III. EXISTING CONDITIONS, IMPACTS AND MITIGATION

F. Wetlands, Groundwater and Surface Water Resources

F. Wetlands, Groundwater and Surface Water Resources

1. Existing Conditions

a. Description and Mapping of Onsite Wetlands, Watercourses and Buffers

Wetlands Field Delineation

Wetlands on the site were delineated in accordance with Chapter 178 of the Town Code, Freshwater Wetlands and Watercourse Protection Law of the Town of Yorktown, which is based on the 1989 Army Corp of Engineers (ACOE) manual, and the technical criteria in the 1987 ACOE Wetland Delineation Manual (TR-Y-87-1) as modified by the 2009 Interim Regional Supplement for Northcentral and Northeast Region (TR-09-19). One wetland on the site contains a DEP jurisdictional watercourse. There are no New York State Department of Environmental Conservation (DEC) wetlands on or adjacent to the site. Details of the regulatory jurisdictions of the waterbodies on the property, including interactions with Town and State regulatory personnel, are provided in Section F.1.f.

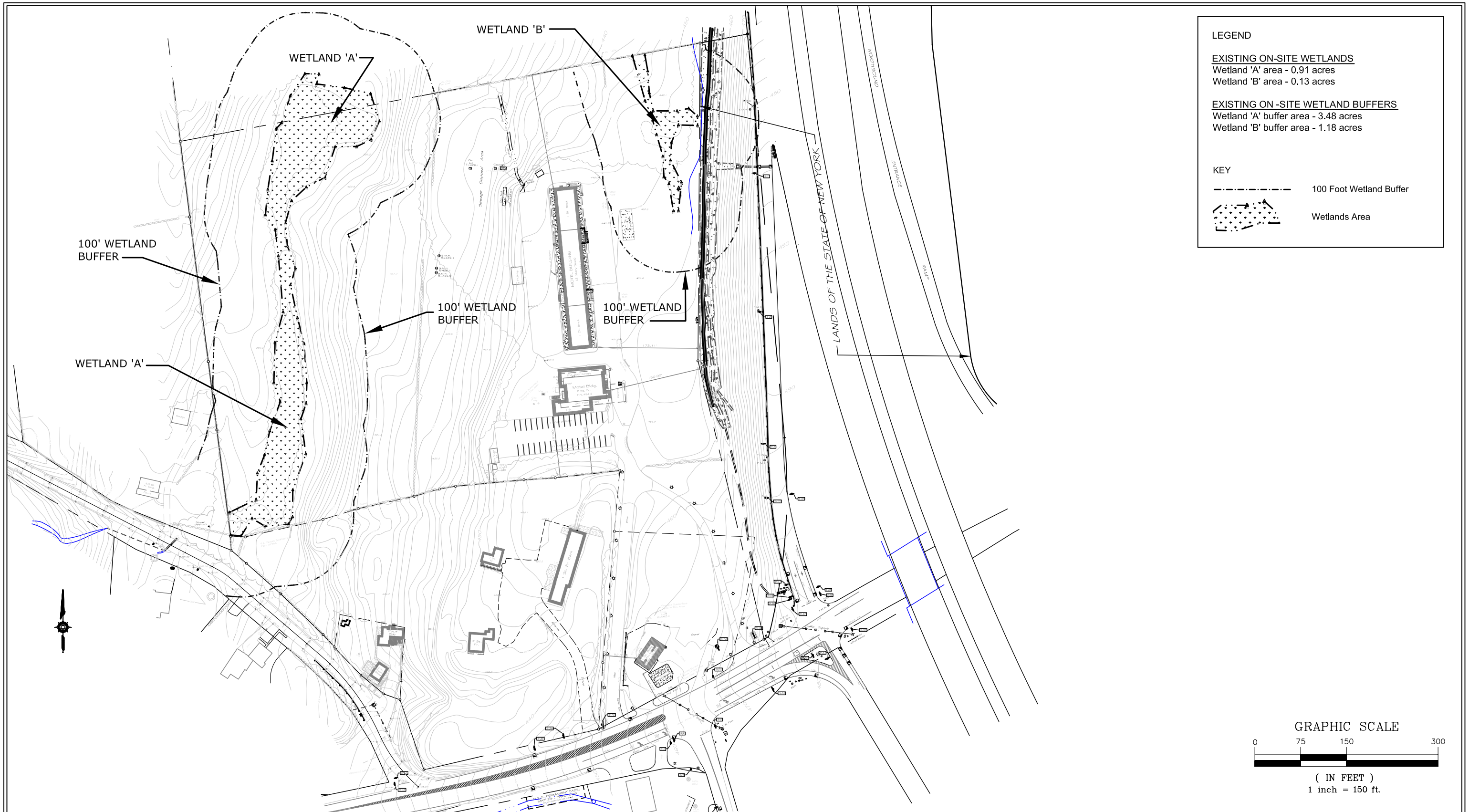
The Town of Yorktown Freshwater Wetlands regulations (§ 178-9) specify activities that are permitted, regulated, or prohibited within wetlands or wetland/watercourse buffers. Permitted activities consist of uses that shall be permitted as-of-right within a wetland or wetland/watercourse buffer to the extent that they are not prohibited by any other ordinance; they do not constitute a pollution or erosion hazard or interfere with proper drainage; and they do not require structures, grading, fill, draining or dredging for which a permit may be required. Regulated acts require a wetlands permit. Except as provided in Subsection A(Permitted Activities), it shall be unlawful, in the absence of a specific written permit issued by the approval authority, to do these activities in any wetland or buffer area. Prohibited Acts are categorically unlawful. Table III.F.1 discusses these regulations with respect to the proposed plan. The activities that may occur under the proposed plan are marked in the table with a “W” if they may occur in a wetland, a “B” if they may occur in a wetland buffer, or an “X” for both and NA if they will not occur in either.

Table III.F.1 Permitted, Regulated, or Prohibited Activities within Wetlands or Wetland/Watercourse Buffers	
A. Permitted	
1. Normal ground maintenance, including mowing, trimming of vegetation and removal of dead or diseased vegetation around a residence.	X
2. Repair of existing walkways and walls.	B
3. Maintenance of existing decorative landscaping and planting in wetland/watercourse buffers, excluding those activities regulated in Subsections B(11) and (12).	B
4. Public health activities and orders of the Westchester County Department of Health and/or the New York State Department of Health for emergencies only.	X
5. Deposition or removal of natural products of wetlands in the process of recreational or commercial fishing, shellfishing, hunting or trapping, but excluding excavation and removal of peat or timber.	NA
6. Operation and maintenance of existing dams and water control devices, limiting the adjustment of water elevations to 18 inches in height for periods of less than one week after which the water level is returned to its previous level.	NA
7. Removal of debris, leaves, and dead or diseased vegetation that are obstructing flow within a wetland or wetland buffer.	X
8. Manual removal of accumulated sediment, up to a maximum of two cubic yards, located within five feet of the end of a pipe which crosses under a road or driveway. All Erosion Ordinance requirements must be followed.	X
B. Permit Required	
1. Placement or any construction of any structure.	B
2. Any form of draining, dredging, excavation, or removal of material either directly or indirectly.	B
3. Any form of dumping, filling or depositing of material, either directly or indirectly.	B
4. Installation of any service lines or cable conduits.	NA
5. Introduction of any form of pollution, including but not limited to the installation of a septic tank, the running of a sewer outfall, or the discharging of sewage treatment, effluent or other liquid wastes into or so as to drain into a wetland.	NA
6. Alteration or modification of natural features and contours.	B
7. Alteration or modification of natural drainage patterns and watercourses	NA
8. Construction of dams, docks, or other water control devices, pilings or bridges, whether or not they change the natural drainage characteristics.	NA
9. Operation of existing dams and water control devices, involving the adjustment of water level more than 18 inches or any adjustment of water level which is in place for more than one week.	NA
10. Installation of any pipes or wells	B
11. Within the same one-acre area, the cutting of more than three trees which are over six inches in diameter at a point 4 1/2 feet from ground level within a twelve-month period.	B
12. Plowing and/or harrowing	NA
13. Grazing of horses and/or other animals	NA
14. Any other activity that may impair the natural function(s) of a wetland, as described in this chapter.	B
15. Application and/or the use of herbicides, pesticides and any regulated chemicals and materials.	NA
C. Prohibited	
16. Place or deposit chemical wastes or to introduce influents of sufficiently high thermal content as to cause deleterious ecological effect in any wetland or buffer area.	NA

The field delineation of the wetlands was conducted on June 8, 2010 by a field biologist and a soil scientist from Evans Associates Environmental Consulting, Inc. (Evans Associates). Additional site visits to further characterize the wetlands and wetland buffers were conducted on June 29, August 5 and August 30 in 2010 and on March 29, April 14, April 21, April 25, April 26, April 27, May 3 and May 25 in 2011.

Two wetlands were identified on the site. Wetland A is located within the forested area on the west side of the site. Wetland B is located in the northeast corner of the site in a disturbed wooded area, which also includes an area of lawn from the former motel. The wetland/upland boundaries of the on-site wetlands were flagged with sequentially-numbered, orange ribbon flagging depicting the words "Wetland Boundary." The flags were numbered A-1 through A-46 for Wetland A and B-1 through B-21 for Wetland B. The flags were then located by a licensed surveyor. The wetlands and 100-foot Town regulated wetland buffer are depicted on *Exhibit III.F-1, Wetlands Map* and are described below.

A drainage course was noted adjacent to the site's easterly property line. The swale parallels the project site and gently slopes from south to north past Wetland B. Upon field observation and subsequent review of drainage design plans provided by the NYSDOT, it was determined that the ditch was constructed as part of the most recent improvements to the Taconic State Parkway (TSP) southbound off ramp. The swale is situated at the toe of the TSP embankment and intercepts runoff from the slope as well as discharge from drainage pipes which collect stormwater runoff from the TSP drainage system. Examination of the plans indicate that the ditch was designed and constructed as a riprap lined drainage ditch to convey stormwater runoff to a detention pond situated approximately 650 feet north of the project site. The Applicant's engineer was not able to find a published maintenance schedule associated with the design and DOT engineers indicated that it likely has not been maintained. As a result some sediment has accumulated in the ditch, and the sediment supports some vegetation which is typical of a disturbed wetland. Examination of the soil which has accumulated in the ditch revealed that the hydrology in the ditch (periodic flow associated with storm runoff) is not sufficient to support hydric soils or hydrophytic vegetation, and therefore the ditch is not a jurisdictional wetland. In addition, the ditch was examined by NYC DEP and was determined not to be a regulated watercourse. The ditch, however, continues to perform its purpose which is to convey TSP drainage to the detention basin.



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Hawthorne, New York 10532

Exhibit III.F-1
Existing Wetlands & Buffers Map

COSTCO WHOLESALE
Town of Yorktown, New York

Source: Evans Associates Environmental Consultiing, Inc.

