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**FINAL ENVIRONMENTAL ASSESSMENT**

**STONY LONESOME WATER TANK PROJECT**

**UNITED STATES MILITARY ACADEMY  
WEST POINT, ORANGE COUNTY, NEW YORK**

**Contract Number DACW51-01-D-0018  
Delivery Order 016**

**Prepared for:**

**U.S. Military Academy  
Directorate of Housing and Public Works  
Building 667, Ruger Road  
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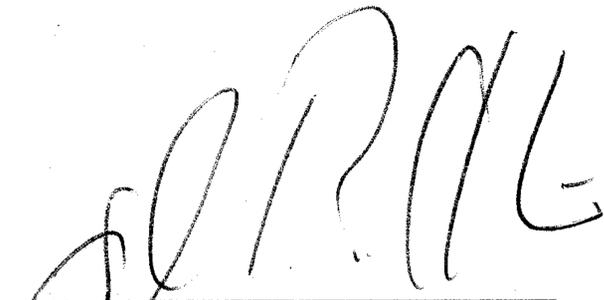
**May 2004**

**DIRECTORATE OF HOUSING AND PUBLIC WORKS  
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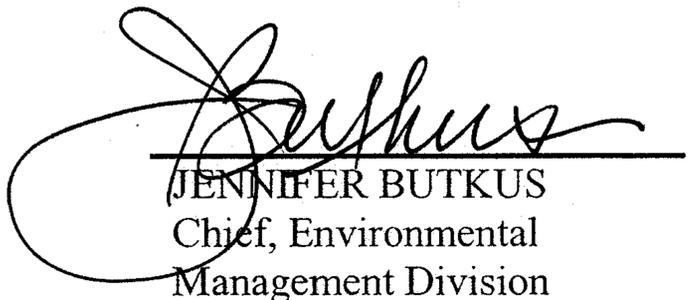
**FINAL  
ENVIRONMENTAL ASSESSMENT  
APPROVAL SHEET**

**STONY LONESOME WATER TANK PROJECT  
WEST POINT, NEW YORK**

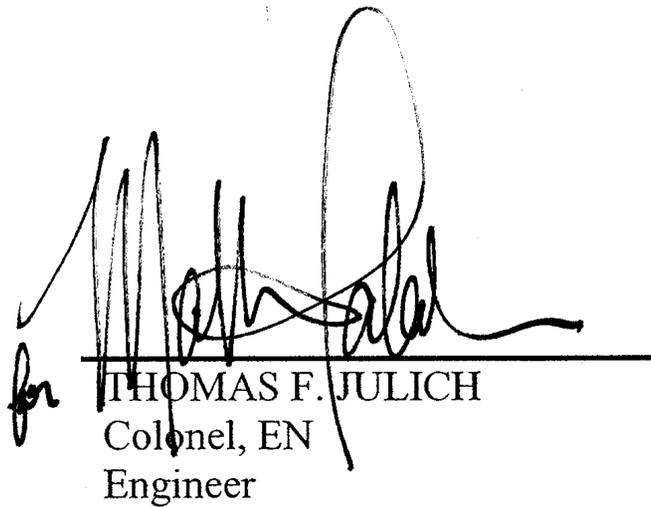
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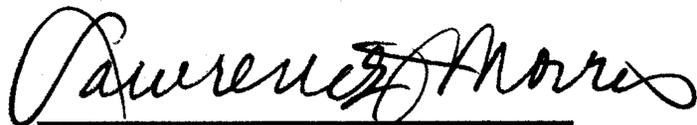


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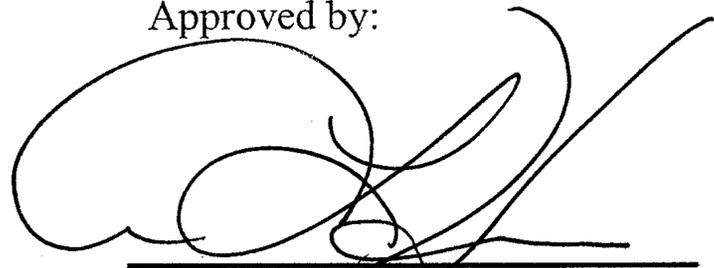
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UNITED STATES MILITARY ACADEMY  
WEST POINT, NEW YORK

FINDING OF NO SIGNIFICANT IMPACT (FNSI)

**STONY LONESOME WATER TANK PROJECT**

**WEST POINT, NEW YORK**

**I. NAME OF ACTION**

Stony Lonesome Water Tank Project by the United States Military Academy (USMA) at West Point, Town of Highland, Orange County, New York.

**II. DESCRIPTION OF ACTION**

a. Proposed Action: The Proposed Action would consist of the construction and operation of a proposed 1,000,000-gallon water tank to service the Stony Lonesome community of the USMA at West Point, including work areas and associated water lines that will connect the new water tank to the existing water tank, and subsequently, to the existing water treatment plant and existing water line system. Although the current anticipated need is for a 500,000-gallon water tank, the USMA at West Point is proposing the larger, 1,000,000-gallon water tank to accommodate future development at the USMA at West Point, particularly in the Stony Lonesome area. The new water tank will initially be filled halfway, and then filled further as needed. The additional water supply will allow service to the USMA at West Point from the Stony Lonesome community east to the Kimsey Center.

b. Alternatives: Proposed action considerations include three (3) sets of alternatives: (1) no action, (2) site alternatives, and (3) design alternatives. The no action alternative would not address concerns that, during times of peak water usage, the water pressure required for responding to a fire in the Stony Lonesome community would not be adequate, and therefore was rejected. Four site alternatives for the water tank were considered located adjacent to the existing water tank, and two of these site alternatives were considered viable taking into consideration the presence of existing required facilities and limited open land on steep topography. A number of design alternatives were considered for the Project, including differences in the materials used to construct the water tank, the surface characteristics of the water tank, the below surface depth of the water tank, the above ground height of the water tank, and screening measures for the tank, such as berms and vegetation. The site-specific design of these alternatives was dependant on the selection of the final location for the Project. Alternative Location 1 has been selected as the final location for the Project, and the site-specific design measure for the Project at this location would to avoid, reduce, or mitigate for potential impacts to the scenic and aesthetic qualities of visual resources in the viewshed of the Project.

### III. ANTICIPATED ENVIRONMENTAL EFFECTS

The principal environmental issues related to the implementation of the Proposed Action are:

- (1) Visual impacts to viewsheds and cultural resources within and outside of the National Historic Landmark District (NHLD); and,
- (2) Construction impacts (e.g., soil erosion, traffic, utility access, recreational use, noise, air quality).

Many of these potential impacts would be mitigated by the use of good management practices and engineering controls. Mitigation measures must be addressed and are included in order to diminish any potential significant adverse effects. Best Management Practice measures would be implemented to remove, handle, transport, and dispose of potentially hazardous materials.

### IV. MITIGATION MEASURES

Mitigation measures to be employed to address impacts due to implementation of the Proposed Action are:

- (1) The long-term and temporary impacts of construction and maintenance on the NHLD, including historic structures, archaeological resources, and on-post visual or aesthetic resources would be minimized to the maximum extent practicable by using designs, colors, and materials that are consistent with the historic and visual context of the NHLD, and by adopting related recommendations resulting from the analysis of viewsheds, and from the New York State Office of Parks, Recreation and Historic Preservation, Scenic Hudson, and the New York State Department of State. Specifically, the implementation of the following site-specific design measures will avoid, reduce, or mitigate for visual intrusions into the surrounding historic, cultural, and natural landscapes, such that no significant adverse effects would be incurred on visual resources:
  - a) Minimize vegetation clearing to maintain the vegetative screening provided by existing mature trees;
  - b) Design the water tank structure with a maximum height of 30 feet so that it would not protrude above the tops of mature trees;
  - c) Coat the water tank structure with a 100% acrylic elastomeric textured coating, which would be heavily textured and non-reflective, and would assist with blending the water tank structure into its natural surroundings;
  - d) Color the coating of the water tank structure in a green-gray, earth-toned color that would also assist with blending the water tank structure into its natural surroundings; and,
  - e) Preclude the installation of lighting on the water tank structure.
- (2) All parking, storage, construction, and staging activities at the lay-down area immediately west of Patrick Trail would be restricted to the existing gravel parking area to avoid potential impacts to archaeological resources.
- (3) Erosion and sedimentation controls would be used in accordance with U.S. Army Corps of Engineers specifications and good construction practices. Excavation of material would be controlled by best management practices, design specifications, and engineering practices.
- (4) Temporary Project impacts to traffic, roadway access, utility access, and quality of life would be minimized by limiting construction to daylight, weekday hours.
- (5) Temporary Project impacts on recreational use of the ski slope would be avoided by backfilling and grading all areas of the ski slope affected by construction activities prior to scheduled opening of the ski slope for the winter season.

- (6) The impact of temporary, increased noise levels would be reduced by restricting construction to daylight, weekday hours, and noise levels would be minimized by requiring contractors to use equipment that meets specific standards.
- (7) USMA will determine the direct and indirect emissions associated with the Proposed Action, considering long-term air emissions in its evaluation and calculations, to assess conformity with established State Implementation Plan emission thresholds for ozone (VOC and NOx) or PM-10, and propose and implement air emissions control measures during construction and/or operation of the Project, as necessary, to ensure that no adverse effects result. If an air emissions permit is required pursuant to Title 6 of the New York State Codes, Rules, and Regulations, Part 231, then the USMA at West Point would secure the necessary permit from the New York State Department of Environmental Conservation.

## V. FACTS AND CONCLUSIONS

Implementation of the mitigation measures previously identified would reduce the potential impacts resulting in no significant adverse impacts to the environment. An Environmental Impact Statement is, therefore, not required.

## VI. DOCUMENT AVAILABILITY AND POINT OF CONTACT

The Final Environmental Assessment (EA) and the Finding of No Significant Impact (FNSI) are available for public review at the following locations:

West Point Community Library  
Building 622  
U.S. Military Academy  
West Point, New York

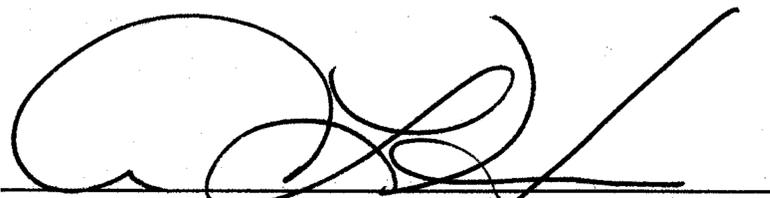
Village Clerk  
Village of Highland Falls  
303 Main Street  
Highland Falls, New York

Town Clerk  
Town of Highland  
254 Main Street  
Highland Falls, New York

Highland Falls Public Library  
298 Main Street  
Highland Falls, New York

The point-of-contact for further information is:

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## ABBREVIATIONS AND ACRONYMS

ACHP	Advisory Council on Historic Preservation
A&E	Architectural and Engineering Contractor
AR	Army Regulation
B.P.	Before present
CCTV	Closed Circuit Television
CERL	Construction Engineering Research Laboratory
CFR	Code of Federal Regulations
CMP	Coastal Management Program
DA	United States Department of the Army
DbA	A-weighted Decibels
DHPW	Department of Housing and Public Works
DO	Dissolved oxygen
EA	Environmental Assessment
EFH	Essential Fish Habitat
ESA	Endangered Species Act
°F	degrees Fahrenheit
FY	fiscal year
HABS/HAER	Historic American Buildings Survey/Historic American Engineering Record Survey
HHSASS	Hudson Highlands Scenic Area of Statewide Significance
ICRMP	Integrated Cultural Resources Management Plan
INRMP	Integrated Natural Resources Management Plan
KACH	Keller Army Community Hospital
L <sub>dn</sub>	day-night noise level
mgd	million gallons per day
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHLD	National Historic Landmark District
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO <sub>x</sub>	nitrogen oxides
NPS	United States Department of the Interior, National Park Service
NRB	Natural Resources Branch
NRHP	National Register of Historic Places
NYSDEC	New York State Department of Environmental Conservation
NYSDOS	New York State Department of State
NYSECL	New York State Environmental Conservation Law
NYSNHP	New York State Natural Heritage Program
NYSOPRHP	New York State Office of Parks, Recreation and Historic Preservation
OCDP	Orange County Planning Department
O&R	Orange and Rockland Utilities, Inc.

## ABBREVIATIONS AND ACRONYMS (CONTINUED)

PCBS	polychlorinated biphenyls
PIPC	Palisades Interstate Park Commission
PM-10	Particulate Matter
ppm	parts per million
PX	Post Exchange
RFFAs	Reasonably Foreseeable Future Actions
RTE	Rare, Threatened, or Endangered
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SPDES	State Pollution Discharge Elimination System
TRI	Toxic Release Inventory
USACE	United States Army Corps of Engineers
USDA SCS	United States Department of Agriculture, Soil Conservation Service
USDI	United States Department of the Interior
USEPA	United States Environmental Protection Agency
USFWS	United States Department of the Interior, Fish and Wildlife Service
USMA	United States Military Academy
UXO	unexploded ordnance
VOCs	volatile organic compounds

## 1.0 INTRODUCTION

### 1.1 BACKGROUND

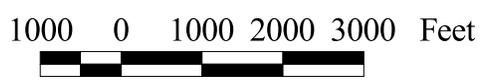
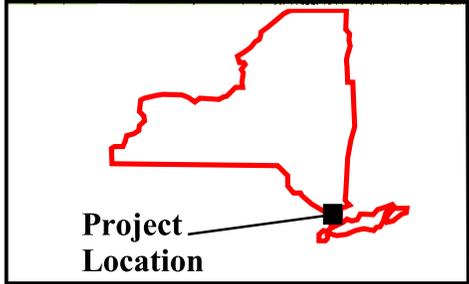
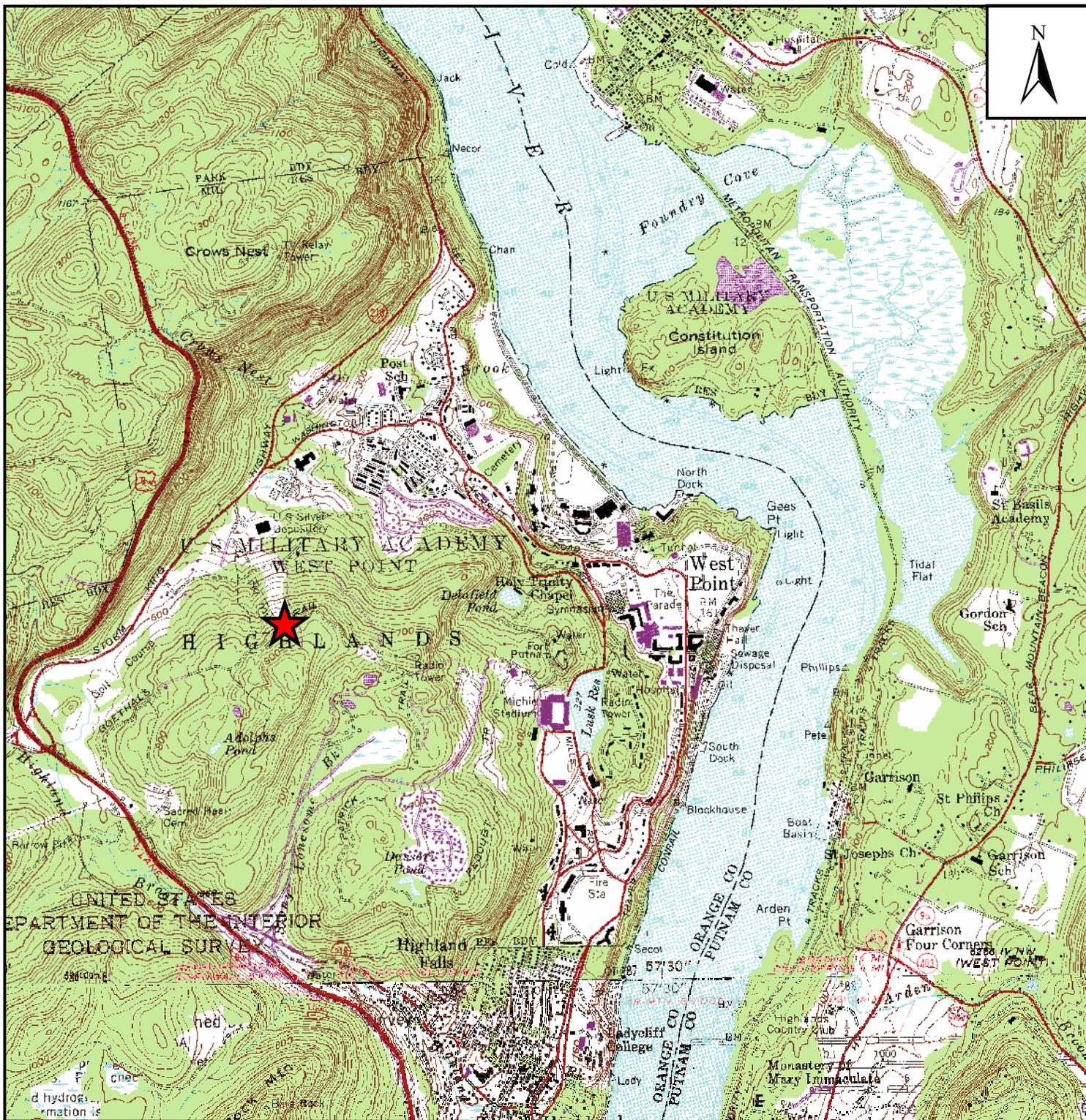
The United States Military Academy (USMA) at West Point is a renowned and historic service academy that graduates and commissions over 900 officers each year. West Point is the Department of the Army's (DA's) oldest and most continuously occupied installation. The USMA at West Point offers a full range of academic, military, and athletic training and activities to almost 4,000 men and women cadets, as well as quality of life and community support services to USMA personnel. The Stony Lonesome Water Tank Project (the Project) has been developed as part of the quality of life and community support services provided by the USMA at West Point for both cadets and military and civilian staff.

The water needs of the Main Post/Academic Area of the USMA at West Point are currently serviced by a water treatment plant and three water tanks, which provide 1,250,000 gallons of potable water storage capacity. However, concerns have been raised that, due to increased development at the USMA at West Point, particularly increased residential and commercial development in the Stony Lonesome community, and because of increased water usage, adequate water pressure may not always be available for fire protection and fire-fighting purposes across the entire Main Post/Academic Area. In response to these concerns, engineering studies have been undertaken that indicate that a new 500,000-gallon potable water tank designed to serve the Stony Lonesome community would ensure adequate quantities of water and adequate water pressure for fire protection and fire-fighting purposes in the Stony Lonesome community in the near term (e.g., 1 to 5 years), while permitting the current existing water system to continue to serve other areas of the Main Post/Academic Area of the USMA at West Point. These same engineering studies have also indicated that up to 1,000,000 gallons may be necessary in the longer term (e.g., 10 to 15 years), as residential and commercial development continues in the vicinity of the Stony Lonesome community.

## 1.2 Location and Description of Facilities

The USMA at West Point is located in the Town of Highlands, Orange County, New York, approximately 50 miles north of New York City, and approximately 7 miles southeast of Newburgh, New York. The USMA at West Point encompasses approximately 16,000 acres, and is located on the western shore of the Hudson River in Orange County, New York, and on Constitution Island in Putnam County, New York (Figure 1).

The specific Project area is located in the Main Post/Academic Area of the USMA at West Point, near the top of the Ski Slope, on the ridge located above the West Point Golf Course. The Project area currently contains an existing 250,000-gallon concrete water tank, an existing communication tower site, the top of the Ski Slope, and an existing access road leading to these existing facilities.



**Figure 1. Project Location at USMA, West Point, New York.**

**Client:**  U.S. Army Corps of Engineers  
New York District

**Prepared By:**  NEA  
NORTHERN ENGINEERS ASSOCIATES, INC.

**Date:** 08/01/03

Source: USGS 7.5' series Quadrangles West Point and Peekskill, New York, 1957, Photorevised 1981

## 2.0 PROPOSED ACTION

### 2.1 PURPOSE AND NEED

Engineering studies have indicated that a new 500,000-gallon potable water tank would be required to ensure adequate quantities of water, and adequate water pressure, for fire protection and fire-fighting purposes in the Stony Lonesome community of the USMA at West Point. There is a concern that the 1,250,000 gallons of potable water storage currently available for the entire Main Post/Academic Area may not always be adequate for fire protection and fire-fighting purposes because of the potable water demands associated with residential and commercial development in the Stony Lonesome community, and with new facilities, such as the Stony II Child Care Center, and the new Stony Lonesome Fire Station. Other development within the Main Post/Academic Area and located in the general vicinity of the Stony Lonesome community of the USMA at West Point, such as the Kimsey Athletic Center, the Tennis Center, the Gross Olympic Center, and the Press Box at Blaik Field, further strain the existing water system in this area, particularly with regard to fire protection and fire-fighting services.

