

3.2 WATER RESOURCES

A complete stormwater analysis and SWPPP was prepared for the Conventional Subdivision Plan and was submitted to the Planning Board in previous draft versions of the DEIS. An updated SWPPP has been prepared for the preferred Conservation Subdivision Plan and is attached in Appendix C-1. For comparison purposes, the previous SWPPP applicable to the Conventional subdivision is provided as Appendix C-2. The Stormwater management program for the Conservation Plan involves less stormwater management facilities and has a smaller footprint than proposed for the Conventional Plan. The Conservation Plan would involve the temporary disturbance of 13.06 acres of the 25.59 acre Tripi Subdivision site, while the Conventional Plan would require 17.15 acres of disturbance. The Conservation Plan would reduce grading by 4.09 acres, compared to the Conventional Plan. Two stormwater basins are proposed for the Conservation Plan while five basins were proposed for the Conventional Plan. For the purpose of clarity, the stormwater analysis and management plan for the Conservation Plan is described below. Peak stormwater flow rates for the Conventional Plan are summarized in tables, below.

3.2.1 Existing Conditions - Groundwater

The depth to water table (the surficial groundwater elevation) varies on the site, although in most areas of the site, based on soil mapping and topography, the water table is 6 feet deep or greater (Soil Survey of Putnam and Westchester Counties, New York, USDA Soil Conservation Service, 1994). Generally, the groundwater table is found at depths sufficiently below the surface so as not to hinder the construction of building and pavement foundations. Groundwater flow is presumed to generally follow the underlying topography, moving generally down-gradient and eastward, towards Mary's Brook in the drainage of the Stone Hill River.

The Water supply for the hamlets of Bedford Hills and Katonah is provided via consolidated water district (Consolidated Water District #1). There are three active wells in District #1, with overall capacity of 1.2 million gallons per day. The District maintains three active groundwater supply wells that extract drinking water from an aquifer which extends underneath the adjacent low-lying areas of the Stone Hill and Cross rivers and the Muscoot Reservoir. One of the water district wells (Bedford Hills Well, approximately 200 feet south of the project site) was shut down in 2001 due to high levels of nitrate that approached the New York State Department of Health (NYSDOH) allowable levels. The Town is in the process of developing a connection to the NYCDEP Delaware Aqueduct to ensure a long term supply of high quality water for the district. Until this additional supply is obtained, the district would be unable to meet maximum demands in the event that the largest supply well is out of service.

A review of the Soil Survey of Putnam and Westchester Counties, New York, USDA Soil Conservation Service, 1994, identifies the soils as predominantly Chatfield-Charleston complex or Riverhead loam, both of which are well drained soils throughout the year.

Even though the project will derive water from offsite resources, the Applicant prepared a recharge analysis for this site (see Table 3.2-1). For purposes of this analysis, recharge has been calculated assuming the only source of water is the rainfall that falls on the site itself. The primary source of groundwater is precipitation which infiltrates through the surface of the ground and percolates into the water table. The majority of rainfall is "lost" to surface water runoff, shallow subsurface flow and evapotranspiration. Depending on the physical

characteristics of the recharge area, between 15 and 40 percent of the annual precipitation typically recharges the local aquifer.

Evaluation of groundwater recharge with respect to a specific project or land use is usually done by evaluation of projected water demand and the ability of the local watershed to recharge the aquifer. Generally, the groundwater table in an unconfined aquifer will loosely follow the surface topography of the land¹. Groundwater would be expected to flow from drainage boundaries, such as ridges, toward points topographically lower in the watershed. Groundwater in storage and “collected” within the natural drainage basin would be available to replenish or recharge the aquifer. Due in part to the anisotropic (irregular) nature of the bedrock aquifer, however, only a portion of total basin recharge could transmit water to any given pumping area. The rate of aquifer recharge would also depend on other specific hydrogeological conditions present at each location. For example, heavily faulted and fractured bedrock zones are capable of transmitting larger quantities of water to recharge the bedrock aquifer than are less fractured zones.

The Tripi Subdivision Property is part of a ridge and valley system that is surrounded by an extensive system of faults and fractures. The major fractures, when tapped successfully, would potentially pick up recharge from a large area. The faults and fractures that form the valleys surrounding the subject property may extend for miles and intercept additional fractures well beyond the property, and precipitation falling anywhere within this area naturally drains towards the valleys from higher lands. The proportion of the precipitation that becomes groundwater through recharge (assumed here to be 40 percent) is potentially available to wells tapping these interconnected fractures. The table below provides an estimate of the amount of water available for recharge for only the Tripi Subdivision Property.

Table 3.2-1 Recharge Calculations	
Acres	25.59
Square Feet	1,114,557
Rainfall (inches)	42
Rainfall (feet)	3.5
Cubic feet of precipitation per year	3,900,949
Gallons of precipitation per year	29,181,125
Amount lost to evapotranspiration and runoff (60%)	17,508,675
Amount, in gallons, available for recharge per year	11,672,450
Amount, in gallons, available for recharge per day	31,979
Amount, in gallons, available for recharge per minute	22.2

Using a typical recharge rate of 40 percent (the percentage of precipitation available to recharge groundwater) results in about 22.2 gallons of recharge per minute available at the site.

¹ Exact three-dimensional spectral solution to surface groundwater interactions with arbitrary surface topography , Anders Wörman and Lars Marklund: Department of Biometry and Engineering, Swedish University of Agricultural Sciences, Uppsala, Sweden; Aaron I. Packman and Susan H. Stone: Department of Civil and Environmental Engineering, Northwestern University, Evanston, Illinois, USA; Judson W. Harvey: U.S. Geological Survey, Reston, Virginia, USA.; Geophysical Research Letters (GRL) paper 10.1029/2006GL025747, 2006

The surrounding properties in the area are serviced by public water. As indicated above, the Bedford Hill well from Consolidated Water District # 1 is located approximately 200 ft. south of the site. Other than the District well, there are no known existing wells or private water supplies in the vicinity of the site. Insert any new info on District #1 here or in preceding discussion.

As groundwater is not proposed to be used for this project and no existing properties in the area use groundwater, the existing quality of the groundwater is not a relevant concern with respect to this Project. As described in Section 3.2.3, the project will be serviced by individual Subsurface Sanitary Treatment Areas (SSTA) or septic systems, designed to meet all NY State and Westchester County Department of Health (WCDOH) requirements for treatment systems. In meeting all Health Department requirements, with properly designed and maintained septic systems, the project is not anticipated to result in any significant adverse impacts to groundwater. In addition, the project will include stormwater management features for water quality treatment, and therefore, further provide protection of groundwater resources.

