceptible to fungal diseases of the cool season turfgrasses.

By limiting creeping bentgrass to the greens, tees and approaches, where the low cutting height necessitates their use, the amounts of fertilizer and fungicide required to maintain the golf course can be significantly reduced – perhaps by as much as 90% when measured against existing local practices (which have not involved any noted environmental damage). New varieties of creeping bentgrass are constantly being developed. Some of these new varieties, or cultivars, show promise from the standpoint of reduced fertilizer requirements and reduced susceptibility to diseases. If at the time when construction specifications are developed for golf course construction, there are commercially available cultivars of creping bentgrass with maintenance requirements that are comparable to Kentucky bluegrass or fine fescue, these cultivars may be considered for use on golf course fairways.

Kentucky Bluegrasses and fine fescues are lower maintenance grasses commonly used in the northeast on athletic fields and home lawns, as well as on golf courses. These grasses perform well at the higher cutting heights in golf course roughs. Recent advances in breeding of different varieties of bluegrass and fine fescues have produced varieties that perform well under the lower cutting heights used on golf course fairways.

5.7.2 Biological Pest Controls

The Integrated Turf Management Plan (see Appendix 14) describes how biological products will be integrated into the turf pest management plan for the two golf courses.

The product Bio-Trek22G ® is proposed to treat dollar spot, brown patch and pythium blight diseases. Bio-Trek 22G is the first biological fungicide approved by the EPA and is a strain of the beneficial fungus *Trichoderma harzanium.* The product controls the diseases mentioned previously as well as enhancing root growth and increasing plant vigor. Although it is a very common species of fungus found in nearly all soils in low levels, the strain in this fungicide is more effective and formulated for maximum effectiveness. It is non-toxic to vertebrates and plants and poses no potential for groundwater contamination. In addition to being used on turf this biological control is also safe enough to be used on food crops.

The organic fertilizer Sustane® is proposed as part of the integrated turf management plan and will be used on the proposed golf courses. Sustane® has shown the ability to surpress turfgrass diseases in addition to providing for the nutritional needs of the turf plants.

A product containing the parasitic nematode *Steinernema cadpocapsae* (trade names Biosafe®, Biovector®, etc.) will be used on both proposed golf courses to biologically control turfgrass insects such as cutworms, white grubs, cutworms and sod webworms. Nematodes are microscopic, non-segmented worms which occur naturally in the soil all over the world. Beneficial nematodes are safe enough that the EPA has waived registration requirements for application. Though they are harmless to humans, animals, plants, and healthy earthworms, beneficial nematodes aggressively pursue insects.

5.7.3 Pest Monitoring, Pest Thresholds, and Spot Treatments

Maintenance of the proposed golf courses will not rely on calendar-based preventative pesticide applications. Instead, the Integrated Turf Management Plan (Appendix 14) specifies taking the alternative approach of relying on regular monitoring and recording of pest levels, and only when pest levels exceed the threshold where serious damage occurs will pesticide applications be made. When applications are made they will be spot applications to only those areas where thresholds are exceeded, and not be widespread broadcast applications.

5.7.4 Limiting Fertilizer Phosphorus Applications

The Fertilizer and Pesticide Risk Assessment (See Appendix 15) includes a site-specific analysis of proposed golf course fertilizer use. A fertilizer program similar to the program currently used at the Hanna Golf Course in Margaretville, the nearest golf course to the proposed project, was analyzed. Since the fairways at the Hannah Golf Course are bentgrasses, which have higher fertilizer requirements than the proposed bluegrass and fescues, the application rates analyzed were higher than what would likely occur on the proposed golf course. The Risk Assessment illustrates how sufficient amounts of fertilizer can be applied to maintain healthy turf which is more resistant to the affects of pests while at the same time not impacting surface water or groundwater quality.

The computer modeling of fertilizer runoff and leaching through the soils used the steepest area of the two golf courses and also used rainfall data from 1996 when rainfall was more than 19 inches higher than the average annual precipitation of 38.5 inches. Based upon the results of the risk assessment, it was determined that a fertilizer program of up to four pounds of nitrogen per thousand feet per year could be implemented without impacting surface and groundwater quality. Limiting phosphorus application rates to 0.25 – 0.3 pounds per thousand square feet per year will not adversely affect the water quality in the New York City water supply reservoirs.

5.8 Alternative Stormwater Management Practices

This project is truly innovative in reducing stormwater runoff by including the unique Big Indian Resort and Spa building as opposed to a typical impervious roof structure. By covering the building with soil and xeriscaping the building, the building behaves like a hydrologic Group A soil, thus typical roof impervious area for the project was reduced by more than five and one half (5.5) acres. No other development within the Catskills, or New York State for that matter, has incorporated such a building design at such a large scale to reduce impervious area and stormwater generation from development.

The golf course cart paths for the two golf courses comprise substantial amounts of potential impervious surface. Over 10 acres of cart path will be paved with porous pavement to reduce the amount of project impervious surface. While it is true that some other golf courses do not have paved cart paths, and that these other courses typically utilized a crushed stone or bituminous material to construct the cart paths, the elevation changes on the two proposed golf courses mandate some type of paved surface. Not using paved cart paths on the proposed golf courses would make for unsafe conditions for golfers and golf course maintenance personnel as well as potentially lead to scouring and subsequent erosion and sedimentation impacts.

This project has taken the largest areas of potential above ground surface parking and moved them below ground or into a two story parking garage in order to reduce impervious area. For the Big Indian Resort and Spa this equates to 3.5 acres of potential

impervious surface parking removed from the project. Similarly, approximately 2.8 acres of potential surface parking are removed from the project via having the Wildacres Resort parking be below the building. The proposed 2 level parking puts approximately 2 acres of parking area under cover.
For the parking areas that are still proposed to be outside of buildings, porous pavement will be utilized in those areas not subject to heavy truck traffic for deliveries. Approximately one half of the proposed above ground parking will utilize porous pavement. All driveways to detached lodging units will be porous pavement. This project even goes so far to reduce impervious surfaces, that even the proposed tennis courts will be constructed with porous pavement.
The total reduction in typical impervious surfaces amounts to more than 31 acres.

In the analysis of stormwater pollutant loading described in Section 3.2 and Appendix 10A, post-development phosphorus loading under the proposed conditions is only slightly higher than the phosphorus loading that occurs under pre-development conditions. In order to be conservative in the design of the stormwater management planning, the analyses did not take into account the significant reduction of impervious surfaces being proposed.

An alternative design that would reduce impervious surfaces beyond what is currently proposed is not feasible from an economic or safety standpoint. The only proposed impervious surfaces are buildings, the access roads, and parking areas subject to heavy truck traffic. Constructing the other project buildings in the same manner as the Big Indian Resort and Spa is not feasible from an economic standpoint. Constructing the project access roads of porous pavement is not feasible because this would preclude the use of deicing/traction materials that contain sand. Sand clogs the pores in porous pavement. Similarly paving those portions of parking lots subject to heavy truck traffic is not feasible because the pavement would be compacted and lose its porosity.

5.9 Alternative Construction Phasing Plan

An alternative construction phasing plan was developed in detail in order to examine the feasibility and practicality of further reducing the amount of contiguous area under construction (unstabilized soils) at any one time. The alternative construction phasing plan is similar to the one described in section 3.2.2(C) from the standpoint that construction is divided into Phases and Subphases. Both plans are also similar because at certain points in the phasing plan entire individual Subphases are under construction. This alternative also uses Phase 2 of Big Indian Country Club as an example of how construction phasing would be applied to the entire project.

The biggest difference in the alternative phasing plan discussed below is that a new series of first steps is involved before individual Subphases are under active construction. Also, the areas defined as Subphase Subcatchments in the phasing plan in Section 3.2.2(C) are now defined as "Work Areas" under this alternative plan.

5.9.1 Phases

A Phase still represents one year of construction.

5.9.2 Subphases

A Subphase still represents a golf hole or holes that could under construction in its entirety.

Figure 5-12, "Construction Components Big Indian Country Club Phase 2," shows schematically how construction on Big Indian Country Club that would take place in Phase 2 has been broken up into five (5) Subphases. Figure 5-13 is a reduced site plan showing the area that comprises Phase 2. These Subphases are different areas of land that drain to different surface water resources (i.e., Lost Clove Brook, Giggle Hollow Brook, and Birch Creek). The size of the Subphases ranges from 14.23 acres to 20.31 acres. (By comparison, in section 3.2.2(C) the size of six (6) Subphases ranges from 11.9 to 16.4 acres.)

5.9.3 Work Areas

Under this alternative each Subphase is further broken down into "Work Areas" in Figure 5-12, "Construction Components Big Indian Country Club Phase 2." Each Subphase is broken down into 4 Work Areas, with the exception of Subphase 4, which is broken down into 3 Work Areas. The size of each Work Area ranges from a little more than 2 acres to just over 6 acres, with most of the Work Areas being 3 to 5 acres. Each golf hole can have up to four different Work Areas.

Like the subcatchments discussed in Section 3.2.2(C), each Work Area has its own three-digit identification number. The first digit is the Phase number, the second digit is the Subphase number and the third digit is the Work Area number. For example, 234 is Phase 2, Subphase 3, Work Area 4.

5.9.4 Alternative Construction Sequencing

The series of Figures 5-14 through 5-31 illustrates how under this alternative phasing plan construction will proceed through Phase 2 of the Big Indian Country Club, both schematically and on reduced site plans, and quantifies how much land will actually be under construction at any one time. The highlighted boxes in the schematic figures and the shaded areas in the reduced site plans illustrate the areas under construction at a given time.

The following is the construction sequence under the alternative phasing plan.

1. All five of the number 1 Work Areas are under construction (211, 221, 231, 241, 251)
   See Figure 5-14 (Schematic) and Figure 5-15 (reduced site plan).
   Total = 17.86 acres

2. All five number 1 Work Areas are temporarily stabilized.

3. All five number 2 Work Areas are under construction (212, 222, 232, 242, 252).
See Figure 5-16 (Schematic) and Figure 5-17 (reduced site plan).
Total = 22.17 acres

4. All five of the number 2 Work Areas are temporarily stabilized.

5. All five of the number 3 Work Areas are under construction (213, 223, 233, 243, 253).
See Figure 5-18 (Schematic) and Figure 5-19 (reduced site plan).
Total = 24.99 acres

6. All five of the number 3 Work Areas are temporarily stabilized.

7. All four of the number 4 Work Areas are under construction (214, 224, 234, 254).
See Figure 5-20 (Schematic) and Figure 5-21 (reduced site plan).
Total = 17.19 acres

8. All four number 4 Work Areas are temporarily stabilized.

- At this point in the alternative construction phasing all of Phase 2 has been disturbed and is temporarily stabilized.

- The construction work that has been done in steps 1 through 8 above generally consists of clearing and rough grading activities.

- The next steps in the construction sequencing (steps 9 through 18) are the fine grading, or shaping, and final stabilization.

While it would be possible to do the initial clearing and rough grading activities on different sections of a particular golf hole (Work Areas) at different times, the fine grading must involve entire golf hole (Subphases) so that the final grades transition smoothly across a golf hole.

1. Subphase 1 is under final construction. All other Subphases remain temporarily stabilized.
See Figure 5-22 (Schematic) and Figure 5-23 (reduced site plan).
Total = 20.31 acres.

2. Subphase 1 is final stabilized.

3. Subphase 2 is under final construction.
See Figure 5-24 (Schematic) and Figure 5-25 (reduced site plan).
Total = 14.47 acres.

4. Subphase 2 is final stabilized.

5. Subphase 3 is under final construction.
See Figure 5-26 (Schematic) and Figure 5-27 (reduced site plan).
Total = 18.33 acres.

6. Subphase 3 is final stabilized.

7. **Subphase 4 is under final construction.**
See Figure 5-28 (Schematic) and Figure 5-29 (reduced site plan).
Total = 14.23 acres.

8. Subphase 4 is final stabilized.

9. Subphase 5 is under final construction.
See Figure 5-30 (Schematic) and Figure 5-31 (reduced site plan).
Total = 14.87 acres.

10. Subphase 5 is final stabilized.

5.9.5 Comparison of Alternatives

Table 5-4 provides a comparison of the alternatives for construction phasing for Phase 2 of the Big Indian Country Club.

- The alternative phasing plan described above involved 9 golf holes and the practice range. In order to provide spatial separation of the areas of disturbance, the alternative plan involves nine non-sequential golf holes (plus the practice range). The phasing plan in section 3.2.2(C) involves the first nine holes of the golf course (the front nine) plus golf holes 10 and 11 that would be used as a temporary practice range while the remainder of the golf course was under construction in Phase 3.

- The total area in involved in Phase 2 is about the same in the two plans, with the alternative plan being approximately 3 acres less (82.2 acres versus 85.1 acres). However, under the alternative phasing plan more total land would be disturbed at almost any given time in the construction process. The average area of construction under the alternative plan being either 20.6 acres or 16.4 acres, and under the phasing plan in Section 3.2.2(C), the average amount of construction at one time is 14.2 acres (see Table 5-4).

- Sediment and erosion control monitoring and implementation of the Stormwater Pollution Prevention Plan during construction would be more difficult under the alternative plan with active construction at times occurring simultaneously in five different areas spread across the site.

- Under the alternative plan the entire Phase will be temporarily stabilized at one point. All areas would be disturbed at least twice. Under the phasing plan in Section 3.2.2(C) approximately half of Phase 2 would be permanently stabilized immediately and would not require temporary stabilization unless it was inactive for more than 14 days.

- Under the alternative plan it would be necessary to construct temporary irrigation during construction in some areas in order to establish permanent stabilization. Because the golf holes included in the alternative plan were spread across the site (i.e., holes 1, 5, 12 and 18), construction of the irrigation system would not allow the cross connections necessary to construct a fully looped permanent irrigation system that included the irrigation ponds. Under the phasing plan in Section 3.2.2(C) the permanent irrigation system would be installed as the holes 1 through 11 were constructed, including the looping and cross connections necessary to make the permanent irrigation system fully functional at the time permanent stabilization (sod or seed) is put in place.

- Under the alternative plan there would be much more stockpiling of soil within Work Areas and hauling of soil between Work Areas and Subphases on additional haul roads. Because under the alternative phasing plan work is initially limited to the small Work Areas, and because these work areas are spread across the site, the total amount of earthwork would be much higher. The Subphases have been designed such that cuts and fills are balanced within each Subphase, which generally include one or two golf holes and sometimes the transition areas between the green of one hole and the tees of a subsequent hole. Because cuts and fills are not balanced within work areas, which are "artificial" divisions of the Subphases, Work Areas with excess cut would require stockpiling or material would have to be hauled to another active Work Area where fill is required. The temporary erosion controls associated with these stockpiles and haul roads are not required under the phasing plan presented in Section 3.2.3.

- Both construction phasing plans would utilize the stormwater capture, treatment, and dewatering processes described in Section 3.2.2(C). However, the proposed SWPPP has a much simpler and more manageable dewatering plan. Each Subphase Subcatchment or Work Area would have its own temporary retention basin sized to capture and hold the 10-year event. Flocculant treatment and dewatering at rates less than or equal to existing runoff rates can be accomplished under both scenarios.

The following all make the phasing plan in Section 3.2.2(C) the preferred alternative;

- lesser amount of area under construction at any one time,

- relative ease of SWPPP implementation,

- avoidance of having to disturb the same areas multiple times,

- lesser reliance on temporary stabilization,
- more areas proceeding directly to final stabilization,
- less stockpiling and hauling of soils,
- fewer haul roads,
- no need for temporary irrigation, and,
- doubling the amount of sod to be used.

5.10 No-Action Alternative

The no-action alternative and leaving the lands in their present state will have a number of impacts, including impacts on the land itself, impacts on the realization of regional land use plans, and socioeconomic impacts (See Section 1.3.1, Background and History).

5.10.1 Land Use

Under the no-action alternative and leaving the lands in their present state, the lands will continue to be logged as they have been for over the past fifty years. The Brisbane (Turner) Mansion and Wildacres Hotel would continue to be used as they have in the past, for a rental property and seasonal occupation, respectively. Alternatively, the applicant could choose to sell these properties for occupation or operation by others.

Likewise, other tax parcels that comprise the project site could be sold to various buyers. It is possible that some of these buyers may propose to develop some of these component properties and a number of smaller individual projects could be proposed for the area around the Ski Center over time. If this were to occur, the opportunity for comprehensively analyzing the affects of large-scale development would be lost, since each potential smaller development would undergo independent local regulatory agency reviews.

Furthermore, the no-action alternative would not result in the proposed development restrictions that would be placed on the 1,387 acres of the project site to remain natural. These development restrictions would preclude additional development on some lands that might otherwise be developed, including some lands proposed to remain undeveloped that are adjacent to State Lands.

5.10.2 Local and Regional Planning Goals

The no-action alternative would result in the local and regional planning goals of the two municipalities in which the project is located, the Towns of Shandaken and Middletown, continuing to go unrealized. The land use planning objective of capitalizing on the presence of the Belleayre Mountain Ski Center and promoting the development of

complimentary, environmentally compatible, resort development to provide a four-season recreation destination has been promulgated by a number of planning studies conducted over the past 40 years.

As recently as May of 1999 the Town of Shandaken Town Board in a Resolution, reaffirmed their support for the findings of two regional planning studies. See Appendix 29, "Shandaken Town Board Documents". In issuing their Position Statement, "Belleayre Gateway Development Objectives", the Town specifically points to the findings of the Tourism Development Plan for the Central Catskills and the Route 28 Corridor Committee Study. The Town of Middletown had also previously formally adopted the findings of the Route 28 Corridor Committee Study.

In the May 1999 Town of Shandaken Resolution and Position Paper the Town Board adopted the following language.

"The Town of Shandaken has a demonstrated history of public support for development of the Belleayre Gateway through an ongoing, established pattern of citizen based, inter-municipal planning."

"Planning studies conducted over a period of nearly 40 years have emphasized the importance of the Belleayre Gateway area and recommended that it become the major tourist destination in the Central Catskills."

"A 1994 planning report identified Belleayre Ski Center as the 'major tourism asset of the Central Catskills', and recommended that it be supported by other tourist facilities. A more recent, follow up study included a market analysis which confirms the importance of Belleayre and recommends expansion of support facilities, including a watershed museum, to increase the critical mass of Belleayre as a tourist destination at all times of the year. ('Tourism Development Plan for the Central Catskills' prepared by the Central Catskill Planning Alliance).

Both these citizen committee reports point to planned, appropriate development of the Belleayre Gateway Area as economically effective, as well as environmentally sound and protective of the watershed. Focusing development in this area will not only provide the critical mass necessary to attract tourism, but will allow for the efficient and cost effective concentration of any necessary supporting municipal infrastructure requirements. Thus, once realized, the Plan will facilitate appropriate tax producing development within the Town of Shandaken, while minimizing the costs incurred by the taxpayer.

Planning for the NY Route 28 Corridor and the Belleayre Gateway Area has been going on for a number of years, involving local business interests as well as the larger community. The Route 28 Corridor Committee Report of 1994 was produced by a collaborative group of volunteers from both Shandaken and Middletown. The more recent Central Catskills Alliance report is also the product of a planning committee of

citizen volunteers from both Towns. Both the Shandaken and Middletown Town Boards officially endorsed the report of the 1994 Route 28 Corridor Committee.

Under the no-action alternative the specific goals and objectives of these two studies would not be met. This would include the following:

- The combined tourist attractions and facilities of the Central Catskills must be developed simultaneously to provide a major destination to attract new visitors. The long-term development should be phased, but the first phase should be of sufficient scale to attract significant new appeal and interest.

- Development outside of hamlets should be limited to major tourist facilities requiring large sites in scenic locations and subject to necessary measures to protect the sensitive environment.

- Four-season long term tourist vacation should be encouraged by stimulation of diversity of activities serving the cross section of the family tourist market.

- The market analysis and survey confirm that Belleayre Mountain should form the focus of corridor development in terms of improved and expanded ski trails, support facilities and four season attractions.

- A resort or lodge setting with good facilities and well-organized outdoor activities (golf, hiking, horseback riding, etc.) would add to the area's appeal, especially if tied to Belleayre.

At about the same time as the Town of Shandaken issued its Policy Statement another regional planning study was published. The West of Hudson Economic Development Study prepared for the Catskill Watershed Corporation (CWC) reached a number of conclusions, some of which were very similar to the two studies discussed above. Both Shandaken and Middletown were represented on the CWC, including the then Town Supervisor of Middletown serving as CWC Chairman at the time of the preparation of this report. Included in the conclusions of the West of Hudson Economic Development Study report were that the larger ski area in the Catskills have the potential to compete with other regional ski areas and transition from primarily a weekend market into a vacation market. **It was further concluded that this could not be attained unless substantial private capital investment, including investment in year round operations with lodging facilities, golf, concerts, mountain biking, hiking, swimming,** waterslides **and spas occurred.** Meeting facilities and convention centers would further enhance the attractiveness.

The no-action alternative would not result in the substantial private capital investment.

5.10.3 Socioeconomic Benefits

Under the no-action alternative the socioeconomic benefits of the proposed project would not be realized. These socioeconomic benefits are described in detail in Appendix 26 and are summarized below.

A. Construction Phase

- 2,114 full time person years of employment over the eight year construction period
- 1,765 additional person years of employment in indirect or generated employment
- direct wages and salaries of $81.09 million
- indirect wages and salaries of $64.40 million
- tax revenues of $95,800 for Delaware County
- tax revenues of $732,100 for Ulster County
- tax revenues of $10,573,000 for New York State

B. Operation Phase

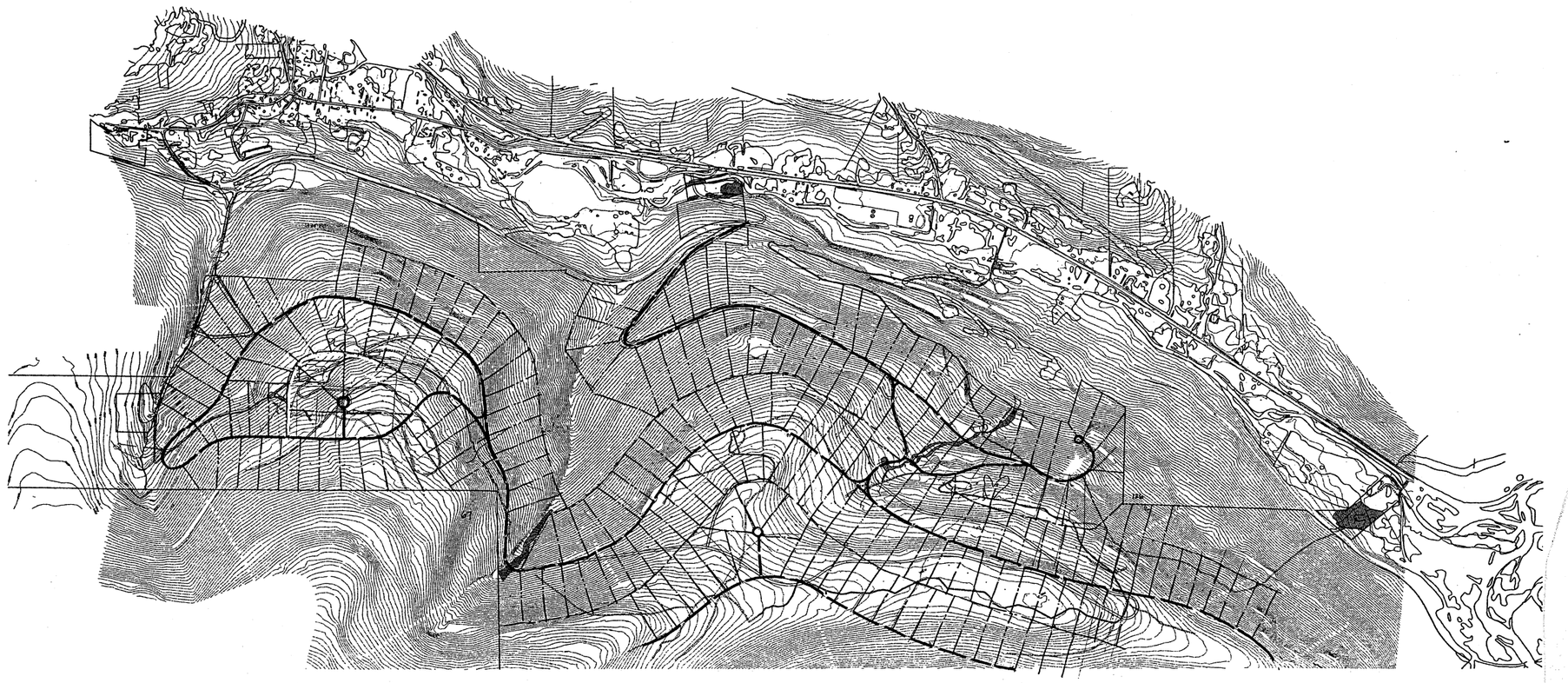
- direct full time employment for 542
- direct part time and seasonal employment for 330
- direct total annual payroll of $20.5 million, average full time salary of $27,272
- indirect 211 jobs in region
- indirect wages and salaries of $7.43 million
- annual property tax revenue increase of $1,503,154 in Shandaken and Ulster County allocated as follows:

Ulster County General	$186,777
Shandaken Town General	$148,277
Shandaken Highway	$176,656
Highmount Fire	$ 92,217
Big Indian Oliverea Fire	$ 23,512
Pine Hill Fire	$ 11,330
Pine Hill Light	$ 5,242
Onteora Central School	$745,546
Onteora School Library	$ 623
Margaretville School	$112,961

- annual property tax revenue increase of $526,472 in Middletown and Delaware County allocated as follows

Delaware County General	$158,013
Middletown Town	$ 74,106
Highway Outside Village	$ 33,155
General Outside Village	$ 2,072
Middletown FD #1	$ 23,243
Margaretville School	$235,883

- Annual off-site Visitor Spending of $11.81 million mostly in village and hamlet centers



216 LOTS THIS SHEET
90 LOTS NEXT SHEET
306 LOTS TOTAL (ALL 2.5± AC)

0 200 400 800

the LA group
Landscape Architecture
and Engineering, P.C.

