3.3 Flora and Fauna

3.3.1 Introduction

The project site comprises approximately 27.2 acres that are covered by second growth vegetation following the site's historic use as a sand and gravel mine. There is one existing residence on the property adjacent to Dock Road. Steep slopes remain on the north and south edges of the property, a result of past activities. The Marlboro sewage treatment facility is located directly to the south of the property.

Disturbance to portions of the existing on-site natural resources to develop the residential component of this project could affect the overall wildlife habitats on the property and the existing wildlife populations of the area. For these reasons, identifying and addressing potential impacts associated with development of the Dockside at Marlborough project is required by the New York State Environmental Quality Review Act (SEQRA).

This section of the DEIS describes the existing terrestrial, aquatic and wetland natural resource characteristics present on the project site, the potential for environmental impacts associated with changes in those characteristics due to the proposed site development, and measures proposed as necessary to offset potential impacts associated with the proposed development of the property.

Ecologists from Tim Miller Associates, Inc. (TMA) conducted site assessments in June, 2011, that have included two methods of field observation: 1) stationary observation posts, and 2) a series of random/zig-zag transects with observation, listening, and/or ground searches being conducted as site specific features changed along the walking transect route (e.g. upland hardwood forest slopes to wetland, to stream corridor, to open shrubland). The nature of random transects allowed the investigators to observe and actively investigate a greater variety of features of interest along a study transect, thereby allowing data to be collected from a greater variety of micro-habitats than might be observed using either formal linear or quadrant surveying techniques.

Two threatened or endangered plant species were identified as being historically observed on or adjacent to the site by the New York State Department of Conservation (NYSDEC) New York Natural Heritage Program (NHP) (see Agency correspondence in Appendix A). No animal species, significant natural communities or significant habitats were identified.

3.3.2 Existing Vegetation

Vegetation Observed and Expected

The project site is dominated by the growth of successional vegetation following the cessation of mining activities. Those areas where the most recent activity has occurred are made up of exposed sandy soils and scattered patches of vegetation, dominated by autumn olive (*Eleagnus umbellata*), a rapidly spreading non-native opportunistic species that is well adapted to poor nutrient conditions. It occurs in a dense monoculture along the northern slopes in the center of the site. The remaining open areas of the site have begun to develop a mixed community of grasses and wildflowers. The edges of the property, which appear to have been left fallow for the longest amount of time, are now colonized with opportunistic, fast growing tree species typical of successional sites in low nutrient soils (i.e., eastern cottonwood (*Populus anadens*), black locust (*Robinia pseudoacacia*) and northern catalpa (*Catalpa speciosa*)).

Figure 3.3-1 presents an aerial view of the project site showing the existing vegetative cover within and immediately adjacent to a highlighted outline of the property. The community types of the project site are described further in this section. Table 3.3-1 below presents a list of vegetation observed on the site throughout the existing habitat types. The list also includes other regional species that were not observed but that may be expected to be present on the site. SEQRA does not require an exhaustive inventory of resources but only requires a reasonable review in relation to the expected significance of impacts.

Table 3.3-1
List of Observed and Expected Vegetation at Dockside at Marlborough

Common Name (*Scientific Name*)	
FORBS, FERNS AND GRASSES	
Alsike clover (*Trifolium hybridum*)	
American bugleweed (*Lycopus americanus*)	Mugwort (*Artemisia vulgaris*) *
Annual fleabane (*Erigeron annuus*)	New England aster (*Symphyotrichum novae-angliae*) *
Birdsfoot trefoil (*Lotus corniculatus*) *	New York aster (*Symphyotrichum novae-belgii*)
Bladder campion (*Silene cucubalus*)*	Oriental bittersweet (*Celastrus orbiculatus*)
Black-eyed susan (*Rudbeckia hirta*)	Panicled aster (*Symphyotrichum lanceolatum*)
Blue-stem goldenrod (*Solidago caesia*)	Path rush (*Juncus tenuis*)
Broad dock (*Rumex obtusifolius)*	Pennsylvania bittercress (*Cardamine pensylvanica*)
Butter-and-eggs (*Linaria vulgaris*)	Pilewort (*Erechtites hieraciifolia*)
Canada goldenrod (*Solidago canadensis*) *	Pokeweed (*Phytolacca americana*)*
Canada thistle (*Cirsium arvense*) *	Poison ivy (*Toxicodendron radicans*)
Cespitose smartweed (*Polygonum cespitosum*)	Queen Anne's lace (*Daucus carota*) *
Chicory (*Cichorium intybus*)	Red clover (*Trifolium pratense*)*
Clearweed (*Pilea pumila*)	Rough bedstraw (*Galium asprellum*)*
Coltsfoot (*Tussilago farfara*)	Selfheal (*Prunella vulgaris*) *
Common blue violet (*Viola papilionacea*)	Silverrod (*Solidago bicolor*)
Common burdock (*Arctium minus*)	Small white aster (*Symphyotrichum racemosum*) *
Common dandelion (*Taraxacum officinale*)	Spotted knapweed (*Centaurea maculosa*)
Common evening primrose (*Oenothera biennis*)	Spotted touch-me-not (*Impatiens capensis*)
Common heartleaf aster (*Symphyotrichum cordifolium*) *	Virginia creeper (*Parthenocissus quinquefolia*)
Common milkweed (*Asclepias syriaca*)*	Virginia stickseed (*Hackelia virginiana*)
Common mullein (*Verbascum thapsus*) *	White avens (*Geum canadense*)
Common ragweed (*Ambrosia artemisiifolia*)	White sweet clover (*Melilotus alba*)
Common reed (*Phragmites australis*) *	White wood aster (*Eurybia divaricata*) *
Crown vetch (*Coronilla varia*)	Wild lettuce *(Lactuca virosa)* *
Deer-tongue grass (*Panicum clandestinum*)	Wild strawberries *(Fragaria virginiana)* *
Deptford pink (*Dianthus armeria*)*	Woolgrass *(Anthephora pubescens)* *
English plantain (*Plantago lanceolata*)	Yellow clover (*Melilotus officinalis*)
Field garlic (*Allium vineale*)	Wrinkled-leaved goldenrod (*Solidago rugosa*)
Flattop goldenrod (*Euthamia gaminifolia*)	Yarrow (*Achillea millefolium*) *
Garlic mustard (*Alliaria petiolata*)*	
Grape (*Vitis* spp.)	
Indian cucumber root (*Medeola virginiana*)	
Lady fern (*Athyrium filix-femina*)	
Mad-dog skullcap (*Scutellaria laterifolia*)	
TREES AND SHRUBS	
Allegheny blackberry (*Rubus allegheniensis*) *	
Apple Tree *(Malus domestica)*	Northern catalpa *(Catalpa speciosa)* *
Big tooth aspen (*Populus grandidentata*)	Pignut hickory (*Carya glabra*)