Wetlands Regulatory Jurisdiction

Wetland A is federally regulated by the ACOE and locally regulated by the Town of Yorktown. Wetland B is regulated by the Town of Yorktown. According to the Applicant, Wetland B is hydrologically isolated and is therefore most likely not regulated by the ACOE. The wetlands are not regulated by the DEC. A detailed discussion of the applicable wetland/watercourse regulations is presented in Section III.F.1.f.

Description of Wetlands Vegetation, Soils and Hydrology

Wetland A Wetland A is a forested slope wetland that contains a small stream. The wetland starts just north of the site, drains south via the stream and then flows off site to the south into a culvert under Old Crompond Road. The on site portion of the wetland is 0.91 acres. Vegetation in Wetland A includes red maple (*Acer rubrum*), American elm (*Ulmus americana*), green ash (*Fraxinus pennsylvanica*), black gum (*Nyssa sylvatica*), swamp white oak (*Quercus bicolor*), ironwood (*Carpinus caroliniana*), and yellow birch (*Betula alleghaniensis*) trees and saplings, spicebush *(Lindera benzoin)*, sweet pepper bush (*Clethra alnifolia*), and winterberry (*Ilex verticillata*) shrubs, along with skunk cabbage (*Symplocarpus foetidus*), sensitive fern (*Onoclea sensibilis*), jewelweed (*Impatiens capensis*), jack-in-the-pulpit (*Arisaema triphyllum*), cinnamon fern (*Osmunda cinnamomea*), and royal fern (*Osmunda regalis*).

Soils in Wetland A consist mainly of Leicester loam. This soil is poorly drained, is formed in glacial till, and can be found in concave areas between ridges, along drainageways, and in depressions. Leicester loam has an aquic moisture regime and is listed on Natural Resource Conservation Service (NRCS) federal and state (New York) hydric soils lists.

The wetland forms the headwaters of the small stream that was flowing during the spring field investigations in 2011 but not flowing during the early and late summer site visits in 2010. The primary hydrologic input for Wetland A is interception of the underlying, seasonally-high groundwater table as evidenced by seeps that were observed during the spring field visits. Other evidence of wetlands hydrology includes saturated soils, buttressed tree roots and water stained leaves. The wetland also receives surface runoff from the surrounding uplands. Land use within the surrounding uplands within the on site portion of the drainage area of the wetland includes the motel buildings, paved parking areas, the abandoned septic area, mowed lawn, a portion of the plant nursery along with forested areas. Land use within the off site portion of the drainage

area of the wetland is undisturbed forested areas. A Wetland Water Budget Analysis was developed for Wetland A, and is included in Appendix VII.C of this document.

Wetland B Wetland B is a very small (0.13 acres), mostly forested, gently sloping wetland that is located in the northeast corner of the site. Wetland B drains off site to the north into a wooded hillside but the wetland does not continue off site and it is not hydrologically connected through surface or groundwater to another wetland or watercourse. The north portion of the wetland is within a disturbed forested area and the south portion of the wetland is within the lawn area of the former motel. Vegetation in Wetland B consists of red maple, American elm, and bebb willow (*Salix bebbiana*) trees and saplings, spicebush shrubs, poison ivy (*Toxicodendron radicans*) vines, along with jack-in-the-pulpit, sensitive fern, lurid sedge (*Carex lurida*), tussock sedge (*Carex stricta*) and soft rush (*Juncus effusus*).

The soils in Wetland B consist mainly of Leicester loam. This soil is poorly drained, is formed in glacial till, and can be found in concave areas between ridges, along drainageways, and in depressions. Leicester loam has an aquic moisture regime and is listed on NRCS federal and state hydric soils lists. Wetland B also contains areas of sediment. The sediment appears to have been in place for a long period of time because no recent source was evident.

Wetland B is primarily sustained by the interception of the underlying, seasonally-high groundwater table. The lower portion of Wetland B also appears to have had received surface water runoff in the past that likely originated off site to the east from the embankment of the Taconic Parkway. The wetland does receive runoff from the surrounding uplands that are primarily mowed lawn, but the on-site drainage area is relatively small. The wetland may also receive hydrologic input from a drainage system within the lawn area around the motel, however no pipes were found. The wetland is not hydrologically connected to the off-site drainage swale at the base of the embankment below the on-ramp to the Taconic Parkway. Evidence of current and past wetland hydrology in Wetland B includes sediment deposits, drainage patterns, some saturated soils, and the presence of seeps.

Wetland Functions

The functions and relative values of freshwater wetlands are determined by biological and physical characteristics, including the position of the wetland in the landscape, the geology and hydrology of the site, and the substrate and vegetation comprising the wetland. Wetland inventory data were collected during the field investigations by Evans Associates, and determinations were based on the methodology detailed in A Rapid

Procedure for Assessing Wetland Functional Capacity based on Hydrogeomorphic (HGM) Classification (Magee and Hollands, 1998).

Wetland A Wetland A is best classified as a forested slope wetland with no inlet and an intermittent outlet. The functions provided by Wetland A include hydrologic support, flood water storage, water quality maintenance and provision of wetland dependent vegetation and wildlife habitat. Wetland A plays a role in hydrologic support, or drainage continuity within the watershed. Specifically, the small stream that flows through the wetland serves to convey groundwater discharge from the seeps on the property to areas off site to the south. The forested wetland corridor also plays a role in the storage of flood waters, but the wetland is relatively narrow and only has a limited capacity for flood water storage. The vegetation in the wetland along with the microtopographic features allows the wetland to perform water quality maintenance functions when the wetland contains flowing or ponded water. Flowing water is slowed, allowing sediment, particulates, and nutrients to settle out or be taken up by the wetland vegetation.

In addition to the hydrologic functions, Wetland A also provides biological functions. These biological functions include provision of habitat for wetland plant species, as evidenced by the obligate and facultative species noted above, and habitat for some wetland dependent wildlife species. Specifically, during the 2011 field investigations a few (<5) wood frog and spotted salamander egg masses were found in the seasonally ponded area in the north end of the wetland. This seasonally ponded area does provide breeding habitat for vernal pool species on some years, but based on the low number of wood frog and spotted salamander egg masses observed, along with an unpredictable hydroperiod, it is the opinion of the Applicant's wetland consultant that it is not a very productive vernal pool (see Sections III.E.1.a, b, and c, Exhibit III.E-1a, and the Wetland Water Budget Analysis in Appendix VII.C for further discussion on the vernal pool).

Wetland B Wetland B is best classified as a forested slope wetland with no inlet and an intermittent outlet. This wetland is not hydrologically connected to another wetland. Wetland B provides few functions and values that are typically associated with wetlands. This wetland is hydrologically isolated and does not provide drainage continuity within the watershed. Wetland B is not capable of providing much flood water storage, nor can it provide water quality improvements due to its slope and small size. However, the stone wall that forms the north wetland boundary and property boundary does serve as a barrier for sediment deposits that were noted in this portion of the wetland. Wetland B also provides little in terms of biological function due to its small size, it contains limited areas of wetland vegetation, and it does not pond water.

b. Describe and Map Wetland Buffers Onsite, Including, Acreage, Functionality, and Existing Disturbance

The Town-regulated 100-foot wetland buffers are depicted on *Exhibit III.F-1, Wetlands Map* and are described below.

Buffer for Wetland A The on site portion of the 100-foot buffer of Wetland A is predominantly a middle-aged mixed deciduous forest. The on site portion of the wetland buffer comprises 3.48 acres (5.05 acres total buffer). The buffer on the west side of the wetland is an undisturbed forest with larger trees with few non-native invasive species present. Vegetation in this portion of the wetlands buffer includes black birch (*Betula lenta*), red oak (*Quercus rubra*) and American beech (*Fagus grandifolia*) trees and saplings with a sparsely vegetated understory that consists of saplings of the dominant tree species. Herbaceous species in the wetlands buffer include Christmas fern (*Polystichum acrostichoides*), Pennsylvania sedge (*Carex pennsylvanica*), white wood aster (*Eurybia divarticus*), trout lily (*Erythronium americanum*) and wild-lily-of-the-valley (*Maianthemum canadensis*).

The buffer on the east side of the wetland is relatively undisturbed near the wetland and is vegetated with similar species as the west side. However, as you move further east away from the wetland the buffer becomes more disturbed and includes a mix of young forested areas and old field habitat. This portion of the wetlands buffer also contains some miscellaneous scattered debris apparently associated with the former motel (See map and photos in Section III.E.1.a.) The eastern portion of the wetlands buffer is vegetated with a native species such as black birch and sugar maple (*Acer saccharum*) but also includes disturbance indicative species such as tree-of-heaven (*Ailanthus altissima*) and black locust (*Robinia pseudoacacia*) trees and saplings. Other non-native species that are present in this portion of the wetlands buffer include Japanese barberry (*Berberis thunbergii*), winged euonymus (*Euonymus alatus*) and multiflora rose (*Rosa multiflora*) shrubs along with garlic mustard (*Alliaria petiolata*), mugwort (*Artemisia vulgaris*) and Oriental bittersweet (*Celastrus orbiculata*).

Buffer for Wetland B The on-site portion of the buffer of Wetland B comprises 1.18 acres (2.19 acres total buffer). The northern portion of the buffer consists of a young forested area that is vegetated with species such as sugar maple, white ash, tuliptree and red maple trees and sapling. Other vegetation in the forested portion of the wetlands buffer includes non-native invasive species such as multiflora rose and Tartarian honeysuckle (*Lonicera tatarica*) shrubs, Oriental bittersweet vines along with garlic mustard. The southern portion of the buffer for Wetland B has been disturbed and consists of mowed lawn. The portion of the wetlands buffer that is off site to the north is an undisturbed forest within State parkland. The off site wetlands buffer to the east consists of the steep embankment for the Taconic Parkway

that is vegetated with grasses along with mugwort, Queen Anne's lace (*Daucus carota*) and bull thistle (*Cirsium vulgare*).

c. Describe the NYC Watershed and Streams to which the Site is Tributary. Assess the Potential Presence of Vernal Pools on the Site

The site is within the New York City Watershed as part of the Hunter Brook Subbasin, which in turn is part of the larger Croton River Basin. Most of the site drains west to a small stream located within Wetland A. The stream flows off site under Old Crompond Road to a wetland system that is between Old Crompond Road and Crompond Road. This wetland drains into a culvert that ultimately discharges to Hunter Brook, located approximately 2,400 feet to the west of the site. A small portion of the northeast corner of the site drains off site to the north. Drainage from the northeast corner of the site drains to a relatively recently constructed DOT stormwater basin that is located approximately 650 feet north of the site. Flow from this stormwater basin drains under the Bear Mountain Parkway to the Hunter Brook. After flowing under Crompond Road, Hunter Brook continues south for approximately one-half mile before entering Mill Pond. After leaving Mill Pond the stream continues south for approximately 1.7 miles before ending in the northwest corner of the New Croton Reservoir. The onsite drainage patterns and offsite drainage areas are further discussed in Section III.G.1.a. The potential presence of vernal pools on the site is discussed in Sections III.E.1.a and III.E.1.b.

d. Describe any off Site Wetlands that are Functionally Related and Might Reasonably be Expected to be Affected by the Proposed Action

As stated in the previous section, most of the site drains to the west to a small stream that is within Wetland A. The northern end of Wetland A also contains the on-site vernal pool which, when not dry, forms the headwaters of the stream. The stream flows south off the site under Old Crompond Road to a wetland system known as the Crompond Wetland that is between Old Crompond Road and Route 202/35 (Crompond Road). The wetland drains southwesterly to where it merges with the Sherry Brook.