### 2.2 DESCRIPTION OF PROPOSED ACTION

The USMA at West Point proposes to construct a single new potable water tank to service the Stony Lonesome community. The Project would consist of the construction and operation of a single proposed 1,000,000-gallon water tank, and would include work areas and water lines that would connect the new water tank to the existing water tank, and subsequently the existing water treatment plant and existing water line system. Although the current anticipated need is for a single 500,000-gallon water tank, the USMA at West Point is proposing a single, larger, 1,000,000-gallon water tank to accommodate future residential and commercial development that is anticipated for the interior of the Main Post/Academic Area at the USMA at West Point, particularly in the vicinity of the Stony Lonesome community. The new water tank would initially be filled halfway to address the current anticipated need for an additional 500,000 gallons of water, and would be filled further as needed in the future. This additional water supply would provide an increased potable water supply and increased fire protection and fire-fighting services specifically for that area of the USMA at West Point from the Stony Lonesome community east to the Kimsey Center. The construction and operation of a single, larger water

tank would also allow the USMA at West Point to meet the requirements of NEPA (the State Environmental Quality Review Act does not apply to this Federal Proposed Action) by avoiding future, incremental economic and environmental impacts that would be incurred if several new water tanks would have to be sited, evaluated, constructed and operated in the future at a number of locations near the top of the Ski Slope or within the Main Post/Academic area at the USMA at West Point.

The proposed design for the new 1,000,000-gallon water tank currently consists of the installation of a 24-foot tall, 86-foot-inside-diameter, precast, post-tensioned concrete tank on top of a 90-foot-diameter concrete base slab foundation. New water lines would be installed to connect the new water tank to the existing water tank. A new paved access road capable of handling an 80,000-pound gross vehicle weight rating would be constructed to facilitate construction at the new water tank site, and an approximately 1,500-foot length of the existing gravel access road between the new paved access road and the existing paved surface of Patrick Trail would also be paved. An existing gravel parking area on the west side of Patrick Trail, between the location of the existing Stony Lonesome Water Tank and the Post Exchange (PX), would be used as a lay down area, including use as construction staging and storage and preparation areas, for the Project.

## 2.3 ALTERNATIVES

### 2.3.1 No-Action Alternative

The Project was authorized because of concerns that adequate water pressure may not always be available for fire protection and fire-fighting purposes within the Main Post/Academic Area, due to increased development at the USMA at West Point, particularly increased residential and commercial development in the Stony Lonesome community. Engineering studies have indicated that a new minimum 500,000-gallon potable water tank would provide adequate quantities of water and water pressure that would be available for fire protection and fire-fighting purposes in the Stony Lonesome community, allowing the existing water system to continue to provide adequate fire protection and fire-fighting support across the remaining areas of the Main Post/Academic Area of the USMA at West Point. The No-Action Alternative would leave the Stony Lonesome community without an adequate water supply for fighting a fire during times of

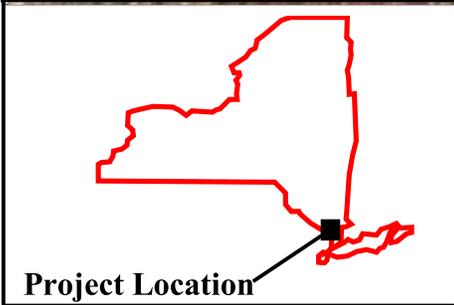
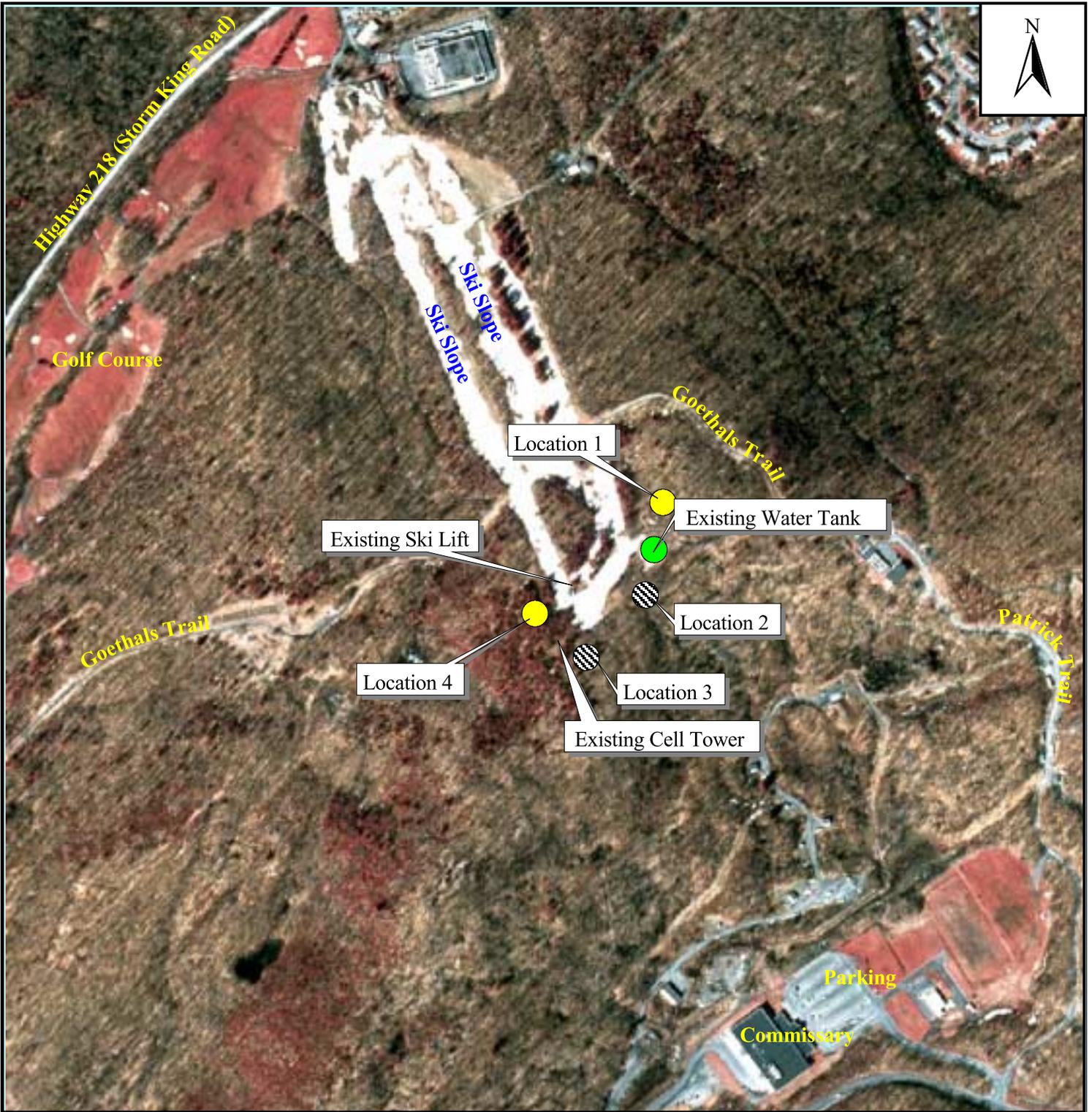
peak water usage, and would reduce overall fire protection and fire-fighting support across the Main Post/Academic Area of the USMA at West Point as residential and commercial development continues to occur in the immediate and distant future.

### 2.3.2 Alternative Locations

Four sites were initially considered as locations for the Project. All four of these sites were located in the general vicinity of the existing water tank. Criteria used to identify these four potential sites included: (1) the desire to reduce financial costs of the Project by minimizing the need for construction of new infrastructure (e.g., electrical and water lines) to service the new water tank; (2) the desire to eliminate the construction of new access roads, by siting the new water tank adjacent to existing roadways; and, (3) the desire to reduce ground disturbance and excavation by identifying sites that were approximately one-acre in size and relatively level. Of the four sites initially considered as locations for the Project, two sites, Alternative Location 1 and Alternative Location 4, were selected for further evaluation in the Draft EA.

Alternative Location 1 (Location 1 on Figure 2) is located immediately north of, and topographically lower in elevation than, the existing water tank. Alternative Location 1 is located in close proximity to the existing water system infrastructure, including the existing water tank, water treatment facility, water pipe system, and electrical utilities. Evaluation of environmental characteristics in the Draft EA for the Project resulted in the selection of Alternative Location 1 for implementation of the Proposed Action, if engineering design requirements could be accommodated at this site.

Alternative Location 4 (Location 4 on Figure 2) is located west of, and topographically higher in elevation than, the existing water tank, between the communication tower site and the top of the Ski Slope. Although Alternative Location 4 is located further from the existing water system infrastructure, this alternative location would provide greater and more sustained water pressure due to the higher elevation of the site above the existing water system. Evaluation of environmental characteristics in the Draft EA for the Project resulted in the selection of Alternative Location 4 for implementation of the Proposed Action only if engineering design requirements could be not accommodated at Alternative Location 1.



Source: New York State Department of State Digital Ortho Imagery, 1994-1999.

250 0 250 500 750 Feet

**LEGEND**

- Existing Water Tank
- Alternative Location, Selected for Further Evaluation
- Alternative Location, Not Considered for Further Evaluation

**Figure 2. New Water Tank Alternative Locations at USMA, West Point, New York.**

**Client:** U.S. Army Corps of Engineers  
New York District

**Prepared By:** **NEA**  
NORTHERN ECOLOGICAL ASSOCIATES, INC.

**Date:** 08/01/03

### 2.3.3 Design Alternatives

A number of design alternatives have been considered for the Project, including differences in the materials used to construct the water tank, the surface characteristics of the water tank, the below surface depth of the water tank, the above ground height of the water tank, and screening measures for the tank, such as berms and vegetation. The selection of any of these design alternatives was dependant on the selection of the final location for the Project, and have been further modified as part of measures developed to avoid, reduce, or mitigate for potential impacts to the scenic and aesthetic qualities of visual resources in the viewshed of the Project.

As currently designed, the new water tank would consist of a 24-foot tall, 86-foot-inside-diameter, precast, post-tensioned concrete tank on top of a 90-foot-diameter concrete base slab foundation. Concrete is the preferred material for the new water tank because this surface can easily be texturized, dyed, and or painted to allow the structure to recede into the existing natural and cultural landscape of the Project area to the maximum extent practicable. The use of steel is an alternative material for the new water tank, which, while functionally adequate, reduces the range of affordable textures, dyes, or paints that can be used to screen the Project to the maximum extent practicable.

Current designs for the new water tank call for coating the water tank structure with a 100% acrylic elastomeric textured coating, which would be heavily textured and non-reflective. This coating would prevent the potential impacts of reflective surface finishes, such as shiny metal surfaces or reflective paints, would allow the water tank to blend with the surrounding natural and cultural landscapes, and would not attract undue attention from visual resources in the vicinity of the Project. In addition to the heavily textured and non-reflective coating of the new water tank, the surface of the new water tank would be painted a green-gray color to further allow the water tank to visually blend in with the adjacent natural vegetation. Because the current design calls for concrete materials, the use of dyed concretes and/or textured concrete surfaces would be more aesthetically appropriate than paints or stains, and may reduce long-term maintenance costs to the surface of the water tank.

Current designs for the overall height of the new water tank consist of a 24-foot tall structure, with a 98-foot outside diameter. If this current height results in a structure that is unattractively

prominent in the surrounding natural and cultural landscape, the new water tank may be buried somewhat deeper within its site so that the overall dimensions of the water tank would not be changed, but the tank would be lower in its surrounding landscape. Alternatively, the dimensions of the new water tank could be changed so that while the water storage capacity of the tank remained unchanged, the tank would be lower in height, but larger in diameter, also resulting in a water tank that would be lower in its surrounding landscape.

Current designs for the new water tank do not identify the construction of new screening measures such as earthen berms or vegetative screens. Both of these screening measures have been successfully implemented at the USMA at West Point for a wide variety of residential and commercial development. The existing water tank in the immediate vicinity of the Project is entirely covered with an earthen berm, mimicking the surrounding terrain, and remaining visually unobtrusive within its surrounding natural and cultural landscapes. However, current designs for the new water tank do call for minimizing vegetation clearing during construction and operation, so that the existing vegetative screening provided by mature trees that surround the Project area would be maintained, providing a visual screen that is consistent with surrounding vegetation and that would allow the water tank to blend in with the existing surrounding landscape.

#### 2.3.4 Alternatives Considered But Eliminated from Further Evaluation

The remaining candidate sites (Locations 2 and 3 on Figure 2) that were initially considered by the USMA at West Point have been eliminated from further evaluation because of site constraints such as terrain, slope, surface rocks, and bedrock. These site alternatives will not be evaluated in the EA.

## 2.4 PERMITS AND APPROVALS

Any proposed action funded, authorized, or carried out by a federal agency must comply with the National Environmental Policy Act (NEPA). The Proposed Action would be carried out by a Federal Entity, the DA, and must comply with the DA's implementing regulations for NEPA, Army Regulation (AR) 200-2, Environmental Effects of Army Actions. Specifically, AR 200-2, Chapter 5-3, Paragraph b, specifies that an Environmental Assessment (EA) is required for the

construction of new facilities. Accordingly, this EA fulfills the NEPA requirements for the Proposed Action.

The USMA would coordinate with the New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP), State Historic Preservation Office (SHPO), and the Advisory Council on Historic Preservation (ACHP) to finalize a Project-specific Programmatic Agreement to ensure compliance with Section 106 of the National Historic Preservation Act (NHPA).

The Project is located within the Highlands Subunit of the Hudson Highlands Scenic Area of Statewide Significance (HHSASS), which is administered by the New York State Department of State (NYSDOS), Coastal Management Program (CMP). Pursuant to 15 Code of Federal Regulations (CFR) Part 930.34(b), the USMA must notify the NYSDOS CMP of Project conformance with State Coastal Policies at least 90 days prior to Project implementation. Accordingly, the USMA would coordinate with the NYSDOS CMP through the submittal and review of the Draft and Interim Final EAs by the NYSDOS CMP, to identify potential impacts of, and mitigation measures for, the Proposed/Preferred Action on the HHSASS, and notify the NYSDOS CMP of Project conformance with State Coastal Policies at least 90 days prior to Project implementation.

### 3.0 AFFECTED ENVIRONMENT

This section describes the existing natural, social and cultural environmental resources in the Project area associated with the Project at the USMA at West Point.

#### 3.1 GEOLOGY AND TOPOGRAPHY

The USMA at West Point is located in eastern Orange County, New York, in the New England Upland Section of the New England Physiographic Province (United States Department of the Interior [USDI], Geological Survey 1995). The landscape consists of steep, rocky hillsides typically created through the physical and chemical alteration of metamorphic rocks. Bedrock in this area primarily consists of Precambrian metamorphic rock (gneiss, quartzite, marble, and anorthositic rocks) and some igneous rock formed during the Middle Proterozoic (Helikan) period (more than 570 million years ago) of the Paleozoic era and Phanerozoic eon (New York State Museum, Geological Survey 1986). The bedrock is exposed in many areas, such as the steep rock faces and cliffs fronting the Hudson River, and there are many large boulders exposed on the ground surface throughout the USMA at West Point.

#### 3.2 SOILS

The Hollis-Rock Outcrop Association is the dominant soil association for the Project area at the USMA at West Point. These soils are derived from glacial deposits of schist, gneiss, and granite, and are found on mountainous uplands that are characterized by steep slopes, and areas of peaked elevation (United States Department of Agriculture [USDA], Soil Conservation Service [SCS] 1981). In general, soils in this association are medium-textured soils overlying crystalline bedrock, are excessively drained and well drained, and have a low water capacity (USMA 1998a). This soil association has been identified as poorly suited to urban and recreational uses due to shallowness over bedrock and associated dryness (USDA SCS 1981), although these are two of the predominant land uses in the Project area. Soil structures include sandy loams, gravelly loams, gravelly sandy loams, silt loams, and gravelly silt loams, as well as several stony and extremely stony soil types (USMA 1998a).

The Rock Outcrop – Hollis Complex is the only soil series identified for the Project area. This soil series is described as a somewhat excessively drained to well-drained soil that occurs on moderately steep hilltops or ridges with 15 to 35 percent slopes. The soils of the Rock Outcrop-Hollis Complex have a shallow depth to bedrock, and can have serious erosion hazards where vegetation has been removed (USMA 1998a). There are no Agricultural Districts, hydric soils, state-designated Unique Farmlands, or Additional Farmlands of Statewide Importance located in the Project area (Cabrera 2003).

### 3.3 WATER RESOURCES

#### 3.3.1 Groundwater Resources

The USMA at West Point is located within the New England Upland Section of the New England Physiographic Province. The underlying aquifers associated with the New England Physiographic Province are crystalline-rock aquifers consisting of a variety of igneous and metamorphic rocks. Aquifers within this province are locally confined, with a common well depth ranging from 25 to 400 feet, and a common well yield ranging from one to 120 gallons per minute. Groundwater quality in the crystalline-rock aquifers is generally characterized as suitable for most uses, although there can be areas of localized large iron concentrations (Olcott 1995).

No federally designated Sole Source Aquifers exist within or near the Project area (U.S. Environmental Protection Agency [USEPA] 1996). Additionally, no state-designated Primary or Principal Aquifers exist within the Project area (Stegville 1999). The closest such aquifer, the Fishkill and Sprout Creeks Area, is located northeast of the Project area, on the eastern side of the Hudson River (Bugliosi and Trudell 1988). The only productive alluvial aquifers at the USMA at West Point are associated with the Hudson River or Popolopen Brook (Bjornsen 2001b).

### 3.3.2 Surface Water Resources

Located in the drainage basin of the Hudson River, the surface water system of the USMA at West Point is comprised of lakes, ponds, and streams, scattered throughout the property (USMA 1998a). Although the Project area contains no surface water resources, it straddles the Crows Nest Brook and Highland Brook drainage areas. Both drainage systems ultimately discharge into the Hudson River.

Crows Nest Brook is both a first-order and second-order stream that is located in the northern portion of the Main Post/Academic Area of the USMA at West Point, becoming a second-order stream downstream of its junction with Sinclair Pond Brook. This perennial surface water body originates from several small tributaries that drain Crows Nest Mountain and form the Crows Nest Watershed that drains into the Hudson River. The New York State Department of Environmental Conservation (NYSDEC) classifies Crows Nest Brook as a Class C stream. Under the USMA's good stewardship directive, Crows Nest Brook has been recommended for treatment as a Class C(t) stream because of the presence of trout (Beemer 2002a). Water quality measurements taken at this stream during June and August of 1996 indicated a temperature of 66.5 degrees Fahrenheit (°F), conductivity of 690 micromhos per centimeter (micromhos/cm), total dissolved solids at 470 parts per million (ppm), and dissolved oxygen (DO) at 10.55 ppm (Linck 1996).

Highland Brook is located in the southwestern portion of the Main Post/Academic Area of the USMA at West Point. The NYSDEC classifies Highland Brook as a Class A(t) stream, and the stream is a source of potable water for Highland Falls. Water quality measurements taken at the stream during June and August of 1996 indicated temperatures ranging between 62 to 65°F, conductivity from 70 to 200 micromhos/cm, DO from 10.17 to 10.21 ppm, total dissolved solids from 100 to 160 ppm, and pH from 6.6 to 9.65 (Linck 1996).

### 3.3.3 Public and Private Water Supply Sources

No public or private water supply wells are located within a 2-mile radius of the Project area (Stegville 1999). As noted above, Highland Brook, located outside of the Main Post/Academic

Area of the USMA at West Point, is the source of potable water for Highland Falls, and is tested regularly by Highland Falls for various water quality parameters. Results of these tests indicate that Highland Brook has extremely good quality water, that is consistent with the A(t) classification and standard (USMA 1998a).

The major source of potable water for the USMA at West Point is provided by the Popolopen Brook drainage and is provided to the Main Post/Academic Area through both the Lusk Reservoir Water Treatment Plant (via Lusk Reservoir) and the Stony Lonesome Water Treatment Plant (via Stilwell Lake and Long Pond). Both water treatment plants have a combined filtration capacity of 6.0 million gallons per day (mgd) and provide potable water to the USMA at West Point through 47 miles of distribution pipelines and eight storage tanks (USMA 1998a). The USMA at West Point also has a license agreement with the Palisades Interstate Park Commission (PIPC) to provide potable water to West Point during periods of high demand (October 16 through May 31 of each year) (USMA 1998a).

### 3.4 FISHERIES

Fish have been surveyed on the USMA at West Point by the Adirondack Lakes Survey Corporation (1987), Cornell University (1988-95), USDI Fish and Wildlife Service (USFWS) (as part of a cooperative agreement), and the USMA's Natural Resources Branch (NRB) (USMA 1998a, Beemer 2003b). Based on these surveys, 38 species of fishes, 35 species of mollusks, and two (2) species of crayfish have been documented at the USMA at West Point (Beemer 2003b). However, because no waterbodies occur within the Project area, these species also would not be present in the Project area.