Table 3.3-1
List of Observed and Expected Vegetation at Dockside at Marlborough

Common Name (*Scientific Name*)	
FORBS, FERNS AND GRASSES	
Blackhaw viburnum (*Viburnum prunifolium*)	Prickly dewberry (*Rubus flagellaris*)
Bristly dewberry (*Rubus hispidus*) *	Pussy willow (*Salix discolor*)
Chokecherry (*Prunus virginiana*)	Quaking aspen (*Populus tremuloides*)
Common buckthorn (*Rhamnus cathartica*)	Red-osier dogwood (*Cornus sericea*)
Crabapple (*Malus* spp.)	Red sorrel *(Rumex acetosella)* *
Eastern cottonwood (*Populus anadens*) *	Silky dogwood (*Cornus amomum*) *
Eastern hop hornbeam (*Ostrya virginiana*)	Silver maple (*Acer saccharinum*)
Eastern red cedar (*Juniperus virginiana*)*	Staghorn sumac (*Rhus typhina*) *
Gray dogwood (*Cornus foemina*)	Steeplebush spirea (*Spirea tomentosa*)
Green ash (*Fraxinus pennsylvanica*)	Sycamore (*Platanus occidentalis*)
Ironwood (*Carpinus caroliniana*) *	Sugar maple *(Acer saccharum)* *
Japanese barberry (*Berberis thunbergii*)	Tree of Heaven (*Ailanthus altissima*)*
Juniper *(Juniperus communis)*	
Meadowsweet (*Spiraea alba*)	
Morrow's honey suckle (*Lonicera morrowii*) *	
Mulberry (*Morus rubra*)	
Multiflora rose *(Rosa multiflora)* *	

Notes:
This list represents species that could potentially inhabit this site, in addition to observed species. It is not, however, an exhaustive list.
* Plants identified during site visits: July 9, 2009; April 21, 2011; May 6, 2011.
Source: Tim Miller Associates, 2011

A portion of the subject site as shown on Figure 3.3-1 is vegetated with successional second-growth vegetation that is trying to become established in the low-nutrient sandy soils that are remaining. Autumn olive, eastern cottonwood and black locust are becoming established as woody plants in some isolated areas but the dominant vegetation is a variety of mixed herbaceous species. Asters, phragmites and clover are the dominant species. In some areas it appears that some species were introduced as part of a site reclamation program, including crown vetch and several wildflower species. Over most of these parts of the site the vegetation is sparse. At the eastern end of the site the presence of wildflowers and vetch is more prevalent, and for the most part the soils are not exposed.

Around the northern perimeter of the parcel, the slopes are much steeper and due to the lack of recent disturbance have developed into a community of woody vegetation (shown on Figure 3.3-1 as “Successional shrubland/woodland”. Autumn olive is dominant on these slopes, with cottonwood, black locust, sugar maple, sycamore and catalpa also present. The density of the autumn olive precludes the development of herbaceous plants in these areas.

At the extreme east and west of the site, some areas remain of the native vegetation that was present prior to mining activities (shown as “Successional northern hardwoods” on Figure 3.3-1). Sugar maple is the dominant tree species in these areas. The slope leading down to Dock Road on the south side of the site is similarly less disturbed.

On the two acre parcel on the south side of Dock Road, upland vegetation is predominantly successional northern hardwood forest. The remainder of that property is wetland associated with Lattintown Creek and tributary.

Wetlands

The main site (north of Dock Road) has two small wetlands that were delineated as meeting federal criteria for wetlands. Both wetlands are isolated from "waters of the United States" as defined by the Army Corps of Engineers and are therefore not regulated. The locations of the site wetlands are shown on Figure 3.3-2.

The 0.05 acre wetland in the northwest corner of the site is a small depressional area dominated by red maple trees. Hydrology is provided by the capture of precipitation during storm events and seasonal snow melt. While this wetland is too small to provide functions at a high level, it does function to capture and treat stormwater runoff.

There is also a small (0.04 acre) wetland in the south part of the site, east of the sewage treatment plant property. This depressional area formed by the soil mining catches stormwater and seasonal snow melt, but due to the sandy nature of the sub-soils does not stay wet for the majority of the growing season. Phragmites is the dominant vegetation in this small area.

On the south side of Dock Road, a groundwater seepage point was observed and delineated coming from a remnant stone structure adjacent to the road. The seepage flows downhill to the Lattintown Creek, which flows through the southern part of the site to the Hudson River.

Agency Protected Vegetation and Communities

Two state-listed threatened plant species were identified for the site by the New York State Natural Heritage Program (NHP).