The Sherry Brook flows from south to north and crosses beneath Route 202/35 through a 5' x 5' box culvert approximately 650 feet west of the intersection of Route 202/35 and Old Crompond Road. From this point, Sherry Brook flows westerly some 1,500 feet to its confluence with the Hunter Brook at Stoney Street. The box culvert discharges to an open concrete flume. The brook then flows into an at-grade inlet chamber protected by a sloped steel trash rack. The chamber is connected to a 44" x 72" CMP pipe arch, which conveys Sherry Brook to the Hunter Brook.

Overland flow from the Crompond Wetland enters the Sherry Brook pipe arch through a 36 inch pipe inlet approximately 540 feet west of the 5' x 5'

box culvert. The Sherry Brook Flood Study indicates that there is field erosion associated with this culvert as it is partially blocked by debris, rendering the pipe ineffective during high flows. The Highway Department had been notified of the need for maintenance. Based on observations made by the Applicant's engineer during the September 2011 field reconnaissance, the 36-inch pipe inlet is almost completely blocked with sediment and debris (see Exhibit III.G-2). The debris is a result of deposition of mainly branches and leaf litter carried from the upstream travel way that deposited at this pipe entry. Immediate cleaning of the inlet is required in order to restore its hydraulic capacity.

This off site wetland system is forested along with some areas that have a more open canopy. Vegetation in the forested portion of the wetland includes red maple and American elm trees and saplings, spicebush and silky dogwood (*Cornus amomum*) shrubs along with skunk cabbage and garlic mustard. The open canopy portions of the wetland are vegetated with bebb willow, multiflora rose and silky dogwood shrubs along with the invasive species common reed (*Phragmites australis*). Wetland B drains off the site to the north but there are no off site wetlands or streams that are functionally related to this wetland.

e. Identify Surface Waters with Significant Accumulations of Silt or Sediment

The only surface waters on the site occur as a stream channel which forms in the center of Wetland A, and this channel does not contain any significant accumulations of silt or sediment. However, there is an accumulation of sediment in the north end of Wetland B that is located in the northeast corner of the site. Sediment in this wetland has accumulated behind the stone wall that forms the north property boundary. Only a small portion of the drainage area for this wetland is on the site and the sediment deposits appear to be historic.

f. Identify and Discuss the Applicable Wetland/watercourse Regulations

Federal Wetland Regulations (Army Corps of Engineers)

The ACOE is the federal agency that regulates wetlands under the Clean Water Act. The ACOE regulates wetlands based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology as defined in the 1987 ACOE Wetland Delineation Manual (TR-Y-87-1) as modified by the 2009 Interim Regional Supplement for Northcentral and Northeast Region (TR-09-19). The ACOE regulates wetlands that are associated with hydrologic features that are connected to interstate waters (e.g., wetlands connected to streams that ultimately drain to the Hudson River). There is no wetland buffer or adjacent area regulated under Federal jurisdiction.

Wetland A drains off site to the southwest and then ultimately connects to Hunter Brook which is a perennial stream. Therefore, Wetland A is assumed to be regulated by the ACOE. Wetland B drains off site to the north but does not flow to another wetland or stream. Wetland B is hydrologically isolated and therefore not regulated by the ACOE. Because no impacts are proposed to the wetlands (physical loss of wetland), a Jurisdictional Determination was not sought from the ACOE. An inquiry has been made to the New York District ACOE office to confirm that there was no permit required from that agency, and the Town of Yorktown will be copied. (See Appendix VII.C of this DEIS.)

New York State Department of Environmental Conservation Wetland Regulations

The New York State Department of Environmental Conservation (DEC) regulates wetlands in accordance with the New York State Freshwater Wetlands Act (Article 24 of the New York State Environmental Conservation Law). The DEC regulates wetlands that are 12.4 acres in size or greater, primarily based on vegetation, that are shown on, or are connected to wetlands shown on, the DEC Freshwater Wetland maps. In addition to regulating wetlands, the DEC also regulates a 100-foot adjacent area around wetlands. Based on review of the most recent DEC Freshwater Wetland Maps (Mohegan Lake quadrangle) there are no DEC wetlands on the site (also see DEC 9/15/10 letter, Appendix VII.L). There are also no DEC wetlands shown on the freshwater wetland map near the site that the wetlands on the site could be considered connected to. Therefore, the wetlands on the site are not regulated by the DEC.

Town of Yorktown Wetlands Regulations

The Town of Yorktown regulates wetlands and watercourses in accordance with Chapter 178 of the Town Code, *Freshwater Wetlands and Watercourse Protection Law of the Town of Yorktown*. As defined in Chapter 178, the Town regulates wetlands that include, "[a]ll areas greater than 1,000 square feet in area that comprise hydric soils and/or are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support and under normal circumstances do support a prevalence of hydrophytic vegetation as defined by the Federal Interagency Committee for Wetland Delineation, 1989". In addition to regulating the wetlands and watercourses, the Town also regulates a 100-foot buffer surrounding all wetlands and watercourses.

Wetland A and Wetland B are greater than 1,000 square feet and are therefore regulated by the Town. A site walk was conducted with the Town Environmental Consultant, Mr. Bruce Barber, on August 5, 2010 to confirm the wetland boundaries on the site. During the site walk the wetland boundaries as delineated by Evans Associates were determined by Mr. Barber

to be accurately delineated. Mr. Barber confirmed the findings of the site walk in his August 6, 2010 letter to the Planning Board. A copy of Mr. Barber's August 6, 2010 letter is included in the Appendix VII.C of this DEIS.

New York State Department of Environmental Conservation Protection of Waters Program Regulations

In addition to wetlands, the DEC also regulates certain watercourses or water bodies in accordance with the New York State Protection of Waters Program regulations (Article 15 of the New York State Environmental Conservation Law). Watercourses that are regulated are those classified as "Protected Streams" or "Protected Waters" based on the existing or expected best usage of these waters. Un-named, perennial tributaries are given the classification of the stream to which they are tributary. Watercourses and water bodies that are classified "AA", "A", "B", "C(t)" or "C(ts)" are protected, and an Article 15 permit is required to disturb the bed or banks of such streams (up to 50 feet from the stream).

The stream on the property is not shown on DEC or USGS maps. Therefore, the stream on the site is not regulated by the DEC as a "Protected Stream." The closest mapped perennial stream to the site is the Hunter Brook that is located approximately 2,400 feet to the west. This section of the Hunter Brook is classified as C(ts) and is therefore considered a "Protected Stream."

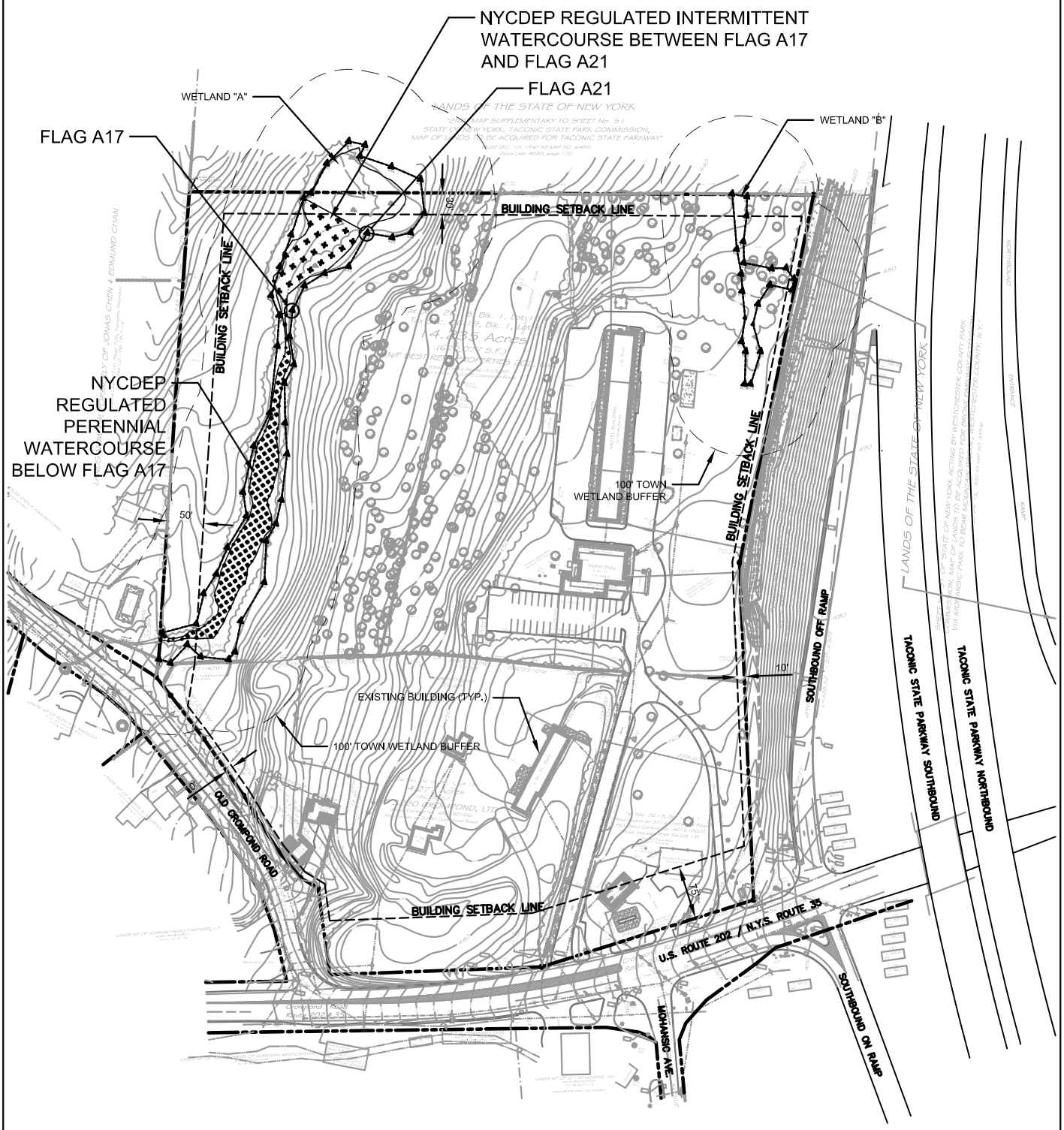
New York City Watershed Regulations (NYC Department of Environmental Protection)

The site is within the New York City Watershed as part of the Hunter Brook Basin and is therefore subject to the New York City Department of Environmental Protection (DEP) "Rules and Regulations for the Protection from Contamination, Degradation, and Pollution of the New York City Water Supply and its Sources" (effective May1, 1997, amended April 4, 2010) (Regulations). Within the New York City Watershed, the DEP regulates certain activities that occur within a limiting distance from perennial watercourses and intermittent watercourses as well as from DEC-regulated wetlands. A DEP-regulated watercourse is defined in the Regulations as "a visible path through which surface water travels on a regular basis, including an intermittent stream, which is tributary to the water supply. A drainage ditch, swale or surface feature that contains water only during and immediately after a rainstorm or a snowmelt shall not be considered to be a watercourse."

