

3.2 Wetlands and Watercourses

3.2.1 Introduction

The majority of the project site (239.9 acres) is located in the Muscoot River/Amawalk Reservoir drainage basin, a component of the New York City Croton Reservoir System. An additional 47.3 acres drains east toward US Route 6 and the Plum Brook/Muscoot Reservoir system. The Project is located approximately 2.2 miles to the north of the Amawalk Reservoir and is generally bordered by US Route 6 to the south and east and Baldwin Place Road to the north and west. Wetlands, as described below, were identified and delineated on the project site.

3.2.2 Existing Conditions

Wetlands

The project site consists of a mix of uses, land cover and habitat types including active and fallow farm fields, wetlands, watercourses, a manmade pond, forested uplands, three residences, several farm buildings and ancillary structures, a gas station and an old railroad bed. Following the review of available state, federal and town mapping, the Union Place site was surveyed by wetland specialists from Tim Miller Associates, Inc. in May, September and October of 2002, and again in June, September and October of 2008. New York State Department of Environmental Conservation (NYSDEC) Freshwater Wetlands and US Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps including the project site are shown on Figures 3.2-1 and 3.2-2 respectively.

During the site survey, two wetland areas were identified. One large wetland corridor system (Wetland A for this DEIS), which is identified on the New York State Freshwater Wetland Map of the area (Mohegan Lake Quadrangle) as Wetland ML-11, falls under the jurisdiction of the Town of Carmel, the US Army Corps of Engineers (USACE) and NYSDEC. As described below, this, the largest of the on-site wetlands, has variable cover types, and can be classified as palustrine emergent, scrub-shrub and forested with a palustrine unconsolidated bottom, permanently flooded, impounded pond. Wetland ML-11 is a recent addition to the State Freshwater Wetlands Map of the area; it was added to the State mapping on the amended Mohegan Lake Quadrangle for Putnam County filed on April 26, 2006. The Union Place project was initiated in 2002 and a significant amount of planning, including the negotiation for land, signing of contracts, and conceptual project layout and design, was completed in advance of this filing, addition to the State Freshwater Wetlands map. Wetland ML-11 represents approximately 14 percent of the overall site.

With the exception of the impounded pond and a small area in the northwest corner of the site, this wetland is not depicted on the NWI map containing the project site.

A smaller wetland (Wetland B), located in the northeast corner of the project site adjacent to US Route 6 south of the existing Mahopac Post Office, is regulated by the Town of Carmel and the USACE. Wetland B is 0.39 acres, or approximately 0.1 percent of the overall site.

Table 3.2-1 Union Place Wetlands			
Wetland ID	Area of Wetland On-site (acres)	Regulatory Authority	Area of Regulated Buffer/Adjacent Area (acres)
Wetland A (NYSDEC ML-11)	39.41	NYSDEC/USACE/(T)Carmel	41.2
Wetland B	0.39	USACE/(T)Carmel	0.8

The locations of the delineated wetlands are shown on Figure 3.2-3, On-site Water Resources and Wetlands. These wetlands, which total approximately 39.8 acres in size, ultimately drain via different paths to the Muscoot River to the west of the project site (Wetland A) or to the Plum Brook to the east of the site (Wetland B).

The Applicant's representatives walked the site with Mr. Brian Drumm, a representative of the NYSDEC, for confirmation of the wetland delineation of DEC ML-11. Mr. Drumm confirmed the wetland boundaries following site walks on August 26, September 5 and September 30, 2008. The delineated wetlands represented in the submitted site plans are consistent with that confirmation. The delineation as prepared in the field is generally consistent with the current DEC mapping, and the verified line is now the accepted boundary of ML-11.

A request for a Jurisdictional Determination (JD) for this site was filed with the USACE. This request included detailed data sheets, wetland descriptions and other required information. Additional information requested by the USACE prior to acceptance of the application as complete was provided to the agency by the Applicant's consultant (refer to Appendix B). The site walk for the confirmation of the federal wetland boundary was completed on September 15, 2010 with Mr. Brian Orzel of the ACOE Western Permits Section. The wetland boundary as flagged and approved by the DEC was also confirmed by Mr. Orzel. A final map showing the location of the wetlands, labeling according to ACOE protocols and the locations of various hydrologic connections is being prepared and will be sent to the Corps for final sign-off.

As the project site contains surface water resources under the Town's jurisdiction. A site visit by the Town of Carmel's Wetland Inspector to inspect and approve the wetland boundaries will also be scheduled.

Wetland A (Wetland ML-11)

State mapped Wetland ML-11 crosses the project site in a north-south direction. Approximately 39.4 acres of this wetland are on the Union Place property. Wetland ML-11 extends off of the site to the north and northeast. The wetland's watershed consists of approximately 260 acres of land to the east and west of the wetland corridor.

This NYSDEC, USACE and Town of Carmel regulated wetland includes palustrine forested wetlands, palustrine emergent marsh, and palustrine scrub-shrub wetlands. New York State and the Town of Carmel regulate a 100 foot adjacent area (buffer) surrounding this wetland; the USACE regulates any fill activities within the wetland but does not regulate a buffer around the resource. Wetland ML-11 is classified as a Class 1 wetland by the NYSDEC. A Class 1 wetland is defined by the DEC as having important known functional values, such as rare ecosystem types or endangered species, flood control properties or is contiguous to a public water supply reservoir. Other factors, such as the existence of a number of Class 2

characteristics, might also be part of a Class 1 designation. It is not known specifically why the DEC designated ML-11 as Class 1.

As noted above, Wetland ML-11 is not shown on the National Wetland Inventory maps prepared by the US Fish and Wildlife Service, and in fact was only recently added to the NYSDEC maps. However, based on the classification methods used, the largest parts of Wetland ML-11 would be classified as a PFO1e wetland palustrine forested wetland dominated by deciduous trees and seasonally saturated hydrologic regime). The areas around the pond at the south end of the wetland would be classified as PSS/EM1e palustrine scrub shrub wetland with deciduous vegetation and seasonal hydrology.

The palustrine forested wetland habitat portions of the site are best described as Red Maple-Hardwood Swamp, as documented in the “Ecological Communities of New York State”¹. This community is the most abundant wetland type throughout the wetland corridor. Vegetation within this community consists of red maple (*Acer rubrum*), American elm (*Ulmus americana*), spicebush (*Lindera benzoin*), tussock sedge (*Carex stricta*), skunk cabbage (*Symplocarpus foetidus*) and sensitive fern (*Onoclea sensibilis*).

The palustrine scrub-shrub wetlands are best described in the “Ecological Communities of New York State” as a Shrub Swamp community. This community exists in two sections of wetland; those bounded by flags labeled “E” and “N” in the northern section of the wetland corridor. The ‘N’ flags are located to the south of the watercourse that leaves the site to the northeast, between the watercourse and Baldwin Place Road. The shrub swamp in the “N” section of this wetland contains green ash (*Fraxinus pennsylvanica*), red-osier dogwood (*Cornus stolonifera*), arrow-wood (*Viburnum dentatum*), common reed (*Phragmites australis*), narrow-leaf cattail (*Typha angustifolia*), woolgrass (*Scirpus cyperinus*), sensitive fern and skunk cabbage. The ‘E’ flags are located on the slope to the east of the old train right of way in the north part of the site, and form the southern of the two “lobes” of wetland that are on the east side. The portion of the wetland flagged as area “E” consists of green ash, American sycamore (*Platanus occidentalis*), gray dogwood (*Cornus racemosa*), red-osier dogwood, marsh fern (*Thelypteris thelypteroides*), sensitive fern, woolgrass and foxtail sedge (*Carex alopecoidea*). Both of these areas have small pockets that are characteristic of a palustrine emergent marsh. The palustrine emergent marsh habitat would likely be classified as Shallow Emergent Marsh by the “Ecological Communities of New York State”.