Swamp lousewort (*Pedicularis lanceolata*) was identified in the vicinity of the site in 1960. This flowering plant is adapted to wet meadows, pond shores and swamps. These habitats do not exist on the main part of the site. A site walk was done along the banks of the Lattintown Creek, since potential habitat could occur there. No plants were observed, and no disturbance is proposed for this area.

Spotted pondweed (*Potamogeton pulcher*) was last recorded in the area in 1896, along the "water margin of a stream". No appropriate habitat exists on the development site. No spotted pondweed was observed along the banks or in the channel of the Lattintown Creek. It is likely that the flow velocities through the creek are too fast for this species which is more common along slow moving streams and shallow ponds.

3.3.3 Existing Wildlife

Several wildlife habitats occur on the property within the several distinct ecological communities present across the site. None of these habitats or populations are unique to the area or specifically to the project site. Vegetative covers of these habitat areas are described above. Populations of regional wildlife species are known or can be expected to occur within these habitats, as described below. The NHP database search for endangered, threatened, or special concern species of fauna did not identify any species in the area.

Wildlife Habitat: Second-growth Hardwood Forests

This community only occurs in small isolated areas on this site. Due to the historical mining of the site, only small patches in the northwest, northeast and southern slopes remain. This habitat type includes mature and semi-mature tree species that provide food as mast (beech, oaks, hickories), forage or browse for deer, black bear and other mammals and also provide cover in the leafy upper canopy for smaller wildlife species. Populations of insects, earthworms, snails and slugs within dead and decaying wood and in the leaf litter collectively form the basis for the food chain on this site.

Signs of deer and raccoon were observed throughout this habitat type. It is likely that deer migrate through the wooded portion of the site, as well as utilizing the more open areas for foraging. The project site and surrounding properties contain "edge habitats" preferred by feeding deer.

Wildlife Habitat: Successional Old Field/Shrubland

In areas of successional field there is no tree canopy and only isolated shrubs, which in some parts of the site provides an open grassy environment and dense herb layer. These conditions provide an open canopy with habitat for smaller mammals, reptiles, some amphibians and many species of birds, particularly songbirds. Shrubbier areas provide thickets made up of raspberries, blackberries, elderberries, viburnums and multifloral rose. No indicators of higher predatory species (e.g., coyote, bobcat, fox) have been found on the site, although habitat does exist that could encourage use by such species, and food sources are readily available. The open fields seasonally support large numbers of grasshoppers, butterflies and other insects that provide forage for a wide variety of birds.

Wildlife Habitat: Wetlands

The wetlands on the portion of the site located on the north side of Dock Road are too small to provide any functional habitat for wetland or water dependent species. They do however provide seasonal water for the other species that utilize the site. Of the larger species likely to use the site, signs of deer and raccoon were observed near these two wet patches. It is likely that the deer migrate through the wooded wetland while also utilizing the on-site field areas and nearby residential lawn areas.

Stream Corridor

Populations of small reptiles, amphibians and invertebrates living within the stream corridor of the Lattintown Creek provide additional food resources to some of the larger omnivorous mammals that may be present on the southern parcel. The Lattintown Creek supports smaller fish species, primarily minnows (Cyprinidae). Reportedly the stream supports a variety of fish including white bass, pickerel and northern pike. No disturbance is proposed anywhere near the Lattintown Creek.

Due to the isolated nature of the site, which lies above the slopes from Dock Road and the sewage treatment facility and below the steep slopes adjacent to the school property, the site presents the potential for good open space habitat, particularly for birds. However, due to the low nutrient nature of the soil and the therefore sparse vegetation, the site habitat function is

severely limited in the existed condition.

Wildlife Observed and Regional

Table 3.3-2 includes a list of wildlife species observed and expected to use the project site. The DEIS wildlife list includes species observed by TMA personnel during the various site visits as well as other species that could potentially occur on the site. The wildlife surveys were based on observations made in the field and did not include trapping or other invasive techniques that would be required to attempt to estimate wildlife populations on site. Based on the field surveys and similar surveys conducted in the region, the typically dominant mammalian species on such a site would include white-tailed deer, coyote, red fox, gray squirrel, raccoon, striped skunk, chipmunk, mice, shrews and voles. As noted in the preceding section, SEQRA does not require an exhaustive inventory of resources but only requires a reasonable review in relation to the expected significance of impacts, and it is noted that no State- or Federally-listed rare or endangered species were observed on the site during recent field investigations.

Table 3.3-2 **Wildlife – Observed and Regional Species**	
Common name *(Scientific name)*	
Mammals	
Deer mouse (*Peromyscus maniculatus*)	Porcupine (*Erithizon dorsatum*)
Eastern chipmunk (*Tamias striatus*)*	Raccoon (*Procyon lotor*)*
Eastern cottontail (*Sylvilagus floridanus*)	Red bat (*Lasiurus borealis*)
Eastern coyote (*Canis latrans*)	Red fox (*Vulpes vulpes*)
Eastern mole (*Scalopus aquaticus*)	Red squirrel (*Tamiasciurus hudsonicus*)
Gray fox (*Urocyon cinereoargenteus*)	Short-tail shrew (*Blarina brevidauda*)
Gray squirrel (*Sciurus carolinensis*) *	Southern flying squirrel (*Glaucomys volans*)
House mouse (*Mus musculus*)	Striped skunk (*Mephitis mephitis*)
Little brown bat (*Myotis lucifugus*)	White-footed mouse (*Peromyscus leucopus*)
Opossum (*Didelphis virginiana*)	White tail deer (*Odocoileus virginianus*) *
Meadow vole (*Microtus pennsylvanicus*)	Woodchuck (*Marmota monax*)*
Reptiles	
Green snake (*Liochiorophis vernalis*)	Garter snake (*Thamnophis sirtalis*)
Black rat snake (*Elaphe obsoleta*)	
Amphibians	
Gray treefrog (*Hyla versicolor*)	Red-spotted newt or Eastern Newt *(Notophthalmus virdescens*)
Green frog (*Rana clamitans*)	Spring peeper (*Pseudocris crucifer*)
Pickerel frog (*Rana palustris*)	Two-lined salamander (*Eurycea bislineata*)
Red-backed salamander *Plethodon cinereus*)	American toad (*Bufo americanus*)
Notes: This list represents many species that could potentially inhabit this site in addition to observed species. It is not, however, an exhaustive list. * Indicates species observed directly or by signs (e.g. tracks or scat) during field surveys on June 21, 2011. Prepared by: Tim Miller Associates, Inc., 2011.	