Site walks were conducted with Ms. Mary Galasso of the DEP on June 29, 2010, August 30, 2010 and May 25, 2011. The purpose of the site walks was to determine if there are any surface water features on the site that meet the DEP definition of a perennial or intermittent watercourse. The wetlands on the site are not regulated by the DEC and therefore do not meet the DEP

definition of a wetland. Ms. Galasso determined that the surface water feature within Wetland A contains both perennial and intermittent sections. The section of Wetland A that is between wetland flag #21 and wetland flag #17 is considered by the DEP to be intermittent and will be regulated as such. The section of Wetland A between wetland flag #17 and the western property boundary is considered by the DEP to be perennial and will be regulated as such. There are no other surface water features on, or adjacent to, the site that meet the DEP definition of a watercourse. Based on the findings of the site walks, a NYC DEP Watercourse Map (*Exhibit III.F-2*) was prepared and signed by Ms. Galasso. The signed NYC DEP Watercourse Map is valid for five years from the date of the signature.

Typically the DEP prohibits certain regulated activities within limiting distances from perennial streams (100 feet) and intermittent watercourses (50 feet). However, as stated in the August 12, 2010 letter from Ms. Galasso to Evans Associates, "[r]eview of the tax parcel data indicates that this project is located within the Crompond Designated Main Street Area (DMA). Section 18-39 (a) (3) of the "Rules and Regulations for the Protection from Contamination, Degradation and Pollution of the New York City Water Supply and Its Sources" (Regulations) allows new impervious surfaces within limiting distances provided that a stormwater pollution prevention plan (SWPPP) for the new impervious surfaces is reviewed and approved by the DEP. Therefore, the construction of new impervious surfaces in the vicinity of these features is not prohibited by the Regulations." A copy of the letter from Ms. Galasso is included in the Appendix VII.C of this DEIS.



TRC

TRC Engineers, Inc.
7 Skyline Drive
Hawthorne, New York 10532

Exhibit III.F-2
Watercourse Map

COSTCO WHOLESALE
Town of Yorktown, New York

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2. Potential Impacts

a. Potential Direct Impacts to Wetlands, Wetland Buffers, Vernal Pools or Surface Waters

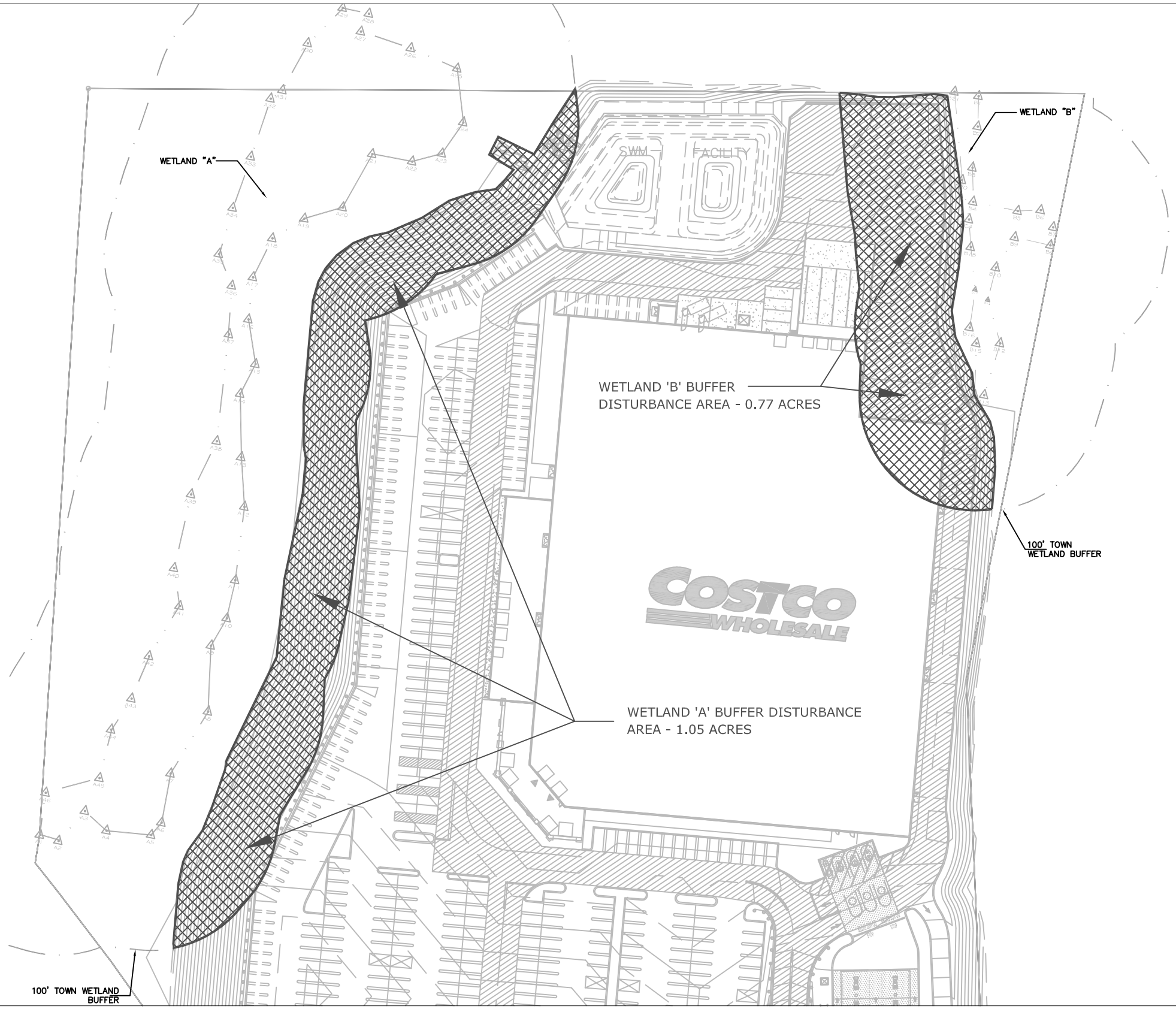
The existing area of the wetlands and wetland buffer along with the proposed direct wetland impacts and wetland buffer impacts are discussed below and summarized in *Table III.F.2*.

Direct Impacts* to *Wetlands

There are no direct wetland impacts (soil disturbance) associated with the Proposed Action. Potential indirect impacts, such as change in the water budget or hydroperiod of the wetlands, or changes in the vegetative cover and drainage patterns in the wetland buffers have been taken into account in the design of the project. For example, the shallow pool at the headwater of Wetland A has some features which support vernal pool species during some years (2011, which was an exceptionally wet year). However, since this wetland is primarily supported by groundwater discharge, the hydrology of the wetland is driven by fluctuations in the groundwater level, and is not consistent enough to support vernal pool species on a long term basis. The project has been designed to provide more consistent surface water input, which may help insure the breeding success of amphibians using the upper portion of the wetland.

Direct Impacts to Wetland Buffers

Proposed impacts to the Town-regulated 100-foot wetlands buffer are depicted on *Exhibit III.F-3, Wetland Buffer Impacts Map*. Since the initial submission to the Town that was made prior to preparation of the DEIS, the site plan has been revised to reduce the Wetland A buffer disturbances. Impacts to the Town regulated 100-foot wetland buffers for the current proposed action total 1.82 acres (79279 sq. ft.). Soil disturbance impacts to the buffer of Wetland A are temporary in that the disturbed soil will be stabilized and re-vegetated. However, the topography is permanently modified by grading of the embankment. The impacts to the disturbed portions of the buffer of Wetland B are permanent, as impervious surfaces are proposed within the buffer.



Buffer Impact Summary:

	Wetland Area	Buffer Area	Buffer Impacts
A	0.91 ac.	3.48 ac.	1.05 ac. (30%)
B	0.13 ac.	1.18 ac.	0.77 ac. (65%)

Direct Wetland Impacts Proposed = None

Wetland Buffer Impact Area

GRAPHIC SCALE

0 50 100 200

(IN FEET)
1 inch = 100 ft.

TRC Engineers, Inc.
7 Skyline Drive
Hawthorne, New York 10532

Exhibit III.F-3
Wetland Buffers Impact Map

COSTCO WHOLESALE
Town of Yorktown, New York

Source: Evans Associates Environmental Consulting, Inc.

Wetland A Buffer Disturbance Direct disturbance within the 100-foot buffer for Wetland A comprises 1.05 acres. The proposed activities within the 100-foot buffer for Wetland A primarily consist of grading and embankment. There is also some grading within the wetlands buffer associated with construction of the stormwater detention pond in the northern portion of the site. These impacts are temporary in that the disturbed soil will be re-stabilized and re-vegetated. However, the changes in topography and type of vegetation are permanent. No impervious surfaces are proposed within the buffer. The grading activities that are proposed within the wetlands buffer will occur generally within the outer half of the buffer. The portion of the wetlands buffer that is proposed to be disturbed consists of a combination of mature forest, disturbed successional southern hardwood forest and disturbed successional old field. The mature forested areas within the outer half of the buffer east of the wetland as well as the entire wetlands buffer of the west side of the wetland will remain undisturbed. Approximately 1.05 acres (21 percent) of the existing 5.05 acres of the 100-foot wetlands buffer for Wetland A will remain undisturbed.

Wetland B Buffer Disturbance Direct disturbance within the 100-foot buffer for Wetland B comprises 0.77 acres. The proposed activities within the 100-foot buffer for Wetland B consist of pavement, the northeast corner of the building, and the a portion of the access road. The western part of the portion of the wetlands buffer that is proposed to be disturbed consists of disturbed successional southern hardwood forest. The southern part of the wetlands buffer that is to be disturbed consists of mowed lawn that is associated with the former motel. The proposed limit of disturbance will come within an average of around twenty feet of the western boundary of Wetland B.

As described in Section III.F of this DEIS, Wetland A has significantly greater functional value than Wetland B. Wetland B was evaluated and determined to have relatively low functional value relative to other similar wetlands, as it is small in area and has fluctuating hydrology. Because the buffer surrounding Wetland B is currently mostly disturbed, it too has limited functional value relative to wetland or water quality protection. For these reasons, the Applicant feels that placing the development closer to Wetland B (reducing the width of the buffer) allows greater preservation of the wooded buffer associated with Wetland A, and thus provides greater protection of the habitat types and water quality associated with that wetland. Approximately 0.77 acres (35 percent) of the existing 2.19 acres of the 100-foot wetlands buffer for Wetland A will remain undisturbed.