Hydrology for the wetland is primarily provided by overland flow that is dammed up on either side of an abandoned railroad bed that runs through the wetland corridor. In some parts of the wetland, in particular areas E and N, shallow and seasonally high groundwater within the wetland boundary provide hydrology as well. At varying times during the course of the delineation and subsequent observations, the emergent habitat in the E and N areas was inundated by six inches or more of water. The forested wetland between the M and A flags was inundated by six inches or more of water as well.

Topographically, this long, flat wetland system has a high point approximately in the center of the site between the north and south property lines. From this point, which constitutes a very low gradient watershed divide, runoff flows to the north toward the outlet at Baldwin Place Road or south to US Route 6 at the southern corner of the project site. In the past, an earthen impoundment was constructed against the southern flow, which created an open water feature

¹ Edinger, G.J. et al (Eds.) 2002. Ecological Communities of New York State. Second Edition. NYSNHP, NYSDEC. Albany, NY. 136 pp.

approximately 1.5 acres in area. Approximately 33.9 acres of the wetland (86 percent) flow to the north and the culvert under Baldwin Place Road; 5.5 acres (14 percent) flow to the south and US Route 6.

The north flow collects on either side of the abandoned railroad bed, coming together at an existing farm road crossing. A culvert under this existing farm road defines the concentrates water flowing to the north and west from this point toward the culvert under Baldwin Place Road. Occasional flooding, due to high volume storms and clogging of the culvert, has resulted in the expansion of the wetland near the culvert.

Further north from this point, a separate drainage area collects surface runoff and shallow lateral flows which are conveyed under or across the railroad bed, flowing from east to west. These flows collect behind the existing NYSE&G Building on Baldwin Place Road. Obstructed by the fill that was placed for the construction of this facility, the wetland continues around the north side of the building, forming a channel that ultimately flows to the same culvert as the southern parts of Wetland ML-11. In this manner all of these wetlands are connected hydrologically and/or vegetatively. Figure 3.2-4 shows the existing drainage patterns as runoff flows through the site in the existing condition.

Soils within the wetland consist of the poorly drained Sun Loam (Sh), as well as some pockets of Ridgebury Loam (RdA and RdB) (refer to Figure 3.1.3, Soils Map). Soil borings throughout all sections of the wetland consistently showed low chroma colors (10YR 3/2) and most had sulfidic odor.

The wetland provides multiple functions including, but not limited to, stormwater storage, pollutant removal and wildlife habitat. Wetland ML-11 is located in a topographic saddle between two watersheds, and as such drains in two different directions. It therefore plays an important role in the capture and treatment of stormwater flows prior to discharge to downstream waters. The wetland filters these flows and attenuates nutrients such as phosphorus and nitrogen.

Due to its size and position in the landscape, Wetland ML-11 is also important in maintaining flows to downstream waters during dry conditions. Wetlands absorb and hold water, slowly releasing it to downstream systems. This can be important during dry seasons for the maintenance of base flow, and during high intensity storm events where stormwater is captured and stored for slow release, thereby mitigating potential flooding impacts.

Wetland ML-11 also provides habitat for many wildlife species. Reptile species such as box turtle, snapping turtle, garter snake and eastern ribbon snake are likely to live and forage in different parts of the wetland. The ecological communities that comprise the wetland provide quality habitat for a multitude of avian species that utilize the area for nesting and foraging. The open water habitat of the impounded pond supports ducks, flycatchers and swallows, as well as aquatic herpetiles like painted and snapping turtles. The wildlife habitat for the upland wooded portions of the site, which are generally younger forest (i.e., 25 to 50 years old) is somewhat limited by the amount of invasive plant material that has become established. This wetland is thus an important habitat on the site.

Area upland of the wetland consist of farm fields and forest. Vegetation found in the farm fields (dry meadow) includes Russian olive (*Elaeagnus angustifolia*), Canada goldenrod (*Salidago canadensis*), red clover (*Trifolium pratense*) and mugwort (*Artemisia ludoviciana*). The forested

upland contains red maple, sugar maple (*Acer saccharum*), Norway maple (*Acer platanoides*), Japanese barberry (*Berberis thunbergii*), multiflora rose (*Rosa multiflora*) and christmas fern (*Polystichum acrostichoides*). Many nonnative, invasive species are present throughout the vegetative stratum. Japanese barberry, multiflora rose, Russian olive, autumn olive and mugwort can be found almost anywhere on the project site, all of which are consistent with the site's history as agricultural land.

Further discussion of wildlife and vegetation species encountered in the site wetlands is provided in Section 3.3, Terrestrial and Aquatic Ecology.

Wetland B

Wetland B (0.39 acres) is located adjacent to US Route 6, south of the existing Mahopac Post Office in the northeast portion of the site. This wetland is regulated at the Federal and municipal level by the USACE and Town of Carmel respectively. Its small size precludes it from falling under the jurisdiction of the State of New York. As with Wetland A, the Town of Carmel regulates a 100 foot buffer around this wetland. The USACE, while it regulates fill activities within the wetland, does not regulate a buffer around the resource.

As with Wetland A, the palustrine forested portions of this wetland are best described by the "Ecological Communities of New York State" as Red Maple-Hardwood Swamp. A small, centrally located portion of this wetland would likely be classified by that publication as a Shallow Emergent Marsh. While Wetland B is not depicted on the National Wetland Inventory Map, it would best be classified under the federal classification system as a palustrine, forested, deciduous, seasonally flooded (PFO1C) wetland with an area of palustrine, emergent, persistent, seasonally flooded/saturated (PEM1E) wetland located in its center.

Vegetation identified within Wetland B includes red maple, red elm, skunk cabbage, horsetail (*Equisetum sp.*), sensitive fern, jewelweed (*Impatiens capensis*), arrow-wood, common reed, purple loosestrife (*Lythrum salicaria*), multiflora rose (*Rosa multiflora*) and poison ivy (*Toxicodendron radicans*).

Runoff that concentrates on the hillside on the east side of the Union Place site is conveyed as surface water flow to this relatively small depressional wetland on the west side of US Route 6. Runoff from the Post Office parking lot, from US Route 6 and from a portion of the impervious surfaces on the very north side of Lupi Court are also likely contributors of water to this wetland. Water flow within the wetland is generally from north to south running along US Route 6. From this point the water flows under US Route 6 via an existing culvert at the northeast corner of the out parcel that forms the southern boundary of the wetland. It is this depressional area that has developed into a Town and federally regulated wetland. It is unclear where these piped flows are conveyed from this point, but it appears most likely that they are carried to the wetland to the east of the existing residential area on the east side of US Route 6. This off-site wetland forms the headwaters of the Plum Brook.

Topographically this wetland lies at the base of an eastward facing slope where the water gathers in a trough between the toe of the slope and the western embankment of US Route 6.

The soils mapped by the USDA SCS Soil Survey of Westchester and Putnam Counties within Wetland B are Udorthent, wet substratum (Uc), a somewhat poorly drained and very poorly drained soil (refer to Figure 3.1.3, Soils Map).

Functions of this wetland are limited to stormwater storage and possibly pollutant removal. Its potential to provide wildlife habitat is severely limited by its relatively small size and location along US Route 6 between developed parcels of land. Potential pollutants to the wetland exist as road runoff from US Route 6, the Post Office site and impervious surfaces on the north end of Lupi Court.

In addition to the two flagged wetlands, there exists a small (2,100 square foot) manmade livestock watering hole on the south end of the project site. Water is pumped into this feature to maintain adequate volume for use by the existing owner's livestock. As there is no natural hydrology, vegetation or soils, this watering hole does not meet the local, state or federal definition of a protected resource.

