3.9 Cultural Resources

3.9.1 Visual Resources

Introduction and Methodology

A visual assessment is an analytical technique that determines the viewshed of a particular project, identifies aesthetic resources within the viewshed, determines the potential impact of the project on the aesthetic resources, and identifies strategies to avoid, eliminate or reduce adverse impacts. "Viewshed" is defined as the geographic area from which a "facility" or project may be seen. A significant aesthetic resource is a designated place visited by the public for the purpose of enjoying its beauty. A resource may be designated by a locality, a state agency, or a federal agency. The visual assessment may incorporate line-of-sight profiles or photographs where necessary to demonstrate potential visibility of a facility from a sensitive viewpoint.

Variables associated with the actual visual experience include but are not limited to: atmospheric perspective (diminishing clarity and contrast of view due to atmospheric interference), and size perspective (reduction of apparent size of objects as distance increases). It is noted that mere visibility of a facility/development, even startling visibility, does not automatically mean it has an adverse visual or aesthetic impact. Aesthetic impact occurs when there is a demonstrated detrimental effect on the public enjoyment of an aesthetic resource. Visual impact occurs when mitigation measures, or the mitigating effects of perspective, do not adequately reduce the visibility of a facility from an aesthetic resource to an insignificant level.

The visual assessment completed for the Tripi subdivision was completed for the Conventional plan, in 2006 through 2009. As described in Section 2.0 Project Description, the Conservation or cluster subdivision plan evaluated in this document has a smaller "foot-print" or area of disturbance compared to the Conventional Plan. The Conservation Plan would retain approximately 12.53 acres of existing mature woods and understory brush, compared to the 8.44 acres retained under the Conventional Plan. The residential development under Conservation Plan would be substantially less visible from Harris Road and Sunrise Avenue, compared to the Conventional plan, since much of the eastern and southern portion of the site would remain undisturbed. The views of the project from West View Drive would be similar for both Conventional and Conservation plans, since the majority of development under both plans would occur in the northwest portion of the site. The visual assessment described below, analyses the greater impact to views that would occur under the Conventional Plan.

Existing Conditions

A visual resources survey was conducted in the project area on July 11, 2006 and July, 2009 , to identify locations in the vicinity where the project site may be visible from roads and public properties. The extent of the survey was determined by inspection of a US Geological Survey topographic map, which reveals the potential visibility of the project site based on topography alone. Thus, the survey encompassed the *potential viewshed* of the proposed project. The field survey refined this assessment based on existing factors that limit the actual visibility of the site, accounting for topography, vegetation, and buildings, and it identified the *actual viewshed* from specific locations in the site vicinity where the site and proposed project will be visible. The visual survey was conducted in the summer when trees were in leaf and in and off-leaf conditions in the winter when visibility to and from the site will be maximized. It included

identification of prominent land forms, land cover types, and the visual character of the site and local area. The survey also investigated potential views looking into the site from nearby residential neighborhoods.

Designated Scenic Resources

Westchester County's Executive Open Space Policy addresses the protection and preservation of properties having scenic significance. Scenic resource preservation is included in two of the six policy statements, Open Space Character and Environmental Resources. The protection of scenic views is a element of open space that is identified as a high priority for the County in regards to open space preservation.

Patterns for Westchester (1996) is a document developed by the County that is the equivalent of a county comprehensive plan setting long-term goals and policies for Westchester County. This document recognizes the value of scenic corridors and need for protection of natural aesthetic resources, but identifies specific areas.

The Town of Bedford Comprehensive Plan, dated July, 2002, identifies some areas of particular visual importance. These include the two historic districts within the Town -- portions of Bedford Village and Katonah. The project area is not included in either of these historic areas. No roads in the project vicinity have been designated by local, state or federal agencies as scenic byways or roads which afford scenic views.

The Town of Bedford Comprehensive Plan indicates that stone walls are a historic and aesthetic resource that should be protected. Stone walls do not currently exist on the project site with the exception of the mortared stone entry walls that frame the existing site entrance road on Harris Road.

Existing Visual Character

The site is located in a setting of rolling topography and moderate development, where views of the landscape are limited by the nearby hills, vegetation and curving roadway corridors. It consists of successional woodlands, fields, and includes relatively small residential lots with open lawns and existing homes. The property is located in a section of the Town characterized by upland, hilly topography where the land generally slopes towards the south and east. Half of the site is flat while steeper slopes exist within the eastern and southern portions, where sections of the site slope steeply towards adjoining properties. Over 90 percent of the 25.58 acres of the property is wooded, with trees ranging from approximately 40 to 60 feet in height.

Site Views from Area Roads

Located on a small hilltop, the property is potentially visible from area roads. Windshield and field surveys of views of the project site were conducted from area roads in summer and winter seasons to ascertain existing visual conditions that could affect views of the site after development is complete, and these views are discussed below. Figure 3.9-1 Location Map of Views shows a map of locations where existing and post-development views were assessed.

In general, views into the interior of the site from public roads near the site are limited, due to the topography, existing buildings, and vegetation. Views between structures from public roads near the site reveal the wooded cover of the property, and generally extend 100 feet or less into

it during winter months; the natural terrain effectively obscures further views into the site. Leaf cover during the summer months reduces these distances significantly. No off-site vantage point was identified from which more than a small portion of the project site could be viewed.

Harris Road: The southern frontage of the project site slopes up away from Harris Road. Seasonal views of the property from locations on Harris Road are shown in Figure 3.9-2. Apart from the lawn area, existing house, and driveway, the frontage on Harris Road is undeveloped woods. During on-leaf conditions, views into the site are limited by the vegetation. During off-leaf conditions, the south facing slope can be seen from the road, while the topography limits views into the site beyond the top of the slope.

New Street: The project site has frontage on the existing New Street dead-end north of the site. Figure 3.9-3 shows the existing conditions at this location, with relatively dense woods on land sloping gently up away from the road.

US Route 117: US Route 117, locally known as Bedford Road, is located nearby to the south of the site and travels in a NE/SW direction at a lower elevation than the project site. The location of Bedford Road (Route 117) relative to the site is shown in Figure 3.9-1. Steep topography, existing homes and tree cover between US Route 117 and Harris Road prevent views from US Route 117 to the project site.

West View Drive / West View Court: Figure 3.9-4 shows two seasonal views from West View Drive, which extends from Harris Road to the northwest corner of the subject property and lies at elevations below the project site. In off-leaf conditions, views into the site from these locations are possible through the trees, up to the crest of the hill. When the trees are in leaf, views into the property are substantially obscured.

Nightingale Road: North of the project site, Nightingale Road travels in a east-west direction and is separated from it by intervening residential development. The location of Nightingale Road relative to the site is shown in Figure 3.9-1. The road lies at a lower elevation than the project site with a gentle slope between. View of the site across these neighboring properties and through existing vegetation is substantially obscured from Nightingale Road.

Sunrise Avenue: Figure 3.9-5 shows the view toward the project site from Sunrise Avenue, located on the east side of the project parcel. Sunrise Avenue ends at the property boundary. The road is approximately 110 feet lower in elevation than the project site. Views of the site when the trees are in leaf are limited. During off-leaf conditions, views to the crest of the hill at this location are available.

The visual analysis did not identify other off-site roads where the project would be visible after construction.

Views Out From the Site/Within the Site

Views from the interior of the project site were investigated during the field survey. As previously stated, the Tripi Subdivision is proposed on the rounded top of a hill; however, no long distance views were identified. There were no notable vistas or scenic views identified from the interior of the project site nor from the perimeter of the site looking outward. No visually prominent natural features were observed on the site. Several rock outcrops of various heights were encountered that are only visible from locations within the project site.