There are no FEMA floodways zone on or directly adjacent to the subject Property. The locations of the mapped FEMA floodways local to the project site are illustrated in Figure 3.2-1. The FEMA floodways are associated with Muscoot Reservoir and its local watershed.

3.2.2 Existing Conditions - Surface Water

Wetlands, Watercourses and Waterbodies

The New York State Department of Environmental Conservation (NYSDEC) is responsible for regulating freshwater wetlands that are 12.4 acres (5 hectares) in size or larger, or those smaller wetlands that are of unusual local importance (New York State Environmental Conservation Law, Article 24). A series of New York State Freshwater Wetlands Maps, based on the US Geological Service's (USGS) 7.5 minute quadrangles, were generated depicting the approximate location of state regulated wetland boundaries. The NYSDEC Freshwater Wetlands Maps including the project site (Mount Kisco, NY) identify no state regulated wetlands on the property (see Figure 3.2-2, NYSDEC Freshwater Wetlands Map).

The U.S. Fish and Wildlife Service's (USFWS) National Wetland Inventory (NWI) maps, while also overlaid on USGS 7.5 minute quadrangles, depict wetland resources without any minimum size limit. Based on infrared aerial photography, the NWI maps show the approximate location, general configuration and classification of federally regulated wetlands. Because the NWI maps are limited in precision by their scale (1:24,000) and by the identification method used, small wetland areas, and, less frequently, large wetland areas are not depicted. The Mount Kisco, NY quad map, which includes the project site (see Figure 3.2-3, National Wetlands Inventory Map), show no federally regulated wetlands on the property.

There are no wetlands, watercourses or water bodies on the project site. During field investigations, no surface seeps were observed on the property.

There are no regulations contained in the New York State Environmental Conservation Law Article 15 (Water Resources), Article 24 (Freshwater Wetlands) or Article 25 (Tidal Wetlands) that pertain to the project site. As previously mentioned, there are no surface water resources or NYSDEC regulated wetlands on the project site.

Existing Drainage and Stormwater

Existing topography on the project site divides the property into seven drainage areas from which stormwater discharges to specific drainage points. Designated as Design Point 1 through Design Point 7, these drainage points were used in the analysis of the existing characteristics of stormwater discharges from the site. The existing drainage area boundaries contributing to the seven Design Points are shown on Figure 3.2-4, Existing Condition Drainage Area Map.

The project site is located generally north of the Saw Mill River Parkway and approximately 700 feet north of Mary's Brook. Untreated stormwater runoff from the project site is conveyed off the property, and ultimately drains into Mary's Brook and the Muscoot Reservoir System. The Muscoot Reservoir receives waters from the Croton Reservoir System, excluding the New Croton Reservoir. In addition to those waters, the Muscoot Reservoir receives flows from its own 76 square mile watershed. This Project represents 0.05% of the overall Muscoot Reservoir Watershed.

A detailed analysis of pre- and post-development drainage conditions was conducted by the project engineer and is provided in the Stormwater Pollution Prevention Plans in Appendix C-1 and C-2.

The Design Points were analyzed to determine the existing rates and volumes of stormwater discharge. These pre-development discharge rates and volumes are summarized in Table 3.2-2 below. The "HydroCAD Stormwater Modeling System," by HydroCAD Software Solutions LLC was used to model and assess the stormwater flows from the project site. HydroCAD is a computer-aided design program for modeling the hydrology and hydraulics of stormwater runoff. It is based primarily on hydrology techniques developed by the United States Department of Agriculture, Soil Conservation Service (USDA, SCS) Technical Release 20 (TR-20) method combined with standard hydraulic calculations. The program was used to analyze the 1-year, 2-year, 10-year, and 100-year, 24 hour design storms.

Estimates of existing runoff quantity (peak discharge rates and volumes) generated by storm events up to, and including, the 100-year event were made using the noted methodology accepted by the NYSDEC and NYCDEP. The estimates are included in the Preliminary Stormwater Pollution Prevention Plan (SWPPP) prepared for the proposed Tripi Subdivision project (Appendix C-1 and C-2 of this document).

A SWPPP is a plan to reduce off site impacts associated with stormwater from a project site by controlling changes in runoff, and pollutants associated with runoff, from the site during and after construction. The NYSDEC State Pollution Discharge Elimination System Stormwater General Permit for Construction Activities (GP-0-10-001), and the Watershed Regulations, require SWPPPs for certain projects, such as the Tripi Subdivision, that disturb or expose one or more acres of soil during construction. To comply with GP-0-10-001, and the Watershed Regulations, a SWPPP must include erosion and sediment controls and measures to control changes in stormwater quantity and quality, that accomplish the following:

- Reduce or eliminate erosion and the resulting sedimentation of surface waters during construction;
- Mitigate or eliminate the impact(s) that post development changes in stormwater, including any increases in pollutants in it, can have on the quality of receiving surface waters;

- Reduce post construction increases in the volume and rate of stormwater discharge during and after construction to prevent downstream erosion and flooding;
- Maintain stormwater controls during and after construction.

To be authorized under GP-0-10-001 to proceed with a project and discharge stormwater from a site, an “Operator” must submit a “Notice of Intent” to NYSDEC confirming that the SWPPP has been prepared in accordance with the terms of the general permit. To secure authorization to proceed with a project under the stormwater provisions of the Watershed Regulations, which incorporate NYSDEC General Permit for Stormwater Discharges GP-0-10-001 by reference, NYCDEP review and approval of the SWPPP is required.

The Tripi Subdivision SWPPP includes an analyses of the stormwater discharge rates and volumes for the 1, 2, 10, and 100 year, 24 hour storm events pursuant to the Final Scoping Document and New York State and City regulations. Peak pre-development flows from the project site’s seven existing on-site drainage areas were calculated at each of the design points. These flows and volumes were based upon regional precipitation values obtained from the Putnam County Soil and Water Conservation District and are shown in Tables 3.2-2.