### 3.5 VEGETATION

Based on an ecological classification system developed for New York State, the USMA at West Point lies within the Hudson Highlands area of the Hudson Valley, an ecozone consisting of Appalachian ridges and valleys located within the New England Upland Physiographic Province (Reschke 2002). Much of the West Point landscape consists of rugged terrain, deep ravines, and

developed areas. Most of the undeveloped portion of the landscape is forested, but crests of ridges and hilltops, particularly those with rocky summits, tend to have few trees and support only stunted/sparse woodlands, savannas, or grasslands. Crests and ridges are also very dry and have a history of human-caused fires associated with military training activities (USMA 1998a).

Vegetation community inventories conducted by the USMA NRB in 1993 through 1994, and updated in 1995, identified 28 upland community types within the USMA at West Point (Kakerbeck 1995). Geographic Information System (GIS) overlays indicate that four of these upland communities, Appalachian oak-hickory, chestnut oak, pine plantation, and open, are located in the Project area.

Appalachian oak-hickory forests are widespread and represent approximately 11% of total upland vegetation at the USMA at West Point. Oak-hickory forests are defined as having greater than 60% tree canopy and are found in various forms on a wide range of sites and conditions throughout the USMA at West Point. When located on dry, upper slopes and rocky ridgetops, such as the conditions of the Project area, the oak-hickory community is dominated by pignut hickory (*Carya glabra*) and a diversity of oak species, including black oak (*Quercus velutina*), white oak (*Q. alba*), chestnut oak (*Q. prinus*), and northern red oak (*Q. rubra*). The understory is typically dominated by huckleberry (*Gaylussacia baccata*) and wood sedge (*Carex albicans*), but also may contain ebony spleenwort (*Asplenium platyneuron*), prickly pear cactus (*Opuntia humifusa*), and polypody ferns (*Polypodium* spp.).

The chestnut oak forest type occurs on well-drained sites with thin soils. This forest type is found on dry ridgetops and slopes and is relatively uncommon throughout the USMA at West Point (9% coverage). The dominant tree species in chestnut oak forests include chestnut oak and red oak, but also may include scattered white oak, black oak, and red maple (*Acer rubrum*). The shrub and herbaceous layers are composed of huckleberry, mountain laurel (*Kalmia latifolia*), blueberry (*Vaccinium* spp.), wood sedge, wintergreen (*Gaultheria procumbens*), and mosses (*Leucobryum* spp.).

Pine plantations are planted monocultures with at least 90% of the canopy consisting of white pine (*Pinus strobus*). The understory of this community is sparse, but occasionally contains

speedwell (*Veronica officinalis*). Pine plantations are uncommon throughout the USMA at West Point.

The open classification includes ecological communities that have been created by anthropogenic forces. This community represents approximately 8% of total vegetated coverage within the USMA at West Point. Within the Project area, the open community type includes the Ski Slope and cleared areas along the access road.

A site inspection of the Project area on May 20, 2003, revealed Alternative Location 1 sited in a deciduous woodland dominated by chestnut oak, red oak, white oak, black cherry (*Prunus serotina*), and tuliptree (*Liriodendron tulipifera*). Alternative Location 4 is sited in a mixed coniferous-deciduous woodland dominated by white pine chestnut oak, red oak, and ironwood (*Ostrya virginiana*).

### 3.6 WETLANDS, FLOODPLAINS, AND NAVIGABLE WATERWAYS

#### 3.6.1 Wetlands

Based on a review of National Wetland Inventory maps (USFWS 1990) and New York State Freshwater Wetlands Maps (NYSDEC 2003), no state or federally mapped freshwater or tidal wetlands, or their 100-foot buffer zones, have been identified within the footprint of the Project. Additionally, USMA NRB personnel conducted an on-site field review of the Project area and determined that no federal jurisdictional wetlands occur within the footprint of the Project (Beemer 2003a, 2003b).

#### 3.6.2 Floodplains

The Project area is located within Zone X, delineated as outside of the 500-year flood plain of the Hudson River (Federal Emergency Management Agency 2003).

#### 3.6.3 Navigable Waterways

No navigable waterways are located at, or immediately adjacent to, the Project area. The closest navigable waterway is the Hudson River, located approximately 1 mile northeast of the Project.

### 3.7 WILDLIFE

The diversity of wildlife is reflected in the USMA at West Point's Integrated Natural Resource Management Plan (INRMP), which is in the process of being updated (Beemer 2003b). Based on the INRMP (USMA 1998a) and updated information available from the USMA NRB (Beemer 2003b), 822 documented wildlife species have been observed on USMA at West Point property. The Project area includes a variety of habitats that are suitable for a diverse group of migratory and resident wildlife, including mammals, birds, reptiles, amphibians, and invertebrates (aquatic species are addressed in Section 3.4). Documented wildlife species on the USMA at West Point property include 48 species of mammals, 249 species of birds, 22 species of reptiles, 18 species of amphibians, 100 species of dragonflies and damselflies, 234 species of moths, and 76 species of butterflies, as well as aquatic life (38 species of fishes, 35 species of mollusks, two [2] species of crayfish) (Beemer 2003b).

### 3.8 ENDANGERED AND THREATENED SPECIES

#### 3.8.1 Endangered and Threatened Species

The USMA NRB (Beemer 2003a) indicates that 123 species have special status have been documented on USMA property. This includes 31 state-listed endangered or threatened or special concern vertebrates; 14 rare or otherwise noteworthy odonates (dragonflies and damselflies), 14 rare butterflies (eight [8] in New York State and six [6] regionally), two (2) moths listed as rare in New York State, and 62 rare plants (Beemer 2003b). Pursuant to AR 200-3 and the Endangered Species Act (ESA) of 1973, the Biological Survey Unit of the New York State Museum conducted a survey of threatened and endangered fauna and flora on the USMA. The survey concluded that no federally-listed species were permanent residents of, or breed on, the USMA at West Point. However, the timber rattlesnake (*Crotalus horridus*), a state-listed threatened species, has been found to be a permanent resident of USMA at West Point (USMA 1998a).

#### Bald Eagle

The bald eagle (*Haliaeetus leucocephalus*) is a federal- and state-listed threatened species that has been sighted in the vicinity of the USMA at West Point. To ensure compliance with

applicable endangered species regulations, the USMA has coordinated with the NYSDEC and USFWS to develop a programmatic endangered species management plan for the bald eagle (Beemer 2002b). The programmatic management plan requires that the USMA consult informally and formally with USFWS pursuant to Section 7 of the ESA, and the NYSDEC pursuant to the New York State Environmental Conservation Law (NYSECL), regarding any USMA construction activity that may disrupt bald eagle activity at USMA.

### Timber Rattlesnake

The timber rattlesnake (*Crotalus horridus*) is a state-listed threatened species that has been sighted in the vicinity of the USMA at West Point. Little was known about the timber rattlesnake population on the USMA at West Point prior to 1994. At that time, a three-year radiotelemetry study was initiated to investigate their population size, seasonal ranges, and habitat use, as summarized by Stechert (1997). The study identified three populations utilizing the USMA property and associated with three historic den sites that are located on the USMA. Two of the den sites are generally located in south-central portion and one in the northeastern portion of the USMA Reservation (Stechert 1995). Additionally, timber rattlesnakes from a den located on Harriman State Park were found on USMA property (Stechert 1997). None of these timber rattlesnake dens are located within 1 mile of the Project area.

### Plant Species

An inventory of rare plants on USMA at West Point was conducted during 1993 and 1994 (Barbour 1996). Based on this survey and more recent information available from the USMA NRB (Beemer 2003b), 62 special status plant species are present at USMA at West Point. Of these, 25 are state-listed endangered or threatened species (Beemer 2003b). None of the 62 special status plant species are known to occur on or near the Project area.

#### 3.8.2 Designated Critical Habitat

Pursuant to the ESA, and according to the USFWS and the NYSDEC, no habitat within the Project area is considered “critical habitat” (Ketcham 1999, Stilwell 2003).

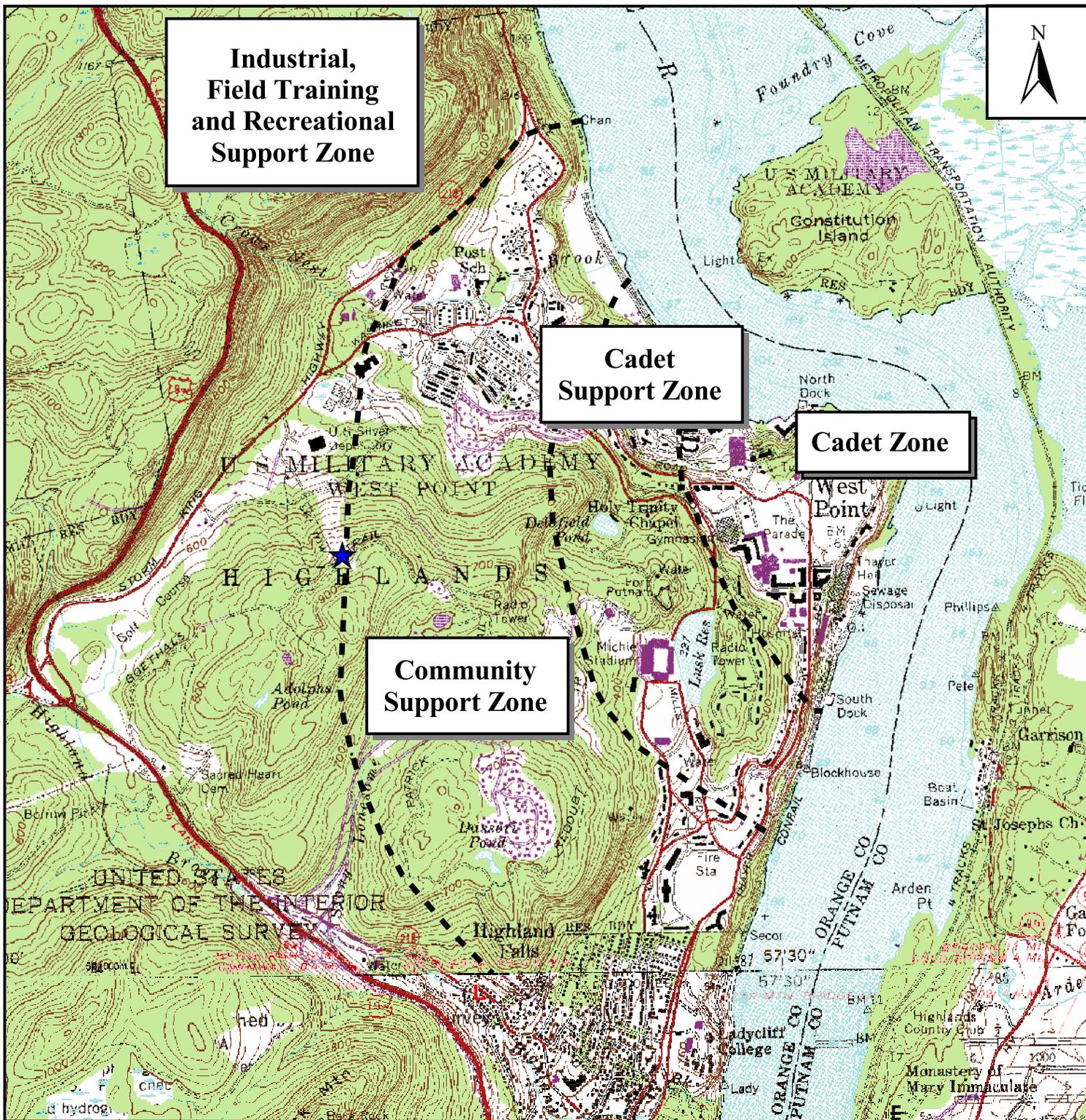
### 3.9 LAND USE AND ZONING

#### 3.9.1 Land Use and Local Zoning

Land use within the Main Post/Academic Area of the USMA at West Point has been divided into four zones: the Cadet Zone, which serves as the core of the Main Post/Academic Area; the Cadet Support Zone, the first of three concentric zones around the core; the Community Support Zone, the second of three concentric zones around the core; and the Industrial/Field Training/Recreation Zone the third and final of three concentric zones around the core (Figure 3) (Vollmer Associates, LLP undated). Land uses within each zone tend to be closely aligned with the zone's function. Project construction activities would occur in both the Community Support Zone and the Industrial/Field Training/Recreation Zone. The land use patterns associated with each of these zones are described below.

The Community Support Zone is the secondary support zone for the USMA at West Point. Facilities within this zone are associated with housing and related facilities for support of personnel and post administration uses, and serve military personnel and their families on-post, military personnel in the vicinity of the USMA at West Point, and the retired military population of the surrounding region (Vollmer Associates, LLP undated).

The Industrial/Field Training/Recreation Zone is the outer zone for the USMA at West Point. Facilities within this zone are associated with activities required for cadet field training uses, outdoor recreational uses requiring significant expanses of land, and the operation and maintenance of the post (Vollmer Associates, LLP undated).



**Industrial,  
Field Training  
and Recreational  
Support Zone**

**Cadet  
Support Zone**

**Cadet Zone**

**Community  
Support Zone**



**Project  
Location**



**Figure 3. Land Use and Local Zoning Designations at the USMA, West Point, New York.**

**Client:**  U.S. Army Corps of Engineers  
New York District

**Prepared By:**  NEA  
NATIONAL ENGINEERING ASSOCIATION, INC.

**Date:**  
08/01/03

Source: USGS 7.5' series Quadrangles West Point and Peekskill, New York, 1957, Photorevised 1981

### 3.9.2 Recent, Ongoing, and Planned Developments

All recent and ongoing development within the Main Post/Academic Area should be compatible with uses outlined in the *USMA Master Plan for the Year 2007* (USMA 1998b). All planned developments are detailed in Section 5.0, Reasonably Foreseeable Future Actions.

### 3.9.3 Generation and Disposal of Waste Material

Annual generation of ordinary, non-hazardous solid waste from academic, military, and athletic activities at the USMA at West Point is 6,561 tons (USMA 1998a). In accordance with the USMA's Management Plan, the USMA at West Point maintains various types of trash receptacles, and routinely collects and disposes of all generated solid waste. This solid waste, including municipal refuse and dewatered sludge from the sewage treatment facilities, is hauled by a contractor to a USMA-owned, contractor-operated, transfer station on the installation. From there, the waste is hauled to a private landfill.

Activities at the USMA at West Point also generate approximately 1.8 to 1.9 mgd of wastewater and sewage, which, for the Main Post/Academic Area, is treated at the Target Hill Wastewater Treatment Facility, and is then discharged to the Hudson River. The Main Post/Academic Area also has several storm water-drainage conveyance systems, including open ditches, grassed channels, paved open channels, and pipes. All storm water drainage outfalls discharge to the Hudson River (USMA 1989).

### 3.9.4 Recreational and Other Designated Facilities

The Project is located within the immediate vicinity of two recreational/athletic facilities at the USMA at West Point, the Ski Slope and the Golf Course. Skiing and golfing are two examples of the wide variety of athletic and physical fitness facilities and activities for cadets at the USMA at West Point, in support of the USMA at West Point's leadership development program. Many of these facilities and services, including the Ski Slope and the Golf Course, also are available to retirees, relatives, and guests, and to the surrounding community and general public (USMA 1998a).

The Project is also located within a summer training area that is heavily used between approximately May and August by a number of different military units at West Point, and by a wide variety of other federal and local agencies and groups that conduct regular military-style training (USMA 1998a). The J2 and J3 training area are also selectively used during the late fall and early winter for bow-hunting of white-tailed deer, primarily for wildlife management purposes (USMA 1998a). In particular, the J3 training area is one of the most popular hunting areas within the USMA at West Point in terms of man-days, and hunting activities in these areas are critical for controlling the abundant deer population located within the Main Post/Academic area of the USMA at West Point (Beemer 2003a).

In addition to the facilities and opportunities for recreation at the USMA at West Point, the Project is located within two formally designated recreation or special use areas: the Highlands Subunit of the HHSASS (see Sections 3.10 and 3.19), and the West Point National Historic Landmark District (NHLD) (see Sections 3.10 and 3.11). No other federal, state, or local designated recreation areas or parks, National Natural Landmarks, or Lands of Statewide Importance are located within the Project area (New York State Department of Transportation 1992, USDI National Park Service 1994, NYSDEC and NYSOPRHP 1995).

### 3.10 VISUAL RESOURCES

The various visual resources associated with the USMA at West Point have been identified for their contributions to landscapes of historical, architectural, aesthetic, and natural significance. These visual resources consist of historic landscapes associated with the NHLD at the USMA at West Point, such as landscapes associated with a variety of individual historic structures that are either nominated individually for the National Register of Historic Places (NRHP) or have been identified as contributing elements to the NHLD, aesthetic landscapes associated with a variety of communities within the Main Post/Academic Area of the USMA at West Point, and natural landscapes associated with the HHSASS. Historic landscapes are of particular significance at the USMA at West Point, although they are primarily associated with views of the buildings and properties adjacent to Washington Gate, Stony Lonesome Gate, and the main entrance to the Main Post/Academic Area at Thayer Gate, and views of West Point architecture along the

Hudson River frontage and shoreline, as well as the viewsheds from these buildings, properties, and installation entrances.

The USMA at West Point has developed a number of management plans that identify and protect the visual resources associated with these landscapes, including the *Historic Landscape Management Plan for the U.S. Military Academy at West Point*, the *United States Military Academy Installation Design Guide*, and the *Identification and Analysis of the Historic Built Environment and Viewsheds, Cadet Zone* (Construction Engineering Research Laboratory [CERL] 2001, Design Collaborative, Inc. et al. undated, CERL 2003a). Visual resources identified in these management plans for the proposed alternative locations for the Project are discussed below.

#### NHLD at the USMA at West Point

Visual resources that are related to historic landscapes within the NHLD at the USMA at West Point include the entire NHLD, as well as select component landscapes within the NHLD. Landscapes within the entire NHLD at the USMA at West Point are divided into four categories: roads and roadways, views, athletic fields, and the waterfront. Of these four categories, the proposed alternative locations for the Project would be located within a number of views and landscapes that are visible from various points inside and outside of the NHLD at the USMA at West Point, including those views and landscapes that are associated with U.S. Route 9W, which abuts the northern boundary of the NHLD at the USMA at West Point, and the Ski Slope, which is located in the northern part of the Main Post/Academic Area of the USMA at West Point. In particular, the proposed alternative locations for the Project are located within one significant viewshed: that of West Point from Black Rock Forest, Crows Nest Mountain, and the U.S. Route 9W overlook (CERL 2003a).

The external view of West Point from Black Rock Forest, Crows Nest Mountain, and the U.S. Route 9W overlook is a historic view of the USMA at West Point, dating to the construction of the Old West Point Road in the early 19<sup>th</sup> century. This historic view is generally oriented to the south and southeast, and is dominated by the Plain, Cullum Hall, and the Officers' Club. The Hudson River shares the middle ground of this view with the structures of the Plain, with mountains in the background, and trees in the foreground. Because of a number of historic

buildings are screened from view by vegetation, and a number of non-contributing structures are highly visible, this view is considered to have medium historic significance, but high integrity (CERL 2003a).

#### Recreational Support Community

Visual resources at the USMA at West Point are also related to aesthetic landscapes associated with 22 small compact communities within the Main Post/Academic Area, which have been established or defined over time based on use, architecture or topography, resulting in individualized visual characteristics or features that contribute to the unique aesthetic landscapes of each community (Design Collaborative, Inc., et al. undated). The proposed alternative locations for the Project are located within one of these 22 communities, the Recreational Support Community.

The Recreational Support Community is used primarily for recreational purposes, including hunting, and is heavily wooded (USMA 1998a). Recreational facilities include the Ski Slope and Golf Course that are located immediately adjacent to, or north of, the Project area, respectively. A portion of this community is also used as a cadet training area (Design Collaborative, Inc. et al. undated). Visual resources associated with this community include the serene and beautiful valley within this community, which is situated between Storm King Mountain to the north and a ridge to the south, and the mountainous, wooded areas on either side of this valley, with clearing associated only with the Golf Course and Ski Slope (Design Collaborative, Inc., et al. undated). Other features that contribute to the visual resources of the Recreational Support Community include the well-sited Golf Course club house, which is screened and appropriately designed for the area, and landscapes associated with the surrounding dramatic topography (Design Collaborative, Inc., et al. undated).

#### Hudson Highlands Scenic Area of Statewide Significance

In addition to the visual resources that are associated with historic, architectural, and aesthetic landscapes of the NHLD at the USMA at West Point, and the individual communities identified within the Main Post/Academic Area, the proposed alternative locations for the Project are also located within the Highlands Subunit of the HHSASS, a designated coastal zone as determined by the NYSDOS CMP (Taylor 1998), that contains visual resources that are associated with the

natural environment surrounding the USMA at West Point. The visual resources associated with the Highlands Subunit of the HHSASS are discussed in greater detail below.