Potential Impacts

The proposed Conventional Plan project will convert approximately 17.15 acres of vacant wooded property to residential use. The Conservation Plan would involve less grading involving approximately 13.39 acres and less grading in the eastern and southern portions of the site. Grading activities to prepare the site will result in minor topographic alterations that will alter some views of the site. Construction of residential dwellings and lawns will likewise alter views. Portions of the property will appear more open with the removal of the tree canopy as viewed from the surrounding roads and residential areas that adjoin the site. While no off-site vantage point was identified from which more than a small portion of the project development will be viewed, the following discussion describes potential changes that will be visible from area roads. Computer generated simulations of key post-development views were prepared to illustrate these changes. Figure 3.9-1 Location Map of Views identifies the locations of the simulation viewpoints. The discussion below, considers the post-development views for both the Conventional Plan and the Conservation subdivision plan.

Harris Road

Figure 3.9-6 simulates the post development conditions under the Conventional Plan at the proposed site entrance on Harris Road (View A). Clearing and grading is proposed to allow adequate sight distance at the proposed access road. Deciduous woods adjacent to the proposed access road and within the proposed swale on the east side of it will be planted with lawn grasses or other ground cover and maintained at a low height.

Figure 3.9-7 simulates the post development conditions under the Conservation Plan at the existing Murphy residence driveway on Harris Road (View F). No changes to the existing driveway are proposed, but the driveway will provide access to one (1) new residence on the south side of the driveway, as shown in the figure.

A simulation of the post development view from Harris Road at the southeast corner of the site is depicted in Figure 3.9-8 (View B). The residences that will be visible here are proposed for the higher elevations on the southeast section of the property and will be set back at least 120 feet from the road. They will be visible through the trees in off leaf conditions. In addition to the proposed houses, the image shows a rip-rap level spreader between the houses and the road, partially obscured by leaf litter. The density of development will be comparable to the existing development nearby on Harris Road, and the proposed architecture will be compatible with the existing houses. Therefore the visual character of Harris Road after development of the proposed Tripi subdivision will be similar to what currently exists.

Figure 3.9-9 simulates the post-development view from Harris Road at the southwest corner of the site under the Conservation Plan (View B). As shown in the figure, the view would be largely unchanged from existing conditions, since only a single new home will be constructed near the existing Murphy residence, and that home will be obscured by existing vegetation maintained on the property.

New Street

Since the Conventional Plan project will gain access from New Street, there will be a change to the visual environment near the end of the existing street after the construction of the new road extension. Due to regrading and the removal of vegetation for the proposed residences

topography, it is likely that views of several residences proposed along the internal road just north of the end of New Street will be possible from a location at the end of the street, but views of these houses will be limited by topography and vegetation from locations farther south on New Street. The proposed houses will be in sited in accordance with the zoning setback regulations similar to the existing structures located along New Street.

Under the Conservation Plan, New Street will provide the primary access into the site and views into the site at the end of New Street will be changed. A photosimulation of the new project entrance from New Street is provided as *Figure 3.9-10 (View C)*. The post-development view will include a new home on Lot 21. Existing vegetation on both sides (west and east) of New Street will be retained, softening the views into the new residential development.

West View Drive

Figure 3.9-11 shows a Conventional Plan post-development view into the site from West View Drive between Harris Road and West View Court (View D). The topography is gently sloped upward from the road in this location; the proposed houses will be approximately 20 feet above the grade of West View Drive. Trees will be removed to allow for the construction of a group of houses with associated SSTAs arranged around a spur of the internal road, ending in two cul de sacs. Views into the proposed development are shown with a proposed landscape planting to soften the view from this location.

Figure 3.9-12 is a photosimulation of a post-development view into the site from Westview Drive, under the Conservation Plan (View D). Due to the retention of a 25 foot wide buffer and modifications in grading, existing large and medium trees near the property border will be retained. Three new homes will be visible from this vantage point.

Nightingale Road

It is anticipated limited views of two proposed residences on the northwest corner of the property may be possible in the distance beyond existing residential properties and through woods to be preserved, during off leaf conditions.

Sunrise Avenue

A Conventional Plan post-construction view into the project site from Sunrise Avenue is shown in Figure 3.9-13 (View E). The construction of a stormwater basin, access road, and SSTA will require clearing along the property boundary. The stormwater basin will be located beyond the limits of the view from the road, although it will be visible from the rear of the neighboring property until the proposed screen planting matured. Existing trees are shown to the east of the property boundary with thinning of trees beyond this. Views of two proposed residences at the top of the hill will be possible through the screening of existing evergreen trees at the end of Sunrise Avenue.

The Conservation Plan will also include a stormwater basin located north of the end of Sunrise Avenue, similar to the Conventional Plan. The basin will involve some tree clearing and buffer plantings. This Plan involves no homes or septic systems for the eastern portion of the site, and therefore views from Sunrise Avenue would remain essentially unchanged from existing conditions.

Lighting Impacts on Surrounding Residential Uses

Lighting on individual house lots (interior lights and exterior area lights) will create new visibility of portions of the project from adjacent properties at night. This change is not expected to cause significant adverse effects on the local neighborhoods, which are also residential uses.

Preservation of Natural Features and Open Space Character

The proposed Conventional Plan project has been designed to fit into the existing landscape while minimizing the necessary area of tree clearing and landform alteration to the maximum extent practicable. Due to site grading constraints, SSTAs have been located near property boundaries in several locations, and as a result, open lawn areas will replace existing woods. On the east side of the property these open lawn areas will be set within or adjacent to significant areas of undisturbed woods. On the west the arrangement of these open lawn areas will allow views into the site from residences on West View Drive. A continuous wooded buffer will remain on either side of the site entrance on Harris Road. All existing vegetation, including mature trees outside of the proposed limits of disturbance will be preserved. The limits of disturbance are shown in Figure 3.1-4 Grading Plan. Construction fencing will be placed at the designated limits of disturbance and no clearing, tree cutting or removal of vegetation will be permitted beyond those limits.

The Conservation Plan would require approximately 4 acres less grading and vegetation removal than the Conventional Plan. In addition, large contiguous areas in the eastern portion of the site will not be disturbed. Therefore, post-development views into the site from surrounding roads will be more screened and the existing wooded character of the site maintained, especially from Harris Road. Views into the site from West View Drive and from the end of New Street will be changed, and new residences and opened tree canopy will be visible.

In summary, existing vegetation and topography prevent broad views of the Tripi subdivision. As described above, changes in the visual environment will include views of several houses and openings in the woods seen from several locations along residential roads in the vicinity. The character of the dwellings and the density of development will be compatible with the existing residential surroundings. The proposed project is not anticipated to result in a significant visual impact from any off site location.

Proposed Mitigation Measures

The proposed development has been designed to be integrated within the surrounding setting, and the architectural styles will be compatible with the existing residential neighborhoods. Where the regrading and construction will open up views from residences on West View Drive and near Sunrise Avenue, new evergreen landscape buffer plantings is proposed to provide screening as shown in Figure 3.9-9 and Drawing No. 14 Streetscape Plan. No other mitigation is proposed.

3.9.2 Historic and Archaeological Resources

Introduction

Section 14.09 of the New York State Historic Preservation Act of 1980 act establishes a review process for State agency activities affecting historic or cultural properties, requiring State agencies to consult with the Commissioner of the Office of Parks, Recreation and Historic Preservation (OPRHP) prior to approving a project. If a project requires any permits or is receiving funding/grants or any other approvals from State agencies, review by OPRHP is required. This project is subject to New York State Department of Environmental Conservation (NYSDEC) review and approval and thus must follow the criteria determined by OPRHP for cultural resource management, as set forth in the "Standards for Cultural Resource Investigations and the Curation of Archaeological Collections in New York State". These standards were developed by the New York Archaeological Council and adopted by the Office of Parks, Recreation and Historical Preservation to ensure uniformity in the review of cultural material in New York State.

Cultural Resource Management investigations are divided into three levels of assessment, called Phase I, II and III. A project may receive OPRHP approval after the completion of any of these phases by a qualified archaeologist, based on the determination that the project site has undergone sufficient investigation to eliminate the probability of significant artifacts being recovered within the area of potential effect. A Phase I investigation is subdivided into a Phase IA and Phase IB. The Phase IA consists of a Literature Review and Sensitivity Assessment, which entails the following.