Table 3.2-2 Tripi Subdivision Existing Condition Peak Stormwater Discharge and Volume Summary in Cubic Feet per Second (CFS) 24-Hour Design Storms				
Design Point	1-Year	2-Year	10-Year	100-Year
DP-1	1.44	3.94	12.15	30.24
DP-2	0.76	1.89	5.35	12.69
DP-3	0.66	1.38	3.36	7.30
DP-4	0.46	1.25	3.94	9.81
DP-5	1.32	2.36	4.96	9.90
DP-6	0.68	1.45	3.52	7.66
DP-7	1.06	2.16	5.10	10.87

There are no stormwater management facilities currently on the project site. The quality of runoff leaving the site during storm events at present is dictated by the existing land use, site specific soils and vegetation, and any erosion that may occur on the site.

Floodplains

The applicable Flood Insurance Rate Map for the Town of Bedford (Community Panel 3609030010C) prepared for the Federal Emergency Management Agency (FEMA) National Flood Insurance Program shows all of the project site to be in a “C” zone. Mary’s Brook and Muscoot Reservoir and immediately adjacent areas are in the “A” zone. Areas within the “A” zone are located within the 100 year flood zone and are considered to have the potential for flooding. As shown on the FEMA map (see Figure 3.2-1), the designated flood zone boundaries do not impact the project site from these two water resources. The entire project site is within the “C” zone which is considered to have a “minimal flooding” hazard potential and is outside the 500 year flood zone.

3.2.3 Potential Significant Impacts and Mitigation Measures

Wetlands, Watercourses and Waterbodies

The Conservation Plan would involve the temporary disturbance of 13.06 acres of the 25.59 acre Tripi Subdivision site, while the Conventional Plan would require 17.15 acres of disturbance: or a reduction of 4.09 acres. There are no wetlands, watercourses or water bodies on the project site. During field investigations, no surface seeps were observed on the Property.

Potential stormwater related impacts to downstream properties and receiving waters associated with the project may include: sedimentation during construction, post development increases in pollutant loading in stormwater, post development flooding from increases in the volume of stormwater discharged, and bed and bank erosion in receiving watercourses resulting from increased stormwater discharge velocities. These potential impacts are mitigated by the stormwater management practices outlined below.

The proposed stormwater treatment measures included in the SWPPP satisfy NYSDEC and NYCDEP standards by including an Erosion and Sediment Control Plan and provisions for stormwater treatment to avoid potential impacts on receiving waters and downstream properties. State standards for water quality treatment, as set forth in NYSDEC GP-0-10-001, specifically require the water quality volume (WQv) to be calculated, and treated, in accordance with the NYSDEC Stormwater Management Design Manual (the Manual). The stormwater practices proposed on the Tripi Subdivision site have been designed in accordance with the Manual and satisfy New York State mandates. The specifics of the stormwater treatment design are further described below.

Sedimentation During Construction

Without adequate measures incorporated into the Proposed Action to offset potential impacts, the Project would have the potential to increase the volume and velocity of stormwater runoff from the site through land clearing and conversion of existing land cover into impervious surfaces and landscaped areas. If not controlled, these activities may lead to accelerated erosion and sedimentation during construction. Accordingly, an Erosion and Sediment Control Plan, that includes detailed construction sequencing, has been included in the SWPPP.

The purpose of the Erosion and Sediment Control Plan is to minimize the erosion of disturbed soil and to prevent the migration of sediment into surface waters and off-site properties during construction. The Erosion and Sediment Control Plan included with the SWPPP accomplishes that purpose through reductions in runoff velocities, limiting the area of disturbed soils at any one time, and rapid stabilization of disturbed soils. The Erosion and Sediment Control Plan contains Construction Notes, Erosion and Sediment Control Notes, specifications for erosion controls, a Sequence of Construction, and associated construction details designed to mitigate potential impacts associated with erosion and sedimentation.

As specified in the SWPPP, soil erosion and sedimentation measures, such as silt fencing, would be installed following a pre-construction conference with appropriate agency staff, and prior to any construction activities. The Applicant would engage a Certified Professional in Stormwater Quality/Erosion and Sediment Control to oversee implementation of the SWPPP, including its site specific Erosion and Sediment Control Plan component. Refer to the SWPPP

in Appendix C-1 and C-2 of this DEIS, and accompanying Erosion and Sediment Control Plan sheets for erosion and sediment control practices to be implemented.

The greatest potential impacts associated with this Project relative to soils disturbance are associated with erosion and sedimentation during construction. Implemented, monitored, and enforceable erosion and sediment controls specified in the SWPPP, would be utilized during the construction phase as the primary means of controlling erosion and sedimentation. A construction phasing and sequencing plan is included in the Tripi Subdivision Erosion and Sediment Control Plan and incorporates both structural and nonstructural (i.e. operational) provisions. The goal of the plan is to minimize the potential for soil erosion from areas exposed during construction and prevent sediment from reaching the downgradient receiving waters, including the Muscoot Reservoir.

All soil erosion and sedimentation control practices would be installed in accordance with GP-0-10-001 and the Town of Bedford requirements. Prior to the commencement of any phase of this project that would result in the disturbance of soils, erosion and sediment control measures would be placed in accordance with the specifications on the construction drawings and in the SWPPP. These measures would be maintained in effective condition and left in place until permanent vegetative cover is established.

During construction, areas of active disturbance would be limited to five acres and runoff from areas outside of disturbances would be diverted away from erodible soils.

Post-Development Runoff Quantity and Quality

Following construction, stormwater from the project site will discharge off-site and ultimately enter the Muscoot Reservoir. To offset potential impacts associated with stormwater runoff from the Tripi Subdivision site, a project specific SWPPP was developed in accordance with all applicable NYSDEC, and NYCDEP regulations and guidelines, including those in the NYS Stormwater Management Design Manual (2010 Amendments) and the New York Guidelines for Urban Erosion and Sediment Control. Specific attention has been paid to generally maintaining existing project site drainage divides, to attenuating post development increases in peak stormwater discharge rates and volumes, and to meeting NYSDEC and NYCDEP stormwater quality treatment criteria. All proposed treatment methods would comply with NYSDEC and NYCDEP stormwater treatment criteria.

Following construction, the site would remain as seven distinct drainage areas with sub-basins within the developed portion of the Property being routed through two primary stormwater management facilities. A post development drainage maps are provided as Figure 3.2-5, Conventional Plan Developed Condition Drainage Area Map and Figure 3.2-6, Conservation Plan Developed Condition Drainage Area Map and is also provided in the attached SWPPP. The basins are designed to control post development increases in the rate and volume of discharge and increases in pollutant loads.