Moreover, the Town of Carmel Wetland code defines wetlands as all lands and waters of the Town of Carmel, naturally or historically wet, which exceed 5,000 square feet in total area and exempts agricultural activities, including grazing and watering livestock, as a regulated activity. Accordingly, the 2,100 square foot livestock watering hole is not regulated by the Town of Carmel.

Watercourses

As described above, the project site is generally bisected by the Wetland A corridor oriented in a northeast/southwest direction. The site contains three unnamed streams, all of which are contained within delineated wetlands areas. WC-1 flows from the pond on-site under Baldwin Place Road and into Lake Baldwin off-site. WC-2, located in the northwest corner of the site, flows under Baldwin Place and Stillwater Roads off-site. WC-3 drains the northern flow of the wetland toward Baldwin Place Road. All three of these watercourses flow to waterbodies regulated by the New York City Department of Environmental Protection (NYCDEP). Construction of impervious surfaces, siting of a septic system and certain clearing and grading activities within limiting distances of regulated watercourses as defined by the NYCDEP would require review and approval of that agency. An initial site walk with DEP staff was conducted on September 17, 2010, where the likely locations of regulated watercourses were identified. Mapping is being prepared based on this site walk for final validation by the DEP.

WC-1, the outlet from the on-site impounded pond, is a seasonal stream that flows south off the property for approximately 1,550 feet before joining an unnamed tributary of Lake Baldwin. The stream flows through a culvert under Baldwin Place Road approximately 900 feet after the pond's outlet. The tributary travels approximately 0.85 river miles, 0.70 aerial miles to the Muscoot River. The tributary substrate composition is primarily sand and gravel. WC-1 functions to convey concentrated flows from the southern portion of the site and the outflow of the existing pond to the culvert under Route 6. It also functions to provide a substrate for aquatic vertebrates and macroinvertebrates, such as salamanders, insect larvae and crayfish.

WC-2 is an unnamed perennial tributary to an unnamed stream that flows through NYSDEC Wetland ML-10 west of the project site. This stream begins as an outlet of a wetland north of the project site and flows roughly 6,200 feet, crossing under Baldwin Place Road twice before reaching the project site. This watercourse is identified on NYSDEC mapping as H-31-p44-14-5, a Class C tributary of the Muscoot River. This unnamed stream flows on site for approximately 425 feet, enters the off-site NYSE&G parcel for 575 feet, then returns on site for 575 feet before crossing under Baldwin Place Road and ultimately ending in NYSDEC Wetland ML-10 some 2,000 feet to the west. NYSDEC Wetland ML-10 drains into the Muscoot River

south of Stillwater Road. The tributary travels approximately 0.85 river miles, 0.65 aerial miles to the Muscoot River, which eventually flows into the Amawalk Reservoir. The tributary substrate composition is primarily sand and gravel. WC-2 functions to convey concentrated flows from the northern portion of the site to the culvert under Baldwin Place Road. It also functions to provide a substrate for aquatic vertebrates and macroinvertebrates, such as salamanders, insect larvae and crayfish, as well as water for larger wildlife species that occupy the site.

WC-3 is a seasonal watercourse located within the wetland ML-11 corridor, which drains the northern half of the wetland. This intermittent drainage feature connects with WC-2 on the project site at the culvert under Baldwin Place Road. WC-3 functions to convey concentrated flows from the central and northern portion of the site. It connects to WC-2 south of the NYSEG property and flows with WC-2 under Baldwin Place Road. It also functions to provide a substrate for aquatic vertebrates and macroinvertebrates, such as salamanders, insect larvae and crayfish.

Town Buffers and State Adjacent Areas

As noted, the NYSDEC regulates a 100 foot adjacent area surrounding wetlands under its jurisdiction. The Town of Carmel protects a similar 100 foot buffer around wetlands and watercourses it regulates. The total area of adjacent area/buffer on the project site, (41.2 acres/42.0 acres respectively) is noted in Table 3.2-1.

The Wetland A adjacent area/buffer filters sediment and sequesters nutrients carried in the water that runs off of the active farm fields. It also provides habitat for wetland dependent wildlife of varying quality based on its location and size; certain areas have been and continue to be disturbed by ongoing agricultural activities. Vegetation in the adjacent area/buffer likely provides some amount of food, cover, and nesting sites for certain mammals, songbirds, reptiles and amphibians.

Portions of the adjacent area/buffer were historically and are, under the existing conditions, disturbed (see Figure 3.2-7). Historically, disturbance was related to farming activities including clearing and maintenance of fields for the planting of crops as well as the pasturing of livestock. Old farm roads and paths also impacted the wetland adjacent area/buffer. Under existing conditions, these activities are ongoing but to a lesser extent. Disturbance to the Wetland A adjacent area/buffer totals approximately 1.6 acres. This includes approximately 0.7 acres of successional old field habitat, which is cut irregularly, roughly 0.7 acres of mowed lawn as well as 0.2 acres of successional hardwood (both southern and northern) habitat. The disturbance to the successional hardwood habitat results from an existing farm road, which is proposed to be used for the northern wetland crossing road.

An open field/dirt parking lot at the current site entrance on Route 6, totaling approximately 0.25 acres, is maintained for multiple uses including the storage and/or sale of used cars, boats and Rvs. Additionally, Christmas trees (seasonally) and various foods are sold from this area throughout the year. Building materials, tractor trailers and a ramshackle shed containing used goods and materials, including garden tools, bicycles and house wares, which are offered for sale, are also found here.

The functions provided by the adjacent area/buffer surrounding Wetland B are limited as the majority of this area is either roadway (US Route 6), mowed road right-of-way, driveway or

parking, the latter two on the developed parcel to the west of the wetland. The portion that remains vegetated likely filters sediment and sequesters nutrients carried in the water that runs off of a small portion of the ridge to the north (Agor Ridge).

About 0.1 acres of the Wetland B buffer has been disturbed for the development of the site to the south (see Figure 3.2-7).

3.2.3 Potential Impacts

As described below, a total of less than 0.3 acres of regulated wetlands (13,000 sf +/-, less than one percent of the site total) will be unavoidably impacted by this proposal. An additional 1.0+/- acres of wetland and watercourse adjacent areas/buffers will be disturbed, generally for the incidental placement of fill as necessary to bring the site to a level grade and for the approach to the two wetland crossings; one existing and one new.

The internal road network, including the two wetland crossings, has been developed to provide safe and adequate access to the two project components, Union Place and Union Heights. Safety concerns related to Town requirements for road grades and the proposed US Route 6 and Baldwin Place Road intersection locations, dictate the proposed road alignments. Alternate road alignments were studied, but failed to meet important traffic and safety concerns, including the location of the proposed signalized intersection on US Route 6. Furthermore, the areas chosen for the wetland crossings, including one at an existing farm road, represent an effort to minimize the impacts to the regulated on-site surface water resources by utilizing previously disturbed areas or areas where invasive species dominate the vegetative community.

Wetlands

The central wetland corridor is protected from disturbance with two exceptions (Figure 3.2-5). Two road crossings of the wetland are proposed to allow access from US Route 6. Due to the requirements for access necessary to manage traffic and parking for a project of this scale, the traffic engineers have determined that a total of five connections to Baldwin Place Road and US Route 6 are required. Two of these accesses will require crossing of Wetland ML-11; one over an existing farm road (northern crossing) and one new (southern crossing).

The southern wetland crossing, located approximately 150 feet north of the existing pond, is located midway between US Route 6 and the centrally located roundabout within the development. This access will service two buildings on US Route 6, then direct traffic into the center of the proposed retail center. The crossing will be configured as one or more arched culverts to maintain the north-south flow of water through the area and the hydrology to the existing pond. The road crossing will be designed to allow wildlife passage underneath in either direction. Approximately 0.2 acres (8,700 sf) of the wetland will be disturbed with the development of this proposed road crossing.