Reptiles and Amphibians

Reptile and amphibian species were included in Table 3.3-2 if they were directly observed on the property or if there are known populations in similar habitats in eastern Ulster County. Most of these species, if present, would use the southerly parcel adjacent to the Lattintown Creek. No amphibian species were observed on site.

Birds

Some common bird species were identified incidental to performing other environmental surveys on the site during 2011. These species included American crow, black-capped chickadee, blue jay, sparrow, Northern cardinal, brown headed cowbird and wild turkey. Dominant avian species in this section of the county would include resident songbirds (e.g., chickadee, nuthatch, vireos, cardinals and warblers), woodpeckers, blue jay, American crow, mourning dove, mockingbird and wild turkey. Table 3.3-3 also includes bird species that were not observed but use habitat similar to that present on the property.

Table 3.3-3
Birds - Observed and Regional Species

Common Name	Scientific Name	Common Name	Scientific name
American Crow *	*Corvus brachyrhynchos*		
American Goldfinch	*Carduelis tristis*	Hairy Woodpecker	*Picoides villosus*
American Kestrel	*Falco sparverius*	Hermit Thrush	*Catharus guttatus*
American Redstart	*Setophaga ruticilla*	House Finch	*Carpodacus mexicanus*
American Robin *	*Turdus migratorius*	House Sparrow	*Passer domesticus*
Baltimore Oriole	*Icterus galbula*	House Wren	*Troglodytes aedon*
Bank Swallow	*Riparia riparia*	Indigo Bunting	*Passerina cyanea*
Barn Swallow	*Hirundo rustica*	Killdeer	*Charadrius vociferus*
Barred Owl	*Strix varia*	Least Flycatcher	*Empidonax minimus*
Black-billed Cuckoo	*Coccyzus erythropthalmus*	Mourning Dove	*Zenaida macroura*
Black-capped Chickadee *	*Poecile atricapillus*	Northern Cardinal*	*Cardinalis cardinalis*
Black-throated Blue Warbler	*Dendroica caerulescens*	Northern Flicker	*Colaptes auratus*
Black-throated Green Warbler	*Dendroica virens*	Northern Mockingbird *	*Mimus polyglottos*
Blackburnian Warbler	*Dendroica fusca*	Purple Finch	*Carpodacus purpureus*
Blue-headed Vireo	*Vireo solitarius*	Red-bellied Woodpecker	*Melanerpes carolinus*
Blue Jay *	*Cyanocitta cristata*	Red-breasted Nuthatch	*Sitta canadensis*
Broad-winged Hawk	*Buteo platypterus*	Red-tailed Hawk	*Buteo jamaicensis*
Brown-headed Cowbird*	*Molothrus ater*	Red-winged Blackbird	*Agelaius phoeniceus*
Brown Creeper	*Certhia americana*	Rock Pigeon	*Columba livia*
Brown Thrasher	*Toxostoma rufum*	Rose-breasted Grosbeak	*Pheucticus ludovicianus*
Canada Warbler	*Wilsonia canadensis*	Ruby-throated Hummingbird	*Archilochus colubris*
Cedar Waxwing	*Bombycilla cedrorum*	Scarlet Tanager	*Piranga olivacea*
Chestnut-sided Warbler	*Dendroica pensylvanica*	Sharp-shinned Hawk	*Accipiter striatus*
Chipping Sparrow *	*Spizella passerina*	Song Sparrow *	*Melospiza melodia*

Table 3.3-3
Birds - Observed and Regional Species

Common Grackle	*Quiscalus quiscula*	Spotted Sandpiper	*Actitis macularia*
Common Raven	*Corvus corax*	Tufted Titmouse	*Baeolophus bicolor*
Common Yellowthroat *	*Geothlypis trichas*	Turkey Vulture *	*Cathartes aura*
Dark-eyed Junco *	*Junco hyemalis*	Veery	*Catharus fuscescens*
Downy Woodpecker *	*Picoides pubescens*	Wild Turkey *	*Meleagris gallopavo*
Eastern Bluebird	*Sialia sialis*	Winter Wren	*Troglodytes troglodytes*
Eastern Kingbird	*Tyrannus tyrannus*	Wood Thrush *	*Hylocichla mustelina*
Eastern Meadowlark	*Sturnella magna*	Yellow-bellied Sapsucker	*Sphyrapicus varius*
Eastern Phoebe *	*Sayornis phoebe*	Yellow-billed Cuckoo	*Coccyzus americanus*
Eastern Towhee	*Pipilo erythrophthalmus*	Yellow Warbler	*Dendroica petechia*
European Starling *	*Sturnus vulgaris*		
Field Sparrow	*Spizella pusilla*		
Gray Catbird *	*Dumetella carolinensis*		
Great Crested Flycatcher	*Myiarchus crinitus*		

Notes:
This list represents many species that could potentially inhabit this site in addition to observed species. It is not, however, an exhaustive list.
* Indicates species observed directly or by song during field surveys on June 21, 2011.
Sources: Tim Miller Associates, Inc., 2011; NYSDEC Breeding Bird Atlas Block 5261B, 1980-1985 and 2000-2005.