The Highlands Subunit is located west of the main developed areas of the USMA at West Point, and is roughly circular in shape, with a diameter of 1.5 miles (NYSDOS 1993). In general, “the Highlands Subunit is included in the HHSASS because it is of high scenic quality” (NYSDOS 1993). An evaluation of the location, scenic components, uniqueness, public accessibility, and public recognition of the landscape associated with the Highlands Subunit indicate that this subunit makes an important contribution to the HHSASS because of its high scenic quality (NYSDOS 1993). The subunit consists of a landscape that is unified by shape, but which contains “steep and rolling hillsides and several flat areas [that] provide variety within the topography of the subunit” (NYSDOS 1993). The subunit’s scenic quality is enhanced by the mature, wooded, primarily deciduous, vegetation cover that provides background changes in colors, tones, and textures for the built environment of the contemporary and historic portions of the USMA at West Point throughout the year (NYSDOS 1993). Although this subunit does contain some discordant features, they are screened from various internal and external viewsheds of the subunit by topography and vegetation and do not detract significantly from its overall contribution to the scenic quality of the HHSASS (NYSDOS 1993).

In addition to the visual resources located within the USMA at West Point, the proposed alternative locations for the Project would be visible from a number of adjacent public recreational areas or transportation routes that have been recognized for their aesthetic qualities and/or scenic resources, including portions of Black Rock Forest, Storm King State Park, and New York State Route 218 (Old Storm King Highway).

Black Rock Forest is an approximately 3,800-acre nature preserve that has been “dedicated to scientific research, education, and conservation of the natural ecosystem(s) that once covered the Hudson Highland region” (Black Rock Forest Consortium 2003a). The Black Rock Forest is “relatively pristine,” in part due to its function as a research and demonstration forest associated with Harvard University since the early 20<sup>th</sup> century. The Black Rock Forest was “set aside as a natural area for perpetuity in 1989” (Black Rock Forest Consortium 2003a), and remains undeveloped. However, a number of facilities exist within the Black Rock Forest that permit the

use of the forest “as a public resource for leisure time activities, appropriate to the Forest’s health” (Black Rock Forest Consortium 2003b). These facilities include the Science Center with classrooms and teaching labs, residential buildings consisting of a dormitory and cabins, 15 miles of marked trails, and 16 miles of graveled roads. Leisure time activities include hiking and mountain biking along the trails and road throughout the forest, as well as hunting every fall, when the Black Rock Forest is closed to the public for modern rifle deer hunting season. The Black Rock Forest contains seven waterbodies and five streams, and these water resources are available for limited recreational use, including boating and fishing, but are closed for swimming (NY-NJ-CT Botany Online 2003).

Storm King State Park is an approximately 1,900-acre state park that is considered to be “one of the Hudson River Valley’s best known landmarks,” as well as “the northern gateway to the Hudson Highlands” (Scenic Hudson 2003). Storm King State Park is a popular state park that “offers unsurpassed views of the Catskills and the Hudson Valley” and is “a favorite for hikers” (Wildernet 2003, USACE 2003). The park is considered to be undeveloped, with limited parking and no restroom facilities, although an approximately 8-mile network of trails, roads, and scenic overlooks is used for hiking and hunting, the only two recreational activities permitted within the park (Wildernet 2003). Although the park appears relatively pristine today, evidence for previous military activities is present within the park boundaries, including areas that contain historic unexploded ordnance from artillery testing and practice activities at the West Point Foundry in Cold Spring and at the USMA at West Point between the early 19<sup>th</sup> century and the mid 20<sup>th</sup> century (USACE 2003).

In recognition of the wide variety of visual resources associated with the Project area, the Architectural & Engineering Contractor (A&E) for this Project conducted a viewshed analysis of the proposed Project area, under the direction of the USMA at West Point’s Department of Housing and Public Works (DHPW) (DY Consultants 2003). Results of this viewshed analysis were used in conjunction with other viewshed analyses for the USMA at West Point to identify Project-specific visual resources of special significance, and to identify measures to avoid, reduce, or mitigate impacts to these visual resources.

### 3.11 CULTURAL RESOURCES

A wide variety of cultural resources have been identified for the USMA at West Point, including buildings, structures, districts, objects, and sites. These cultural resources can be divided into three broad, inter-related categories: architectural resources, archaeological sites, and cultural landscapes. Architectural and archaeological resources are discussed below. Cultural landscapes have been discussed in Section 3.10 (Visual Resources).

Architectural resources at the USMA at West Point have undergone extensive investigation, including, but not limited to, the initial nomination of the USMA NHLD in 1960, a comprehensive Historic American Buildings Survey/Historic American Engineering Record Survey (HABS/HAER) architectural inventory and assessment of the USMA at West Point's built environment in 1984, with subsequent revision and amendments in 1998, and a revised NHLD nomination submission in the year 2003 to update the number of properties within the NHLD, and determine contributing and noncontributing properties to the NHLD (Tompkins et al. 1984, Nolte and Cinquino 1998, and Prior et al. 2000, as cited in Geo-Marine, Inc. 2001).

The boundaries of the NHLD are particularly important to understanding the nature of architectural resources within the USMA at West Point. The NHLD boundaries enclose an area of approximately 2,500 acres, including the Main Post/Academic Area and Constitution Island (Geo-Marine, Inc. 2001). More than 600 buildings or structures are located within the NHLD at the USMA at West Point, although these buildings or structures have not yet undergone conclusive evaluations to determine whether they are eligible for listing on the NRHP (Geo-Marine, Inc. 2001). However, additional investigations as part of a revised nomination of the NHLD at the USMA at West Point have indicated that 328 of these 600 buildings and structures may be contributing elements to the NHLD, although these buildings or structures have not yet undergone conclusive evaluations to determine whether they are eligible for listing on the NRHP (Geo-Marine, Inc. 2001). In addition to investigations to determine whether buildings or structures were contributing or non-contributing elements to the NHLD, 227 buildings or structures were identified as possessing preservation significance on the basis of a HABS/HAER conducted by the USDI, National Park Service (NPS) (USDI-NPS 1984). However, no architectural resources listed on or eligible for the NRHP have been identified for the Project area.

A number of archaeological excavations and surveys have been conducted within the boundaries of the USMA at West Point, including, but not limited to, investigations in the 1920s, 1930s, 1960s, and 1970s, by both vocational and academic individuals and institutions (Geo-Marine, Inc. 2001). From the 1980s through the present, a series of formal cultural resources investigations have been completed at various Project-specific locations within the USMA at West Point, including investigations for the Stony Lonesome II Housing Facility investigations, the Queensboro ironworks, the USMA Timber Harvesting program, the Perimeter Security Fence Project, and various other construction Projects, as well as predictive model testing at a variety of locations within the USMA at West Point by the State University of New York at Albany (Geo-Marine, Inc. 2001, Hanley 2003a). As a result of these archeological investigations, more than 150 archaeological sites have been identified within the USMA at West Point (Geo-Marine, Inc. 2001, Hanley 2003a). Prehistoric site types span the range of prehistoric time periods from the Archaic (ca. 9,000 before present [B.P.] to 3,700 B.P.) to the Woodland Period (terminating ca. 1600 A.D.). Historic site types include 18<sup>th</sup> and 19<sup>th</sup> century historic residential, military, and industrial sites.

Several cultural resource management plans have been completed for the USMA at West Point. These include the comprehensive HABS/HAER survey (NPS 1984); a survey of family housing quarters which includes preservation standards and guidelines (Mariani and Associates, Architects 1987); and a historic resources management plan, which includes locations of prehistoric and historic properties, drawings, and preservation and maintenance guidelines for maintaining significant properties, and was completed in association with the ACHP (USMA 1988). A preservation plan for Revolutionary War Period sites located near the Stony Lonesome II Housing Facility also included preservation plans for maintaining Redoubts 1 and 2 (Benton 1995), and a historic building survey for the Queensboro Iron Works also included a management plan for maintenance (Benton 1995). A management plan for cultural resources, including prehistoric and historic resources within the USMA boundaries, was completed in 1995 (Design Collaborative, Inc. undated, CERL 2001, Geo-Marine, Inc. 2001), and included a predictive model identifying areas of high, medium, and low archaeological sensitivity for the USMA at West Point.

Most recently, the USMA at West Point has developed an Integrated Cultural Resources Management Plan (ICRMP) (Geo-Marine, Inc. 2001). The ICRMP establishes an installation-specific cultural resources management program to allow the USMA at West Point to integrate the management of its cultural resources within mission activities, including processes for the ongoing identification and protection of archaeological and architectural resources and historic landscapes, for external consultation and coordination with non-installation regulatory agencies and other interested parties, and for implementation of standard operating procedures for cultural resources actions (Geo-Marine, Inc. 2001). The ICRMP is also designed for use with the USMA at West Point's Installation Design Guide, Historic Landscape Management Plan, and zone management system to further protect the USMA at West Point's cultural resources (Design Collaborative, Inc. undated, CERL 2001, Geo-Marine, Inc. 2001).

Based on a review of the available documentation summarizing known architectural and archaeological resources for the USMA at West Point, the proposed Project's various components (alternative water tank locations, water line locations, gravel access road, and lay down area) are located in areas that are known to contain previously identified cultural resources. A Phase I cultural resources investigation was conducted for the proposed Project's components, consisting of a pedestrian/walkover reconnaissance, photographic documentation, subsurface shovel testing, and global satellite positioning. Because the locations for the proposed Project's components were considered to be sensitive for the presence of cultural resources, a 50-foot buffer zone around the location of each of the proposed Project's components was included in the Phase I cultural resources investigations. Results of the Phase I cultural resources investigation indicated that no prehistoric or historic cultural resources were identified for the construction areas associated with either of the proposed Project's alternative locations (Hanley 2003b).

### 3.12 SOCIOECONOMICS

#### 3.12.1 Population

The Town of Highlands, including USMA at West Point, covers over 30 square miles. The population of the Town of Highlands (and Orange County) increased slowly, but consistently, during the first 50 years of the century. Construction of the New York Thruway, however,

marked the transition of the area from one of intense agricultural activity to one of urban development, which led to a countywide population explosion during much of the last 50 years. However, the 1970s brought high interest rates, high unemployment rates, and a construction standstill leading to a slowing of population growth from the Projected higher growth rates (USMA 1998b). The Town of Highlands recession led to a population decrease of 6.78 percent between 1970 and 1990 (Orange County Planning Department [OCPD] 1990), resulting in a population of 12,484 in the year 2000 (Ulrich 2002). As of May 2001, the USMA at West Point maintained a population of 12,251 military and civilian residents, including over 4,000 cadets (Bjornsen 2001a).

### 3.12.2 Economy and Employment

The dominant industries in the Town of Highlands are retail trade, education, and public administration (OCPD 1990). The USMA is the major employer and the Highland Falls/Fort Montgomery School District is the second largest employer of full-time personnel in the region. Additionally, the USMA routinely hires local and regional contractors to perform construction and rehabilitation activities for numerous Projects at the USMA at West Point. In the year 2000, there were 4,794 construction jobs in Orange County (New York State Department of Labor 2002).

### 3.12.3 Community Services

The USMA at West Point provides quality of life and community services for those who reside on post or are employed by the USMA. These services include medical, housing, childcare facilities, chapel, recreational facilities, athletic and physical fitness facilities, community clubs, fire department, and security services. Children of military members that reside on post are eligible to attend on-post elementary and middle schools.

As noted in Section 3.9.4, the USMA at West Point also provides a wide variety of athletic and physical fitness facilities and activities, such as the Ski Slope for skiing and the Golf Course for golfing, for cadets at the USMA at West Point, in support of the USMA at West Point's leadership development program. The USMA at West Point also has a number of facilities for football, baseball, track and field, gymnastics, soccer, volleyball, tennis, swimming, cycling, golf, hockey, basketball, lacrosse, wrestling, boxing, rugby, skiing, crew, and sailing. Many of

these facilities and services, including the Ski Slope and the Golf Course, also are available to retirees, relatives, and guests, and to the surrounding community and general public.

#### 3.12.4 Tax Revenues

The USMA at West Point is federally owned, such that no federal, state, or local property tax revenue is directly generated by this installation. Civilian and military personnel employed at, or visiting, the USMA contribute to state sales tax revenue on goods and services purchased in the Town of Highlands and adjacent municipalities.

#### 3.12.5 Transportation and Traffic Circulation

Six major highways are located within the vicinity of the USMA at West Point. Interstate 87 is located nine miles west of USMA at West Point and is accessible from NYS Route 293, NYS Route 6, U.S. Route 9W, and the Palisades Interstate Parkway (USMA 1989). U.S. Route 9W, a major divided highway, runs for 3.5 miles through the USMA at West Point property, and direct access to the Main Post Academic Area is by U.S. Route 9W and NYS Route 218. There are approximately 16 miles of paved secondary roads which provide access in the vicinity of the USMA at West Point, including NYS Route 293, which is the major east-west road traversing the installation.

The roads on the Main Post/Academic Area of the USMA at West Point, which consist of a double spine layout, were developed in response to the topography of the land as well as the historic and scenic nature of the area (USMA 1989, USMA 1996b). Traffic circulates throughout the Main Post/Academic Area by means of a curving, continuous roadway consisting of Mills Road and Washington Road. This roadway runs from Thayer Gate on the southwest edge of the Main Post to Washington Gate (USMA 1989). The most heavily used portion of the spine is along Thayer and Washington roads (USMA 1998a). There are also approximately 60 miles of unimproved roads that provide access to all of the training areas and ranges (USMA 1998a).

Passenger rail service in the vicinity of West Point is provided by Metro North, which operates out of Grand Central Station in New York City and makes three stops on the east side of the Hudson River. Passenger rail service to West Point was terminated in the late 1950s, when the

west shore (Hudson River) line was converted to freight only. This single-track freight service is provided along Conrail's West Shore line, and runs through West Point, entering and exiting the Main Post/Academic Area (USMA 1998a).

The Hudson River at West Point is navigable to barges, cargo ships, and passenger boats (USMA 1998a). Metro North operates the Peekskill Ferry, a tour boat service ferrying passengers from the east shore Peekskill rail stop to the USMA at West Point (USMA 1998a).

Employees of the USMA, both permanent staff and contractors, routinely enter the USMA at West Point property via the access roadways and park in existing parking lots. Shuttle bus service currently runs along main roadways through the USMA at West Point installation. Students enrolled at the West Point Elementary and Middle Schools are shuttled to and from school via a local private school bus system. Public transportation, in the form of the Short Line Bus Company, regularly services the West Point community (USMA 2001).

### 3.13 AIR QUALITY

The USMA at West Point is located in the southern portion of the Hudson Valley Air Quality Control Region, in the Lower Orange County Metropolitan Area (USMA 1998a). Southern Orange County is currently classified as an attainment area for all National Ambient Air Quality Standards (NAAQS) criteria pollutants (carbon monoxide, nitrogen dioxide, particulate matter, lead, and sulfur dioxide), except ozone (NYSDEC 1996a, NYSDEC 1996b). Southern Orange County is classified as a severe non-attainment area for ozone (NYSDEC 1996b).

There are several major stationary and mobile sources of air pollutant emissions present in the greater USMA at West Point property. Stationary sources include ten gas-fired boilers, two incinerators, a restricted burn site, and nuclear, biological, and chemical training activities. Mobile sources include vehicular traffic, such as light-duty, gasoline-powered trucks and automobiles, heavy-duty diesel-powered vehicles, and aircraft (USMA 1998a). All major stationary and mobile sources of air pollutant emissions are in compliance with air quality standards (USMA 1998a).

### 3.14 NOISE

Noise is generally defined as unwanted sound. The day-night noise level ( $L_{dn}$ ) is the most widely used descriptor of community noise levels. The unit of measure of the  $L_{dn}$  is the A-weighted decibel (dBA), which closely approximates the frequency responses of human hearing (USEPA 1978). Noise levels below 65 decibels are considered to be normally acceptable in suitable living environments (USMA 1998a).

There is no primary source of noise in the vicinity of the Project area. Noise level measurements have not been obtained specifically in the proposed Project alignment area. In lieu of field measurements, the noise levels can be approximated based on existing land uses. The typical  $L_{dn}$  in rural, undeveloped areas ranges from 39 to 59 dBA (USEPA 1978). It can be assumed that the existing sound levels in the Project area are roughly within this range.

### 3.15 UTILITY INFRASTRUCTURE

#### 3.15.1 Energy

Electricity at the USMA at West Point is provided by Orange and Rockland Utilities, Inc. (O&R) (USMA 1998a). O&R substations transmit electricity through overhead lines, and electricity is transformed to an adequate voltage for use at existing transformers located throughout the USMA at West Point. Current annual electrical usage at West Point is 66,262,310 kilowatt hours.

Heat for most of the buildings at the USMA at West Point is provided by the Central Power Plant, which consists of three fuel-oil boilers and three steam-turbine-driven generators, and is housed in Building 604. A separate gas/oil fired steam plant provides heat for several buildings in the Washington Gate area. This separate plant consisting of two 40,000-pound-per-hour water tube boilers is housed in Building 845 (USMA 1998a). Total annual consumption of fuel oil between these two plants is 5 million gallons per year (Alongi 2001). However, the USMA at West Point is currently in the process of converting the fuel-oil boilers to natural gas boilers as part of the USMA at West Point's initiatives to comply with Executive Orders 13123 and 13212

by reducing the use of petroleum fuel at the USMA at West Point, by utilizing more efficient sources of energy, and by utilizing energy more efficiently (USMA 2002a).

### 3.15.2 Potable Water Supply

Potable water is provided to Main Post through both the Lusk Reservoir Water Treatment Plant and the Stony Lonesome Water Treatment Plant. Both water treatment plants have a combined filtration capacity of 6.0 mgd and provide potable water to the USMA at West Point through 47 miles of distribution pipelines and eight storage tanks (USMA 1998a).

The Lusk Water treatment Plant has capacity of 4 mgd with water supplied from Popolopen Brook, via the Lusk Reservoir, through a 6.3-mile pipeline (USMA 1998a).

The Stony Lonesome Water Treatment Plant, constructed in 1969, has a capacity of 2 mgd. Water for the Stony Lonesome Water Treatment Plant is provided from Stilwell Lake and Long Pond through a 4.9-mile pipeline. The Stony Lonesome Water Treatment Plant is associated with three potable water storage tanks, listed below in Table 1, which provide a combined total of 1,250,000 gallons of storage.

**Table 1. Potable Water Storage at Stony Lonesome Water Treatment Plant**

<b>Water Storage Tank</b>	<b>Capacity (gallons)</b>	<b>Material</b>	<b>Base Elevation (feet)</b>
Tank I	250,000	Concrete	915.00
Tank B	500,000	Concrete	537.33
Tank C	500,000	Steel	322.50

Source: USMA undated.

### 3.15.3 Telecommunications

Telecommunication services at the USMA at West Point include telephone, fire alarm, security, and cable television services. Contractors provide administrative telephone service, but the DA owns all other telecommunication infrastructure (USMA 2001). A cellular telecommunications tower to enhance this infrastructure is located at the top of the Ski Slope, adjacent to the proposed Project alternative locations. Fiber optic cables connect many of the buildings at the USMA at West Point and provide telephone service, as well as fire alarm, and security services. Cable television is provided through three services operated by a local cable company.

### 3.16 HAZARDOUS MATERIALS

Various hazardous materials are currently present at the USMA at West Point. These hazardous materials include potential unexploded ordnance (UXO) at specific locations along the northwest boundary of the Main Post/Academic Area, as well as hazardous waste sites within the USMA at West Point, and hazardous materials stored or in use at various facilities at the USMA at West Point.

One USEPA-designated hazardous waste site is located at USMA at West Point, the 90-day storage registered as EPA Identification Number NY 8210020915, although this facility is not located within the Project area. In addition to this USEPA-designated hazardous waste site, three hazardous waste sites have been identified for the general vicinity of the proposed Project area from the USEPA's Toxic Release Inventory (TRI), including the United States Mint facility (TRI# 10996SMNTRT218), which has multiple contaminants associated with it, including air

emission and metal stampings; a USMA facility (TRI# 10996SMLTR646SW), which contains special industrial machinery, general automotive repair shops, general medical and surgical hospitals, specialty hospitals, and other educational facilities; and a USMA range control facility (TRI# 10996SMLTRSTATE) (USEPA 2003). Hazardous and toxic materials also are used for several activities at the USMA at West Point. These materials include pesticides, chemicals, and radiological substances. These substances are handled in accordance with USEPA regulations, and monitored on a regular basis (USMA 1998a). There are no NYSDEC-designated active or inactive hazardous waste sites or contaminated water or soil resources located at the USMA at West Point (NYSDEC 2000).

Any hazardous material spills that occur on USMA at West Point are reported, contained, and remediated in accordance with the USMA Installation Spill Contingency Plan (USMA 1996a).

