

## **3.2 Wetlands**

### **3.2.1 Existing Conditions**

Wetlands were delineated by Tim Miller Associates, Inc. (TMA) during the Fall of 2007 and Spring of 2008. Subsequent revisions to the wetland boundaries were made in the Summer of 2009 based on a number of site visits made by US Army Corps of Engineers (ACOE) and New York State Department of Environmental Conservation (NYSDEC) personnel. Figure 3.2-1 shows a map of the delineated wetland boundaries accepted by these agencies in the field. Survey of the boundary adjustments made by these agencies has been submitted for agency approval and the revised delineations are reflected in the figures and calculations included in this document.

#### **New York State Freshwater Wetlands Regulations**

Under Article 24 of the NYS Environmental Conservation Law (NYSECL), wetlands greater than 12.4 acres in area are regulated by the NYSDEC. The agency also includes, under its jurisdiction, certain smaller wetlands that are of unusual local importance. Figure 3.2-2 Shows the NYSDEC regulated wetlands that are in the vicinity of the project. The NYSDEC also regulates activities within 100 feet of these State wetlands.

The delineation of State wetlands is based primarily on vegetative dominance by known hydrophytic species. In some cases, the presence of hydric soils and sufficient hydrology to support this vegetation can also be used to determine wetland boundaries if vegetative dominance is not conclusive.<sup>1</sup> The NYSDEC is responsible for validating the delineations of all freshwater wetlands of 12.4 acres or more in size.

State regulated freshwater wetlands have been classified by the NYSDEC according to their respective functions, values and benefits. Wetlands may be Class I, II, III or IV. Class I wetlands are the most valuable and are subject to the most stringent standards. Certain human activities can adversely affect, even destroy the delicate ecological balance in these important areas. The policy of New York State; set forth in the Freshwater Wetlands Act, is to preserve and protect the benefits that wetlands provide.

The NYSDEC also has the ability to take jurisdiction of a wetland under 12.4 acres if the wetland exhibits significant species composition or other unique features. These wetlands of unusual or local importance (ULI) are determined by NYSDEC staff during jurisdictional review of the project wetlands. Summer 2009 site visits by NYSDEC personnel for jurisdictional determination and wetland boundary confirmation did not determine any of the project site wetlands to be ULI wetlands.

#### **Federal Wetlands / U.S. Army Corps of Engineers (ACOE)**

The ACOE regulates activities within wetland areas designated as “above the headwaters” of navigable waters of the United States under Section 404 of the Clean Water Act. There is no regulated setback to Federal wetlands.

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<sup>1</sup> NYSDEC. 1995. Freshwater Wetlands Delineation Manual - July 1995. Website:  
<http://www.dec.state.ny.us/website/dfwmr/habitat/wdelman.pdf>

The boundaries and types of wetlands nationwide are generally depicted on U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) Maps. Figure 3.2-3 shows the portion of the NWI map that includes the project site. The wetland delineation of the project site indicates that wetlands occur more frequently on the property than the NWI map depicts. The ACOE is responsible for field confirming the site specific boundaries of any wetlands meeting the Federal delineation criteria presented in their Wetlands Delineation Manual. Representatives from the ACOE visited the site in June 2009 to verify wetland boundaries as flagged. The ACOE issued its Jurisdictional Determination on April 27, 2010, (provided in Appendix B) listing the specific wetland areas on the project site that are considered waters of the United States and subject to Federal wetlands regulations, and listing the wetland areas that are isolated and do not meet the criteria of waters of the United States.

On-site Wetlands

The wetland delineation resulted in the flagging of 41 wetlands totaling 267.88 acres of the property. Table 3.2-1 shows the acreage, wetland type and description, and regulatory jurisdiction of all on-site wetlands. Descriptions of each wetland are provided following Table 3.2-1. Detailed descriptions of vegetation occurring within the on-site wetland communities can be found in Chapter 3.3 Vegetation. Additional descriptions of wetland habitat value, including the productivity of on-site vernal pools, and identification of any protected animal species can be found in Chapter 3.4 Wildlife Ecology.

<b>Table 3.2-1</b>				
<b>Existing Wetlands - Area, Type, Description and Jurisdiction</b>				
(Table on more than one page)				
Wetland ID	Wetland Area (Acres)	Wetland Type*	Wetland Description	Regulatory Jurisdiction
Wetland ABD	145.42	Components of slope, depressional, floodplain and open water wetlands	Emergent marsh, wooded swamp, shrub swamp, blueberry thicket	ACOE, DEC
Wetland C	9.19	Slope/depressional	Wooded swamp	ACOE, DEC
Wetland D	74.83	Components of slope and open water wetlands (including Lost Lake)	Lost Lake, wooded swamp, blueberry thicket	ACOE, DEC
Wetland E	4.22	Slope/depressional	Wooded swamp, blueberry thicket	ACOE, DEC
Wetland G-A	0.14	Flood plain	Wooded swamp	ACOE, DEC
Wetland G-B	0.11	Flood plain	Wooded swamp	ACOE, DEC
Wetland G-C	0.29	Flood plain	Wooded swamp	ACOE
Wetland G-D	0.16	Flood plain	Wooded swamp	ACOE
Wetland G-E	0.12	Flood plain	Wooded swamp	ACOE
Wetland G-F	0.14	Flood plain	Wooded swamp	ACOE
Wetland G-G	2.80	Flood plain, Slope/depressional	Shrub swamp	ACOE, DEC
Wetland H	4.51	Slope/depressional	Blueberry thicket	ACOE
Wetland K	1.62	Slope/depressional	Shrub swamp, vernal pool	DEC
Wetland L	1.24	Slope/depressional	Wooded swamp	ACOE, DEC
Wetland M-A	0.33	Depressional	Wooded swamp, vernal pool	Not Regulated
Wetland M-B	0.02	Depressional	Wooded swamp	ACOE
Wetland N-B	0.30	Depressional	Wooded swamp	ACOE
Wetland P	1.25	Depressional/stream	Wooded swamp	ACOE

<b>Table 3.2-1</b>				
<b>Existing Wetlands - Area, Type, Description and Jurisdiction</b>				
(Table on more than one page)				
Wetland ID	Wetland Area (Acres)	Wetland Type*	Wetland Description	Regulatory Jurisdiction
		corridor		
Wetland Q	0.82	Slope/depressional	Wooded swamp, vernal pool	Not Regulated
Wetland R	0.27	Slope/depressional	Wooded swamp	Not Regulated
Wetland T-A	0.70	Depressional/floodplain	Wooded swamp	ACOE
Wetland T-B	0.14	Depressional/floodplain	Wooded swamp	ACOE
Wetland T-C	0.93	Slope/depressional	Emergent marsh, vernal pool	ACOE
Wetland U	0.05	Depressional	Vernal Pool	Not Regulated
Wetland V	1.05	Depressional	Emergent marsh, vernal pool	Not Regulated
Wetland W	2.65	Slope/depressional	Shrub swamp	ACOE
Wetland X	1.90	Depressional	Wooded swamp	Not Regulated
Wetland YJ	4.49	Slope/depressional	Wooded swamp	ACOE, DEC
Wetland Z-A	1.10	Slope/depressional	Wooded swamp	ACOE
Wetland Z-B	0.50	Depressional	Wooded swamp, vernal pool	Not Regulated
Wetland AA	2.18	Slope/depressional	Wooded swamp	ACOE
Wetland BB	2.18	Slope/depressional	Wooded swamp	Not Regulated
Wetland DD	0.29	Depressional	Wooded swamp, vernal pool	Not Regulated
Wetland EE	1.70	Slope/depressional	Emergent marsh, vernal pool	ACOE
Wetland TT-A	0.11	Depressional	Vernal Pool	Not Regulated
Wetland TT-B	0.13	Depressional	Vernal Pool	Not Regulated
Total	267.88			

\* Based on hydrogeomorphic classifications.

Note: Determinations of wetland regulatory jurisdiction have been established during field visits by ACOE and NYSDEC staff during 2009. The ACOE issued its formal jurisdictional determination on April 27, 2010. A formal jurisdictional determination has been requested from NYSDEC and are currently being processed. This information will be added to the SEQR record after receipt.

Source: Brinkash & Associates, Inc, Tim Miller Associates, Inc. 2010.

### *Wetland ABD*

Wetland ABD is an approximately 145.42 acre wetland that crosses the entire project site in a northwest/southeast direction. This NYSDEC mapped Class II wetland (HA-40) consists of several ecological communities, including a regulated stream, hemlock-hardwood swamp, red maple-hardwood swamp, shallow emergent marsh, shrub swamp, and highbush blueberry bog

thicket as described in the "Ecological Communities of New York State"<sup>2</sup>. Federal classifications for these communities could be palustrine broad-leaved deciduous scrub-shrub and forested wetlands and persistent emergent wetland. The unnamed perennial stream flowing through the wetland is a tributary to the Bush Kill, a stream that eventually empties to the Neversink River. The drainage area for this stream consists of approximately 1,600 acres.

Wetland vegetation in the Hemlock-Hardwood Swamp includes red maple (add scientific names at first use then common names thereafter), hemlock, yellow birch, sensitive fern, blueflag iris, and sphagnum moss. Vegetation within the Shallow Emergent Marsh includes tussock sedge (*Carex stricta*), eel-grass (*Vallisneria americana*), cardinal flower (*Lobelia cardinalis*), white turtlehead (*Chelone glabra*), sensitive fern (*Onoclea sensibilis*), royal fern (*Osmunda regalis*), and steeple bush (*Spirea tomentosa*). The Shrub Swamp contains similar herbaceous species as the other communities but contains a dominant layer of highbush blueberry (*Vaccinium corymbosum*).

Hydrology in this wetland is provided by a tributary to Bushkill Creek that runs through the center of the wetland, as well as springs and overland flow from adjacent, steep sloped uplands. Soils within the wetland are predominantly the very poorly drained Carlisle Muck and Palms Muck.

This wetland provides multiple functions including, but not limited to, storm and floodwater storage, pollutant removal, wildlife habitat, and contribution to the abundance and diversity of wetland flora and fauna. Potential pollutants to this wetland exist as runoff from a section of St. Joseph's Road that drains to its northwest corner.

Wetland ABD includes a half-acre pocket at its southern end previously mapped as wetland CC. This area contains one of the more productive vernal pools on the project site. Evidence of wood frog and spotted salamander breeding activity was observed during ecological surveys. This wetland also provides a water source for other wildlife, including mammals and birds.

Wetland ABD provides quality habitat for many species. Herpetile species such as wood turtles, eastern ribbon snake, and stream dwelling salamanders, such as the northern dusky salamander, are likely to live and forage within the wetland. The ecological communities that comprise this wetland provide habitat for a multitude of avian species including, but not limited to, alder flycatcher, blue-winged warbler, black-throated green warbler, red-shouldered hawk, red-winged blackbird, northern waterthrush, swamp sparrow, and common yellowthroat. Fish species within the stream include brook trout.

#### *Wetland C*

Wetland C is a 9.19 acre Red Maple-Hardwood Swamp (palustrine broad-leaved deciduous forested wetland) located south of St. Joseph's Road along the west side of the old railroad tracks. This wetland is under NYSDEC jurisdiction (HA-41) as a Class II wetland. Two culverts underneath the railroad bed connect Wetland C to the extensive, off-site portion of NYSDEC HA-41.