1) a review of pertinent published historic material pertaining to this portion of the Town;
2) a search of the historical or archeological site files of the New York Museum and the New York Historic Preservation Office to identify documented cultural resources located on or adjacent to the property, and;
3) a reconnaissance of the parcel to identify areas of greater and lesser potential for containing buried cultural remains, and to note areas where serious prior disturbance to upper soils may have eliminated such potential, and to photodocument any potentially affected standing structures over 50 years of age.

For any area that will potentially be disturbed by the proposed action, a Phase IB Field Investigation is conducted, which involves a systematic, on-site field inspection to verify the presence or absence of archaeological or historic artifacts. The most common method for conducting a Phase IB is systematic subsurface testing, which requires the excavation of small test pits at fixed intervals throughout the project site. The soil from these pits is examined for buried cultural remains. Significant findings can trigger the requirement of more extensive investigation via a Phase II or Phase III investigation. However, mitigation or avoidance of that portion of the site where remains are known or suspected may be accepted by OPRHP and allow the modified project to continue.

The OPRHP guidelines do not require testing in areas with previously disturbed soils, steep slopes of 12% or greater, or poorly drained soils, as they are not considered to likely produce intact cultural resources.

A Phase IA Literature Review and Sensitivity Analysis and Phase I B Archaeological Field Reconnaissance Survey were prepared by CITY/SCAPE: Cultural Resource Consultants for Tim Miller Associates and completed in June 2008.

Existing Conditions

Historic Resources in the Vicinity of the Site

National and State Registers of Historic Places: The following three sites listed on the National Register of Historic Places are located within a mile of the project:

- Stepping Stones, A Dutch Colonial Style residence built in the 1920s
- St. Luke's Episcopal Church in the outskirts of the Village of Katonah
- Katonah Village Historic District

None of these will be impacted by the proposed development.

Westchester County: Westchester County maintains a County Inventory of Historic Places, which, in addition to those sites that are listed on the State and National Registers of Historic Places, lists County identified historic resources. Mianus Road in Bedford is listed on the Westchester Inventory, but not the State or National Registers. Mianus Road is seven miles south of the project site in the Town of Bedford.

Town of Bedford Comprehensive Plan: The Town of Bedford Comprehensive Plan addresses the need for historic preservation within the Town. Bedford Green, Bedford Court House, the John Jay Homestead, Caramoor, the 1920 Bedford Hills Community House and Bedford Village are historic places or structures specifically listed in Chapter 9, Community Appearance and Historic Preservation of the Town of Bedford Comprehensive Plan. The Town's historian and the Bedford Historical Society are working to compile an inventory of historic properties within Bedford. The project site is not included in either of the two historic districts located within the Town of Bedford.

None of the above mentioned areas is located near the proposed Tripi development, nor are any of the properties listed in the Comprehensive Plan located near the project site.

The Comprehensive Plan identifies fences and stone walls as historic resources that should be preserved and protected. There are no existing stone fences on the project site. Stone walls include the mortared stone entry walls and the stone foundation wall of housed previously standing on the site.

Historic Resources on the Site

In the Phase 1A Analysis, the location and environmental conditions of the site were assessed, historic maps were consulted to identify the potential for historical resources on the site, and a a survey of structures and cultural remains on the site was conducted, Currently an overgrown asphalt drive, which once connected Harris Road to New Street, provides access to derelict buildings and former structures in the interior of the site.

The historic map research identified the past ownership of the subject property and former dwellings and structures on the site. In the mid 19th century the land within the project area was own by J. Birdsall. In the early twentieth century the property, which had previously been two parcels, became one parcel owned by the Florence Nightingale Holding Corporation and was used for the Florence Nightingale School which later was known as Bailey Hall. The Bailey Hall school operated under a succession of owners from 1918 until 1986. In its beginnings the school was co-educational but evolved into a vocational school for handicapped men and boys. The school formerly contained a residence, barns, workshops, a school building and summer cottages. Further details regarding the historical use of the site is provided in the Phase 1A Literature Review and Sensitivity Analysis prepared by Citi/Scape: Cultural Resource Consultants (see Appendix G).

The map research indicated that there has been a structure on or adjacent to the Tripi Subdivision site since 1858. The early maps show the location of the structures on the project site belonging to former owner J. Birdsall. The 20th century maps examined indicated a location of the Birdsall residence that was inconsistent with the early maps. The Analysis concluded that the Phase 1 B Archaeological Field Reconnaissance Survey should be structured to attempt to locate the foundation of the Map Documented Structures, specifically the Birdsall dwelling.

Archaeological Resources

Based on reports by local avocational archaeologists of the presence of projectile points and other tools along the banks of the Muscoot River, in combination with the sensitivity model employed by the New York State Museum and OPRHP, the more level, undisturbed portions of the site will be considered to have a moderate to high potential to contain prehistoric resources. This conclusion was based on the situation of the site on an elevated knoll overlooking wetlands to the north and west, as well as two waterways, Broad Brook and Stone Hill River, to the south and east. The fresh water features located adjacent to the site will have provided Native American groups with potable water and access to freshwater fowl, game and fish. The Analysis concluded that the Phase 1B Field Reconnaissance should be conducted to test for prehistoric cultural materials.

Potential Impacts

For the Phase 1B Report the property, with the exception of disturbed areas, rock outcrops, and areas with slopes greater than 12 percent, was subjected to systematic archaeological testing. A total of 366 shovel tests were excavated on the site in areas considered to have potential to yield prehistoric cultural material. Of these tests, none yielded prehistoric cultural material. Shovel tests placed around the perimeter of the existing structures and the remains of former structures yielded cultural material dating to the mid 20th century.

Having completed research to identify the nature of the historic remains on the subject property, CITY/SCAPE: Cultural Resource Consultants concluded that the structures present are associated with the Florence Nightingale School/Bailey Hall, which occupied the site between 1918 and 1986. They further concluded that none of the structures or remains of structures meet the criteria for listing on the National Register of Historic Places. No evidence of the 19th century Birdsall house was identified within the project area, nor was there any evidence of artifacts associated with it. No prehistoric cultural material of any kind was recovered from the Tripi Subdivision site. Based on these findings, it is the conclusion of CITY/SCAPE:Cultural Resource Consultants that no additional archaeological investigation of the site is warranted.

The results of the Phase 1A and Phase 1B studies have been forwarded to the NYS Office of Parks Recreation and Historic Preservation (OPRHP) for review and concurrence with the project historic resource consultant recommendations.

Proposed Mitigation

Since the proposed Tripi Subdivision is not anticipated to impact any prehistoric or historic cultural remains on the site no mitigation is proposed.

3.9.3 Noise

Existing Conditions

The noise analysis contained in this section of the DEIS has been conducted in accordance with the NYSDEC policy guidance document Assessing and Mitigating Noise Impacts.

The NYSDEC policy document defines noise as "unwanted sound." Certain activities inherently produce sound levels or sound characteristics that have the potential to create noise. This is dependent on the existing land uses which surround the proposed project, and whether these land uses are sensitive to noise. Even though noise is somewhat subjective, it affects the full range of human activities and must be considered in local and regional planning.

Most sounds heard in the environment are not composed of a single frequency, but are a band of frequencies, each with a different intensity or level. Levels of sound are measured in units called decibels (dB). Since the human ear cannot perceive all pitches or frequencies equally well, these measures are adjusted or weighted to correspond to human hearing. This adjusted unit is known as the A-weighted decibel, or dBA. Since dBA describes a sound level at just one instant and since ambient sound levels are constantly varying, other ways of describing sound levels over extended periods are needed. For purposes of this analysis, the DEIS measures L_{eq}. The L_{eq} quantifies the noise environment as a single value of sound level for any desired duration. L_{eq} is defined as the equivalent steady-state sound level which in a stated period of time contains the same acoustic energy as the time-varying sound level during the same time period. The $L_{eq(h)}$ is the hourly value of L_{eq}. For example, $L_{eq(8)}$ is the average sound over an 8-hour period.