40 Long Alley
Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0180

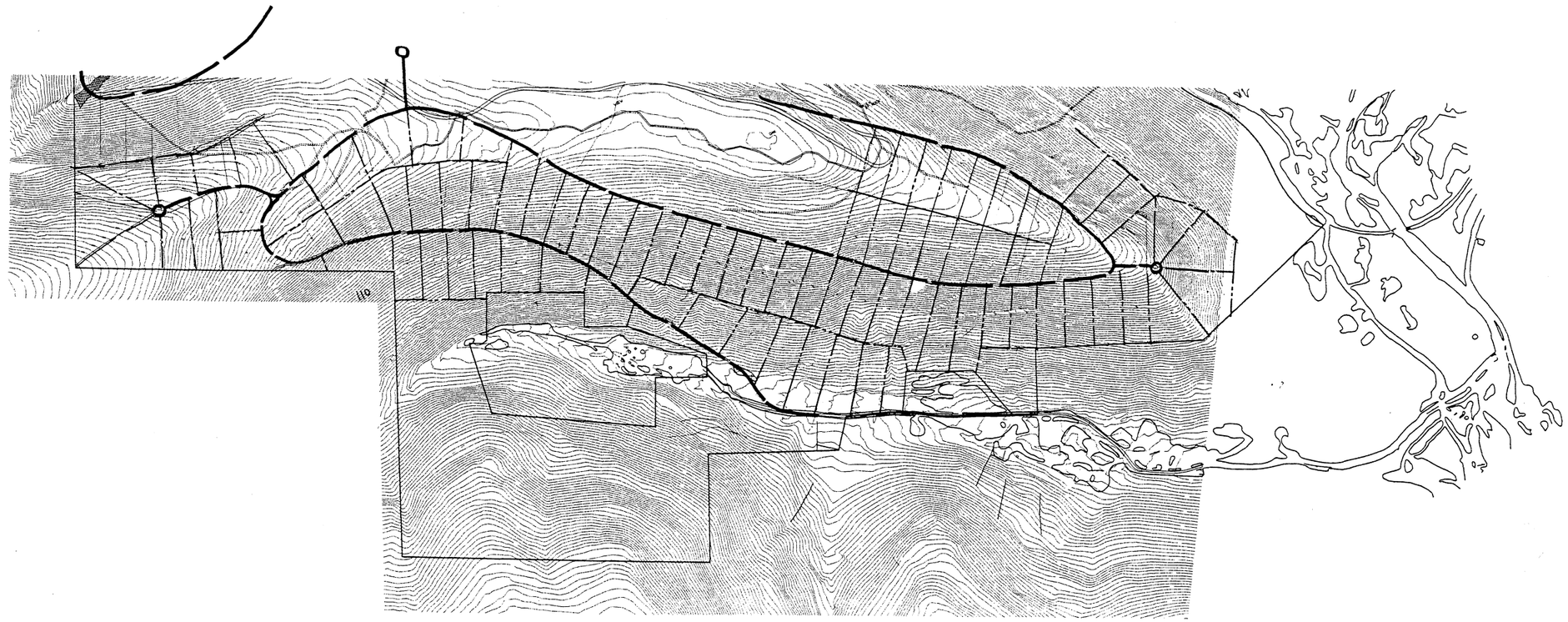
BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

RESIDENTIAL DEVELOPMENT ALTERNATIVE FOR BIG INDIAN PLATEAU

Project: 000
Date:

Figure 5-1



90 LOTS - 2.5± AC

0 200 400 800

the LA group
Landscape Architecture
and Engineering, P.C.

40 Long Alley
Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0180

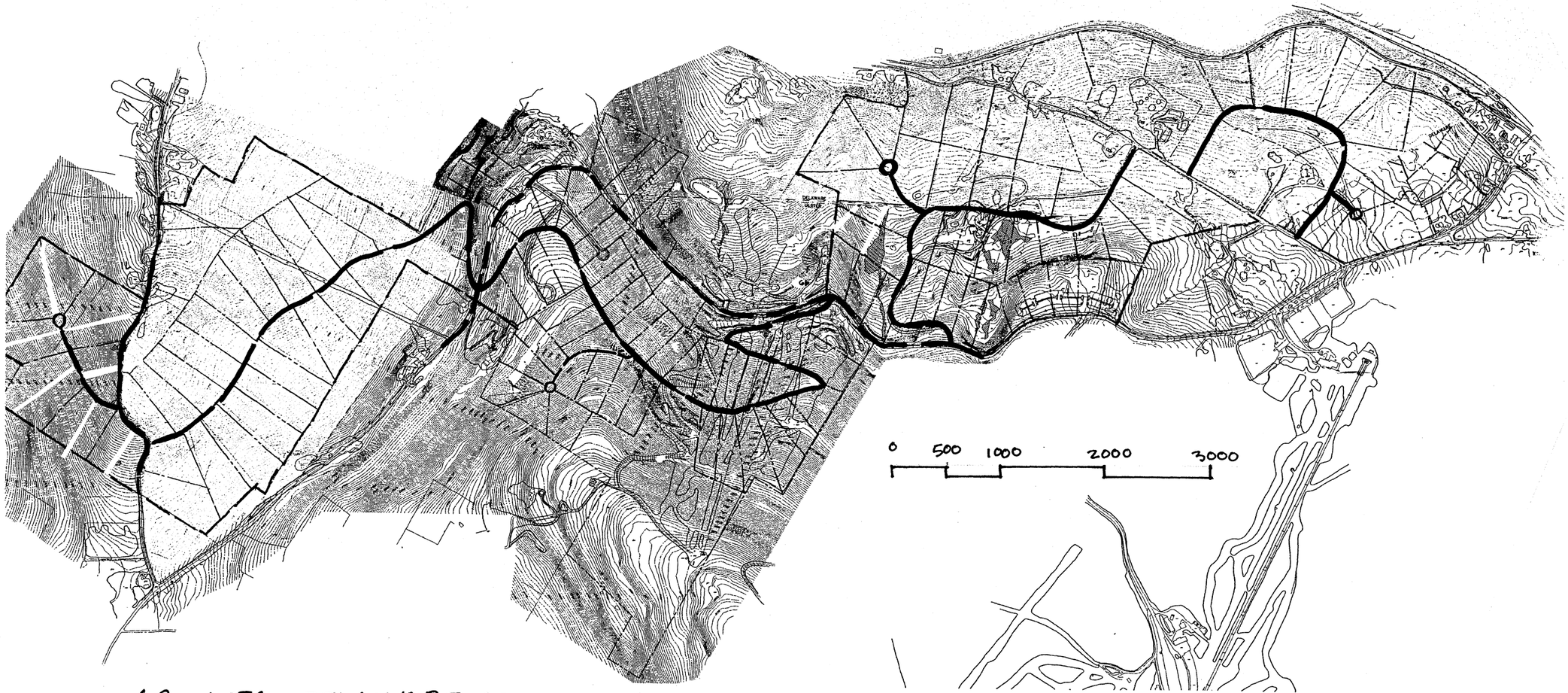
BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

RESIDENTIAL DEVELOPMENT ALTERNATIVE FOR BIG INDIAN PLATEAU

Project: 000552
Date:

Figure
5-2



62 LOTS DELAWARE CO
5 ACRES EACH

77 LOTS ULSTER CO
2.5 ACRES EACH

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Landscape Architecture
and Engineering, P.C.

40 Long Alley
Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0180

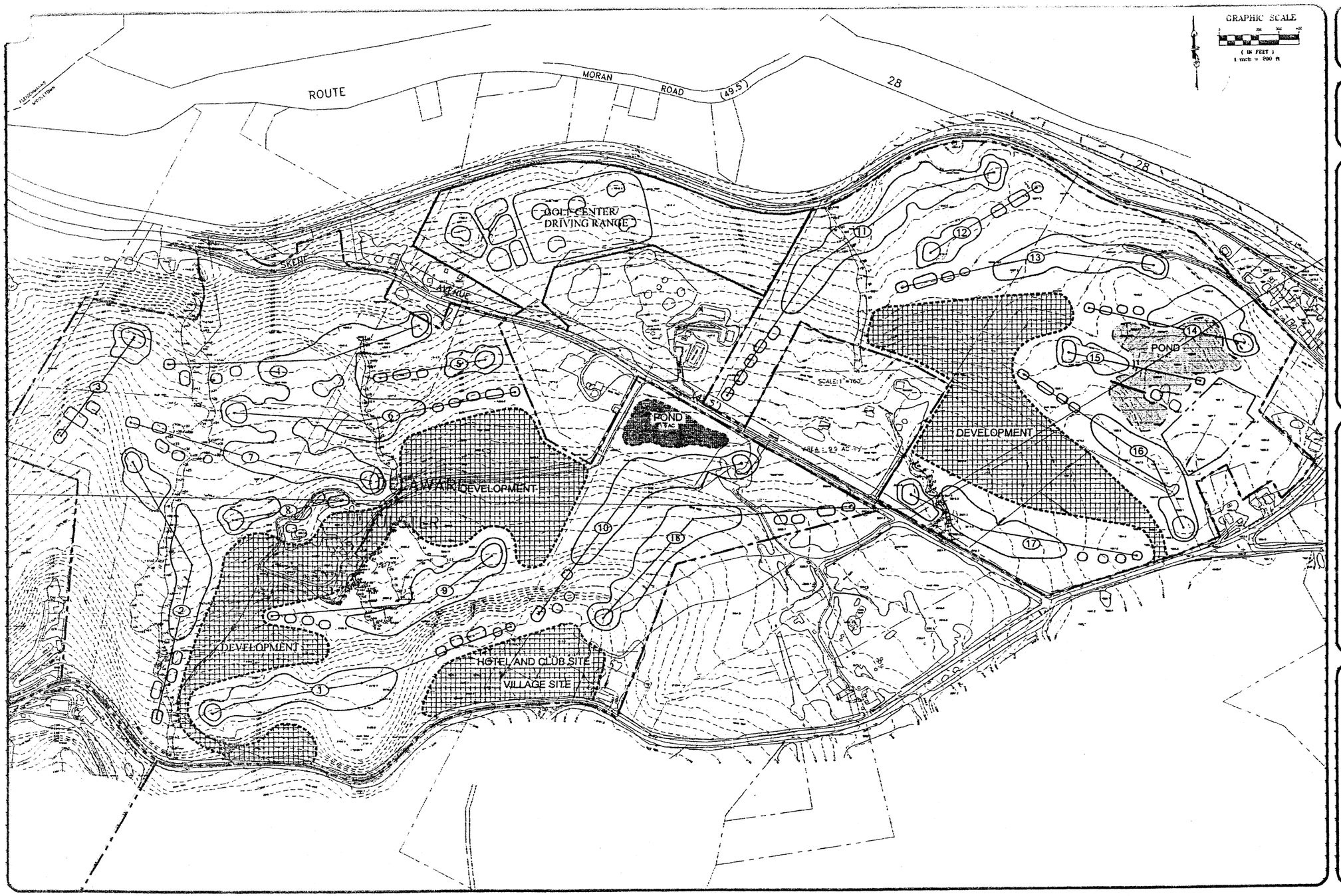
BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

RESIDENTIAL DEVELOPMENT ALTERNATIVE FOR WILDACRES

Project: 00052
Date:

Figure 5-3



PROPOSED GOLF COURSE ROUTING

WILD ACRES RESORT

BELLEAYRE MOUNTAINS

SHEET 1

LOVE ENTERPRISES

BUSINESS OFFICE
104 SANTA MARIA CIR.
ST. SIMONS ISLAND GA.31522
PHONE (912) 638-8051
FAX (912) 638-7724

DESIGN OFFICE
215 ANGUILLA ST.
ST. SIMONS ISLAND GA.31522
PHONE (912) 638-3579
FAX (912) 638-6068

the LA group
Landscape Architecture
and Engineering, P.C.

40 Long Alley
Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0160

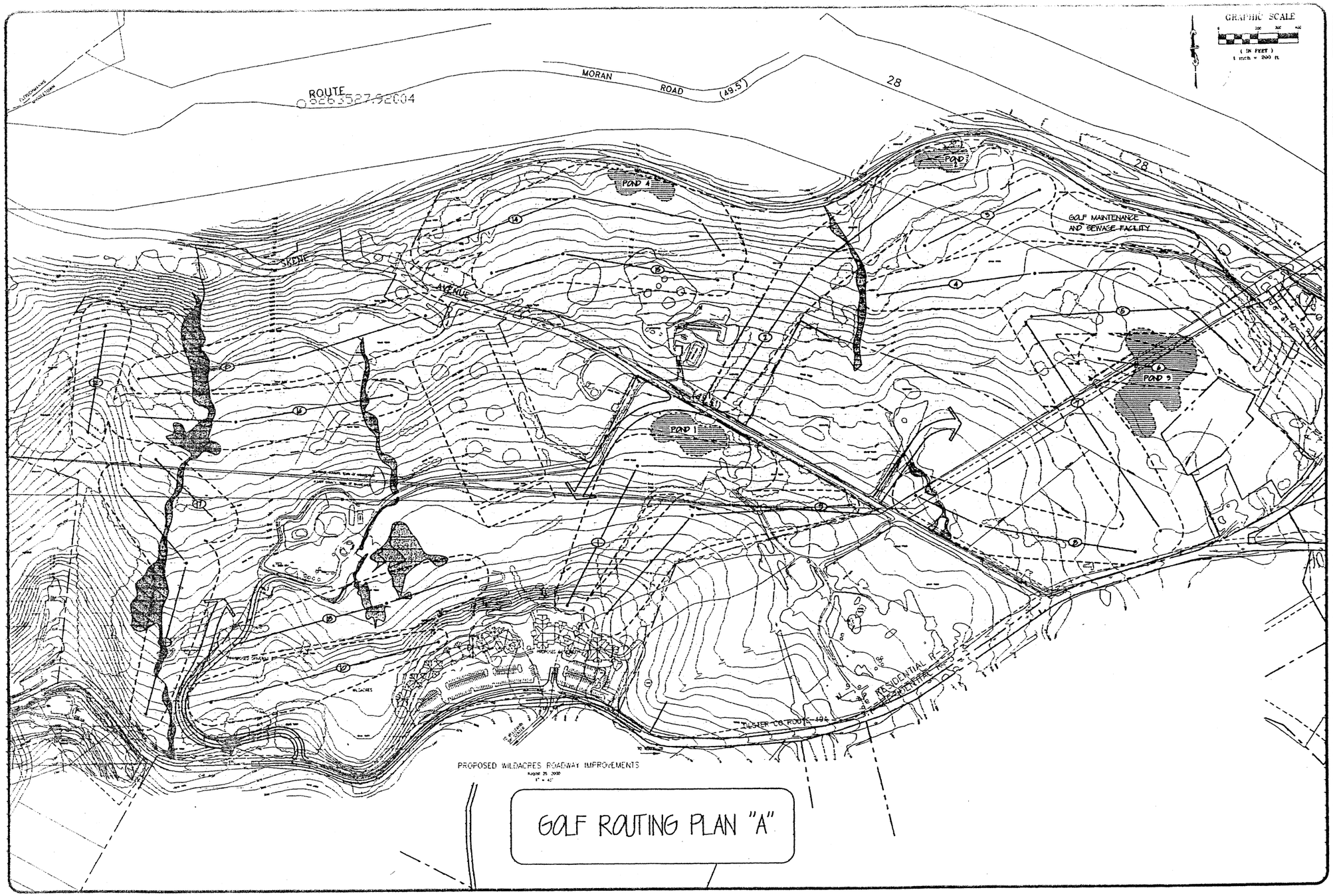
BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

ALTERNATIVE HIGHMONT GOLF CLUB 1 (4/3/00)

Project: 00052
Date:

Figure 5-4



PROPOSED GOLF COURSE ROUTING
WILD ACRES RESORT
BELLEAYRE MOUNTAINS

SHEET 1

PROJ # : L0250
DESIGN: DL / PGM
DRW: VG
DATE: 07/28/00
REV:

LOVE ENTERPRISES

BUSINESS OFFICE:
120 BRUNSWICK AVENUE
ST. SIMONS ISLAND GA 31522
PHONE (912) 638-6091
FAX (912) 638-7729

DESIGN OFFICE:
215 ANGUILLA ST.
ST. SIMONS ISLAND GA 31522
PHONE (912) 638-3479
FAX (912) 638-3048

the LA group
Landscape Architecture
and Engineering, P.C.

40 Long Alley
Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0180

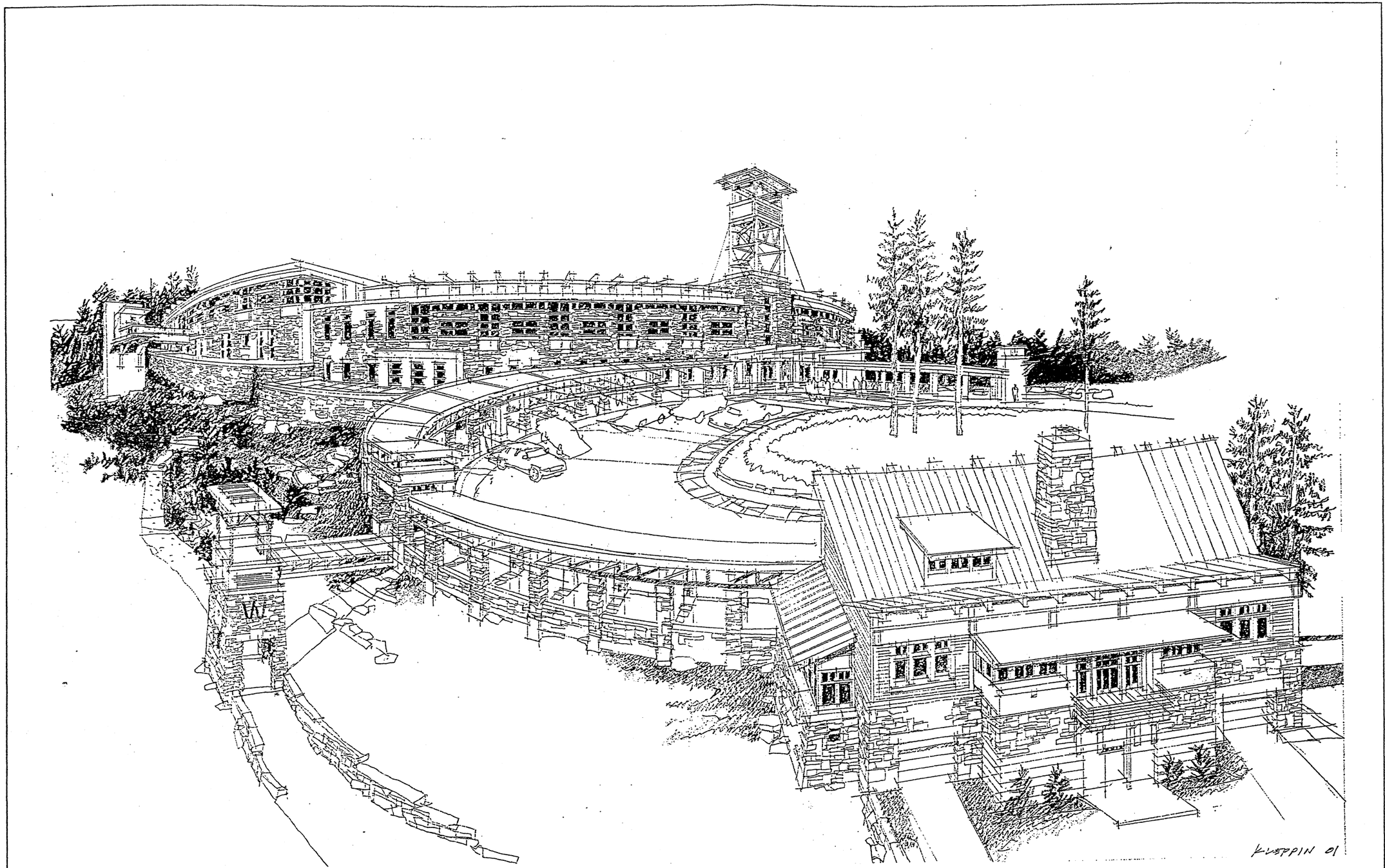
BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

ALTERNATIVE
HIGHMONT
GOLF CLUB 2
(9/28/00)

Project: 00052
Date:

Figure
5-5



ALTERNATIVE BIG INDIAN HOTEL BUILDING ELEVATION

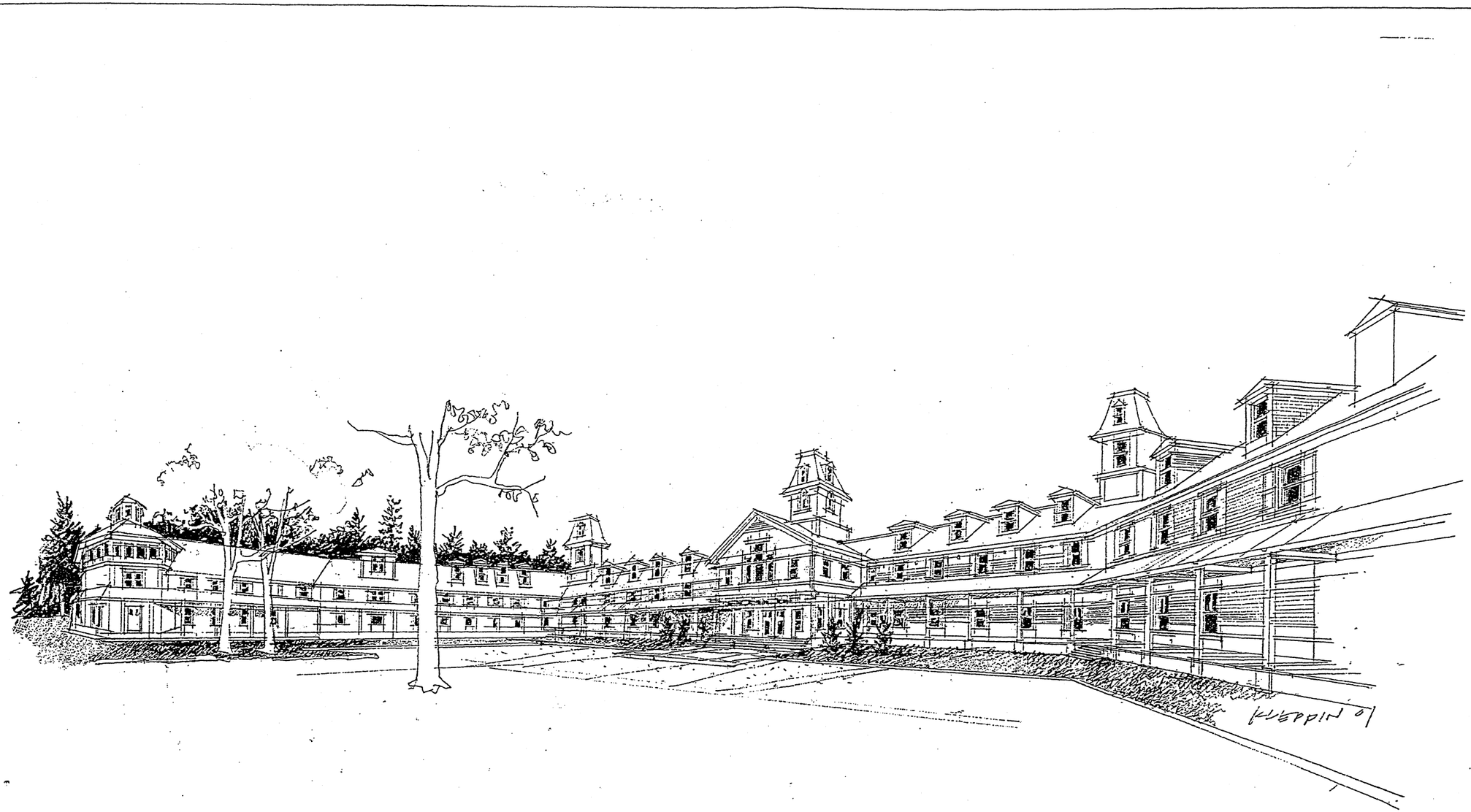
ARTIST'S CONCEPT:
Please note: while the footprint and elevations for this structure are accurately reflected in accompanying engineering documents, final design will be the responsibility of downstream architects whose construction designs may differ.

BELLEAYRE RESORT AT CATSKILL PARK

blue dog design
1701 EAST WASHINGTON ST
ORLANDO FLORIDA 32803

DRAFT
ENVIRONMENTAL
IMPACT STATEMENT

Figure
5-6



WILD ACRES RESORT UPPER LODGE ALTERNATIVE

ARTIST'S CONCEPT:
Please note: while the footprint and elevations for this structure are accurately reflected in accompanying engineering documents, final design will be the responsibility of downstream architects whose construction designs may differ.