Vegetation found within this red-maple hardwood swamp include sedge species, sphagnum moss, highbush blueberry, swamp tupelo (*Nyssa sylvatica*), red maple, and American elm.

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<sup>2</sup> Edinger, G.J. et al (Eds.) 2002. Ecological Communities of New York State. Second Edition. NYSNHP, NYSDEC. Albany, NY. 136 pp.

Overland flow and seasonal shallow groundwater provide hydrology to the Wetland C portion of the larger HA-41 wetland. Soils within the wetland showed low chroma colors and consisted of Neversink and Alden soils, both classified as poorly drained and listed on the Local Hydric Soils List.

Wetland C functions as stormwater storage and wildlife habitat. Mammals likely to use the wetland include small rodents and cottontail rabbits. The wetland contains a small vernal pool that appears to be created by the damming of water by the old railroad tracks.

#### *Wetland D*

Wetland D is a palustrine forested wetland (red maple-hardwood swamp, hemlock-hardwood swamp, and highbush blueberry bog thicket) that contains a palustrine unconsolidated bottom, permanently flooded, impounded lake, the 52 acre Lost Lake (Trout Lake on the U.S. Geological Survey Map), and is under NYSDEC jurisdiction (HA-27) as a Class II wetland. The perennial outlet stream from the lake serves as a tributary to the Bush Kill. Including Lost Lake, Wetland D contains a total acreage of 74.83 acres.

Vegetation associated with this wetland includes highbush blueberry, sensitive fern, New York fern (*Thelypteris noveboracensis*), sphagnum moss, red maple (*Acer rubrum*), hemlock, and American larch (*Larix laricina*). Overland flow and Lost Lake are the primary sources of hydrology for the wetland. Hydric soil indicators included low chroma colors (10YR 2/1) within the top 12 inches of the poorly drained Neversink and Alden soils.

Stormwater storage and wildlife habitat are the primary functions of Wetland D. Lost Lake provides significant habitat for wildlife. Yellow perch, largemouth bass, bluegill, and brown bullhead reside in the lake. Herpetile species such as painted turtle and eastern spotted newt would be expected to utilize the lake and wetland areas. Avian species observed in the area include red-winged blackbird, song sparrow, sharp-shinned hawk, eastern kingbird, and mallard.

#### *Wetland E*

Wetland E is a 4.22 acre highbush blueberry bog thicket and red maple hardwood swamp (palustrine broad-leaved deciduous forested wetland). This wetland is under NYSDEC jurisdiction (HA-39) as a Class II wetland. A perennial stream flows approximately 1,700 feet east out of the wetland into the unnamed tributary of the Bush Kill within Wetland ABD.

Vegetation associated with the highbush blueberry bog thicket include sedge species, highbush blueberry, sphagnum moss, and blueflag iris (*Iris versicolor*). Indicator vegetation within the forested wetlands include red maple, swamp tupelo (*Nyssa sylvatica*), highbush blueberry, and sphagnum moss.

Overland flow and seasonal shallow groundwater are the primary sources of hydrology in the wetland. Soils within the wetland showed low chroma colors and consisted of Neversink and Alden soils, both classified as poorly drained and listed on the Local Hydric Soils List.

Wetland E provides stormwater storage and moderate wildlife forage and nesting habitat. Some amphibian species such as green frog and American toad are expected to utilize the wetland. Avian species using the wetland include alder flycatcher, red-winged blackbird, common yellowthroat, and common grackle. Eastern cottontail rabbits, weasels, and small rodents are mammals that use this wetland as well.

### *Wetland G Complex*

Wetlands G-A (0.14 acres), G-B (0.11 acres), G-C (0.29 acres), G-D (0.16 acres), G-E (0.12 acres), G-F (0.14 acres), and G-G (2.80 acres) are a series of pocket red maple-hardwood swamp wetlands along the outlet stream of Lost Lake. The wetland series culminates at wetland G-G in a shrub swamp located on the site's eastern property line just north of St. Joseph's Road. The outlet stream, a perennial tributary to the Bush Kill, runs through the later five pieces of this wetland before being impounded by a dam on the adjacent property.

Wetlands G-A and G-B are connected to Wetland D (NYSDEC HA-27), and Wetland G-G is connected to a larger wetland off of the project site that is under NYSDEC jurisdiction (HA-41) as a Class II wetland, and as such are regulated by the NYSDEC. The entire Wetland G complex is regulated by the ACOE.

Vegetation included in the wetlands are tussock sedge, rice-cut grass (*Leersia oryzoides*), steeple bush, highbush blueberry, red maple and sedge species. Soils within the wetland are poorly drained Scriba loam. Hydrology is primarily provided by the outlet stream and partially by overland flow.

The wetland complex functions primarily as flood and storm water control and wildlife habitat. Amphibian species such as green frog and American toad are expected to utilize the wetland. Stream dwelling salamanders, such as two-lined salamander, populate the wetlands as well. Red-winged blackbird, swamp sparrow, song sparrow, and common yellowthroat are some of the bird species for which the wetlands provide habitat.

### *Wetland H*

Wetland H is a 4.51 acre highbush blueberry bog thicket located in the central northern section of the property. An intermittent stream flows north out of the wetland and off the property where it drains to Wetland L (NYSDEC HA-19).

Vegetation within the wetland includes highbush blueberry, rhododendron (*Rhododendron maximum*), tussock sedge, and sphagnum moss with red maple and hemlock on the northern edge. Poorly drained Neversink and Alden soils showed low chroma colors with some distinct mottles. Hydrology is provided by overland flow.

Wetland H functions as wildlife habitat for a number of avian species. Blue-winged warbler, Nashville warbler, red-winged blackbird, and scarlet tanager utilize the Shrub Swamp. Blackburnian warbler, pine warbler, black-throated green warbler, and hairy woodpecker inhabit the wetland. Mammals likely to use the wetland include cottontail rabbits and small rodents. The wetland doesn't appear to hold water long enough to expect mole salamanders and other amphibians, but eastern spotted newts and American toads may utilize the sphagnum moss mat.

### *Wetland K*

Wetland K is a mixed shrub swamp that exists on the project site's northern property line. Approximately 1.62 acres of this NYSDEC Class III wetland (HA-26) is within the property boundaries. The wetland does not appear to have any outlets.

Vegetation within the pocket wetland includes red maple, hemlock, yellow birch (*Betula alleghaniensis*), highbush blueberry, winterberry, and sphagnum moss. Soils in the wetland are the very poorly drained Neversink and Alden soils. Hydrology is seen as pockets of standing water throughout the wetland that are the result of the pooling of overland flow and seasonally high groundwater.

Wetland K provides wildlife habitat for species of birds and mammals that use the blueberries as a food source. Birds using this wetland include veery, blue jay, cedar waxwing, and ovenbird. Mammals observed include black bear, gray squirrel, and cottontail rabbit. The portion of the wetland within the project property does not appear to hold water long enough to support mole salamanders.

#### *Wetland L*

Wetland L is a large highbush blueberry bog thicket located in the northwest corner of the property. Only 1.24 acres of this NYSDEC (HA-19) Class II wetland exists on the project site, and this area is classified as hemlock-hardwood swamp (palustrine broad-leaved deciduous forested wetland). The wetland appears to be created by a former beaver dam, but has since filled in with vegetation. The wetland outlets to the north, off of the project site.

Vegetation within the on-site hemlock-hardwood swamp includes hemlock, rhododendron, highbush blueberry and sphagnum moss. Vegetation within the off-site highbush blueberry bog thicket includes soft rush (*Juncus effusus*) and other sedge species, carex species, steeple bush, highbush blueberry, maleberry (*Lyonia ligustrina*) and red maple. A thick layer of sphagnum moss covers the wetland floor. Soils in the wetland consist of Neversink, Aden, and Palms muck, all very poorly drained. Hydrology in the wetland is provided by overland flow, an intermittent stream connection to Wetland H, and seasonally high groundwater.

In general, Wetland L provides significant wildlife habitat for numerous species, particularly the off-site portions. Bird species noted include ruby-throated hummingbird, common yellowthroat, Nashville warbler, and red-shouldered hawk. Amphibian species expected in this portion of the wetland are spring peeper, pickeral frog, and green frog. The on-site hemlock-hardwood swamp portion of the wetland provides habitat for blackburnian warbler, pine warbler, and veery.

#### *Wetland M-A*

Wetland M-A is a 0.33 acre hemlock-hardwood swamp located in the southeast corner of the property. The wetland does not have an outlet and contains a vernal pool. The wetland's limited acreage and absence of a hydrological connection to other wetlands on or off of the project site suggest that this wetland is not regulated by either the ACOE or DEC.

Vegetation within the wetland consists of hemlock, American elm (*Ulmus americana*), marsh marigold (*Caltha palustris*), sensitive fern, tussock sedge, water-cress (*Nasturtium officinale*) and sphagnum moss. Soils in the area are Carlisle Muck. Hydrology is provided primarily by spring seepage with overland flow contributing as well. At the time of the delineation, pools of water in excess of three inches deep were found throughout the wetland.

Wetland M-A functions as wildlife habitat and provides breeding habitat for some vernal pool dependent species. Herpetile species observed include spring peeper, green frog, wood frog, and garter snake. Avian species that utilize the wetland include woodpecker species, wood thrush, and ovenbird.

*Wetland M-B*

Wetland M-B is a 0.20 acre hemlock-hardwood swamp that occurs in the southeast corner of the project site. The wetland is part of a larger wetland complex that extends off-site to the south.

Much like wetland M-A, vegetative species consist of hemlock, American elm, red maple, watercress, and sphagnum moss. Soils are comprised of Carlisle Muck and hydrology is provided by spring seeps and overland flow.

This wetland functions primarily as wildlife habitat, but it does aid in groundwater recharge as do most wetlands on the project site.

*Wetland N-B*

Wetland N-B is a 0.30 acre hemlock-hardwood swamp in the southwest corner of the site. This wetland flows through a culvert under an off-site dirt road south of the property line. The wetland's limited acreage suggest that this wetland is not regulated by the NYSDEC. The wetland is regulated by the ACOE.

Vegetation within the wetland includes red maple, hemlock, sphagnum moss, tussock sedge and several other sedge species. Soils consist of poorly drained Neversink loam. Hydrology is provided by overland flow and seasonally high groundwater. At the time of the delineation, some pockets of water approximately two or more inches deep were scattered throughout the wetland.

Wetland N-B functions as wildlife habitat for a number of species. Avian species using the wetland include ruffed grouse, scarlet tanager, and ovenbird. Mammals inhabiting the wetland include cottontail rabbits and other small rodents. The wetland doesn't appear to hold water long enough to expect mole salamanders and other vernal pool breeding amphibians, but eastern spotted newts and American toads may be present in or near the wetland.

*Wetland P*

Wetland P is a 1.25 acre red maple-hardwood swamp associated with a small intermittent stream channel in the southwest corner of the site. Much like wetland N-B, this wetland flows through a culvert under a dirt road located on the adjacent property to the south.

Vegetation within consists of red maple, American elm, highbush blueberry, steeple bush, tussock sedge, fringed sedge (*Carex crinita*) and sphagnum moss. Soils found in the area showed low chroma colors and consist of very poorly drained Aden silt loam. Hydrology is provided by overland flow that collects in the intermittent stream channel.