Environmental noise is considered with regard to several factors, including *level* - which relates to perceived loudness of a noise - as well as character, duration, time of day and frequency of occurrence. The level of a noise is measured and expressed in dBA.

It should be noted that a one decibel change in noise is the smallest change detectable by the human ear under suitable laboratory conditions. However, under normal conditions, a change in noise level of two or three decibels is required for the average person to notice a difference. Tables 3.9-1 and 3.9-2 show community perception of noise change and response to increased levels. Environmental noise is considered with regard to several factors, including *level* - which relates to perceived loudness of a noise - but also its *character, duration, time of day* and *frequency of occurrence.* The level of a noise is measured and expressed in decibels (dB). Commonly, a standardized A-weighting is applied to sound levels to correct for certain characteristics of human hearing. The A-weighted sound level (dBA) is useful for gauging and comparing the subjective loudness of sounds.

Table 3.9-1 **Perception of Changes in Noise Levels**	
Change (dBA)	Average Ability to Perceive Changes in Noise Levels Human Perception of Change
2-3	Barely perceptible
5	Readily Noticeable
10	A doubling or halving of the loudness of sound
20	A dramatic change
40	Difference between a faintly audible sound and a very loud sound
Source: Bolt Baranek and Neuman, Inc. Fundamentals and Abatement of Highway Traffic Noise, Report No. PB-222-703. Prepared for Federal Highway Administration, June 1973.	

Table 3.9-2 **Community Response to Increases in Noise Levels**		
	Estimated Community Response	
Change (dBA)	Category	Description
0	None	No observed reaction
5	Little	Sporadic complaints
10	Medium	Widespread complaints
15	Strong	Threats of community action
20	Very strong	Vigorous community action
Source: International Standard Organization, Noise Assessment with Respect to Community Reactions, 150/TC 43. (New York: United Nations, November 1969.)		

Table 3.9-3 lists noise levels associated with various activities.

Table 3.9-3 **Sound Levels of Common Activities**	
Activity	**dBA**
Rock Concerts	110
Subway Platform	100
Sidewalk, Passing Truck	90
Sidewalk, Typical Highway	80
Typical Urban Area	60-70
Typical Suburban Area	50-60
Quiet Suburban Area at Night	40-50
Typical Rural Area at Night	30-40
Isolated Broadcast Studio	20
Audiometric Booth	10
Threshold of Hearing	0
Sources: Cowan, James, Handbook of Environmental Acoustics, 1994. Egan, David, Architectural Acoustics, 1998.	

HUD Standards

The United States Department of Housing and Urban Development (HUD) has adopted environmental standards, criteria and guidelines with respect to noise for determining the acceptability of federally assisted projects and proposed mitigation to ensure that activities assisted by HUD will achieve the goal of attaining a suitable living environment. Although the Tripi Subdivision project is not subject to HUD guidelines, these guidelines do represent useful goals for virtually any contemporary project. Table 3.9-4 below summarizes HUD Site Acceptability Standards for continuous external noise levels.

Table 3.9-4
HUD Site Acceptability Standards

	Outdoor Ldn (dBA)
Acceptable	Not exceeding 65
Normally Unacceptable	65 to 75
Unacceptable	Above 75

Source: Title 24, Code of Federal Regulations, Part 5l.103 (c), Exterior Standards.

The HUD standards reflect the EPA goal of not having continuous external noise levels exceed 65 decibels (dBA). This goal is not a mandated standard and does not account for the cost or feasibility of attaining the specified noise levels.

FHWA Guidelines

The Federal Highway Administration (FHWA) guidelines present recommended exterior design noise levels for various land uses exposed to noise generated by vehicular traffic from highways. The FHWA establishes an exterior design noise level of 67 dBA (L_{eq}) for residential area; however noise levels approaching this level are also regulated. The definition of "approaching" is 1 dBA below the design noise level or 66 dBA. Therefore, noise levels of 66 dBA or higher are considered to exceed the design noise level for exterior residential areas. The FHWA recommends use of noise abatement measures for residential areas where the noise level exceeds 66 dBA.

Town of Bedford Noise Regulation

Chapter 83, the Town of Bedford Noise Control Law, of the Town of Bedford Code provides a performance standard for sound levels for land uses within the Town.

This Chapter restricts noise produced within a residential or nonresidential zoning district. Maximum allowable levels are as follows:

- Between the hours of 8:00 a.m. and 6:00 p.m., noise levels shall not exceed sixty-five (65) decibels.
- Between the hours of 6:00 p.m. and 8:00 a.m. and all day on Sundays, noise levels shall not exceed forty-five (45) decibels.

The subject property is subject to these restrictions.

Sounds produced by construction equipment are exempt from the maximum allowable level, however, construction activities are prohibited on holidays and between the hours of 6:00 p.m. and 8:00 AM. According to the Town of Bedford Noise Code, Chapter 83, Blasting is not permitted between the hours of 5:00 p.m. and 8:00 a.m. Monday through Friday, nor any time on Saturday, Sundays or holidays. Blasting is further regulated by Chapter 125 of the Town Code. Within Chapter 125, Article IVA, Blasting and Explosives, §125-48.11 Hours of Operation it states "No person shall conduct blasting operations within the Town of Bedford after the hour of 5:00 p.m. and before 8:00 a.m. nor at any time on Sunday or holidays, except in the case of emergency or necessity, and then only with permission of the Building Inspector.".

Chapter §125-32C Noise Exemptions discusses additional exemptions associated with the noise level regulations. This code states that noises not directly under the control of the property owner/user are exempt. These noises would include any activity not being conducted on the owners property but does make the property owners ambient noise level exceed the Town of Bedford Code. Other exemptions include noises emanating from construction and maintenance activities between 8:00 a.m. and sunset as well as noise from safety signals, warning devices, emergency pressure-relief valves or other emergency warning signals.

Existing Ambient Noise Levels

There are fairly high existing ambient noise levels in the vicinity of the Tripi subdivision site. These are predominantly influenced by surrounding land uses. The greatest noise detected at the site results from vehicular traffic along the adjacent Saw Mill River Parkway as well as overhead aircraft noise. During warmer weather, periodic noise is also generated by students at the nearby Katonah Elementary School although these noise levels are not unusual.

Ambient noise levels were monitored by Tim Miller Associates, Inc., in accordance with the measurement standards in Chapter 83-4-B. Existing levels were collected at five (5) locations along the site's property line. Monitoring locations were chosen taking into account potential sensitive receptors that may be most affected by the proposed project. The noise monitoring locations are shown in Figure 3.9-15, Noise Monitoring Locations, and are as follows:

- Location 1: southern property boundary at proposed site entrance from Harris Road;
- Location 2: western property boundary behind existing residences located along Westview Drive;
- Location 3: northwestern corner of property, closest to Katonah Elementary School;
- Location 4: northern property boundary near the end of New Street; and
- Location 5: eastern property boundary near the end of Sunrise Avenue.

Monitoring was conducted on Thursday June 29, 2007 between the hours of 1 p.m. and 4 p.m.. Sound levels were recorded for fifteen minute periods at each location. These levels, measured in Leq, are provided in Table 3.9-5.

Table 3.9-5
Average Sound Levels (dBA)

Location	Sound Level
Location 1: Main Entrance	52.9
Location 2: Eastern boundary	47.5
Location 3: Northwest corner	49.3
Location 4: North boundary	63.4*
Location 5: Eastern boundary	51.6
Average Noise Level	**52.9**

Source: Tim Miller Associates, 2006.
* Level was influenced by overhead aircraft, which raised the L_{AV} approximately 10 dBA. Recorded sound level prior to aircraft was 52.3 dBA.

All recorded levels were within the acceptable limits as defined by Chapter 83 of the Town of Bedford Code. Noise produced by overhead aircraft were dominant sounds at all the monitoring locations and greatly contribute to the ambient noise levels.

As indicated in Table 3.9-5, the highest existing noise level was recorded at Location 4. Noise at this location is affected most by mobile sources, specifically overhead airplanes and vehicles traveling along the Saw Mill River Parkway. During monitoring, the recorded ambient level was at 53.2 until approximately ten minutes into the monitoring period. At that time, the average noise level increased by approximately 10 dBA due to noise produced by an overhead airplane.