Existing tree canopy in the south crossing is sparse, with the vegetative community being dominated by multiflora rose, phragmites and Morrow honeysuckle. The wetlands in this area were delineated largely because of the presence of hydric soils and hydrology. As such, and based on the proposed crossing design and mitigation, long term impacts to native wetland vegetation, wildlife habitat and the provided functions are expected to be minimal. The installation of the culvert for the proposed road crossing will have a short term impact on the wetland, and has the potential to disrupt flows if not properly designed and installed. If too

extensive an area is cleared and re-graded for the crossing, this area could become an impediment to wildlife crossing. Thus the design of this crossing considers these issues, using an oversized culvert with natural bottom and retaining walls to minimize the adjacent clearing of mature native vegetation. Therefore no significant adverse long term impacts are expected.

The northern wetland crossing is located approximately 850 feet north of the existing pond and 700 feet north of the southern crossing. It is proposed in the location of an existing farm road crossing. This spot is clearly depicted on the wetland delineation, showing the separation of the two portions of the wetland. It is unknown whether there is an older culvert under the crossing. It is also located in the topographic "saddle" that separates the north and south flows. One area of concern with all wetland crossings is that hydrologic flow patterns may be obstructed or diverted by piping or other measures, but in this situation there is no significant flow in this area. Regardless, the road crossing will be designed to allow free flow of water and movement of wildlife. Approximately 0.05 (2,150 sf) acres of wetland will be disturbed with the development of this road crossing.

As with the southern crossing, some short- and long-term impacts to the wetland and its functions will result from the construction of the northern crossing, which could potentially include habitat fragmentation, disruption of hydrology and change to the existing vegetative cover. These impacts are expected to be minimal based on the fact that the crossing is located at an existing farm road crossing. They are further minimized through the implementation of the proposed mitigation identified later in the chapter.

Permits from the Town of Carmel, NYSDEC and the USACE will be required for these two crossings.

No activities are proposed in or adjacent to Wetland B.

Watercourses

No direct impacts are proposed to the watercourses identified above with the development of this project. Erosion and sediment controls shall be utilized as described in Chapter 3.4, Surface Water Resources, so that treated clean stormwater will come from the site during construction and upon completion of the project.

The on-site drainage patterns and volumes would not significantly change. Currently the site has three discharge points associated with watercourses. These points and their relative discharge velocities would remain comparable to the pre-development condition. As the direction of discharge is expected to remain the same and the velocities not anticipated to increase, significant adverse impacts to the existing wetlands and watercourses are not expected with the development and operation of this project. The central wetland corridor will receive discharge from a total of nine stormwater management areas located along the perimeter of the wetland, between the development areas and wetland boundary. Refer to Chapter 3.4, Surface Water Resources, for a detailed discussion of the pre-developed and post-developed drainage conditions.

No short- or long-term modifications of watercourse buffer functions are expected, as no encroachment is proposed within these areas.

Town Buffer and State Adjacent Area Disturbance

Both New York State and the Town of Carmel maintain regulatory authority over 100 foot adjacent area/buffer around the central wetland corridor. The Town of Carmel also regulates a 100 foot buffer around Wetland B.

With the exception of the asphalt leading up to the two Wetland A crossings, no impervious surfaces are proposed within regulated buffers. The grading required to install these road crossings, which includes the road surface, will result in the disturbance of roughly 1.0 acre (43,000 sf) of Wetland A adjacent area/buffer. Approximately 0.2 acres (8,700 sf) of this area is currently disturbed by an existing farm road. The functions performed by that portion of the buffer to be disturbed outside of the roadbeds (roughly 2.4 percent of the entire Wetland A adjacent area/buffer) will be disturbed in the short-term only. The area permanently disturbed (the road and retaining walls) and its associated functions will be less than an acre. Disturbed areas not covered by impervious surfaces will be planted with native vegetation thereby reestablishing the pre-disturbance vegetated conditions along with those functions it provided. Some disturbance of the Wetland A adjacent area/buffer will result from grading associated with leveling the site for the siting of buildings and parking as well as the construction of one proposed stormwater detention basin. In all cases these disturbances will be of vegetated slopes, which will be re-planted with native, low maintenance vegetation that will mimic the current cover type. The three areas to be disturbed by grading (west of Building O, east of Building A and at the northeast corner of Stormwater Management Basin 5.3P to the east of Building K) total less than 2,000 square feet (less than 0.05 acres). The Proposed Project includes a playground northwest of Building N that would result in the placement of wood-chips in the adjacent area/buffer over an area less than 500 square feet (approximately 0.01 acres).

The Union Heights Access drive off of US Route 6 will be installed over an existing farm road located outside of the Wetland B buffer. No other improvements are proposed in this area, therefore impacts to the wetland, its Town protected buffer and associated functions of both are not anticipated. The existing buffer disturbance associated with the development to the south will remain.

No short- or long-term modifications of wetland buffer functions are expected if buffer encroachments are mitigated as described below.

Description of Permits Required

The following regulatory permits are required for the proposed activities as they relate to freshwater wetlands:

New York State Article 24 Permit - for the two wetland crossings and minor buffer encroachments for stormwater basin grading.

USACE Section 404 Individual Wetland Permit - for the two wetland crossings.

Town of Carmel Freshwater Wetlands, Chapter 89 of the Town Code - for the two wetland crossings and minor buffer encroachments for stormwater basin grading. It is noted that the activities requiring Chapter 89 permits are identical to those requiring NYS Article 24 Permits.

Potential Construction Related 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. Soil movement and erosion can result in siltation and sedimentation of wetland systems, altering hydrology, substrates for vegetation and smothering of existing plants.

Other Potential Impacts

There are no other potential impacts to wetlands, watercourses, buffers or adjacent areas anticipated under the Proposed Action.

3.2.4 Mitigation Measures

A total of roughly 0.3 acres of regulated wetlands will be directly impacted by the Union Place proposal for the unavoidable crossing of the central wetland corridor in two locations. As noted above, the impacts associated with these crossings, required to meet important traffic and safety concerns, are minimal in area and wetland function. Several on-site mitigation measures are proposed to offset these impacts, including restoration of existing wetlands on the site and roadway crossing designs that maintain water and wildlife movement through the wetland corridor, as discussed below. Off-site mitigation is not required to address the proposed impacts and is therefore not considered.

Historically, this wetland corridor was bisected by the construction of a railroad spur through the center of the site. The applicant proposes to remove a large section of the bed of this old rail line, which was created in deep fill, and restore the wetland in these areas. The locations of this restoration, which are in the immediate vicinity of the proposed crossings, are shown on Figure 3.2-6. Access to the mitigation areas will be available during the construction of the crossings. Material will be removed by excavator starting from the point furthest from the crossings working back toward the crossing allowing the equipment to remain on the existing railroad bed as the work is performed. The railroad bed material will be removed to upland areas. Following final excavation, four to six inches of topsoil will be replaced in these areas and will be seeded with wetland seed mixes. It is expected that approximately 0.6 acres of wetland can be restored in this manner. These areas will be monitored for three years to ensure that sufficient cover of wetland dominant vegetation is established, and that non-native species are not introduced. Annual reports will be submitted to the Town and other wetland regulatory agencies - USACE and NYSDEC - as part of this monitoring effort. Monitoring will include site visits and photo-documentation during the growing season, an evaluation of the success of newly planted materials, and an assessment and recommendations regarding invasive or non-native species.