The wetland provides wildlife habitat for several species. Avian species noted in the wetland include veery, wood pewee and ovenbird. Mammals using the wetland include cottontail rabbits and small rodents.



#### *Wetland Q*

Wetland Q is a depressional wetland, of which 0.82 acres of hemlock-hardwood swamp is located in the western corner of the project site.

Vegetation found in Wetland Q includes hemlock, highbush blueberry, blueflag iris, sedge species, sensitive fern, and sphagnum moss. Soils consist of Aden silt loam. Hydrology is provided by overland flow and seasonally high groundwater. Pockets of open water are found throughout the wetland.

Functions of Wetland Q include, but are not limited to, wildlife habitat and stormwater storage. This wetland is expected to serve as habitat for numerous species of wildlife. Many species of mammals will utilize the open water as a drinking source, while some will also use it for hunting opportunities. Several reptile and amphibian species would also utilize the pockets of water within the wetland as well. Avian species observed using the wetland include tufted titmouse, blackburnian warbler, white breasted nuthatch, and veery.

#### *Wetland R*

Wetland R is a 0.27 acre mixed red maple hardwood swamp located in the northeast corner of the site, just north of Wetland D. The wetland's limited acreage and absence of a hydrological connection to Waters of the United States suggest that this wetland is not regulated by either the ACOE or DEC.

Vegetation within Wetland R includes highbush blueberry, red maple, eastern white pine, wool grass (*Scirpus cyperinus*), and sphagnum moss. Soils within the wetland consist of very poorly drained Neversink loam and showed low chroma colors. Hydrology is provided by overland flow and seasonally high ground water.

Wetland R provides wildlife habitat for species of birds and mammals that use the blueberries as a food source. Birds noted using this wetland include veery, blue jay, cedar waxwing, and ovenbird. Mammals expected include black bear, gray squirrel, and cottontail rabbit. Pockets of water within this wetland could possibly be utilized by reptile and amphibian species.

#### *Wetland T Complex*

Wetland T-A, T-B, and T-C are part of a forested wetland complex associated with an ephemeral stream found on the southern edge of the property. This intermittent stream flows approximately 2,000 feet to a subtributary of the Bush Kill found within Wetland ABD (NYSDEC HA-40). The drainage area for this stream is approximately 320 acres.

Wetlands T-A (0.70 acres) and T-B (0.14 acres) are small hemlock-hardwood swamp corridors surrounding the ephemeral stream. Vegetation within these pockets include hemlock, red maple, watercress, and sphagnum moss. Wetland T-C is a 0.93 acre shallow emergent marsh found at the headwaters of the ephemeral stream. Vegetation within this wetland includes narrow-leaved cattail (*Typha angustifolia*), American bur-reed (*Sparganium americanum*), soft rush, watercress and sphagnum moss.

Soils within these wetlands are poorly drained Neversink loam. Hydrology is associated with the intermittent stream flow, as well as overland flow and some spring seeps. Wetland T complex is mapped with an ephemeral braided stream connecting the three wetland pockets (as flagged by

NYSDEC in September 2009), although there are no visible signs of an actual stream channel since these areas are strewn with rocks and boulders that obscure the ground surface. Wetland T-C's limited acreage suggest that this wetland is not regulated by the NYSDEC. The wetland T complex is regulated by the ACOE.

Wildlife observed in the Wetland T complex includes brook trout within Wetland T-A. The wetland complex is likely used by numerous mammals and birds as a water source as well as a foraging area. Wetland T-C provides the most significant habitat of the wetland complex. Several amphibian species, including vernal pool dependent species, were observed within this part of the wetland complex. The complex as a whole functions as flood and storm control, as well as aiding in groundwater recharge.

#### *Wetland U*

Wetland U is a 0.05-acre (2,200 square foot) vernal pool located near the western corner of the property. As this wetland is a true vernal pool, there is no outlet. The wetland's limited acreage and absence of a hydrological connection to Waters of the United States suggest that this wetland is not regulated by either the ACOE or DEC.

Vegetation within the wetland is limited to a few sedge species along the edge of the pool. Soils in the area consist of Aden silt loam. Hydrology is provided by overland flow.

Wetland U provides habitat for the wood frog. The wetland likely serves as a water source for other woodland species.

#### *Wetland V*

Wetland V is an isolated, depressional wetland located along the southern property line. This wetland consists of 1.05 acres of shallow emergent marsh community. The wetland's limited acreage and absence of a hydrological connection to Waters of the United States suggest that this wetland is not regulated by either the ACOE or DEC.

Vegetation within Wetland V is dominated by highbush blueberry and also includes leatherleaf (*Chamaedaphne calyculata*), larch, and sphagnum moss, and few red maple. Soils in the area are poorly drained Neversink and Alden loam. Hydrology is provided by overland flow.

Wetland V functions as habitat for mammals like eastern cottontail rabbits and small rodents. The wetland doesn't appear to hold water long enough to support vernal pool breeding amphibians, but eastern spotted newts and American toads may utilize the sphagnum moss. Avian species likely to utilize the habitat include song birds foraging for berries.

#### *Wetland W*

Wetland W is a 2.65 acre shrub swamp located on the north side of St. Joseph's Road. The wetland drains to a culvert under St. Joseph's Road, but the water dissipates once out of the culvert.

Vegetation within the wetland is dominated by red maple, swamp tupelo, highbush blueberry, soft rush, and sphagnum moss. Soils in the wetland consist of the somewhat poorly drained Scriba loam. Hydrology is provided by overland flow and seasonally high groundwater.

The shrub swamp community in Wetland W functions as habitat for small mammals like eastern cottontail rabbits. The wetland doesn't appear to hold water long enough to expect mole salamanders and other amphibians, but eastern spotted newts and American toads may utilize the sphagnum moss mat. Avian species utilizing the habitat include song birds foraging for berries.

An extension of Wetland W is mapped at the south end of the culvert under St. Joseph's Road as an ephemeral braided stream (as identified by ACOE in August 2009), although there are no visible signs of an actual stream channel since this area is strewn with rocks and boulders that obscure the ground surface.

#### *Wetland X*

Wetland X is an isolated 1.90 acre red maple-hardwood swamp located to the northeast of Lost Lake. The wetland's limited acreage and absence of a hydrological connection to Waters of the United States suggest that this wetland is not regulated by either the ACOE or DEC.

Vegetation found in the wetland includes red maple, green ash, highbush blueberry, maleberry, New York fern, and sphagnum moss. Soils in the area are classified as Neversink loam, found on the local hydric soils list. Hydrologic indicators included drainage patterns throughout the wetland, water-stained leaves and a positive FAC-Neutral test. Hydrology is provided by overland flow and seasonally high groundwater.

Wetland X provides wildlife habitat primarily for small mammals, birds, and limited amphibian species. Since the wetland has no outlet, it likely aids in groundwater recharge as well.

#### *Wetland YJ*

Wetland YJ is a 4.49-acre hemlock-hardwood swamp located north of St. Joseph's Road. A seasonal stream approximately three feet wide develops within the wetland and connects to Wetland ABD by a culvert crossing under St. Joseph's Road.

Vegetation found in the wetland includes hemlock, red maple, highbush blueberry, sphagnum moss, and sensitive fern. Soils in the area consist of the very poorly drained Neversink loam. Hydrology is provided by overland flow and spring seeps.

Wetland YJ functions as stormwater control and wildlife habitat. Wildlife expected to utilize this include spring peeper, green frog, eastern ribbon snake, and garter snake. Avian species that utilize the wetland include woodpecker species, wood thrush, and ovenbird. With the wetland located adjacent to St. Joseph's Road, it likely also provides filtering of pollutants that accumulate on the road.

#### *Wetland Z-A*

Wetland Z-A is a 1.10 acre red maple-hardwood swamp found along the old train tracks on the eastern property line in the northeast corner of the property.

Vegetation found in Wetland Z-A includes red maple, swamp tupelo, highbush blueberry, steeple bush, sensitive fern, cinnamon fern (*Osmunda cinnamomea*), and sphagnum moss. Hydric soils consist of Neversink loam. Hydrology in the wetland is provided by overland flow that is dammed up by a railroad bed along the eastern wetland boundary.

This wetland provides wildlife habitat for species of birds and mammals that use the blueberries as a food source. Birds observed using this wetland include veery, blue jay, cedar waxwing, and ovenbird. Mammals noted in the wetland include black bear, gray squirrel, and cottontail rabbit.

#### *Wetland Z-B*

Wetland Z-B is an isolated 0.50 acre red maple-hardwood swamp west of Lost Lake. While Wetland Z-B is in close proximity to Wetlands W and EE, there are no hydrologic or vegetative connections among the three wetlands. The wetland's limited acreage and absence of a hydrological connection to Waters of the United States suggest that this wetland is not regulated by either the ACOE or DEC.

Vegetation found within Wetland Z-B includes red maple, highbush blueberry, jewelweed (*Impatiens capensis*), blueflag iris, sedge species, and sphagnum moss. Soils in the wetland consist of Neversink loam. Hydrology is provided by overland flow and seasonally high groundwater. At the time of the delineation, pools of water in excess of three inches deep were found throughout the wetland.

Wildlife habitat is the primary function of Wetland Z-B. Wildlife observed include herpetile species such as spring peeper, green frog, and garter snake. Avian species that utilize the wetland include woodpeckers, wood thrush, and ovenbird.

#### *Wetland AA*

Wetland AA is a 2.18 acre hemlock-hardwood swamp found in the southwest corner of the site. It appears that this wetland is isolated from other wetlands; no direct surface hydrological connection was observed. The wetland's limited acreage and absence of a hydrological connection to Waters of the United States suggest that this wetland is not regulated by either the ACOE or DEC.

Vegetation found within wetland AA includes red maple, swamp tupelo, eastern hemlock, highbush blueberry, and sphagnum moss. Soils found in the wetland consist of the very poorly drained Aden silt loam, a locally listed hydric soil. Hydrology in the wetland is provided by overland flow and seasonally high groundwater. At the time of the delineation, four or more inches of water pooled in the wetland.

Wetland AA provides wildlife habitat for species of birds and mammals that use the blueberries as a food source. Birds noted using this wetland include veery, blue jay, and ovenbird. Mammals include black bear, gray squirrel, and cottontail rabbit.

#### *Wetland BB*

Wetland BB is an isolated 2.18 acre hemlock-northern hardwood swamp located south of Wetland ABD (NYSDEC HA-40). Wetland BB is approximately 150 feet up hill from Wetland ABD, but there are no hydrologic or vegetative connections between the two wetlands.

Vegetation found within wetland BB consists of red maple, eastern hemlock, black spruce (*Picea mariana*), highbush blueberry, tussock sedge, and sphagnum moss. Poorly drained Neversink and Alden silt loam soils are found in this wetland. Hydrology is provided by overland flow and seasonally high groundwater.

Wetland BB functions as wildlife habitat for a number of species. Avian species observed in the wetland include ruffed grouse, scarlet tanager, and common yellowthroat. Mammals using the wetland include cottontail rabbits and other small rodents. The wetland doesn't appear to hold water long enough to support mole salamanders and other vernal pool breeding amphibians, but eastern spotted newts and American toads may utilize the sphagnum moss mat.

