

3.3 Terrestrial and Aquatic Ecology

3.3.1 Existing Conditions - Vegetation

Regional Context

The project site is 29.6 acres in the Town of Clarkstown between the Hudson River and the north end of Lake De Forest. The property is located on the west side of Route 303, with CSX Railroad (formerly Conrail) tracks along the western boundary. Commercial and/or multifamily residential uses exist on the north, east and south of the property; undeveloped wetland area is west of the property, to the west of the railroad tracks. Some small undeveloped lands remain to the immediate north and east of the parcel, and a small undeveloped parcel also exists immediately to the south, which is the remainder of the Kohl's Industrial Development. (See Figure 3.3-1, Aerial Photo - Regional Context).

The largest remaining open space parcel in the vicinity of the site is Rockland Lake State Park, an approximately 1600-acre State park. The undeveloped north end of the park is in close proximity to the Orchard Ridge site, to the northeast across Route 9W. This area was acquired by Rockland County in 1979. It was a gift from the Winston Perry family, who donated Rockland County's 50 percent share of the acquisition cost. It is located along a portion of the Palisades ridge and consists primarily of upland second growth woodland vegetation. The majority of the undeveloped land in Rockland County is located in the northwestern portion of Rockland County within Harriman and Bear Mountain State Parks.

Site Vegetation

The majority of the project site is wooded with second growth forest. The forest composition is best described as Appalachian oak-hickory forest (Ecological Communities of New York State, Reschke, 1990). Based on the size of the existing trees, the forest is approximately 50 - 75 years old. This community type is considered to be globally secure and secure state-wide.

There is an existing residence with associated landscaping in the southern part of the project area (with access off Meola Road). The vegetation in this area consists of a mix of ornamental landscaping, maintained lawn areas and second growth woody vegetation around the property boundaries.

To the west of the property is the CSX Railroad right of way, and beyond that NYSDEC Wetland HS-8 (described below). To the north of the site is a vacant parcel and existing multi-family housing. To the east and south are commercial and office buildings on Route 303.

Species Composition

The wooded areas of the project site consists of mature second growth upland species. Because the canopy layer is well-developed, this community type supports a three strata system dominated by large trees, shrubs and saplings, and a herbaceous layer. The shrub/sapling layer is not well-developed owing to the closed canopy of the forest and intense deer browsing. While the herbaceous layer is also poorly developed over most of the site, locations where larger trees have died or been blown down are dominated by opportunistic herbaceous species (particularly Japanese stiltgrass) and a denser shrub layer is present. A list of all vegetative species observed on the site is presented in Table 3.3-1.