The design of the wetland crossings is also an aspect of mitigation for the proposed encroachments. By utilizing arched culverts to support the new roadway, the newly restored wetland habitat areas will be linked physically and hydrologically to one another as well as to the existing habitat with a natural bottom stream channel. This will permit both water to flow and wildlife to travel between these connected areas.

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 are proposed to 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 would in fact perform several wetland functions and result in a net increase of wetland function and benefits on the site following construction. A further discussion of buffer plantings is provided below.

Town Buffer and State Adjacent Area

The Proposed Action includes minimal encroachments, totaling approximately one acre, into the NYSDEC adjacent area and Town regulated buffer of Wetland ML-11 with incidental grading and the proposed crossing roads.

As described herein, the project has been designed to avoid encroachment into wetlands to the extent practicable, and minimizes encroachments into regulated buffers. Potential adverse impacts associated with wetland buffer encroachment will be mitigated by the replanting of trees, shrubs and herbaceous vegetation, where feasible, such as on the proposed stormwater basins. The stormwater basins, which encroach into the buffer, will be planted with a variety of wetland trees and shrubs. The stormwater basin floors will be planted with a variety of wetland emergent rushes and grasses. Native species indigenous to the existing wetland buffers would be utilized, and a maintenance and monitoring plan would be prepared to ensure long term success of the plantings.

Wetland mitigation planting in the buffer area would enhance both the wetland and regulated buffers. Locally common wetland and transitional species, including red maple, winterberry holly, spicebush and various viburnums will be used, as well as seed mixes that include a variety of herbaceous species common to the area. Trees are typically five to six feet tall, planted 20 feet on center; shrubs are three to four feet tall and planted six to eight feet apart. It is also noted that retaining walls are set just outside of the 100 foot buffer in several locations in order to avoid any additional buffer encroachments.

In addition, the on going disturbance associated with the existing uses and farmed areas (1.6 acres), with the exception of the farm road (0.2 acres), will cease under the Proposed Action. These existing disturbed areas, as with those to be temporarily disturbed for the development of the project, will be planted with native species indigenous to the existing wetland buffers. The plantings will also be monitored and maintained to ensure the function of the buffer is restored in these areas.

Stormwater Pollution Prevention Plan

The project specific Stormwater Pollution Prevention Plan (SWPPP) for Union Place has been developed to mitigate potential adverse impacts on surface water resources, including wetlands, from post development changes in stormwater discharges. The SWPPP includes an Erosion and Sediment Control Plan designed to prevent sedimentation during construction (see Appendix E). The SWPPP also includes a Stormwater Management Plan that provides measures to mitigate potential impacts from post construction changes in the volume, rate of discharge, as well as increased pollutant loading in stormwater.

The project specific SWPPP has been prepared in consultation with the following resources, where appropriate: *NYSDEC Reducing the Impacts of Stormwater Runoff from New Development*, April 1992, *NYSDEC Technical Operation and Guidance Series Document (5.1.8) (Management Guidelines for New Development)*, *New York Guidelines for Urban*

Erosion and Sediment Control and Standards and Specifications for Erosion and Sediment Control and the New York State 2003 Stormwater Design Manual. As described above and in Section 3.4, Surface Water Resources, the Union Place SWPPP has been designed to mitigate potential adverse impacts to water resources from the project, both during and after construction.

The stormwater management component of the SWPPP has been designed to mitigate potential adverse impacts to watercourses and wetlands by attenuating post-development increases in the peak rates of stormwater discharges, and by reducing post construction increases in pollutant loading. Refer to the Union Place SWPPP and Chapter 3.4, Surface Water Resources for additional detail concerning principle stormwater management measures and implementation techniques to mitigate stormwater related impacts and proposed monitoring and maintenance of the SMPs.

The proposed Erosion and Sediment Control Plan component of the SWPPP was developed specifically for the Union Place project and will provide both temporary controls during construction and permanent controls to remain in place following construction. The principle elements of, implementation techniques for, and proposed monitoring and maintenance of the erosion and sediment control practices are addressed in the Surface Water Resources Chapter of this DEIS. The measures proposed will comply with all local, city and state requirements and will adequately mitigate potential impacts to water resources resulting from erosion and sedimentation during construction of the project.

Special Construction Techniques

The Applicant is proposing the use of arched culverts in conformance with the NYSDEC stream crossing requirements for the two wetland crossings. This method minimizes wetland impacts during construction and over the long term. With the use of these arches, retaining walls will be constructed on either side of the crossing to eliminate the need for grading into the wetland on both sides and the additional fill and encroachment that would be necessary with that grading. Native soils will be used in the bottom of the arches to maintain natural substrate and habitat for wildlife.

Other Mitigation Measures

As the mitigation noted above will offset impacts to the wetlands, watercourses and associated buffers/adjacent areas, no further mitigation is proposed.



Visible Layers

-  Highlighted Feature
-  Classified Streams
-  Classified Ponds
-  State-Regulated Freshwater Wetlands
-  Wetland Checkzone
-  State-Regulated Freshwater Wetlands
-  Interstate Highways

 Site Property Boundary

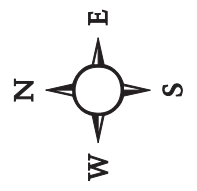


Figure 3.2-1: New York State DEC Wetland Map
 Union Place
 Town of Carmel, Putnam County, NY
 Source: NYSDEC Environmental Resource Mapper

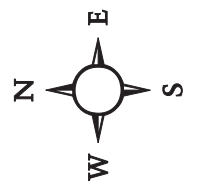
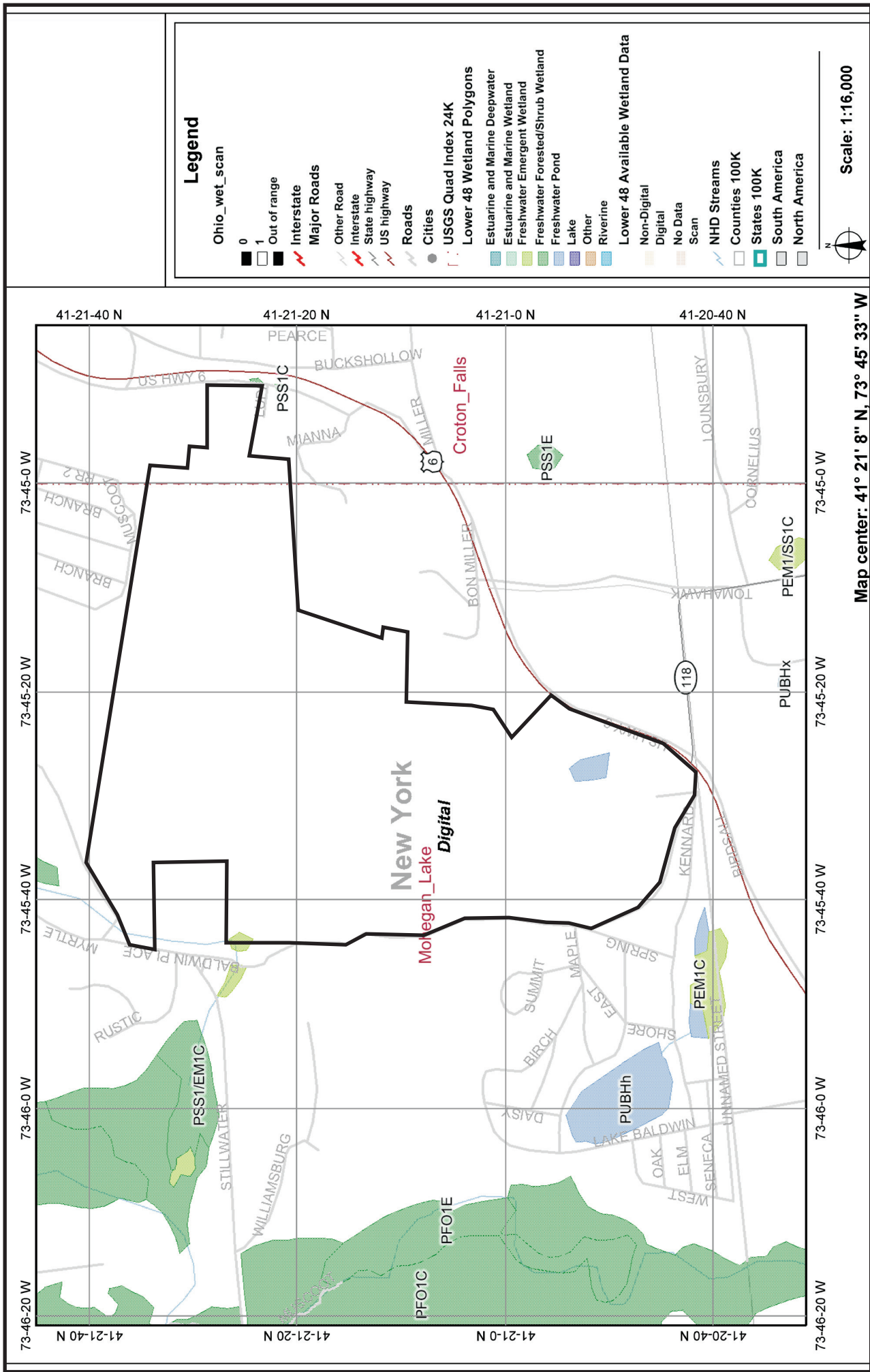