Direct Impacts* to *Vernal Pools

In the opinion of the Applicant's wetland consultant, there are no direct impacts to vernal pools associated with the Proposed Action. In fact, as

discussed in the Wetland Water Budget Analysis, it is the Applicant's opinion that the proposed discharge of treated stormwater to the headwaters of this wetland may improve the ability of this wetland to serve as viable breeding habitat for amphibians on a more consistent basis.

Direct Impacts to Surface Waters

There are no direct impacts or alterations proposed to the bed or banks of any of the surface waters associated with the Proposed Action. It is the Applicant's opinion that the proposed discharge of treated stormwater to the headwaters of Wetland A may improve the ability of this wetland to serve as viable breeding habitat for amphibians and other wetland dependent species on a more consistent basis.

Table III.F.2
Existing Wetlands, Wetland Buffers and Proposed Impacts

Wetland ID	Wetland Area (ac)	Total Buffer Area (ac) (1)	Direct Wetland Impact (ac)	Wetland Buffer Impact (ac)
Wetland A	0.91	5.05	0	1.05
Wetland B	0.13	2.19	0	0.77
Total	1.04	7.24	0	1.82

(1) Includes onsite and offsite buffer area

b. Identify Location of any Proposed Buildings, Impermeable Surfaces, Major Artificial Landforms or Utility Lines/connections in Relation to Surface Waters, Wetlands or Wetland Buffers

Development activities associated with the proposed action in relation to wetlands and wetland buffers are depicted on *Exhibit III.F-3, Wetland Buffer Impacts Map*. There are no development activities proposed within wetlands or surface waters. Development activities within wetland buffers are described in Section III.F.2.a. above.

c. Identify any Potential Secondary Disturbances to Wetlands or Wetland Buffers Relating to Activities or Construction Outside Wetlands or Wetland Buffer Areas such as Erosion During Site Construction, Runoff from Proposed Impermeable Surfaces, Use of Fertilizers, etc.

Runoff from New Impermeable Surfaces Untreated stormwater runoff from new impervious surfaces following construction has the potential to reduce the water quality of downstream wetlands. The redevelopment of the site would increase the impervious surfaces on the site. However, the existing conditions do not provide for any water quality treatment or detention of surface water runoff from the paved parking areas, vacant motel buildings, plant nursery and fence contractor. In order to minimize potential water quality impacts to the on site wetlands and off site downstream wetlands/waterbodies, a Stormwater

Pollution Prevention Plan (SWPPP) was prepared by the project engineer. Stormwater management practices will be designed based on the NYSDEC *New York State Stormwater Management Design Manual* (August, 2010). The design of the stormwater management system includes a micropool extended detention pond with a multi-stage outlet that will reduce outflow from the pond and enhance stormwater quality. The pond is a NYSDEC standard practice that will minimize thermal impacts and reduce pollutants loads from the pond discharge. (Also see Section III.G.2.c and 2.e of this DEIS for discussion regarding stormwater quality treatment.) The design will result in a no net increase in peak runoff rates leaving the property when compared to existing conditions.

Due to the nature of development resulting in an increase in impervious area, there will be a net increase in stormwater volume. See Section III.G.2 for further discussion regarding stormwater runoff rates, volumes and pollutants. Wetland A, as part of its natural function, has stormwater detention capacity. Its ponding capacity was considered when modeling the stormwater flow through the site. Water quality treatment will be provided within the proposed pond and Wetland A will not be relied upon to provide stormwater quality treatment to meet the required pollutant removals. Any additional abatement provided within the wetland will be an added benefit.

Changes in the hydrology of the wetlands on the site have been carefully considered in design of the stormwater management measures to insure that there will be no adverse indirect impacts to the wetland hydroperiod or water budget as a result of the development.

Potential Erosion During Construction Untreated stormwater runoff during construction has the potential to cause erosion and reduce the water quality of downstream wetlands. The SWPPP includes an erosion and sediment control plan that will be implemented during construction to minimize the potential impacts on wetlands and water bodies. The Erosion and Sediment Control Plan is prepared in conformance with both the *New York Standards and Specifications for Erosion and Sediment Control* (August 2005). Potential stormwater impacts and proposed mitigation measures are discussed in detail in Section III.G. - Stormwater Management.

Use of Fertilizers Precipitation and the resulting runoff are important mechanisms by which nitrogen, phosphorus and other nutrients are transported from watersheds into wetlands, streams, and reservoirs. The excessive and/or improper use of fertilizers can result in increased nutrient runoff, causing eutrophication and hypoxia from nutrient pollution, which can impact wetlands and receiving waters.

Eutrophication is a process where excess nutrients enter into water bodies, such as lakes, estuaries and streams, and over stimulate the growth of algae, resulting in an algae bloom. This algae bloom blocks sunlight from

penetrating the water which reduces the growth of plants that provide vital underwater food and shelter. In turn, the animals that depend on those plants either emigrate or die. In addition, when the algae decompose, much of the available oxygen in the water is consumed, and as a consequence, dissolved oxygen levels in the water drop drastically. Hypoxia occurs where dissolved oxygen has been reduced to such a degree that fish and aquatic life are deprived of life sustaining oxygen.

Westchester County has identified eutrophication and hypoxia from nutrient pollution due to human activities, which includes excessive and/or improper use of fertilizers, as a primary water quality problem. As a means of addressing this problem, the County adopted a lawn fertilizer law (Article XXVI of Chapter 863) on April 27, 2009 (http://www.westchestergov.com/pdfs/ENVFACIL_2008LawnFertilizerLaw.pdf) which limits the use of phosphorous-containing lawn fertilizers. It imposes other common-sense restrictions on the application of lawn fertilizers in an effort to minimize the damaging effect of run-off that enters storm drainage systems and is carried to rivers, lakes, streams and wetlands. The legislation is intended to provide comprehensive public education resources for both homeowners and landscapers as it restricts the sale and use of certain products. Costco does carry lawn fertilizer in their product line for sale and will comply with limitations placed on retailers limiting the sale of phosphorous containing fertilizer in accordance with Chapter 863 of the Laws of Westchester County.

d. Discuss and Quantify Potential Impacts of each type of Disturbance, Including any Secondary Disturbance Relative to Onsite and if Applicable Offsite Wetlands and Surface Waters. Describe Impacts on Functional Values of Wetlands, Vegetative Composition, Wildlife Habitat, Pollution Abatement, Hydrology, etc.

Potential Impacts to Onsite and Offsite Wetlands Direct disturbance to onsite wetlands, wetland buffers and surface waters are quantified in *Table III.F.1* and are discussed and in Section III.F.2.a. Potential water quality related secondary disturbances to onsite and offsite wetlands and surface waters are discussed in Section III.F.2.c. above.

Potential Impacts to Wetland Functions The functions provided by each of the two wetlands on the site are discussed in Section III.F.1.a. The functions provided by Wetland A include hydrologic support, flood water storage, water quality maintenance and provision of wetland dependent vegetation and wildlife habitat including vernal pool dependent species of amphibians. There are no direct impacts proposed to Wetland A. Proposed disturbance to the buffer of Wetland A is discussed in Section III.F.2.a. The hydrologic support, flood water storage and water quality maintenance functions will still be provided by Wetland A after the project is constructed, as discussed in the

Wetland Water Budget Analysis. The wetland will also continue to provide habitat for wetlands vegetation.

There are no direct impacts to the ponded area in the northern portion of the wetland where wood frog and spotted salamander egg masses were observed. As outlined in the Wetland Water Budget Analysis, there will also be no net increase in peak runoff rate from the property when compared to existing conditions. Outside of the breeding season, wood frogs and spotted salamanders are terrestrial and primarily utilize forested uplands. Although some of the forested buffer on the east side of the wetland will be disturbed, the mature forest on the west side of the wetland as well as the mature forested areas off the site to the west and north will remain undisturbed. These forested areas will continue to provide post-breeding habitat for wood frogs and spotted salamanders. Overall, the wetland will continue to provide the functions that it currently provides after the project is constructed.

Wetland B provides few functions and values that are typically associated with wetlands. This wetland is hydrologically isolated and does not provide drainage continuity within the watershed. Wetland B is not capable of providing much flood water storage, nor can it provide water quality improvements due to its slope and small size. Wetland B also provides little in terms of biological functions due to its small size, limited areas of wetland vegetation, and lack of ponded water. There are no direct impacts proposed to Wetland B, but the buffer on the west and south sides of the wetland will be largely impacted by the proposed action (see Section III.F.2.a.). The southern half of the wetlands buffer is currently vegetated with mowed lawn, and the off-site portion of the wetlands buffer to the east primarily consists of grass on the steep embankment for the Taconic Parkway. Overall, the wetland will continue to provide the limited functions it currently provides after the project is constructed.

Potential Impacts to Wetland Vegetative Composition and Wildlife Habitat
There are no direct wetland impacts associated with the proposed action. Development activities around wetlands have the potential for the introduction of non-native, invasive species. However, typical problematic non-native, invasive wetland species such as common reed and purple loosestrife (*Lythrum salicaria*) are not shade tolerant. The composition of the vegetative community in Wetland A includes native tree, shrub, and herbaceous species (see Section III.F.1.a). The buffer on the west and east sides of Wetland A are closed canopy forested areas that are predominantly vegetated with native species. However, as you move further east away from the wetland, the buffer becomes more disturbed. This area includes a mix of young forested areas and old field habitat vegetated with a mix of native, non-native, upland, and invasive species (see Section III.F.1.a.). The non-native, upland species in the eastern portion of the buffer include tree-of-heaven, black locust, multiflora rose, Tartarian honeysuckle, Oriental bittersweet, garlic mustard and mugwort. Wetland A will remain a closed canopy forested wetland and the

potential for the introduction of common reed and purple loosestrife will be minimal. Although non-native, invasive species are currently present in the eastern portion of the buffer of Wetland A they are upland species that would typically not colonize wetlands.

The composition of the vegetative community in Wetland B consists of a disturbed forested area in the north portion of the wetland and a disturbed open canopy area in the south portion of the wetland. There are no direct impacts proposed to Wetland B, but the buffer on the west and south sides of the wetland will be impacted by the proposed action. The proposed action will not result in any direct impacts to the wetland, but it may result in some alteration of the wetland vegetation due to altered hydrology. .

Potential Impacts to Wildlife Habitat Many of the wildlife species that are expected to be found in Wetland A would just as likely utilize the surrounding upland forested habitats and do not rely upon the wetland to complete their life cycle. The only wildlife species that were found in Wetland A that rely upon the wetland as breeding habitat are the wood frog and spotted salamander (see Section III.F.1.a. and Section III.E.1.b.). There are no direct impacts proposed to Wetland A. The proposed action will also not impede the movement of these pool breeding amphibians between the wetland and their on site and off site post-breeding upland forested habitat.

