3.3 Vegetation

This section discusses existing vegetative characteristics of the site. A discussion of the presence of endangered, threatened, and rare (ETR) plants on or in the vicinity of the project site is included based on correspondence with New York State Department of Conservation (NYSDEC) and the United States Fish and Wildlife Services (USFWS), and onsite field surveys. Potential impacts to vegetative resources are discussed, and mitigation measures are presented if needed to minimize these impacts. Potential impacts to wildlife associated with these vegetative communities are examined in Section 3.4, "Wildlife."

3.3.1 Existing Conditions

Biologists from The Chazen Companies (TCC) relied on extensive field experience for reviewing natural habitats of the endangered, threatened, or rare (ETR) species that were listed by the regulatory agencies within the vicinity of the property. Initial onsite field investigations were conducted by TCC as shown in Table 3.3-1, during which plant and animal species were inventoried to characterize existing populations, habitats and communities.[22]

Table 3.3-1 Initial Work Field Days

Dates	Staff	Man Hours	Work Conducted
4/20/2005	SF, DT, RS	23	Habitat Assessment
5/3/2005	SF, AR	19	Habitat Assessment and Wetland Delineation
5/5/2005	SF, AR	17	Habitat Assessment and Wetland Delineation
5/6/2005	SF, AR	18	Habitat Assessment and Wetland Delineation
5/12/2005	SF, AR	20	Habitat Assessment
5/24/2005	SF, JT	15	Habitat Assessment and Wetland Delineation
11/3/2005	SF, JT	14	Habitat Assessment and Wetland Delineation
4/13/2006	SF		Wetland NYSDEC Validation
9/12/2006	SF		Wetland ACOE Jurisdictional Review
Total Field Days		7	*Does not include regulatory agency reviews
Total Man Hours		126	*Total man hours does not include drive time

Upon further direction from the Town of Amenia Planning Board and its consultants, additional field work for a Botanical Survey was initiated in the spring of 2007, with a two-man survey performed in May and June 2007 on the base of the ridge in the western portion of the project site. The Botanical Survey is described in more detail below.

[22] Please refer to the Habitat Assessment Report in Appendix 9.7.1 for personnel qualifications.

Initial Habitat Investigation

During the initial site inspections, the potential for rare plants as well as general observations regarding vegetation and overall plant species composition and structure, the degree of site disturbance, and other site characteristics were noted and recorded. Vegetative cover (habitat) types described herein follow those utilized by the New York Natural Heritage Program and as described by Edinger et al.[23] Vegetation identified on the site is described in the following sections in terms of layers known as "overstory," "understory," and "groundcover." Overstory vegetation represents the canopy tree species greater than six inches in diameter. Understory/shrub vegetation is comprised of woody tree species between two and six inches in diameter, and saplings and shrubs less than two inches in diameter and three to 12 feet in height. Ground layer vegetation consists of both woody and herbaceous vegetation less than three feet in height.

The site was randomly traversed in its entirety to identify and compare vegetative cover types and search for wildlife species. During the site evaluation, the distributions of various habitats were noted along with the vegetative species composition, plant structure (i.e. layers), and other vegetative characteristics. This information was used to provide a written description of each habitat type as presented below. Additionally, interpretation of aerial photography was used to assist in preparing a more accurate depiction of vegetative communities for the site.

Plants species were field identified to genus and species when possible. Unidentified plant species were collected for later identification. Upon the compilation of the species list, plants identified at the Property were compared to species listed in the New York Natural Heritage Program Rare Plant List to determine if any plants federally or state listed as ETR or special concern species were noted. Finally, species were categorized by location and general habitat characteristics were documented. A cumulative list of vegetation identified on the site is provided in the Habitat Assessment Report (see Appendix 9.7.1).