Noise levels at Location 1, on the south side of the property at the proposed site entrance, were also primarily associated with noise from overhead aircraft. Additional noises at this monitoring location included that produced from vehicles traveling along Harris Road, birds and the breeze through the on-site vegetation.

Noise levels at Location 2, which is located along the along the western property border, behind existing houses located along Westview Drive, were the lowest recordings. The noise levels were impacted most by overhead aircraft, birds, and wind.

Noises contributing to the ambient sound level at Location 3, located in the northwestern corner of the project parcel, were mainly generated by overhead aircraft and birds. A train or boat horn repeated several times during the monitoring period.

Ambient sound levels at monitoring Location 5, located along the eastern property border at the end of Sunrise Avenue, were primarily influenced by overhead aircraft, traffic along the Saw Mill River Parkway, birds, and children playing in the nearby residential development.

Existing noise levels at the Tripi Subdivision site are primarily influenced by surrounding land uses since the site is vacant. The greatest source of background noise detected at the site results from overhead aircraft. Noise sources that contribute to the ambient noise levels at the project site are as follows:

- Off-site overhead aircraft approaching or departing nearby airports;

- Off-site mobile source noise from traffic along the Saw Mill River Parkway, to the east of the site;
- Off-site mobile source noise from surrounding local roads;

Sensitive Receptors

Sensitive noise receptors are uses that are dependent on a state of serenity and quiet, or are uses that are particularly sensitive to noise energy and decibel levels. Land uses that are typically considered to be sensitive to noise will be residences, schools, hospitals, churches, libraries, motels and hotels, nature preserves and outdoor recreation areas - these activities fall within activity categories "A" and "B" set forth in 23 CFR Part 772--Procedures for Abatement of Highway Traffic Noise and Construction Noise regulating activities of the Federal Highway Administration (FHWA). The FHWA guidelines are used to define sensitive receptors, since the NYSDEC policy document does not define the same.

The project site is located in a densely populated area and has numerous nearby "sensitive receptors." Although many of the sensitive receptors are located within approximately 3 miles of the project site, they are unlikely to be affected by noise generated at the project site due to the existing noises in the area, primarily mobile source-generated noise. Some sensitive receptors that were identified in the project area and will potentially be subject to short-term construction-related noise impacts are:

- Students at the Katonah Elementary School, located within 1,000-feet of the site.
- Residents of nearby homes.

The nearest off-site sensitive receptors in the project area include the Katonah Elementary School which will be considered in the impact analysis provided below.

Potential Impacts

After development Tripi Subdivision will introduce residential uses that are compatible with the residential uses to the east, north and west, and will not introduce any major stationary source of noise. The Tripi Subdivision residences will not introduce a source of noise that is different from typical of residential neighborhoods. The proposed residential uses are not anticipated to add noticeable noise to the area.

Sources of noise introduced by the project will include:

- Normal residential activities, including lawnmowers;
- Residential vehicular traffic;
- Heating and air-conditioning equipment.

Noises generated by the proposed development will be similar in character to those currently generated by the residential dwellings in the vicinity of the site. Noise levels after construction of Tripi Subdivision are anticipated to remain within that allowed by the Town of Bedford Code and recommended by the DEC.

Impacts of Developed Site

The development of the proposed project will remove a portion of the existing vegetation on the project site. The removal of this vegetation and replacement with residential structures and associated driveways and lawns may moderately increase the ambient noise levels in the area, since the existing wooded area currently serves to absorb and buffer some noise. However, the major source of ambient noises results from overhead aircraft, for which the existing on-site vegetation provides little to no relief for existing nearby sensitive receptors. Combined with the anticipated noise levels within the Town allowable maximum, the removal of the on-site vegetation is not expected to have a noticeable difference in the ambient sound levels.

Residential uses are not normally considered high noise generators. The proposed Tripi Subdivision will introduce 19 to 23 residential structures on over 25 acres of land. This low density will further disperse any noises generated by the proposed residences. Additionally, the noises generated by the Tripi Subdivision will be noises that are typically associated with residential uses, such as lawnmowers, vehicles and children playing, and are unlikely to have a negative impact on nearby uses.

Short Term Noise Impacts During Construction

Local daytime ambient noise levels will increase both on and off of the project site during the five year construction period of the proposed Tripi subdivision. The discussion of construction related noise provided below applies to both the Conventional subdivision plan and to the Conservation subdivision. Construction activities and the operation of construction equipment are an expected and required consequence of any new construction project and cannot be avoided. Thus, some noise impacts will be expected. It is important to note that noise resulting from construction activities is a temporary impact, and will cease upon completion of the project. The following table shows representative maximum sound levels for diesel powered equipment and activities at a range of receptor distances.

Table 3.9-6
Construction Noise

Levels (dBA)	**Maximum Sound Level**			
Equipment/Activity	**50 feet**	**200 feet**	**500 feet**	**1000 feet**
Backhoe	82-84	70-72	62-64	56-58
Blasting	93-94	81-82	73-74	67-68
Concrete Pump	74-84	62-72	54-64	48-58
Generator	71-87	59-75	51-67	45-61
Hauler	83-86	71-74	63-66	57-60
Loader	86-90	74-78	66-70	60-64
Rock Drill	83-99	71-87	63-79	57-73
Trucks	81-87	69-75	61-67	55-61

Source: Compiled from various sources by Tim Miller Associates, Inc.

To the average person, a noise level increase of 2 to 3 dBA is barely perceptible; an increase of 5 dBA is noticeable; and an increase of 20 dBA or more is perceived as a dramatic change. Annoyance to people frequently results from increases of 10 dBA or more, depending upon the frequency and duration of the noise events.

The level of impact from these construction noise sources depends upon the type and number of pieces of construction equipment being operated, the duration of the construction activities, as well as the distance of the receptor from the construction sites. The noisiest period of construction will occur during site clearing and grading activities, when sections of the site are prepared for the building; although all construction activities at the site are likely to produce increased noise levels. These activities will include clearing and excavations, drilling, grading activities, delivery of construction materials, and the actual construction of the various components of the proposed project. These elevated noise occurrences are typically sporadic during the construction period and not a constant state.

Katonah Elementary School

The closest sensitive receptors to the site are residences located along Westview Drive, to the west of the site, and residences north and east of the site. The residences located south of the site are separated by a local road, Harris Road, and therefore the noise from the vehicular traffic along Harris will effect those residences more than the short term construction noise proposed to occur on the subject property. As stated above, the Katonah Elementary School grounds are adjacent to the proposed Tripi Subdivision development however the actual school building is approximately 750 feet away from the closest limits of disturbance in the northeastern corner of the site. (See Figure 3.9-14). A wooded area and field located on the school property, separate the school from the Tripi Subdivision site. This wooded area will reduce the noise somewhat from the construction of the proposed subdivision.

According to the NYSDEC policy guidance document Assessing and Mitigating Noise Impacts, a doubling of the distance between the noise source and the receptor would result in a reduction of the noise level of the stationary object or objects by 6 dBAs. As shown in Table 3.9-6 above, the loudest piece of construction equipment that could possibly be used on the proposed construction site is a rock drill. At a distance of 50 feet, from the rock drill, the noise decibel is shown to be 83-99 dBAs. Therefore, at a distance of 750 feet, the distance the Katonah Elementary School is from the property line, the loudest piece of equipment would diminish to 59-75 dBAs. This is the minimum the noise level would be reduced to according to the doubling of distance calculation above, which does not take into account the buffering created by the wooded area. This wooded area could reduce the noise by as much as an additional 3-7 dBAs, according to the NYSDEC document mentioned above.

Blasting

Blasting may be required for construction of the proposed project, as described in Section 3.1 Geology, Soils & Topography. Construction methods, other than blasting will be used such as hammering, cutting, ripping, or chipping. Should blasting be necessary, it is anticipated that residences closest to the property will experience periodic increases in noise from blasting. In a case that blasting is used, the effects of blasting noise on neighboring residences will be mitigated, to the extent possible, as described below.