**Table 3.3-1: Orchard Ridge Flora
Observed Species**

Common name	Scientific name	Common name	Scientific name
American beech	<i>Fagus grandifolia</i>	White cedar	<i>Thuja occidentalis</i>
American elm	<i>Ulmus americana</i>	White oak	<i>Quercus alba</i>
Blackhaw viburnum	<i>Viburnum prunifolium</i>	White pine	<i>Pinus strobus</i>
Black locust	<i>Robinia pseudoacacia</i>	Northern Arrowwood	<i>Viburnum recognitum</i>
Flowering dogwood	<i>Cornus florida</i>	Bristly dewberry	<i>Rubus hispidus</i>
Gray birch	<i>Betula populifolia</i>	Common elderberry	<i>Sambucus nigra</i>
Green ash	<i>Fraxinus pennsylvanica</i>	Common greenbriar	<i>Smilax rotundifolia</i>
Hemlock	<i>Tsuga canadensis</i>	Forsythia	<i>Forsythia spp.</i>
Hornbeam	<i>Carpinus caroliniana</i>	Japanese honeysuckle	<i>Lonicera japonica</i>
Japanese mountain maple	<i>Acer palmatum</i>	Japanese barberry	<i>Berberis thunbergii</i>
Cucumber tree Magnolia	<i>Magnolia acuminata</i>	Mountain laurel	<i>Kalmia latifolia</i>
Norway maple	<i>Acer platanoides</i>	Multiflora rose	<i>Rosa multiflora</i>
Pignut hickory	<i>Carya glabra</i>	Nannyberry	<i>Viburnum lentago</i>
Pin oak	<i>Quercus palustris</i>	Poison ivy	<i>Toxicodendron radicans</i>
Red cedar	<i>Juniperus virginiana</i>	Pussy willow	<i>Salix discolor</i>
Red maple	<i>Acer rubrum</i>	Redosier dogwood	<i>Cornus sericea</i>
Red oak	<i>Quercus rubra</i>	Wild raisin	<i>Viburnum cassinoides</i>
Red pine	<i>Pinus resinosa</i>	Spicebush	<i>Lindera benzoin</i>
Shagbark hickory	<i>Carya ovata</i>	Winged euonymus	<i>Euonymus alata</i>
Silver maple	<i>Acer saccharinum</i>	Roughstem goldenrod	<i>Solidago rugosa</i>
Sugar maple	<i>Acer saccharum</i>	Multiflora rose	<i>Rosa multiflora</i>
Swamp white oak	<i>Quercus bicolor</i>	Brambles	<i>Rubus allegheniensis</i>
Sycamore	<i>Platanus occidentalis</i>	New York aster	<i>Aster nova-belgii</i>
Tree- of- Heaven	<i>Ailanthus altissima</i>	Fox grape	<i>Vitis vulpes</i>
Tulip poplar	<i>Liriodendron tulipifera</i>	Bloodroot	<i>Sanguinaria canadensis</i>
White cedar	<i>Thuja occidentalis</i>	White wood aster	<i>Eurybia divaricata</i>
Mugwort	<i>Artemisia vulgaris</i>	Deer-tongue	<i>Dichanthelium clandestinum</i>
Wisteria	<i>Wisteria sinensis</i>	Japanese stilt grass	<i>Microstegium vimineum</i>
Periwinkle	<i>Vinca minor</i>	Tussock sedge	<i>Carex stricta</i>
Pachysandra	<i>Pachysandra terminalis</i>	Broad-leaved sedge	<i>Carex platyphylla</i>
Porcelainberry	<i>Ampelopsis brevipedunculata</i>	Christmas fern	<i>Polystichum acrostichoides</i>
Spearmint	<i>Mentha spicata</i>	Cinnamon fern	<i>Osmunda cinnamomea</i>
Oriental bittersweet	<i>Celastrus orbiculatus</i>	Evergreen wood fern	<i>Dryopteris intermedia</i>
Jack-in-the-pulpit	<i>Arisaema triphyllum</i>	Lady fern	<i>Athyrium filix-femina</i>
Pennsylvania smartweed	<i>Polygonum pennsylvanicum</i>	New York fern	<i>Thelypteris noveboracensis</i>
Wild lettuce	<i>Lactuca virosa</i>	Sensitive fern	<i>Onoclea sensibilis</i>
Fringed Sedge	<i>Carex crinita</i>	Garlic mustard	<i>Alliaria petiolata</i>
Skunk cabbage	<i>Symplocarpus foetidus</i>	Devil's beggarticks	<i>Bidens frondosa</i>
Spotted jewelweed	<i>Impatiens capensis</i>	Jumpseed	<i>Polygonum virginianum</i>
Annual ragweed	<i>Ambrosia artemisiifolia</i>	Purple loosestrife	<i>Lythrum salicaria</i>
Arrowleaf tearthumb	<i>Polygonum sagittatum</i>	Queen Anne's lace	<i>Daucus carota</i>
Boneset	<i>Eupatorium perfoliatum</i>	Spotted Joepyeweed	<i>Eupatorium maculatum</i>
Canada goldenrod	<i>Solidago canadensis</i>	Stinging nettle	<i>Urtica dioica</i>
Clearweed	<i>Pilea pumila</i>	Virginia creeper	<i>Parthenocissus quinquefolia</i>
Common reed	<i>Phragmites australis</i>		

A mix of predominantly deciduous tree species occurs on the project site and includes the following species: white oak (*Quercus alba*), red oak (*Quercus rubra*), pin oak (*Quercus palustris*), sugar maple (*Acer saccharum*), shagbark hickory (*Carya ovata*), pignut hickory (*Carya glabra*), tulip tree (*Liriodendron tulipifera*), and numerous other species as listed. Some introduced or non-native species include tree-of-heaven, cucumber tree and Japanese mountain maple.

The shrub layer includes younger saplings of many of the tree species identified as well as the following: winged euonymous (*Euonymus alata*), spicebush (*Lindera benzoin*), arrowwood (*Viburnum dentatum*), mountain laurel (*Kalmia latifolia*), redosier dogwood (*Cornus sericea*) and other species as listed. Introduced species include forsythia, japanese honeysuckle, japanese barberry and multiflora rose. Included with this layer are vining and cane species such as poison ivy (*Toxicodendron radicans*), fox grape (*Vitis labrusca*), greenbriar (*Smilax sp.*), brambles (*Rubus sp.*) and bittersweet (*Celastrus orbiculatus*).