Based on the results of these investigations, there are ten vegetative communities on the 670-acre site. According to *Ecological Communities of New York State,* the onsite vegetative communities can be categorized as:

- Successional southern hardwood forest/oak hickory forest;
- Beech-maple mesic forest;
- Chestnut oak forest;

[23] Edinger, G.J., D.J. Evans, S. Gebauer, T.G. Howard, D.M. Hunt, and A.M. Olivero (editors). 2002. Ecological Communities of New York State. Second Edition. A revised and expanded edition of Carol Reschke's Ecological Communities of New York State. (Draft for review). New York Natural Heritage Program, New York State Department of Environmental Conservation, Albany, NY.136 pgs.

- Shallow emergent marsh;
- Red maple swamp;
- Shrub swamp;
- Highbush blueberry bog thicket;
- Common reed/purple loosestrife marsh;
- Successional old field; and
- Mowed lawn.

A description of each vegetative community is provided below (see also Figure 3.3-1, "Vegetative Cover Map").

Successional southern hardwood forest/oak hickory forest – This community is established in the northern and central portions of the site and occupies approximately 15% of the overall site area. This community is comprised of a hardwood or mixed forest that occurs on sites that have been cleared for farming, logging, or are otherwise disturbed. Species found within this community on the property include sugar maple (*Acer saccharum*), red maple (*Acer rubrum*), red oak (*Quercus rubra*), white oak (*Quercus alba*), tartarian honeysuckle (*Lonicera tatarica*), multiflora rose (*Rosa multiflora*), garlic mustard (*Alliaria petiolata*), rue-anemone (*Thalictrum thalictroides*), and false Solomon's seal (*Maianthemum racemosum*). The trees in this community varied in size based upon location, but were generally between 10-18 inches in diameter at breast height (dbh). Several large trees (primarily oaks) with dbh as great as 50 inches were observed in the south-central portion of the site, north of Wetland L/LL. A cluster of shagbark hickories (*Carya ovata*), a common roost tree for various bat species, were noted on the eastern edge of the golf course above the southwest bank sloping to Wetland L/LL.

Beech-maple mesic forest – This community is a hardwood forest with sugar maple and beech codominant, which occurs on the western hillside of project site occupies approximately 30% of the total area of the site. It is a broadly defined community type with several regional and soil influenced variants. These forests occur on moist, well-drained, usually acidic soils. This forest community dominates the western portion of the property along the east facing slopes, with a small patch located to the north of the existing clubhouse. On the site, the vegetation within this community includes sugar maple, paper birch (*Betula papyrifera*), American beech (*Fagus grandifolia*), red oak, red trillium (*Trillium erectum*), Dutchman's breeches (*Dicentra cucullaria*), wild columbine (*Aquilegia canadensis*), and northern

maidenhair (*Adiantum pedutum*). The majority of the trees in this forested community had a dbh between 12 and 18 inches.

Stream P is a groundwater seep area that is located adjacent to the golf course in the southwestern portion of the site. This intermittent stream starts near the base of the ridge and flows to the east through man-made ditches and culverts across the golf course towards Wetland L/LL. The stream only flows during wet periods when the ground water table is high. The upper portion of this stream possesses good habitat primarily for amphibians due to high banks and surrounding shade trees to keep the area cool and damp. Mature forest is located around this seep.

Chestnut oak forest – This community is a hardwood forest that is located on the top of the ridge in the western portion of the project site. It occupies approximately 10% of the site. These forests are typically found on well-drained sites in glaciated portions of the Appalachians and on the coastal plains. Dominant vegetation that characterizes this community includes chestnut oaks (*Quercus montana*), and red and white oaks in the canopy layer. The trees in this forested community had dbh's between 12 and 18 inches. The subcanopy layer is dominated by mountain laurel (*Kalmia latifolia*) and low bush blueberry (*Vaccinium angustifolium*).

Shallow emergent marsh – This community consists of a marsh meadow that occurs on mineral soils or deep muck soils that are generally permanently saturated and seasonally flooded. This marsh is better drained than a deep emergent marsh; water depths may range from approximately six inches to three feet during flood stages, but the water level usually drops by mid to late summer and the substrate becomes exposed during an average year.