Table 3.2-3 Tripi Subdivision Conservation Plan - Developed Condition Peak Stormwater Discharge and Volume Summary in Cubic Feet per Second (CFS) 24-Hour Design Storms				
Design Point	1-Year	2-Year	10-Year	100-Year
DP-1	1.20	3.27	10.00	24.82
DP-2	0.21	0.50	1.34	3.10
DP-3	0.41	0.94	2.52	5.81
DP-4	0.10	0.40	1.58	4.41
DP-5	0.68	1.45	3.53	7.69
DP-6	0.51	1.35	3.18	7.58
DP-7	0.66	1.57	4.11	9.33

Post-development stormwater discharge for the Conventional Plan is summarized in Table 3.2-4, below. The full stormwater analysis is provided in the SWPPP prepared for the Conventional Plan, attached as Appendix C-2.

Table 3.2-4 Tripi Subdivision Conventional Plan - Developed Condition Peak Stormwater Discharge and Volume Summary in Cubic Feet per Second (CFS) 24-Hour Design Storms				
Design Point	1-Year	2-Year	10-Year	100-Year
DP-1	6.60	11.83	24.63	50.12
DP-2	2.20	3.47	6.48	11.85
DP-3	1.28	2.08	3.96	7.34
DP-4	2.84	4.48	8.39	15.42
DP-5	2.26	3.48	6.28	11.21
DP-6	1.38	2.48	4.14	5.91
DP-7	2.69	3.85	7.40	14.06

Drainage Patterns

In the opinion of the Applicant's engineer, as described in the SWPPP (see Appendix C-1 and C-2), and as illustrated in Figures 3.2-5 and 3.2-6, the proposed stormwater management system would not significantly alter the drainage patterns/watershed areas within the project site. Therefore, no significant short- or long-term effects to on-site or off-site hydrology are anticipated. The project would not result in impacts to the functions, importance and value of off-site wetlands, watercourses and water bodies.

Floodplains and Downstream Flooding

As illustrated in Table 3.2-4, Tripi Subdivision Stormwater Discharge Summary, the proposed stormwater management plan would reduce stormwater runoff rates for the 2- through 100-year storm events to less than existing levels. Therefore, no downstream flooding-related impacts are expected to result from the proposed development.

Stormwater Discharges

A comparison of the peak flow discharges for existing and developed conditions under various storm events at the seven design points are summarized in Table 3.2-4 below. As the developed condition peak discharges would be relatively less than the existing condition, therefore there are no anticipated impacts to on-site or off-site surface water resources.

Table 3.2-5 Tripi Subdivision Conservation Plan - Stormwater Discharge Summary in Cubic Feet per Second (CFS) 24-Hour Design Storms					
Design Point	Storm Event (year)	Existing Peak Flow (cfs)	Proposed Peak Flow (cfs)	Net Change (cfs)	Percent Change Over Existing Conditions
DP-1	1	1.44	1.20	-0.24	-16.67
	2	3.94	3.27	-0.67	-17.01
	10	12.15	10.00	-2.15	-17.70
	100	30.24	24.82	-5.42	-17.92
DP-2	1	0.76	0.21	-0.55	-72.37
	2	1.89	0.50	-1.39	-73.54
	10	5.35	1.34	-4.01	-74.95
	100	12.69	3.10	-9.59	-75.57
DP-3	1	0.66	0.41	-0.25	-37.88
	2	1.38	0.94	-0.44	-31.88
	10	3.36	2.52	-0.84	-25.00
	100	7.30	5.81	-1.49	-20.41
DP-4	1	0.46	0.10	-0.36	-78.26
	2	1.25	0.40	-0.85	-68.00
	10	3.94	1.58	-2.36	-59.90
	100	9.81	4.41	-5.40	-55.05
DP-5	1	1.32	0.68	-0.64	-48.48
	2	2.36	1.45	-0.91	-38.56
	10	4.96	3.53	-1.43	-28.83
	100	9.90	7.69	-2.21	-22.32
DP-6	1	0.68	0.51	-0.17	-25.00
	2	1.45	1.35	-0.10	-6.90
	10	3.52	3.18	-0.34	-9.66
	100	7.66	7.58	-0.08	-1.04
DP-7	1	1.06	0.66	-0.40	-37.74
	2	2.16	1.57	-0.59	-27.31
	10	5.10	4.11	-0.99	-19.41
	100	10.87	9.33	-1.54	-14.17

A comparison of the Conventional Plan estimated peak stormwater flows vs. The existing peak flows on the site is summarized in Table 3.2-6, below. As shown in the two Tables above, the stormwater peak flows are reduced at a substantially greater rate under the Conservation Plan, as compared to the Conventional Plan.

Table 3.2-6 Tripi Subdivision Conventional Plan - Stormwater Discharge Summary in Cubic Feet per Second (CFS) 24-Hour Design Storms					
Design Point	Storm Event (year)	Existing Peak Flow (cfs)	Proposed Peak Flow (cfs)	Net Change (cfs)	Percent Change Over Existing Conditions
DP-1	1	9.26	6.60	-2.66	-28
	2	14.63	11.83	-2.80	-19
	10	27.37	24.63	-2.74	-10
	100	50.19	50.12	-0.07	-0.13
DP-2	1	3.84	2.20	-1.64	-43
	2	5.99	3.47	-2.52	-42
	10	11.02	6.48	-4.54	-41
	100	19.95	11.85	-8.10	-41
DP-3	1	1.68	1.28	-0.40	-24
	2	2.71	2.08	-0.63	-23
	10	5.16	3.96	-1.20	-23
	100	9.58	7.34	-2.24	-23
DP-4	1	3.01	2.84	-0.17	-5.6
	2	4.75	4.48	-0.27	-5.7
	10	8.91	8.39	-0.52	-5.8
	100	16.34	15.42	-0.92	-5.6
DP-5	1	2.56	2.26	-0.30	-12
	2	3.87	3.47	-0.40	-10
	10	6.90	6.28	-0.62	-9
	100	12.20	11.21	-0.99	-8
DP-6	1	1.76	1.38	-0.38	-21
	2	2.83	2.48	-0.35	-12
	10	5.39	4.14	-1.25	-23
	100	10.03	5.91	-4.12	-41
DP-7	1	2.77	2.69	-0.08	-2.8
	2	4.33	3.85	-0.48	-11
	10	7.96	7.47	-0.49	-6
	100	14.40	14.06	-0.34	-2.4

Pollutant Loadings

To gain coverage under GP-0-10-001, and comply with the Watershed Regulations, the SWPPP developed for the proposed development must comply with the conditions of GP-0-10-001. Since the project site is in New York City's Muscoot Reservoir watershed (part of the East of Hudson watershed), the NYCDEP is also an involved agency, and must ultimately approve the SWPPP prior to commencement of construction.