The herb layer is composed of various herbaceous plants and lower growing vine species including garlic mustard (*Alliaria officinalis*), goldenrod (*Solidago sp.*), New England aster (*Aster novae-angliae*), deer tongue (*Dichanthelium clandestinum*), christmas fern (*Polystichum acrostichoides*), mugwort (*Artemisia vulgaris*), devil's beggarticks (*Bidens frondosa*) and many others.

The dominant plant species within the wetland areas adjacent to the stream include the following: red maple (*Acer rubrum*), American elm (*Ulmus americana*), common reed (*Phragmites australis*), cattail (*Typha latifolia*), smart weed (*Polygonum sp.*), sensitive fern (*Onoclea sensibilis*), jack-in-the-pulpit (*Arisaema triphyllum*), umbrella sedge (*Cyperus strigosus*), pussy willow (*Salix discolor*), jewelweed (*Impatiens capensis*), greenbriar and multiflora rose.

Rare or Unusual Plant Species

Correspondence from the New York State DEC Natural Heritage Program indicates that there are no known occurrences of rare or unusual plant species on or in the vicinity of this site. The database did however identify a significant ecological community in the vicinity.

A portion of the nearby Rockland Lake State Park is identified by the DEC as being an "Oak-Tulip tree forest", a community type that is considered to be fairly rare and/or vulnerable in New York State. This particular community is described more accurately in the NHP correspondence as being a "mature sugar maple and red oak dominated community positioned along streams and on steep south-facing slopes on the west bank of the Hudson River." This community type is not present on the subject property, and is protected from disturbance by the State Park designation. A copy of the NYSDEC correspondence is included in Appendix B.

3.3.2 Existing Conditions - Wildlife

Known and Potential Wildlife Species

A variety of small terrestrial animals or signs have been observed on the project site including rabbits, raccoons, squirrels, and chipmunks. Deer also utilize the property. The project site is also likely to provide habitat for a number of other local species including nocturnal species such as raccoon and opossum. The larger and dead trees on this site may also offer a cavity habitat for species such as owls, cavity nesting songbirds and small mammals.

Table 3.3-2 provides a list of wildlife species common to the area which are known or could reasonably be expected to utilize the site. This list identifies common species that are likely to utilize the habitat types available at the project site. It is noted that this list is not limited to actual observations at the site, but is a compilation of observations that have occurred throughout Rockland County in similar habitat conditions.

According to the NYSDEC Natural Heritage Program, there are no rare or endangered wildlife species known to inhabit the site. On-site observations are consistent with this assessment.