This community is located in several small areas within the golf course in the south-central portion of the property and within parts of wetland L/LL on the eastern portion of the site. These areas were saturated or inundated at the time of the observation. This community type occupies less than 5% of the project site. Vegetation found within these wetlands includes broadleaf cattail (*Tyha latifolia*), purple loosestrife (*Lythrum salicaria*), skunk cabbage (*Symplocarpus foetidus*) and common duckweed (*Lemna minor*).

Red maple swamp – This community is a hardwood swamp that occurs in poorly drained depressions, usually on inorganic soils. This community is located in several areas within the property including along Cascade Brook, and in the northern and central portions of the property associated with several intermittent streams. It occupies less than 5% of the site. Saturation and shallow inundation was observed at the time of the site visit. Vegetation found within this community on the property includes red maple, eastern cottonwood (*Populus deltoides*), red osier dogwood (*Cornus sericea*), silky dogwood (*Cornus amomum*), skunk cabbage, and

marsh fern (*Thelypteris palustris*). The trees within this community are approximately 6-12 inches dbh.

Shrub swamp – This community is an inland wetland dominated by tall shrubs that occurs along the shores of a lake or river, in a wet depression or valley not associated with lakes, or as a transitional zone between a marsh, fen, or bog and a swamp or upland community. It is located along the western edge of Wetland L on the eastern portion of the site and occupies less than 5% of the site. The community was saturated at the time of the observation. Vegetation within this community includes tartarian honeysuckle, silky dogwood, red osier dogwood, marsh fern, and skunk cabbage.

Highbush blueberry bog thicket – This community is an ombrotrophic (rain-fed) or weakly minerotrophic (groundwater-fed) peatland dominated by tall, deciduous shrubs and peat mosses; the water is usually nutrient-poor and acidic. The community is located near the top of the ridge in the west-central portion of the property. It occupies less than 5% of the project site. Shallow to deep inundation was observed during the site visit. Vegetation within this community includes highbush blueberry (*Vaccinium corymbosum*), mountain laurel, cinnamon fern (*Osmunda cinnamomea*), and sphagnum moss (*Sphagnum* spp.).

Common reed/purple loosestrife marsh – This community occupies much of Wetland L/LL as well as a wetland swale located in the northeastern portion of the property. It occupies less than 5% of the project site. According to *Ecological Communities of New York State,*[24] this community is a marsh that has usually been disturbed by draining, filling, etc. in which reed grass and purple loosestrife have become dominant. While this community is commonly associated with areas of disturbance, it is not possible to identify the initial disturbance that led to the presence of this community on the project site. Shallow to deep inundated pockets that exist year round were observed throughout this community type. Vegetation within these wetlands includes common reed (*Phragmites australis*), purple loosestrife, and cattail.

Successional old field – This community is comprised of a meadow dominated by forbs and grasses that occurs on sites that have been cleared and plowed and then abandoned. It is located in the north and northwestern sections of the property and in the very southern portion of the site. This community occupies approximately 10% of the project site. The vegetation within this community is primarily herbaceous (e.g., 70%) and is approximately 2-3 feet tall. Vegetation includes bluegrass (*Poa* spp.), panicgrass (*Panicum* spp.), red and white clover (*Trifolium pratance, T. repens*), and Queen Anne's lace (*Daucus carota*).

[24] Edinger, G.J., D.J. Evans, S. Gebauer, T.G. Howard, D.M. Hunt, and A.M. Olivero (editors). 2002. Ecological Communities of New York State. Second Edition. A revised and expanded edition of Carol Reschke's Ecological Communities of New York State. (Draft for review). New York Natural Heritage Program, New York State Department of Environmental Conservation, Albany, NY.136 pgs.

Mowed lawn – This community generally occurs as residential, recreational, or commercial land in which the groundcover is dominated by clipped grasses and less than 30 percent cover by trees. Ornamental and/or native shrubs may be present but usually cover less than 50 percent. For this site, the mowed community is the golf course lawn located in the central and northeastern portions of the property, which occupies approximately 40% of the project site.