Agency Protected or Special Concern Wildlife

No federally listed rare or endangered wildlife species were identified for the site by the USFWS. No state-listed threatened or endangered wildlife species were identified by the NYSDEC in the agency's NHP database as occurring or possibly occurring on or in the immediate vicinity of the project site.

3.3.4 Potential Impacts

Impacts to Vegetation and Wildlife Habitat

The proposed area of disturbance (AOD) has been restricted to approximately 15.35 acres of upland habitat on the 27 acre site, as depicted on Figure 3.3-3. The new development proposed for the site is proposed almost entirely within the areas of the former mining activities. These areas would be converted to hard features and would no longer be available for wildlife use. Less than 1.4 acres of woody vegetation would be removed. Wooded vegetative buffers would remain on the north side adjacent to the school property, on the western edge closest to Route 9W and along the south slope. Some encroachment for grading on the south slope would be required, with retaining walls constructed to minimize fill.

Areas where development is proposed would retain limited functions as wildlife habitat for species that are adapted to human presence. Areas that are currently bare earth would be restored and re-vegetated as landscape. It is expected that any animals currently living in the area of proposed disturbance would move to surrounding undeveloped wooded land. There would be maintained elements of connectivity between other open space parcels and the

portions of the project site that are not to be developed. These areas would continue to provide contiguous upland habitat and movement corridors for existing wildlife to traverse.

On the south side of Dock Road, the only disturbance proposed is for the stormwater management basin just south of the road. This part of the site has been disturbed by previous activities. The remainder of the Lattintown Creek area would remain undeveloped. Potential sources of impacts to aquatic wildlife and vegetation would include sedimentation during construction, post-development increases in pollutant loading in stormwater and bed and bank erosion in receiving watercourses resulting from increased stormwater discharge velocities. Sedimentation of the receiving water bodies would result in decreased light penetration, nutrient enrichment, increased transport of dissolved or adsorbed pollutants, shielding of pathogens from natural disinfection processes, and clogging of gills or filter-feeding apparatus in aquatic organisms.

As noted above, the state listed vegetative species were not observed on the site, and the potential habitat areas are well outside of the area of disturbance. Therefore no impact to such species will occur.

Impacts to Wildlife

In general, as a project site is developed, some species would relocate to similar habitats either on- or off-site. Because approximately 15.4 acres of the roughly 27 acre site would be altered, it is likely that some on-site wildlife would relocate from the developed areas to adjacent undeveloped areas offering similar habitats. The composition of the wildlife population on the project site would be slightly altered immediately adjacent to developed areas, as species able to adapt to a suburban environment (e.g. squirrels, raccoons, opossum, woodchucks, mice and some songbirds) would have a greater ecological advantage in comparison to species that are less tolerant of human activity. Many species of trees and shrubs commonly chosen for landscaping use would provide both food, shelter and nesting sites for small mammals, songbirds and other avian species.

No protected wildlife have been identified or observed on the project site, thus, no impacts to these species are projected. The proposed project would limit future use of the developed portions of the property by many wildlife species, but not by species that can adapt to such conditions.

Impacts to Wetlands

The current proposed development would not result in the direct disturbance of regulated on-site wetlands and as a result would not impact their identified functions and values. The proposal is designed to avoid wetland impacts entirely, although some activity will occur in close proximity to the seepage area that drains to the Lattintown Creek (Figure 3.3-4).

Indirect impacts to wetlands could occur from the changes in runoff characteristics from the adjacent areas. The proposed stormwater pollution prevention plan, as described below, is intended to mitigate these potential impacts.

3.3.5 Mitigation Measures

The applicant proposes to develop those areas of the property that have historically been mined, leaving significant areas of open space around the site perimeter. No regulated wetlands

or watercourses will be disturbed. Figure 3.3-5 shows those currently undisturbed areas of the site that will remain as open space post development. The mitigation of potential impacts from construction and development activities within the AOD that could affect wildlife as a result of the erosion and sedimentation of soils is described in Section 3.1 (Geology, Soils and Topography), and in Section 3.2 (Surface Water Resources).

While some of the vegetation and wildlife habitat on the property would remain unchanged, other portions would be removed or altered. The majority of existing vegetation within the 15.4 acre AOD would be removed. Measures could be taken however that would mitigate this loss to some extent and provide continued habitat for some adaptable wildlife species within the AOD. The existing trees and vegetation beyond the identified AOD would be preserved by the installation of stakes and fencing which would clearly identify the limits of disturbance and restrict the movement of construction vehicles and activities from these areas. The proposed development plan includes further provisions that would reduce or minimize potential impacts to wildlife habitat as described below.

The NYSDEC would need to approve and issue a Stormwater Discharge General Permit for site disturbance (see Sections 3.1 and 3.2 for a description of the permit conditions), but would not need to issue permits for impacts to State protected wetlands or State-listed threatened and endangered species as none are present on the project site.

Town engineers typically are charged with ensuring that project construction adheres to all project planning documents, including erosion control, stormwater management and maintenance of specified area of disturbance limits. Towns may engage third party engineers to inspect and oversee project construction activities. The developer would act in full compliance with all oversight administrators assigned to the project by the Town.

The proposed stormwater detention basins are expected to contain a certain amount of water, which can be used by wildlife and contribute to baseflow of off site watercourses. As described in the NYSDEC Stormwater Management Design Manual (August 2010), the facilities are designed to remove 80% of the Total Suspended Solids and 40% of the Total Phosphorus in received stormwater prior to release. The designs would provide both flow control and water quality improvements to the stormwater prior to discharge into the off-site drainages.

Basin vegetation would be established by using specialized commercial planting mixtures appropriate to the intermittently flooded conditions of the basin bottoms and berms. These seed mixes are designed to include herbaceous and grassy plants that offer wildlife foraging benefits.