The north portion Wetland B consists of a disturbed forested area and the south portion of this wetland is a disturbed open canopy area. The wetland is surrounded by highly disturbed areas to the south and east in the form of mowed lawn and the slope for the Taconic Parkway. Due to its small size, lack of ponded water, and limited wetlands vegetation, Wetland B provides little in terms of wildlife habitat for wetland dependent species. Species that utilize this wetland would be disturbance-associated species that are just as likely to utilize the surrounding wooded uplands and disturbed upland areas. These disturbance-associated species would continue to utilize Wetland B following the proposed development of the site (see Section III.E.1.e.).

Potential Impacts to Pollution Abatement Potential water quality related impacts to wetlands are discussed in Section III.F.2.c. As discussed in Section III.F.1.a. Wetland A provides several water quality functions. The forested wetland corridor also plays a role in the storage of flood waters but the wetland is relatively narrow and only has a limited capacity for flood water storage. The vegetation in the wetland along with the microtopographic features allows the wetland to perform water quality maintenance functions when the wetland contains flowing or ponded water. Flowing water is slowed, and sediment, particulates, and nutrients can settle out or be taken up by the wetland vegetation. Wetland A will continue to provide these water quality related functions after the proposed development is completed.

As discussed in Section III.F.1.a. Wetland B does not provide water quality functions to any considerable degree. Wetland B is not capable of providing much flood water storage, nor can it provide water quality improvements due to its slope and small size. However, the stone wall that forms the northern wetland boundary and property boundary does serve as a barrier for sediment deposits that were noted in this portion of the wetland.

Potential Impacts to Hydrology Potential impacts to wetland hydrology are discussed in Section III.F.2.c and in the Wetland Water Budget Analysis. As discussed in Section III.F.2.c, the majority of the site currently drains to the west to Wetland A, while very little of the site drains to Wetland B. The existing conditions on the site do not provide for any water quality treatment or detention of surface water runoff from the paved parking areas, vacant motel buildings, plant nursery and fence contractor. In order to minimize potential water quality impacts to the on site wetlands a SWPPP was prepared by the project engineer. The design of the stormwater management system is planned to include a multi-stage system to enhance stormwater quality to a level that is equal or better than pre-development conditions. The design will result in a no net increase in peak runoff rates from the property when compared to existing conditions. Potential stormwater impacts and proposed mitigation measures are discussed in detail in Section III.G. - Stormwater Management and also in the Wetland Water Budget Analysis.

e. Discuss Construction and Post-construction Potential Impacts to Ground Water and Surface Water as a Result of Sedimentation, Potential Pollutant Loading and Thermal Pollution

Potential Ground Water and Surface Water Impacts Potential impacts to ground water and surface water during construction as well as post-construction are discussed in Section III.F.2.c. Potential stormwater impacts and proposed mitigation measures are discussed in detail in Section III.G. - Stormwater Management.

Potential Pollutant Loading Impacts Potential impacts from pollutant loading are discussed in Section III.F.2.c. Potential stormwater impacts and proposed mitigation measures are discussed in detail in Section III.G. - Stormwater Management.

Potential Thermal Impacts Thermal impacts occur when runoff at an elevated temperature mixes with cooler water in the receiving water body, causing an increase in temperature of the water. In general, the maximum temperature for sensitive fish species ranges to about 78° F. Studies have shown that runoff from building roofs and paved parking areas can reach temperatures of about 110° F. Thermal effects in this area are mostly limited to the summer months since, in bodies of water with temperature dependent species such as trout, warm water temperatures can be lethal. Land cover

types, such as asphalt pavements and roofs can exhibit very warm temperatures, given sufficient solar insolation to heat up.

The temperature of runoff is dependent on several factors, including the land cover type, the ambient air temperature, which is dependent mostly on the season, the temperature of the surface of the land use, the depth of precipitation, and the time of day of the precipitation event. Ambient air temperature will have an impact not only on the temperature of the land cover type which the rainfall strikes, but also the temperature of the rain. The depth of precipitation also impacts the temperature of the runoff. During a rainfall event, the runoff at the beginning of the event is the warmest, since as the rainfall event continues, the temperature of the pavement surface and building roofs will drop as heat is transferred to the runoff. The ambient air temperature may also drop during the rainfall event, sometimes significantly, as during a summer thunderstorm. This, in turn, will reduce the initial temperature of the precipitation impacting the pavement surface or building roof. Finally, the time of the day affects the temperature of the runoff. If the rain falls in the morning before or shortly after sunrise, the building roofs and roads have not been subjected to appreciable solar radiation. Their surface temperature is then typically equivalent to the ambient air temperature, which in summer mornings is usually about 65° F. If a rainfall event occurs in the afternoon as often occurs with summer thunderstorms, then the above noted impervious surfaces would have been subject to hours of solar insolation and may become much warmer than the ambient air temperature.

Stormwater runoff from the developed site is collected and treated in a micropool extended detention pond. Chapter 6.1.1 of the DEC Design Manual recommends this treatment to minimize thermal impacts to downstream trout waters. The treated runoff from the stormwater basin discharges to Wetland A. According to §178-9 of the Town Freshwater Wetlands regulations, “It shall be unlawful to place or deposit chemical wastes or to introduce influents of sufficiently high thermal content as to cause deleterious ecological effect in any wetland or buffer area.” Because Wetland A will not be used to treat stormwater runoff, and the thermal impacts of the treated runoff entering the wetland will be minimized, the proposed plan is not a prohibited action in accordance with this regulation. There are no surface waters in Wetland A or anywhere else on the site that could support fish. The stream within Wetland A flows off the site under Old Crompond Road to a wetland system that is between Old Crompond Road and Crompond Road. There are no perennial streams or water bodies in this wetland that could support fish. This wetland drains into a culvert that ultimately discharges to Hunter Brook that is located approximately 2,400 feet to the west of the site. This section of the Hunter Brook is classified by the DEC as C(ts) which means it may be capable of supporting trout populations and trout spawning.

The temperature of the runoff from the site will be attenuated. First, the runoff from the building "cool" roof will be moderated, as the roof material, a highly reflective metal roof, is designed for cooling. Landscape islands with shade trees are provided throughout the parking area. Runoff from the site will be conveyed through underground pipes for the duration of its travel time to its discharge at the detention pond. Within the pond the temperature of the runoff will be attenuated due to contact with vegetation. The pond is designed with a "micropool" intended to perform water quality functions. The micropool is intentionally small so it provides only a small thermal mass. The pond is recommended by the NYSDEC for use when discharging to temperature sensitive water bodies.

Discharge from the pond will traverse a wooded area from the pond to the wetland and the temperature will be further attenuated when it flows for approximately 700 feet through the forested wetland on the site. The flow continues off site through a pipe near Old Crompond Road for approximately 300 feet before draining into the forested wetland on the south side of Old Crompond Road. The flow continues through this forested wetland for approximately 800 feet before entering a culvert that continues for approximately 1,000 feet before discharging into Hunter Brook. Overall, by passing through over one half mile of forested wetlands and underground pipes the temperature of the stormwater runoff will be lowered and the potential for thermal impacts on Hunter Brook will be greatly reduced.

f. Provide a Water Budget Analysis to Assess Potential Impacts Onsite and as Appropriate Offsite Wetlands

A Wetland Water Budget Analysis was prepared for Wetland A, and is included in Appendix VII.C of this document. The Proposed Action will result in an increase of 8.01 acres of impervious area within the project site as well as 0.61 acres associated with offsite improvements. The increase, however, has been minimized by implementing several green infrastructure planning measures. These measures are discussed in section 3.1 of the SWPPP, which is included in Appendix VII.D of this DEIS. Several such planning measures that resulted in a decrease in paved surfaces were the utilization of a smaller than standard Costco parking module and a proposed reduction in the total number of parking spaces. (See Sections III.L for discussion of parking and III.G.3 for other green planning measures.)

The increase in impervious area results in an increase in the total volume of stormwater runoff, however, runoff reduction, in accordance with Chapter 4.3 of the DEC "Stormwater Management Design Manual", will be provided through the implementation of an infiltration practice. (See Section III.G.2.c. for further discussion.) Prior to conveyance of stormwater runoff to the stormwater management pond for water quality treatment and peak discharge abatement, runoff from a portion of the total contributing area, approximately seven acres of the proposed development including site parking area as well as

a portion of Route 202/35, will be diverted to a subsurface infiltration facility. This runoff will be infiltrated to the subsoils and will, therefore be removed from the site's stormwater discharge. Stormwater runoff from the remaining proposed development will be conveyed to a micropool extended detention pond, which is located at the northern portion of the site, for water quality treatment. There, runoff will be treated and nutrients removed through sedimentation as well as through biological uptake within the pond ecosystem. After treatment for water quality, the peak discharge rate will be controlled through the use of a multi-stage outlet structure. The treated stormwater will be released from the pond into wetland A. Runoff from the pond to the wetland will be conveyed through a stabilized channel.

The micropool detention pond, is an appropriate choice for water quality treatment for use upstream of trout waters (Hunter Brook). This pond is a standard treatment practice with a small permanent pool, thereby limiting the amount of water susceptible to thermal heating and is recommended by the NYSDEC for application when discharging to trout streams (Section 6.1.1 and Table 7.3a of the Design Manual). (For description of soils see Appendix VII.M, Subsurface Geotechnical Investigation.)

Under proposed conditions, the stormwater runoff contributing to Wetland A, the vernal pool and the existing watercourse for any given storm will be greater than under existing conditions. This will result in a more consistent source of hydrology to the wetland. The existing vernal pool is described in section F.1.a. above, as seasonally ponded in some years and does not appear to be very productive. This, in part, is due to its irregular source of hydrology. As discussed in detail in the Wetland Water Budget Analysis, the increase in stormwater volume will likely increase the success and productivity of the existing vernal pool. The onsite watercourse drains to the Crompond Wetland which will also be able to assimilate the stormwater runoff and benefit from the increased water volume. (Also see Section III.G.2.g for additional discussion regarding stormwater management impacts to the onsite wetlands, including volume, rates and pollutants.)

g. Discuss Required Regulatory Review Process and Necessary Permit Procedures; e.g., State Pollution Discharge Elimination System (SPDES)

As stated previously, there are no direct wetland impacts associated with the Proposed Action. Therefore, a wetlands permit is not required from the ACOE. There are also no DEC-regulated wetlands on, or adjacent to, the site. Therefore, a wetlands permit is not required from the DEC. The wetlands on the site along with their associated 100-foot buffer are regulated by the Town of Yorktown. As described in Section III.F.2.a. disturbance is proposed within the Town-regulated 100-foot wetlands buffer. Therefore, a wetlands permit is required from the Town.