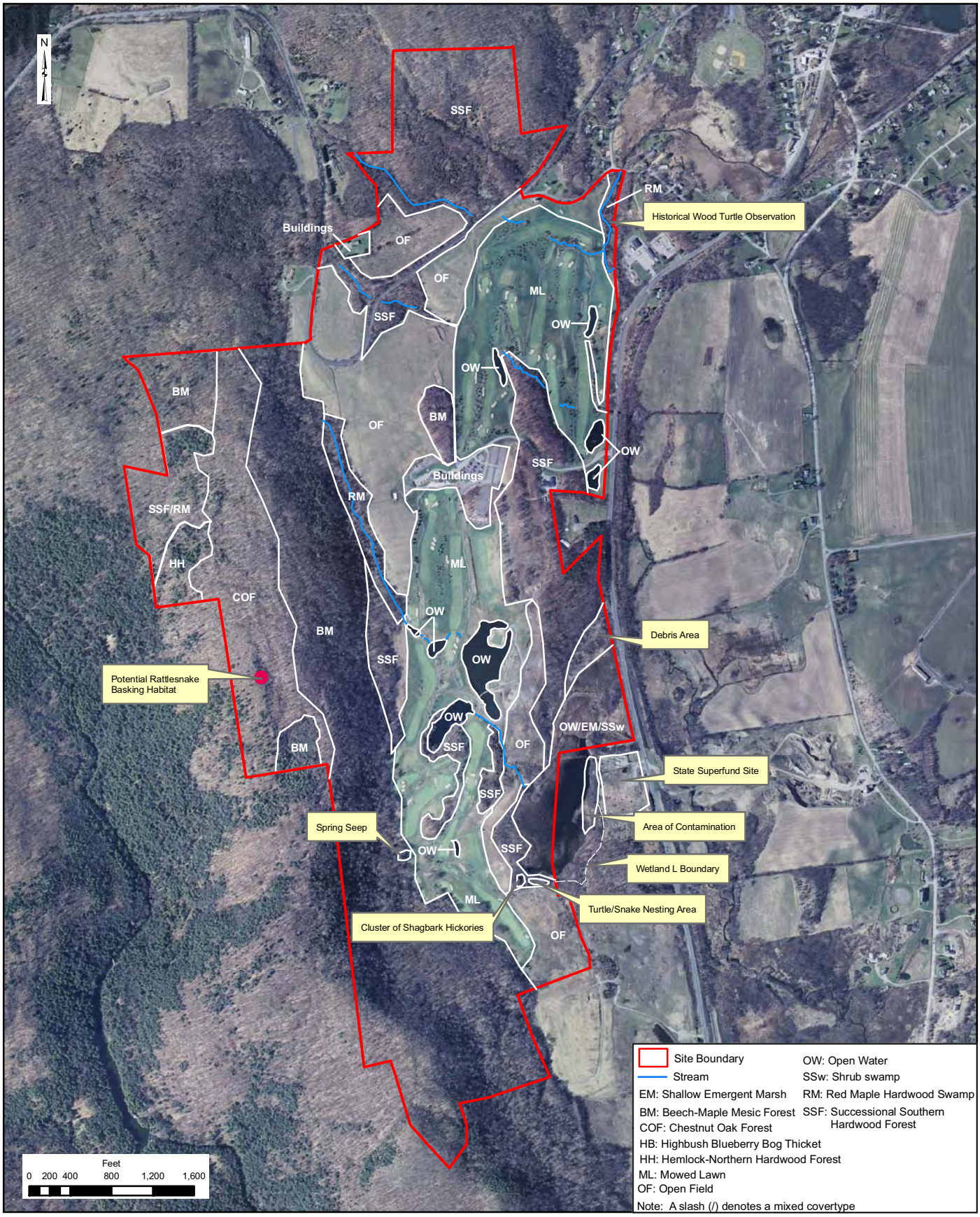
In addition to the above vegetative communities, it was observed within the site investigations that the existing upland forested areas within the golf course, especially the southern section, contain small, forested, upland "islands" which have the potential to serve as good wildlife corridors between Wetland L/LL and the western forested area occurring on the sloped terrain beyond the golf course. These forested islands contain young mature trees (8-16 inches dbh) along with shrubs along the outside edges of the islands. These islands create edge habitat (areas where forest cover meets open areas) in which a number of songbirds, reptiles and amphibians, along with mammalian species utilize for foraging, nesting, and cover. Based on the design of the Proposed Action, the existing upland islands will not be impacted by the redesign of the golf course or the proposed development areas. This will allow continued movement by a variety of species between the western undisturbed area and Wetland L/LL, which is important to the ecological viability of the site.