Figure 3.2-2: National Wetlands Inventory (NWI) Map
 Union Place
 Town of Carmel, Putnam County, NY
 Source: National Wetlands Inventory

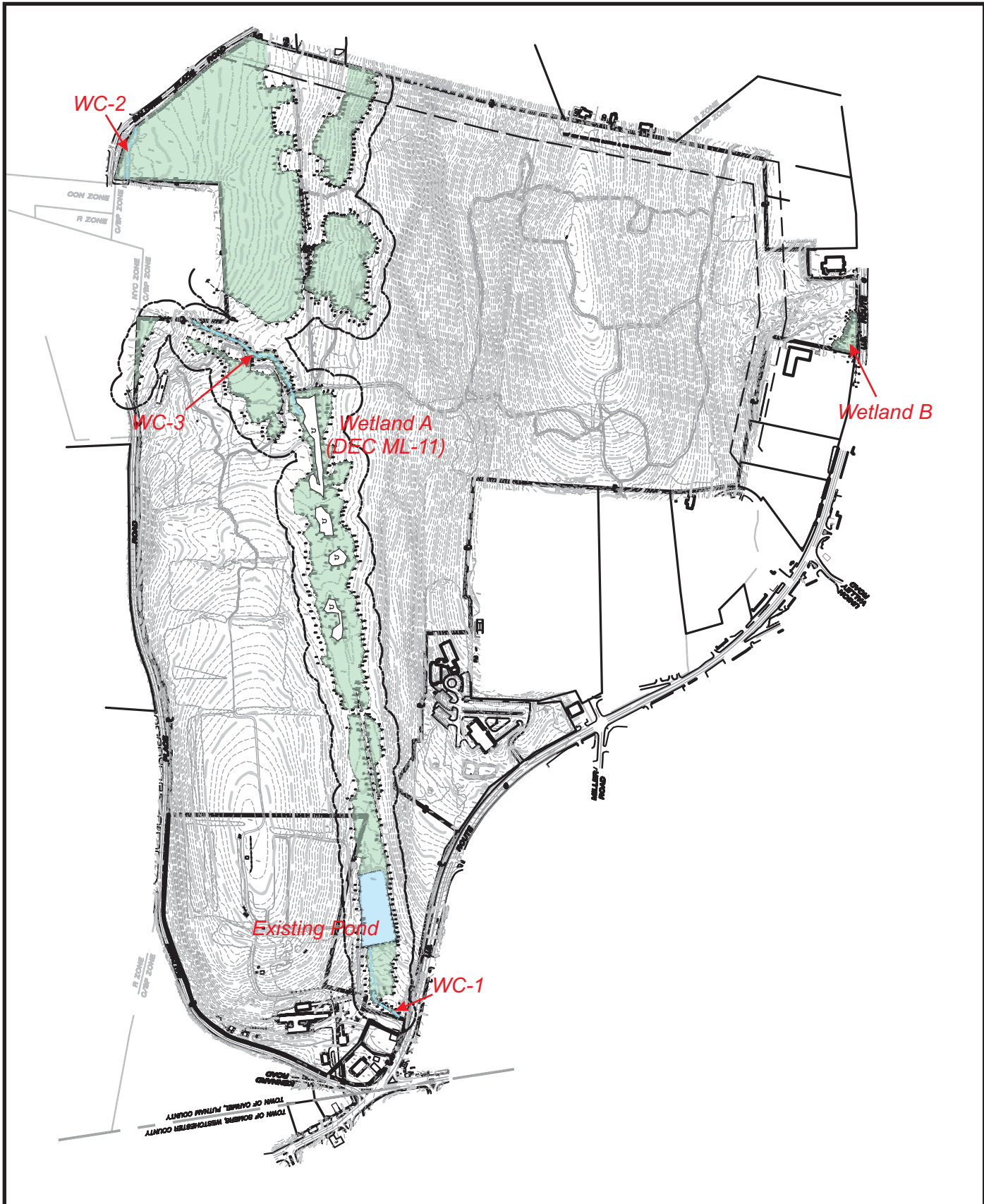


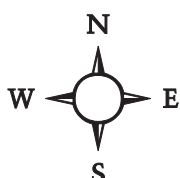
Figure 3.2-3: On-site Water Resources and Wetlands

Union Place

Town of Carmel, Putnam County, New York

Base Map: Insite Engineering, Surveying & Landscape Architecture, P.C.