Table 3.3-2 Known or Potential Wildlife			
Common Name	Scientific Name	Common Name	Scientific Name
Mammals		Birds	
white-tail deer*	<i>Odocoileus virginianus</i>	turkey	<i>Meleagris gallopavo</i>
cottontail rabbit*	<i>Sylvilagus floridanus</i>	wood thrush	<i>Hylocichla mustelina</i>
red fox	<i>Vulpes vulpes</i>	pileated woodpecker	<i>Dryocopus pileatus</i>
		hairy woodpecker	<i>Picoides villosus</i>
opossum	<i>Didelphis virginiana</i>	downy woodpecker*	<i>Picoides pubescens</i>
eastern chipmunk*	<i>Eutamias sp.</i>	yellow shafted flicker	<i>Colaptes auratus</i>
gray squirrel*	<i>Sciurus carolinensis</i>	ovenbird	<i>Seiurus aurocapillus</i>
striped skunk	<i>Mephitis mephitis</i>	yellow-billed cuckoo	<i>Coccyzus americanus</i>
white-footed mouse	<i>Peromyscus leucopus</i>	red-tailed hawk	<i>Buteo jamaicensis</i>
deer mouse	<i>Peromyscus maniculatus</i>	robin*	<i>Turdus migratorius</i>
woodchuck*	<i>Marmota monax</i>	catbird*	<i>Dumetella carolinensis</i>
short-tailed shrew	<i>Blarina brevicauda</i>	mockingbird*	<i>Mimus polyglottos</i>
common shrew	<i>Sorex cinereus</i>	flycatchers	<i>Empidonax sp.</i>
star-nosed mole	<i>Codylura cristata</i>	eastern phoebe	<i>Sayornis phoebe</i>
eastern mole	<i>Scalopus aquaticus</i>	American redstart	<i>Setophaga ruticella</i>
little brown bat	<i>Myotis lucifugus</i>	red-eyed vireo	<i>Vireo olivaceus</i>
red bat	<i>Lasiurus borealis</i>	crow*	<i>Corvus brachyrhynchos</i>
raccoon*	<i>Procyon lotor</i>	blue jay*	<i>Cyanocitta cristata</i>
Reptiles		scarlet tanager	<i>Piranga olivacea</i>
box turtle	<i>Terrapene carolina</i>	American goldfinch	<i>Carduelis tristis</i>
garter snake	<i>Thamnophis sirtalis</i>	cardinal	<i>Cardinalis cardinalis</i>
eastern racer	<i>Coluber constrictor</i>	chipping sparrow	<i>Spizella passerina</i>
brown snake	<i>Storeria dekayi</i>	towhee	<i>Pipilo erythrophthalmus</i>
		junco	<i>Junco hyemalis</i>
Amphibians		mourning dove*	<i>Zenaidra macroura</i>
American toad	<i>Bufo americanus</i>	chickadee	<i>Parus spp.</i>
gray treefrog	<i>Hyla versicolor</i>	nuthatch	<i>Sitta spp.</i>
red-backed salamander	<i>Plethodon cinereus</i>	turkey vulture	<i>Cathartes aura</i>
Slimy salamander	<i>Plethodon glutinosus</i>	E. screech owl	<i>Otus asio</i>
		great horned owl	<i>Bubo virginianus</i>
		wren	<i>Troglodytes sp.</i>

* Direct or indirect observation at project site.
 This list represents many species that could potentially inhabit this site. It is not, however, an exhaustive list, particularly relative to migratory bird species.
 Source: Tim Miller Associates, Inc., 2004.

3.3.3 Existing Conditions - Wetlands

The wetland portions of the site are an extension of the 44.1 acre NYSDEC Wetland HS-8, the majority of which is located on the western side of the railroad tracks. On site this wetland is entirely a wooded wetland, with second growth trees dominated by red maple, green ash and

pin oak. Occasional swamp white oak and silver maple were also observed. The extent of the on site portion of HS-8 (approximately 5.6 acres) is shown on Figure 3.3-2. Picking up runoff from the site and adjacent properties, this wetland drains through a culvert under the train tracks and into the larger part of HS-8.

The Rockland County Soil Survey describes the soils in the wetland as Aa, Adrian mucks, these soils are located primarily to the west of the railroad tracks in the off site portion of NYSDEC Wetland HS-8. . To the east of the railroad tracks, in the on-site portion of NYSDEC wetland HS-8, the mapping shows areas of Watchaug fine sandy loam. These areas are actually inclusions of Alden silt loam, which has a denser soil structure, lower permeability and higher seasonal groundwater table.

The wetland was delineated in August of 2007 by Robert Torgesen, LA, and confirmed by the DEC in April of 2008. A small area (0.02 acres) was added when the Army Corps of Engineers reviewed the delineation.

The larger part of HS-8 is a scrub/shrub wetland that reputedly was once a celery farm. Now dominated by phragmites, purple loosestrife and other opportunistic species, Wetland HS-8 receives surface runoff and shallow lateral flow from the surrounding areas. These flows are collected within the wetland and overflow to Tom's Brook, which flows north and west to DeForest Lake.

3.3.4 Potential Impacts

Under either the Hemlock Road Access Alternative or the Meola Road Access Alternative, the proposed development involves grading and clearing disturbance to approximately 18.95 acres of the project site, all of which is wooded. This will result in the loss of approximately 60 percent of the wooded areas and available habitat on site.

No rare or unusual plant species were observed on or reported by the DEC from this site, thus it is not expected that the change in cover type will represent a significant adverse impact to rare or unusual species. The activity will represent a change, though, to the 19 acres of woodlands that will be disturbed. Regionally this is not a significant impact given the lands that are protected in the Rockland Lake State Park as well as nearby lands associated with Deforest Lake and other nearby town and county parks. It is noted that approximately 5.6 acres of wetland on site will be preserved, which is separated from the larger wetland to the west by the narrow railroad right of way. As described above, there are hydrologic connections between the on-site and off-site portions of Wetland HS-8, and these also serve as connections for seed transport and animal movement.