#### *Wetland DD*

Wetland DD is an isolated 0.29 acre vernal pool wetland located in the southwestern portion of the project site. The wetland's limited acreage and absence of a hydrological connection to Waters of the United States suggest that this wetland is not regulated by either the ACOE or DEC.

Limited vegetation found within Wetland DD consisted of red maple, yellow birch, and few sedge species. This wetland is located in Wellsboro and Wurtsboro soils that contain hydric inclusions of poorly drained Scriba loam. Hydrology is provided by overland flow.

This wetland functions as limited wildlife habitat. Ecological surveys showed Wetland DD provides breeding habitat to wood frog and spring peeper.

#### *Wetland EE*

Wetland EE is a 1.70 acre red maple-hardwood swamp with a small shallow emergent marsh portion, located west of Lost Lake. While wetland EE is in close proximity to Wetlands W and Z-B, there are no hydrologic or vegetative connections among the three wetlands.

Vegetation found within wetland EE includes red maple, swamp tupelo, swamp white oak (*Quercus bicolor*), highbush blueberry, maleberry, sedge and carex species, and sphagnum moss. Soils in the wetland are comprised of Neversink Loam. Hydrology is provided by overland flow.

The wetland appears to function as important habitat for a variety of wildlife. The shallow emergent marsh community contains vernal pool habitat for both wood frog and spotted salamander. Other wildlife noted in the area include black bear, deer, and numerous bird species.

#### *Wetland TT-A*

Wetland TT-A is an isolated 0.11 acre vernal pool wetland located in the southwestern portion of the parcel. The wetland's limited acreage and absence of a hydrological connection to Waters of the United States suggest that this wetland is not regulated by either the ACOE or DEC.

Limited vegetation found within wetland TT-A consists of red maple, yellow birch, sphagnum moss and few sedge species. This wetland is located in Wellsboro and Wurtsboro soils that contain hydric inclusions of poorly drained Scriba loam. Hydrology is provided by overland flow and seasonally high groundwater.

Wetland TT-A was found to host breeding wood frog and spotted salamander. Other species of wildlife likely use the wetland as a water source.

### *Wetland TT-B*

Much like wetland TT-A, this wetland is an isolated 0.13 acre vernal pool. It is located nearby to Wetland TT-A. As with wetland TT-A, wetland TT-B's limited acreage and absence of a hydrological connection to Waters of the United States suggest that this wetland is not regulated by either the ACOE or DEC.

Vegetation within the wetland includes red maple, hemlock, sphagnum moss, and sensitive fern. Wetland TT-B is located in a section of Wellsboro and Wurtsboro soils that contain hydric inclusions of Scriba loam, a poorly drained soil. Hydrology for the wetland is provided by seasonally high groundwater and overland flow.

Wetland TT-B primarily functions as a source of water for wildlife. No vernal pool dependent species were observed within this wetland.

### Relationship of On-site Wetlands to the Neversink River Unique Area

The connectivity of wetlands on the Lost Lake Resort project site to those found within the Neversink River Unique Area is limited to portions of NYSDEC wetland HA-41 along the east property line. Parts of NYSDEC wetland HA-41 that are located within the Unique Area are generally upstream of those found on the project site. The outlet stream of Lost Lake, which contains the wetland G complex, and wetland C drain to off-site portions of NYSDEC HA-41.

Further downstream, NYSDEC wetland HA-41 connects with NYSDEC HA-40 (wetland ABD) on the project site. As noted, the wetlands on the project site generally drain to the Bush Kill, which empties southeast into the Neversink River some 4.5 miles downstream of the project site. The intersection of the Bush Kill and Neversink River occurs south of the Neversink River Unique Area.

Some species of wildlife, in particular birds and large mammals, may utilize wetlands both on the project site and those found within the Neversink River Unique Area.

### Existing Drainage Patterns to On-site Wetlands

Existing drainage patterns that contribute to on-site wetlands can be seen in Figure 3.5-1, Pre-development Drainage Area Map. Refer to Chapter 3.5 Water Resources for discussion of the site's watershed.

## **3.2.2 Potential Impacts**

### Impacts to NYSDEC Regulated Wetlands

Impacts to NYSDEC wetland HA-40 (Wetland ABD) will occur as a result of two road crossings. These road crossings will cause a total of approximately 0.44 acres (19,000 square feet) of disturbance to the Class II State-regulated wetland thus requiring a NYS wetlands permit, but qualifying for coverage under the Federal General Permit. The crossings are located at the narrowest sections of the wetland thereby minimizing disturbance, as shown in the Preliminary Design Plans in Phase 1 and Phase 6. Details for these two crossings can be seen in Figures 3.2-4 and 3.2-5, which show the extent of grading and filling in the wetland and adjacent area. Each crossing is planned to be a bottomless culvert that will span the stream channel.

Impacts to the wetland related to these crossings include the removal of wetland vegetation and soils. The removal of less than one percent of vegetation within the wetland is not anticipated to be a significant impact. The two wetland crossings will occur in different construction phases, thereby limiting the potential for indirect wetland impacts during their construction.

Permits required for this action are described later in this chapter.

#### Impacts to ACOE Regulated Wetlands

Impacts to ACOE regulated wetlands will occur as a result of two road crossings of Wetland ABD, as described previously. Less than 0.5 acre of federally regulated wetlands will be impacted by these crossings, thereby qualifying for a Nationwide Permit. Nationwide Permit #29 for residential developments allows for up to 0.5 acre of disturbance to federally regulated waters in one project.

#### Impacts to Wetlands and Wetland Buffer by Phase

As stated previously, two proposed road crossings at the narrowest sections of wetland ABD will constitute the only wetland and wetland buffer impacts. These separate wetland crossings are proposed to be constructed at different times in construction Phases 1 and 6. Disturbance associated with the two road crossings will require permits from both the ACOE and DEC, as discussed below, and will be secured for the whole and complete project.

#### Permit Requirements for Regulated Activities within Wetlands

##### *New York State Department of Environmental Conservation Wetlands*

Under the Freshwater Wetlands Act, the NYSDEC regulates activities in freshwater wetlands and in their adjacent areas (100-foot buffer). The NYSDEC regulates such activities to prevent, or at least to minimize, impairment of wetland functions.

Almost any activity which would adversely impact the natural values of the wetlands or their adjacent areas is regulated. Some activities requiring a permit include:

- Construction of buildings, roadways, septic systems, bulkheads, dikes, or dams;
- Placement of fill, excavation, or grading;
- Modification, expansion, or extensive restoration of existing structures;
- Drainage, except for agriculture;
- Application of pesticides in wetlands.

The two road crossings of NYSDEC wetland HA-40 (Wetland ABD) will disturb 0.44 acres of State-regulated wetland and approximately two acres of adjacent area and will therefore require an Article 24 Freshwater Wetlands Permit.

##### *New York State Department of Environmental Conservation Watercourses*

All waters regulated by the State of New York are provided a class and standard designation based on existing or expected best usage of each water or waterway segment. Certain human activities can adversely affect, even destroy the delicate ecological balance of these regulated water resources, impairing the uses of these waters. The policy of New York State; set forth in

Title 5 of Article 15 of the Environmental Conservation Law (ECL), is to preserve and protect these lakes, rivers, streams and ponds.

Lost Lake and six streams on the project site are regulated by the NYSDEC. Lost Lake has been designated as a Class B waterbody, which indicates the lake's best usage is swimming and other contact recreation, but not a viable source for drinking water. Waters with classifications A, B, and C may also have a standard of (T), indicating that it may support a trout population, or (TS), indicating that it may support trout spawning (TS). Special requirements apply to sustain these waters that support these valuable and sensitive fisheries resources. The Bush Kill is designated a Class B(T) stream. The other five streams on the project site are currently classified as Class B, but based on stream surveys performed by NYSDEC and TMA staff in September 2009, two of these streams may be reclassified as trout spawning (TS) waters. See Figure 3.4-4 for the location of the stream surveys.

An Article 15 Protection Of Waters Permit is required for disturbing the bed or banks of a water resource with a classification and standard of C(T) or higher. The "banks" of a water resource is defined as the land area immediately adjacent to and which slopes toward the bed of a watercourse and which is necessary to maintain the integrity of the watercourse.

Disturbances to the bank of the resource are regulated whether the action is temporary or permanent in nature. Some examples of activities requiring this permit are:

- placement of structures in or across a stream (i.e., bridges, culverts or pipelines);
- fill placement for bank stabilization or to isolate a work area (i.e., rip-rap or coffer dams);
- excavations for gravel removal or as part of a construction activity.

An Article 15 Protection of Waters Permit will be required for the aforementioned road crossings of NYSDEC wetland HA-40 (Wetland ABD) since it contains a Class B stream and also for additional crossings of regulated streams on the project site.

*Federal Wetlands / U.S. Army Corps of Engineers (ACOE)*

In 1972, Section 404 of the Clean Water Act established a program to regulate the discharge of dredged or fill material into waters of the United States. The Rivers and Harbors Act of 1899 defined navigable waters of the United States as "those waters that are subject to the ebb and flow of the tides and/or are presently used, or have been used in the past, or maybe susceptible to use to transport interstate or foreign commerce." The Clean Water Act built on this definition and defined waters of the United States to include tributaries to navigable waters, interstate wetlands, wetlands which could affect interstate or foreign commerce, and wetlands adjacent to other waters of the United States.

The program is jointly administered by the ACOE and the Environmental Protection Agency (EPA). The ACOE is responsible for the day-to-day administration and permit review and the EPA provides program oversight. The fundamental rationale of the program is that no discharge of dredged or fill material should be permitted if there is a practicable alternative that will be less damaging to our aquatic resources or if significant degradation will occur to the nation's waters. Permit review and issuance follows a sequence process that encourages avoidance of impacts, followed by minimizing impacts and, finally, requiring mitigation for unavoidable impacts to the aquatic environment. This sequence is described in the guidelines at Section 404(b)(1) of the Clean Water Act.



To construct the two road crossings, coverage under the Nationwide Permit will be required from the ACOE for disturbances related to the placement of fill within waters of the United States. The placement of concrete and/or culverts (unless open-bottom) associated with the crossings will be considered filling of federally regulated waters.

In addition, a 401 Water Quality Certification must be obtained from the NYSDEC. Issuance of a certification means that NYSDEC anticipates that the proposed action will comply with state water quality standards and other aquatic resource protection requirements under the NYSDEC's authority. The 401 Certification can cover both the construction and operation of the proposed action.

Current design plans utilize open-bottom, low profile arch culverts, as manufactured by Longspan, to span the regulated watercourse within the wetland. The use of open-bottom culverts minimizes disturbance of wetland areas to approximately 0.44 acres, therefore these disturbances would be provided coverage under an ACOE Nationwide Permit and eliminating the need for a Section 404 Clean Water Act Individual Permit.