Botanical Survey

At the direction of the Town Planning Board and its consultants, a Botanical Survey was undertaken on May 15, 2007 and June 20, 2007 at the base of the western hillside in areas proposed for development. The purpose of the survey was to review the vegetative communities in this 38±-acre area (see Figure 3.3-2, "Botanical Survey Map") and to record a species diversity list. The work and results are provided in the "Supplemental Ecological Assessment Report" in Appendix 9.7.2 and are summarized below.

The study area was traversed and all observed species were documented. Plant species were identified to the genus and species level where possible. Any plants that were not able to be identified in the field were either photographed or collected for further analysis and identification. Overall community types were also documented in the field, including overall changes in habitat type, vegetative density, growth, and signs of disturbances.

A total of 127 plant species were identified within the botanical survey area. The "Flora Species List" in Appendix 9.7.2 provides a listing of all species observed in the field investigation. Most of the plant species are commonly found within the northeastern US.



Map Document: (N:\1\10400-10500\10454.00 silo Ridge\GIS\maps\Figure 3.3-1 Vegetative Cover Map revised for DEIS_052707.mxd)
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THE Chazen COMPANIES

Silo Ridge Resort Community

Vegetative Cover Map

Town of Amenia, Dutchess County, New York

Source: NYS Office of Technology 2004 Orthophoto

Drawn by: JFT

1 inch equals 1,300 feet

Figure 3.3-1

THE Chazen COMPANIES

Silo Ridge Resort Community

Botanical Survey

Town of Amenia, Dutchess County, New York

Source: NYS Office of Technology 2004 Orthophoto

Drawn by: JFT

1 inch equals 1,300 feet

Figure 3.3-2

Map Document: (N:\1\10400-10500\10454.00 silo Ridge\GIS\maps\AdditionalStudies\Figure 3.3-2 Botanical Survey.mxd)
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The botanical study area is forested with undulating topography from north to south. Topsoil appears to be shallow and well drained as there are numerous boulders and areas of exposed bedrock on the surface. The topography dramatically increases in elevation to the west of the study area. Some areas to the west of the project area contain rock outcrops and cliff over 30 feet high. East of the study area is the existing golf course.

The northern portion of the study area is primarily a mature successional hardwood forested community with red maple swamp communities associated with Wetland/Stream J. This area is dominated by sugar maples (*Acer saccharum*), red maples (*Acer rubrum*), and gray birch (*Betula populifolia*). The trees range in size from approximately 10 to 24 inches in diameter at breast height (dbh) with occasional larger trees. The understory is dominated by spicebush (*Lindera benzoin*) and tatarian honeysuckle (*Lonicera tatarica*). The ground layer is dominated by garlic mustard (*Alliaria petiolata*), field pansy (*Viola bicolor*), and Christmas fern (*Polystichum acrostichoides*). This mixed community type is common in New York State. This portion of the study area does not show recent human activities, except immediately adjacent to the golf course where multiflora rose and blackberry (*Rubus spp.*) dominate.

The central portion of the study area contains more undulating topography. The community type within this section is a mature beech-maple mesic forest. This area is dominated primarily by sugar maples along with American beech (*Fagus grandifolia*), black cherry (*Prunus serotina*), and hophornbeam (*Ostrya virginiana*). The trees range in size from approximately 10 to 24 inches dbh with occasional larger trees. The understory is dominated by tatarian honeysuckle. The ground story consists primarily of garlic mustard and Christmas fern. Evidence of old stone walls was found in this area, suggesting that this area may have at one time been farmed or used for grazing.