As part of the proposed senior housing development, the applicant is proposing to create wood chip trail through the undeveloped parts of the site including the wetland area. Based on conversations with NYSDEC and ACOE staff, such activities, if conducted without clear cutting of trees or any earth movement, would be exempt from DEC regulations. The conceptual location of the walking trails is shown on the submitted plan set and on Figure 3.3-3.

The loss of 19 acres of woodlands will also represent a loss of habitat for those animal species that utilize the site. During the site visits, very little wildlife was observed. This site does not represent unique habitat in the area for wildlife species, and considering the developed nature of the existing adjacent lands and the disconnect created from the State Park by Routes 303 and 9W, the loss of some habitat for common suburban wildlife species is not expected to be a

significant impact. The site is not known to provide habitat for any wildlife species listed as endangered or threatened by the New York State Department of Environmental Conservation. Therefore, no significant adverse impacts to protected wildlife species are anticipated.

In general, as a project is developed, some species will relocate from the disturbed areas to undisturbed portions of the site or to similar habitats on nearby property. As habitat is eliminated, resident populations of some wildlife species will be reduced. In addition, the composition of the wildlife at the property will be altered somewhat following development, with increases in the populations of species with greater tolerance for human activity.

The portions of the project site where disturbance to existing woodland is proposed is shown on Figure 3.3-4. The areas of disturbance shown on this figure includes areas that would be impacted by the construction activities, but would be landscaped and replanted with native and ornamental species.

The proposed project would not impact existing parkland or the species located therein as it is not directly adjacent to any designated parkland (Rockland Lake State Park), nor would it impact or disturb open space to the east. The project site, which is vacant, may be serving as a "wildlife corridor" for deer and other mammals, connecting the open space represented by the large wetland to the west with open space to the east of the site. There will still be a limited narrow vegetative corridor which would consist of open space on the north side of the site development. However, construction of the project would reduce the width of any corridor that may exist presently.

3.3.5 Proposed Mitigation Measures

To reduce potential impacts to the on-site wetland habitat that would remain undisturbed, as well as to protect off-site undisturbed natural areas, the following mitigation measures are proposed to reduce the potential for soil erosion and sedimentation to these areas. The stormwater management system is designed to ensure that the existing water quality of the stream that flows through the site is not degraded.

- Erosion and sediment controls would be utilized throughout the construction phase of the project until all disturbed area are fully developed or soils have been stabilized through vegetation plantings or other means. These measures are described in Chapter 3.1 of the DEIS and illustrated in the full size Erosion Control Plan in the rear of the DEIS.
- Introduction of a stormwater management system that would provided first flush water quality treatment and would meet the criteria of the New York State general permit for stormwater discharge from a construction activity.

Town of Clarkstown Tree Protection Ordinance

In compliance with Chapter 270 of the Town Code, "Tree Preservation", the applicant has prepared a Tree Preservation Plan (see Sheet 13 of the submitted plan set). All trees greater than or equal to 12 inches dbh are identified within the areas of site disturbance. Using this survey information, a total number of trees on the site was determined. The following information in Table 3.3-3 is provided for compliance with Chapter 270.

Table 3.3-3	
Compliance with Town of Clarkstown Tree Preservation Law	
Total site acreage	29.6
Existing trees on site	568 trees (surveyed) + 40 trees/acre * 9 acres = 928 trees
Existing trees to remain	75 trees (in disturbance area) + 40 trees/acre* 9 acres = 436 trees
Trees required (at 17 trees/acre)	504 trees
Additional trees required	68 trees
Additional trees provided	286 trees (refer to Landscaping Plan Figure 3.8-6A and 3.8-6B)
Total trees on site post-development	722 trees
Source; TMA 2011.	

When completed, the proposed development will have 722 trees, which exceeds is significantly in excess of the 504 trees required. Although not as valuable as natural undisturbed habitat, the mixture of ornamental and native landscaping plants that are proposed would provide some benefit to wildlife species that can adapt to suburban environments. Many of these plants provide a certain degree of wildlife value such as food and nesting opportunities. As shown on the Landscape Plan refer to (Figure 3.8-6A and 3.8-6B), typical landscape plantings are likely to include a variety of maples, oaks, linden, pine and other native species.