#### Potential Indirect Impacts to Wetlands and Wetland Buffers

##### *Sedimentation During Construction*

Without the appropriate mitigation which has been incorporated into the Proposed Action, the Project could have the potential to increase the volume and velocity of stormwater through land clearing and conversion of existing land forms into impervious surfaces and landscaped areas. If not controlled, these activities could lead to accelerated erosion and sedimentation both during and after construction. Sedimentation of the receiving wetlands, watercourse, and off-site water bodies could result in decreased light penetration and nutrient enrichment, increased turbidity, increased transport of pollutants that are adsorbed to the sediment particles, shielding of pathogens from disinfection, and clogging of gills and filters in aquatic organisms. In order to reduce stormwater induced impacts from the project, the Applicant has designed, and will construct, adequate erosion and sediment control practices to mitigate these potential impacts. Accordingly, an Erosion and Sediment Control Plan, that includes construction sequencing, has been included in the Stormwater Pollution Prevention Plan (SWPPP) prepared for the project and located in Appendix G herein.

The purpose of the Erosion and Sediment Control Plan is to minimize the erosion of disturbed soil and to prevent the migration of sediment into surface water resources and off site during construction, and until the site has received final stabilization. The Erosion and Sediment Control Plan included with the SWPPP contains temporary and permanent erosion and sediment control practices, construction notes, soil erosion and sediment control notes, specifications for stabilization materials, a sequence of construction and phasing plan, and associated construction details and notes designed mitigate potential impacts associated with erosion and sedimentation.

The most effective means to mitigate potential impacts associated with sedimentation is to prevent the erosion that results in the sedimentation. Accordingly, a sequence of construction and phasing plan is included in the project's erosion and sedimentation control plan. Implementation of the plan, which will serve as the primary means of avoiding sedimentation of water resources during construction of the proposed action, will minimize the potential for soil erosion by limiting, and rapidly stabilizing, all areas disturbed during construction. By reducing

the area of disturbed soil, the potential for erosion, and subsequent sedimentation that must be contained, will be dramatically reduced. This preventative approach will effectively control erosion and sedimentation ensuring that potential impacts on down-gradient receiving surface water resources, including the Bush Kill and Neversink River, are fully mitigated.

As specified in the SWPPP, soil erosion and sedimentation control measures, such as silt fencing, will be installed following a pre-construction conference with appropriate agency staff, and prior to any construction activities. All soil erosion and sediment practices have been designed, and will be implemented, in accordance with NYSDEC specifications set forth in the *Standards and Specifications for Erosion and Sediment Control*. In addition, the Applicant will engage a Certified Professional in Stormwater Quality/Erosion and Sediment Control, or equally qualified professional, to oversee implementation of all elements of the SWPPP, including its site specific Erosion and Sediment Control Plan component.

Prior to the commencement of any phase of this Project that will result in the disturbance of soils, erosion and sediment control measures will be placed in accordance with the specifications on the construction drawings and in the SWPPP. These measures will be maintained in effective condition and left in place until permanent vegetative cover is established.

#### *Pesticides and Fertilizers*

Construction of the proposed action will convert areas of forested land to maintained lawns, landscaped areas, and golf course. Lawns, landscaped areas, and especially golf courses are often fertilized and treated with commercial pesticides to establish vigorous vegetation growth and maintain vegetative health. If applied improperly or at too high of a rate, pesticides and fertilizers can have adverse effects outside the range of their intended application. Project documents have been developed to minimize or avoid any significant adverse effects related to such use and are described below.

#### *Potential for Thermal Impacts*

Thermal impacts on receiving waters, through the elimination of vegetation shade trees along stream banks and addition of impervious surfaces in upstream drainage areas, are an important concern in areas where there is a known natural population, or annual stocking, of cold water fish species (i.e., trout). Increases to average annual water temperature will constrain a cold water fishery. The project design in accordance with NY State standards is intended minimize or avoid any significant adverse effects related to thermal impacts from this project.

#### Potential Impacts to Wetland Function

##### *Short-term Impacts*

The movement of earth on a large scale can result in the potential for impacts to wetland systems if certain measures are not considered. As noted previously, soil movement and erosion can result in siltation and sedimentation of wetland systems, altering hydrology, substrates for vegetation and smothering of existing plants.

The proposed action includes a comprehensive sedimentation and erosion control plan to mitigate these potential impacts. Work will be completed based on a defined phasing and sequencing plan. All work within close proximity to sensitive areas, including wetlands and

adjacent areas, will first be staked in the field and erosion measures in place before earth movement will begin. See Section 3.5, Surface Water Resources, for a detailed discussion of these measures, which are provided as part of the SWPPP.

Short-term impacts to wetlands that function as wildlife habitat could occur as construction in areas near wetlands will disturb wildlife and their movement patterns. Since over 99 percent of wetlands are proposed to be preserved, this impact is expected to be short-term as wildlife could move back into the area after construction is completed.

Wetlands that function as points of groundwater recharge are not expected to be impacted at any point of the development process.

Short-term wetland and adjacent area impacts associated with construction of the two road crossings will be associated with direct removal of vegetation, grading, and placement of fill within the wetland and buffer areas. These impacts are anticipated to be minimal and will be fully mitigated as approximately 1.01 acres of wetlands will be created by the proposed action.

#### *Long-term Impacts*

The protection of wetlands during construction is anticipated to protect wetland functionality in the long-term as well. Since direct impacts to wetlands and adjacent area are limited to two road crossings and proposed mitigation measures are proposed to prevent indirect impacts, long-term wetland functionality is not anticipated to be negatively affected as a result of the proposed action.

Long-term impacts associated with the two road crossings are expected to be minimal. Loss of less than 0.1 percent of wetland habitat and adjacent area on the project site will result from the permanent road crossings. Mitigation for the loss of wetland and adjacent area will compensate for this loss as approximately 1.01 acres of wetlands will be created by the proposed action.

The development of upland habitat that is critical to adult vernal pool breeding amphibians will negatively impact populations of these species in the long term. This impact is discussed in further detail in Chapter 3.4 Wildlife Ecology. While development within these areas will impact the wildlife habitat provided by wetlands containing vernal pools, the impact is not anticipated to be significant since the species will still exist, albeit in smaller populations. Wildlife movement patterns into and out of wetlands could be altered, but will still occur as approximately half of the project site will be preserved as open space. This open space includes tracts of preserved woodland that will allow wildlife to move throughout the site.

#### Potential Impacts to Wetlands Associated with Stormwater Runoff

Potential indirect impacts that the proposed action will have on wetlands and receiving waters result from post development increases in pollutant loading in stormwater, post development flooding from increases in the volume of stormwater discharged, and bed and bank erosion in receiving watercourses resulting from increased stormwater discharge velocities.

Long-term changes to surface water quality can result once the development is complete and operational. Increased pollutants typically associated with residential land use activities, including stormwater runoff from paved areas, can be expected. Issues related to stormwater management and protection of sensitive site features during construction are addressed in Section 3.5, Water Resources.

### Potential Impacts to Neversink River Unique Area

Significant impacts to wetlands within the Neversink River Unique Area (UA) are not anticipated as a result of the proposed action. Connectivity of surface waters and wetlands between the site and the UA is limited to discrete locations: the outlet stream of Lost Lake including the wetland G complex, wetland C, and the Bush Kill where it passes through the site and includes input from the stream through wetland ABD. The reader is referred to DEIS Section 3.5 for detailed discussion of the potential direct effects on the water quality in the streams identified. Such effects will be minimized through a number of practical operating and monitoring measures that will be implemented as part of the project, both during construction and during the subsequent operation of the site facilities.

Potential impacts to the UA associated with activities on the project site are substantially limited to the indirect effects of changes to surface water (sedimentation during construction, pesticide and fertilizer loading, and thermal impacts). As indicated, the project incorporates protective measures to minimize such effects to levels that are not expected to result in any significant change to water resources in the UA. Likewise, activities on the project site that will be in closest proximity to the UA lands that abut the southeastern portion of the property (development of house lots on Road P are at least 100 feet from the UA, lots on Road Q at least 300 feet away, the sewer treatment plant at least 350 feet away, and lots on Road J at least 500 feet away) are therefore not expected to cause any significant impact to the UA lands. In fact, the Bushkill East Park area that is proposed to be offered for public access for passive recreational use will expand the functional area of the UA.

No direct impact to wetlands or wetland buffers found within the Neversink River Unique Area will result from the proposed development.

### **3.2.3 Mitigation Measures**

#### Creation and Enhancement of Wetlands

Wetlands will be created to mitigate for the loss of forested wetland on the project site. To mitigate for the loss of 0.44 acre of wetland, approximately 1.01 acres of wetland will be created to provide a 2:1 mitigation ratio as is typically required for forested wetlands. The location of the proposed mitigation area is shown in Figure 3.2-6. The mitigation area will add an additional 1.01 acres of forested wetland to a section of Wetland ABD that is currently forested wetland. The newly created acreage of forested wetland will compensate for the loss of vegetation and impairment of wetland function associated with disturbance of forested wetland for the two road crossings.

The creation of forested wetland within the same wetland complex as the area of disturbed forested wetland allows for an in-kind replacement of any wetland function lost due to the two road crossing disturbances. Wetland functions provided in the two areas of disturbance (including, to a small extent, storm and floodwater storage, pollutant removal, wildlife habitat, and contribution to the abundance and diversity of wetland flora and fauna) are not anticipated to be altered in any significant way as a result of the road crossings, however the creation of similar wetlands is proposed to compensate for the loss in wetland function.

The creation of stormwater basins, graded and planted in a manner that is consistent with the open marsh portions of the existing wetlands, also contributes to mitigating the potential impacts

on the entire wetland corridor. The stormwater basins will be planted with herbaceous wetland vegetation, and provide wetland habitat as well as control of stormwater quality and quantity. While no direct credit is taken for these basins as wetland creation areas, they will in fact perform several wetland functions and result in a net increase of wetland function and benefits on the site following construction.

#### Erosion and Sedimentation Control

A site specific erosion and sedimentation control plan was developed for Phase 1 construction to assist in preventing degradation of wetlands as a result of the proposed action. The erosion and sediment control plans for each phase will follow the format and content of the Phase 1 Preliminary Erosion and Sediment Control/Stormwater Management Plans that accompany this DEIS. As described in Chapter 3.5 Water Resources and depicted in the preliminary SWPPP, the erosion and sediment control plan includes elements that will prevent impacts to both on-site and off-site wetlands.

#### *Construction Phasing and Sequencing*

The project is designed to be developed in seven discrete construction phases. Each phase will have a site-specific erosion and sediment control plan that specifies the construction sequencing, with each phase including specific erosion controls and site stabilization measures. The erosion and sediment control plan incorporates both structural and operational provisions, including inspection and maintenance schedule for erosion control features.

In general, the following temporary measures will be employed to limit soil disturbance and prevent erosion on the project site:

- Stabilized construction entrances
- Construction sequencing
- Diversion swales and water bars
- Silt fence barriers
- Stone check dams
- Storm drain inlet protection
- Sediment basins

#### Stormwater Quantity and Quality

To mitigate potential impacts to wetland resources associated with stormwater runoff from the proposed action, the project specific SWPPP (Appendix G) was developed in accordance with all applicable NYSDEC regulations and guidelines, including those in the NYSDEC 2008 Stormwater Management Design Manual (the Manual). Specific attention has been paid to maintaining existing drainage divides, attenuating post-development increases in peak stormwater discharge rates and volumes, and using practices that are considered adequate in meeting NYSDEC stormwater quality treatment criteria. The proposed treatment methods include only natural processes, no chemical treatment of the runoff is proposed or permitted.