Approx. Scale: 1 inch = 800 feet



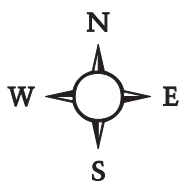
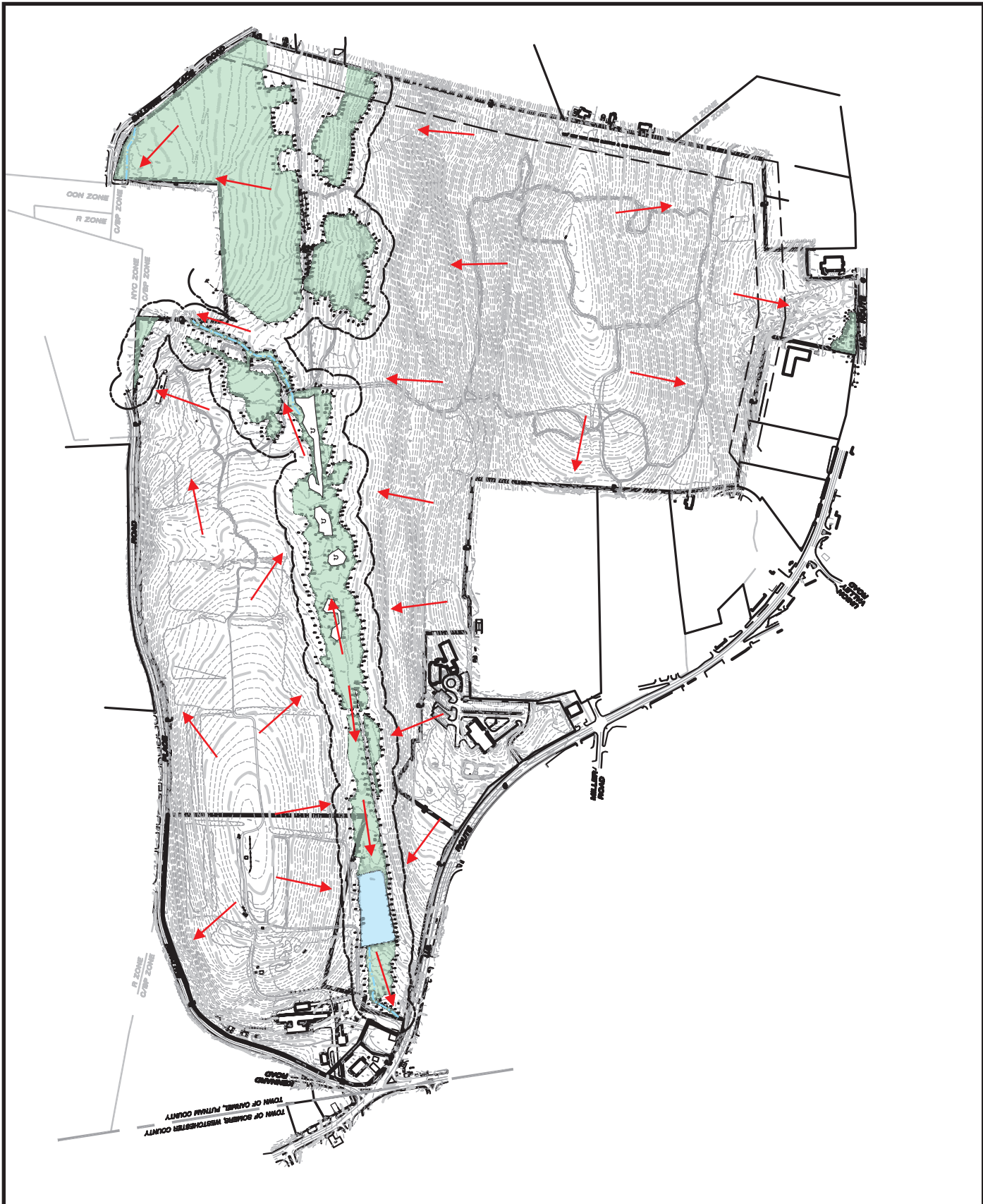


Figure 3.2-4: Existing Drainage Patterns

Union Place

Town of Carmel, Putnam County, New York

Base Map: Insite Engineering, Surveying & Landscape Architecture, P.C.

Approx. Scale: 1 inch = 800 feet

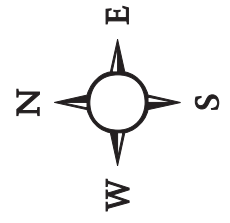
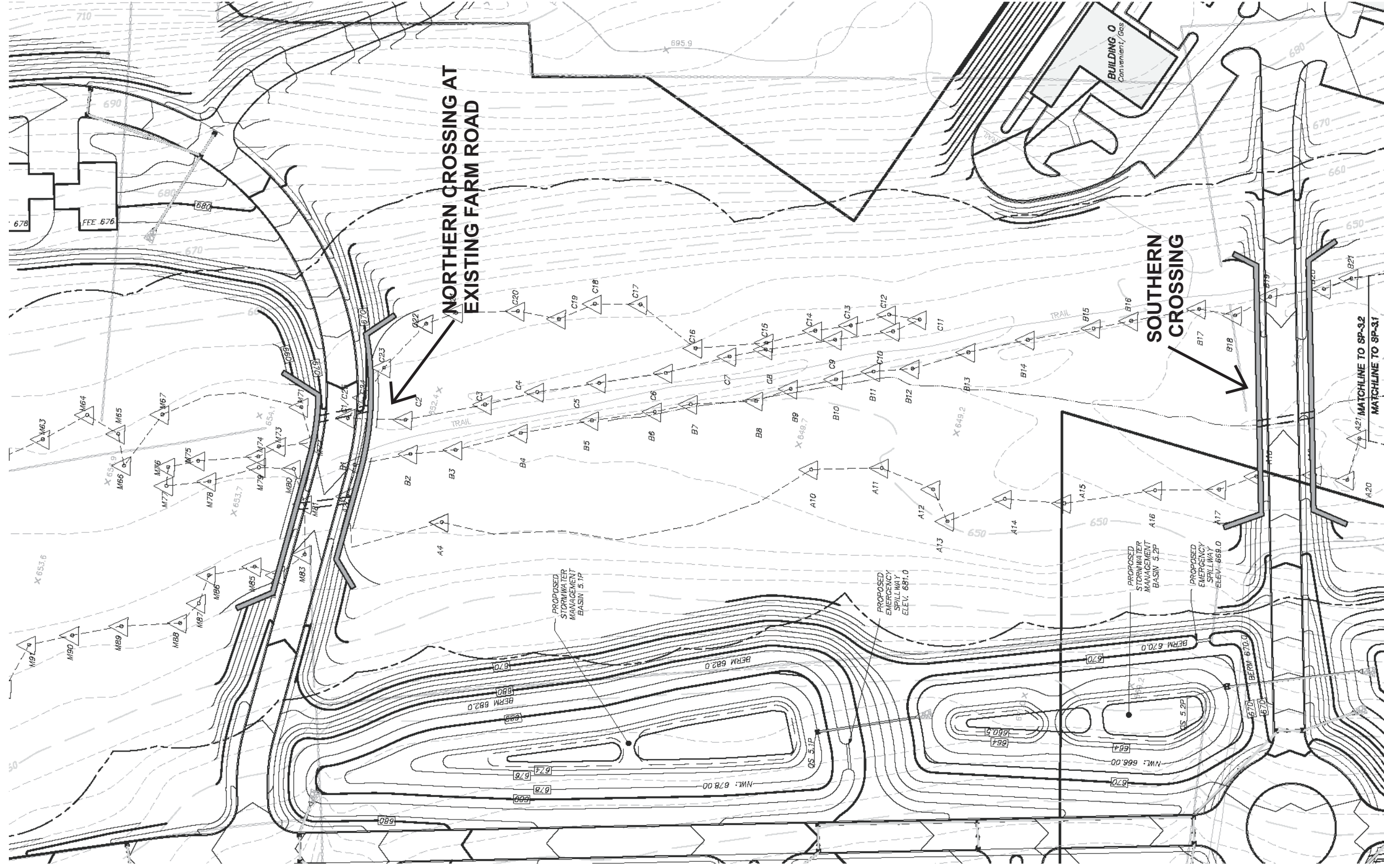


Figure 3.2-5: Proposed Wetland ML-11 Crossings
 Union Place
 Town of Carmel, Putnam County, New York
 Source: INSITE Engineering, Surveying & Landscape Architecture, P.C.
 Approx. Scale: 1 inch = 100 feet