Application of Stormwater Management Plans

A Stormwater Pollution Prevention Plan (SWPPP) and Erosion and Sediment Control plan has been developed as part of the concept plan (Refer to Sections 3.1 and 3.2). The SWPPP generally includes the following mitigation measures that serve to minimize potential impacts to vegetation and wildlife resulting from the runoff of silt, sediment, excess nutrients and erosive water flows throughout all phases of the development process:

- Clearing limit lines would be marked prior to commencing the construction activity. Land outside of this area of disturbance is to remain undisturbed and be protected from construction activities that lead to habitat loss.

- Erosion and sediment controls as required by the NYSDEC under SPDES GP-0-10-001 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 would reduce the cumulative impacts of soil deposition on wetlands vegetation and on aquatic animals or other animals that utilize wetland resources for foraging.

- With the implementation of the proposed SWPPP, the discharge rate of the stormwater after development would meet the criteria of the NYSDEC general permit for stormwater control. These criteria require that no increase in erosive or flooding flow rates occurs in downstream watersheds subsequent to the implementation of a SWPPP. Protection of the downstream water channel and flood plain is a primary means to maintain the existing character of downstream and off-site watersheds.

- Although there would be an increase in impervious surfaces and pollutants that run off from the developed portions of the site into the stormwater basins, the increase would be mitigated through the implementation of stormwater treatment practices set forth in the SWPPP. These treatment features (wet ponds and vegetated swales) are designed to remove approximately 80 to 85 percent of the total suspended solids, 40 to 50 percent of the total phosphorus and 35 to 50 percent of the total nitrogen from stormwater captured on the site. These reductions in the levels of specific pollutants in the stormwater leaving the site would reduce the post-development effects of pollutants on downstream water quality as well as on the vegetation and animals that are present in the downstream watersheds.

Landscape Plantings

As a threshold condition of any future site-specific plan developed for this property, noninvasive native plants would be used in the landscape wherever possible. The major landscaping evergreen and deciduous tree proposed to be installed throughout the project site have been identified by general species and planting location on the Concept Landscape Plan for this project. This list would be supplemented with other minor landscape shrubs and plants that would cumulatively provide a variety of foraging, nesting and shelter benefits for the wildlife that repopulates the portions of the site within the proposed AOD. Approximately eight (8) acres of the AOD would be landscaped at completion of the project.

While the existing woodland and meadow vegetation would be replaced by ornamental plants, lawns and gardens within the developed areas, the introduced plantings could still be used as forage by deer and other wildlife and many of the tree and shrub species chosen would provide habitat for songbirds and other avian species. The landscape plants proposed as part of the final development would include berry and seed-bearing trees and shrubs that would offer a food source for birds. Trees that are planted would mature in the long-term and would provide some roosting and nesting opportunities for birds that are adaptable to suburban conditions.

Typical landscape plantings would be chosen for their hardiness to the local climate and in the proposed setting of their usage on the site. Plantings would be monitored for up to two years after installation and any dead specimens would be replaced with similar species. Regionally appropriate tree plantings, such as red maples and white pine, are to be incorporated into the landscape to provide habitat benefits for some birds. Some of the regional landscape plants that could be integrated into the plan as it proceeds through the review process are listed in Table 3.3-4 below.

Table 3.3-4 **Regionally Hardy Landscape Plantings**	
Deciduous Trees - Major **Deciduous Shrubs**	
Horse chestnut (*Aesculus hippocastanum*)	Bottlebrush buckeye (*Aesculus parviflora*)
American beech (*Fagus grandifolia*)	Oak leaf hydrangea (*Hydrangea quercifolia*)
White oak (*Quercus alba*)	Common witchhazel (*Hamamelis virginiana*)
Red oak (*Q. rubra*)	Staghorn sumac (*Rhus typhina*)
Little leaf linden (*Tilia cordata*)	Red-osier dogwood (*Cornus stolonifera*)
American elm (*Ulmus americana*)	Sweetfern (*Comptonia peregrina*)
Sycamore (*Platanus occidentalis*)	Winterberry (*Ilex verticillata*)
Tupelo (*Nyssa sylvatica*)	Juneberry (*Amelanchier canadensis*)
Deciduous Trees - Minor	Beautybush (*Kolkwitzia amabilis*)
American Hackberry (*Celtis occidentalis*)	Northern bayberry (*Myrica pensylvanica*)
Paper birch (*Betula papyrifera*)	Viburnum (*Viburnum* spp.)
Crabapple (*Malus* spp.)	Elderberry (*Sambucus* spp.)
Cherry (*Prunus* spp.)	Eastern wahoo (*Euonymus atropurpureus*)
Plum (*Prunus* spp.)	Snowberry (*Symphoricarpos alba*)
Hawthorns (*Craetaegus* spp.)	Cotoneaster (*Cotoneaster* spp.)
Coniferous Trees	Jersey Tea (*Ceanothus americanus*)
White fir (*Abies concolor*)	Sweet Fern (*Comptonia peregrina*)
Colorado spruce (*Picea pungens*)	Hazelnut (*Corylus americana, C. cornuta*)
Norway spruce (*P. abies*)	Lowbush blueberry (*Vaccinium augustifolium*)
Northern white cedar (*Thuja occidentalis*)	Highbush blueberry (*V. corymbosum*)
Douglas fir (*Pseudotsuga mensiesii*	Inkberry (*Ilex glabra*)
White pine (*Pinus strobus*)	Pussy Willow (*Salix discolor*)
Red pine (*P. resinosa*)	Spirea (*Spirea latifolia*)
Evergreen shrubs	Swamp azalea (*Rhododendron viscosum*)
White rhododendron (*Rhododendron album)*	Sweet Pepperbush (*Clethra alnifolia*)
Rosebay rhododendron (*R. maximum*	Witch Hazel (*Hamamelis virginiana*)
Leatherleaf viburnum (*Viburnum rhytidophyllum*)	Virgina creeper (*Parthenocissus quinquefolia*)
Ground juniper (*Juniperus communis*)	
Eastern red ceder (*J. virginiana*)	
Mountain laurel (*Kalmia latifolia*)	
Source: Tim Miller Associates, Inc., 2007.	