BELLEAYRE RESORT AT CATSKILL PARK

blue dog design
1701 EAST WASHINGTON ST
ORLANDO FLORIDA 32803

DRAFT
ENVIRONMENTAL
IMPACT STATEMENT

Figure
5-7

WILD ACRES RESORT LOWER LODGE ALTERNATIVE

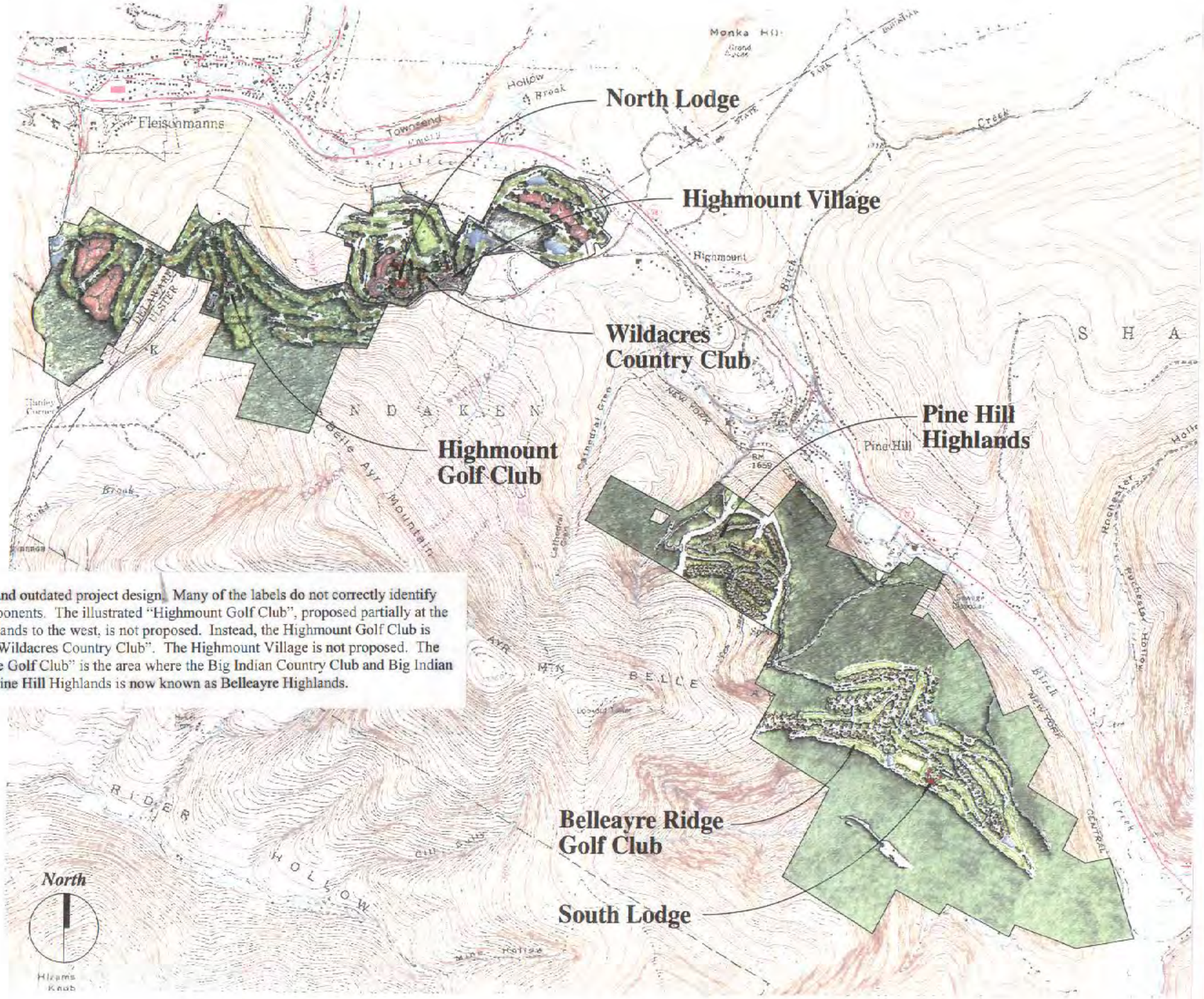
ARTIST'S CONCEPT:
Please note: while the footprint and elevations for this structure are accurately reflected in accompanying engineering documents, final design will be the responsibility of downstream architects whose construction designs may differ.

BELLEAYRE RESORT AT CATSKILL PARK

blue dog design
1701 EAST WASHINGTON ST
ORLANDO FLORIDA 32803

DRAFT
ENVIRONMENTAL
IMPACT STATEMENT

Figure
5-8



This figure represents an early and outdated project design. Many of the labels do not correctly identify currently proposed project components. The illustrated "Highmount Golf Club", proposed partially at the old Highmount Ski Center and lands to the west, is not proposed. Instead, the Highmount Golf Club is proposed on the lands labeled "Wildacres Country Club". The Highmount Village is not proposed. The area labeled as "Belleayre Ridge Golf Club" is the area where the Big Indian Country Club and Big Indian Resort and Spa are proposed. Pine Hill Highlands is now known as Belleayre Highlands.

Conceptual Area Development Plan

Belleayre Resort at Catskill Park

Robert Lamb Hart · Planners and Architect · New York

the LA group
Landscape Architecture and Engineering, P.C.

40 Long Alley
Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-2180

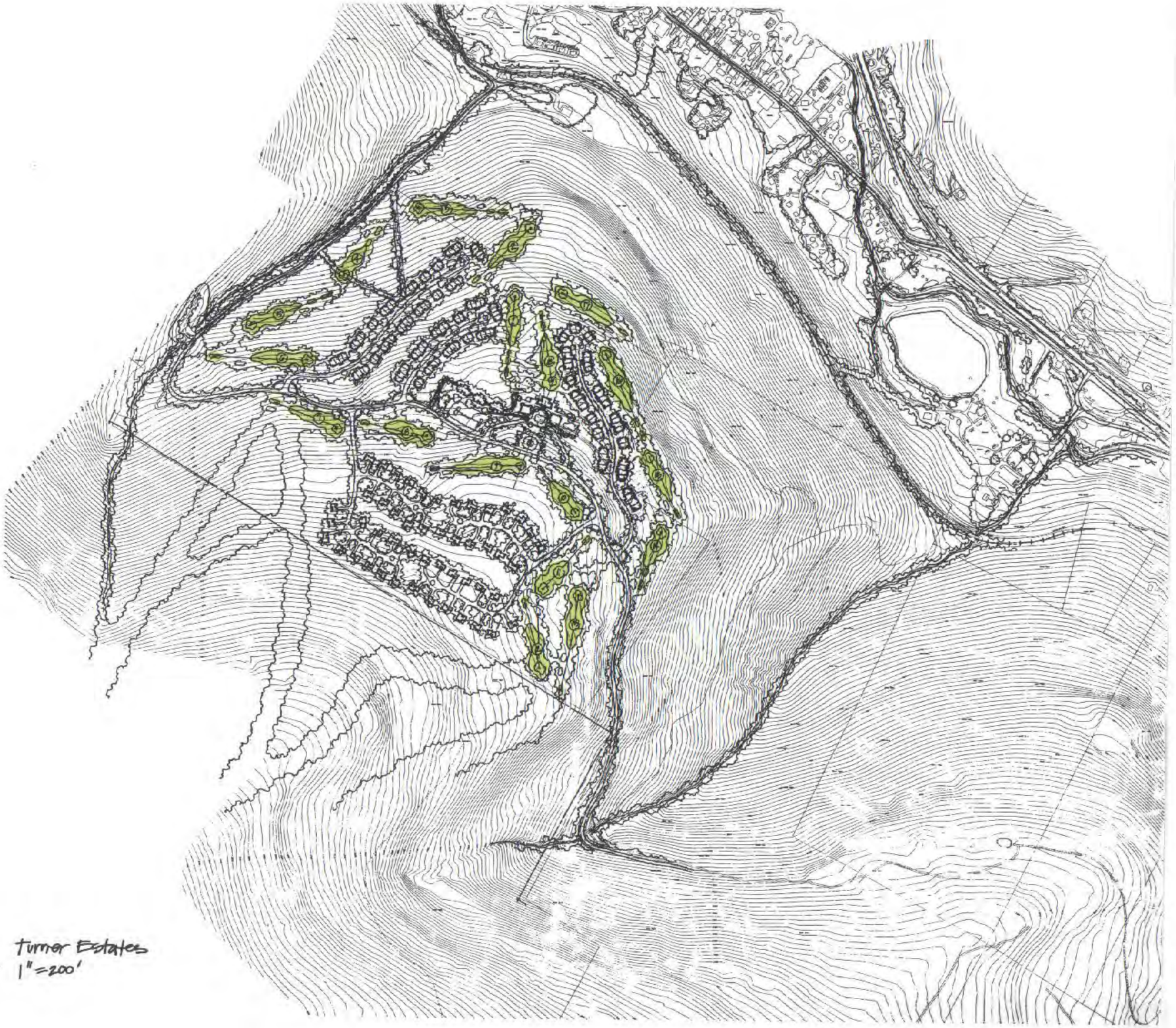
BELLEAYRE RESORT AT CATSKILL PARK

DRAFT ENVIRONMENTAL IMPACT STATEMENT

THIRD 18-HOLE GOLF COURSE (NOT PROPOSED)

Project: 00052
Date:

Figure 5-9



the LA group
landscape Architecture
and Engineering, P.C.

40 Long Alley
Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0160

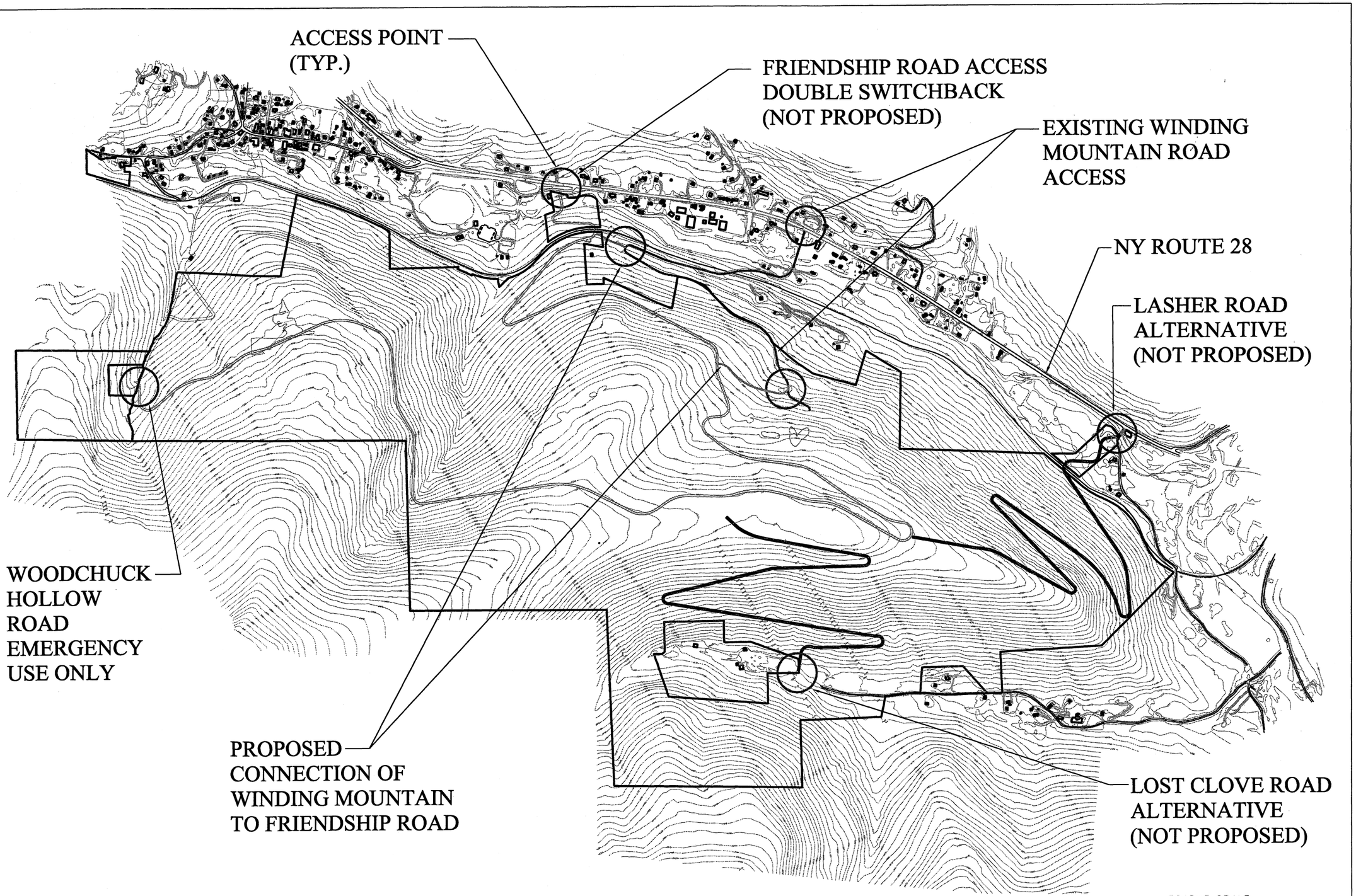
BELLEAYRE
RESORT AT
CATSKILL
PARK

DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

FOURTH
18-HOLE
GOLF
COURSE
(NOT
PROPOSED)

Project: 00052
Date:

Figure
5-10



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Landscape Architecture
and Engineering, P.C.

40 Long Alley
Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0180

BELLEAYRE
RESORT AT
CATSKILL
PARK

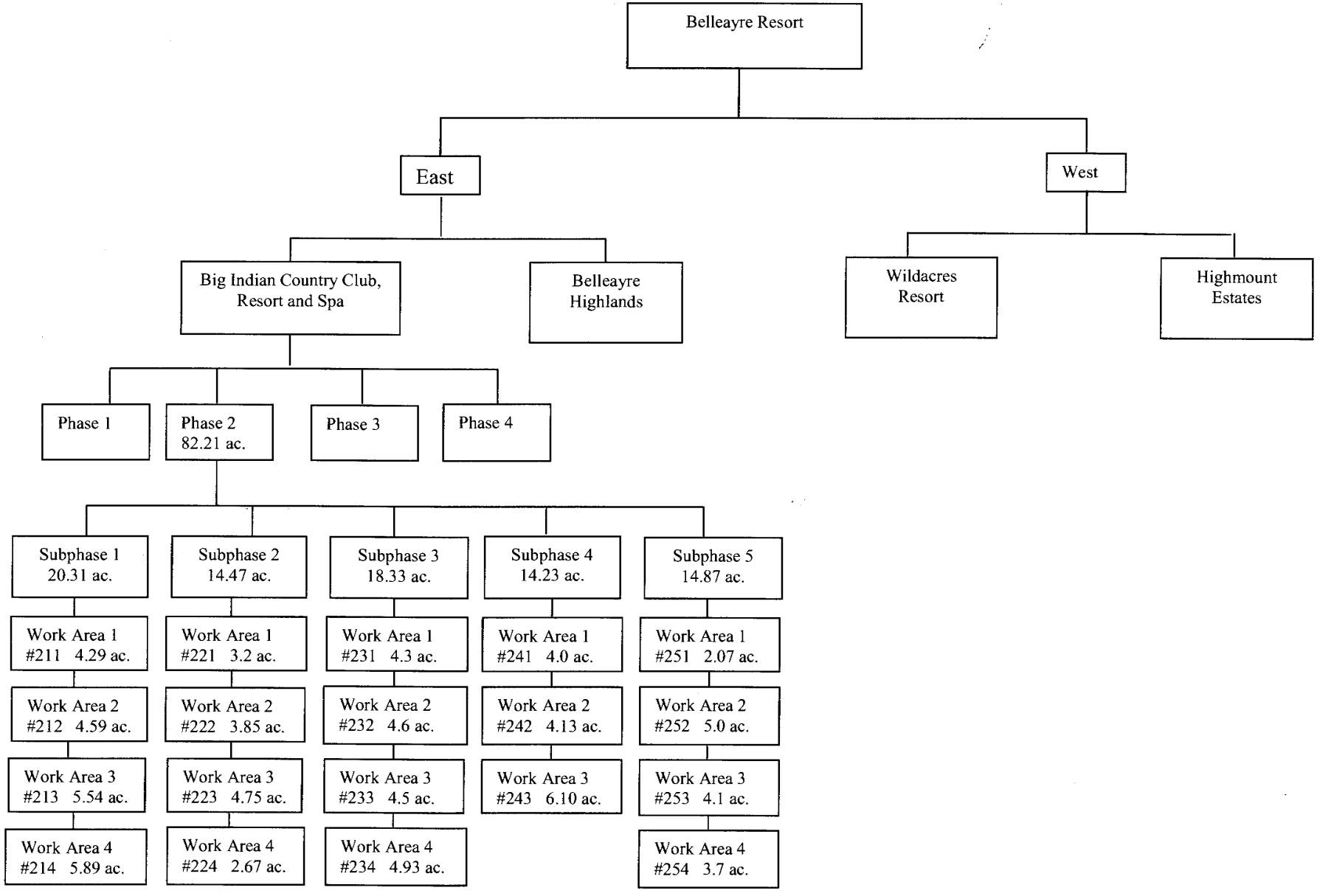
DRAFT
ENVIRONMENTAL
IMPACT
STATEMENT

ALTERNATIVE
ACCESS
LOCATIONS
BIG INDIAN
PLATEAU

Project: 00052
Date:

Figure
5-11

Figure 5-12
Construction Components Big Indian Country Club Phase 2



GOLF MAINTENANCE FACILITY

9 CP-12 LEVEL SPREADER 4 DISPERSION PIPE

LEVEL SPREADER 3 DISPERSION PIPE 9 CP-12

WASTEWATER TREATMENT FACILITY

9 CP-12 LEVEL SPREADER 5 DISPERSION PIPE

PRACTICE RANGE

9 CP-12 LEVEL SPREADER 4A DISPERSION PIPE

9 CP-12 LEVEL SPREADER 5A DISPERSION PIPE

SUBPHASE 1 RETENTION BASINS TO BE DEWATERED TO IRRIGATION PONDS

SATELLITE GOLF MAINTENANCE BUILDING

SUBPHASE 2 RETENTION BASINS TO BE DEWATERED TO IRRIGATION PONDS

BIG INDIAN RESORT, SPA AND CLUBHOUSE – 250 COVERED PARKING SPACES

DEC TRAIL

LEGEND

WORK AREA UNDER CONSTRUCTION

WORK AREA STABILIZED

UNSHADED AREAS ARE INCLUDED IN PHASE 1 OR ARE TO BE CONSTRUCTED IN FUTURE PHASE

232 SUBCATCHMENT AREA

SUBPHASE WORK AREA

SUBPHASE

PHASE

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)
1 inch = 200 ft.

Directory: E:\proj-00\0052\ridge\0052Bcon-ph2.dwg
Lc: Ph2-400

the LA group
Landscape Architecture and Engineering, P.C.
40 Long Alley
Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0180

Design DRC
Drawn BMP
Checked DRC

Engineering Consultant:
DeTraze Engineering, PC
28 Aviation Rd., Ste.
Albany, NY 12205
518/452-1290

Traffic Consultant:
Creighton-Manning Eng., LLP
4 Airport Park Blvd.
Albany, NY 12205-1083
518/446-0396

Survey Consultant:
Reiter Eng. & Surveying, PC
P.O. Box 698
Keeseville, NY 12455
845/566-2400

Golf Course Architect:
Love Enterprises and Assoc.
225 Arnold St.
St. Simons Island, GA 31522
912/638 3679

Hydrogeologic Consultant:
Alpha GeoScience
399 Plank Road
Clifton Park, NY 12065
518/346-6906

Recreation Planning:
JR Crump
PO Box 1239
Burlington, VT 05401
802/862-0096

Design Consultant:
Ronald Lamberg
5 East 22nd St., 5-F
New York, NY 10021
212/751-3017

Design Consultant:
Hart/Howerton
Robert Lamb Hart
10 East 40th St.
New York, NY 10016
212/683-5631

Design Consultant:
Rice Fox Design
1701 East Washington Street
Orlando, Florida 32803
407/894-0037

Counsel:
Whiteman, Osterman, & Hanna
One Commerce Plaza
Albany, NY 12260
518/487-7600

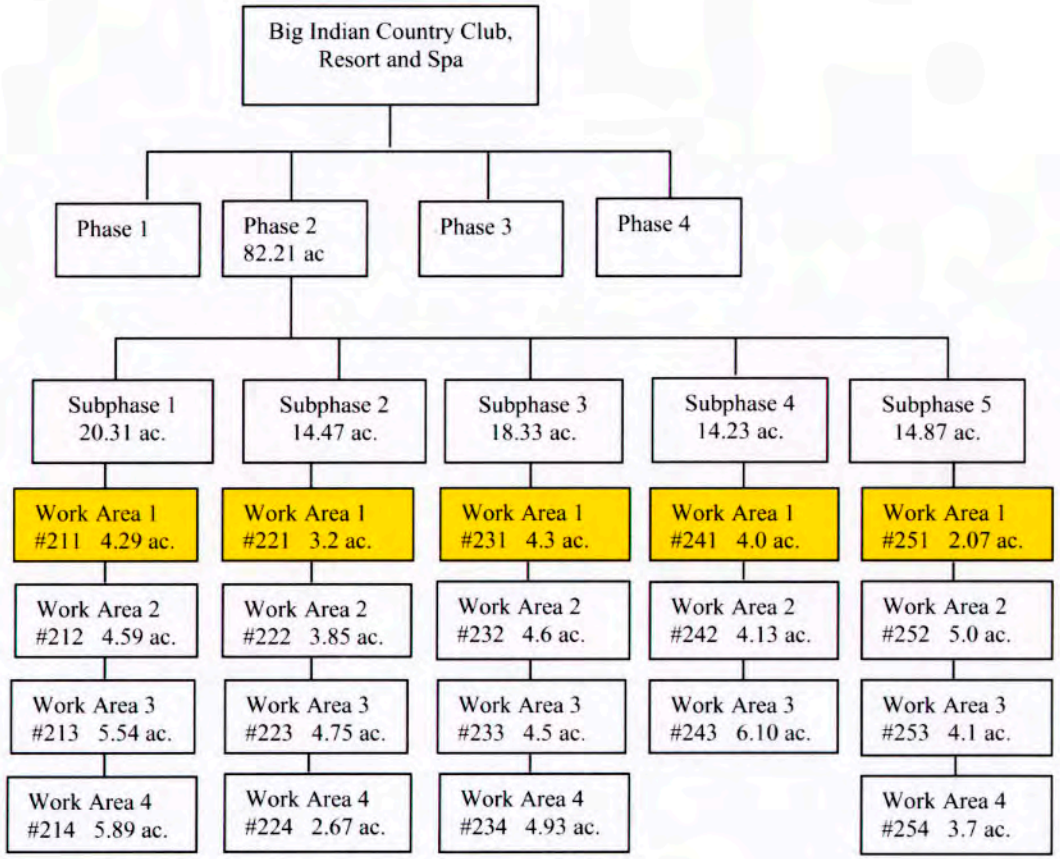
PREPARED FOR:
CROSSROADS VENTURES L.L.C.
P.O. BOX 267
MT. TREMPER, NY 12457

BIG INDIAN PLATEAU
BIG INDIAN RESORT & SPA
BIG INDIAN COUNTRY CLUB
Title CONSTRUCTION SEQUENCING - PHASE 2

Revisions
04/22/03

Project 00052
Date 12/11/02
CAD # 0052BSCON-PH2

Figure 5-14
Construction Sequence 1



- Total = 17.86 acres

GOLF MAINTENANCE FACILITY

WASTEWATER TREATMENT FACILITY

PRACTICE RANGE

BIG INDIAN RESORT, SPA AND CLUBHOUSE ~ 250 COVERED PARKING SPACES

SATELLITE GOLF MAINTENANCE BUILDING

OEC TRAIL

LEGEND

WORK AREA UNDER CONSTRUCTION

WORK AREA STABILIZED

UNSHADED AREAS ARE INCLUDED IN PHASE 1 OR ARE TO BE CONSTRUCTED IN FUTURE PHASE

TOTAL DISTURBED AREA: 17.86 ACRES

232 SUBCATCHMENT AREA

SUBPHASE WORK AREA

SUBPHASE

PHASE

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)
1 inch = 200 ft.

Directory: z:\proj-00\0052\ridge\0052Bicon-ph2.dwg

the LA group
Landscape Architecture and Engineering, P.C.