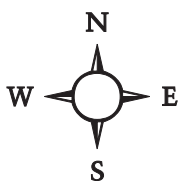
Figure 3.3-1: Aerial Photo - Regional Context

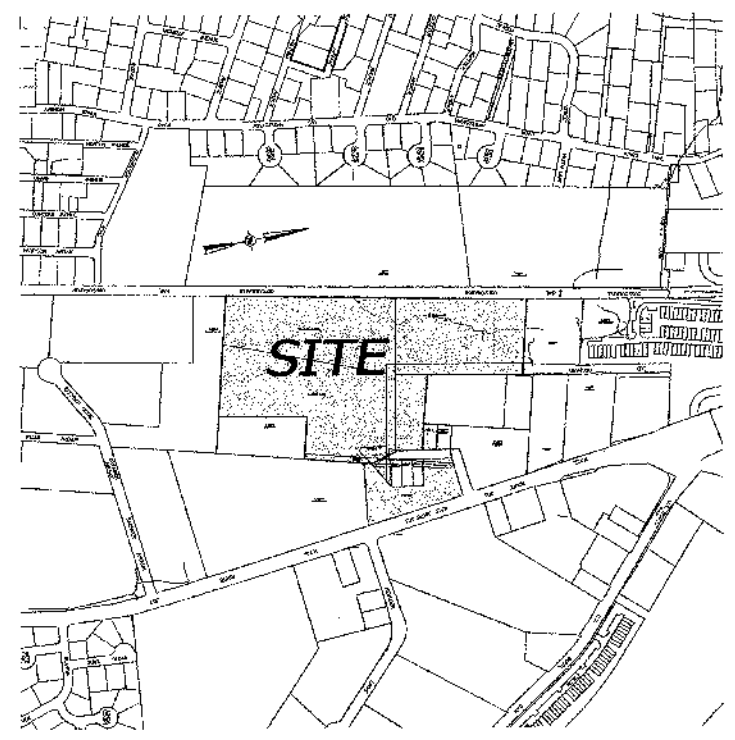
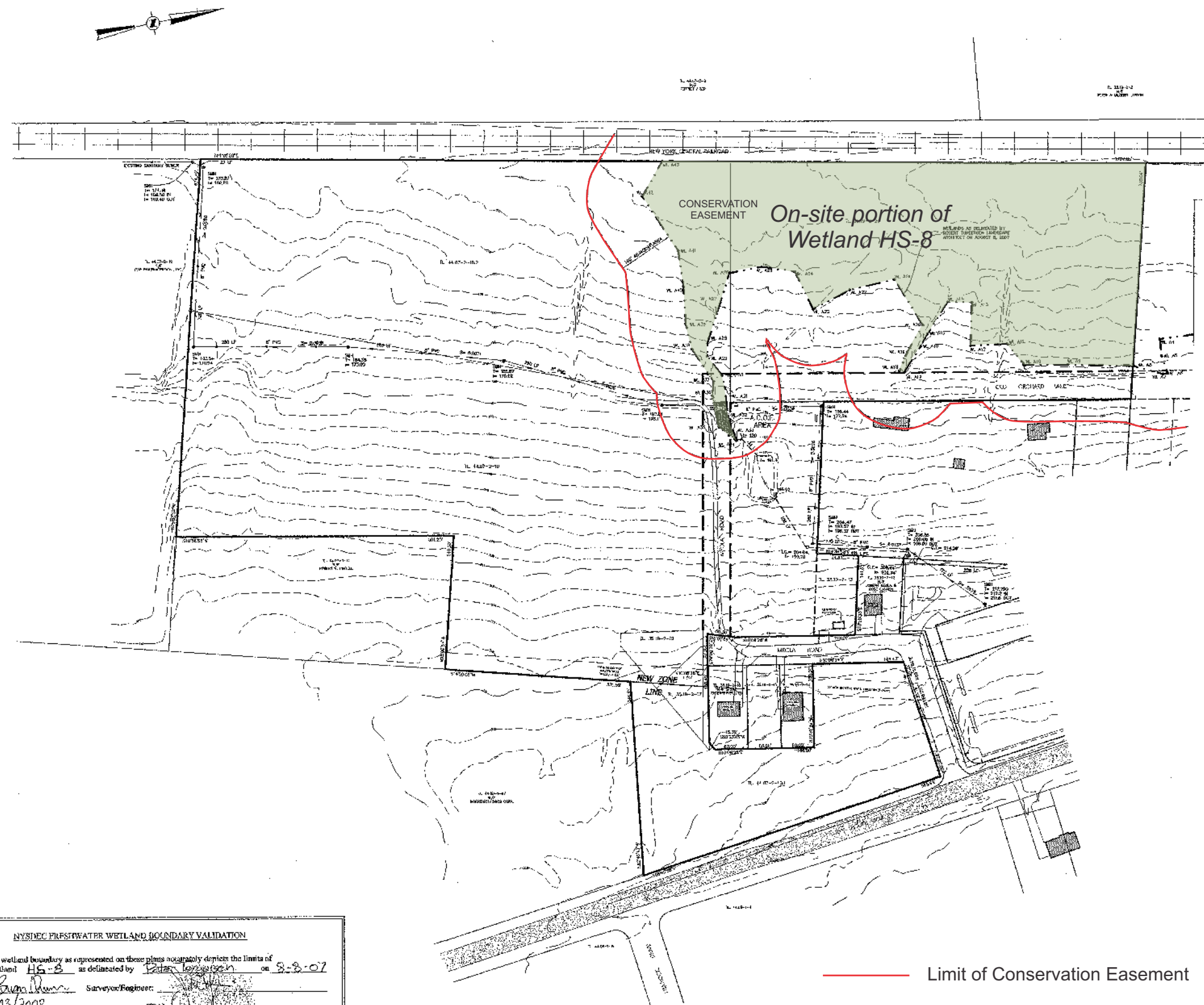
Orchard Ridge