Proposed Mitigation

The anticipated duration of the construction period is approximately 36 months. Construction will occur during normal working hours, approximately 8:00 a.m. to 6:00 p.m. Monday through Saturday. No work will be permitted on Sunday or on holidays.

It is anticipated that nearby properties will experience temporary elevated noise levels at occasional periods during the estimated three year construction period. This is a temporary, construction-related, unavoidable impact. Neighboring residential properties will be subjected to short-term increases in noise during construction of the proposed Tripi subdivision development. Nearby receptors, such as the Katonah Elementary School, are most likely to be impacted by the proposed construction and any required blasting. However, the higher sound levels will not be continuous during the entire duration of construction. It is likely that the school will experience elevated sound levels during the site preparation phase of work, but significantly lower levels during the actual building construction.

Construction activity will be limited to the hours between 7:00 a.m. and 6:00 p.m., Monday through Saturday. All construction vehicles and equipment will be expected to be well maintained and operated in an efficient manner, thereby minimizing noise to the greatest extent practicable.

Mitigation for Katonah Elementary School

The project construction manager will work with the Town Engineer regarding any noise complaints from either residents or the Katonah Elementary School. Any noise complaints from the school or residents will be directed to the Town Engineer or representative and forwarded to the construction manager for resolution.

If blasting is required for project construction, a potential mitigation measure would be to limit blasting to times when school is not in session. This would limit blasting to school vacation periods or on Saturdays. However, if blasting is proposed for Saturdays the Town of Bedford Building Inspector would have to waive provisions in the Town Code related to noise. Although the blasting code (§125-48.1 to §125-48.20) allows blasting on Saturdays the noise code (Chapter §83) states that blasting is not permitted on Saturdays.

Blasting

Should blasting be necessary, all blasting will meet all requirements of Title 12 of the New York State Code of Rules and Regulations as well and the Town of Bedford regulations (Chapter 125 of the Town Code).

Blasting operations will be conducted under the direct control and supervision of competent and licensed persons. The blasting contractor performing the work will be fully insured in accordance with the regulations. Once any required blasting sites have been identified, a general blasting schedule will be developed and a blasting permit will be obtained from the Building Inspector covering the specific blasting operation.

Blasting will be limited to the hours between 8:00 a.m. and 5:00 p.m., Monday through Saturday, excluding holidays, as allowed in the Town of Bedford Code. Written blasting notification will occur to all residents and owners of dwellings or structures located within 500 feet of the blasting permit site, including the Katonah Elementary School. There will be two such notifications, which will occur at least 30 days prior and between 72 and 24 hours prior to the initiation of blasting. The construction manager will directly notify school administration via phone, immediately prior to any blasting. Warning flags or other means will be used at a reasonable distance to give proper warning to the public at least three minutes in advance of firing.

The quantity of explosives will be limited to the amount necessary to fracture the rock without endangering persons or property. Before firing, all blasts will be covered with a suitable protective device to prevent escape of broken rock.

The proposed project is not anticipated to have long-term impacts to noise. Therefore, no additional mitigation measures are proposed.

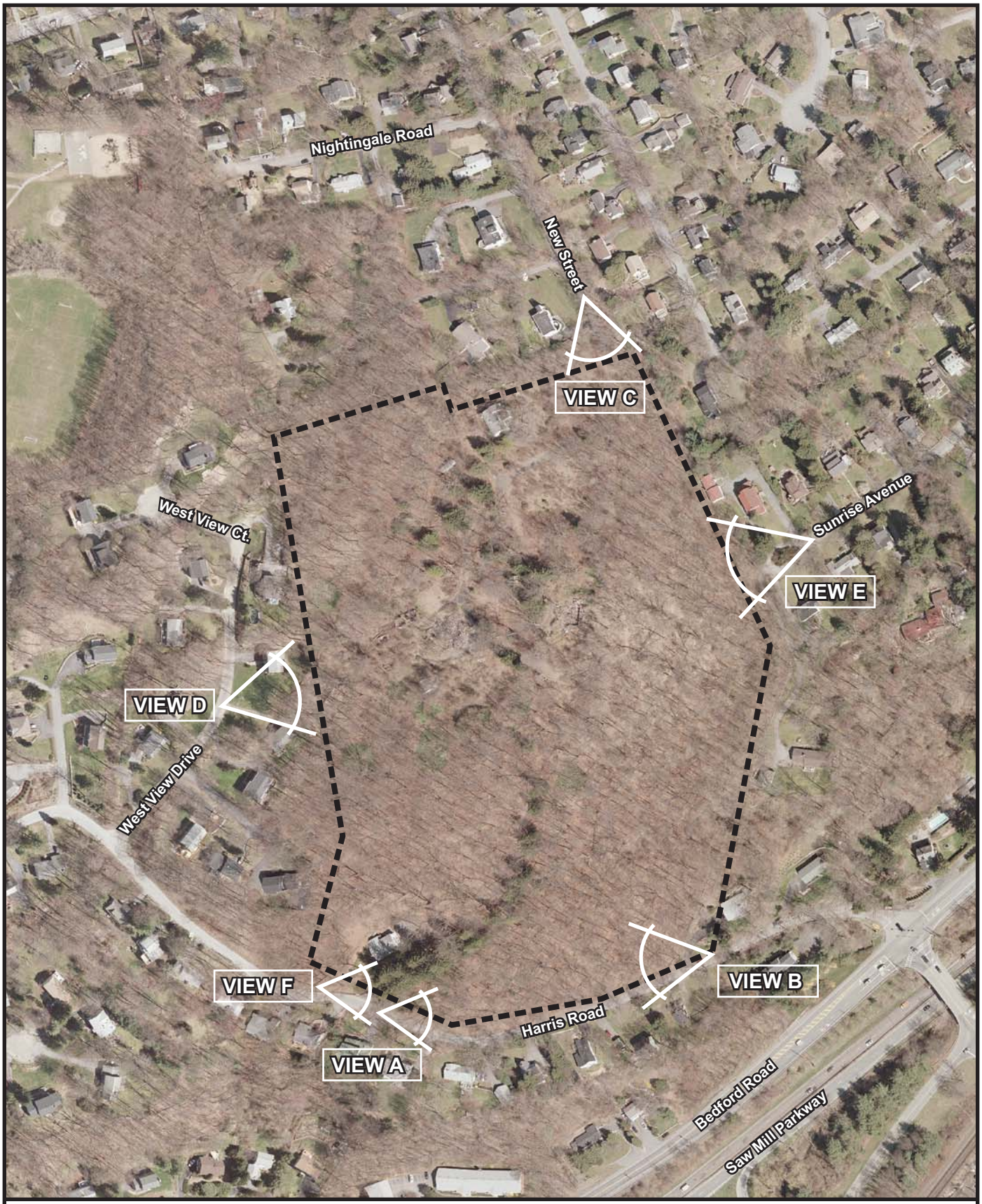

Figure 3.9-1: Location Map of Views
Tripi Subdivision
Town of Bedford, Westchester County, New York
Source: NYS GIS Clearinghouse, 2004 Aerial Photo
Approx. Scale: 1" = 300'

File 04031 5/26/11
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View A: Summer view into Project Site from Harris Road near existing driveway

View B: Winter view into Project Site from Harris Road

Figure 3.9-2: Existing Views from Harris Road

Tripi Subdivision DEIS

Town of Bedford, Westchester County, New York

Source: Tim Miller Associates, Inc.