Neither an ACOE nor a DEC wetlands permit is required for the Proposed Action. A wetlands permit is only required from the Town of Yorktown for proposed disturbance within the Town-regulated 100-foot wetlands buffer. The Town of Yorktown mitigation policy and mitigation plan requirements are described in Section 178-17, *Mitigation Policy and Plan Requirements,* of Chapter 178 of the Town Code. As described in Section 178-17.A. *Mitigation Policy,* mitigation is permitted as compensation for unavoidable wetland losses. As described in Section 178-17.B. *Mitigation Plan*, the Town Planning Board **may** require preparation of a mitigation plan. For direct wetland impacts a mitigation ratio of at least 1:1 is required. Again, there are no direct wetland impacts associated with the Proposed Action therefore wetlands creation is not being proposed. There is no mitigation ratio specified for impacts to the Town-regulated 100-foot wetlands buffer. However, it is stated in Section 178-17.B.(3) the Town Code that "[a]dequate mitigation for intrusion into wetland buffer areas shall preserve the ecological characteristics and function of the associated wetland." Mitigation measures for the proposed impacts to the Town-regulated 100-foot wetlands buffer are discussed in Section III.F.3.

The NYSDEC requires coverage under the SPDES General Permit for Stormwater Discharges from Construction Activity, Permit No. GP-0-10-001, for all construction activity that involves soil disturbance of at least one acre or 5,000 square feet if located in the New York City Watershed located east of the Hudson River. Obtaining coverage under this permit requires preparation of a SWPPP and a Notice of Intent (NOI), which must be reviewed and accepted by the Town of Yorktown as the regulated, traditional land use control MS4 entity as defined in Permit No. GP-0-10-001. A SWPPP was prepared and is included in Appendix VII.D of this DEIS.

Although a DEP-regulated watercourse is present on the site, a permit is not required for the proposed action because the property is located within the Crompond Designated Main Street Area (DMA). The DMA governing regulations allow for encroachment into the watercourse buffer as long as certain criteria are met, as detailed in Section III.F.1.f. above.

h. Identify Proposed Increase in Impervious Surface and Evaluate Impacts such as Increased Volume and Speed of Runoff and Decreased Groundwater Recharge, Increased Turbidity and/or Contamination during and after Construction and Impacts to Wetlands and Mohansic Swamp

Potential impacts during construction as well as from increased impervious surfaces post-construction are discussed in Section III.F.2.c. Potential stormwater impacts and proposed mitigation measures are discussed in detail in Section III.G. - Stormwater Management, and in the Wetland Water Budget Analysis. The site is not within the drainage area of the Mohansic Swamp and therefore the Proposed Action will not have any impact on this resource. The

site does, however, flow to the Crompond Wetland, which is located between Route 202/35 and Old Crompond Road, approximately 350 feet downstream from where the existing watercourse discharges from the site.

The stormwater runoff volume from the site will contribute to the offsite water system including the Crompond Wetland. The stormwater runoff will be treated onsite for the removal of sediment as well as nutrients and other pollutants within the micropool extended detention pond. The referenced stormwater management pond is a standard treatment practice recommended by the NYS DEC and will reduce peak runoff rates resulting in decreased discharge velocities. Stormwater runoff from the site will be managed during construction in accordance with the SWPPP and Sediment and Erosion Protection Plan, which is included in Appendix VII.D of this DEIS. As part of the functions associated with wetlands, both the onsite Wetland A as well as the Crompond Wetland will help to abate stormwater runoff by providing storage which will promote recharge of the water table. These functions will not be altered by the proposed development, as there are no changes proposed to the wetlands themselves.

i. Identify any Potential Impacts to Surface Water and Groundwater Related to Petroleum Bulk Storage for Proposed Fueling Station

The potential impacts to groundwater and surface water on and surrounding the property related to petroleum bulk storage range from minimal to none. Any potential impact to groundwater and surface water would likely be associated with a release or spill from underground storage tanks or piping, overfilling of the storage tanks, or during the filling of individual automobiles. Refer to Section III.D.2.b and III.D.3.c for a more detailed discussion.

j. Regarding Construction that will occur on Land where Depth to Groundwater is less than 3 feet, Impacts from Day-lighting Groundwater Seeps and Construction Dewatering must be Investigated. Post-construction Impacts from Seepage must be Considered

Based on the subsurface data and information provided by the Applicant's geotechnical consultant, there are no areas within the Project site where depth to groundwater is less than 4 feet. In general, shallow groundwater was encountered in the eastern portion of the site along the rear of the proposed Costco building, with depth to groundwater generally ranging from 4 to 10 feet. Groundwater depths are indicated in the boring and test pit logs within the Geotechnical Engineering Report, which is included in Appendix VII.M of this DEIS.

Groundwater and/or groundwater seepage may be encountered during deeper excavations required for construction of the Costco building, especially along the eastern portion of the site. If encountered during construction, dewatering should be performed to maintain a water level at least 2 feet below the deepest

excavation within soil areas. Dewatering should also be performed in a manner that will prevent loosening or migration of the subgrade soils. Methods such as a well point system or a system of sumps placed outside the footing excavations may be practical. Sumping directly in the footing excavations should not be performed. During construction, dewatering methods implemented as part of the soil erosion and sediment control plan will be in conformance with the *New York Standards and Specifications for Erosion and Sediment Control* (August 2005).

Post-construction seepage may occur along the eastern portion of the site adjacent to the back of the Costco building. An underdrain system will be installed to intercept groundwater from the adjacent embankment. Underdrains will be placed behind the retaining wall or at the toe of slope along the perimeter road and they will be connected to the site storm drainage system, which will be conveyed to the stormwater management pond. From there, treated stormwater will be discharged to Wetland A.

3. Mitigation Measures

a. Assess Wetland Avoidance, Replacement and/or Enhancement

As discussed previously, there are no direct wetland impacts associated with the Proposed Action. Therefore, the proposed mitigation measures do not include creating wetlands or enhancing wetlands. Rather the mitigation plan focuses on enhancing the existing wetland buffers. The wetlands buffer mitigation plan is discussed in Section III.F.3.c.

b. Describe Measures Required by Regulatory Agencies with Authority over Wetlands and Watercourses (e.g., NYSDEC, NYCDEP and the ACOE) to Mitigate Potential Impacts Discussed Above

A wetlands permit is only required from the Town of Yorktown for proposed disturbance within the Town-regulated 100-foot wetlands buffer. A wetlands permit is not required from the NYSDEC or ACOE. NYCDEP storm water permitting requirements are discussed in Section III.G. - Stormwater Management.

The Town of Yorktown mitigation policy and mitigation plan requirements are described in Section 178-17, *Mitigation Policy and Plan Requirements,* of Chapter 178 of the Town Code. As described in Section 178-17.A. *Mitigation Policy*, mitigation is permitted as compensation for unavoidable wetland losses. As described in Section 178-17.B. *Mitigation Plan*, the Town approval authority **may** require preparation of a mitigation plan. For direct wetland impacts a mitigation ratio of at least 1:1 is required. Again, there are no direct wetland impacts associated with the Proposed Action therefore wetlands creation is not being proposed. There is no mitigation ratio specified for impacts to the Town-regulated 100-foot wetlands buffer. However, it is

stated in Section 178-17.B.(3) the Town Code that "[a]dequate mitigation for intrusion into wetland buffer areas shall preserve the ecological characteristics and function of the associated wetland."

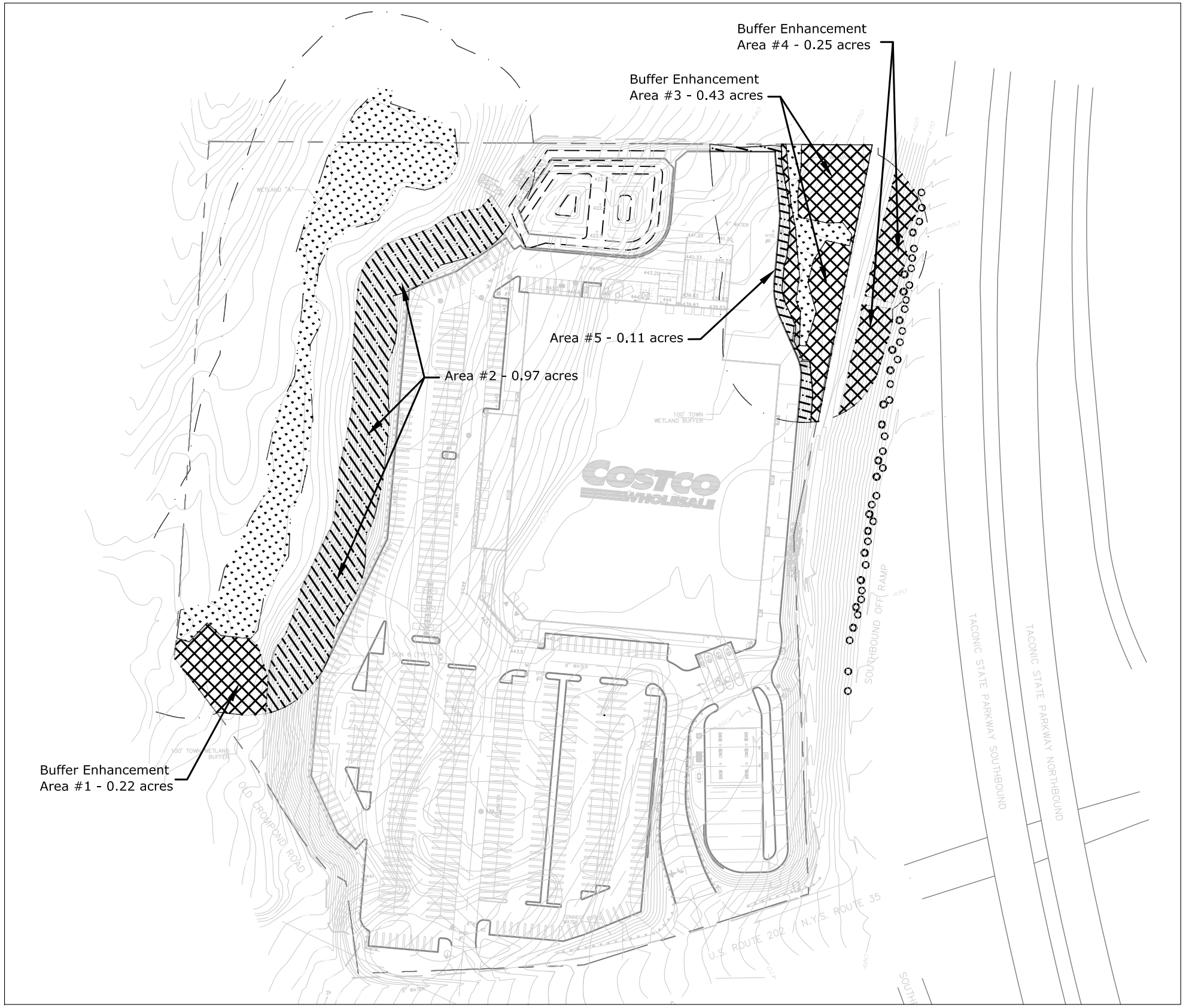
c. Provide a Wetlands Mitigation and Management Plan. Provide a Narrative and Table Indicating Proposed Measures to be taken to Mitigate Impacts to Groundwater, Surface Waters, Wetlands, Wetland Buffers and Vernal Pools Including the Hunter Brook and Mill Pond. Mitigation Plan Shall Address area loss and Changes to Wetland and Wetland Buffer Hydrology, Biology, Function and Pollutant Removal.