### 3.17 PUBLIC HEALTH AND SAFETY

Various public health and safety hazards are currently present at the USMA at West Point. These hazards range from natural hazards, such as bee stings and tick-borne Lyme Disease, to individual physical injuries sustained during academic or physical training and recreational/athletic activities at formal and informal facilities and locations throughout the USMA at West Point. The USMA operates and maintains complete public health, emergency response, and security services that serve the USMA community. These services include a hospital, emergency medical response teams, helicopter medical evacuation service, fire department, and military police.

The USMA at West Point maintains and continuously operates three permanently staffed fire stations: Fire Station #1, the Washington Road Fire Station, located in Building 721 in the center of the USMA at West Point; Fire Station #2, the Stony Lonesome Fire Station, located in Building 1203 in the Stony Lonesome area; and Fire Station #3, a two-company fire station located on NYS Route 293, one mile west of US Route 9W (Vollmer 1999, Cubbison 2003). Numerous buildings in the Main Post/Academic Area maintain a system of fire alarm pull stations that communicate directly with the fire station, and the various building occupants conduct periodic fire drills. The USMA at West Point also maintains emergency exits, exit

signs, and emergency lighting in the appropriate buildings in the Main Post/Academic Area in case of power outages to ensure safe evacuation of USMA personnel and support staff.

The Provost Marshal's Office at the USMA at West Point provides 24-hour military police support that includes foot and motor patrols, and general security services. The USMA military police maintain discipline and enforce laws and regulations, as well as provide physical and personal security and support for crime prevention. The USMA military police conduct routine patrols of the Main Post/Academic Area.

The USMA at West Point maintains and operates the Keller Army Community Hospital (KACH), located on Washington Road. This is a 65-bed facility that houses a surgical unit, an obstetric unit, an intensive-care unit, a helipad, and numerous outpatient clinics. The hospital-operated Acute Care Clinic oversees an ambulance service for those who need immediate transport. In the event that injured individuals require emergency medical evacuation to another facility, the USMA at West Point operates and maintains a trained medical evacuation unit and an associated emergency helicopter landing zone at the terminus of Worth Place. The landing zone supports intermittent operations of two flights per month or approximately two hours of operation per month.

In addition to the above measures to protect the public health and safety at the USMA at West Point, enhanced security measures are in place within the Cadet Zone. These enhanced security measures include, but are not limited to, physical barriers at the formal entrances to the Main Post/Academic Area, including security gates, pullover areas, and Jersey barriers at the Thayer, Stony Lonesome, and Washington gates. In large part, these physical barriers are designed to control vehicular access to the Main Post/Academic Area, by restricting movement through these formal entrances. The Lee and Wilson gates contain similar physical barriers to control vehicular access to the Main Post/Academic Area, although these gates are currently closed to both vehicular and pedestrian traffic, and are expected to remain closed for the foreseeable future.

### 3.18 ENVIRONMENTAL JUSTICE

There are currently 1,033 active duty military personnel at West Point. Demographic information for the minority status of these personnel at West Point indicated that as of 2001, there were 829 Whites, 124 Blacks, 50 Hispanics, 3 Native Americans, 16 Asian/Pacific Islanders, and 11 personnel of other descent (USMA 2001).

Only military housing exists within the USMA community. However, low-income housing is scattered throughout the Village of Highland Falls, with the nearest low-income housing community, Weyant Green, located adjacent to the USMA's South Post, off West Point Highway on Webb Lane. Weyant Green, owned by Quaker Hill Housing, consists of six buildings with a total of 51 housing units built in 1983 with funding from the U.S. Department of Housing and Urban Development.

## 4.0 ENVIRONMENTAL CONSEQUENCES

This section identifies the impacts or consequences to the natural and social environment that may result from implementing the Project.

### 4.1 GEOLOGY AND TOPOGRAPHY

Implementation of the Project at either alternative location would involve excavation of surficial material and would have a minor impact on geological formations. However, the subsurface bedrock geological formation does not have any specific economic (i.e., mineral resource) or other structural value, such that the implementation of the Project would have no significant adverse impact on geological resources.

### 4.2 SOILS

Implementation of the Project would result in earth moving, excavation, fill, grading, and paving activities in construction work areas, as well as construction equipment movement and material storage. Excavated soil would be temporarily sidecast, stored adjacent to construction work areas, and used to backfill excavated areas around the new tank and within water trenches and to create a berm around the new tank. If additional off-site fill is deemed necessary, the USMA at West Point would obtain and use only clean fill materials from an existing commercial borrow pit, and transport these materials in accordance with applicable regulations.

Construction of the water tank includes excavation for a 90-foot diameter, concrete base slab. Minimum soil disturbance for the excavation of the tank would require excavation of four feet beyond the base slab perimeter (Mackson 2003), such that a 98-foot diameter excavation would be required with a minimum surface area impact of approximately 7,540 square feet (0.17 acre).

Soil disturbance associated with the installation of the water lines connecting the new tank to the existing tank is dependent on the location of the new tank and the size of the water lines. As summarized in Table 2, and assuming a 30-foot-wide construction corridor, Alternative Location 1 would require approximately 40 feet of water line, resulting in an additional 1,200 square feet

of soil disturbance. Alternative Location 4, located approximately 250 feet away, would require an additional 4,500 square feet of soil disturbance.

**Table 2. Minimum Soil Disturbance from the Proposed Action.**

Alternative	Tank (sq. ft.)	Water Line (sq. ft.)	Total Minimum Surface Area Disturbed	
			Square Feet	Acres
Location 1	7,540	1,200	8,740	0.20
Location 4	7,540	4,500	12,040	0.28

Source: Northern Ecological Associates, Inc. 2003.

Installation of a limited paved surface for the water tank access road and paving of the existing 1,500-foot-long, gravel, water tank access road would result in minimal additional conversion of undisturbed soils to impervious surface.

Best management practices for erosion and sedimentation control outlined in the Erosion Control Plan would be implemented to mitigate the potential for soil erosion during land clearing, fill, grading, and restoration activities. Specifically, the USMA would require the contractor to prepare, submit for review and approval, and implement a site-specific Erosion Control Plan. The Erosion Control Plan would ensure compliance with NYSDEC's proposed stormwater management regulations for construction activities pursuant to the State Pollutant Discharge Elimination System (SPDES), effective March 10, 2003. As a result, no significant soil erosion or sedimentation would result implementation of the Proposed Action.

#### 4.3 WATER RESOURCES

##### 4.3.1 Groundwater Resources

Because no public water supply wells or sole source, primary, principal, or important aquifers occur at, or near, the Project, there would be no impact on groundwater resources through construction of the new water tank at either alternative location.

#### 4.3.2 Surface Water Resources

The Project would have no effect on surface water resources at, or near, either alternative location. However, best management practices for erosion and sedimentation control would be implemented during construction activities, including installation of hay bales and silt fences, to minimize any potential soil erosion and subsequent sedimentation of downstream waterbodies. In addition, during construction, hazardous construction materials would be identified and controlled, and any accidental spills would be contained in accordance with the *United States Military Academy Installation Spill Contingency Plan* (USMA 1996a).

With the implementation of the design measures and best management practices discussed above, construction and operation activities associated with the Project at either alternative location would not have a significant effect on surface water resources at the USMA at West Point as a result of sedimentation, turbidity, or hazardous waste runoff, and the temporary, short-term, and long-term impacts associated with the Project would not result in any significant long-term adverse effects on surface water resources.

#### 4.3.3 Public and Private Water Supply Sources

Implementation of the Project at either alternative location would have a positive, long-term, impact on the potable water supply of USMA at West Point by providing an additional 1,000,000 gallons in storage capacity for the Stony Lonesome Water Treatment Plant water storage facilities. Furthermore, implementation of the Project at Alternative Location 4 would result in increased water pressure for the water system at the USMA at West Point, improving fire protection and fire-fighting services at the USMA at West Point, particularly in the Stony Lonesome community.

#### 4.4 FISHERIES

Construction of the Project at either alternative location would not directly degrade water quality or aquatic habitat because no fill or construction activities would occur directly in, or below the ordinary mean high water mark of, any nearby waterbodies. Implementation of the Proposed Action also would not involve construction or placement of in-stream structures, impoundments, dams, or other structures that would directly alter the ambient temperature, rate or pattern of

water flow, or water depths. Therefore, implementation of the Project at either alternative location would not directly impact fisheries or their habitat.

#### 4.5 VEGETATION

The USMA at West Point has designed the Project at either alternative location to minimize impacts to vegetation to the maximum extent practicable. However, the Project would have short- and long-term impacts on vegetation resulting from clearing and excavation. In addition, measures to reduce the potential for erosion and subsequent loss of vegetation as a result of construction and maintenance activities have been identified in Section 4.2.

The Project would involve vegetative clearing the minimum excavation of the 7,540-square foot area for the construction of the water tank, vegetation clearing for the installation of the associated water line, and minimal vegetation clearing for installation of a limited paved surface for the water tank access road and paving of the existing 1,500-foot-long, gravel, water tank access road. The Project also would permanently convert approximately 0.20 acres of either a mixed coniferous-deciduous woodland or a deciduous woodland to maintained open land as detailed below.

As described in section 4.2, the minimum area disturbed due to the Proposed Action is dependent on the location of the new tank and the width of the corridor for the water line. As summarized in Table 3, Alternative Location 1 would require the clearing of a minimum of 0.19 acres of woodland, permanently converting that area to open land. Alternative Location 4, although located further from the existing water tank, would take advantage of existing cleared areas associated with the top of the Ski Slope and access road and require a minimum of 0.21 acres of woodlands be converted to open area. This limited area affected (0.21 acres) by permanent clearing and conversion of forested land to open vegetation to accommodate the water tank and water lines represents a minor adverse impact on vegetation cover types at the USMA at West Point.

**Table 3. Minimum Forest Converted to Open Area from the Proposed Action.**

Alternative	Total Areal Disturbance (sq. ft.)	Open Area Disturbed (sq. ft.)	Total Forested Area Disturbed	
			Square Feet	Acres
Location 1	8,740	600	8,140	0.19
Location 4	12,040	5,700	9,340	0.21

Source: Northern Ecological Associates, Inc. 2003.

#### 4.6 WETLANDS, FLOODPLAINS, AND NAVIGABLE WATERWAYS

##### 4.6.1 Wetlands

The Project would not impact any federal jurisdictional wetlands nor impact any land within the 100-foot upland buffer zone of any wetlands, at either alternative location. Therefore, NYSDEC Article 24 Freshwater Wetlands, NYSDEC Article 25 Tidal Wetlands, or USACE Section 404 (Clean Water Act) permits are not required for the Project.

##### 4.6.2 Floodplains

Implementation of the Project at either alternative location would be constructed outside the 500-year flood plain of the Hudson River, in a location that currently contains other aboveground structures. Therefore, implementation of the Project would have no undue adverse impacts on floodplains.

##### 4.6.3 Navigable Waterways

No navigable waterways are located within the Project at either alternative location. The closest navigable waterway to the Project is the Hudson River, located approximately 1 mile northeast of the Project. As a result, implementation of the Project at either alternative location would have no significant impact on navigable waterways.

#### 4.7 WILDLIFE

Construction and maintenance of the Project at either alternative location would result in temporary and long-term alteration of wildlife habitat, as well as direct impact on wildlife such as disturbance, displacement, and mortality. These potential impacts are described below.

As discussed in Section 4.5, less than 0.21 acres of vegetative clearing would be affected by implementation of the Project. The clearing of vegetation would result in both temporary and permanent reductions in cover type and nesting and foraging habitat for some wildlife. More mobile species, such as large- to medium-sized mammals and birds, would be temporarily displaced from the construction zone and escape to similar habitats nearby. Some wildlife displaced by construction would occupy adjacent undisturbed habitats during construction and would likely return to the newly disturbed area soon after completion of construction and restoration of vegetation. Temporary effects due to routine maintenance activities in the permanently cleared areas would have similar but less extensive short-term effects on wildlife species in the area, depending on the time of year activities are carried out.

Long-term effects due to construction and maintenance activities would include mortality of less mobile species, such as burrowing small mammals, reptiles, and amphibians, as well the destruction of bird nests located within construction areas. Direct mortality of immobile or slow-moving species would be primarily caused by the movement and compaction of earth caused by construction equipment traveling across terrestrial habitat. Due to the extent of open area to wooded area in the Project area, the minor conversion of wooded area to open land is not anticipated to have any significant impacts to wildlife that currently inhabits the immediate vicinity of the Project at either alternative locations.

#### 4.8 ENDANGERED AND THREATENED SPECIES

##### 4.8.1 Endangered and Threatened Species

###### Bald Eagle

In accordance with relevant provisions identified in the programmatic *Endangered Species Management Plan for the Bald Eagle *Haliaeetus leucocephalus* on the Properties of the United States Military Academy* (Beemer 2002b), the USMA would consult with the USFWS as necessary regarding the potential impacts of Project implementation on the bald eagle. The USMA at West Point does not anticipate that Project implementation would adversely affect the bald eagle.

### Timber Rattlesnake

Potential timber rattlesnake den or basking/gestation habitat has not been identified as occurring within the Project area at either alternative location Stechert (1995, 1997). Therefore, construction of the proposed facilities would result in no direct impacts to this habitat, although transient timber rattlesnakes may be impacted if they attempt to traverse active construction areas.

According to Section 11-0535 of the NYSECL, the taking, importation, transportation, possession or sale of endangered or threatened species of wildlife is prohibited, except under license or permit from the NYSDEC. To mitigate potential impacts to the timber rattlesnake during construction of the proposed facilities, USMA would monitor the impacted areas for timber rattlesnake activity when construction is scheduled between April and September. In the event of a timber rattlesnake encounter, USMA has a verbal agreement with the NYSDEC to move timber rattlesnakes to a suitable, off-site rookery, den, or foraging habitat (Beemer 2002c). This verbal agreement identifies that a Natural Resource Biologist for the USMA would be notified in case of an encounter and that this person would handle and translocate individual timber rattlesnakes.

### Plant Species

None of the 62 plant species that have special status are known to occur on or near the Project area at either alternative location. Accordingly, implementation of the Proposed Action at either alternative location would have no effect on special status plant species.

In summary, implementation of the Project at either alternative location using proposed best management practices and design measures would not jeopardize the continued existence of any Federally-listed or state-listed endangered or threatened or special status species.

## 4.9 LAND USE AND ZONING

### 4.9.1 Land Use and Local Zoning

The Project represents an existing use within the Community Support Zone and the Industrial/Field Training/Recreation Zone. Thus, implementation of the Project at either alternative location would have no significant effect on existing land uses.

### 4.9.2 Planned Developments

Implementation of additional actions in conjunction with the Project at either alternative location would be consistent with the *USMA Master Plan for the Year 2007* (USMA 1998b). The potential contribution of the Project to cumulative effects is addressed in Section 6.0.

### 4.9.3 Generation and Disposal of Waste Material

Construction of the Project at either alternative location would temporarily generate various typical solid construction and demolition debris that would be minor compared to the total amount of solid waste generated per year at USMA at West Point. The approved contractor for the proposed Project would develop a Construction and Demolition Waste Management Plan that would address the temporary disposal of construction and demolition debris at on-site industrial receptacles, and the periodic collection and disposal of this debris off-site at an approved waste disposal site. Construction would therefore have a minor, temporary impact on the generation and disposal of waste material.

Routine maintenance activities associated with the Project at either alternative location would not generate a measurable increase in the amount of ordinary, non-hazardous solid waste compared to current land uses in the immediate Project area. The generation of any such waste would be managed by the placement, maintenance, and periodic collection of adequate trash receptacles, and would be transported off-site to an approved waste disposal site in accordance with USMA refuse management plans. Routine maintenance activities associated with the Project at either alternative location would not generate a significant increase in the amount of wastewater and sewage that is already being produced by current land uses in the immediate area, treated at the Target Hill Wastewater Treatment Facility, and ultimately discharged into the Hudson River in accordance with the USMA at West Point's SPDES permit.

#### 4.9.4 Recreational and Other Designated Facilities

Implementation of the proposed Project would be considered to result in a significant adverse impact on recreational resources in the event the Project interferes with cadet physical training and instruction performed on either the Ski Slope or Golf Course.

Both alternative locations for the new water tank are sited in wooded areas located outside of the Ski Slope that is used for winter skiing and the Golf Course used for seasonal (spring, summer, fall) golfing. Therefore, construction and operation of the proposed Project at either alternative location would have no significant, long-term, adverse effects on recreational or other designated facilities, including the Ski Slope or Golf Course, or on cadet training, and recreational and athletic activities conducted at these facilities.

The location of a water line connecting the new water tank at Alternative Location 1 to the existing water tank would also have no effects on the Ski Slope or on hunting activities. The location of a water line connection to the new water tank at Alternative Location 4 to the existing water tank would traverse a portion of open area at the top of the Ski Slope. However, the USMA would implement mitigation measures to avoid potential short-term adverse effects on the Ski Slope from construction of the proposed Project. Specifically, construction at either alternative location would be performed during spring or summer, when the Ski Slope is not in use for skiing and when the area is not used for recreational hunting. Additionally, all areas excavated for the installation of the water line would be backfilled and graded to pre-construction conditions prior to the scheduled opening of the Ski Slope for the winter season, and prior to the scheduled opening of the deer hunting season in areas J2 and J3. Finally, a vegetative screen would be retained and/or incorporated in to the proposed Project's design for the water tank at either location to minimize the visual presence of the tank, and to physically and visually separate the new water tank from the Ski Slope.

Construction of the Project at either location could have short-term adverse effects on cadet training, and recreational and athletic activities, conducted during the summer months by interfering with, or preventing full use of, areas around the top of the Ski Slope. To minimize such potential short-term adverse effects during Project construction at either location, the USMA would implement mitigation measures, including coordinating with program directors for

summer field training activities to develop alternative summer training activities in locations outside of the construction area, and placing exclusion fencing around all construction areas to prevent accidental access to construction locations during summer recreational and athletic activities in the vicinity of the proposed Project.

With the implementation of these mitigation measures, the proposed Project would have no significant, long-term or short-term, adverse effects on recreational and athletic facilities and activities associated with the Golf Course, Ski Slope, and recreational hunting.

#### 4.10 VISUAL RESOURCES

Implementation of the proposed Project has the potential to result in a significant, long-term, adverse impact on visual resources in the event any new or artificial/man-made visual intrusions are introduced to the existing historic, cultural, and natural landscapes primarily associated with historic viewsheds from the Black Rock Forest, Crows Nest Mountain, and the scenic overlooks to West Point from U.S. Route 9W. The NYSOPRHP (Adams 2003), Scenic Hudson (Anzevino 2003), and NYSDOS (Feldhusen 2003) raised concerns regarding potential impacts of the proposed Project on visual resources associated with the state-designated U.S. Route 9W Scenic Byway, the Highlands Subunit of the HHSASS, the NHLD at the USMA at West Point, the Black Rock Forest, and Storm King State Park (Appendix B).

The NYSOPRHP recommended that the USMA at West Point prepare “a simulation of the water tank’s appearance from several viewpoints within the USMA historic district” to more fully evaluate the proposed Project’s potential visual impacts on visual resources at the USMA at West Point, and to address viewshed and visibility concerns (Adams 2003).

Scenic Hudson expressed concerns that the siting of the proposed Project at or near the top of the Ski Slope, in a potentially visually prominent location, would result in visual impacts on a number of visually sensitive locations that surround the Project area, including scenic overlooks along state-designated U.S. Route 9W Scenic Byway, the HHSASS, the NHLD at the USMA at West Point, the Black Rock Forest, and Storm King State Park (Anzevino 2003). Scenic Hudson requested that the USMA at West Point assess the potential impacts of the proposed Project on these visually sensitive locations through the preparation of visual simulations, and develop

specific measures to mitigate any adverse effects, including the identification of locations, dimensions, materials, textures, colors, and screening techniques that would allow the proposed Project to better blend into the existing landscape of the Project area, and would avoid or reduce visual intrusions into exterior viewsheds of the Project area from off-site locations (Anzevino 2003).

The NYSDOS expressed concerns that the siting of the proposed Project at or near the top of the Ski Slope, in a potentially visually prominent location, would be inconsistent with State Coastal Policy #24, and potentially impair the scenic qualities of the Highlands Subunit of the HHSASS by the removal of existing vegetation, the introduction of structures that are improperly sited or scaled, or which use inappropriate forms or materials (Feldhusen 2003). The NYSDOS provided guidelines for achieving consistency with State Coastal Policy #24, including guidelines for appropriate siting of structures and other development, clustering and orienting structures, maintaining and/or adding vegetative screening, and using appropriate materials, scales, forms, and materials to assist in screening and/or blending structures within the surrounding natural landscape (Feldhusen 2003).

#### 4.10.1 Alternative Location 1

The selection of Alternative Location 1 for the Project would result in the fewest significant, long-term, adverse effects on existing visual resources. Alternative Location 1 would be located north of the existing water tank at the USMA at West Point, where ground surface elevations are lower than ground surface elevations for surrounding structures, including the top of the Ski Slope, the existing water tank, and the communications tower, which are currently visible from surrounding sensitive scenic resources. Because ground surface elevations at Alternative Location 1 are lower than surrounding visible structures, this location would be screened from surrounding visually sensitive areas by both terrain and existing vegetation.