The NYCDEP standards for treatment of post development stormwater quality are set forth in GP-0-10-001 and state "All construction projects identified in Table 2 of Appendix B that are located in the watersheds identified in Appendix C shall prepare a SWPPP that includes post-construction stormwater management practices designed in conformance with the Enhanced Phosphorus Removal Standards included in the Design Manual". This property is located within the East of Hudson watershed and therefore needs to comply with the above statement.

General Permit GP-0-10-001 and the Enhanced Phosphorus Removal Standards further requires that the Water Quality Volume (WQv) be treated in order to provide pollutant removal. By meeting the WQv requirements for the proposed project through employment of micropool extended detention ponds that are part of the SWPPP, the water quality objectives of the NYSDEC would be met.

Irreducible Pollutant Concentrations

Irreducible pollutant concentrations resulting from erosion and sedimentation typically occur with soils that have a high percentage of silt particles. Silt particles, which are smaller than sand particles and can be suspended in water, may not be fully contained by erosion and sediment controls. As the project site soils described in Chapter 3.1 of this DEIS do not contain high percentages of silt, the sediment and erosion controls are expected to result in low concentrations of irreducible pollutant loadings on-site or off-site. No associated impacts are anticipated.

Existing Wells on Adjacent Properties/Groundwater

This area of the Town of Bedford is served by municipal water (Consolidated Water District #1). Municipal water from this water district is proposed for this Project. None of the nearby residential properties obtain water from private wells.

All stormwater runoff from existing and created impervious surfaces shall be captured and treated before being discharged. The implementation of the NYSDEC approved stormwater treatment facilities would result in pollutant reductions for stormwater discharge. No significant adverse impacts to any unidentified off-site wells are anticipated.

Potential Impacts Considering Relevant Regulations

The proposed stormwater management plan is designed to comply with the SPDES stormwater general permit as detailed in the project engineer's Erosion Control Plan (see full size plan in rear of document), and SWPPPs (Appendix C-1 and C-2).

In accordance with the NYSDEC's SPDES General Permit GP-0-10-001 for construction activities, the project plans are designed to maintain or improve pre-development conditions with respect to stormwater quantity and quality. Compliance with the General Permit includes the following specific design requirements. Construction activities will be limited to areas of five acres or less of disturbed soil at any one time. The erosion and stormwater controls will be installed prior to the commencement of other construction and will be inspected routinely and appropriately maintained throughout the construction period until full stabilization is achieved. Stabilization measures shall be initiated as soon as practicable and no later than 14 days in areas where construction activities have temporarily or permanently ceased. Sediment shall be removed from sediment traps or basins by the site contractor whenever capacity is reduced by 50 percent from design capacity.

Post-development operation and maintenance of the stormwater management facilities would be the responsibility of the Town, if the Town accepts the facilities following construction. A special drainage district would be created to ensure the long-term maintenance of the facilities.

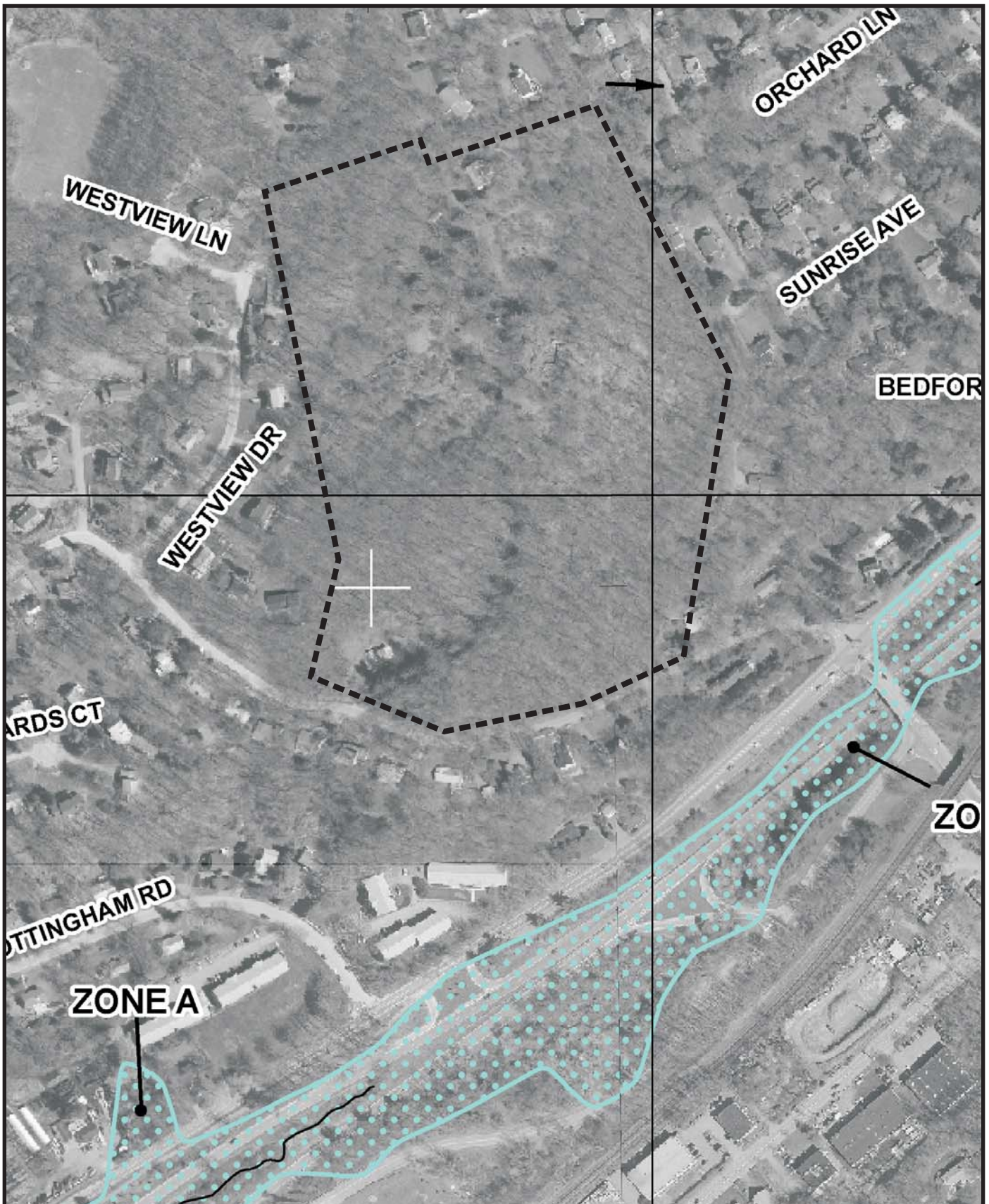
The design and construction of the proposed stormwater management facilities must comply with the requirements of GP-0-10-001 and the NYCDEP Watershed Regulations, which incorporate, by reference, SPDES General Permit for Stormwater Discharges GP-0-10-001. To satisfy these requirements the project engineer designed the proposed stormwater management facilities in accordance with NYSDEC's *Reducing the Impacts of Stormwater Runoff from New Development*, April 1992, *Fundamentals of Urban Runoff Management: Technical and Institutional Issues* produced by the Terrene Institute, and the *NYS Stormwater Management Design Manual*.