Town of Clarkstown, Rockland County, New York

Base: NYS GIS Clearinghouse, 2007 Orthoimagery

Scale: 1" = 1,000'





VICINITY MAP
SCALE: 1"=500' F.T.

OWNER
DETAILS ENTERPRISES
C/O FREDMAN LOFFUS & MAXLEY
4 LAUREL ROAD
NEW CITY, NEW YORK 10956

APPLICANT
EMPIRE GOLF
6 STATION ROAD
ROMONA, NEW YORK 10970

AREA OF SITE
TOTAL AREA = 29.6 ACRES

AREA OF WETLANDS
TOTAL DEC. AREA = 5.6 ACRES
TOTAL A.C.C.E. AREA = 0.02 ACRES

— Limit of Conservation Easement

NYS/DEC FRESHWATER WETLAND BOUNDARY VALIDATION

The freshwater wetland boundary as represented on these plans accurately depicts the limits of Freshwater Wetland HS-8 as delineated by Peter Lorenzen on 8-2-07

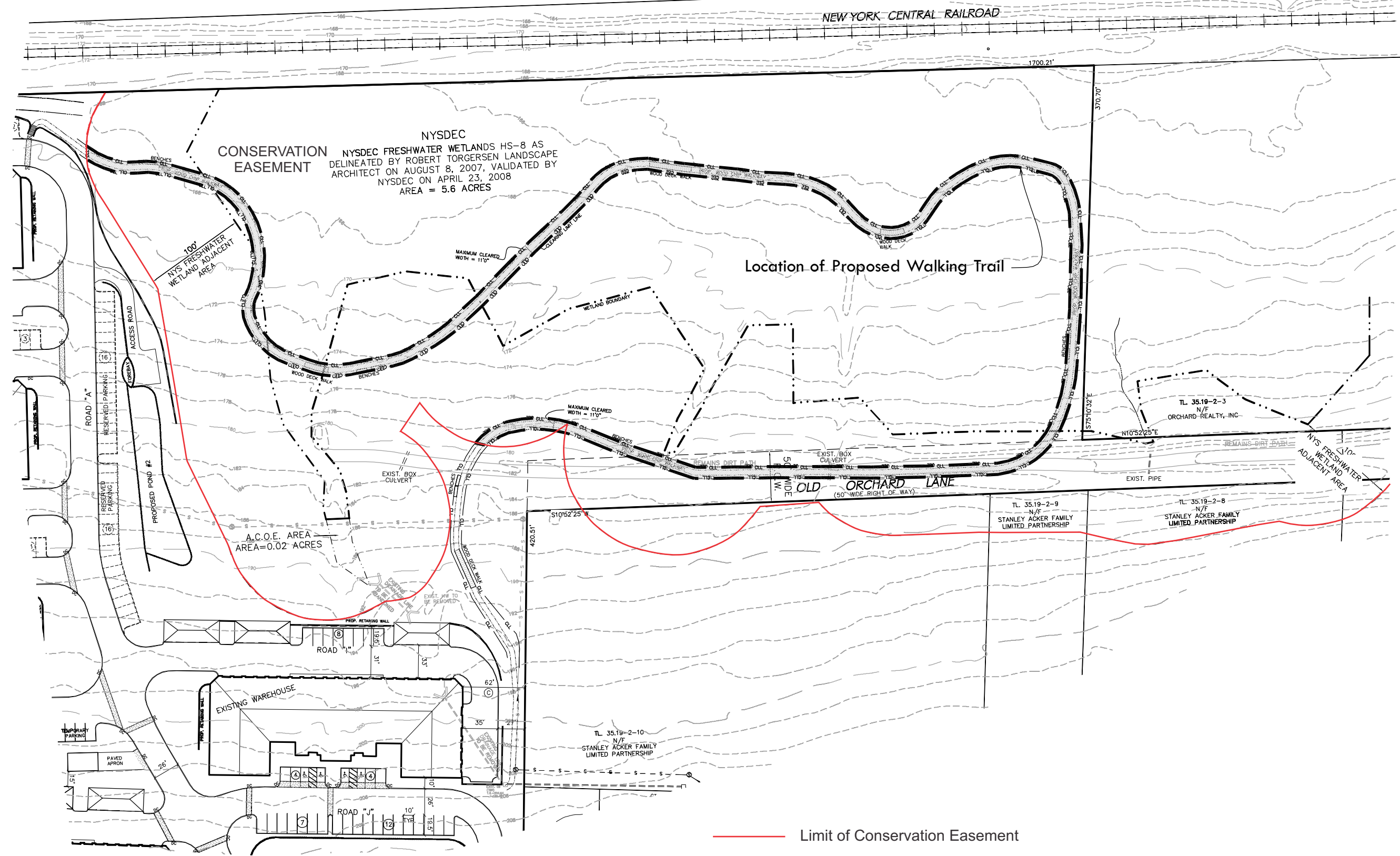
DEC Staff: [Signature] Surveyor/Engineer: [Signature]