The southern portion of the study area is a young beech-maple/successional forest community that transitions into an older successional forest at the southern end of the property. The area is dominated by sugar maples, with a mixture of beech and oaks. The trees range in size from approximately 10 to 18 inches dbh with occasional larger trees. There are patches of forested area where trees are eight to 12 inches dbh. The understory is patchy containing honeysuckle and multiflora rose. The ground story is dominated garlic mustard. The forest in this section of the study area appears to have been impacted by old logging practices, primarily selective cutting. Old logging roads are also in this area and connect directly to the golf course. It appears that the roads may be used by all-terrain vehicles (ATVs).

No ETR species were identified during the Botanical Survey. Two plant species found within the Botanical Survey area, bloodroot (*Sanguinaria canadensis*) and

3.3 Vegetation

This section discusses existing vegetative characteristics of the site. A discussion of the presence of endangered, threatened, and rare (ETR) plants on or in the vicinity of the project site is included based on correspondence with New York State Department of Conservation (NYSDEC) and the United States Fish and Wildlife Services (USFWS), and onsite field surveys. Potential impacts to vegetative resources are discussed, and mitigation measures are presented if needed to minimize these impacts. Potential impacts to wildlife associated with these vegetative communities are examined in Section 3.4, "Wildlife."

3.3.1 Existing Conditions

Biologists from The Chazen Companies (TCC) relied on extensive field experience for reviewing natural habitats of the endangered, threatened, or rare (ETR) species that were listed by the regulatory agencies within the vicinity of the property. Initial onsite field investigations were conducted by TCC as shown in Table 3.3-1, during which plant and animal species were inventoried to characterize existing populations, habitats and communities.[22]

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Upon further direction from the Town of Amenia Planning Board and its consultants, additional field work for a Botanical Survey was initiated in the spring of 2007, with a two-man survey performed in May and June 2007 on the base of the ridge in the western portion of the project site. The Botanical Survey is described in more detail below.

[22] Please refer to the Habitat Assessment Report in Appendix 9.7.1 for personnel qualifications.

red trillium (*Trillium erectum*), are listed on the NYSDEC Protected Plant List as species of exploitably vulnerable native plants. The NYSDEC defines these species as "likely to become threatened in the near future throughout all or a significant portion of their ranges within the state if casual factors continue unchecked." Also included in this list are native ferns, excluding Christmas ferns (*Polystichum acrostichoides*) (see Appendix 9.7.2 for flora list).

The east-facing slope of the ridge is forested and contains a number of calcareous rock outcrops. These rock outcrops contain plants that are typically found only within calcareous conditions. Some of the plants observed include walking fern (*Asplenium rhizophyllum*), maidenhair spleenwort (*Asplenium trichomanes*), lyreleaved rockcress (*Arabis lyrata*), and wild columbine (*Aquilegia canadensis*). Walking fern is sparse within this region of New York State and is listed, like most of the ferns of New York, as exploitably vulnerable.

Endangered, Threatened and Rare Species (ETR)

The USFWS and the NYSDEC Natural Heritage Program were forwarded Freedom of Information Law (FOIL) letters requesting information concerning the presence or absence of threatened, endangered, or rare species in the project area.[25] Correspondence from the USFWS dated May 17, 2005, indicated that there are no federally listed or proposed endangered or threatened plant species known to exist in the project area. Correspondence from the NYSDEC dated May 9, 2005 indicated that Hill's pondweed (*Potamogeton hillii*), a State listed threatened species, is documented within NYSDEC Wetland AM-15, a portion of which is located within the project site (see Figure 3.2-2 in Section 3.2, "Water Resources"). Hill's pondweed is a plant with thin branching stems, long and thin leaves, and round fruit. It is found in the clear, cold water of small, slow flowing streams, beaver ponds, marshes, road culverts and man-made ponds. Hill's pondweed flowers in late July and the fruit develops in late August and September. Activities such as drainage, pollution, water diversions and increased water temperature are the main factors affecting Hill's pondweed (Haynes 1974). Hill's pondweed may rely on maintenance of high water quality, cool water temperatures and a natural habitat, although it has been known to persist in the vicinity of developments (Crispin and Penskar, 1990). NYSDEC reports the known presence of small populations of the plant located in the pools surrounding roadside culverts on either side of a roadway bordering the project site. This area was formerly a beaver marsh that was completely drained with the exception of two small streams flowing through the area. The area is now a semi-dry marsh dominated by graminoids and purple loosestrife. The Hill's pondweed could become more widespread if water levels rise.