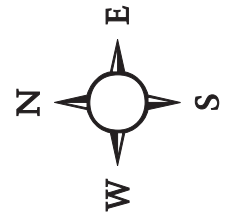
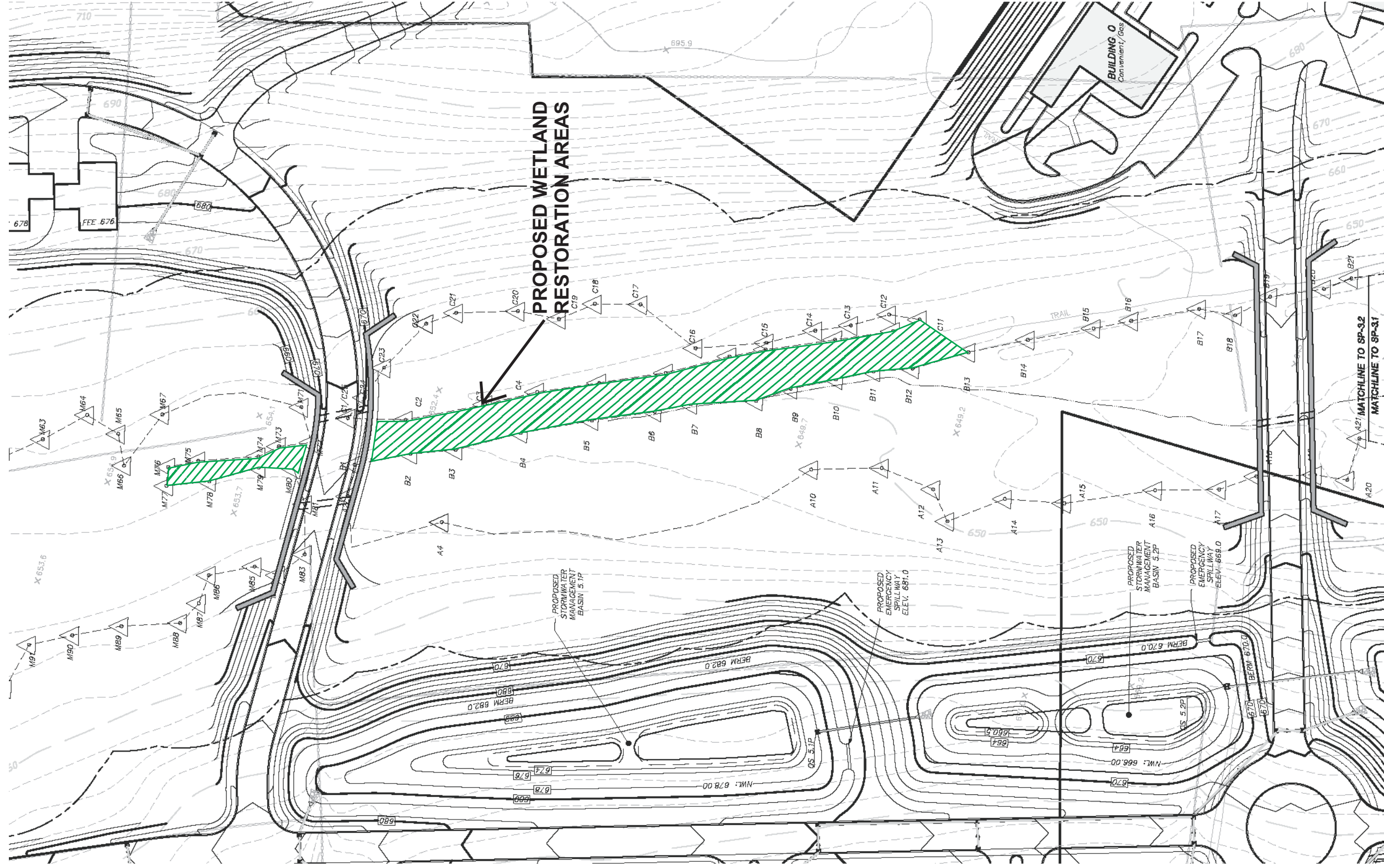
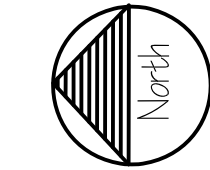
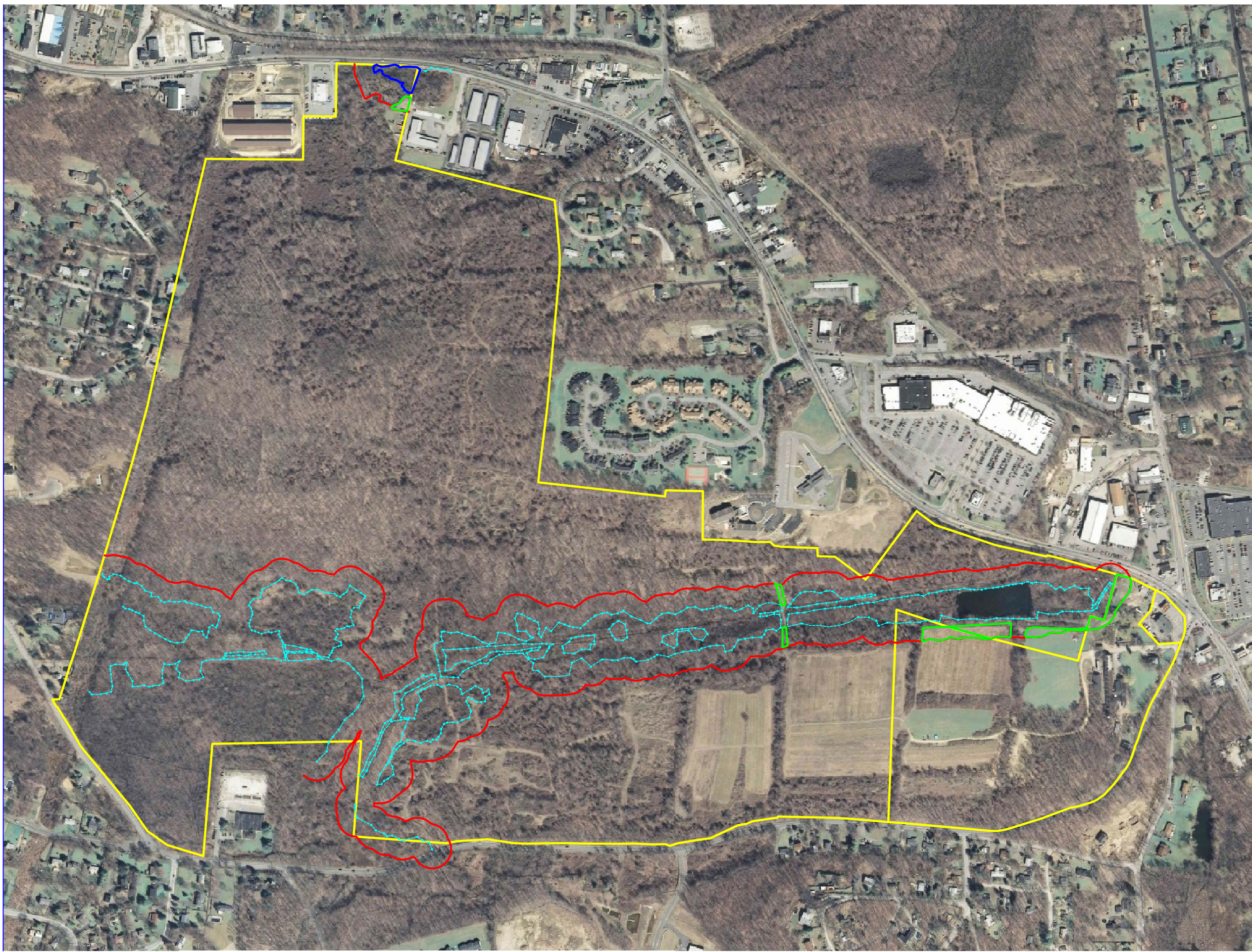


Figure 3.2-6: Location of Proposed Wetland Restoration Areas
 Union Place
 Town of Carmel, Putnam County, New York
 Source: INSITE Engineering, Surveying & Landscape Architecture, P.C.
 Approx. Scale: 1 inch = 100 feet



Legend

- Site Property Boundary
- Wetland Boundaries
- 100' Wetland Buffer Boundaries
- Onsite Disturbed Areas within Wetland Buffers

Figure 3.2-7: Disturbed Areas Within Wetland Buffers Onsite

- Existing Condition
 Union Place
 Town of Carmel, Putnam County, New York
 Base: NYS GIS Clearinghouse, 2007 Aerial Photo
 Scale: 1" = 500'