In addition to their value as hardy plantings, many of the native plant species in Table 3.4-6 are cited by the Cornell Lab of Ornithology as providing wildlife benefits associated with their use as landscape plantings, including species within the following functional groupings:

Deciduous Trees: Red maple (Spring fruits)
Sugar maple (Summer fruits)
Mulberries (Summer fruits)
Black, Pin or Choke cherries (Summer fruits)

	Shadblow (Summer fruits)
	Flowering dogwood (Fall fruits)
	American hackberry (Fall fruits with Winter-persistent fruit)
	Crabapples (Fall fruiting with Winter-persistent fruit)
	Hickories, Oaks and Walnuts (Fall fruiting with Winter-persistent fruit)
Coniferous Trees:	Eastern hemlocks and white pine (Winter wildlife cover)
	Cedars (Fall fruiting with Winter-persistent fruit; nest sites; Winter cover)
	Spruces (Fall fruiting with Winter-persistent fruit; nest sites; Winter cover)
Native Vines:	Virginia creeper (Fall fruiting with Winter-persistent fruit)
Shrubs:	Dogwoods (Fall fruits)
	Hawthorns (Fall fruits)
	Viburnums (Fall fruiting, with fruits of some being Winter-persistent)
	Winterberry (Fall fruiting with Winter-persistent fruit)
	Northern bayberry (Fall fruiting with Winter-persistent fruit)

The Landscaping Plan will be required to include some of the plants above that offer wildlife benefits such as nesting sites and the production of edible seasonal and Winter-persistent fruits. Not all of these plants would necessarily be used however, as their ornamental value would determine their selection by project architects for each of the sites and environmental settings to be landscaped on the property.

FMA - Former Mining Area/Meadow
SS/W - Successional Shrubland/Woodland
SNH - Successional Northern Hardwoods
SC - Stream Corridor
ML - Existing Residence/Maintained Landscape

Figure 3.3-1: Vegetative Associations

Dockside at Marlborough
NYS Route 9 and Dock Road
Town of Marlborough, Ulster County, New York
Source: Engineering Properties, May 31, 2011
Scale: 1 inch = 150 feet

U:\Jim Stanley\11013 Dockside\Dockside Sketchplan over aerial.dwg

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Delineated Site Wetlands

0 75 150

1 inch = 150 ft.

Figure 3.3-2: Site Wetlands

Dockside at Marlborough
NYS Route 9 and Dock Road
Town of Marlborough, Ulster County, New York

Source: Engineering Properties, May 31, 2011
Scale: 1 inch = 150 feet

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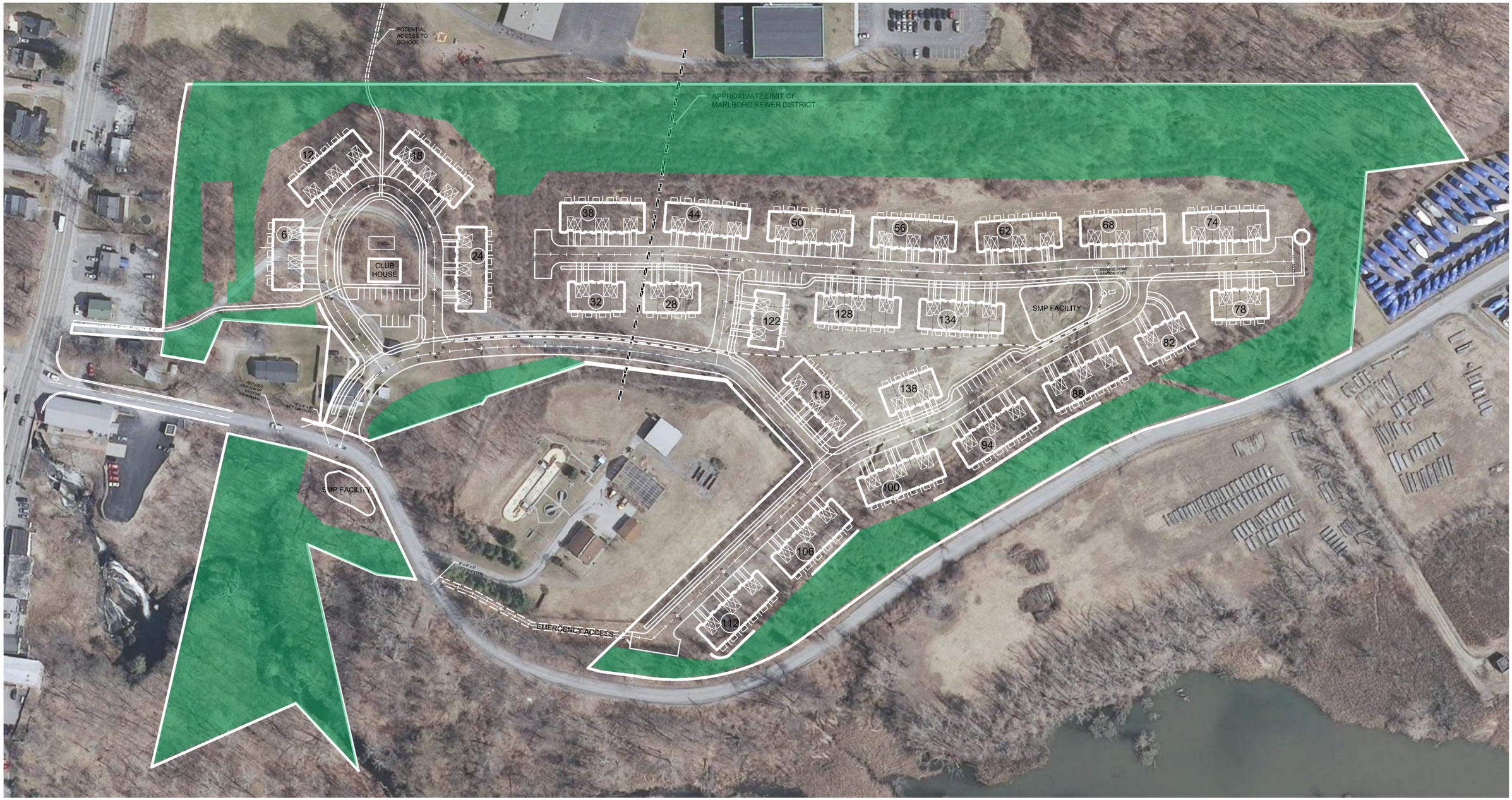