To fully address potential impacts to visual resources, the USMA at West Point's A&E conducted a viewshed analysis of Alternative Location 1 for the Project to formally identify areas of potential impact by the Proposed Action (DY Consultants 2003). The results of this viewshed analysis were used in conjunction with other viewshed analyses for the USMA at West

Point and with the final design plans for the Project in this location to assess the effects of the Project on visual resources at the USMA at West Point, particularly those visual resources associated with the historic, architectural, aesthetic and natural landscapes that have been identified in Section 3.10, and those visually sensitive areas that were identified by Scenic Hudson and the NYSDOS (Anzevino 2003, Feldhusen 2003).

The Project-specific viewshed analysis for the Proposed Action at Alternative Location 1 focused on the potential impacts of the Proposed Action on exterior viewsheds of the Project area, including exterior viewsheds from the U.S. Route 9W Scenic Overlooks and Crows Nest, which are located more than 3,000 feet from the Project area, and exterior viewsheds from that part of the Golf Course at the base of the Ski Slope, which is located approximately 1,500 feet from the Project area (DY Consultants 2003). Exterior viewsheds from these vantage points indicated that the Project area already contains a number of existing open areas and manmade structures, including prominent clearings for the ski runs and towbar at the Ski Slope that are parallel with sight lines within these viewsheds, subtle clearings along Pipeline and Goethal's trails that are perpendicular to sight lines within these viewsheds, the towbar along the side of the Ski Slope, and the communications tower at the top of the Ski Slope (CERL 2003b).

Results of the Project-specific viewshed analysis for the Proposed Action at Alternative Location 1 indicated that while the water tank structure and its associated clearing would be visible within exterior views of the Project area from the scenic overlooks along the state-designated U.S. Route 9W Scenic Byway and Crows Nest Mountain, these new landscape features would not result in significant adverse effects on visual resources in the Project area from these vantage points, or from visually sensitive locations surrounding the Project area, including the state-designated U.S. Route 9W Scenic Byway, the Highland Subunit of the HHSASS, the NHLD at the USMA at West Point, the Black Rock Forest, or Storm King State Park. The new landscape features of the water tank structure and its associated clearing would result in a minor change in the existing landscape due to the distance of the Project area from the above-mentioned vantage points and the small areal extent of the Proposed Action, and these new landscape features would be consistent with existing manmade structures and cleared areas within these viewsheds and visually sensitive locations (DY Consultants 2003, CERL 2003b). Results of the Project-specific viewshed analysis for the Proposed Action at Alternative Location 1 also indicated that the water

tank structure and its associated clearing would not be visible within exterior views of the Project area from that part of the Golf Course at the base of the Ski Slope (DY Consultants 2003), and, therefore, would not result in significant adverse effects on visual resources in the Project area from this closer vantage point.

To further ensure that the Proposed Action at Alternative Location 1 would not result in significant adverse effects on visual resources in or surrounding the Project area, the USMA at West Point would implement a number of site-specific design measures for the water tank structure and its associated clearing to ensure that these new landscape features would not visually intrude on the existing landscape. These design measures have been developed in accordance with the USMA at West Point's management plans for visual resources associated with historic landscapes, including the *Historic Landscape Management Plan for the U.S. Military Academy at West Point*, the *United States Military Academy Installation Design Guide*, and the *Identification and Analysis of the Historic Built Environment and Viewsheds, Cadet Zone* (CERL 2001, Design Collaborative, Inc. et al. undated, Halin 2003), and have addressed the concerns raised by the NYSOPRHP, Scenic Hudson, and the NYSDOS (Adams 2003, Anzevino 2003, Feldusen 2003).

The implementation of the following site-specific design measures will avoid, reduce, or mitigate for visual intrusions into the surrounding historic, cultural, and natural landscapes, such that no significant adverse effects would be incurred on visual resources at Alternative Location 1:

- Minimize vegetation clearing to maintain the vegetative screening provided by existing mature trees at Alternative Location 1;
- Design the water tank structure with a maximum height of 30 feet so that it would not protrude above the tops of mature trees;
- Coat the water tank structure with a 100% acrylic elastomeric textured coating, which would be heavily textured and non-reflective, and would assist with blending the water tank structure into its natural surroundings;
- Color the coating of the water tank structure in a green-gray, earth-toned color that would also assist with blending the water tank structure into its natural surroundings; and,
- Preclude the installation of lighting on the water tank structure (Cubbison 2004).

With the implementation of these site-specific design measures, the proposed Project would have no significant, long-term, adverse effects on visual resources within the Project area, or within views of the Project area from surrounding visually sensitive areas. The NYSOPRHP has concurred with these findings (Adams 2004).

#### 4.10.2 Alternative Location 4

In general, the selection of Alternative Location 4 for the Project would result in the potential for moderate impacts to existing visual resources. Alternative Location 4 would be located west of the existing water tank at the USMA at West Point, where ground surface elevations are higher than ground surface elevations for surrounding structures, including the top of the Ski Slope, the existing water tank, and the communications tower, which are currently visible from surrounding sensitive scenic resources. As noted in Section 2.3.2, Alternative Location 4 was initially addressed in the event that physical conditions at Alternative Location 1 would not satisfy the engineering requirements of the Proposed Action. A preliminary evaluation of the potential impacts of the proposed Project on visual resources at Alternative Location 4 indicated that because ground surface elevations at this location are higher than surrounding visible structures, Alternative Location 4 would be more prominent within the viewsheds of surrounding visually sensitive area, potentially resulting in significant adverse effects on visual resources. This visual prominence would be partially mitigated by a variety of measures that would be similar to those identified for Alternative Location 1, including a tank design with a greater diameter to reduce the overall height of the tank, landscaping designs that could include a partially buried tank with additional vegetative screening, and decorative features such as paint and or textured surfaces that would allow the tank to blend into the surrounding vegetation and terrain of the location.

In the unlikely event that Alternative Location 4 would be selected for the Proposed Action, the USMA at West Point's A&E contractor would conduct a formal viewshed analysis of proposed Alternative Location 4 for the Project to formally identify areas of potential impact by the Proposed Action on visual resources. The results of this viewshed analysis would be used in conjunction with the final design plans for the Project in this location to assess the effects of the Project on visual resources at the USMA at West Point, particularly those visual resources associated with the historic, architectural, aesthetic and natural landscapes that have been

identified in Section 3.10. Measures to avoid, reduce, or mitigate any significant effect on visual resources as a result of the Proposed Action would be developed in accordance with the USMA at West Point's management plans for the visual resources associated with these landscapes, including the *Historic Landscape Management Plan for the U.S. Military Academy at West Point*, the *United States Military Academy Installation Design Guide*, and the *Identification and Analysis of the Historic Built Environment and Viewsheds, Cadet Zone* (CERL 2001, Design Collaborative, Inc. et al. undated, Halin 2003). Specific design measures would be developed in conjunction with these management plans, and would address concerns by appropriate interested parties, including the NYSOPRHP, Scenic Hudson, and the NYSDOS.

With modification to address site-specific conditions, implementation of the following general measures to avoid, reduce or mitigate for visual intrusions into the surrounding historic, cultural, and natural landscapes, would ensure that no significant adverse effects would be incurred on visual resources at Alternative Location 4:

- Identify areas of potential impact by the Proposed Action as part of a formal viewshed analysis;
- Develop measures to avoid, reduce, or mitigate visual intrusions into the visual resources of the proposed Project area in accordance with the USMA's management plans for visual resources associated with historic landscapes;
- Retain and/or incorporate a vegetative screen into the proposed Project's design for the water tank to minimize the visual presence of the tank;
- Reduce the overall height of the water tank by implementing a tank design with a greater diameter;
- Reduce the overall height of the water tank by partially burying the tank below the ground surface; and/or
- Incorporate decorative features into the surface of the water tank such as non-intrusive colors and/or non-reflective, textured finishes to minimize visual intrusions into the surrounding landscape.

## 4.11 CULTURAL RESOURCES

### 4.11.1 Alternative Location 1

As stated in Section 3.11, the results of the Phase I cultural resources investigation indicated that no prehistoric or historic cultural resources, including architectural and archaeological resources, were identified within the construction areas for the proposed Project at Alternative Location 1 (Hanley 2003b). Therefore, implementation of the proposed Project at Alternative Location 1 would have no impacts on architectural or archaeological resources. The NYSOPRHP has concurred with these findings (Adams 2003). To further ensure that implementation of the Project would result in no impacts on architectural or archaeological resources in the vicinity of this location, the USMA would implement additional protective measures. Specifically, the USMA would require that all activities remain within clearly identified parking, storage, construction, and staging areas, and do not intrude into the woods surrounding the proposed Project at this location. Impacts to cultural landscapes are discussed separately in Section 4.10 (Visual Resources).

### 4.11.2 Alternative Location 4

As stated in Section 3.11, the results of the Phase I cultural resources investigation indicated that no prehistoric or historic cultural resources, including architectural and archaeological resources, were identified within the construction areas for the proposed Project at Alternative Location 4 (Hanley 2003b). Therefore, implementation of the proposed Project at Alternative Location 4 would have no impacts on architectural or archaeological resources. The NYSOPRHP has concurred with these findings (Adams 2003). To further ensure that implementation of the Project would result in no impacts on architectural or archaeological resources in the vicinity of this location, the USMA would implement additional protective measures. Specifically, the USMA would require that all activities remain within clearly identified parking, storage, construction, and staging areas, and do not intrude into the woods surrounding the proposed Project at this location. Impacts to cultural landscapes are discussed separately in Section 4.10 (Visual Resources).

## 4.12 SOCIOECONOMICS

### 4.12.1 Population

The Project at either alternative location would have no impact on the number of USMA Cadets trained or other personnel that typically use and operate the USMA facilities at West Point. In fact, the Project is a consequence of residential and commercial development in the Stony Lonesome community.

### 4.12.2 Economy and Employment

The Project at either alternative location would have a minor, temporary, but positive impact on employment. Construction activities would require temporary construction workers employed by local or regional contractors. These contractors currently provide construction and maintenance services for numerous Projects at the USMA at West Point.

### 4.12.3 Community Services

Implementation of the Project at either alternative location would have a long-term positive impact on fire protection and fire-fighting capabilities at the USMA at West Point by increasing the available water pressure for fire suppression. This need for additional water pressure is a result of concerns that adequate water pressure may not always be available for fire-fighting purposes, due to increased development at the USMA at West Point, particularly increased residential and commercial development in the Stony Lonesome community.

### 4.12.4 Tax Revenues

Implementation of the Project at either alternative location would not result in any change in federal, state, or local tax-exempt status of the USMA at West Point.

### 4.12.5 Transportation and Traffic Circulation

Routine construction vehicle traffic would be associated with the Project at either alternative location. This traffic would cause a temporary increase in the flow and volume of traffic during the period of construction, particularly along Patrick Trail. The USMA at West Point would minimize the effect of increased local traffic congestion by clearly signing construction work areas and using flaggers as necessary to slow and/or direct traffic. Installation of a limited paved surface for the water tank access road and paving of the existing 1,500-foot-long, gravel, water

tank access road would result in a minor enhancement to localized transportation access to the Project area.

#### 4.13 AIR QUALITY

The Clean Air Act Amendments of 1990, 40 CFR 93.158, require that emissions associated with Federal Actions do not interfere with State Implementation Plans (SIPs) for achieving National Ambient Air Quality Standards of criteria pollutants that currently are in non-attainment. Because the Proposed Action would be implemented in the Hudson Valley Air Quality Control Region, which is classified as a severe non-attainment zone for ozone, the USMA must evaluate direct and indirect emissions associated with the Proposed Action and ensure these emissions conform to the SIP.

Therefore, before construction of the Project, the USMA would identify and evaluate the direct and indirect emissions of volatile organic compounds (VOCs) and nitrogen oxides (NO<sub>x</sub>), which combine in the atmosphere to produce ozone. In addition, USMA would assess the particulate matter (PM-10) emissions associated with the Proposed Action, and would compare the results of its evaluation with applicable SIP emission thresholds.

USMA would determine the direct and indirect emissions associated with the Proposed Action, such as those temporarily generated by construction equipment (i.e., backhoes, bulldozers, dump trucks), particulate matter generated by excavation and rock blasting, and emissions due to asphalt paving and curing. Although long-term direct and indirect emissions from operation of the Project are anticipated to be negligible, the USMA also would include consideration of long-term air emissions in its evaluation and calculations.

If, based on the results of the air conformity assessment, it is determined that construction and/or operation of the Project would exceed the established SIP emission thresholds for ozone (VOC and NO<sub>x</sub>) or PM-10, the USMA would propose and implement air emissions control measures during construction and/or operation of the Project, as necessary, to ensure that no adverse effects result. If an air emissions permit is required pursuant to Title 6 of the New York State

Codes, Rules, and Regulations, Part 231 (Part 231), then the USMA at West Point would secure the necessary permit from the NYSDEC.

#### 4.14 NOISE

Implementation of the Project at either alternative location would not involve the construction and operation of permanent noise-generating facilities. However, there would be a temporary increase in localized noise generated during the construction of the proposed water tank and associated waterlines at either alternative location. There would be a short-term, minor elevation in the noise level in the immediate vicinity of the construction zone due to an increase in contractor vehicles and traffic, and operation of construction equipment.

External or exterior construction noise would be mitigated by limiting construction activities to daylight hours on weekdays. Additionally, equipment operation noise would be minimized by requiring construction contractors to use equipment that meets specific standards in terms of noise. Therefore, the impacts of the Project at either alternative location are expected to be minimal and short-term, and limited to the period of active construction. There would be no long-term impact on noise levels.

#### 4.15 UTILITY INFRASTRUCTURE

Implementation of the Project at either alternative location would have no long-term impacts on the electric, heating, or telecommunication utility infrastructures of the USMA at West Point. However, construction of the Project at either alternative location may require the temporary raising of overhead utility lines on the existing access road to the existing water tank, communication tower, and top of the Ski Slope to allow access and egress of construction vehicles.

Implementation of the Project at either alternative location would have a positive, long-term, impact on the potable water supply of USMA at West Point by providing an additional 1,000,000 gallons in storage capacity for the Stony Lonesome Water Treatment Plant potable water storage facilities.

#### 4.16 HAZARDOUS MATERIALS

No known hazardous material spills or contaminated sediments or water resources occur at either alternative location for the Project. As a result, excavation activities associated with implementation of the Project at either alternative location would not result in an increased risk to human health or the environment from exposure to known hazardous materials.

Construction activities for the Project at either alternative location would involve the transport, temporary storage, and use of typical hazardous construction materials, such as solvents, lubricants, sealants, adhesives, petroleum products, and paints. Implementation of construction activities, including the transport, use, and temporary storage of potentially hazardous materials, would comply with proper handling and reporting procedures identified in the *USMA Installation Spill Contingency Plan* (USMA 1996a).

#### 4.17 PUBLIC HEALTH AND SAFETY

Implementation of the Project at either alternative location would have a long-term positive impact on the health and safety of residents and support personnel at the USMA at West Point by enhancing fire-fighting capacity by increasing the available water pressure for fire suppression. This need for additional water pressure is a result of concerns that adequate water pressure may not always be available for fire-fighting purposes, due to increased development at the USMA at West Point, particularly increased residential and commercial development in the Stony Lonesome community.

Implementation of the Project at either alternative location would not affect the current frequency or severity of natural hazards or typical physical injuries or accidents that occur to individuals during normal academic or recreational activities or physical training. The USMA at West Point would continue to maintain all other existing public health and emergency response services, such as the hospital, emergency response teams, helicopter medical evacuation service, and military police, that have been adequate in the past to address the impacts of natural hazards or physical injuries or accidents to individuals at USMA at West Point.

#### 4.18 ENVIRONMENTAL JUSTICE

In accordance with Executive Order 12898 (dated February 11, 1994), Federal agencies are required to identify and address the potential for disproportionately high and adverse environmental and human health effects on minority and low-income populations, resulting from the agencies' programs, policies, and activities. Based on the information presented in Section 4.0, Environmental Consequences, of this EA, no significant or unacceptable adverse environmental or human health effects are expected to result from implementation of the Project at either alternative location.

Low-income housing, Weyant Green, is located south of the Project area in the Village of Highland Falls. It is anticipated that implementation of the Project at either alternative location would not negatively affect the Weyant Green community as a result of increased traffic, noise, air pollution, or potential changes to visual quality because of its remote location relative to the Project area. Because implementation of the Project would not negatively impact this community, no disproportionately high and adverse impact to minority or low-income populations would occur.

## 5.0 REASONABLY FORSEEABLE FUTURE ACTIONS

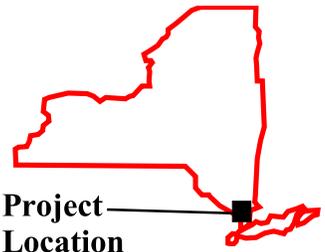
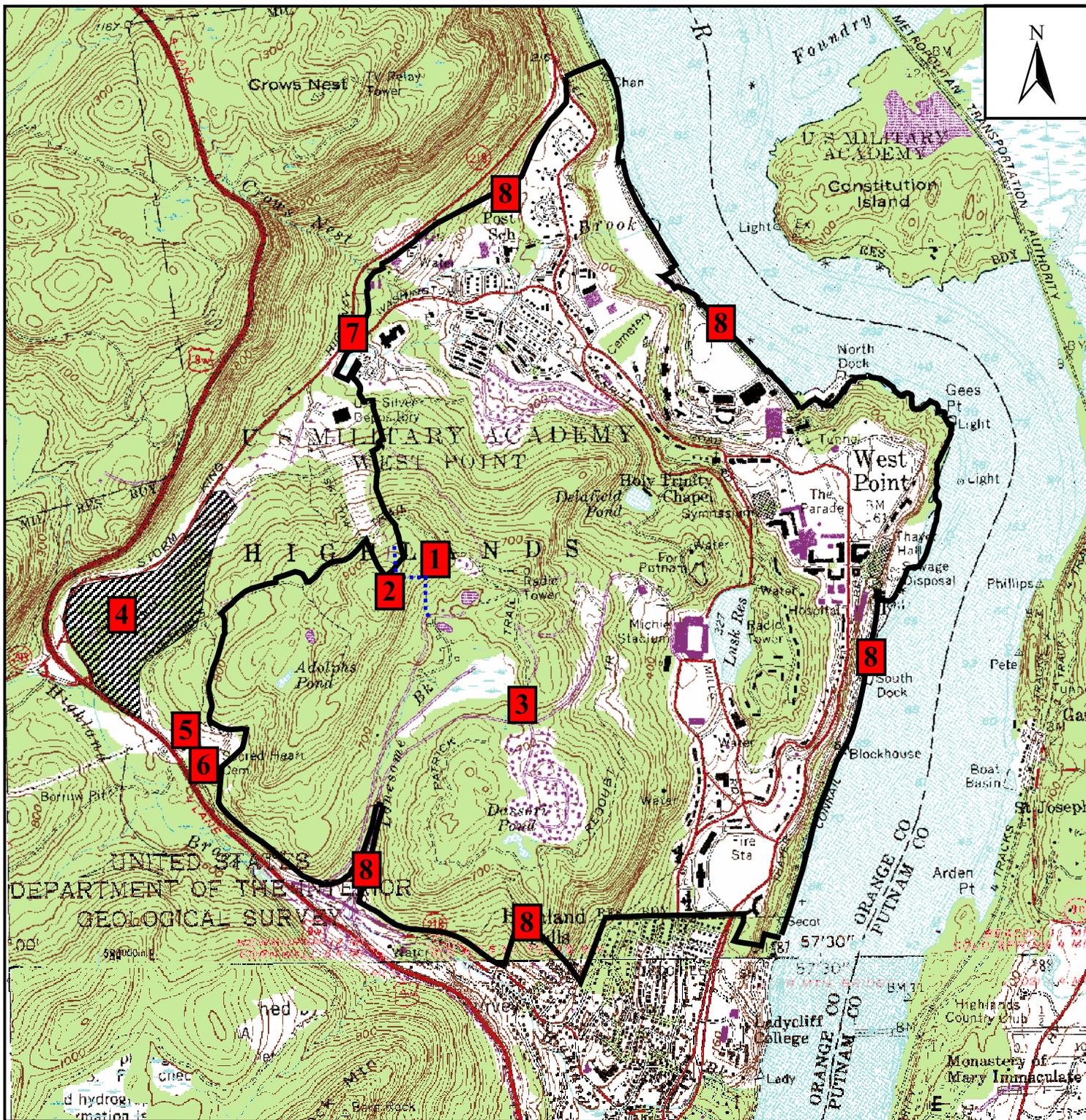
The USMA at West Point currently plans to implement eight reasonably foreseeable future actions (RFFAs) in the general vicinity of the Project, including the North Access Road, the Cell Tower Improvement, the Rugby Field Improvements, the Cross Country Course at the Golf Course, the Golf Team Training Facility, the Golf Course Maintenance Facility, Washington Gate Security Upgrades, and the Perimeter Security Fence (Figure 4). These RFFAs are part of the additional growth, community development, and infrastructure strengthening in the vicinity of the Stony Lonesome community, and taken collectively, encourage and facilitate the siting of new structures and activities in this area of the USMA at West Point. Each of these additional actions would be implemented within the 5-year period between March 2003 and March 2008.