Date: 4/23/2008 SEAL: [Seal]

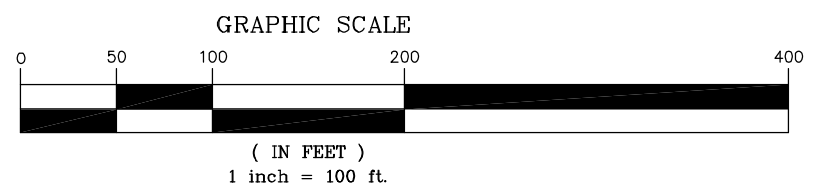
Wetland boundary delineations as validated by the New York State Department of Environmental Conservation remain valid for 10 years unless existing regulatory activities, area hydrology, or land use practices change (e.g., agricultural to residential). After 10 years the boundary must be revalidated by DEC staff. Revalidation may include a new delineation and survey of the wetland boundary.

Any proposed construction, grading, filling, excavating, clearing or other regulated activity in the freshwater wetland or within 100 feet of the wetland boundary as depicted on this plan requires a permit from the NYS Department of Environmental Conservation under Article 24 of the Environmental Conservation Law (Freshwater Wetlands Act) prior to commencement of work.

Figure 3.3-2: Wetland Map
Orchard Ridge
Town of Clarkstown, Rockland County, New York
Source: Atzl, Scatazza & Zigler P.C., 08/13/07
Scale: 1" = 185'



— Limit of Conservation Easement



AREAS OF DISTURBANCE

PATH LOCATED IN WETLANDS = 975 LF x 11' WIDTH = 112,650 SQ. FT.=2.59 ACS.
 PATH LOCATED IN 100' ADJACENT AREA = 1,150 LF x 11' WIDTH = 10,752 SQ. FT.=0.25 AC.
 TOTAL WETLAND DISTURBANCE AREA = 2.84± ACS.

Figure 3.3-3: Wetland Disturbance Map
 Orchard Ridge
 Town of Clarkstown, Rockland County, New York
 Source: Atzl, Scatazza & Zigler P.C., 03/09/10
 Scale: 1" = 100'



Area to remain undisturbed

Area of Proposed Disturbance

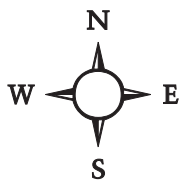


Figure 3.3-4: Limits of Disturbance
Orchard Ridge

Town of Clarkstown, Rockland County, New York
Base: NYS GIS Clearinghouse, 2007 Orthoimagery
NTS