0 75 150

1 inch = 150 ft.

Figure 3.3-3: Site Plan Overlay

Dockside at Marlborough
NYS Route 9 and Dock Road
Town of Marlborough, Ulster County, New York
Source: Engineering Properties, May 31, 2011
Scale: 1 inch = 150 feet

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Figure 3.3-4: Disturbance near Site Wetland

Dockside at Marlborough
NYS Route 9 and Dock Road
Town of Marlborough, Ulster County, New York

Source: Engineering Properties, May 31, 2011
Scale: 1 inch = 150 feet

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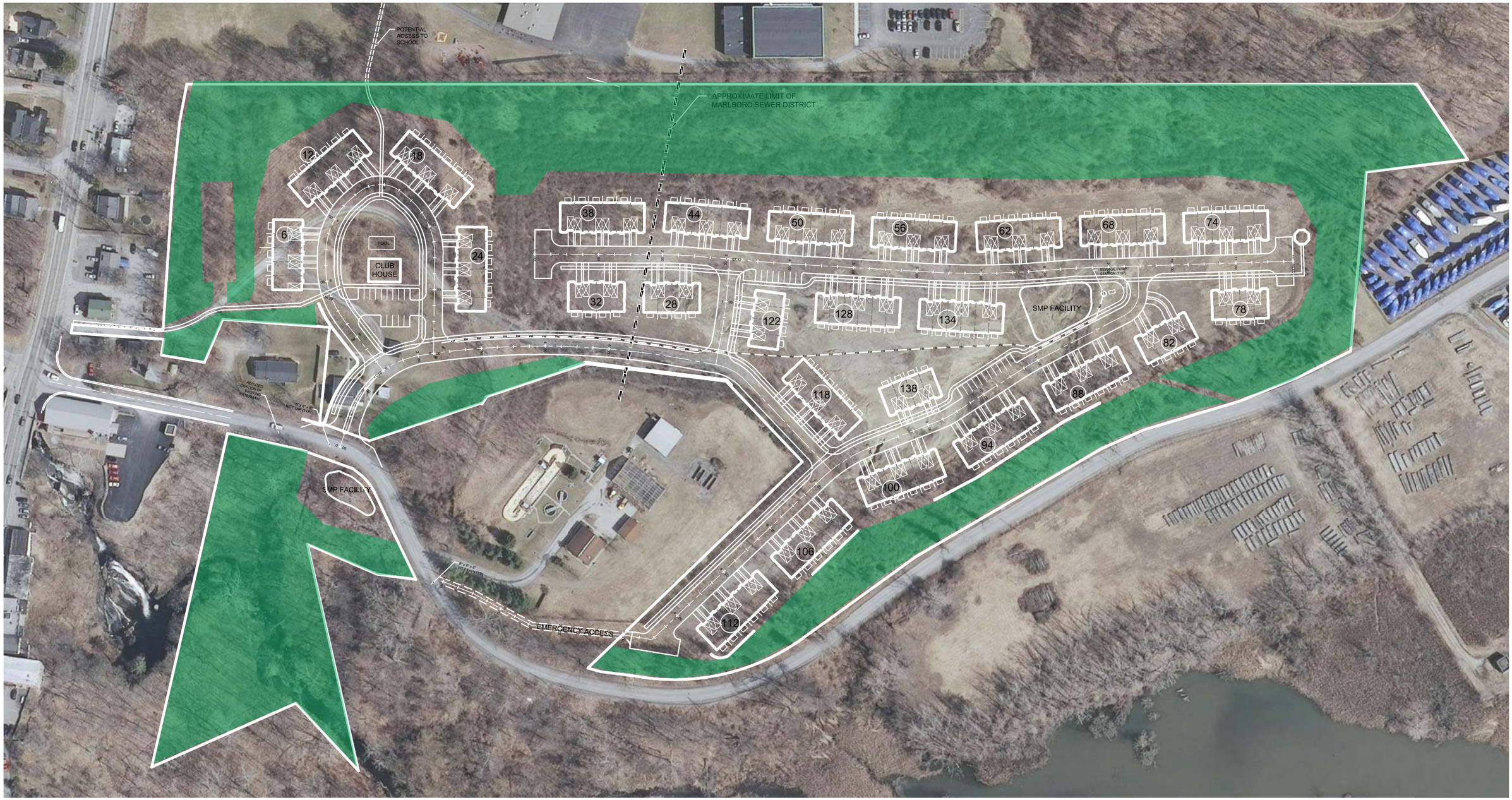

0 75 150

1 inch = 150 ft.

Figure 3.3-5: Undisturbed Open Space Following Development

Dockside at Marlborough
NYS Route 9 and Dock Road
Town of Marlborough, Ulster County, New York
Source: Engineering Properties, May 31, 2011
Scale: 1 inch = 150 feet

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