### 5.1 THE NORTH ACCESS ROAD

The North Access Road Project is anticipated to be designed in the very distant future, and the Project currently does not have a specific proposed timeline for implementation of the design and construction process. The preliminary design concept for the North Access Road Project consists of a connector road of unspecified size that would be located along the top of the Ski Slope, in the vicinity of the proposed Project area. The North Access Road Project would provide a transportation link between the Washington Gate facilities and community and the Stony Lonesome Community. In addition to providing a transportation link between these two areas, the North Access Road Project is anticipated to open up the interior of the Main Post/Academic Area for future residential and commercial development. This future residential and commercial development is expected as a result of Projected increases in cadet population, support staff, and associated services that would be provided at the USMA at West Point in the future.

### 5.2 THE CELL TOWER IMPROVEMENT

The Cell Tower Improvement Project is anticipated to be designed in the near future, although the Project currently does not have a specific proposed timeline for implementation of the design



**Project Location**

1000 0 1000 2000 Feet



**LEGEND**

- 1** North Access Road
- 2** Cell Tower Improvement
- 3** Rugby Field Improvement
- 4** Cross Country Course at Golf Course
- 5** Golf Team Training Facility
- 6** Golf Course Maintenance Facility
- 7** Washington Gate Security Upgrades
- 8** Perimeter Security Fence

**Figure 4. Reasonably Foreseeable Future Actions at the USMA, West Point, New York.**

**Client:** U.S. Army Corps of Engineers  
New York District

**Prepared By:** NEA  
NORTHERN ECOLOGICAL ASSOCIATES, INC.

**Date:**  
8/01/03

Source: USGS 7.5' series Quadrangles West Point and Peekskill, New York, 1957, Photorevised 1981

and construction process. The preliminary design concept for the Cell Tower Improvement Project consists of renewing the lease for the existing cellular tower at the top of the Ski Slope, and providing additional antennas and lighting to the existing tower. As a result of the implementation of the Cell Tower Improvement Project, the USMA at West Point would have an improved communications facility that would increase the communications capability of cadets and support staff at the USMA at West Point.

Scenic Hudson has raised the concern that the RFFA of the proposed Cell Tower Improvement Project would result in additional potential impacts to visual resources and visually sensitive areas at or surrounding the top of the Ski Slope, and has requested that the USMA at West Point consider all RFFAs in the vicinity of the top of Ski Slope as a single development project that could be addressed within an Environmental Impact Statement (Anzevino 2003). However, the USMA at West Point does not currently have a timeline for the design and implementation of the RFFA of the Cell Tower Improvement Project. Therefore, the potential impacts of this project on visual resources would be addressed within a separate EA that would be prepared for the Cell Tower Improvement Project, in compliance with NEPA and other implementing regulations, at the appropriate time in the future.

### 5.3 THE RUGBY FIELD IMPROVEMENT

The Rugby Field Improvement Project is anticipated to be designed in fiscal year (FY) 2004, and constructed during FY 2005. The preliminary design concept for the Rugby Field Improvement Project consists of improving the existing field surface at, and adding grandstands to, the existing rugby field near the PX in the Stony Lonesome community at the USMA at West Point. As a result of the implementation of the Rugby Field Improvement Project, the USMA at West Point would have an improved rugby field that would accommodate training and competition activities for the cadets as part of the academic curriculum of the USMA at West Point, and that would support the training and competition activities for both intramural and intercollegiate rugby groups at the USMA at West Point.

#### 5.4 THE CROSS COUNTRY COURSE AT THE GOLF COURSE

The Cross Country Course Project at the Golf Course is anticipated to be completed during FY 2004. The preliminary design concept for the Cross Country Course Project consists of improved trails and signage within the existing Golf Course property to upgrade the existing cross-country Course facilities at the USMA at West Point. As a result of the implementation of the Cross Country Course Project, the USMA at West Point would have an improved Cross Country Course that would accommodate training activities for the cadets as part of the academic curriculum of the USMA at West Point, and that would accommodate the training and competition facilities for both intramural and intercollegiate cross country groups at the USMA at West Point.

#### 5.5 THE GOLF TEAM TRAINING FACILITY

The Golf Team Training Facility Project is anticipated to be completed during FY 2005. The preliminary design concept for the Golf Team Training Facility consists of an indoor training facility measuring 5,148 square feet, with a chipping area, putting area and hitting stalls for winter training, locker room facilities with showers, a multipurpose room an office, and a utility room. As a result of the implementation of the Golf Team Training Facility Project, the USMA at West Point would have an improved facility for both intramural and intercollegiate golf team training activities, particularly during the winter months, which would improve the athletic opportunities for cadets.

#### 5.6 THE GOLF COURSE MAINTENANCE FACILITY

The Golf Course Maintenance Facility Project is anticipated to be completed during FY 2004. The preliminary design concept for the Golf Course Maintenance Facility consists of five buildings or structures, including a 4,200 square foot primary facility containing a machine shop, a garage, and storage bins for sand, gravel, and topsoil; a 1,400 square foot covered storage area to house maintenance equipment and above-ground fuel storage tanks; a 750 square foot fertilizer storage building that would also contain a water recycling system; a golf cart storage facility; and a 20,000-gallon, well-fed, golf course fire protection water tank that would provide fire suppression capabilities through a water sprinkler system to the Golf Course Maintenance Facility, the Golf Team Training Facility ,and the Golf Cart Storage Facility. The buildings

would consist of metal column and beam construction, placed on concrete slabs, and supporting metal roofs. The perimeter of the Golf Course Maintenance Facility would be enclosed by a 6-foot-high chain link fence, and aboveground fuel storage tanks would be installed with required secondary containment to protect against spillage. As a result of the implementation of the Golf Course Maintenance Facility Project, the USMA at West Point would have an improved facility for the maintenance of the Golf Course at the USMA at West Point, which would contribute to the overall improvement of the Golf Course as part of the wider set of recreational and athletic opportunities within the Main Post/Academic area.

#### 5.7 THE WASHINGTON GATE SECURITY UPGRADES

The Washington Gate Security Upgrade Project is anticipated to be designed during FY 2004. Pre-10% design concepts for the Washington Gate Security Upgrade Project that are currently under consideration include short-term security measures such as an auto-dome closed-circuit television (CCTV) camera, as well as permanent security measures that would alter the appearance of the existing gate, such as the construction of new, wider traffic lanes; a new sentry house; permanent lighting; deployable vehicle barrier systems; canopies to protect soldiers on duty from inclement weather; additional CCTV cameras; and permanent traffic control measures along Washington Road (including traffic arms and new signage). Additional pre-10% design concepts also include the performance of a traffic safety study, and retrofitting the existing gate houses and security boxes so that they are ballistic resistant. An EA is in preparation for this project in compliance with NEPA and other implementing regulations.

#### 5.8 THE PERIMETER SECURITY FENCE

The Perimeter Security Fence Project is anticipated to be designed during FY 2003, and constructed during FY 2005. The 30% design concept for the Perimeter Security Fence Project currently consists of a combination of a 6-foot high, 2-inch mesh, chain link fence within a cleared zone, and integrated security measures such as CCTV cameras and anti-vehicular barriers. This combination of security measures would be located along an approximately 9.1-mile alignment around the Main Post/Academic Area, corresponding to the boundary of the NHLD at the USMA at West Point. As a result of the implementation of the Perimeter Security

Fence Project, the USMA at West Point would have improved security measures for the Main Post/Academic Area, which would contribute to the ongoing protection of the health and safety of the cadets and the military and civilian staff within the Main Post/Academic Area of the USMA at West Point. An EA is in preparation for this project in compliance with NEPA and other implementing regulations.

## 6.0 CUMULATIVE IMPACTS

Cumulative environmental effects are the result of a proposed action being added to effects of other past, present, and RFFAs, regardless of the agency or person responsible for such actions. Current water capacity and available water pressure for fire-fighting and fire suppression serve as a baseline for cumulative effects analysis.

Cumulative effects associated with these past, present, and RFFAs at the USMA at West Point are summarized in this section by resource area, including geology/soils, water resources, biological resources, land use, visual resources, cultural resources, socioeconomics, air quality, noise, utility infrastructure, hazardous materials, public health and safety, and environmental justice. This section provides a summary of direct, indirect, and cumulative impacts associated with the Project, the No Action Alternative, and RFFAs. This section addresses only those resources subject to cumulative effects, whereas “no effect” issues are not addressed.

### 6.1 GEOLOGY/SOILS

The implementation of past, present, and reasonably foreseeable future development in the Project area would have minor short-term and long-term direct impacts on soils. Earth moving associated with construction activities of the Project may result in temporary, indirect soil erosion and sedimentation. However, the use of site-specific erosion control measures and best management practices during, and immediately after, earth moving activities would reduce the potential temporary erosion and sedimentation effects to a level that is not undue or significant. The minimum 0.21-acre minimum area of disturbance associated with the construction of the Project, combined with other construction activities, would represent long-term, direct, impacts on soils. However, the total acreage affected by construction activities is minor relative to the total size of the USMA at West Point property.

### 6.2 WATER RESOURCES

The implementation of past, present, and reasonably foreseeable future development in the Project area likely would have no direct or indirect significant impacts on groundwater resources.

Cumulatively, these actions would result in a potential temporary, minor, adverse impact on surface waters from construction of the additional potable water storage tank due to a temporary increase in water withdrawal from Stilwell Lake or Long Pond to fill the tank. However, since this facility is intended to be used for creating additional water pressure if needed for fire protection, the Project would not result in sustained water withdrawal from these surface water bodies and no significant impacts to water resources are anticipated.

### 6.3 BIOLOGICAL RESOURCES

The implementation of past, present, and reasonably foreseeable future development in the Project area likely would have no direct or indirect significant impacts on biological resources. Because existing biological resources in the Project area are common in Orange County and upstate New York, cumulatively these impacts would be considered minor. Any potential significant impacts on vegetation communities and rare, threatened, and endangered (RTE) species would be avoided, minimized, or mitigated to a level that is not significant in accordance with the Endangered Species Act of 1973 (as amended) and New York State RTE species protection laws.

### 6.4 LAND USE

Generally, existing land uses at the USMA at West Point are consistent with uses identified in the *Master Plan for the Year 2007* (USMA 1998b), and any proposed development or redevelopment would be required to be consistent with land uses allowed in accordance with this plan (USMA 1998b). Therefore, adequate controls are in place to ensure any future developments are consistent with USMA regulations.

The implementation of past, present, and reasonably foreseeable future development in the Project area likely would have no direct or indirect significant impacts on land use. Minor beneficial effects to land use would occur as a result of construction of the Rugby Field Improvement the Cross Country Course, the Golf Team Training Facility, and the Golf Maintenance Facility, which would result in the improvement of existing recreational and athletic facilities. Minor beneficial effects to land use would occur as a result of construction of

the Washington Gate upgrades and the Perimeter Security Fence, which would result in increased public safety in the vicinity of the Project. Minor adverse effects to land use would occur as a result of construction of the North Access Road, which could encourage additional residential and commercial development that would convert natural landscapes in the interior of the Main Post/Academic Area to buildings and/or paved surfaces.

## 6.5 VISUAL RESOURCES

The implementation of past, present, and reasonably foreseeable future development in the region of influence likely would result in minor, long-term direct impacts on visual resources due to the intrusion of modern cultural landscapes within the primarily natural landscapes of the Project area. Implementation of the Rugby Field Improvement, the Cross Country Course at the Golf Course, the Golf Team Training Facility, the Golf Maintenance Facility, and the Washington Gate Upgrades would result in long-term, minor impacts on visual resources because they would be modifications to existing recreational and athletic facilities, and would be consistent with structures already included in the visual resources associated with these locations.

Implementation of the Project at either alternative location, along with the North Access Road, Cell Tower Improvement Project, and the Perimeter Security Fence, would result in long-term, minor, adverse impacts on visual resources by potentially creating structures or landscape features that would intrude into existing visual resources, particularly those identified as having significant scenic qualities, or by converting natural landscapes to landscapes that include structures, paved surfaces, and/or permanently cleared rights-of-way. Implementation of the North Access Road would also result in long-term, major, adverse impacts on visual resources by facilitating residential and commercial development in a previously undeveloped and inaccessible area of the interior of the Main Post/Academic area of the USMA at West Point. However, design measures have been identified to reduce the visual intrusion of the Project, and suggested for the Perimeter Security Fence, and the USMA at West Point is particularly sensitive to the use of appropriate designs, materials, and vegetative landscaping to both reduce impacts to, and/or to enhance, the existing visual landscapes at the USMA at West Point. As a result, although natural landscapes within the USMA at West Point would undergo development, the

visual resources at the USMA at West Point would be protected and enhanced to the maximum extent practicable in the long-term by the construction of the Project at either alternative location, as well as the implementation of RFFAs, and the cumulative effects of these developments on visual resources would be considered not significant with mitigations.

## 6.6 CULTURAL RESOURCES

Generally, any development at the USMA at West Point is required to comply with the NHPA for the protection of properties listed or eligible for listing on the NRHP, as well as NYSOPRHP SHPO regulations. As a result, no undue adverse cumulative impacts on cultural resources are anticipated, and the implementation of past, present, and reasonably foreseeable future development in the Project area likely would have a long-term, direct, beneficial impact on cultural resources at the USMA at West Point. Specifically, all Projects that involve earth-disturbing activities undergo archaeological investigations, and all Projects that involve renovation, rehabilitation, demolition or construction undergo architectural assessments. As such, all Projects would result in a minor, beneficial impact by avoiding or rehabilitating, and thus protecting and preserving, cultural resources. From a cumulative perspective, implementation of past, present, and RFFAs would result in a long-term, minor, beneficial impact on cultural resources.

## 6.7 SOCIOECONOMICS

### 6.7.1 Population and Employment

The implementation of past, present, and reasonably foreseeable future development in the Project area likely would have a positive impact on the population of the USMA at West Point. Employment of construction contractors needed to complete all past, present, and reasonably foreseeable future development would result in a minor temporary beneficial impact to socioeconomic resources within Orange County. Once these actions are complete, the employment of contractors would not be necessary and the temporary employment benefit would cease.

### 6.7.2 Community Services

The implementation of past, present, and reasonably foreseeable future development in the Project area likely would have a minor, long-term, positive impact on community services of the USMA at West Point. The additional fire protection provided by increasing the water pressure available to fight fires would add to the safety of the residents of the Stony Lonesome community, and the whole of the USMA at West Point.

### 6.7.3 Tax Revenues

The implementation of past, present, and reasonably foreseeable future development in the Project area likely would have no direct or indirect impact on tax revenues at the USMA at West Point. Because the USMA at West Point is federally owned, no federal, state, or local property tax revenue is generated by this construction. However, the employment of contractors to construct the Proposed Action may result in minor, temporary increased state sales tax revenue on goods and services purchased in the Town of Highlands and adjacent municipalities.

### 6.7.4 Transportation and Traffic Circulation

The implementation of past, present, and reasonably foreseeable future development in the Project area likely would have a temporary, direct, minor, adverse impact on transportation and traffic circulation at the USMA at West Point. Traffic would temporarily increase in Project areas during construction. However, this impact would be mitigated to a level that is not undue or significant at the overall USMA at West Point by the implementation of best management practices, such as posting “construction work area” signs, using flaggers to slow and direct traffic as necessary, and performing construction activities only during daylight, weekday hours.

## 6.8 AIR QUALITY

The implementation of past, present, and reasonably foreseeable future development in the Project area likely would have temporary adverse direct and indirect impacts on air quality at the USMA at West Point. All actions may result in increased direct emissions of exhaust and fugitive dust from construction machinery and activities. However, temporary construction emissions generally would be minor and confined primarily to individual Project sites. Cumulatively, these temporary emissions of NAAQS criteria pollutants likely would not exceed SIP emission thresholds at the USMA at West Point, and would conform to the SIP.

## 6.9 NOISE

The implementation of past, present, and reasonably foreseeable future development in the Project area likely would have temporary, direct and indirect, adverse impacts on noise at the USMA at West Point. These actions would result in temporary increased noise during construction and any required blasting activities. Cumulatively, adverse noise impacts on academic, recreational, and residential activities would be reduced to a level that is not undue or significant by performing construction and blasting activities only during daylight, weekday hours.

## 6.10 UTILITY INFRASTRUCTURE

The implementation of past, present, and reasonably foreseeable future development in the Project area likely would have a long-term, beneficial impact on the utility infrastructure of the USMA at West Point. Construction and operation of the Project would increase the potable water storage capacity of the Stony Lonesome community by 1,000,000 gallons. Completion of these modifications would also expand the overall potable water infrastructure within the Main Post/Academic Area of the USMA at West Point.

## 6.11 HAZARDOUS MATERIALS

The implementation of past, present, and reasonably foreseeable future development in the Project area have the potential to result in a temporary, minor, direct and indirect impacts on human health by the storage, use, transport, and disposal of hazardous materials associated with construction activities. Cumulatively, however, these potential impacts would be reduced to a level that is not undue or significant by handling all such hazardous materials in accordance with the applicable health and safety plans and *USMA Installation Spill Contingency Plan* (USMA 1996a).

#### 6.12 PUBLIC HEALTH AND SAFETY

The implementation of past, present, and reasonably foreseeable future development in the Project area would have an incremental minor negative impact on the safety of the public of the USMA at West Point by increasing the demand for fire protection services. Incremental residential and commercial development Projects create a demand on use of potable water, such that at times of peak water usage, available water pressure needed for fire-fighting purposes may be depleted. The Project addresses this cumulative negative impact by adding 1,000,000 gallons of water storage capacity which in turn increases the water pressure available, enhancing the response capabilities of the USMA at West Point's Fire Department. Thus, the cumulative impact likely would result in long-term, direct, beneficial impacts on public health and safety.

#### 6.13 ENVIRONMENTAL JUSTICE

Implementation of the past, present, and RFFAs would not disproportionately impact minority or low-income populations.

## 7.0 SUMMARY AND CONCLUSION

### 7.1 PROPOSED ACTION

The Proposed Action would consist of the construction and operation of a proposed 1,000,000-gallon water tank to service the Stony Lonesome community of the USMA at West Point, including work areas, paved access roads, and associated water lines that would connect the new water tank to the existing water tank, and subsequently, to the existing water treatment plant and existing water line system. Although the current anticipated need is for a 500,000-gallon water tank, the USMA at West Point is proposing the larger, 1,000,000-gallon water tank to accommodate future development at the USMA at West Point, particularly in the Stony Lonesome area. The new water tank would initially be filled halfway, and then filled further as needed. The additional water supply would allow service to the USMA at West Point from the Stony Lonesome community east to the Kimsey Center.

### 7.2 ALTERNATIVES

The No-Action Alternative would not address concerns that, during times of peak water usage, the water pressure required for responding to a fire in the Stony Lonesome community would not be adequate. The Proposed Action is proposed to address concerns that adequate water pressure may not always be available for fire protection and fire-fighting purposes, due to increased development at the USMA at West Point, particularly increased residential and commercial development in the adjacent Stony Lonesome community.

### 7.3 ANTICIPATED ENVIRONMENTAL EFFECTS

No significant cumulative effects would result from implementation of the Proposed Action. The principal direct and indirect environmental issues related to the implementation of the Proposed Action would include:

- Visual impacts to viewsheds and cultural resources within and outside of the NHLD; and
- Construction impacts (e.g., soil erosion, traffic, utility access, noise, air quality).

Several of these potential impacts would be mitigated by careful design, placement, and use of materials, and the use of good management practices and engineering controls. Mitigation measures must be addressed and are included in order to diminish any potential significant adverse effects.

Furthermore, the cumulative impact of clearing an area of existing forest and maintaining it as open or brushy land, with the need to maintain a vegetative screen to mitigate for potential visual impacts, would result in the creation and maintenance of an area that would function as a wildlife opening. Although an indirect result of the Proposed Action, the creation and maintenance of additional edge and the wildlife opening coincides with wildlife management measures specified in the INRMP (USMA 1998a).