40 Long Alley
Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0180

Design DRC
Drawn BMP
Checked DRC

Engineering Consultant:
Delaware Engineering, PC
28 Madison Ave. Ext.
Albany, NY 12203
518/452-1290

Traffic Consultant:
Creighton-Manning Eng. LLP
4 Airlongion Lane
Albany, NY 12205-1083
518/446-0396

Survey Consultant:
Hefter Eng. & Surveying, PC
P.O. Box 808
Keeseville, NY 12455
845/566-2400

Golf Course Architect:
Love Enterprises and Assoc.
107 Lagoon St.
St. Simons Island, GA 31522
912/638 3979

Hydrogeologic Consultant:
Alpha Geoscience
676 Plank Road
Clifton Park, NY 12065
518/348-8995

Recreation Planning:
SE Group
156 College St.
Burlington, VT 05401
802/862-0096

Design Consultant:
Stephen Ambeau
9 East 63rd St.
New York, NY 10021
212/751-3017

Design Consultant:
Hart/Howerton
Robert Lamb-Hart
10 East 40th St.
New York, NY 10016
212/683-5631

Design Consultant:
Blue Sea Design
1701 East Washington Street
Orlando, Florida 32803
407/894-0237

Counsel:
Whiteman, Osterman, & Hanna
One Commerce Plaza
Albany, NY 12260
518/487-7600

PREPARED FOR:
CROSSROADS VENTURES L.L.C.
P.O. BOX 257
MT. TREMPER, NY 12457

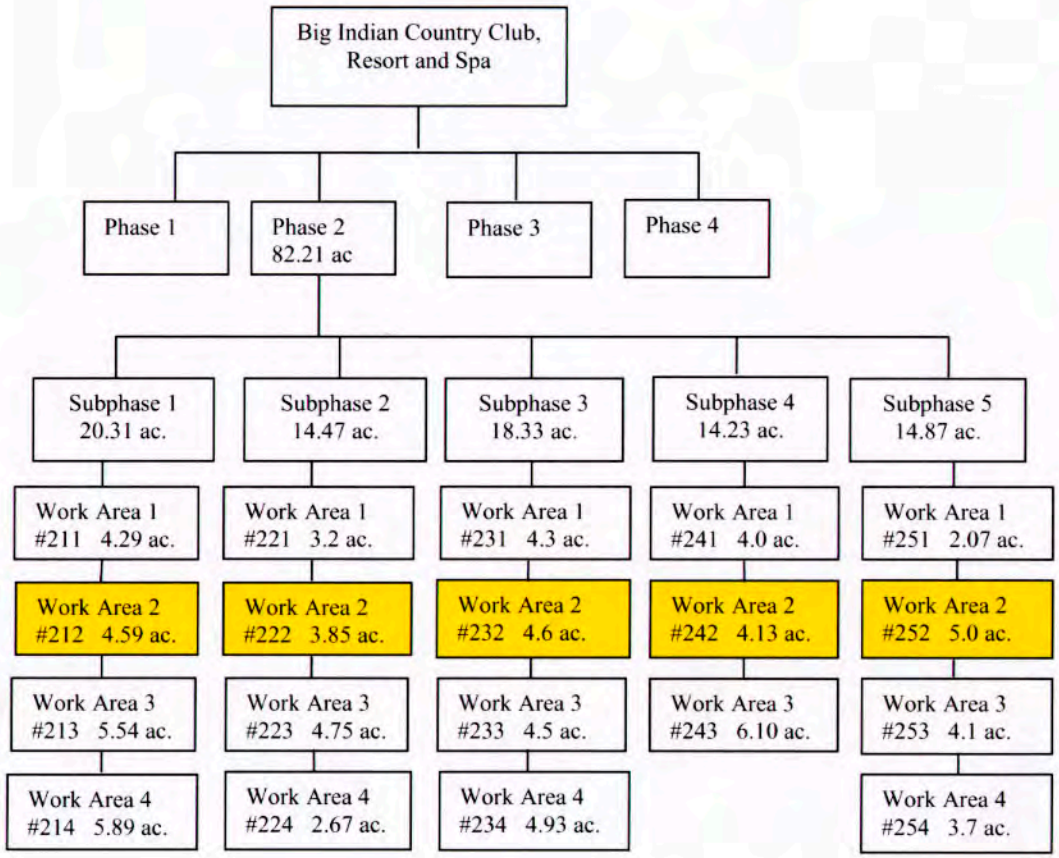
BIG INDIAN PLATEAU
BIG INDIAN RESORT & SPA
BIG INDIAN COUNTRY CLUB

Title CONSTRUCTION SEQUENCING - PHASE 2 - WORK AREA 1

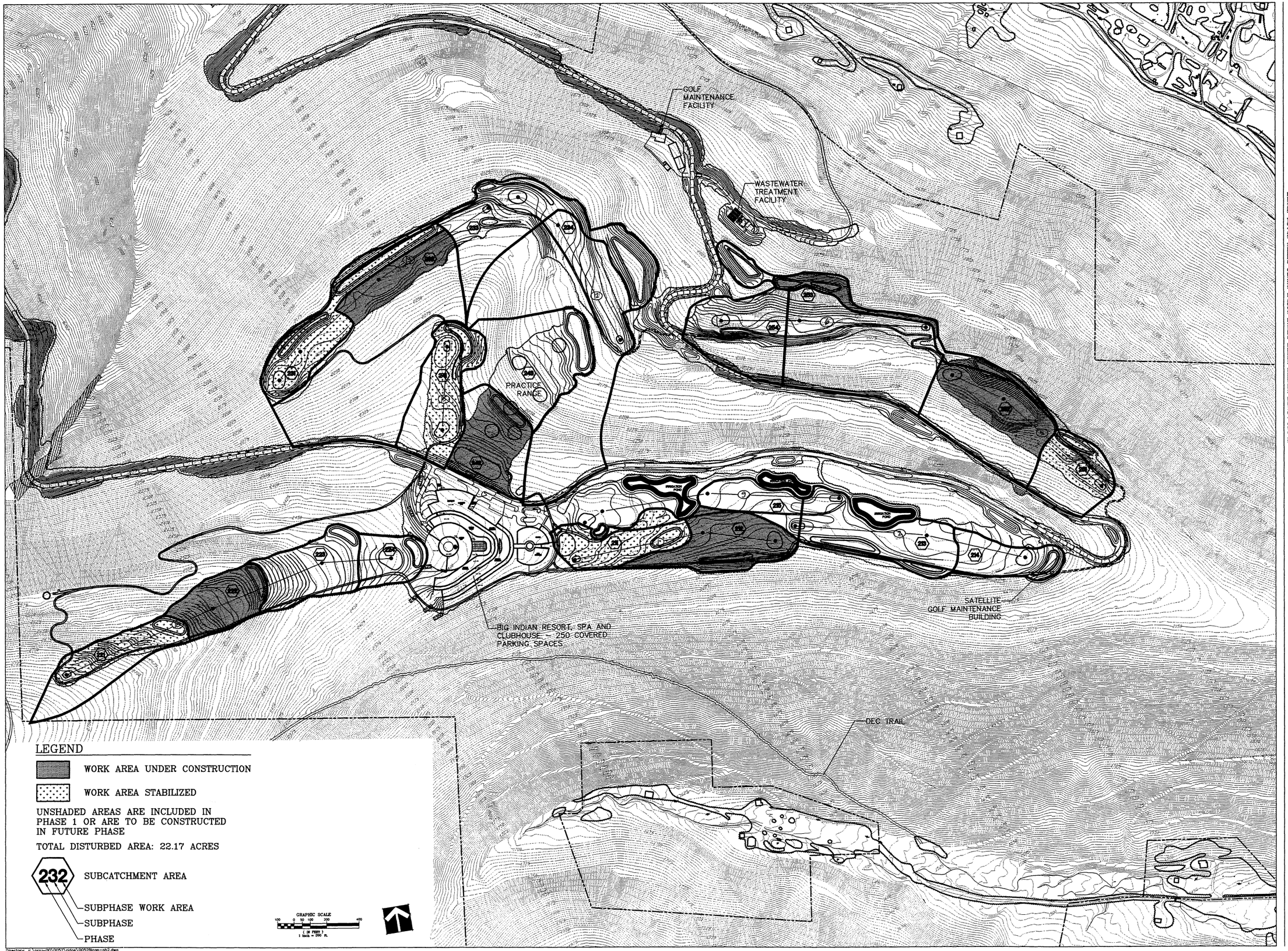
Revisions

Project 00052
Date 12/11/02
CAD # 0052BICON-PH2

Figure 5-16
Construction Sequence 2



- Total = 22.17 acres



the LA group
Landscape Architecture and Engineering, P.C.

40 Long Alley
Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0180

Design DRC
Drawn BMP
Checked DRC

Engineering Consultant:
Delaware Engineering, PC
28 Madison Ave. Ext.
Albany, NY 12203
518/452-1250

Traffic Consultant:
Creighton-Manning Eng., LLP
4 Industrial Park
Albany, NY 12205-1583
518/446-0396

Survey Consultant:
Ritter Eng. & Surveying, PC
P.O. Box 696
Margaretville, NY 12455
845/586-2400

Golf Course Architect:
Love Enterprises and Assoc.
210 Lewis St.
St. Simons Island, GA 31522
912/638 3979

Hydrogeologic Consultant:
Alpha GeoScience
679 Plank Road
Clifton Park, NY 12065
518/346-8995

Recreation Planning:
JK Group
76 College St
Burlington, VT 05401
802/862-0096

Design Consultant:
Peter Ashburg
3 Lexington Ave.
New York, NY 10021
212/751-3617

Design Consultant:
Hart/Howerton
Robert Lamb-Hart
10 East 40th St.
New York, NY 10016
212/683-5631

Design Consultant:
Blue Sox Design
1701 East Washington Street
Orlando, Florida 32803
407/894-4027

Counsel:
Whiteman, Osterman, & Hanna
One Commerce Plaza
Albany, NY 12260
518/487-7600

PREPARED FOR:
CROSSROADS VENTURES L.L.C.
P.O. BOX 267
MT. TREMPER, NY 12457

BIG INDIAN PLATEAU
BIG INDIAN RESORT & SPA
BIG INDIAN COUNTRY CLUB
Title CONSTRUCTION SEQUENCING - PHASE 2 - WORK AREA 2

Revisions

Project 00052
Date 12/11/02
CAD # 0052BICON-PH2

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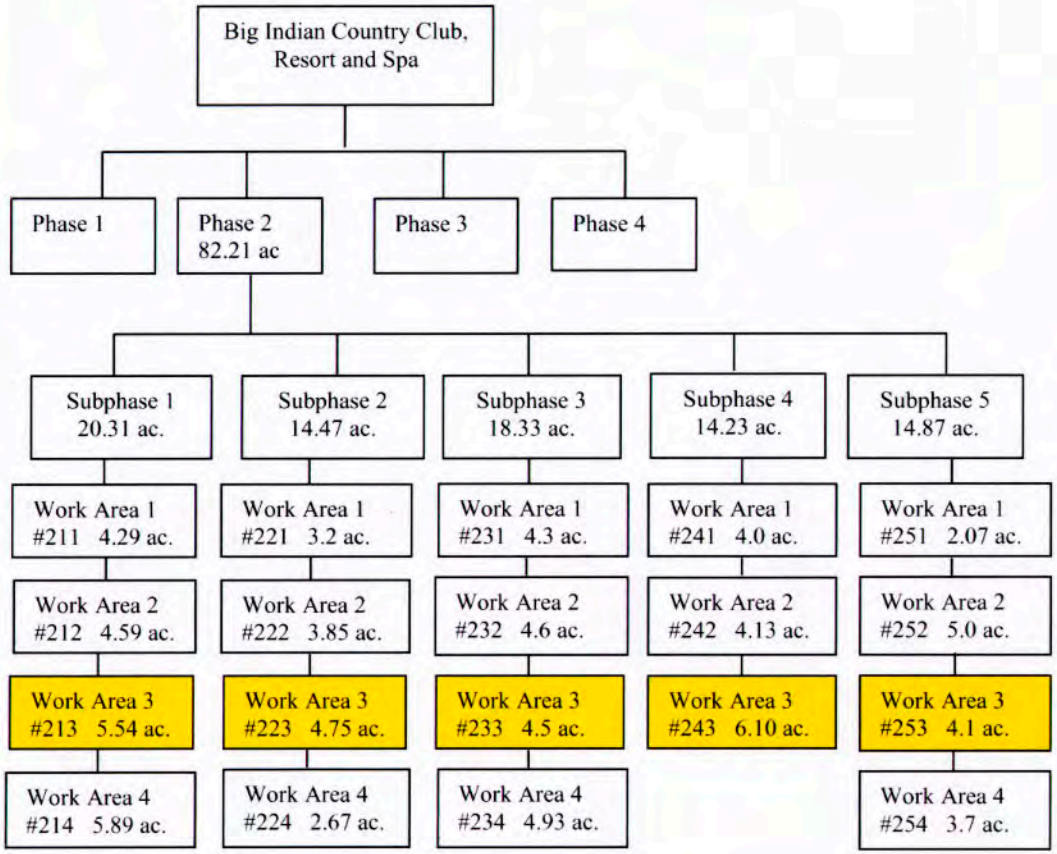
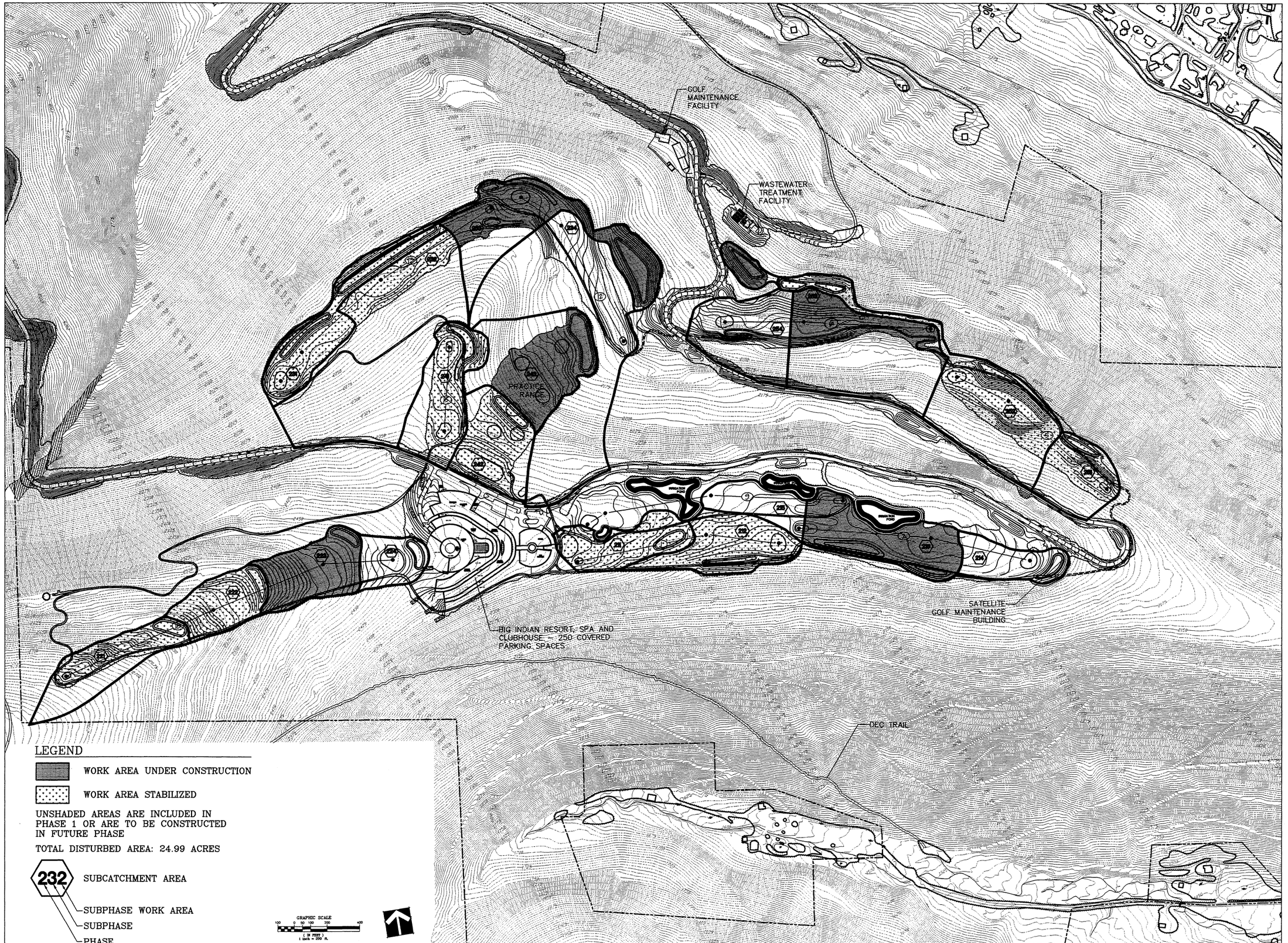
Figure 5-18
Construction Sequence 3



- Total = 24.99 acres



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Lx: Ph2-3

the LA group
landscape Architecture
and Engineering, P.C.

40 Long Alley
Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0180

Design	DRC
Drawn	BMP
Checked	DRC

Engineering Consultant:
Delaney Engineering, PC
99 Madison Ave, Ext
Albany, NY 12203
518/452-1290

Traffic Consultant:
Creighton-Manning Eng., LLP
1 Airport Park Blvd
Albany, NY 12205-1683
518/446-0396

Survey Consultant:
Bettes Eng. & Surveying, PC
P.O. Box 696
Harpersfield, NY 12455
845/586-2400

Golf Course Architect:
Lynn Beasley Design and Assoc.
St. Augustine Island, GA 31522
912/638 3979

Hydrogeologic Consultant:
Alpine Geoscience
218 Eagle Road
Clifton Park, NY 12065
518/348-8995

Recreation Planning:
TR Group
56 College St
Burlington, VT 05401
802/862-0098

Design Consultant:
Pamela Ambers
1 East 53rd St
New York, NY 10021
212/751-3317

Design Consultant:
Hart/Howerton
Robert Lamb Hart
10 East 40th St
New York, NY 10016
212/683-5631

Design Consultant:
Blue Sea Design
1701 East Washington Street
Orlando, Florida 32803
407/894-0027

Counsel:
Whiteman, Osterman, & Hanna
One Commerce Plaza
Albany, NY 12260
518/487-7600

PREPARED FOR:
CROSSROADS VENTURES L.L.C.
P.O. BOX 267
MT. TREMPER, NY 12457

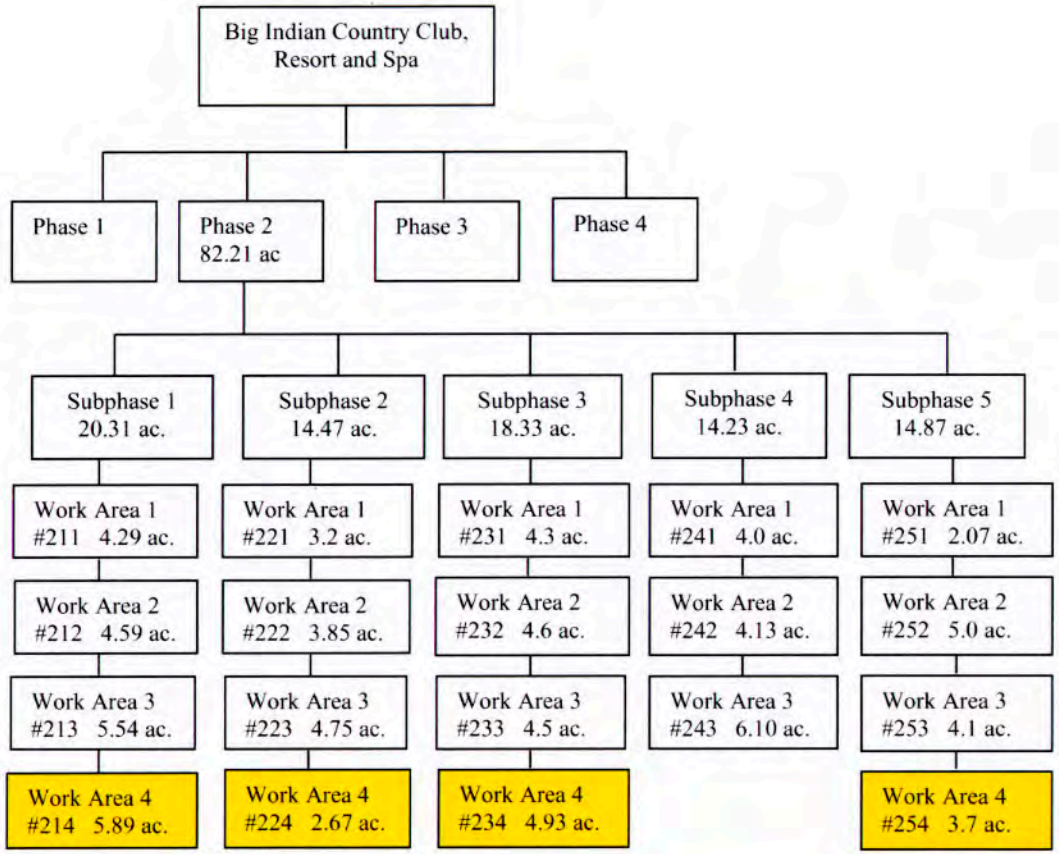
BIG INDIAN PLATEAU
BIG INDIAN RESORT & SPA
BIG INDIAN COUNTRY CLUB

CONSTRUCTION SEQUENCING - PHASE 2 - WORK AREA 3

Revisions

Project 00052
Date 12/11/02
CAD # 0052BCON-PH2

Figure 5-20
Construction Sequence 4



- Total = 17.19 acres

GOLF MAINTENANCE FACILITY

WASTEWATER TREATMENT FACILITY

PRACTICE RANGE

SATELLITE GOLF MAINTENANCE BUILDING

BIG INDIAN RESORT, SPA AND CLUBHOUSE – 250 COVERED PARKING SPACES

DEC TRAIL

LEGEND

WORK AREA UNDER CONSTRUCTION

WORK AREA STABILIZED

UNSHADED AREAS ARE INCLUDED IN PHASE 1 OR ARE TO BE CONSTRUCTED IN FUTURE PHASE

TOTAL DISTURBED AREA: 17.19 ACRES

232 SUBCATCHMENT AREA

SUBPHASE WORK AREA

SUBPHASE

PHASE

GRAPHIC SCALE
100 0 50 100 200 400
(IN FEET)
1 inch = 200 ft.

Directory: Z:\proj-00\00052\ridge\00528con-ph2.dwg
Lc: Ph2-4

the LA group
Landscape Architecture and Engineering, P.C.

40 Long Alley
Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0180

Design DRC
Drawn BMP
Checked DRC

Engineering Consultant:
Delaware Engineering, PC
28 Madison Ave. Ext.
Albany, NY 12203
518/452-1200

Traffic Consultant:
Creighton-Manning Eng., LLP
4 Airlan Drive
Albany, NY 12205-1683
518/446-0396

Survey Consultant:
Reford Eng. & Surveying, PC
P.O. Box 350
Jeffersonville, NY 12455
845/586-2400

Golf Course Architect:
Love Enterprises and Assoc.
501 Arnold St.
St. Simons Island, GA 31522
912/638 3070

Hydrogeologic Consultant:
Alpha Geoscience
679 Tagg Road
Clifton Park, NY 12065
518/348-8995

Recreation Planning:
SE Group
156 College St.
Burlington, VT 05401
802/862-0096

Design Consultant:
Pringle Associates
1 East 42nd St.
New York, NY 10021
212/751-3577

Design Consultant:
Hart/Howerton
Robert Lamp-Hart
10 East 40th St.
New York, NY 10016
212/683-5621

Design Consultant:
Blue Sea Design
1701 Park Washington Street
Orlando, Florida 32803
407/894-0027

Counsel:
Whiteman, Osterman, & Hanna
One Commerce Plaza
Albany, NY 12260
518/487-7600

PREPARED FOR:
CROSSROADS VENTURES L.L.C.
P.O. BOX 267
MT. TREMPER, NY 12457

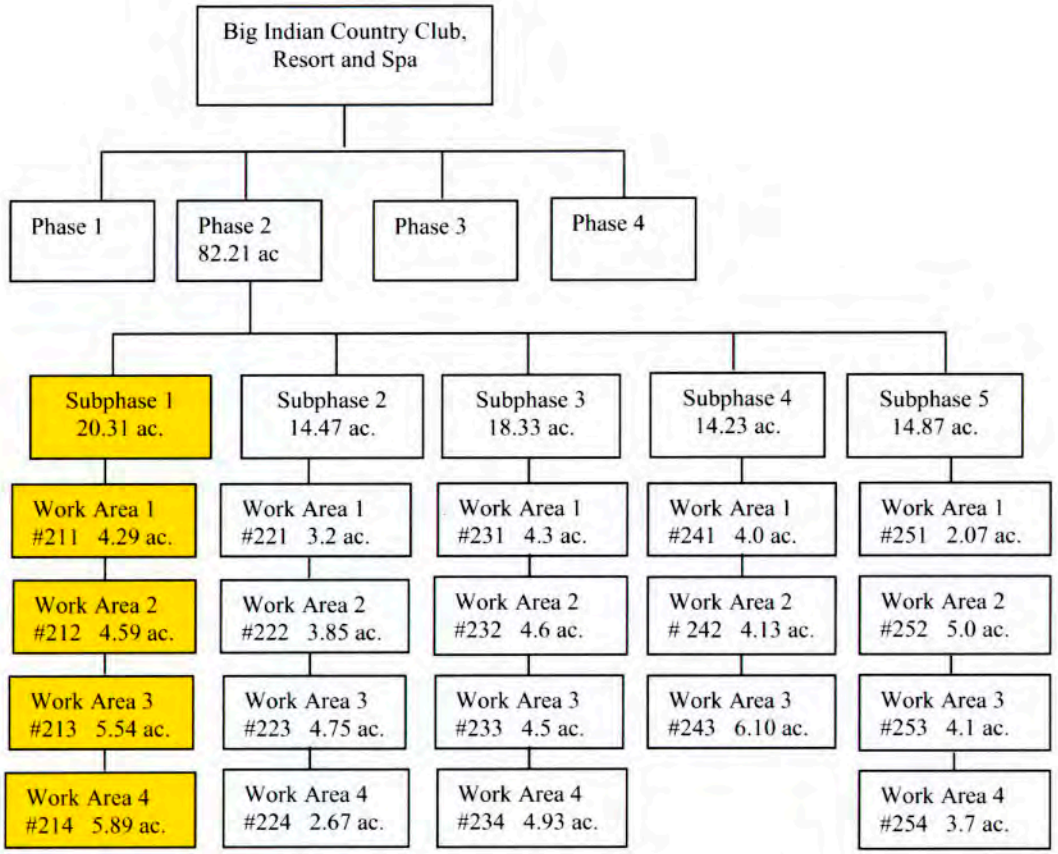
BIG INDIAN PLATEAU
BIG INDIAN RESORT & SPA
BIG INDIAN COUNTRY CLUB

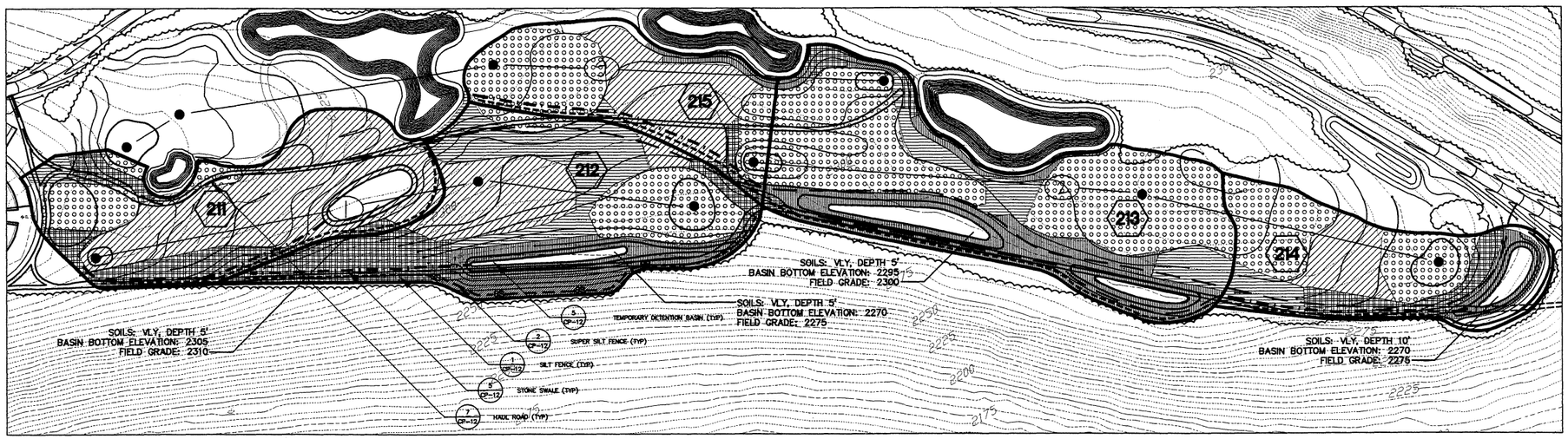
Title CONSTRUCTION SEQUENCING - PHASE 2 - WORK AREA 4

Revisions

Project 00052
Date 12/11/02
CAD # 00528RCON-PH2

Figure 5-22
Construction Sequence 5





LEGEND

- +50 %
- 30–50 %
- 20–30 %
- 10–20 %
- 5–10 %
- 0–5 %
- UNDISTURBED
- 232 SUBCATCHMENT AREA
- SUBPHASE WORK AREA
- SUBPHASE
- PHASE

CONSTRUCTION SEQUENCING

1. Golfcourse centerline stakeout, centerline clearing, construction limit stakeout (entire Phase).
2a. Construction Access and Perimeter Control (Subphase).
2b. Tree harvest without grubbing (Subphase).
2c. Temporary basin rough grade (Subphase).
3. Stump grub, grade stormwater basin and stormwater swales, stabilizing swales with rock or geotextile (Work Area.)
4. Rough grade Work Areas to grades indicated.
5a. Stabilize the disturbed Work Areas with temporary measures as specified.
5b. Upon temporary stabilization of each Work Area, install temporary irrigation distribution to establish temporary stabilization, if necessary.
6. Move to the next Work Area in Subphase and repeat steps 3-5b.
7. Install permanent irrigation system (Subphase).
8. Fine grade and stabilize. Install proposed wastewater absorption fields (Subphase).
9. Upon establishment of permanent cover, remove temporary drainage swales and basins. Convert appropriate basins to be utilized during operations to their permanent condition (Subphase).
10. Stabilize all remaining disturbed areas (Subphase).
11. Remove perimeter erosion control after vegetation is established (Subphase).