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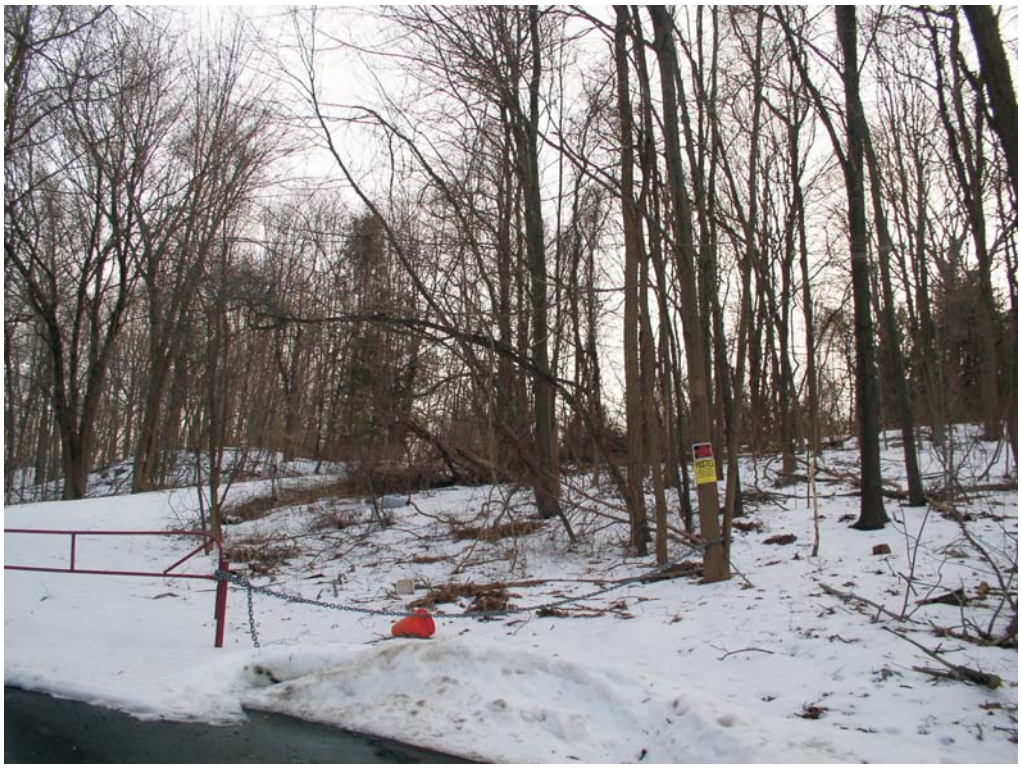
View C: Summer View into Project Site from New Street



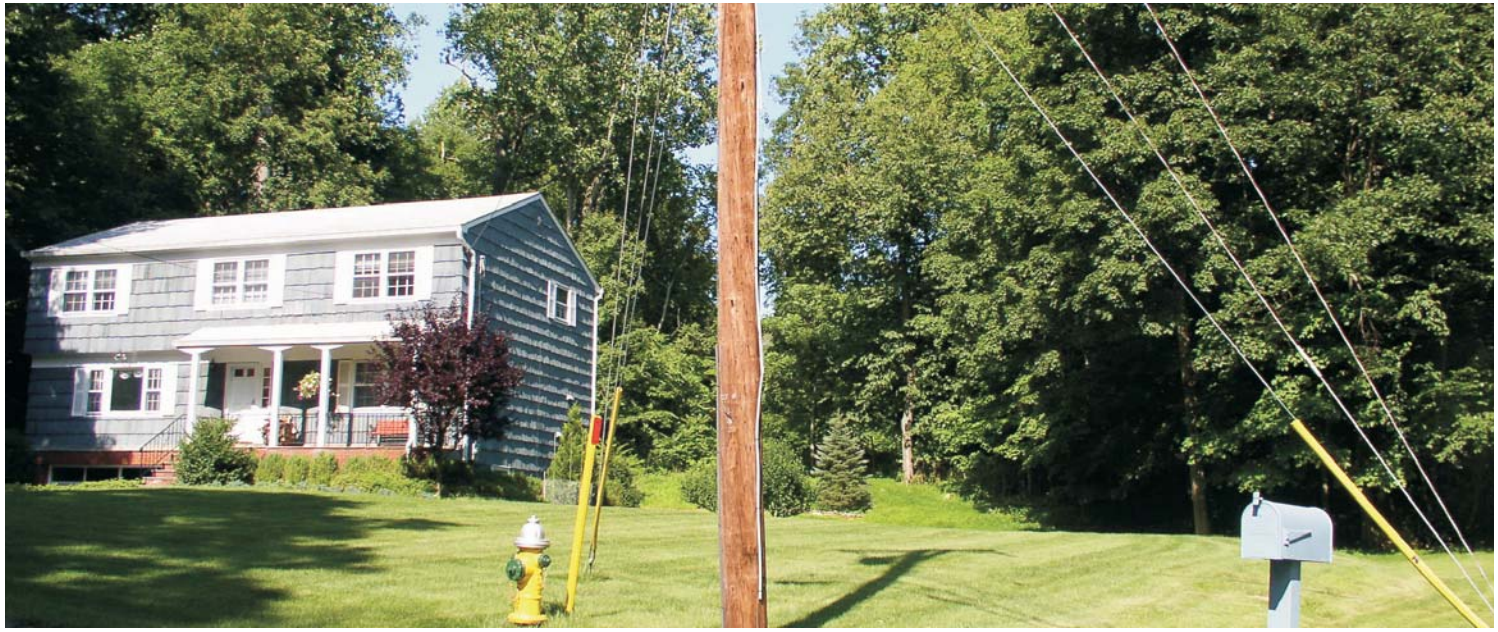
View C: Winter View into Project Site from New Street

Figure 3.9-3: Existing Views from New Street

Tripi Subdivision DEIS

Town of Bedford, Westchester County, New York

Source: Tim Miller Associates, Inc.



View D: Summer View into Project Site from West View Drive

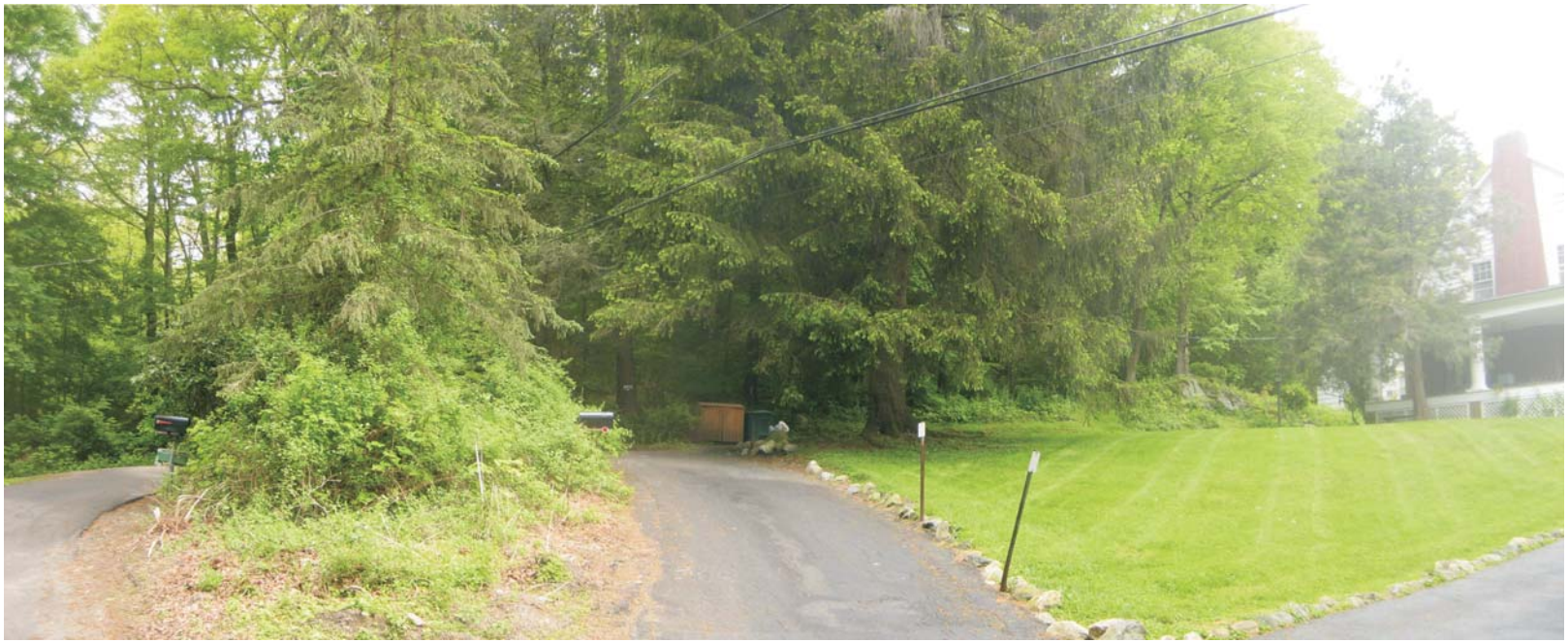
View D: Winter View into Project Site from West View Drive