The potential impacts to wetland related resources and proposed mitigation measures are summarized in *Table III.F.3* and are discussed below.

Wetlands Mitigation As stated previously, there are no direct wetland impacts associated with the Proposed Action. Therefore, the proposed mitigation measures do not include creating wetlands or enhancing wetlands.

Wetlands Buffer Mitigation The proposed impacts to wetland buffers are discussed in Section III.F.2.a. The wetlands mitigation plan focuses on enhancing the existing wetland buffers. The wetland buffer areas will be enhanced by planting of native tree and shrub species that will result in a greater abundance and diversity of vegetation than currently exists in the wetlands buffer. The location of the wetlands buffer mitigation areas are depicted on *Exhibit III.F-4, Wetlands Buffer Mitigation Plan*. There are five areas where wetlands buffer enhancement is proposed. The proposed tree and shrub species in each of the wetlands buffer enhancement areas are also depicted on this exhibit. The total area of proposed wetland buffer mitigation plantings is 1.98 acres.

The forested portion of the buffer area within the inner half of Wetland A will remain undisturbed. The proposed disturbance within the buffer, upslope from the wetland and closest to the proposed development, will be replanted as described above. These actions will allow the wetland buffer to retain or improve its functional abilities. The functions of this wetland buffer include: providing habitat and food for upland and wetland faunal species, acting as nutrient and sediment filters, assisting in the control of hillside erosion, and regulating temperatures during the warmer months with forest canopy cover. The buffer surrounding Wetland B is less functional because it is highly disturbed and it contains less desirable vegetative species. Although the west side of this buffer will be reduced, it will be improved with the mitigation planting plan. The east and north sides of the buffer will remain undisturbed by the proposed plan, but will also be improved. The functionality of the entire buffer around Wetland B will be improved by providing higher-quality and more desirable vegetation that can provide food and habitat for faunal species, filter nutrients, and reduce or prevent hillside slope erosion.



Wetland Buffer Mitigation Summary:

Area #	Type	Size (ac.)	Zone*
#1	Enhancement Planting & Road Screening	0.22 ac.	Zone 2
#2	Buffer Slope Replanting	0.97 ac.	Zone 4
#3	Enhancement Planting	0.43 ac.	Zone 1
#4	Enhancement Planting & Road Screening	0.25 ac.	Zone 2
#5	Buffer Slope Replanting	0.11 ac.	Zone 4

TOTAL BUFFER PLANTING AREA: 1.98 ACRES

*Please refer to DEIS Figures III.E-4 & III.E-5 for planting zones and plant species lists for the proposed mitigation areas.

GRAPHIC SCALE

0 75 150 300

(IN FEET)
1 inch = 150 ft.

TRC Engineers, Inc.
7 Skyline Drive
Hawthorne, New York 10532

Exhibit III.F-4
Wetlands Mitigation Plan

COSTCO WHOLESALE
Town of Yorktown, New York

Source: Evans Associates Environmental Consulting, Inc.

Wetland Buffer Enhancement Area (WBEA) #1 is located in the southwest corner of the site adjacent to Old Crompond Road. The understory in this area is sparsely vegetated and the herbaceous layer is dominated by garlic mustard. This area will be planted with a mix of evergreen and deciduous trees that will enhance the wetlands buffer as well as provide screening for the Costco building. The area of WBEA #1 is 0.22 acres. WBEA #2 consists of replanting the slope embankment on the west side of the site that will be disturbed by the site grading activities. This area will be planted with large and small deciduous trees along with deciduous and evergreen shrubs. The slope will also be seeded with a conservation wildlife seed mix that consists of native species. The area of WBEA #2 is 0.97 acres. WBEA #3 consists of planting the buffer area around Wetland B which is currently vegetated with a mix of native and non-native species. This area will be planted with large deciduous trees, medium deciduous shrubs and small deciduous shrubs. The area of WBEA #3 is 0.43 acres. WBEA #4 is located to the east of Wetland B off site in the west sloping right-of-way for the Taconic Parkway. The right-of-way is currently vegetated with a mix of grass species along with Queen Anne's lace and bull thistle. The portion of the right-of-way that is within the buffer for Wetland B will be planted with large and small evergreen trees along with evergreen and deciduous shrubs. The slope will also be seeded with a conservation wildlife seed mix that consists of native species. The area of WBEA #4 is 0.25 acres. WBEA #5 is located just west of WBEA #3, within the buffer of Wetland B. This sloping area will be seeded with a conservation wildlife seed mix that consists of native species. The area of WBEA #5 is 0.11 acres.

Surface Waters Mitigation Mitigation for potential water quality related impacts during construction as well as from the new impervious surfaces are discussed in Section III.F.2.c. As discussed in this section, potential water quality related impacts to downstream waters will be mitigated for by implementation of the Stormwater Pollution Prevention Plan (SWPPP) that was prepared by the project engineer. Potential stormwater impacts and proposed mitigation measures are discussed in detail in Section III.G. - Stormwater Management. In addition to potential impacts resulting from stormwater runoff, potential impacts from known onsite hazardous materials exist. Hazardous materials include but are not limited to soil staining, aboveground and underground storage tanks, septic systems, asbestos and lead containing materials. Impact to surface waters is not expected since the removal of potential hazardous materials will be performed. See Section III.D Hazardous Materials, and Appendix VII.B of this DEIS for a thorough discussion of impacts and proposed remediation.

Groundwater Mitigation Similar to surface waters, groundwater can be impacted during construction as well as from new impervious surfaces. Mitigation for potential impacts to groundwater will be mitigated for by implementation of the SWPPP that was prepared by the project engineer. The proposed SWPPP is discussed in detail in Section III.G. - Stormwater Management. (Also see Section III.D Hazardous Materials, and Appendix VII.B

of this DEIS for a thorough discussion of hazardous materials impacts and proposed remediation.)

Hunter Brook Mitigation Hunter Brook is located approximately 2,400 feet to the west of the site. Drainage from the proposed stormwater basin will flow through over one half miles of forested wetlands and underground pipes before discharging into Hunter Brook. Mitigation for potential water quality related impacts to Hunter Brook during construction as well as from the new impervious surfaces are discussed in Section III.F.2.c. As discussed in this section, potential water quality related impacts to downstream waters will be mitigated for by implementation of the SWPPP that was prepared by the project engineer. Potential stormwater impacts and proposed mitigation measures are discussed in detail in Section III.G. - Stormwater Management. In summary, protection of the Hunter Brook will be provided through the implementation of the SWPPP. The Plan will include capture and treatment of onsite stormwater within a micropool extended detention pond. The pond is a DEC recommended standard practice that is designed to treat water quality and provide stormwater attenuation for larger storms. Therefore, stormwater that will be discharged from the site will be treated for removal of sediment and nutrients. In addition, due to the small "micropool", the potential for thermal impacts are minimized.

Mill Pond Mitigation Hunter Brook continues for over one-half mile southward before flowing into Mill Pond. At this point any drainage from the site is greatly diluted by the base flow from Hunter Brook as well as by drainage input from various other sources. Any potential water quality impacts to Mill Pond from the site will be mitigated for by implementation of the SWPPP that was prepared by the project engineer (Appendix VII.G of this DEIS).

Table III.F.3
Summary of Potential Resource Impacts & Proposed Mitigation Measures

Resource	Potential Impact	Mitigation Measures
Wetlands	there are no direct wetland impacts	implementation of the SWPPP for potential indirect wetland impacts
Wetland Buffers	proposed wetland buffer impacts are described in Section III.F.2.c.	implementation of the Wetland Buffer Mitigation Plan – Exhibit III.F-4
Vernal Pools	there are no direct impacts to vernal pools	implementation of the approved SWPPP for potential indirect impacts
Surface Waters	there are no direct impacts to surface waters; potential water quality related impacts during construction & from increased impervious surfaces	implementation of the approved SWPPP
Groundwater	there are no direct impacts to groundwater; potential indirect water quality related impacts during construction & from increased impervious surfaces	implementation of the approved SWPPP
Hunter Brook	potential water quality related impacts during construction & from increased impervious surfaces	implementation of the approved SWPPP
Mill Pond	potential water quality related impacts during construction & from increased impervious surfaces	implementation of the approved SWPPP

d. Assess Elimination or Minimization of Fertilizer, Pesticide, Herbicide and other Chemical Treatments

The limited use and proper application of fertilizers, pesticides, herbicides and other chemical treatments necessary for landscape maintenance on the Project Site will be in strict accordance with the County fertilizer law and other applicable regulations. This source control will be the principal measure to mitigate the potential for nutrient runoff impacts.

Further mitigation of potential nutrient runoff impacts to wetlands and downstream receiving waters shall achieved through the construction of the post-construction storm water management practices designed in the SWPPP by the Applicant's engineer, and the preservation and enhancement of the wetland buffers discussed in this section and in Section III.G of this DEIS. Use of fertilizers and pesticides will be limited in conformance with applicable laws including Chapters 863 and 691 of the Laws of Westchester County.

e. Discuss Efforts to Prevent or Mitigate Water Turbidity and Accumulated Sediment

In order to minimize potential water quality impacts including turbidity and sediment accumulation in downstream wetlands and waterbodies, a SWPPP was prepared by the project engineer and is included in Appendix VII.D of this DEIS). The SWPPP will require approval from the Town of Yorktown as the regulated, MS4 entity as defined in the NYSDEC General Permit for stormwater discharge. The SWPPP will also require approval by the NYCDEP.. Stormwater management practices were designed based on the NYSDEC *New York State Stormwater Management Design Manual* (August, 2010). The SWPPP includes an erosion and sediment control plan that will be implemented during construction to minimize the potential impacts on waterbodies and wetlands. The Erosion and Sediment Control Plan was prepared in conformance with both the *New York Standards and Specifications for Erosion and Sediment Control* (August 2005). Potential stormwater impacts and proposed mitigation measures are discussed in detail in Section III.G. - Stormwater Management.

f. Consider use of Permeable Materials and/or Vegetated Areas to Protect Water Quality

The design of the Project employed several green infrastructure practices that preserve and minimize impact to natural resources and reduce impervious cover, thereby protecting water quality by minimizing potential impacts. The planning techniques are discussed in detail in Section III.G.3.a of this DEIS.

Improved pervious surfaces, such as pervious pavements, were considered but not proposed as their effectiveness is greatly diminished in cold climates where snow removal, sanding and deicing are used. The concern for clogging is supported in Section 5.3.11 of the DEC Design Manual which states that these practices “should not be used where sand or other materials are applied for winter traction since they quickly clog.”