There are no WCDOH rules, regulations, or permits that relate to the proposed stormwater management plan. The WCDOH regulations that are applicable to this project relate to the proposed sewer and water infrastructure, as described in Chapter 3.7 of this document.

There are no specific rules or regulations for the protection of the Hudson River that would be invoked as a result of this proposal. With no impacts to Federally regulated wetlands or watercourses the US Army Corps of Engineers Nationwide wetland permit conditions would not apply.

3.2.4 Additional Mitigation Measures

It is anticipated the proposed mitigation measures incorporated into the Project design and Site Plans would offset any potential adverse impacts. No additional mitigation measures are proposed.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A No Base Flood Elevations determined.

Site Property Boundary

Figure 3.2-1: Site on FEMA Flood Plain Map
 Tripi Subdivision
 Town of Bedford, Westchester County, New York
 Source: Federal Emergency Management Agency, 2007
 Scale: 1" = 300'



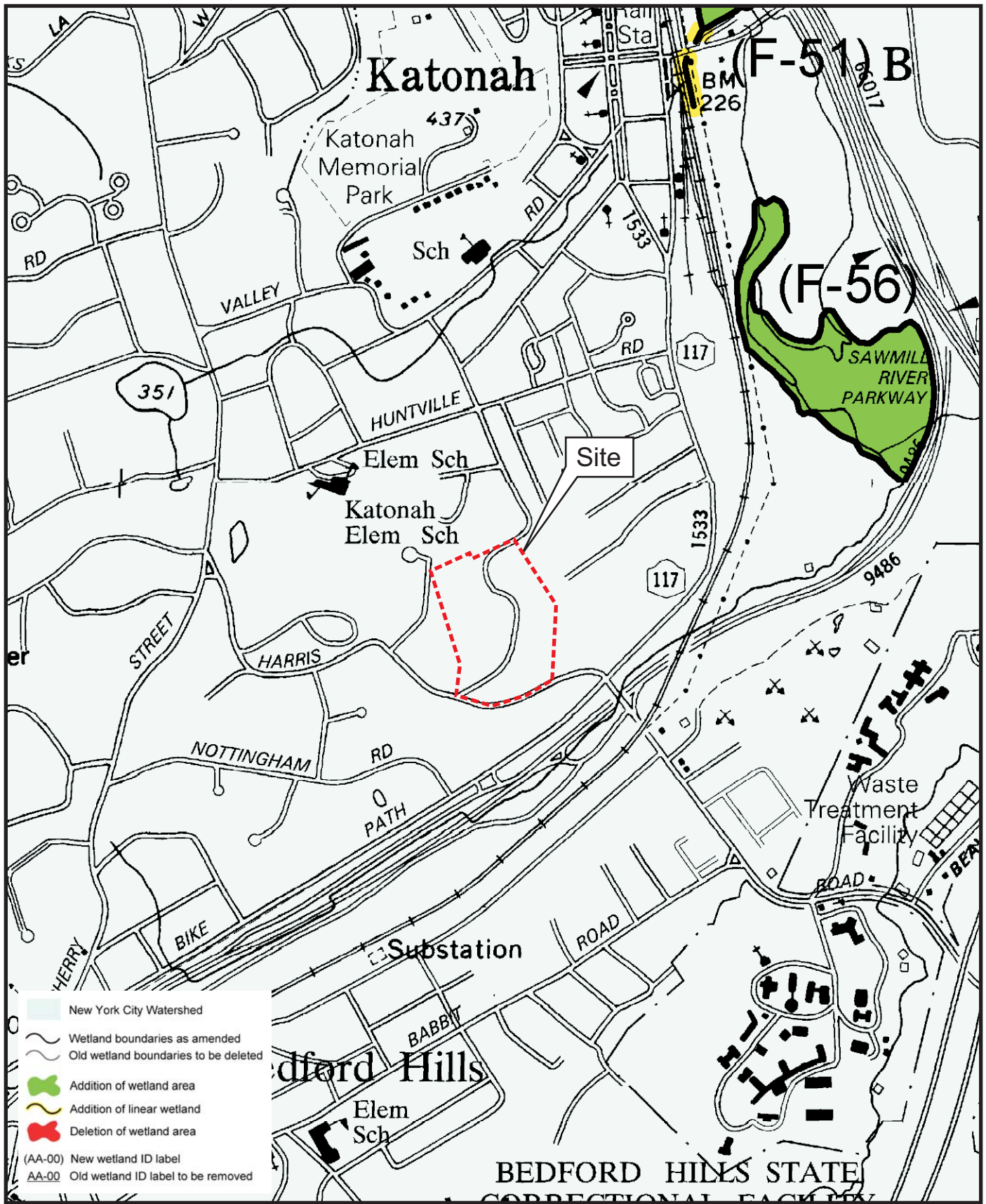


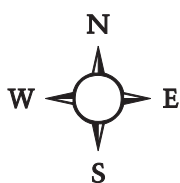
Figure 3.2-2: Site on NYSDEC Freshwater Wetlands Map