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 100 ft.

the LA group
Landscape Architecture and Engineering, P.C.

49 Long Alley
Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0180

Design DRC
Drawn BMP
Checked DRC

Engineering Consultant:
Delaware Engineering, PC
28 Madison Ave. Ext.
Albany, NY 12203
518/452-1200

Traffic Consultant:
Creighton-Manning Eng., LLP
& Johnathan Lane
Albany, NY 12205-1683
518/446-0396

Survey Consultant:
Bailey Eng. & Surveying, PC
P.O. Box 458
Hartsdale, NY 12455
540/586-2400

Golf Course Architect:
Love Enterprises and Assoc.
210 Arnold St.
St. Simons Island, GA 31522
912/638 3070

Hydrogeologic Consultant:
Hydro Geologic
678 Plank Road
Clifton Park, NY 12065
518/346-6999

Recreation Planning:
SE Group
56 College St.
Burlington, VT 05401
802/862-0096

Design Consultant:
Emilio Ambasz
8 East 62nd St.
New York, NY 10021
212/751-3617

Design Consultant:
Hart/Howerton
Robert Lamb Hart
10 East 40th St.
New York, NY 10016
212/683-5631

Design Consultant:
Blue Sky Design
1701 East Washington Street
Orlando, Florida 32803
407/894-3027

Counsel:
Whiteman, Osterman, & Hanna
One Commerce Plaza
Albany, NY 12260
518/487-7600

PREPARED FOR:
CROSSROADS VENTURES L.L.C.
P.O. BOX 267
MT. TREMPER, NY 12457

BIG INDIAN PLATEAU
BIG INDIAN RESORT & SPA
BIG INDIAN COUNTRY CLUB

Title CONSTRUCTION PHASING - PHASE 2 - SUBPHASE 1

Revisions
04/22/03

Project 00052
Date 12/11/02
CAD # 0052BICON-PH2

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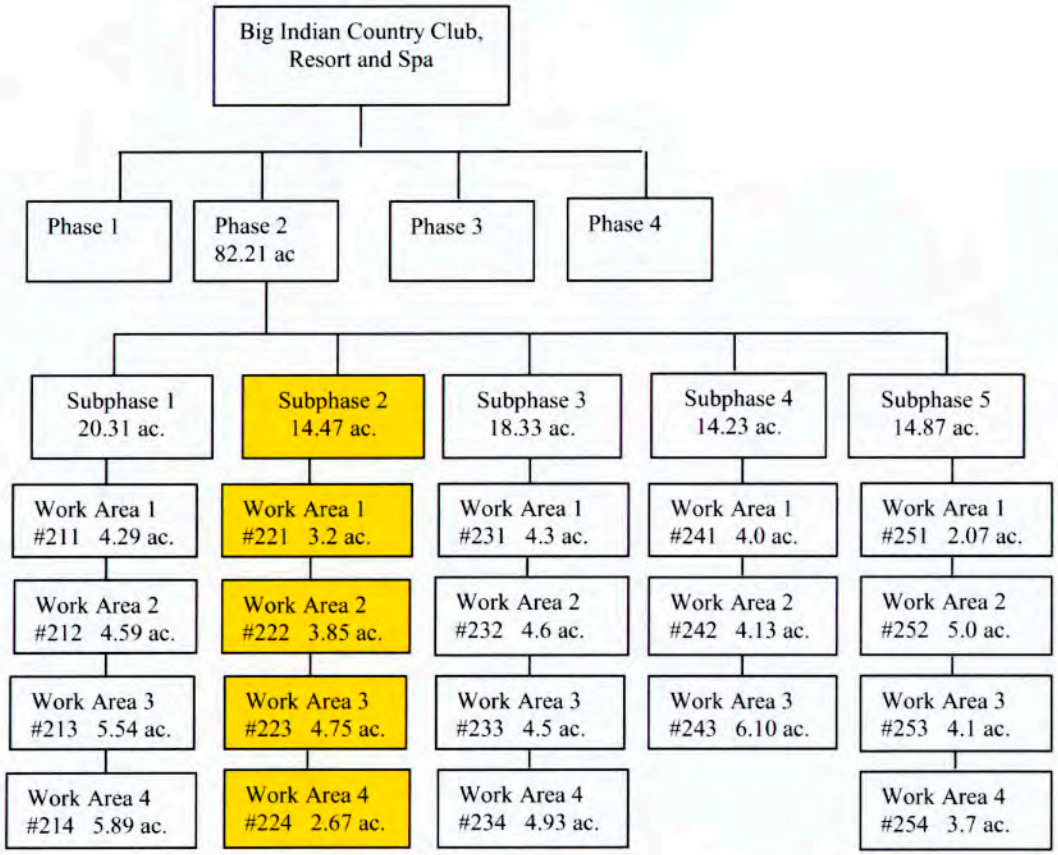
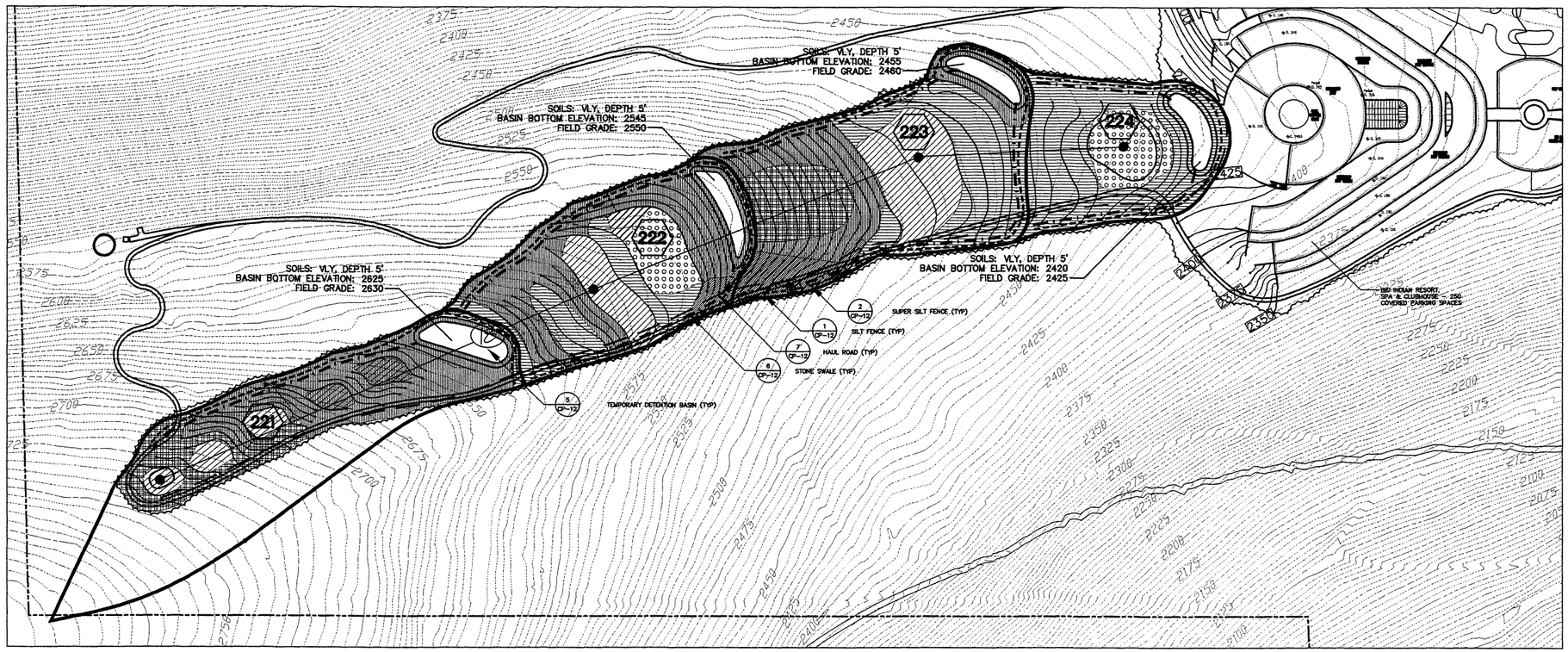
Figure 5-24
Construction Sequence 6





LEGEND

- +50 %
- 30–50 %
- 20–30 %
- 10–20 %
- 5–10 %
- 0–5 %
- UNDISTURBED
- 232 SUBCATCHMENT AREA
- SUBPHASE WORK AREA
- SUBPHASE
- PHASE

CONSTRUCTION SEQUENCING

1. Golfcourse centerline stakeout, centerline clearing, construction limit stakeout (entire Phase).
2a. Construction Access and Perimeter Control (Subphase).
2b. Tree harvest without grubbing (Subphase).
2c. Temporary basin rough grade (Subphase).
3. Stump grub, grade stormwater basin and stormwater swales, stabilizing swales with rock or geotextile (Work Area.)
4. Rough grade Work Areas to grades indicated.
5a. Stabilize the disturbed Work Areas with temporary measures as specified.
5b. Upon temporary stabilization of each Work Area, install temporary irrigation distribution to establish temporary stabilization, if necessary.
6. Move to the next Work Area in Subphase and repeat steps 3-5b.
7. Install permanent irrigation system (Subphase).
8. Fine grade and stabilize. Install proposed wastewater absorption fields (Subphase).
9. Upon establishment of permanent cover, remove temporary drainage swales and basins. Convert appropriate basins to be utilized during operations to their permanent condition (Subphase).
10. Stabilize all remaining disturbed areas (Subphase).
11. Remove perimeter erosion control after vegetation is established (Subphase).

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 100 ft.

the LA group
Landscape Architecture and Engineering, P.C.
40 Long Alley
Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0180

Design DRC
Drawn BMP
Checked DRC

Engineering Consultant:
Delaware Engineering, PC
28 Madison Ave. Ext.
Albany, NY 12203
518/452-1290

Traffic Consultant:
Creighton-Manning Eng., LLP
4 Airport Park
Albany, NY 12205-1683
518/446-0396

Survey Consultant:
Bettez Eng. & Surveying, PC
P.O. Box 896
Margaretville, NY 12455
845/586-2400

Golf Course Architect:
Love Enterprises and Assoc.
225 Augusta Ln.
St. Simons Island, GA 31522
912/638 3679

Hydrogeologic Consultant:
Alpha GeoScience
679 Plank Road
Clifton Park, NY 12065
518/348-8995

Recreation Planning:
3S Group
156 College St
Burlington, VT 05401
802/862-0096

Design Consultant:
Studio Asbury
6 East 43rd St.
New York, NY 10021
212/751-3517

Design Consultant:
Hart/Howerton
Robert Lamb Hart
10 East 40th St.
New York, NY 10016
212/683-1631

Design Consultant:
Blue Dog Design
1701 East Washington Street
Orlando, Florida 32803
407/894-0037

Counsel:
Whiteman, Osterman, & Hanna
One Commerce Plaza
Albany, NY 12260
518/487-7600

PREPARED FOR:
CROSSROADS VENTURES L.L.C.
P.O. BOX 267
MT. TREMPER, NY 12457

BIG INDIAN PLATEAU
BIG INDIAN RESORT & SPA
BIG INDIAN COUNTRY CLUB
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Revisions
04/22/03

Project 00052
Date 12/11/02
CAD # 0052SHCON-PH2

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Figure 5-26
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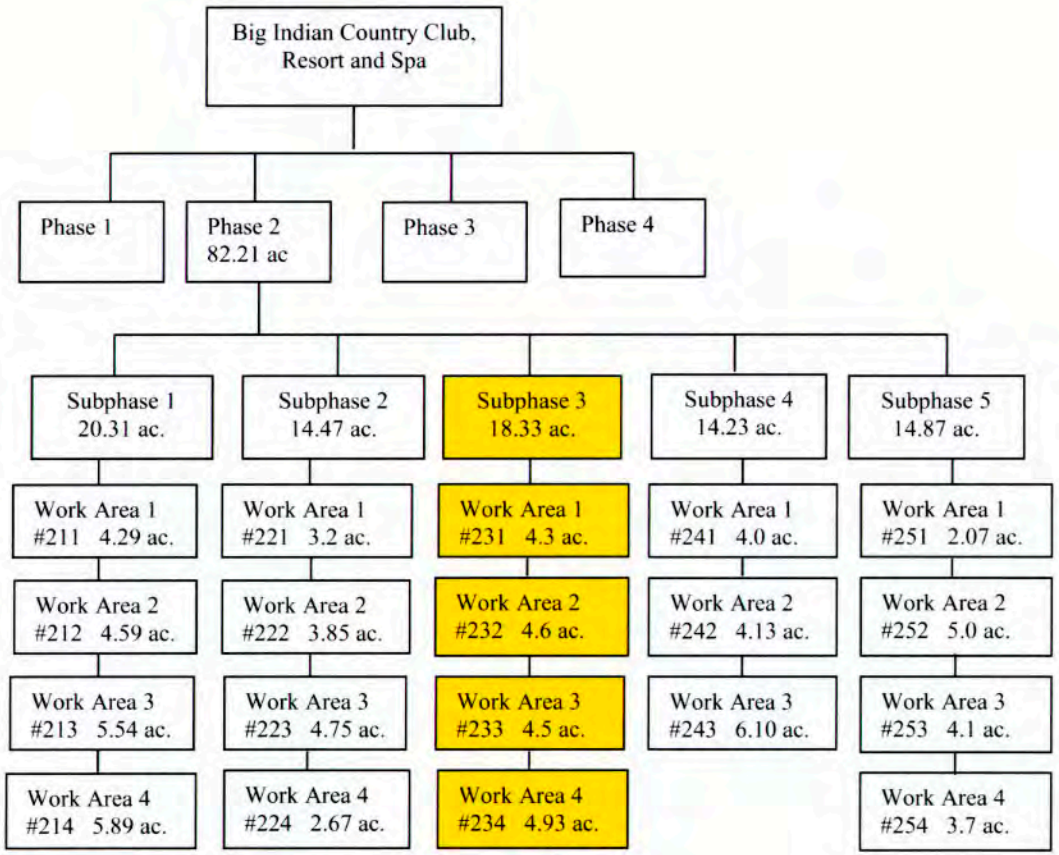

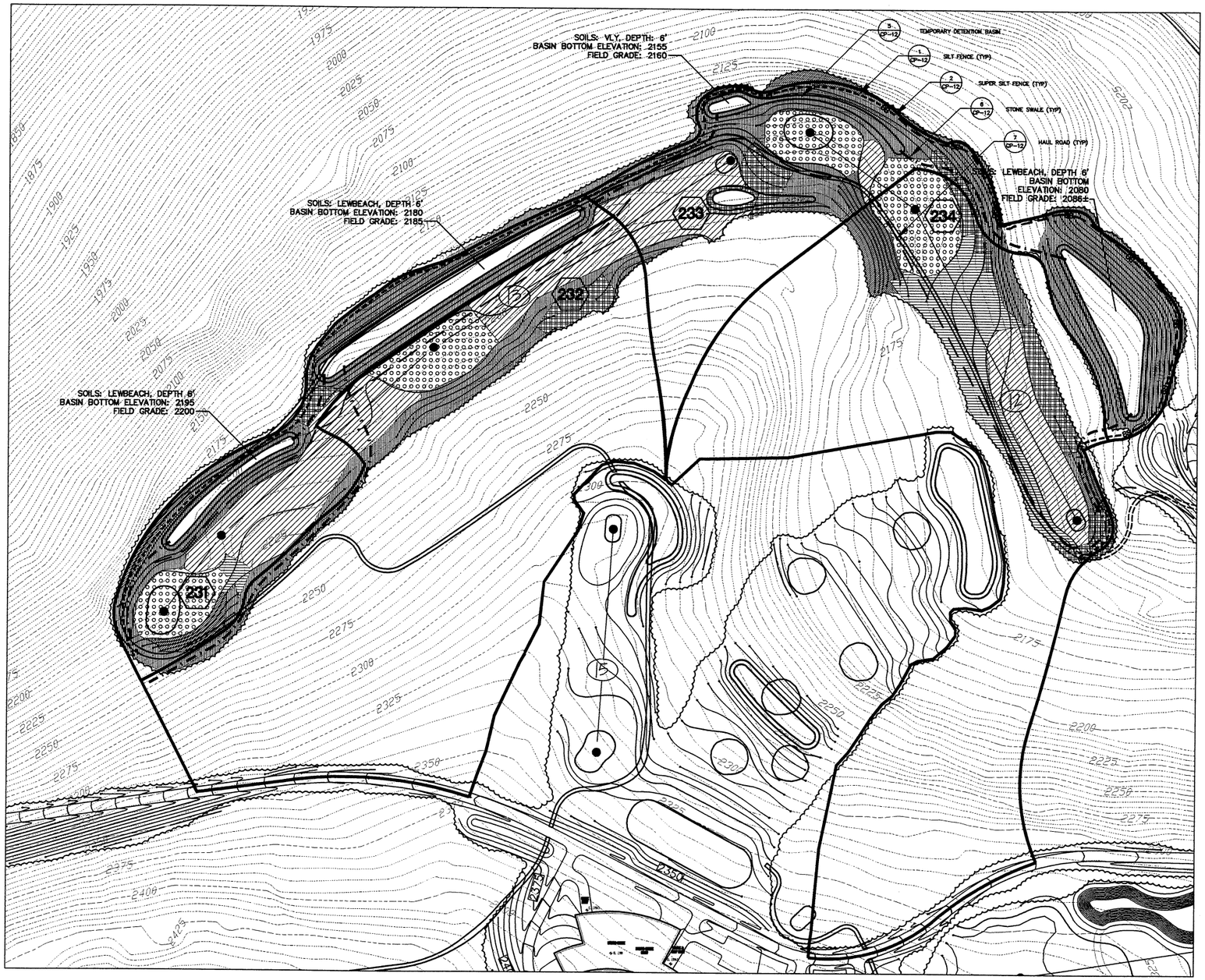

LEGEND

- +50 %
- 30–50 %
- 20–30 %
- 10–20 %
- 5–10 %
- 0–5 %
- UNDISTURBED
- 232 SUBCATCHMENT AREA
- SUBPHASE WORK AREA
- SUBPHASE
- PHASE

CONSTRUCTION SEQUENCING

1. Golfcourse centerline stakeout, centerline clearing, construction limit stakeout (entire Phase).
2a. Construction Access and Perimeter Control (Subphase).
2b. Tree harvest without grubbing (Subphase).
2c. Temporary basin rough grade (Subphase).
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7. Install permanent irrigation system (Subphase).
8. Fine grade and stabilize. Install proposed wastewater absorption fields (Subphase).
9. Upon establishment of permanent cover, remove temporary drainage swales and basins. Convert appropriate basins to be utilized during operations to their permanent condition (Subphase).
10. Stabilize all remaining disturbed areas (Subphase).
11. Remove perimeter erosion control after vegetation is established (Subphase).

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 100 ft.

Directory: z:\proj-00\0052\ridge\0052Bicon-ph2.dwg
Lc: Ph2-100

the LA group
Landscape Architecture and Engineering, P.C.
40 Long Alley
Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0180

Design DRC
Drawn BMP
Checked DRC

Engineering Consultant:
Delaware Engineering, PC
28 Madison Ave. Ext.
Albany, NY 12203
518/452-1290

Traffic Consultant:
Creighton-Manning Eng., LLP
4 Airlan Drive
Albany, NY 12205-1683
518/446-0396

Survey Consultant:
Bailey Eng. & Surveying, PC
P.O. Box 356
Hagaman, NY 12455
845/366-2400

Golf Course Architect:
Love Enterprises and Assoc.
317 Ingram St.
St. Simons Island, GA 31522
912/638 3979

Hydrogeologic Consultant:
Alpha Geoscience
679 Plank Road
Clifton Park, NY 12065
518/346-8995

Recreation Planning:
3S Group
156 College St.
Burlington, VT 05401
802/862-0096

Design Consultant:
Emilio Ambasz
8 East 82nd St.
New York, NY 10021
212/751-2577

Design Consultant:
Hart/Howerton
Robert Lamb-Hart
10 East 40th St.
New York, NY 10016
212/683-5631

Design Consultant:
Blue Sea Design
1701 East Washington Street
Orlando, Florida 32803
407/894-0027

Counsel:
Whiteman, Osterman, & Hanna
One Commerce Plaza
Albany, NY 12260
518/487-7600

PREPARED FOR:
CROSSROADS VENTURES L.L.C.
P.O. BOX 267
MT. TREMPER, NY 12457

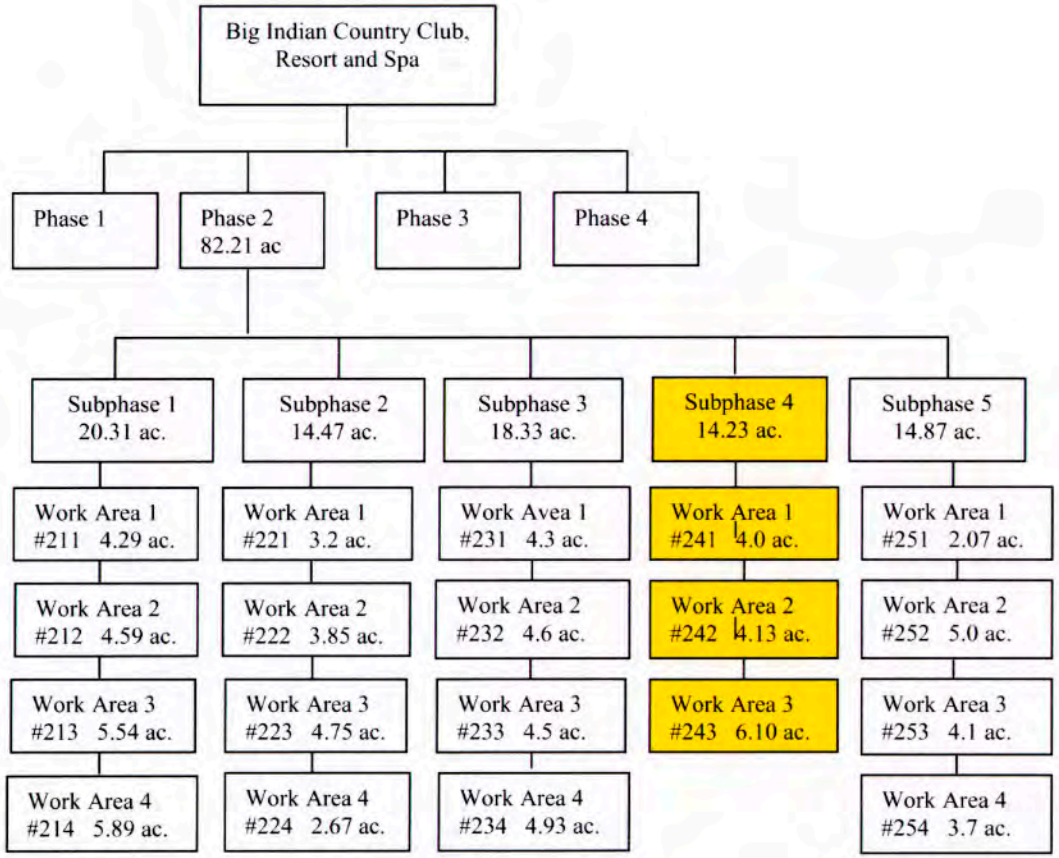
BIG INDIAN PLATEAU
BIG INDIAN RESORT & SPA
BIG INDIAN COUNTRY CLUB