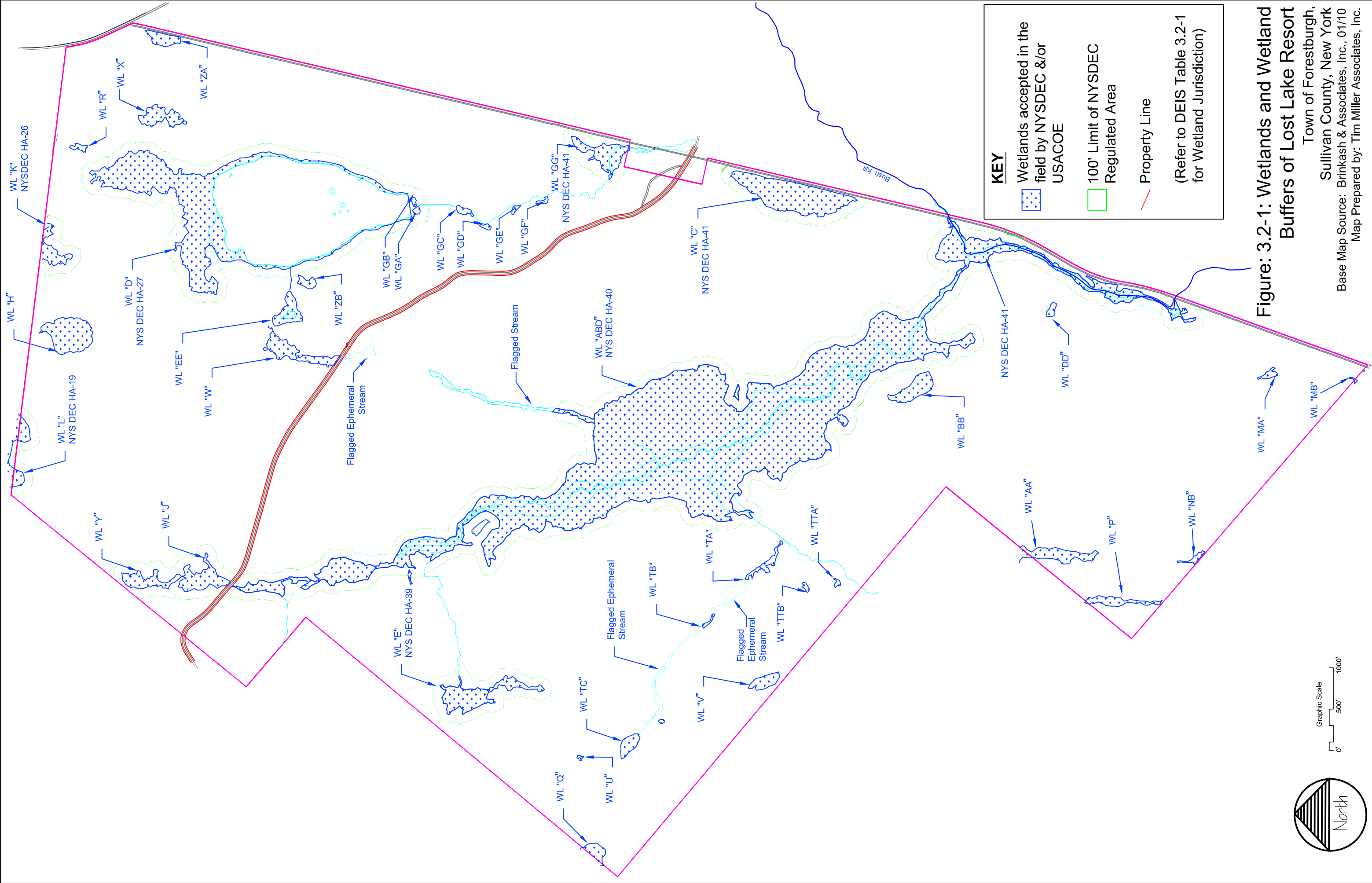
*Pesticides and Fertilizers*

To mitigate potential impacts to wetland resources associated with pesticides and fertilizers in stormwater runoff, applications of these materials will meet State regulations in 6 NYCRR Part 325. This regulation requires that the person who is applying the pesticides and fertilizers must be trained and certified. A water quality management plan has been developed for the golf course and other managed areas (Appendix L) to address the use of pesticides and fertilizers and a sampling plan has been created to monitor surface water on the site. With the establishment of standard operation methods in a formal management plan for the project, including requirements for correct chemical selection, use and application, contemporary pesticides will not migrate to any significant extent, and will break down shortly after application. Current pesticides are closely regulated by the Environmental Protection Agency (EPA) and the manufacturers are required to provide safe application rates, as well as storage and handling recommendations. The NY State requirements for pesticide applicator training and certification also minimizes potential impacts to water quality and the environment.




Similarly, the future use of herbicides and insecticides at the site in the future is not expected to result in adverse impacts to surface water quality due to the mitigation measures outlined. As indicated above, a proposed water quality monitoring program will ensure that surface water quality is not impacted by fertilizer and pesticide use. Based upon the anticipated proper application of pesticides and fertilizers by trained and certified professionals and the proposed stormwater treatment, no significant adverse impacts on wetlands, water bodies, or watercourses is expected.

*Mitigating Thermal Impacts*

Stormwater management techniques which will be used to limit the temperature rise of runoff water include decreasing retention time in the stormwater management features and limiting the exposure of stormwater to the sun to the runoff. Following construction stormwater discharged from the project site will be conveyed through sections of swales and underground piping prior to discharge to any receiving wetlands through a level spreader. This will allow time for dissipation of collected heat in the water. Further, the stormwater management basins will be located to minimize the potential for solar heating of detained stormwater, to the extent possible and are designed to limit detention times so that standing water has less of a chance to absorb surface heat.

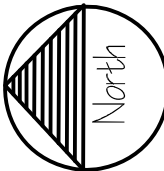


**KEY**

-  Wetlands accepted in the field by NYSDEC &/or USACOE
-  100' Limit of NYSDEC Regulated Area
-  Property Line

(Refer to DEIS Table 3.2-1 for Wetland Jurisdiction)

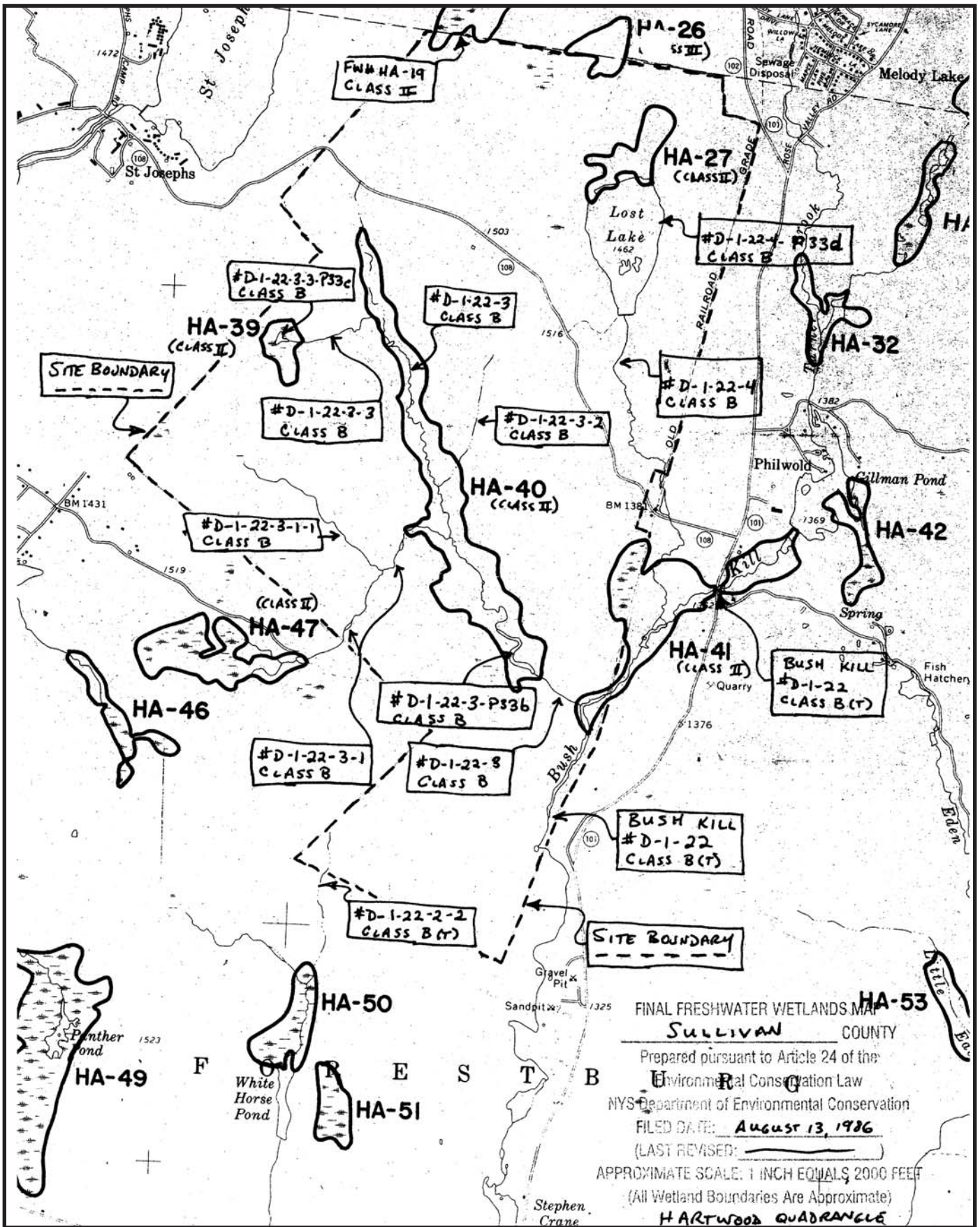
**Figure 3.2-1: Wetlands and Wetland Buffers of Lost Lake Resort**  
 Town of Forestburgh,  
 Sullivan County, New York  
 Base Map Source: Brinkash & Associates, Inc., 01/10  
 Map Prepared by: Tim Miller Associates, Inc.