Figure 3.9-4: Existing Views from West View Drive

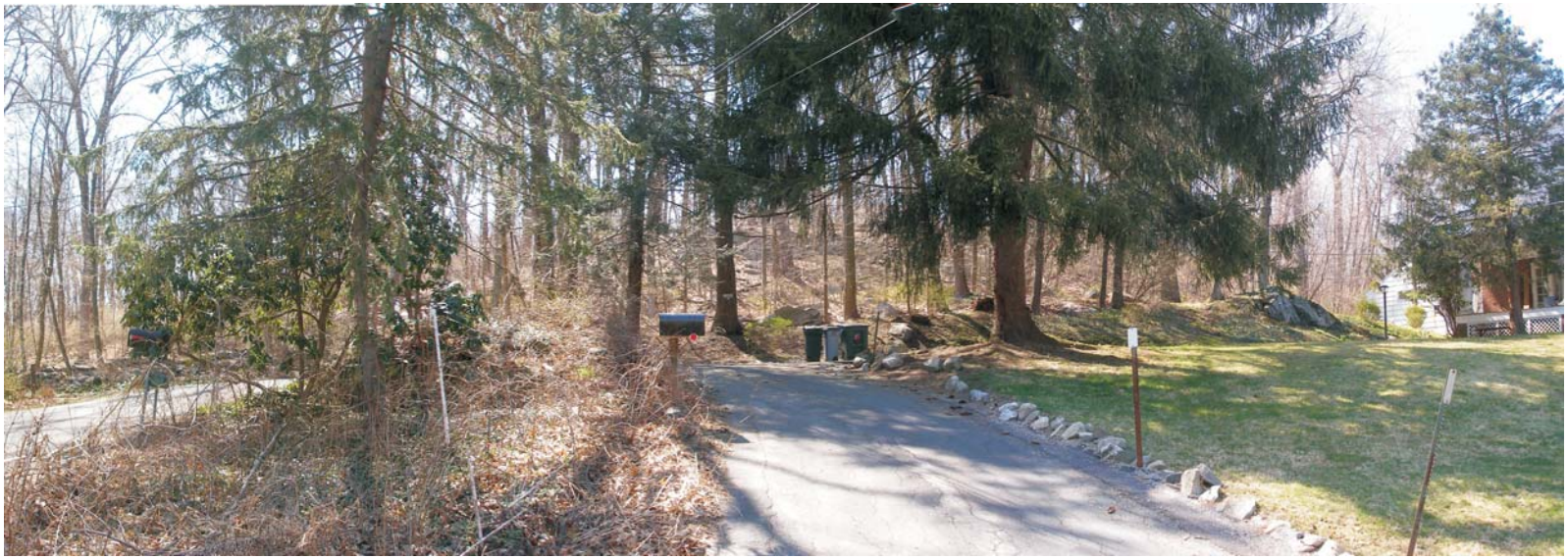
Tripi Subdivision

Town of Bedford, Westchester County, NY

Source: TMA Photos, 4/15/08 & 7/11/08



View E: Summer View of Project Site from Sunrise Avenue



View E: Winter View of Project Site from Sunrise Avenue

Figure 3.9-5: Existing View from Sunrise Avenue
Tripi Subdivision DEIS
Town of Bedford, Westchester County, NY
Source: TMA Photos, 4/15/08

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Figure 3.9-6: Post Development Conventional Plan View
from Harris Road (Site Entrance -View A)
Tripi Subdivision
Town of Bedford, Westchester County, NY
Source: TMA Photos, 4/15/08

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View F: Winter View of driveway (emergency access) from Harris Road

Figure 3.9-7: Post Development Conservation Plan View
from Harris Road (Site Entrance)
Tripi Subdivision
Town of Bedford, Westchester County, NY
Source: TMA Photos, 4/15/08

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View B: Winter post-development Conventional Plan view from Harris Road

Figure 3.9-8: Post Development Conventional Plan View from Harris Road (East of Site Entrance)
Tripi Subdivision
Town of Bedford, Westchester County, NY
Source: TMA Photos, 4/15/08

View B: Winter post-development Conservation Plan view from Harris Road

Figure 3.9-9: Post Development Conservation Plan View from Harris Road (East of Site Entrance)
Tripi Subdivision
Town of Bedford, Westchester County, NY
Source: TMA Photos, 4/15/08

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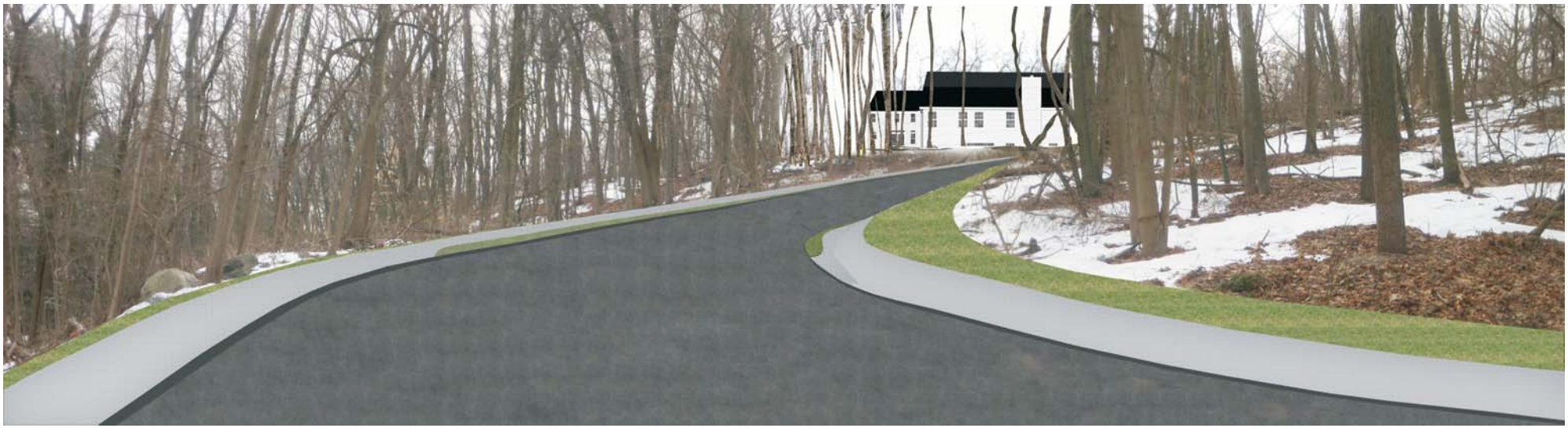

View C: Post-development Conservation Plan view from New Street

Figure 3.9-10: Post Development Conservation Plan View from New Street

Tripi Subdivision DEIS

Town of Bedford, Westchester County, NY

Source: TMA Photos, 4/15/08

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View D: Winter post-development Conventional Plan view from Westview Drive

Figure 3.9-11: Post Development Conventional Plan View from Westview Drive

Tripi Subdivision

Town of Bedford, Westchester County, NY

Source: TMA Photos, 4/15/08

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View D: Winter post-development Conservation Plan view from Westview Drive

Figure 3.9-12: Post Development Conservation Plan View from Westview Drive
Tripi Subdivision
Town of Bedford, Westchester County, NY
Source: TMA Photos, 4/15/08

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