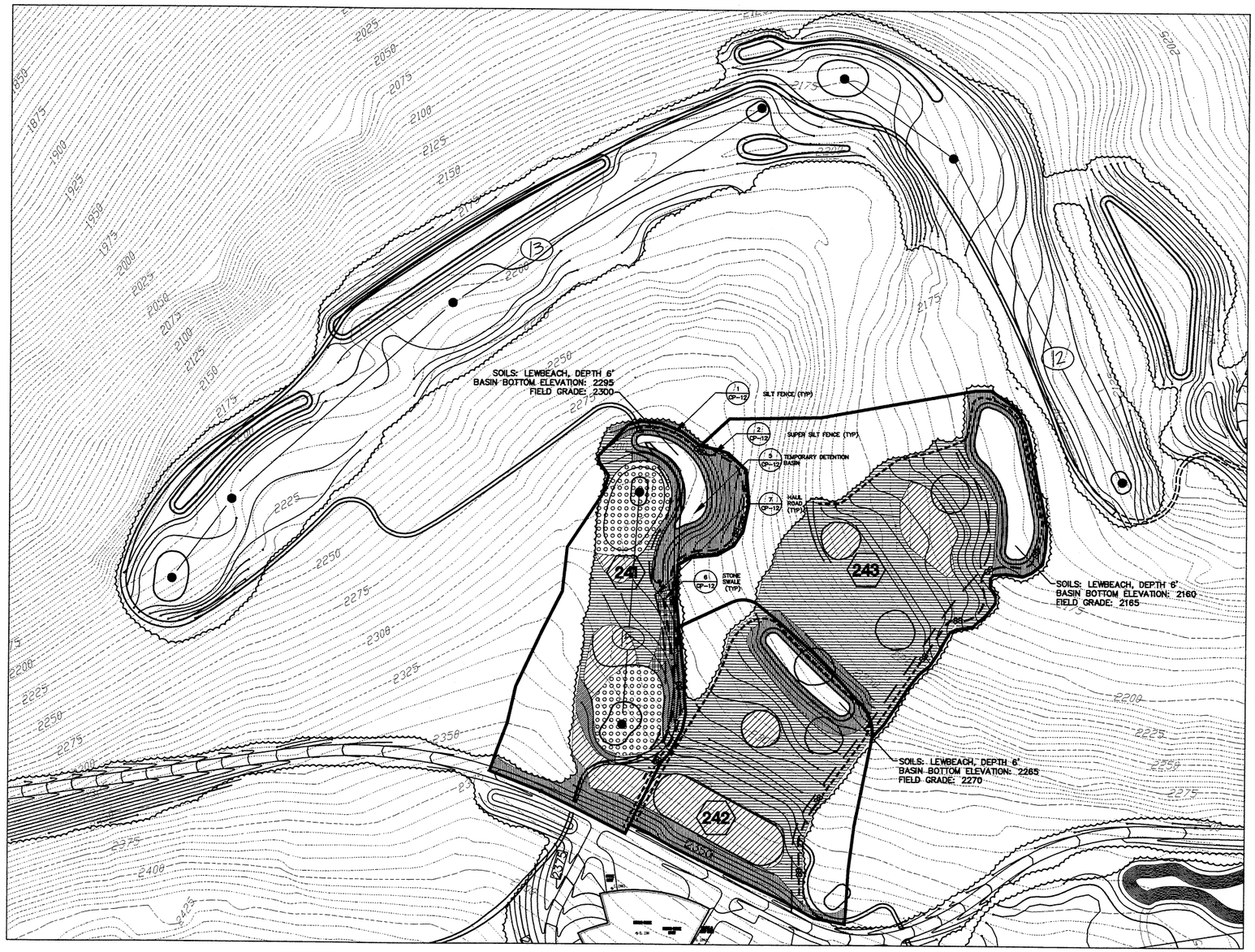
Title CONSTRUCTION PHASING - PHASE 2 - SUBPHASE 3

Revisions
04/22/03

Project 00052
Date 12/11/02
CAD # 0052BICON-PH2

Figure 5-28
Construction Sequence 8





LEGEND

- +50 %
- 30–50 %
- 20–30 %
- 10–20 %
- 5–10 %
- 0–5 %
- UNDISTURBED
- 232 SUBCATCHMENT AREA
- SUBPHASE WORK AREA
- SUBPHASE
- PHASE

CONSTRUCTION SEQUENCING

1. Golfcourse centerline stakeout, centerline clearing, construction limit stakeout (entire Phase).
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10. Stabilize all remaining disturbed areas (Subphase).
11. Remove perimeter erosion control after vegetation is established (Subphase).

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 100 ft.

Directory: z:\proj-00\0052\ridge\0052Bicon-ph2.dwg
Lc: ph2-1008

the LA group
Landscape Architecture and Engineering, P.C.
40 Long Alley
Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0180

Design DRC
Drawn BMP
Checked DRC

Engineering Consultant:
Delaware Engineering, PC
28 Madison Ave. Ext.
Albany, NY 12203
518/452-1326

Traffic Consultant:
Creighton-Manning Eng., LLP
4 Airlonquin Lane
Albany, NY 12205-1683
518/446-0396

Survey Consultant:
United Eng. & Surveying, PC
P.O. Box 356
Lagrangeville, NY 12455
845/506-2400

Golf Course Architect:
Love Enterprises and Assoc.
210 Joseph St.
St. Simons Island, GA 31522
912/638 3979

Hydrogeologic Consultant:
Alpha Geoscience
676 Paul Road
Clifton Park, NY 12065
518/348-8985

Recreation Planning:
SE Group
156 College St.
Burlington, VT 05401
802/862-0096

Design Consultant:
Emilio Ambasz
1 East 62nd St.
New York, NY 10021
212/751-3617

Design Consultant:
Hart/Howerton
Robert Leigh Hart
10 East 40th St.
New York, NY 10016
212/683-5631

Design Consultant:
Blue Sox Design
1701 East Washington Street
Orlando, Florida 32803
407/894-0027

Counsel:
Whiteman, Osterman, & Hanna
One Commerce Plaza
Albany, NY 12260
518/487-7600

PREPARED FOR:
CROSSROADS VENTURES L.L.C.
P.O. BOX 267
MT. TREMPER, NY 12457

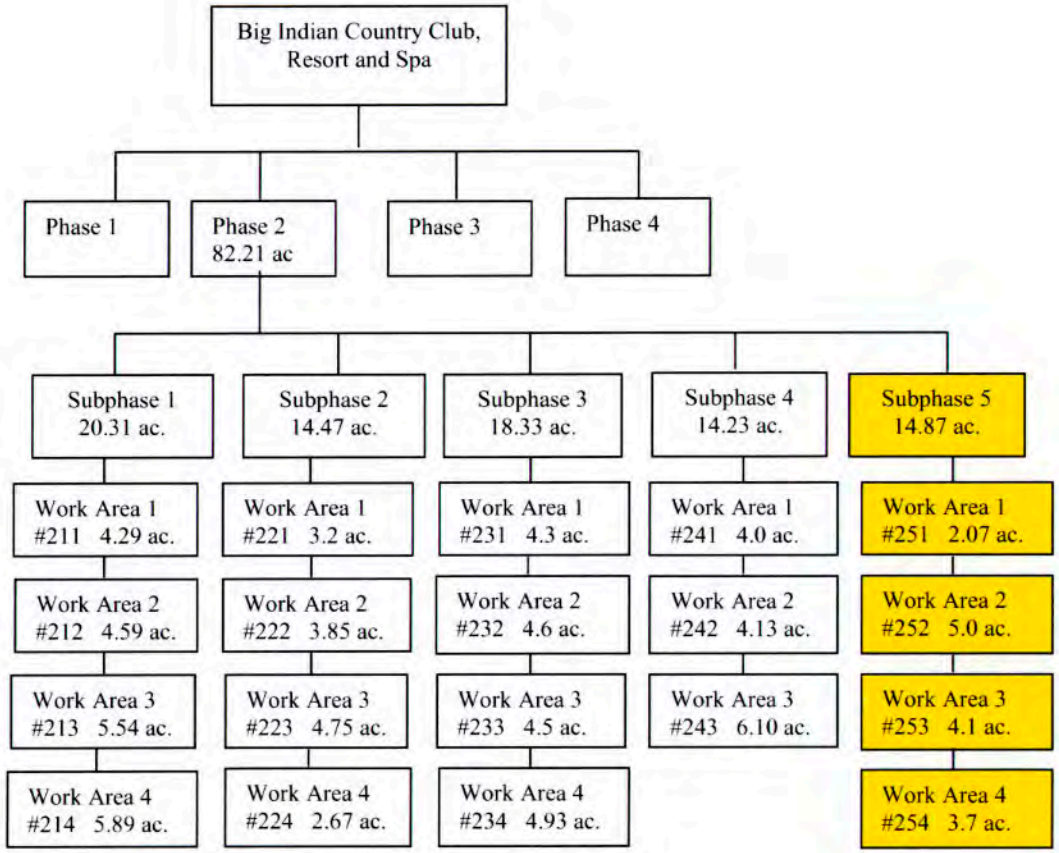
BIG INDIAN PLATEAU
BIG INDIAN RESORT & SPA
BIG INDIAN COUNTRY CLUB

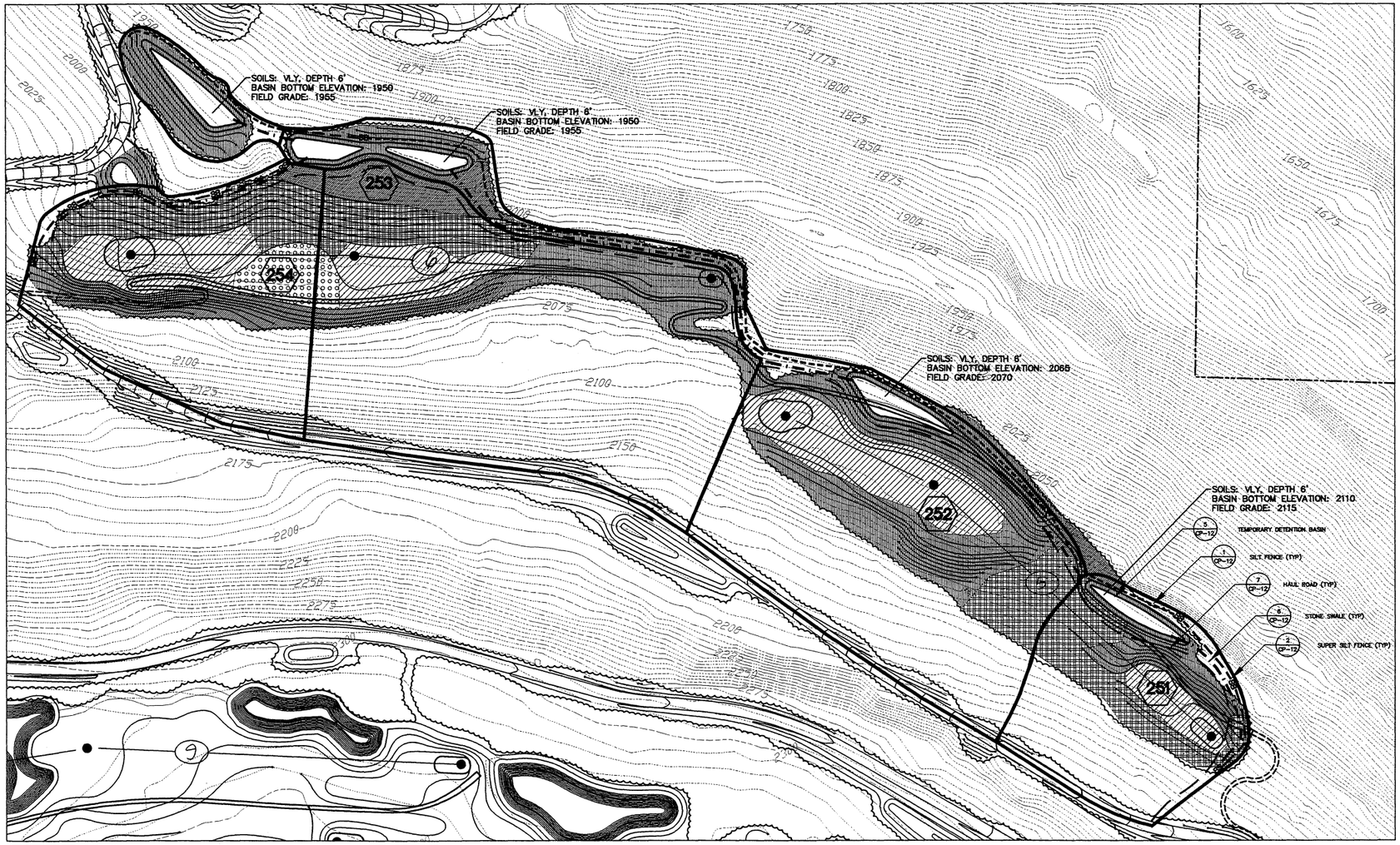
Title: CONSTRUCTION PHASING - PHASE 2 - SUBPHASE 4

Revisions
04/22/03

Project 00052
Date 12/11/02
CAD # 0052BICON-PH2

Figure 5-30
Construction Sequence 9





LEGEND

- +50 %
- 30–50 %
- 20–30 %
- 10–20 %
- 5–10 %
- 0–5 %
- UNDISTURBED
- 232 — SUBCATCHMENT AREA
- SUBPHASE WORK AREA
- SUBPHASE
- PHASE

CONSTRUCTION SEQUENCING

1. Golfcourse centerline stakeout, centerline clearing, construction limit stakeout (entire Phase).
2a. Construction Access and Perimeter Control (Subphase).
2b. Tree harvest without grubbing (Subphase).
2c. Temporary basin rough grade (Subphase).
3. Stump grub, grade stormwater basin and stormwater swales, stabilizing swales with rock or geotextile (Work Area.)
4. Rough grade Work Areas to grades indicated.
5a. Stabilize the disturbed Work Areas with temporary measures as specified.
5b. Upon temporary stabilization of each Work Area, install temporary irrigation distribution to establish temporary stabilization, if necessary.
6. Move to the next Work Area in Subphase and repeat steps 3-5b.
7. Install permanent irrigation system (Subphase).
8. Fine grade and stabilize. Install proposed wastewater absorption fields (Subphase).
9. Upon establishment of permanent cover, remove temporary drainage swales and basins. Convert appropriate basins to be utilized during operations to their permanent condition (Subphase).
10. Stabilize all remaining disturbed areas (Subphase).
11. Remove perimeter erosion control after vegetation is established (Subphase).

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 100 ft.

Directory: z:\proj-00\0052\ridge\0052Bicon-ph2.dwg

the LA group
Landscape Architecture and Engineering, P.C.
40 Long Alley
Saratoga Springs
New York 12866
518/587-8100
Telefax 518/587-0180

Design DRC
Drawn BMP
Checked DRC

Engineering Consultant:
Delaware Engineering, PC
28 Madison Ave. Ext.
Albany, NY 12203
518/452-1290

Traffic Consultant:
Creighton-Manning Eng., LLP
4 Airport Park Blvd.
Albany, NY 12205-1683
518/446-0396

Survey Consultant:
Reiley Eng. & Surveying, PC
P.O. Box 458
Margaretville, NY 12455
845/586-2400

Golf Course Architect:
Love Enterprises and Assoc.
317 Sapelo Island, GA 31522
912/638 3079

Hydrogeologic Consultant:
Alpha GeoScience
109 Third Road
Clifton Park, NY 12065
518/346-8995

Recreation Planning:
SE Group
156 College St.
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Emilio Ambasz
8 East 82nd St.
New York, NY 10021
212/751-3017

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Hart/Howerton
Robert Lamp-Hart
10 East 40th St.
New York, NY 10016
212/683-5631

Design Consultant:
Blue Sea Design
1701 East Washington Street
Orlando, Florida 32803
407/894-3027

Counsel:
Whiteman, Osterman, & Hanna
One Commerce Plaza
Albany, NY 12260
518/487-7600

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P.O. BOX 247
MT. TREMPER, NY 12457

BIG INDIAN PLATEAU
BIG INDIAN RESORT & SPA
BIG INDIAN COUNTRY CLUB

Title: CONSTRUCTION PHASING - PHASE 2 - SUBPHASE 5

Revisions
04/22/03

Project 00052
Date 12/11/02
CAD # 0052BICON-PH2

Table 5-1
Land Use and Zoning

Town of Shandaken Permitted Uses

R5 Permitted Uses	R3 Permitted Uses	R1.5 Permitted Uses
One-family dwelling	One-family dwelling	One-family dwelling
Two-family home	Two-family home	Two-family home
Mobile home on individual lot	Mobile home on individual lot	Mobile home on individual lot
Public Parks	Public Parks	Public Parks
Public Recreation Areas	Public Recreation Areas	Public Recreation Areas
Agriculture	Agriculture	Agriculture
Class 1 home occupation	Government building/use	Government building/use
Accessory use or structure	Class 1 home occupation	Class 1 home occupation
Noncommercial horse stables	Accessory use or structure	Accessory use or structure
	Noncommercial horse stables	Noncommercial horse stables

Town of Middletown Permitted Uses

R5 Permitted Principal Uses	R3 Permitted Uses
One-family dwelling	One-family dwelling
Two-family dwelling	Two-family dwelling
Mobil home on individual lot	Mobil home on individual lot
Agriculture	Agriculture
Forest Management Practices	Forest Management Practices
Wildlife Management Practices	Wildlife Management Practices

Town of Shandaken Special Use Permit Uses

R5 Special Use Permit	R3 Special Use Permit	R1 Special Use Permit
Boarding and rooming house	Boarding and rooming house	Boarding and rooming house
Nonprofit club	Church/meeting hall	Community residence
Nonprofit recreation	Private school	Elderly housing
Cemetery/crematorium	Nursery school	Church/meeting hall
	Hospital	Private school
	Nursing home	Nursery school
	Medical clinic	Hospital
	Cultural Facilities	Nursing Home
	Institutions	Medical Clinic
	Philanthropic Uses	Cultural Facilities
	Nonprofit club	Institutions
	Nonprofit recreation	Philanthropic Uses
	Cemetery/crematorium	Nonprofit club
		Nonprofit recreation
		Cemetery/crematorium

Table 5-1 (continued)
Land Use and Zoning

Town of Shandaken (continued)

R5 Special Use Permit	R3 Special Use Permit	R1 Special Use Permit
Public utility	Public utility	Public utility
Public transportation	Public transportation	Public transportation
Golf course/country club	Golf course/country club	Golf course/country club
Class 2 home occupation	Class 2 home occupation	Class 2 home occupation
Apartment in single family home	Apartment in single family home	Apartment in single family home
Guest cottage	Guest cottage	Guest cottage
Roadside stand	Residence accessory to business	Residence accessory to business
Riding Academy	Roadside stand	Roadside stand
Vacation Resort	Riding Academy	Riding Academy
Day Camp	Vacation Resort	Vacation Resort
Camp cottage	Day Camp	Day Camp
Cabin development	Camp cottage	Camp cottage
Hotel/motel/lodge	Cabin development	Cabin development
Mountain-related recreation	Hotel/motel/lodge	Funeral Home
Kennels	Restaurant	General/professional office
Bed and Breakfast	Mountain-related recreation	Hotel/motel/lodge
Nurseries/greenhouse	Camping/RV/trailer	Restaurant
Contractor's yard	Kennels	Camping/RV/trailer
Sawmill	Vet office/animal hospital	Bed and Breakfast
Transmission structures	Bed and Breakfast	Nurseries/greenhouse
Timber harvesting/logging	Nurseries/greenhouse	Contractor's yard
Commercial Excavation	Contractor's yard	Timber harvesting/logging
Water bottling	Sawmill	Commercial Excavation
	Transmission structures	Water bottling
	Timber harvesting/logging	
	Commercial Excavation	
	Water bottling	

Table 5-1 (continued)
Land Use and Zoning

Town of Middletown Special Use Permit Uses

R5 Special Use Permit	R3 Special Use Permit
Multi-family dwelling	Multi-family dwelling
Mobile Home Park	Mobile Home Park
Cluster Subdivision	Cluster Subdivision
Condominium	Condominium
Town House	Town House
Migrant labor housing/development	Migrant labor housing/development
Nursery/greenhouse	Nursery/greenhouse
Clearcutting	Clearcutting
Service Facility	Service Facility
Public Cultural/Recreation	Farmers Market
	Public Cultural/Recreation
Public Education	Public Education
Public Health Care	Public Health Care
Public Facilities/Utilities	Public Facilities/Utilities
Public Parks/Recreation	Public Parks/Recreation
Religious Institution	Religious Institution
Airport/Heliport	Airport/Heliport
Cemetery	Cemetery
Adult Uses	Animal Hospital
Animal Hospital	Bed and Breakfast
Bed and Breakfast	Bldg. & Farm Supply
Bldg. & Farm Supply	Business/Prof. Office
Business/Prof. Office	Campground
Campground	Car Wash
Club	Club
Commercial Recreation	Commercial recreation
Enclosed Commercial Storage	Enclosed Commercial Storage
Drive in use	Craft/Antique market
Eating and Drinking	Drive in use
Flea Market	Eating and Drinking
Hotel	Flea Market
Junkyard	Hotel
Kennel	Junkyard
Mixed Use Buildings	Kennel
Model homes	Mixed Use Buildings
Motel	Model homes
Motor vehicle/boat sales	Motel
Motor vehicle repair	Motor vehicle/boat sales
Outdoor recreation	Motor vehicle repair
Parking garage	Outdoor recreation
Retail trade	Parking garage
Resort	Retail trade
Seasonal Business	Resort

Table 5-1 (continued)
Land Use and Zoning

Town of Middletown (continued)

R5 Special Use Permit	R3 Special Use Permit
Service Establishment	Seasonal Business
Service Station	Service Establishment
Summer Camp	Service Station
Commercial Alternative Energy	Shopping Center
Bulk Storage	Summer Camp
Enclosed Manufacturing	Commercial Alternative Energy
Light Industry	Bulk Storage
Mineral Extraction	Enclosed Manufacturing
Oil and Gas Drilling	Light Industry
Sawmill, lumberyard	Mineral Extraction
Warehousing	Oil and Gas Drilling
Wholesaling	Sawmill, lumberyard
	Warehousing
	Wholesaling

00052/zoning.landuse.table

Table 5-2
Alternatives Table -
Summary of East and West Project Components

Parameter	Proposed Project	Big Indian Plateau (East) Only	Wildacres Resort (West) Only
Total Area of Assemblage (ac.)	1,960	1,242	718
Location	Shandaken and Middletown	Shandaken	Shandaken and Middletown
Watershed	Ashokan and Pepacton	Ashokan	Pepacton
Distance from NYC Reservoirs	20 Miles and 14 Miles	20 Miles	14 Miles
Capital Investment	$241 Million	$127.5 Million	$112.62 Million
Construction Jobs	2,114	1,120	994
Permanent Full-time Jobs	542	201	341
Part-time Jobs	330	122	208
Annual Wages and Salaries	$20.5 Million	$7.5 Million	$13 Million
Annual Visitor Spending in Community	$11.8 Million	$5.6 Million	$6.8 Million
Projected Annual Total Effect on the Local Economy	$62.29 Million	$27.4 Million	$34.9 Million
Economic and Fiscal Effects from Construction of Resort Project	$451.08 Million	$239.07 Million	$212.01 Million
Property Taxes (10-year horizon) *Middletown/Delaware County* *Shandaken/Ulster County*	 $0.7 Million $3.3 Million	 0 $1.92 Million	 $0.7 Million $1.38 Million
Annual Sales Tax Revenue to Both Counties and NY State	$2.17 Million	$0.81 Million	$1.36 Million
Financibility	Sole feasible scenario	Not economically justified	Not economically justified
Hotel Lodging Units/Homes	751/21	333/0	418/21
Golf Courses	2	1	1
Average Daily Water Demand (gpd)	251,452	114,817	136,635
Visual	Project visibility limited to a few locations across the valley, north of NY Route 28 (Owl's Nest and Wood Road) as well as the upper lodge at Belleayre Mountain Ski Center. Highly screened view of the project site exists off of the trail to Balsam Mountain.	Project visible from the Owl's Nest as well as the upper lodge at Belleayre Mountain Ski Center. Highly screened view of the project site exists off of the trail to Balsam Mountain.	Project visible from Wood Road as well as the upper lodge at Belleayre Mountain Ski Center.
Proposed Area of Development (ac.)	573	331	242
Area to Remain Undeveloped (ac.)	1,387 (71%)	911	476
Proposed Area of Disturbance (ac.)	507	295	212
Area to Remain Undisturbed (ac.)	1,453 (74%)	947	506
Elevation (ft. AMSL)	1,225-3,100	1,225-2,725	1,800-3,100
Impervious Surfaces Within the Assemblage	4.29%	4.20%	4.55%
Land Use and Zoning	Meets zoning requirements requires Special Use Permits	Meets zoning requirements, requires Special Use Permit	Meets zoning requirements, requires Special Use Permits
Rare, Threatened and Endangered Species	None affected	None affected	None affected

Table 5-2 (continued)
Alternatives Table -
Summary of East and West Project Components