North

Graphic Scale  
 0' 500' 1000'



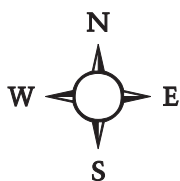
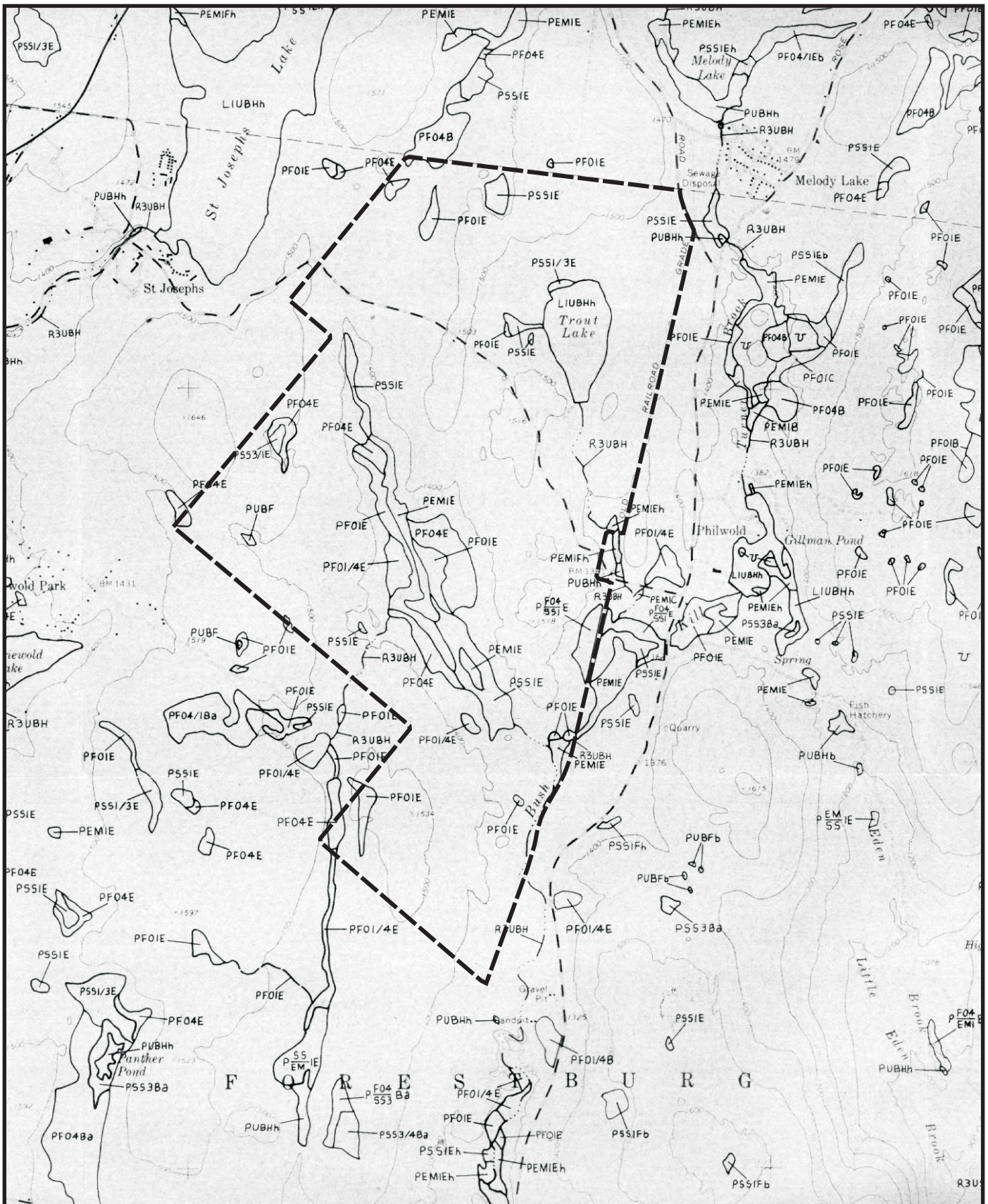


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Tim Miller Associates, Inc., 10 North Street, Cold Spring, New York 10516 (845) 265-4400 Fax (845) 265-4418

Figure 3.2-2: DEC Wetlands Map  
 Lost Lake Resort  
 Town of Forestburgh, Sullivan County, New York  
 Source: NYSDEC 9/17/07  
 Scale: 1" = 2,000'

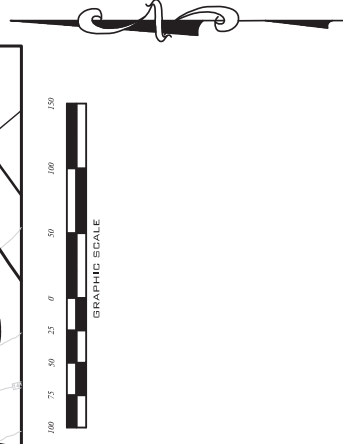
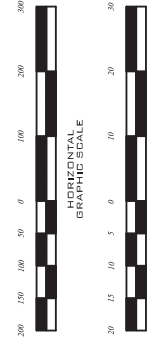
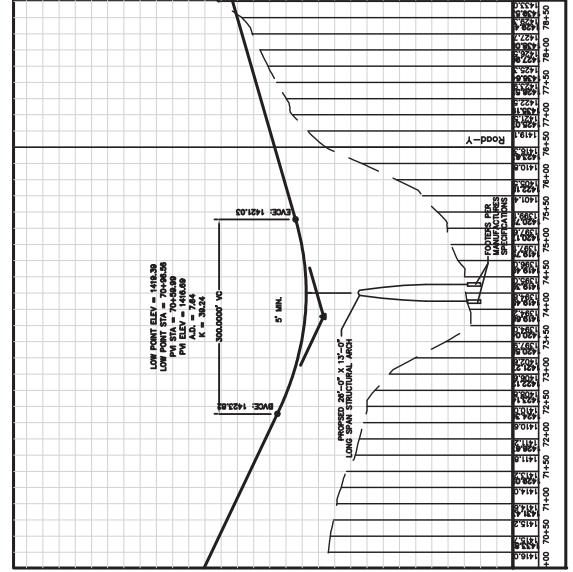
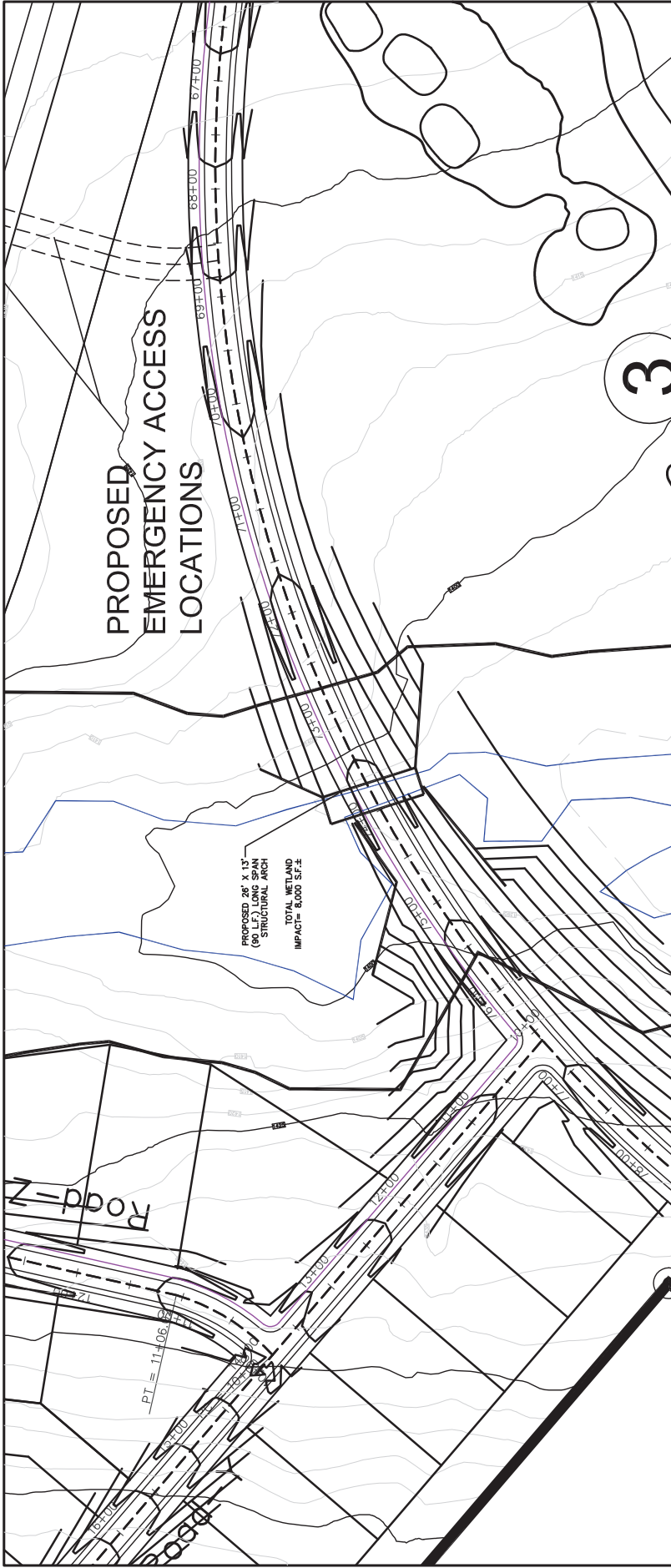




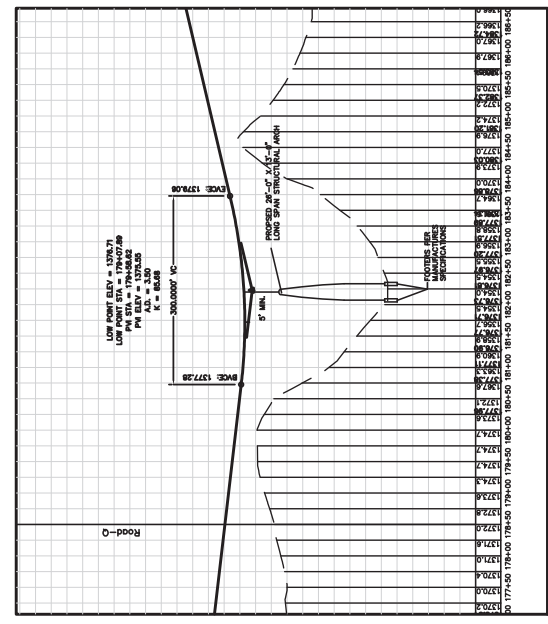
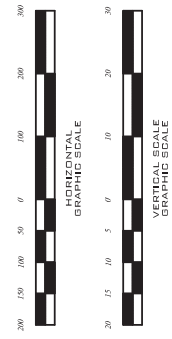
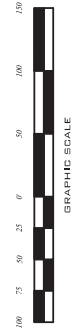
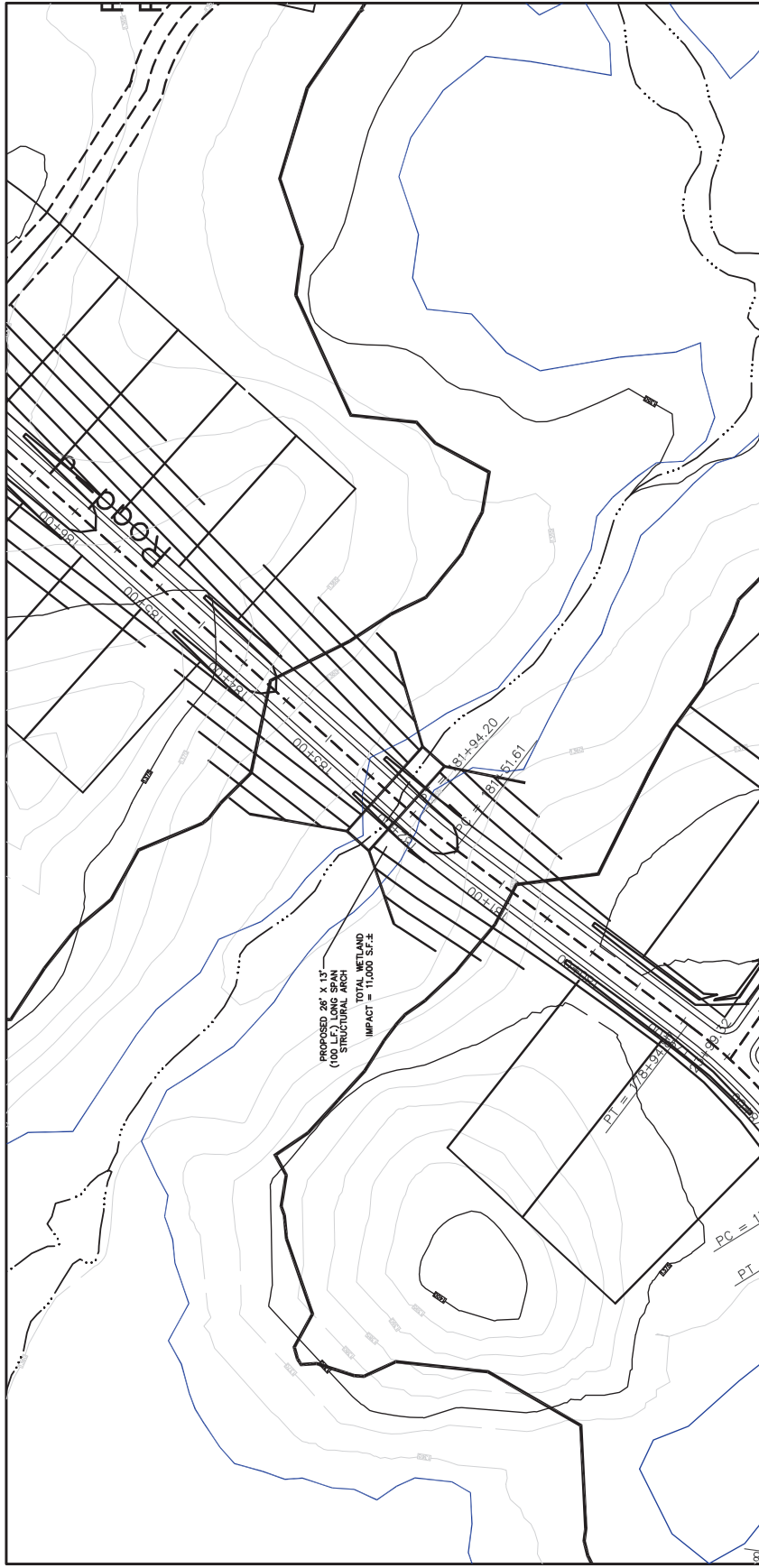
 Site Property Boundary