Tripi Subdivision

Town of Bedford, Westchester County, New York

Source: NYSDEC

Approx. Scale: 1 inch = 1,000 feet



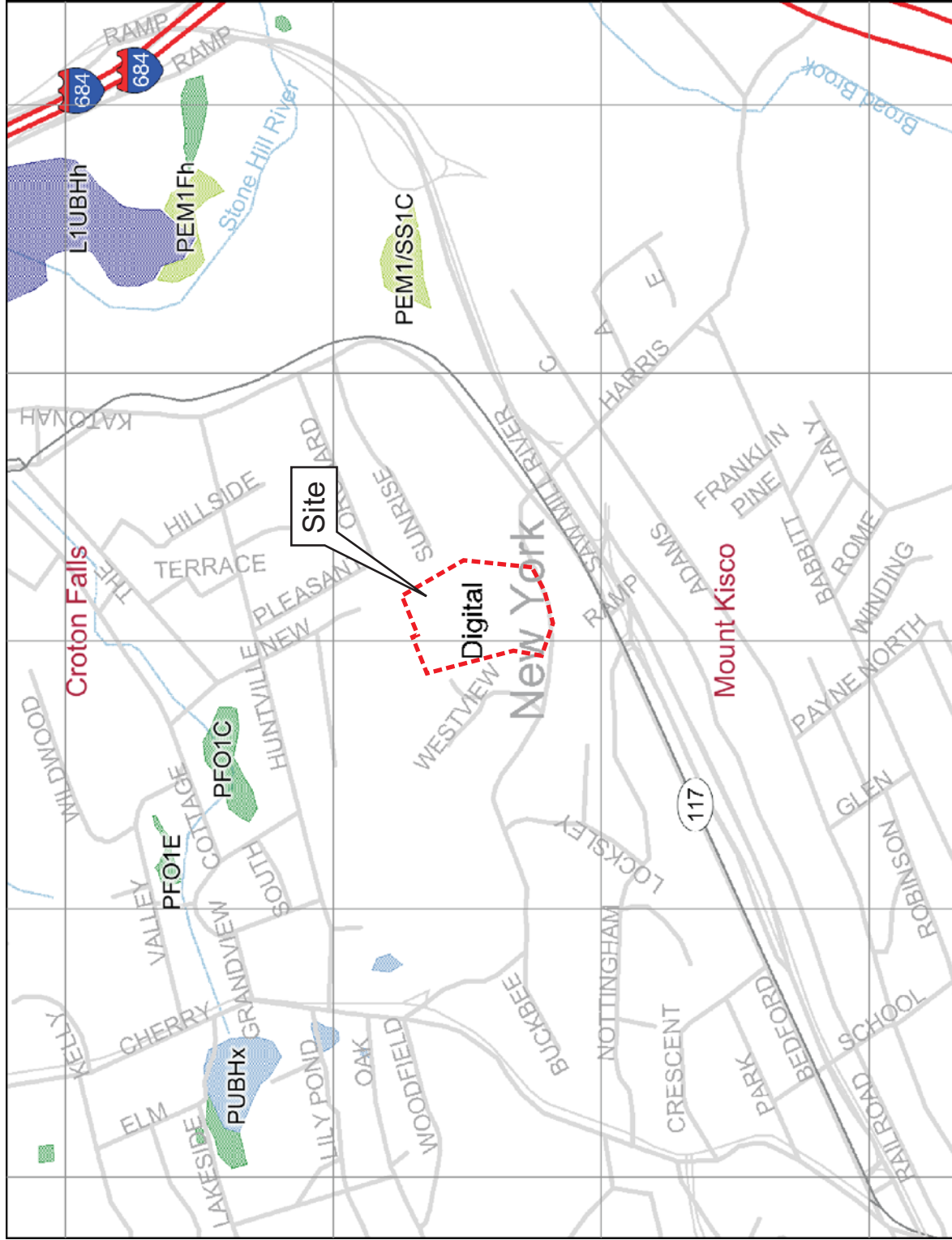
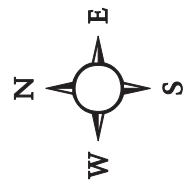


Figure 3.2-3: Site on National Wetlands Inventory Map
Tripi Subdivision
 Town of Bedford, Westchester County, New York
 Source: National Wetlands Inventory
 Approx. Scale: 1 inch = 1,855 feet