Parameter	Proposed Project	Big Indian Plateau (East) Only	Wildacres (West) Portion Only
Wetlands	Limited impacts authorized by Nationwide Permit	Limited impacts authorized by Nationwide Permit	Limited impacts authorized by Nationwide Permit
Blasting Required	Yes, hotel and irrigation ponds	Yes, hotel and irrigation ponds	Yes, hotel
Balanced Cuts and Fills	Yes	Yes	Yes
Bridged Stream Crossings	4	3	1
Sediment and Erosion Control	Two construction projects in two watersheds. Phasing plan with soil disturbance limited to 25 acres in different watersheds.	Single construction project in Ashokan Reservoir watershed. Phasing plan with soil disturbance limited to 25 acres in different drainages.	Single construction project in Pepacton Reservoir watershed Phasing Plan with soil disturbance limited to 25 acres in different drainages.
Stormwater Management	System designed to capture and treat water quality volume, treat a 25-year storm event, and safely pass a 100-year storm. Runoff rates the same as pre-development conditions.	System designed to capture and treat water quality volume, treat a 25-year storm event, and safely pass a 100-year storm. Runoff rates the same as pre-development conditions.	System designed to capture and treat water quality volume, treat a 25-year storm event, and safely pass a 100-year storm. Runoff rates the same as pre-development conditions.
Sound	Limited number of receptors temporarily affected by construction sound.	Limited number of receptors temporarily affected by construction sound.	Limited number of receptors temporarily affected by construction sound.
Cultural Resources	Impacts avoided	Impacts avoided	Impacts avoided
Air Quality	Net reduction in woodburning appliances (wood stoves and fireplaces).	Net reduction in woodburning appliances (wood stoves and fireplaces).	Net reduction in woodburning appliances (wood stoves and fireplaces).
Community Facilities	Private roads, internal security	Private roads, internal security	Private roads, internal security
Number of Resort Generated Trips During Typical Winter Traffic Peak Hour	139 (2.32 vehicles per minute)	55	84
Number of Resort Generated Trips During Typical Fall Traffic Peak Hour	187 (3.12 vehicles per minute)	81	106
Percent of Route 28 Peak Direction Capacity Used During Typical Fall and Winter Traffic Peak Hours (Existing Plus Resort)	30%	____	____
Water and Wastewater	Private water systems, including fire hydrants and sprinkled hotels, private wastewater systems.	Private water systems, including fire hydrants and sprinkled hotels, private wastewater systems.	Private water systems, including fire hydrants and sprinkled hotels, private wastewater systems.
Local Service Providers	Have adequate capacity to serve the project	Have adequate capacity to serve the project	Have adequate capacity to serve the project
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Table 5-4
Alternative Construction Phasing for Phase 2 of Big Indian Country Club

PARAMETER	CONSTRUCTION PHASING	ALTERNATIVE CONSTRUCTION PHASING
Golf Holes Constructed in Phase 2	1 through 11.	1, 2, 5, 6, 9, 12, 13, 15, 18 & Range
Total Acreage	85.1 acres	82.2 acres
Concurrent Construction	Entire individual subphases (6).	First, 4 or 5 non-contiguous work areas <5 acres each, then entire individual subphases (5).
Total Area of Concurrent Construction	11.9 to 16.4 acres contiguous.	First, 17.2 to 25.0 acres total (non-contiguous), then 14.2 to 20.3 acres contiguous.
Average Area of Concurrent Construction	14.2 acres contiguous.	First, 20.6 acres non-contiguous, then 16.4 acres contiguous.
SWPPP Implementation	Easier to monitor because active construction located in one area.	More difficult to monitor when construction spread out in non-contiguous areas.
Proposed Sodding	100 acres for entire golf course, approximately 55 acres for Phase 2 (2/3 of area).	50 acres for entire golf course, approximately 28 acres for Phase 2 (1/3 of area).
Temporary and Final Stabilization	Approximately half of the area will be permanently stabilized immediately, half will be temporarily stabilized then permanently stabilized.	All work areas temporarily stabilized, then disturbed again, then permanently stabilized.
Temporary and Permanent Irrigation	Need for temporary irrigation eliminated, permanent irrigation in place at time of final stabilization.	Some temporary irrigation required.
Stockpiling and Haul Roads	Significant reduction in temporary stockpiling and haul roads along with associated erosion controls. Balanced cuts and fills within each Subphase.	Widespread temporary stockpiling and/or hauling fill between work areas required.
Retention Basin Sizing	Sized to hold 10-year storm on bare ground.	Same.
Retention Basin Dewatering	Flocculent treatment and pumped to irrigation ponds or to overland dispersal at rates lower than existing runoff.	Same as original.
Fairway Surface Drains	Proposed to capture runoff during construction and operations. Piped to basins.	Not part of original design.
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SECTION 6 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Several facets of the proposed project can be identified as involving the irreversible and irretrievable commitment of resources.

Construction of the project will result in the permanent commitment of raw materials such as concrete, gravel and wood, in addition to energy resources required to operate construction equipment.

Site preparation for the proposed project will remove approximately 529 acres of existing vegetation and disturb soils on the site. Approximately 84% of this will be revegetated. Since no rare, threatened or endangered plant or animal species or unique habitat are known to inhabit the site, no impact to such resources is foreseen.

Construction of the proposed project will preclude the site from further subdivision and other types of commercial or residential uses.

Operation of the proposed project will result in the permanent, irretrievable commitment of resources such as energy for heating, lighting and equipment operations, and groundwater for potable uses. This commitment will occur wherever the proposed residents and tenants reside. Adverse impacts on air, water and socioeconomic resources will not be irreversible or significant.

The granting of either deed restrictions or conservation easements will protect the land from future development.

SECTION 7 GROWTH INDUCING, SECONDARY AND CUMULATIVE IMPACTS OF THE PROPOSED ACTION

7.1 Introduction

This section evaluates the potential for secondary or indirect development in the study area as a result of the construction and operation of the proposed Belleayre Resort. New economic activity associated with the proposed project, as described in previous sections, would generate economic activity and changes to land use off of the project site. Two main types of potentially induced economic activity are considered:

New commercial development (or "gateway development") along NY Route 28;

New residential development, both seasonal and year-round.

The conclusions presented in this evaluation are based upon the collection and evaluation of baseline economic conditions within the study area and an analysis of the economic demands generated by the construction and operation of the proposed Resort development. Chapter 2 of Appendix 26, "Economic Benefits and Growth Inducing Effects", describes the existing socioeconomic conditions of the study area and the surrounding three-county region, encompassing the area that is likely to be affected in terms of providing labor and accommodating the direct and indirect economic effects of the proposed project. Chapter 5 of Appendix 26 supplements this baseline with an evaluation of the constraints and opportunities of the immediate study area to accommodate new growth that may be generated as a result of the project. In addition, Chapter 5 of Appendix 26 discusses the base conditions with respect to current commercial conditions within the Route 28 Corridor Committee Study area, with particular emphasis on the hamlets and village centers.

In-between these two discussions of the "supply" and factors influencing supply, Chapters 3 and 4 of Appendix 26 present an estimation of the new demands on this supply that may result from the successful development of the Belleayre Resort. The direct and indirect economic effects of construction and operations are evaluated, and these data are supplemented by an estimation of the effects of the new visitors attracted to the Resort. The estimations of the economic effects of construction and operations were generated using the Regional Input-Output Modeling System (RIMS II) developed by the U.S. Department of Commerce, Bureau of Economic Analysis and customized for Delaware, Ulster, and Greene Counties. The projections of visitor effects, including on-site and off-site spending, were estimated by an analysis of the number and types of visitors to the proposed Resort, and an estimation of the likely spending patterns of these visitors while in the area.

In addition, the discussion of the existing economic conditions and the estimation of projected new demands has been supplemented by the experiences gained in other comparable resort areas through the compilation of case studies as presented in Chapter 6 of Appendix 26. The three case studies, Windham in the Catskills, Gore Mountain in the

Adirondacks, and Greylock Center in the Northern Berkshires of Massachusetts, provide an important perspective on the manner in which resort-type development affects the surrounding communities in terms of commercial and residential demand and growth.[1]

Based on the analyses of the above material, any new development within the study area would be affected by two overriding factors: 1) the off-site spending generated by visitors to the Belleayre Resort; and 2) the environmental constraints on the existing land supply and existing building stock. Most new development would occur within the existing stock of businesses, or in hamlet areas where existing buildings or developed lots are available. Environmental and regulatory constraints within the study area make new "greenfield" development less attractive to potential developers.

Belleayre Resort is designed, to a large extent, as a residential facility that aims to capture much of the region's existing demand for seasonal residences, particularly those generated by the adjacent Belleayre Mountain Ski Center, and to deliberately capture the demand generated by its own recreational amenities, such as the golf courses. Little off-site seasonal home demand is therefore expected. Similarly with year-round residential demand. While the Resort does not propose to significantly tap the demand for year-round housing, it will provide a limited number (21) of high-end year-round opportunities that will appeal to a very small market segment. More importantly, the new demand for year-round homes will be small, and will be the result of the few specialized employment positions (e.g., hotel management) that will likely be recruited from outside the existing regional labor pool. These new year-round residents will, to a large extent, be accommodated within the existing housing stock, with few new housing starts anticipated.

Land use impacts from induced development would be minimal given the regulatory and environmental constraints on new development and the ability of hamlets and villages to accommodate additional commercial activity. The effect of new development on land use is discussed in this section.

7.2 Commercial Development Demand

As described above, the potential increase in consumer spending from both visitors and employees generated by the proposed Belleayre Resort can be expected to induce limited secondary demand for goods and services that may translate into expanded commercial operations and potentially new commercial development. This section describes the economic model used to develop a reasonable estimate of this demand and estimates how that new demand might be manifested in terms of new or expanded business development in the study area.

---

[1] The choice of these areas for comparison purposes was agreed upon by the Applicant, the NYS DEC, and consultants representing the Towns of Shandaken and Middletown.

7.2.1 Estimating Induced Commercial Demand

To estimate the consumer expenditures in the NY Route 28 Corridor that may result from the Belleayre Resort, a model was developed that incorporates new expenditures by both new visitors to the area and by new wages and salaries paid to local employees of the Resort. These new expenditures are then compared with existing sales in the corridor to measure the relative impact of the new demand.

A. New Expenditure Estimate

As shown in Figure 7-1, "Corridor Spending Analysis Model", the model draws on the quantified data regarding estimated visitor expenditures, employment demand, and existing commercial activity. The project can be expected to generate new consumer spending in three basic ways:

- The off-site expenditures made by visitors to the Resort;
- Employees spending their new personal income; and
- The corridor's share of the overall economic activity generated by the project.

1. Off-site Visitor Expenditures

As presented in Chapter 4 of Appendix 26 Table 4-23, the proposed project can be expected to generate a certain amount of off-site economic activity by visitors to the Belleayre Resort. Based on research regarding typical expenditures of visitors to other resorts (described in Chapter 4), it is estimated that about $11.81 million will be spent annually by Resort visitors and guests within the NY Route 28 corridor.

2. Employment-based Personal Income

The proposed project will generate an employment demand of about 747 full-time-equivalent (FTE) positions and an annual payroll of about $20.5 million (see Tables 4-1 and 4-2 in Appendix 26). The workforce is expected to be formed primarily from existing labor pools within the tri-county region and would be a mix of new full-time and part-time employment opportunities that are expected to increase the personal income of existing households.

While labor will be drawn from the tri-county area, it is assumed that a large proportional concentration of the Resort's employees would be from within the NY Route 28 corridor. The corridor represents only about five percent of the households or workforce of the tri-county region. However, the expenditure model assumes that 50 percent of the wages and salaries would be paid to (and subsequently spent by) employees within the corridor.

From the case study analysis (Chapter 6 in Appendix 26) and discussions with other local officials, resort economies typically are based on a workforce that weaves together a variety of income opportunities based on seasonal demand for workers and services. Whether the new income is supplemental to existing worker salaries or is to an entirely new entrant to the workforce, the potential effect of wages and salaries paid to employees of the proposed Resort represents new household income.

Household income is spent on a variety of goods and services. Based on the Household Expenditure Survey of the U.S. Department of Commerce and other statistics generated by Claritas, Inc., these expenditures have been estimated for the NY Route 28 corridor and the primary existing retail activity (SIC categories) in the corridor.

Based on a total projected payroll of $20.5 million and the assumption that 50 percent of wages and salaries would accrue to households within the NY Route 28 corridor, it is estimated that $10.25 million would be expended in the local economy.

3. Overall Economic Activity

In Chapter 4 of Appendix 26, the overall economic activity generated by the proposed Resort was estimated using the RIMS II model that incorporates the direct activity (wages and salaries, purchase of goods and services) and the secondary activity that is generated or induced by the direct input to the local and regional economy. To reflect the wide area of economic influence for this rural area, the RIMS II model was based on a combination of Delaware, Ulster, and Greene Counties.

The RIMS II analysis estimated a total economic output of $62.29 million per year, based on the direct activity of $41.18 (assuming a more conservative $18.81 million in wages and salaries, as discussed In Chapter 4 of Appendix 26) and induced economic activity of $21.11 million per year. The commercial and retail businesses of the corridor study area can be expected to capture a share of the overall economic activity generated by Resort operations (e.g., purchase or food or office materials), but they are unlikely to experience substantial amounts of economic activity associated with goods and services bought by the Resort as much of this would occur beyond the NY Route 28 corridor.

To estimate the corridor's share of this total activity, the total activity was estimated proportionate to the corridor's share of households and overall population of the tri-county RIMS II study area. This amount, about 5 percent, was applied to the net economic activity after subtracting the direct wages and salaries which was applied in a different and specific manner described above. Thus, as shown in Figure 7-1, the corridor's share of the total activity is approximately $2.17 million per year, calculated as:

$62.29 M. total activity - $18.81 M. wages and salaries = $43.28 M X 5%= $2.17 M

4. Summary

In total, it is estimated that the proposed project will generate about $23.38 million in annual expenditures within the NY Route 28 corridor: $11.81 million from off-site visitor expenditures and $11.57 million from new spending by Belleayre Resort employees and general secondary economic activity. These expenditures can be assumed to result in a commercial/retail demand that will either be accommodated by the existing business in the corridor or through new business development. The next section of this analysis estimates how this demand is broken down by type of retail and how much commercial development demand is reflected in this expenditure estimate.

7.3 Potential Induced Development

7.3.1 New Commercial Development

A. Estimated New Commercial Activity

The total expenditure estimate of approximately $23.4 million would be spent on a variety of retail goods and services in the corridor. The typical expenditures by tourists and residents alike have been aggregated into nine categories that correlate with sales data for the corridor. These categories, which comprise approximately $19.2 million of the $23.4 million in total expenditures, include: building materials (SIC 52), general and miscellaneous merchandise (SIC 53 and 59); food stores (SIC 54); automotive services (SIC 55); apparel and accessories (SIC 56); home furnishings (SIC 57); eating and drinking establishments (SIC 58); personal services (SIC 72); and amusement and recreational businesses (SIC 79). (The sales data are developed by the national demographic data service of Claritas, Inc.) The balance of spending between the total estimate of $23.4 million and the $19.2 million in the major SIC categories would be spread between other SIC categories found in the NY Route 28 corridor but would not have a measurable impact.

The results of the expenditure analysis are presented in Figure 7-1, "Corridor Spending Analysis Model," and Table 7-1, "Corridor Spending Analysis." Certain retail categories, particularly those in which both visitors and residents are likely to spend on goods and services in the corridor, can be expected to see some relatively large increases in spending. The most significant of these include:

General merchandise sales are expected to increase by about 19 percent: sales of about $5.4 million over the base of $28 million.

Food stores would be expected to have an increased sales base of about $3.1 million, a 10 percent increase over the existing base.

Automobile services are expected to increase $3.4 million over existing sales, representing a 40 percent increase.

Eating and Drinking sales would increase $4.3 million per year over the existing base of about $19.2 million per year, or a 22 percent increase.

Amusement and recreation spending is expected to increase $1.3 million per year over the base amount of $10.9 million with the new expenditures or a 12 percent increase.

Based upon the inventory of existing businesses, a business survey completed by Crossroads Ventures (see Appendix 28, "Local Surveys and Support Letters"), and windshield surveys within the corridor, there is sufficient capacity within existing businesses to accommodate the projected spending within the NY Route 28 corridor. Many businesses would simply experience increased sales resulting in higher profits and/or wages. Some businesses may stay open later or hire an additional employee as a result of new spending. Other businesses that experience an increase in revenues may also respond by increasing inventory and sales, modifying the product line to cater to different consumer tastes, or by adding nominal amounts of area to existing structures. The predominant response would be expansion of existing businesses or reoccupancy of existing structures within hamlets and villages.

While it is unlikely that new corridor spending would directly result in construction of new business structures, a conservative estimate was prepared of the potential impact of new spending if it were considered as demand accommodated by all new construction. Projected spending in the corridor was converted to equivalent square feet using a standard revenue multiplier of $250 of revenue per square foot.* Table 7-1 indicates the breakdown by SIC category for projected "New Demand" for commercial space. Approximately 76,700 square feet are estimated as a result of $19.2 million in new sales within the corridor.

Those SIC categories identified above as having relatively large increases in revenue would also see a proportionate share of new demand in terms of square feet. Approximately 21,500 square feet of general and miscellaneous merchandise could theoretically be supported by new spending. Much of this new growth would occur within existing commercial areas, especially as reoccupancy of vacant structures or in-fill development in hamlets and villages. Alternatively, one new shopping center totaling 21,500 square feet could be developed on NY Route 28, such as in the area between Margaretville and Arkville. If all 21,500 square feet were to be developed as a single project, approximately 1.5 to 3.0 acres would be required.** This new construction, if properly guided through local zoning ordinances and environmental regulations, would have a minimal impact on land use within the corridor. It is also expected that this level of new development could easily meet NYCDEP and State environmental protection

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* This sales estimate is from the Urban Land Institute's *Dollars and Cents of Shopping Centers 2000*. It is the average sales rate for neighborhood shopping centers (thus with a retail mix similar to that of the NYS NY Route 28 corridor) in the northeast United States.

** This calculation assumes a maximum building coverage of 30 percent. This area would be sufficient for building area, parking (5 spaces per 1,000 square feet), landscaping, and stormwater and wastewater treatment.

regulations. Impacts from new traffic associated with the additional business activity would be limited to the increment of new employees (approximately 54 employees at 2.5 employees per 1,000 square feet) since traffic from the customers would be the same employees and visitors to the Belleayre Resort which have already been included in the traffic impact analysis. The employee count may also include persons already counted in the background stream of traffic, thus reducing potential traffic impacts further.

The second largest potential increase in spending and square-footage is in the eating and drinking sector, where approximately $4.4 million in new sales would support an additional 17,600 square feet. This additional activity would first be absorbed by existing restaurants within the study area, which would experience an increase in dining room occupancy rates (number of turns per seat), would stay open later, or would open on an additional night to meet demand. Individual restaurants may also increase dining capacity through small additions. These types of responses would not necessarily have a local or overall effect on land use or environmental conditions within the study area. Local zoning and building codes, SPDES permits, and State Health regulations must be met in order for restaurants to expand. New restaurants would most likely be located within existing hamlets or villages. New construction to meet the additional demand is not foreseen, especially as clusters of new restaurants (e.g., several restaurants in one strip-mall) are not typical. Zoning codes and planning documents for the NY Route 28 corridor specifically prohibit commercial development along much of NY Route 28. This would preclude development of fast-food restaurant chains along the road. However, even if all additional sales for eating and drinking were to be met by new construction, only approximately 1.5 to 3.0 acres would be consumed. This new construction would have a minimal impact on land use within the study area as long as local zoning and environmental regulations were observed.

Food stores are also anticipated to see additional sales activity. Approximately $3.1 million in new sales are projected which equate to approximately 12,600 additional square feet. Food sales within the NY Route 28 corridor are currently met by the A&P supermarket in Margaretville, the Phoenicia supermarket, and the Boiceville supermarket; a number of smaller convenience/deli stores; and specialty shops providing baked goods, cheese, meat, and fresh produce. There is an existing approval for an expanded A&P supermarket on the north side of NY Route 28 between Margaretville and Arkville. The additional 12,600 square feet of space could easily be accommodated in a more modern supermarket at that location. Again, traffic generated by the additional sales at food stores would consist of existing residents and new employees or visitors to the Resort which have already been accounted for in the traffic impact analysis. New trips would be limited to employees, some of whom may already be counted in background traffic, and one or two additional trucks per week needed to provide the goods to fill the additional space.

The last major SIC category projected to experience a significant increase in sales is automotive uses. An approximately 41 percent increase in revenues ($3.5 million) is projected to occur within this sector. Approximately 70 percent ($2.4 million) of that increase is attributable to additional sales of gasoline, oil, and service to employees and

visitors of the Belleayre Resort. The remaining 30 percent comprises new sales or rentals of automobiles associated with new personal income from Resort employees. While there are very few service centers in the NY Route 28 corridor that sell gasoline, these businesses could easily accommodate new demand for gasoline without necessitating additional pumps or storage tank capacity. At the most, these businesses might require more frequent visits by gasoline supply trucks. Existing Federal, State, local, and NYCDEP regulations on storage of petroleum products would apply to any new automobile service station or any expansion of an existing service station. Because of the high cost of infrastructure and safety systems, it is unlikely that a new gasoline station would be located within the corridor. If a new station or new stations were to be developed following all applicable environmental regulations, only approximately 13,900 square feet are anticipated. While this amount would not be developed as one project, the total amount of land required for this area would be approximately 1.0 to 1.5 acres. This amount of land could easily be accommodated within the NY Route 28 corridor either on NY Route 28 or in the hamlets or villages.

This new economic activity in the study area that would be stimulated by the project is not expected to place undue burdens on the labor force. Even if the projected activity were to generate newly developed floor space in the area, there would be approximately 150 to 200 fulltime job equivalents created. In view of the SIC sectors in which the jobs would be created, and the projected spending patterns supporting the jobs, these new jobs would not be likely to generate an inflow of new labor since many, if not all of the newly created jobs would be filled by members of the existing labor pool. Further, it is expected that many of these jobs would not be new jobs in the corridor, since the new demand for goods and services is expected to be largely taken up by existing businesses through expansion of hours, services, and activities. As a consequence, it is anticipated that existing workers would expand work hours (e.g., part-time to full-time) to meet labor demand, or local resident workers would alter commuting patterns to work closer to home in newly-created jobs.

B. Guiding New Commercial Development

The existing hamlets and villages represent the core of commercial activity throughout the NY Route 28 corridor between Boiceville and Margaretville. Limited commercial development along NY Route 28 does exist between hamlet areas; but there is not a concentration of "commercial strip" development except for the areas immediately adjacent to Boiceville and Margaretville. This pattern is likely to continue for a number of reasons but primarily local regulations governing new development and environmental constraints within the NY Route 28 corridor.

The primary method for controlling the location, scale, appearance, and character of any new development is through local zoning codes. The zoning codes of the Towns of Shandaken and Middletown direct commercial development into the existing villages and hamlets. In addition, the Catskill Watershed Corporation's REDI Loan program provides fast-track approval for loan or grant applications for businesses located in, or seeking to locate in, a hamlet or village that has prepared a Whole Hamlet Program plan.

Based on the inventory of businesses and land uses within the NY Route 28 corridor, the natural direction for new economic activity would be in the hamlets and villages. The potential impact of induced commercial development is largely a function of how strongly local regulations and plans are enforced. The Towns of Shandaken and Middletown can determine how any additional growth can be directed to reinforce existing community character.

Environmental constraints within the NY Route 28 corridor are documented in Chapter 5 of Appendix 26. Of specific relevance to potential new commercial development is the location of primary streams (including the Esopus Creek and East Branch of the Delaware River) alongside NY Route 28, the prevalence of floodplain and wetland areas in close proximity to the road, and the numerous locations where steep slopes are located immediately adjacent to the right-of-way. These environmental constraints also tend to focus development in the hamlets and villages or in areas immediately outside hamlets and villages.

Even if all of the 76,700 estimated square feet of new commercial activity were to be developed in one project, the total amount of land required would be between 5 and 10 acres. In a 107,000-acre study area, this does not represent a significant increase.

7.3.2 New Residential Development

In assessing the effects of the Belleayre Resort on residential development in the study area, it is important to consider the inherent residential-like character of the Resort. As shown in Table 4-14 in Appendix 26, the Resort would include 351 new units of lodging in the form of timeshare or interval ownership units, and 21 high-end homes. Among the 351 interval ownership units and 21 homes, there would be multiple owners , each of whom would purchase anywhere from a 1/10- to a 1/4-share of a unit. It can safely be assumed that all interval units would be purchased on a seasonal basis, and that most, if not all, of the 21 single-family detached homes comprising Highmount Estates would also be seasonal.

As a residential resort, Belleayre Resort is designed with two primary objectives. First, it is designed to capture the market for seasonal residences generated by the immediately adjacent Belleayre Mountain Ski Center. Second, it is designed to capture the residential demand generated by its own on-site recreational and resort amenities (e.g., golf courses, spa, dining, resort ambience, etc.).

A. Seasonal Residential Development

As the case studies have indicated, residential demand in resort areas is driven by popular recreational amenities (e.g., ski areas). For example, as Gore Mountain has upgraded its facilities and enhanced its marketing, the demand for seasonal residential real estate and overnight accommodations has increased. Similarly, this has been the experience of the seasonal real estate marketplace in the vicinity of Ski Windham. In Windham, however,

an overexpansion of residential supply during the 1980s resulted in a more cautious market response to seasonal housing that has slowed new construction to a pace more closely aligned with market demands. Greylock Center's creation of seasonal residential housing is largely speculative, and is occurring in a climate of limited demand for seasonal second homes. In that case, the residential elements are based upon the developer's gamble that on-site recreational amenities and an up-tick in the Northern Berkshire economy spurred by the Massachusetts Museum of Contemporary Art and nearby ski areas will generate housing demand that the Greylock project hopes to satisfy.

The case studies have also indicated that successful ski areas (and other seasonal recreational amenities, such as golf courses) generate housing and overnight accommodation demand, but housing and lodging supply does not translate into new demand for major recreational amenities. The management of Ski Windham believes that the new seasonal housing does not generate additional skier visits, but that enjoyable skiing opportunities result in a desire for new housing.

The proposed Belleayre Resort, then, is in a highly favorable position to take advantage of the overnight accommodation and seasonal housing demand that the Belleayre Mountain Ski Center generates. This will only increase as NYSDEC's long range plans for the ski area are carried out. On at least a winter's basis, Belleayre region visitors and skiers will have significant new real estate ownership opportunities and 400 new hotel-type rooms from which to select, all of which are located in close proximity to the ski area facilities.