**Figure 3.2-3: National Wetlands Inventory Map**  
 Lost Lake Resort  
 Town of Forestburgh, Sullivan County, New York  
 Base Map: National Wetlands Inventory  
 Scale: 1" = 2,500



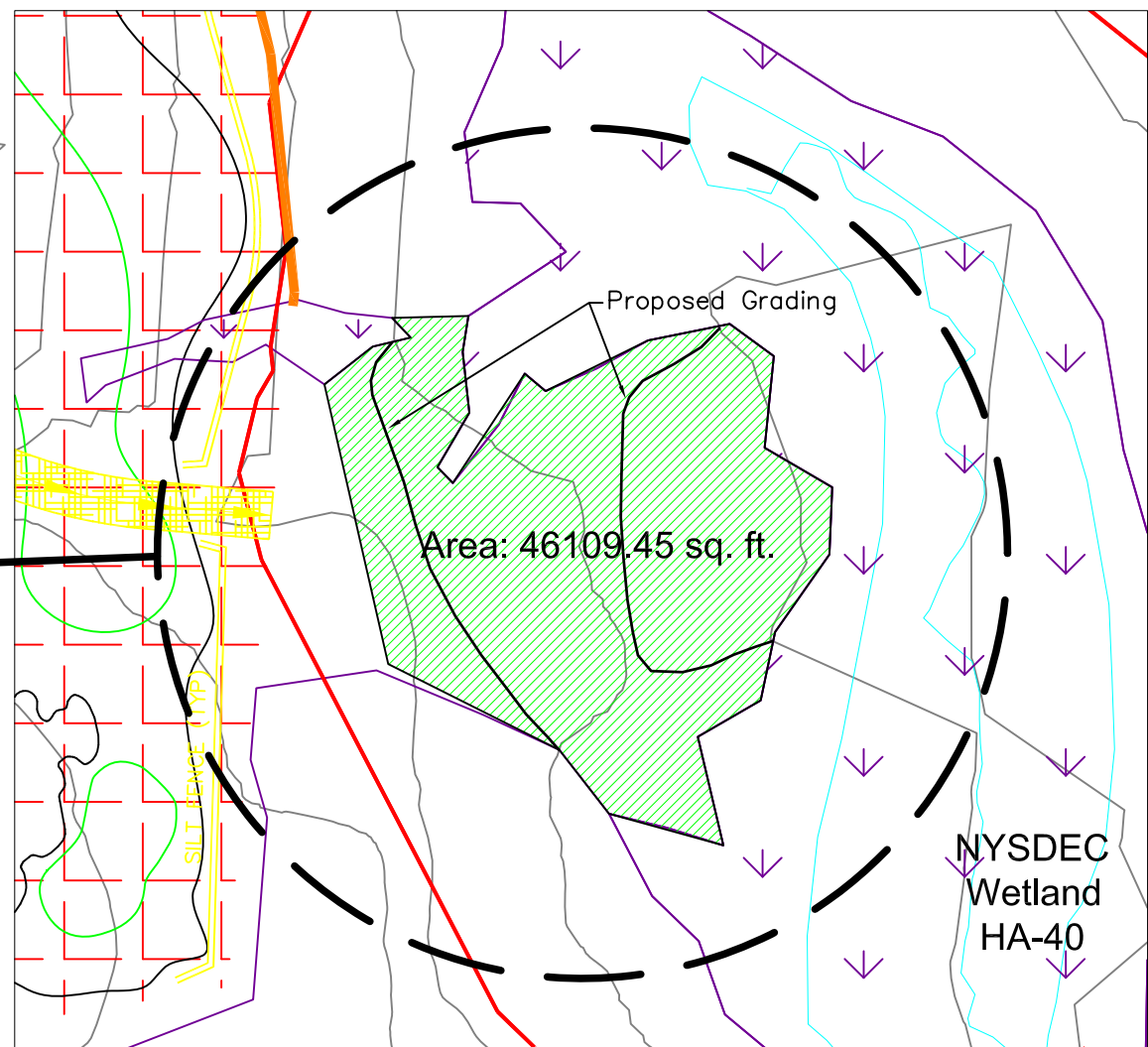
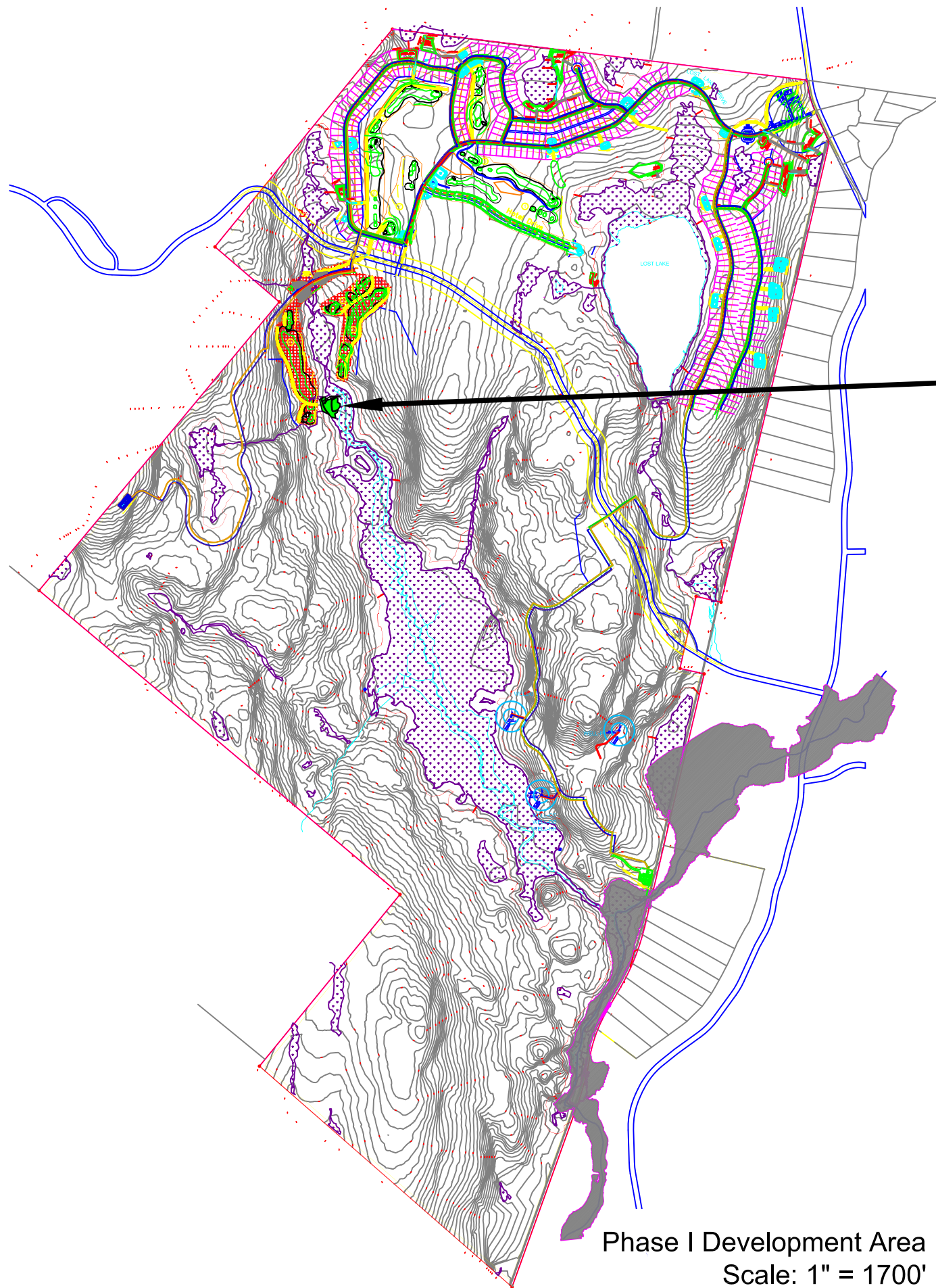


**Figure 3.2-4: Proposed Wetland Crossing, Phase 1**  
 Lost Lake Resort  
 Town of Forestburgh, Sullivan County, New York  
 Source: Brinkash & Associates, Inc., 01/07/10  
 Scale: As shown



**Figure 3.2-5: Proposed Wetland Crossing, Phase 6**  
 Lost Lake Resort  
 Town of Forestburgh, Sullivan County, New York  
 Source: Brinkash & Associates, Inc., 01/07/10  
 Scale: As shown





Proposed Wetland Mitigation Detail  
Scale: 1" = 100'



Figure 3.2-6: Proposed Wetland Mitigation Area

Lost Lake Resort

Town of Forestburgh, Sullivan County, New York

Base Map Source: Brinkash & Assoc., Inc., 1/10