[25] Correspondence with NYSDEC and USFWS, May 9, 2005 and May 17, 2005, respectively. See Appendix 9.1, "Correspondence."

No State or federally listed ETR plant species have been identified onsite during any of the field investigations, including the Botanical Survey. The onsite investigations in May 2006 did not coincide with the timing of the Hill's pondweed flowering and fruit-bearing periods. According to the NYSDEC, the last documentation of this species on the site occurred on August 8, 2001. Since the plant has been documented within Wetland L/LL (DEC Wetland AM-15) during the past several years, it is assumed that conditions within the wetland have not changed and that the plant still exists in this area.

3.3.2 Potential Impacts

Approximately 274 acres of the project site will be disturbed by the proposed project, including approximately 119 acres associated with the proposed golf course improvements (all but 0.25 acres of which has been previously graded and disturbed). In total, approximately 44 acres of previously undisturbed land will be affected for construction of the proposed project, including 27 acres at the base of the forested hillside in the western portion of the project site. Most of the disturbance will be associated with the construction of roads, stormwater control structures, grading, and the excavation of foundations.

Habitat

As with any development, implementation of the proposed project will result in a reduction in the amount of available wildlife habitat onsite. Some habitat will be replaced following site construction. However, since the majority of development is occurring around the perimeter of the site, a large portion of the site, including the 230-acre hillside and ridge, will remain undeveloped and will continue to provide habitat and connectivity between larger undeveloped areas for wildlife species that live within or traverse the project site. Furthermore, an important corridor for wildlife movement, the stream corridor that runs southeast across the site from Wetland J/JJ to Wetland L/LL, will be maintained and enhanced through additional vegetative plantings.

Although the proposed project will result in some disturbance to and loss of vegetation, the large contiguous open space areas preserved in the western and southern portions of the site will preserve extensive vegetative communities. Based on the current site layout, approximately 75% of the site (500± acres) will remain as open space, including the golf course which will continue to function as a mowed lawn habitat.[26] Of the areas that will remain undisturbed during construction, the dominant habitat that will be preserved is beech-maple mesic forest.

[26] "Open space" as used herein is defined in accordance with Section 121-18C(4) of the Town's Zoning Law (adopted July 19, 2007) and refers to large contiguous open areas of the project site, including the golf course. It does not include small, isolated areas such as yards or courtyards.

As described in Section 3.2, there is a vernal pool on top of the ridge in the western portion of the project site. While no development is proposed on top of the ridge and thus no impacts to the vernal pool would occur, a minimum buffer of 500 feet will nonetheless be maintained between any development activities and the vernal pool. This is to ensure adequate protection of the vernal pool habitat as breeding habitat for amphibians.

Also, because development is not proposed on the ridge or on most of the steep slopes below the ridge, the proposed development will have little adverse impact on the calcareous species growing on the slope. Most of these species can also be found in other portions of the property or in adjacent properties.

Endangered, Threatened, and Rare Species

No ETR plant species have been identified on the project site. Although the NYSDEC indicated that a population of one threatened plant species has been reported within the project site in roadside pools adjacent to the project site, no individuals of this species were observed during field visits, and furthermore, no development is proposed within this area. A forested area near the southeastern end of Wetland L/LL and on top of the ridge exhibit suitable tree cover with physical features (e.g., exfoliating bark and/or broken limbs) that could provide the federally endangered Indiana bat with summer roosting habitat; see Section 3.4 for more information.