While the proposed Resort would absorb many of the overnight visitors to the adjacent ski area, and while it can be expected that many purchasers of interval ownership units would be skiers, it is reasonable to assume that not all of the housing demand and demand for overnight stays would be captured by Belleayre Resort. Timeshare and interval ownership is a relatively new real estate product with which not all seasonal home purchasers would be comfortable, resulting in the continued off-site accommodation of individuals seeking overnight or seasonal ownership or rental opportunities. Further, many overnight visitors would likely find the cost of the Belleayre Resort's lodging facilities to be expensive, and would choose to stay in less expensive, perhaps less luxurious motels and "bed & breakfast" accommodations in the area. It can be expected, however, that the Resort would compete with the region's traditional lodging market, and that its presence could, in fact, decrease the demand for existing lodging facilities by introducing to the area a new range of overnight stay options.

In sum, as regards the winter season, the proposed Belleayre Resort would serve to absorb many, but certainly not all of the overnight and seasonal home demand generated by the area's winter amenities. Further, it would compete head-on with existing facilities. The projected effect of this competition would be to foster an upgrading of existing facilities to retain market share, resulting in an overall increase in the quality, but not necessarily in quantity, of off-site lodging options.

Insofar as there is no exact non-winter local equivalent of the Belleayre Mountain Ski Center as a generator of overnight visitors and seasonal home buyers, the proposed Belleayre Resort intends to offer amenities in order to generate a new, non-skier market for the housing and overnight lodging facilities that are provided within the Resort complex. These resort amenities would include, for example, the two championship golf courses, spa, dining, tennis, swimming, and Catskill Forest Preserve access. In economic terms, it intends to generate a demand matched to a supply, thereby establishing a self-fulfilling economic system. Given that the Resort generates demand for housing, it largely meets the demand for lodging that it generates.

According to standard industry practices, it can be expected that the Belleayre Resort's timeshare and vacation club unit sales initiatives would encourage prospective purchasers to visit the Resort, tour the facilities and amenities, and be introduced to the Catskill region. By its very nature, the Resort would have its interval ownership units affiliated with an international exchange through which Belleayre purchasers would have access to interval ownership units in other geographic regions, from the Rocky Mountains to the Caribbean. Belleayre Resort's marketing program would target the demographic groups most likely to find this form of ownership attractive, and would draw from an international pool of prospective purchasers. It can be anticipated that a special marketing effort will target New York and Albany metropolitan area skiers.

RCI Consulting, Inc., a leader in timeshare and interval ownership research, reports that approximately 10 percent of the individuals attracted into a timeshare sales program actually purchase a timeshare unit at that time. As shown in Table 7-2, "Timeshare Unit Sales and Prospective Buyers," the marketing program would have to introduce Belleayre Resort to an estimated 56,010 prospective buyers in order to sell the 5,601 timeshare or vacation club interval units.

As can be seen above, each residential component of the Resort comprises individual units, each of which is divided into ownership shares, or intervals. These intervals range from 1/10 units, to 1/4 units, to ownership of single-family homes; and individual purchasers may acquire as many intervals as they desire. This is more fully described in Chapter 4 of Appendix 26. Crossroads Ventures, LLC anticipates that the Resort's units would sell at the rate of one interval per buyer, with the exception of Wildacres, where purchasers are expected to acquire on average two intervals per unit. The sales of these intervals would occur over a multi-year period, and consequently, the individuals coming to the Resort to view units would be spread over this sales period, as shown, in Table 7-3, "Annual Sales Volume and Number of Prospective Buyers."

According to timeshare marketing expert Edwin McMullen, the approximately 56,010 prospective timeshare interval buyers who would look at the Resort would be evenly divided among two separate groups of visitors. One group would be day or overnight Resort guests who came to the Resort specifically to enjoy amenities (e.g., golf or ski) and responded to on-site marketing. The second group would comprise 28,005 visitors who came to the Resort specifically in response to Belleayre Resort marketing outreach campaigns and advertising.

Since the members of the first group were already guests at the Resort, they would be considered to be existing customers of the Resort, and through a form of brand loyalty would be likely to purchase a timeshare interval at the Resort if and when they decide to graduate up from being overnight lodgers. In addition, these individuals would have responded to the interval ownership promotion campaign on an impulse basis, their visit was not primarily motivated by timeshare acquisition interest. The second group would include people specifically on-site for the purpose of considering timeshare ownership. Many such visitors, however, respond to attractive timeshare marketing campaigns that offer low-cost accommodations or other benefits, such as free meals or free golf rounds, in return for participating in a sales promotion program. Presumably, many of these people are unfamiliar with the Resort and, in fact, would include many who came to the Catskills region from afar, being attracted to the notion of timeshare interval ownership. With their response to Belleayre Resort marketing would be their introduction to the Catskills, which they may find attractive enough to pique their interest in purchasing a seasonal home. While over the course of the sales period, an estimated 2,800 of these parties would be expected to purchase one or more timeshare unit intervals, the remainder (another approximately 25,205 parties) would not purchase units at the Resort. It is estimated that among these, a small percentage, less than 10 percent, would find the area interesting and attractive enough to explore non-Belleayre Resort second-home opportunities, and among these, a yet smaller subset would actually acquire a property in the region as a second or seasonal home. The number of parties doing this, however, is estimated to be very small since the marketing programs of timeshare developments attracts a very select type of potential purchaser looking for a network of exchange opportunities, resulting in a timeshare buyer profile that does not correspond well with that of the typical second-home buyer. Among those few who actually purchased a second-home off-site, an even smaller percentage would be expected to build a new home from scratch. Doing so generally requires a long-term commitment to an area that is very familiar to the party doing the building, a criterion that would be unlikely to be satisfied among timeshare shoppers.

There would, of course, be people coming into the region as a result of the Resort's amenities who would not stay at, or acquire units within, the Resort. These visitors would be expected to enjoy existing lodging facilities within the area, or the existing inventory of rental or real estate purchase opportunities. The Resort amenities visited by non-resort guests and residents would include the golf courses and the restaurants. Restaurant visitors not lodging or residing at the Resort, however, would likely be staying overnight, and would mainly be drawn from among existing full-time or seasonal residents (renters and seasonal home owners), and from among lodgers at existing motels or lodging facilities. It can be expected, then, that most such visitors coming for golf rounds would be existing resident day visitors, and would not generate a demand or market for lodging or seasonal home development.

Finally, the presence of the Belleayre Resort will, over time, tend to increase the attractiveness of the immediate region. This will occur as a result of the existence of the high-quality facilities at the Resort, as well as the continuing increase in the quality of

year-round facilities at the adjacent Belleayre Mountain Ski Center. In addition, as described elsewhere in this section, the Resort is expected to induce a gradual increase in the general quality of other visitor and tourist amenities and services throughout the NY Route 28 corridor, and within the villages and hamlets of Phoenecia, Margaretville, Fleishmanns, Boiceville, and Pine Hill. As a result of the gradual improvement in the area's tourist and economic fabric, second home buyers will increasingly consider the study area to be an attractive option for seasonal home purchase. Among those seeking to establish a seasonal home in the Catskills as a result of this phenomenon will certainly be those who will elect to build a new home. At this point, this potential effect can be noted, but estimating or even further characterizing it is not possible.

In conclusion, Belleayre Resort is expected to absorb on-site the bulk of any seasonal or second home demand that it creates. Further, the Resort is designed to accommodate existing and projected seasonal home demand created by the Catskill region's major recreational amenities, particularly that which is generated by Belleayre Mountain Ski Center. The on-site amenities at the Resort are expected to generate marginal demand for lodging and seasonal residences, and the majority of this off-site demand is expected to be satisfied by the existing stock of lodging and seasonal home rental and ownership opportunities. Off-site seasonal residential development-related effects are projected to include upgrading of existing overnight lodging facilities. Any increase in off-site demand is expected to be offset by the Resort's on-site lodging and seasonal ownership opportunities, resulting in a marginal increase, if not a potential net decrease, in off-site seasonal real estate activity. In any case, the demand for seasonal homes as a result of the Belleayre Resort would not be any greater than the second-home demand generated by the ski area, and it may, in fact, satisfy a portion of the ski area's demand for new housing thereby reducing the ski area's growth-inducing effects.

B. Year-Round Residential Development

Belleayre Resort is expected to have a negligible effect on year-round residential development in the study area. The Resort itself is not designed to accommodate year-round residential occupancy, although it is conceivable that the Highmount Estates 21 single-family detached homes could become year-round homes.

The Resort's potential for generating year-round residential occupancy in the region would derive from its employment of new workers in the area. An analysis of the projected employee profile and employment opportunities shows, however, that the vast majority of the year-round (and seasonal) jobs created by the Resort would be filled by local residents or people within a commuting radius. As discussed in Chapter 4 of Appendix 26, "Economic Benefits and Growth Inducing Effects", Delaware and Ulster Counties contain a sufficient number of unemployed and "underemployed" persons who may acquire jobs at the proposed Resort. Moreover, workers who are currently employed may choose to pursue a job at the proposed Resort. Although relatively little inter-county commutation currently takes place among all three counties, the introduction of the Belleayre Resort may alter commutation patterns, particularly with respect to the potentially higher-paying jobs that the Resort will generate. As noted in recent employer

surveys for Ulster County, "the better the pay for a job, the farther a worker is willing to commute."* Furthermore, residents who currently commute outside of their county of residence may seek jobs at the Resort in order to work closer to home and reduce their travel time. As discussed in Chapter 2, "Existing Economic Conditions," 23 and 28 percent of County residents worked outside of Delaware and Ulster Counties, respectively, in 1990. Those residents currently working outside of their county of residence in lower-paying, non-managerial jobs would be most likely to seek jobs at the Resort to shorten their commutes as workers are less willing to commute long distances for such jobs. Short commutes are also important for part-time employees, particularly if they are caring for children or parents, or are phasing in retirement. In general, the employment opportunities offered by the Resort would not result in significant employee relocation, and would not consequently result in new year-round occupancies or new construction.

In addition, the demand for rental units is not expected to increase as a result of new workers. Many current area non-homeowners (e.g., renters) are among the un- and under-employed and commuters to distant job markets who are in fact the workers most likely to seek stable and close-to-home jobs at the Resort.

The Resort would, however, provide a small number of mid- and upper-management jobs that would probably be filled by non-residents. These would include management positions in the lodging/hotel operations, restaurants (including executive chefs), timeshare management and sales, golf course management and the golf pro(s), and financial management. Because of the specialty or technical nature of these positions, filling them from among the available labor pool may not be possible. Consequently, the recruitment program would most likely search nationally or internationally for the best candidates, and the Resort will therefore be likely to import these workers into the region. These positions would have salaries in the approximate $50,000 to $150,000 range. Approximately 16 to 20 such positions would fall into this category.

These full-time mid- and upper-management positions would require year-round housing, presumably close to the Resort location. The salary range for these positions is well above the median income level of the area (the average estimated year 2000 household income in the study area is $39,524). These employees, therefore, would have an advantage in finding quality year-round rental properties, or home ownership opportunities. As newly settled employees, however, it is likely that they would either rent or purchase; it is unlikely that they would build. The timeshare and hospitality industry workforce is highly mobile, rotating jobs within the industry, often on a national and international basis. Employees of this mobile nature are not likely candidates to construct homes from scratch, however, there remains the possibility that among the 16 to 20 individuals in this group there may be a very small number of whom, once their employment at the Resort is stable and considered long-term, may choose to build a permanent year-round residence.

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* New York State Department of Labor. *An Analysis of the Ulster County Employer Survey*. December 2000. p. 26.

It is anticipated, though, that the majority of Resort employees would already reside in existing housing, and that only a small number would enter the regional housing market as new renters and purchasers of existing housing stock. Very few, if any, new employees would be expected to construct new year-round housing. No other potential new housing construction is anticipated as a result of resort development and operations.

7.4 Potential Impacts From Induced Growth

Based upon the analyses of the environmental and regulatory constraints, an assessment of available land, an evaluation of existing businesses within the study area, as well as the projection of minimal new potential residential and commercial development that could be anticipated as a result of Belleayre Resort's construction and operation, the indication is that new business growth would have an insignificant impact on land use in the study area. Initially, the new demands for goods and services resulting from the Resort would tend to stimulate additional commerce in existing businesses, especially among gas stations, food and lodging establishments, general merchandise (including local crafts and souvenirs), as well as recreational facilities. However, there appears to be adequate available capacity among existing businesses to accommodate significant new retail demands as would be generated by the Resort's employees and its visitors. The response of existing businesses in the study area would be seen in increased hours and/or days of operation, increased customer traffic, and increased inventory and product turnover. To the extent that the Resort directly stimulates new business growth, the analysis shows that it could be expected to generate a need for an additional 76,700 square feet of commercial development in the study area. This need may be accommodated by improvements to existing businesses, re-occupancy of existing structures or in-fill development in hamlets and villages. It is not anticipated that there will be a significant amount of new construction.

In addition to realizing existing capacity of currently operating establishments, the presence of the Resort as a direct competitor to existing businesses would be expected to stimulate existing businesses to upgrade their facilities. This would be expected to be most apparent among competing lodging establishments and restaurants in the face of the Resort's proposed high-quality hotel facilities and its range of restaurant and dining opportunities. As evidenced in the recent investments in establishments such as the Alpine Inn, this phenomenon is already occurring.

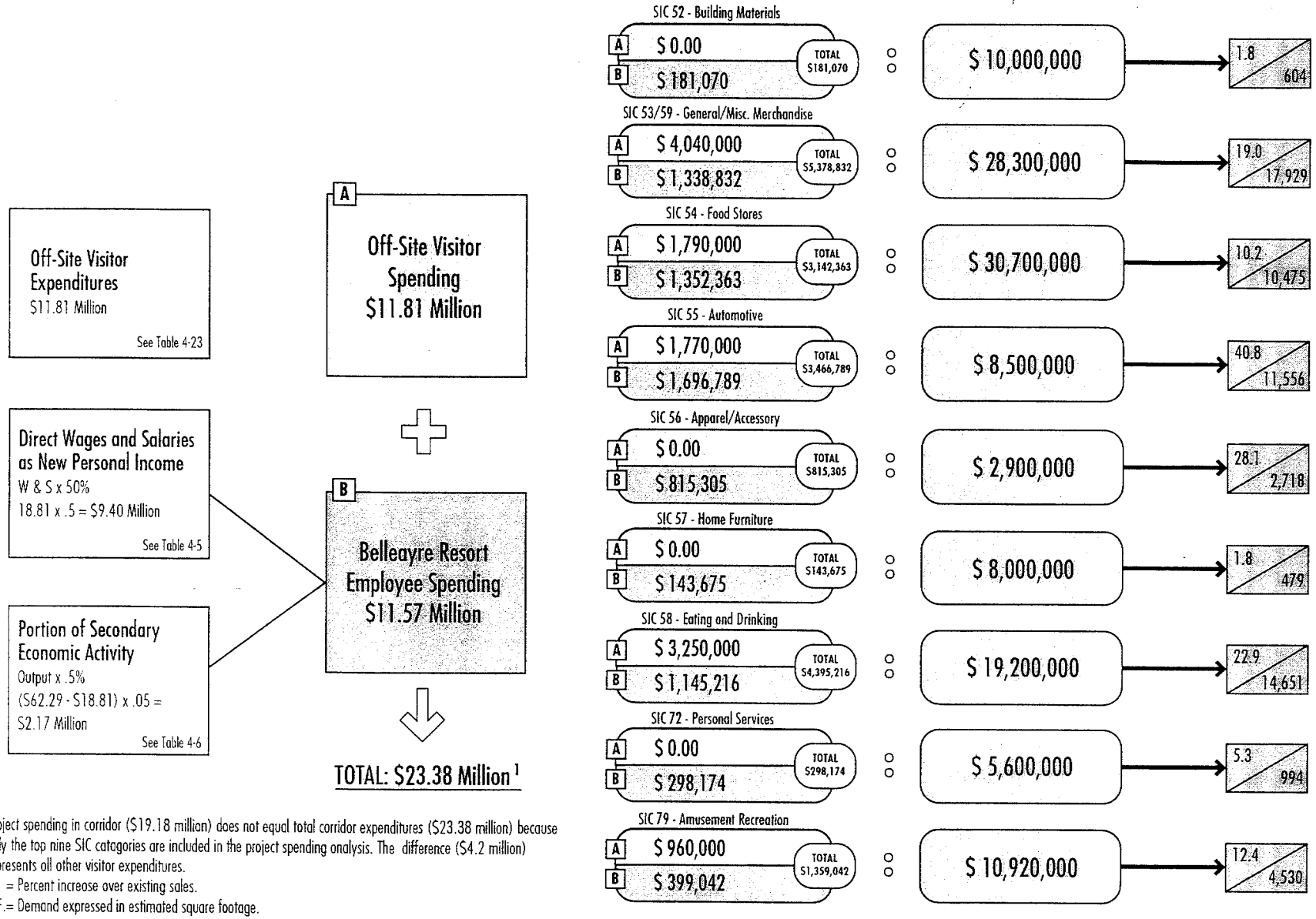
The land use and environmental effects of business upgrades would be expected to have a negligible impact on the region's infrastructure or natural or cultural resources.
The GIS analysis and windshield land-use survey of the study area indicates that there is little suitable land for large-scale commercial development along NY Route 28 or many of its side roads. Instead, smaller properties (both those with existing but vacant structures and undeveloped properties) near, or within, the villages and hamlets may be subject to additional economic investment as a result of the Belleayre Resort project.

Based on the limitations inherent in the regulatory and environmental constraints, and based upon the public policy doctrines contained in the local zoning laws and comprehensive plans, it is anticipated that this new demand for development would gravitate to existing building stock within the hamlets rather than attempting to break ground for new construction. Attractive vacant buildings and storefronts, as well as attractive rents, would be expected to induce the redevelopment of existing underutilized spaces prior to the creation of new commercial space on undeveloped sites.

The redevelopment or establishment of new businesses in existing space would not consume new land or create new impervious surfaces. It would, however, result in the generation of minor amounts of new wastewater flows. As noted earlier, even if all of the anticipated 76,700 square feet of new commercial development were to occur on "greenfield" sites outside of the hamlet or village centers, this would result in the conversion of only approximately five to ten acres of land. This should be adequate to accommodate needed buildings, parking, landscaping, buffering, stormwater management, and onsite septic disposal. New demands on the area's labor pool resulting from this new economic activity would generate the need for 150 to 200 fulltime job equivalents if the full build-out of new commercial development were to occur. It is expected that this labor need would be met by existing workers through the expansion of current working hours and the alteration of commuting patterns through which workers would elect to take new employment opportunities closer to home. As a consequence, no inflow of new labor is anticipated nor is any new demand for housing expected to be generated as a result of new off-site economic activity.

Since the Resort is estimated to result in negligible new seasonal or year-round housing construction, the impacts are anticipated to be insignificant. Virtually all of the employees of the Resort are expected to come from within a regional labor pool, with very few relocating to the Resort area. Those who would relocate include the top 16 to 20 mid- to upper-management positions, and it is expected that these employees would either rent or purchase existing homes for the duration of their employment, which in this particular sector of the hospitality industry, could be two or three years. These employees are unlikely to build new homes, although it is possible that a few might. Regardless, it would be a very small number.

The Resort is expected to meet the housing demand that its amenities generate, and it is specifically designed to capture the latent seasonal housing demand that the case studies indicate has been generated by the adjacent Belleayre Mountain Ski Center. In this sense, the Resort would concentrate and manage the effects of a housing demand that might otherwise result in a highly diffuse and more difficult to control pattern of second-home growth over a much larger area.



1 Project spending in corridor ($19.18 million) does not equal total corridor expenditures ($23.38 million) because only the top nine SIC catagories are included in the project spending analysis. The difference ($4.2 million) represents all other visitor expenditures.

2 % = Percent increase over existing sales.
S.F.= Demand expressed in estimated square footage.

Corridor Spending Analysis Model
Figure 7-1

Table 7-1

Corridor Spending Analysis

SIC	Category	Existing Sales in Corridor	Tri-County Household Expenditures	Expenditures as Pct. of Personal Income	New Resort-Generated Income Expenditures	New Visitor Expenditures	Total New Corridor Sales	Percent Increase. over Exist. Sales	New Demand (sq. ft.)
52	Building Materials	$10,000,000	$736	1.56%	$181,070	$0	$181,070	1.81%	724
53,59	Genl. & Misc. Merch.	$28,300,000	$5,442	11.57%	$1,338,832	$4,040,000	$5,378,832	19.01%	21,515
54	Food Stores	$30,700,000	$5,497	11.69%	$1,352,363	$1,790,000	$3,142,363	10.24%	12,569
55	Automotive	$8,500,000	$6,897	14.67%	$1,696,789	$1,770,000	$3,466,789	40.79%	13,867
56	Apparel/Accessories	$2,900,000	$3,314	7.05%	$815,305	$0	$815,305	28.11%	3,261
57	Home Furnishings	$8,000,000	$584	1.24%	$143,675	$0	$143,675	1.80%	575
58	Eating and Drinking	$19,200,000	$4,655	9.90%	$1,145,216	$3,250,000	$4,395,216	22.89%	17,581
72	Personal Services	$5,600,000	$1,212	2.58%	$298,174	$0	$298,174	5.32%	1,193
79	Amusement	$10,920,000	$1,622	3.45%	$399,042	$960,000	$1,359,042	12.45%	5,436
	TOTAL	$124,120,000	$29,959	63.70%	$7,370,466	$11,810,000	$19,180,466	15.45%	76,722

Sources: United States Census Bureau; Claritas, Inc; Allee King Rosen & Fleming, Inc.

Notes: Amusement/Recreation does not include lodging which is presumed not to be local.
Tri-County Household income was $47,029 in 2000 (US Census Bureau).
The total Tri-County Household Expenditures for 2000 was $47,029. Of that amount, $29,959 (or 63.7%) was spent on the SIC categories identified here. The balance of Household Expenditures was on housing and other goods and services.
New Personal Income Expenditures developed by applying the Tri-County Household Expenditures percentage of personal income by SIC category
Demand for new space assumes a retail sales rate of $250 per square foot (ULI, Dollars & Cents of Shopping Centers 2000)

Table 7-2

Detached Lodging Unit Sales and Prospective Buyers

	Units	Shares per Unit	Total
Highmount Private Homes	21	1	21
Big Indian Plateau (single)	35	4	140
Big Indian Plateau (triplex)	60	6	360
Belleayre Highlands (quad)	88	10	880
Wildacres Timeshares	168	25	4,200
Total Parties Expected to Purchase Detached Lodging Units			5,601
Total number of prospective buyers recruited to Resort			56,010

Source: Figures are based timeshare unit sales estimates provided by Crossroads Ventures, LLC; and industry sales responses as provided by RCI Consulting, Inc.

Table 7-3

Annual Sales Volume and Number of Prospective Buyers

Build Year	Total Intervals Sold per Year	Prospective Buyers per Year	Buyers Likely to Look Elsewhere
Year 1	290	2,900	1,450
Year 2	540	5,400	2,700
Year 3	710	7,100	3,550
Year 4	875	8,750	4,375
Year 5	860	8,600	4,300
Year 6	860	8,600	4,300
Year 7	860	8,600	4,300
Year 8	160	1,600	800
Year 9	140	1,400	700
Year 10	140	1,400	700
Year 11	136	1,360	680
Year 12	30	300	150
Total	5,601	56,010	28,005

Source: Figures are based on timeshare unit sales estimates provided by Crossroads Ventures, LLC and industry sales responses as provided by RCI Consulting, Inc.

SECTION 8 EFFECT OF THE PROPOSED ACTION ON THE USE AND CONSERVATION OF ENERGY

The proposed action will cause a use of energy. The consumption of fossil fuels and power will be required by the project both in its construction and operational phases.

During construction, the primary expenditure of energy will be the consumption of fossil fuels to operate construction equipment and to transport construction workers and materials to the site. This activity will cause a temporary and unavoidable increase in energy use. Some of the activities involving fuel consumption during the construction phase include clearing and grubbing, excavation, grading, building construction, and road construction.

The daily action of Resort guests traveling to a variety of destinations will contribute to the consumption of fossil fuels.

Normal day-to-day operation of the 21 residences and lodging units will contribute to power consumption on a long-term basis. Each unit will require the installation of a 150 amp to 200-amp electric service. Heating and air conditioning requirements will also cause the consumption of power resources.

Outside of the structures, some outdoor lighting is expected, but will not result in a substantial use of electricity.

NYSEG has indicated that the existing electricity infrastructure and supply are adequate to meet the new demand of the resort.

A substantial amount of energy conservation will occur at the proposed Big Indian Resort and Spa. The earth and vegetation covering of the building will reduce heat loss in the winter and will keep the interior of the building cooler during the summer months.

SECTION 9 CONSULTATION AND COORDINATION

The following agencies and organizations were contacted as part of the preparation of this DEIS.

ADK/New York New Jersey Trails Council
Belleayre Mountain Ski Center
Big Indian, Pine Hill and Fleischmanns Fire Departments
Cornell Cooperative Extension
Delaware County Planning Department
Delaware County Sheriff
Delaware County DPW
Delaware County Soil and Water Conservation District
Greene County Soil and Water Conservation District
Kingston, Benedictine and Margaretville Hospitals
Margaretville Central Schools
Margaretville Telephone Company
Middletown Building/Zoning Department
Northeast Regional Climate Data Center
NYCDEP
NYS Attorney General's Office
NYS Police
NYSDEC
NYSDMV
NYSDOH
NYSDOT
NYSDPS
NYSEG
NYSOPRHP
Onteora Central Schools
Riverkeeper
Shandaken Building/Zoning Department
Shandaken Police
Shandaken Rescue
Time Warner Cable
Trout Unlimited
Ulster County Department of Health
Ulster County Planning Department
Ulster County Resource Recovery Agency
Ulster County Sheriff
US Army Corps of Engineers
US Fish and Wildlife Service
US Geological Survey
Verizon
Village of Fleischmanns

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