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine



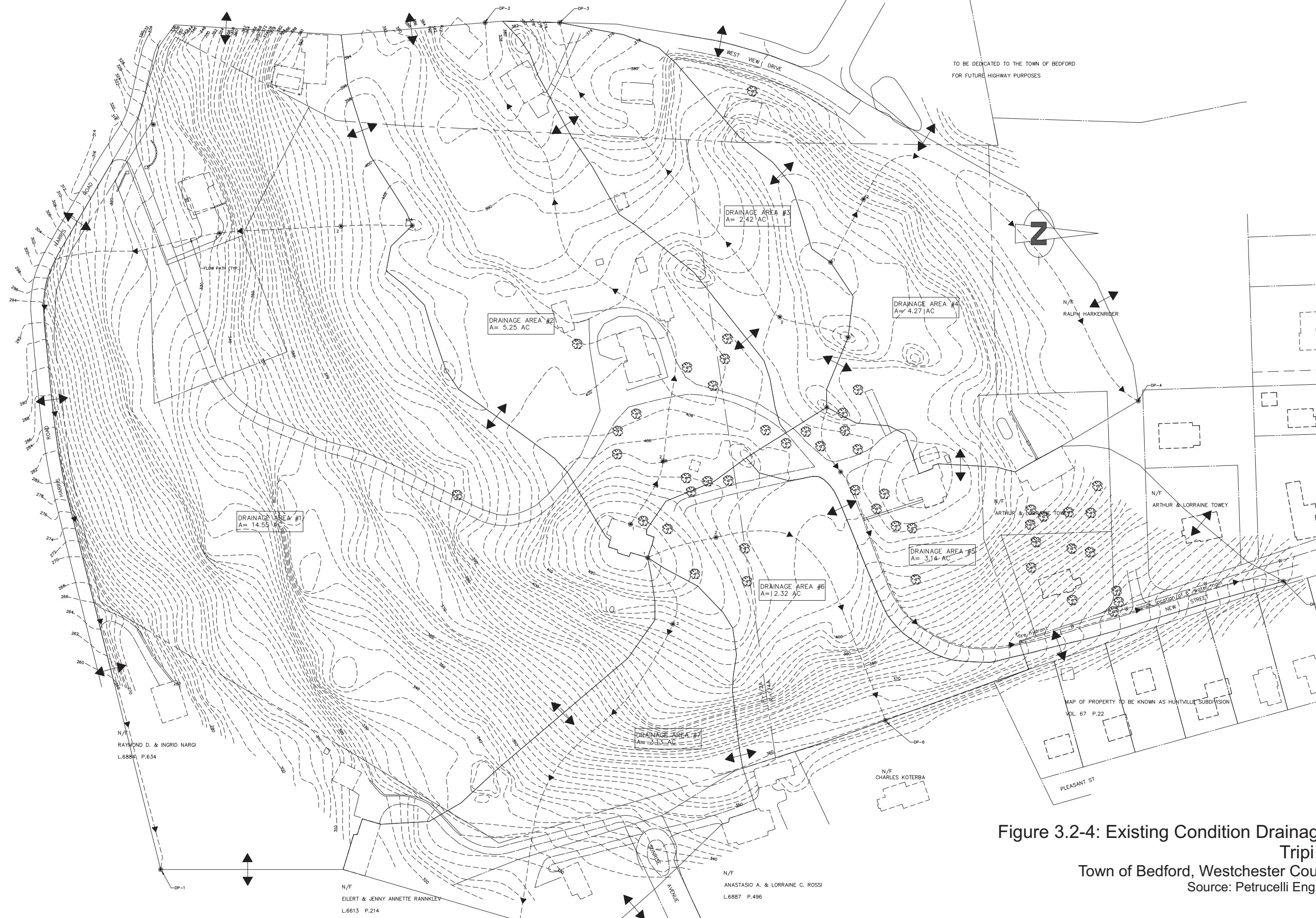
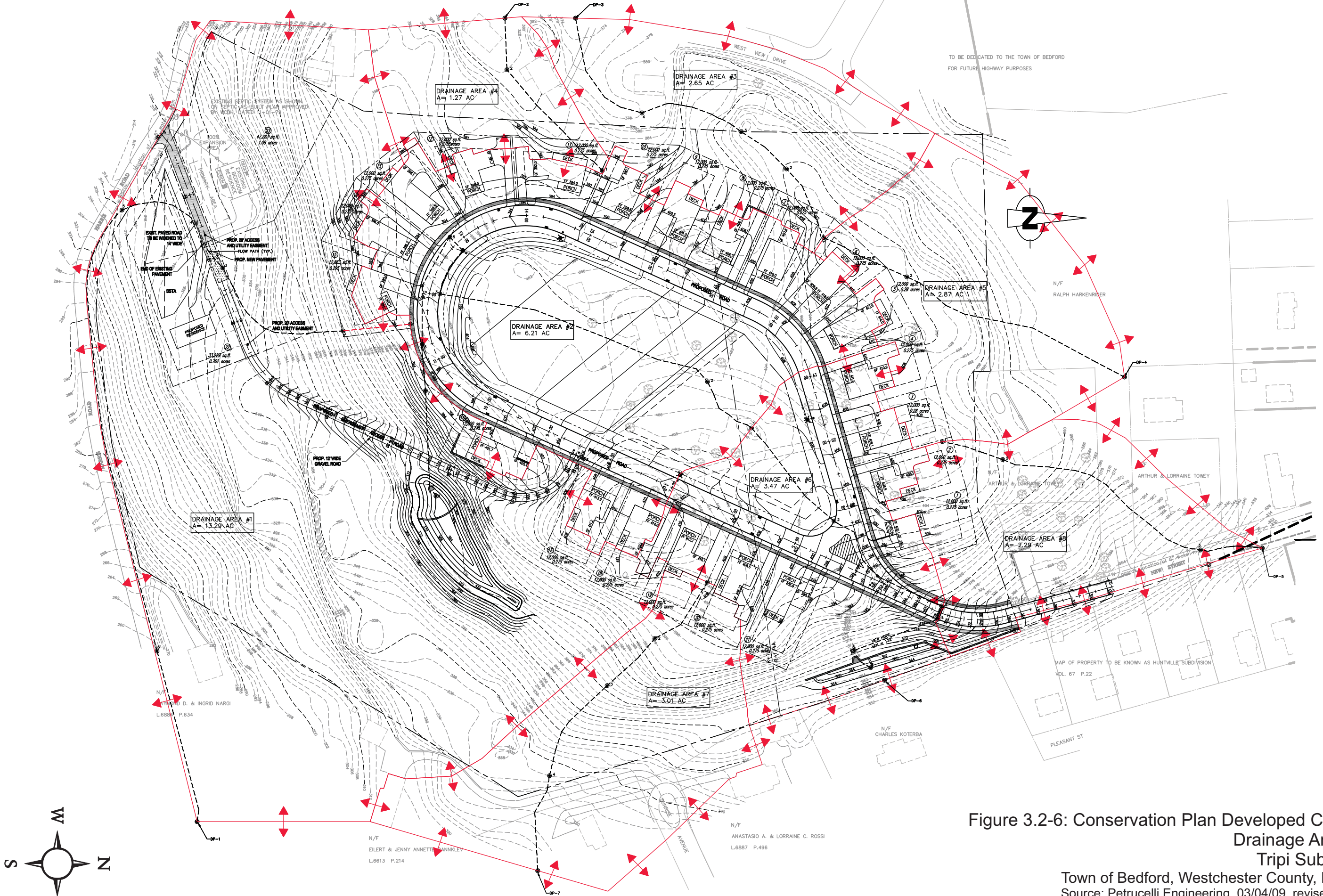


Figure 3.2-4: Existing Condition Drainage Area Map
 Tripi Subdivision
 Town of Bedford, Westchester County, New York
 Source: Petrucci Engineering, 6/27/05
 Scale: 1" = 130'



Figure 3.2-5: Conventional Plan Developed Condition
 Drainage Area Map
 Tripi Subdivision
 Town of Bedford, Westchester County, New York
 Source: Petrucelli Engineering, 6/27/05
 Scale: 1" = 130'

TO BE DEDICATED TO THE TOWN OF BEDFORD
FOR FUTURE HIGHWAY PURPOSES



**Figure 3.2-6: Conservation Plan Developed Condition
Drainage Area Map
Tripi Subdivision**
Town of Bedford, Westchester County, New York
Source: Petrucelli Engineering, 03/04/09, revised 11/01/10
Scale: 1" = 130'