3.3.3 Proposed Mitigation Measures

The proposed site layout will preserve approximately 75% of the site as open space, including the golf course. Much of the open space area is contiguous and will function as a movement corridor and high quality wildlife habitat onsite. In addition, approximately 230± acres of the contiguous open space area are located on the western side of the project site and abut the 2,400-acre Tamarack Preserve, maintaining a natural connection between the two sites. As noted above, an important movement corridor will also be maintained from Wetland J/JJ in the northwest area of the site to Wetland L/LL in the southeast area of the site.

To some extent, vegetation removal will be mitigated with landscaping around the proposed hotel, homes, roadways, parking areas and site amenities. A detailed landscaping plan will be developed during site plan approval, and will utilize a mixture of ornamental and native species, many of which will provide wildlife value including food and nesting opportunities (a concept landscaping plan is shown on Sheet SP6-B and in Section 5.0). Furthermore, as a participant in Audubon International's Silver Signature Program, the Silo Ridge development will be guided by the Natural Resource Management Plan (NRMP) (see Appendix 9.11), which was specifically prepared by Audubon for the proposed project. The NRMP recommends the use of native plant species as much as possible in restoration areas and the

retention of native species that must be removed during construction activities for later replanting. A native plant list is included in the NRMP. The NMRP also provides for the control of invasive plant species, which can decrease biodiversity, cause a reduction in habitat and food sources for native insect and animal species, and cause changes to natural ecosystems.

In accordance with applicable State and federal regulations, onsite work affecting wetlands will be reviewed by the NYSDEC and Army Corps of Engineers (ACOE), as appropriate, during the wetland permitting process and wetland buffers will be maintained to the extent possible in order to safeguard wetland habitat (see Section 3.2, "Water Resources"). The NRMP includes Best Management Practices (BMPs) aimed at preventing and controlling the movement of stormwater, sediments, and chemicals (e.g., pesticides, fertilizers, nutrients) into environmentally sensitive areas such as wetlands. By preventing the migration of potentially detrimental pollutants into sensitive areas, combined with the use of Integrated Pest Management to reduce the total chemical load, the potential for harm to sensitive plant or wildlife species that may be present in these areas is reduced.

Erosion and sediment controls will be utilized during construction activities until the disturbed areas are fully developed or soils have been stabilized through vegetative plantings. These measures are discussed in Section 3.1, "Soils and Geology." The Overall Grading and Drainage Plan is also located in "Engineering Drawings" at the end of this document.

Greenway Connections is a guide for Dutchess County communities which details a series of Greenway Guides or planning tools for communities. Connected Habitats and Stream Corridor Protection are Greenway Guides which respectively recommend identifying and preserving wildlife habitats and connected vegetative corridors and retaining and incorporating natural vegetation buffers between developed areas and rivers, streams, and creeks. These practices allow for the protection and enhancement of water quality, maintenance of wildlife habitat and movement, and reduction in the impact of flooding. The proposed project accomplishes this by preserving significant areas of open space, including several large contiguous areas, and avoiding impacts to rivers, streams and creeks by installing bridges to span ecologically sensitive areas. In addition, the proposed open space area on the eastern portion of the site borders Amenia/Cascade Brook and preserves a large buffer area along the stream. The connectivity between Wetland J/JJ and Wetland L/LL, which includes ponds, streams, and wetland habitat, will also be maintained and enhanced.

Specific recommendations to maintain the site's ecological viability include the following:

- Preserve the cluster of shagbark hickories located along the edge of the golf course above the southwest bank of Wetland L/LL.

- Preserve the gravelly/sandy bank along the southwest edge of Wetland L/LL, as this area may serve as a nesting area for turtle and snake species.

- Maintain the island forest habitats on the south end of the site to allow habitat connectivity between Wetland L/LL and the western slopes.

- Maintain a minimum 500-foot buffer from Wetland U, a vernal pool, and the proposed development.

No additional mitigation is necessary. As noted in Section 3.4, "Wildlife," additional wildlife surveys (breeding bird, herpetological, and bog turtle surveys) are underway to supplement the field investigations performed thus far. Initial results of this additional work are presented in Section 3.4; the final results will be incorporated into the SEQR review of the project when they become available.