#### 7.4 MITIGATION MEASURES

Mitigation measures would be employed to address impacts due to implementation of the Proposed Action including:

1. The long-term and temporary impacts of construction and maintenance on the NHLD, including historic structures, archaeological resources, and on-post visual or aesthetic resources would be minimized to the maximum extent practicable by using designs, colors, and materials that are consistent with the historic and visual context of the NHLD and other visually sensitive areas, and by adopting related recommendations resulting from the analysis of viewsheds, and from the NYSOPRHP, Scenic Hudson, and the NYSDOS. Specifically, the water tank would be constructed using a textured/non-reflective surface, using non-intrusive color(s), retaining and/or incorporating vegetative screening, and limiting water tank height through partial burial and/or use of a larger-diameter, shorter tank.
2. All parking, storage, construction, and staging activities at the lay-down area immediately west of Patrick Trail would be restricted to the existing gravel parking area to avoid potential impacts to archaeological resources.
3. Erosion and sedimentation controls would be used in accordance with USACE specifications and good construction practices. Excavation of material would be

controlled by best management practices, design specifications, and engineering practices.

4. Temporary Project impacts to traffic, roadway access, utility access, and quality of life would be minimized by limiting construction to daylight, weekday hours.
5. The impact of temporary, increased noise levels would be reduced by restricting construction to daylight, weekday hours, and noise levels would be minimized by requiring contractors to use equipment that meets specific standards.
6. USMA would determine the direct and indirect emissions associated with the Proposed Action, considering long-term air emissions in its evaluation and calculations, to assess conformity with established State Implementation Plan emission thresholds for ozone (VOC and NO<sub>x</sub>) or PM-10, and propose and implement air emissions control measures during construction and/or operation of the Project, as necessary, to ensure that no adverse effects result. If an air emissions permit were required pursuant to Title 6 of the New York State Codes, Rules, and Regulations, Part 231, then the USMA at West Point would secure the necessary permit from the NYSDEC.

#### 7.5 CONCLUSION

Implementation of the mitigation measures previously identified would reduce the potential impacts of the Project, resulting in no significant adverse impacts to the environment. An Environmental Impact Statement is, therefore, not required.

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## **9.0 PUBLIC AND AGENCY PARTICIPATION**

A comprehensive listing of agencies and persons whom received the Draft EA for review and comment is provided in Appendix A. Public comments on the Draft EA are provided in Appendix B. Additionally, a Preliminary Final EA was provided to the commentors on the Draft EA, including the NYSOPRHP, Scenic Hudson, and NYSDOS, for additional review and comment prior to completion and signature of the Finding of No Significant Impact.

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**APPENDIX A**

**DISTRIBUTION LIST**

## APPENDIX A

### DISTRIBUTION LIST

#### FEDERAL AGENCIES

Ms. Grace Musumeci, Chief  
Environmental Review Section  
Strategic Planning and Multi-Media  
Programs Branch  
USEPA-Region II  
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Ms. Laura Dean  
Advisory Council on Historic Preservation  
Eastern Area  
Old Post Office Building, Suite 803  
1100 Pennsylvania Avenue NW  
Washington, DC 20004  
(202) 606-8529

Ms Caroline Hall  
U.S. Army Environmental Center  
Bldg. E4435  
SFIM-AEC-EQ  
5179 Hoadley Road  
Aberdeen Proving Ground, MD 21010

Installations Management Agency  
Northeast Regional Office  
ATTN: SFIM-NE-ER (Potter)  
5A North Gate Road  
Ft. Monroe, VA 23651

#### STATE AGENCIES

Mr. Julian Adams  
Office of Parks, Recreation and Historic Preservation  
New York State Office of Historic Preservation  
Field Services Bureau  
Peebles Island  
P.O. Box 189  
Waterford, New York 12188-0189  
(518) 237-8643

Ms. Margaret Duke  
New York State Department of Environmental  
Conservation, Region III  
21 South Putt Corners Road  
New Paltz, New York 12561  
(914) 256-3050

New York State Department of State  
Division of Coastal Resources  
Attn: Consistency Review  
41 State Street  
Albany, New York 12231-0001  
(518) 474-6000

Mr. Nicholas B. Conrad  
New York State Department  
of Environmental Conservation  
625 Broadway  
Albany, NY 12233  
(518) 783-3932

#### LOCAL AGENCIES

Mr. Edward Diana  
Orange County Executive  
Orange County Government Center  
255-275 Main Street  
Goshen, New York 10924  
(914) 291-2318

## INTERESTED PARTIES

Mr. Ned Sullivan, Director  
Scenic Hudson, Inc.  
1 Civic Center Plaza #200  
Poughkeepsie, New York 12601-3157  
(845) 473-4440

Hudson Highlands Land Trust  
P.O. Box 226  
Garrison, New York 10524  
(845) 424-3358

Ms. Marilyn Fenollosa  
National Trust for Historic Preservation  
Northeast Regional Office  
7 Faneuil Hall Marketplace, 4<sup>th</sup> Floor  
Boston, MA 02109

The Black Rock Forest Consortium  
Attn: Dr. William Schuster  
Forest Director  
129 Continental Road  
Cornwall, New York 12518

Ms. Carmella Mantello, Executive Director  
Hudson River Valley Greenway Communities Council  
Capitol Building, Capitol Station, Room 254  
Albany, New York 12224  
(518) 473-3835

Mr. Daniel Mackey  
Director of Public Policy  
Preservation League of New York State  
44 Central Avenue  
Albany, NY 12206

Storm King State Park  
c/o Palisades Interstate Park Commission  
Bear Mountain, New York 10911

## PUBLIC VENUES

Town Clerk  
Town of Highlands  
254 Main Street  
Highland Falls, New York 10928  
(845) 446-3398

Director  
Highland Falls Public Library  
298 Main Street  
Highland Falls, New York 10928  
(845) 446-3113

Village Clerk  
Village of Highland Falls  
303 Main Street  
Highland Falls, New York 10928  
(845) 446-3400

Mrs. Suzanne Moskala  
Community Library  
Building 622  
United States Military Academy  
West Point, New York 10996  
(845) 938-2974

**APPENDIX B**

**PUBLIC COMMENTS AND USMA RESPONSES**



New York State Office of Parks, Recreation and Historic Preservation  
Historic Preservation Field Services Bureau  
Peebles Island, PO Box 189, Waterford, New York 12188-0189

518-237-8643

September 10, 2003

Douglas R. Cubbison  
Acting Cultural Resources Manager  
Department of Housing and Public Works  
Building 667, Ruger Road  
United States Military Academy  
West Point, NY 10996

Dear Mr. Cubbison:

Re: ARMY  
New Water Tank  
USMA  
West Point, Orange Co.  
03PR03506

Thank you for forwarding the Phase I Cultural Resources study for the new water tank proposed for the Stony Lonesome area. The State Historic Preservation Office has reviewed the materials in accordance with the provisions of Section 106 of the National Historic Preservation Office.

While we understand that further materials will be forthcoming concerning the projects potential visual impact, our archeological staff has reviewed the Phase I report and has determined that the project will have no effect on known or potential archeological resources these archaeological comments. As for visual impact issues, I would recommend that a simulation of the water tank's appearance from several viewpoints within the USMA historic district be undertaken.

See Sections 3.10, 4.10,  
4.11, and 7.4.

Again, thank you for your submission. I look forward to receiving the materials on viewshed and visibility concerns. If you have any questions, or if I can be of any assistance, please call me at (9518) 237-8643, ext. 3271.

Sincerely,

Julian W. Adams  
Sr. Historic Sites Restoration Coordinator



DEPARTMENT OF THE ARMY  
**UNITED STATES MILITARY ACADEMY**  
West Point, New York 10996

January 6, 2004

REPLY TO  
ATTENTION OF

Directorate of Housing and Public Works

Subject: New Potable Water Tank, Stony Lonesome Vicinity, U.S. Military Academy, West Point, New York  
(03PR03506)

Mr. Julian Adams  
New York State Office of Parks, Recreation and Historic Preservation  
Historic Preservation Field Services Bureau  
Peebles Island, PO Box 189  
Waterford, New York 12188-0189

Dear Mr. Adams:

The U.S. Military Academy (USMA) proposes to construct a new 1,000,000-gallon potable water tank at the top of the existing ski slope, Stony Lonesome Vicinity, USMA (03PR03506). The USMA provided you with information on this proposed water tank on September 3, 2003; and you responded on September 10, 2003. Scenic Hudson also provided public comments on the Draft Environmental Assessment, which have been previously provided to you.

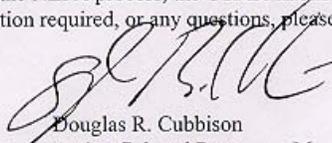
Since that initial consultation, the USMA has been developing visual assessments to insure that this water tank can be effectively screened, and will not present a visual intrusion to the USMA NHL and adjacent historic properties. The USMA determined to delay the development of this visual assessment until early winter, when deciduous vegetation would be at its minimum, thus providing a "worst-case" scenario for visibility of this proposed tank. Enclosed find the visual assessment, which evaluated visibility of the proposed water tank from three locations (Highway 218 at the base of the ski slope, the Highway 9W overlook, and Old West Point Road in the Black Rock Forest). As the visual assessment depicts, sufficient vegetation can be maintained to screen the tank at all three locations. A small portion of the tank (the very top) will be visible from Highway 9W and the Old West Point Road. However, the texture and earth tone color of the tank will serve to screen it, and vegetation will be maintained as a background so that the tank does not protrude. Additionally, the distance to the proposed tank location from Highway 9W is 3,250 feet, and from Old West Point Road is 4,200 feet. At this distance, the portion of tank that would protrude above the vegetation (less than ten feet) is all but indistinguishable.

As previously stated, the USMA will implement the following mitigations to insure that there will be no adverse visual effects:

- The maximum above-ground height of the tank will be thirty feet;
- The water tank will be coated with a 100% acrylic elastomeric textured coating. This coating is heavily textured and non-reflective, and will assist with blending the tank into the natural surroundings (a small sample of this coating is provided);
- The water tank will be colored in a "green-gray" earth-toned color that will assist with blending the tank into the natural surroundings. A range of candidate colors were examined over a period of several weeks and in different lighting conditions, and the "green-gray" was determined to be most effective at blending the tank into the natural background (a color sample is provided);
- Vegetation clearance at the tank vicinity will be minimized, particularly to the west (in the direction of Highways 218 and 9W), to ensure that vegetation screening can be maintained. Care will be taken to insure that a background of vegetation is maintained to ensure that the tank does not protrude against the skyline;
- No lighting will be installed on the tank.

The USMA believes that this tank can be effectively blended into the topographic and vegetative background at this location to be all but invisible, given these mitigations. The USMA does not believe that it will result in any effects to the visual, historic or scenic aesthetics of the West Point vicinity.

The USMA has determined that with the implementation of these mitigations, that this undertaking will have no adverse effects upon historic properties at the USMA, including the USMA NHL. Upon completion of your review and comment, and upon completion of the NEPA process, the USMA intends to initiate construction activities for this project. If there is further information required, or any questions, please contact me at (845) 938-3522.



Douglas R. Cubbison  
Acting Cultural Resources Manager  
United States Military Academy

Enclosures (as stated)- Visual Assessment Documents

One Civic Center Plaza, Suite 200  
Poughkeepsie, NY 12601-3156  
Tel: 845 473 4400  
Fax: 845 473 2648  
email: info@scenic Hudson.org  
www.scenic Hudson.org



September 19, 2003

United States Military Academy  
ATTN: Mr. Douglas R. Cubbison, Acting NEPA Coordinator  
Directorate of Housing and Public Works EP &SD  
Building 667  
Ruger Road  
West Point, NY 10996

RE: Draft Environmental Assessment (EA)  
Stony Lonesome Water Tank Project

Dear Mr. Cubbison:

Thank you for forwarding a copy of the EA for the Stony Lonesome Water Tank Project.

Scenic Hudson has a keen interest in the potential visual impacts of the proposed water tank because the site is visible from a scenic overlook on Route 9W, a State-designated Scenic Byway. In addition, the site is in the Hudson Highlands Scenic Area of Statewide Significance (SASS), within the West Point National Historic Landmark, and visible from Black Rock Forest and Storm King State Park, the latter of which was dedicated as parkland as a result of our victory in "The Scenic Hudson Decision," when we successfully stopped the construction of a pumped-water power plant on Storm King Mountain. For all these reasons the utmost care must be exercised in ensuring that the visual impacts of the water tank project are minimized. Upon review of the Draft Environmental Assessment we have concluded that visual impacts are likely to result if the project is constructed as described.

In spite of the likelihood of adverse visual impacts, the EA provides no visual simulations, nor are specific proposals offered to minimize the tank's visual impact. While we appreciate EA's indication that the tank could be made of concrete, which can be textured and painted, and that the tank could be partially buried, the EA does not indicate which of these techniques will be employed. Rather, these are identified as options. Further, the EA does not indicate the effectiveness of these options in mitigating the public's view of the tank from various locations along the scenic byway, SASS, park, forest, National Historic Landmark, etc.

The Draft EA indicates that a 1 million-gallon water tank is proposed. The size of the proposed tank represents a 400% increase in size over the 250,000-gallon existing tank. The EA states that a 500,000-gallon tank would suit the Academy's needs, however, a tank is proposed at twice the capacity (1 million gallons) in order to provide for future growth without any documentation regarding when the need for 1 million gallons of water storage would be necessary.

See Section 4.10.

See Sections 4.10 and 4.10.1.

See Section 3.10.

See Sections 2.3.3, 4.10, 4.10.1, and 4.11.1.

See Section 2.2.

This doubling in capacity does not avoid or minimize impacts, as required under NEPA and SEQRA. If, in fact, future demand will require 1,000,000 gallons of water storage, a separate, sensitively sited tank, would likely result in less severe visual impacts than a 1 million-gallon tank on the top of a hill.

See Sections 2.2, 3.10, 4.10, 4.10.1, and 4.11.1.

On a related note, the EA indicates that it is anticipated that a "cell tower improvement project" will be designed in the near future (page 58-59). These improvements are described as the renewal of a lease and providing additional antennas and lighting on the existing tower above the ski area near the site of the water tank. This cell tower has marred the view from the scenic overlook on Route 9W for several years. The construction of the proposed water tank, in combination with the existing cell tower and its impending expansion, are likely to result in cumulative impacts that should be considered together in an environmental impact statement (EIS).

See Section 5.2.

See Sections 5.2 and 6.5.

We urge the US Military Academy to study the development of this hilltop in an EIS that examines both the water tank and the cell tower together. Scenic Hudson believes that before the lease for the cell tower is renewed, the facility should be required to be redesigned to employ "stealth" or "camouflage" treatment as a flagpole, tree, or some other appropriate object.

See Section 5.2.

The water tank should be the minimum size necessary and use all mitigations necessary, including concrete surface, appropriate color and texture, partial burial, and screening with berms and plantings to render it invisible from Route 9W and other offsite locations.

See Section 2.3.3, 4.10, 4.10.1, 4.11.1, and 7.4.

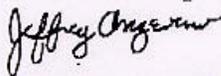
The proposed water tower and cell tower expansions will provide the Academy a golden opportunity to improve the aesthetics on the hill above the ski area. We hope that you will take advantage of this opportunity and improve the aesthetics of the area.

Thank you for your comment.

Please keep us apprised regarding the status of these two projects.

See Section 9.0.

Sincerely,



Jeffrey Anzevino, AICP  
Senior Regional Planner

JA/kb

Cc Marilyn Fenollosa, National Trust for Historic Preservation



DEPARTMENT OF THE ARMY  
**UNITED STATES MILITARY ACADEMY**  
West Point, New York 10996

January 6, 2004

REPLY TO  
ATTENTION OF

Directorate of Housing and Public Works

Subject: New Potable Water Tank, Stony Lonesome Vicinity, U.S. Military Academy, West Point, New York

Mr. Jeffrey Anzevino, Senior Regional Planner  
Scenic Hudson  
One Civic Center Plaza, Suite 200  
Poughkeepsie, NY 12601-3156

Dear Mr. Anzevino:

The U.S. Military Academy (USMA) proposes to construct a new 1,000,000-gallon potable water tank at the top of the existing ski slope, Stony Lonesome Vicinity, USMA. We are in receipt of your comments dated September 19, 2003 on the Draft Environmental Assessment for this project. Thank you for your interest in maintaining the scenic, historic and visual aesthetics of the West Point vicinity.

Based upon your comments, and those of the New York State Historic Preservation Office, the USMA determined to perform a comprehensive visual assessment to insure that this water tank can be effectively screened, and will not present a visual intrusion to the USMA National Historic Landmark District (NHL), portions of the Hudson River Coastal Management Zone (e.g., Hudson Highlands Scenic Area of Statewide Significance), and adjacent recreational, scenic and historic properties. The USMA determined to delay the development of this visual assessment until early winter, when deciduous vegetation would be at its minimum, thus providing a "worst-case" scenario for visibility of this proposed tank. Enclosed find the visual assessment, which evaluated visibility of the proposed water tank from three primary locations (Highway 218 at the base of the ski slope, the Highway 9W overlook, and Old West Point Road in the Black Rock Forest).

As the visual assessment depicts, sufficient vegetation can be maintained to screen the tank at all three locations. A small portion of the tank (the very top) will be visible from Highway 9W and the Old West Point Road. However, the texture and earth tone color of the tank will serve to screen it, and vegetation will be maintained as a background so that the tank does not protrude. Additionally, the distance to the proposed tank location from Highway 9W is 3,250 feet, and from Old West Point Road is 4,200 feet. At this distance, the portion of tank that would protrude above the vegetation (less than ten feet) is all but indistinguishable.

As will be documented in the Final Environmental Assessment for this project, the USMA will implement the following mitigations to insure that there will be no adverse visual effects:

- The maximum above-ground height of the tank will be thirty feet;
- The water tank will be coated with a 100% acrylic elastomeric textured coating. This coating is heavily textured and non-reflective, and will assist with blending the tank into the natural surroundings (a small sample of this coating is provided);
- The water tank will be colored in a "green-gray" earth-toned color that will assist with blending the tank into the natural surroundings. A range of candidate colors were examined over a period of several weeks and in different lighting conditions, and the "green-gray" was determined to be most effective at blending the tank into the natural background (a color sample is provided);
- Vegetation clearance at the tank vicinity will be minimized, particularly to the west (in the direction of Highways 218 and 9W), to ensure that vegetation screening can be maintained. Care will be taken to insure that a background of vegetation is maintained to ensure that the tank does not protrude against the skyline;
- No lighting will be installed on the tank.

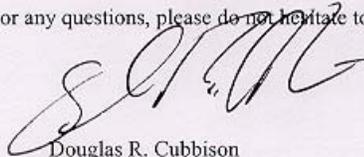
The USMA believes that this tank can be effectively blended into the topographic and vegetative background at this location to be all but invisible, given these mitigations. The USMA does not believe that it will result in any effects to the visual, historic or scenic aesthetics of the West Point vicinity.

The USMA has performed additional engineering calculations, which suggest that the full capacity of 1,000,000 gallons would be warranted. Additionally, it should be noted that this location was specifically chosen because of the belief that a water tank could be effectively screened here. Accordingly, we wish to design a non-intrusive water tank that will fulfill the installation's current and anticipated needs, while being placed in a location that will not result in adverse visual effects. The USMA does not want to have to construct an additional tank in the future, at a location that may not be optimal to reduce or eliminate any potential visual and aesthetic impacts.

At this time, any proposed alterations to the cellular tower at the top of the ski slope are only conceptual. However, to insure that there would be no cumulative impacts resulting from such alterations when combined with the water tank, we did perform environmental analysis for this potential activity. Should plans mature to perform any changes or alterations to the cellular tower at the top of the ski slope, the USMA will perform an Environmental Assessment in accordance with the National Environmental Policy Act for this project, and will consult with Scenic Hudson as an interested party. The USMA shares your concerns regarding the possibility that such alterations could result in adverse effects to the scenic, visual and historic aesthetics of the West Point vicinity, and will insure that any potential upgrades are designed to minimize or eliminate such effects.

We will be providing you with a Final Environmental Assessment in the near future, for your review and comment prior to the USMA Garrison Commander making a decision regarding this project.

If there is further information required, or any questions, please do not hesitate to contact me at (845) 938-3522.



Douglas R. Cubbison  
Acting Cultural Resources Manager and NEPA Coordinator  
United States Military Academy

Enclosures (as stated)- Visual Assessment Documents

**Comments from William Feldhusen, New York State Department of State  
(submitted via electronic mail)**

-----Original Message-----

From: Cubbison, D. MR DHPW [mailto:douglas.cubbison@us.army.mil]  
Sent: Tuesday, October 14, 2003 11:46 AM  
To: scompton@neanewyork.com; nsnyder@neanewyork.com  
Cc: Nancy.J.Brighton@nan02.usace.army.mil  
Subject: FW: ea water tank

-----Original Message-----

From: William Feldhusen [mailto:WFELDHUS@dos.state.ny.us]  
Sent: Friday, October 10, 2003 1:58 PM  
To: yd5777@exmail.usma.army.mil  
Subject: ea water tank

Thanks for submitting the EA. However I am confused by the EA.

Is the cell tower part of the 90 day process mentioned in the EA?

No. See Section 5.2.

P. 10 doesn't indicate that a consistency determination must be submitted for our concurrence. Our review of a properly completed consistency determination may take 75 days.

See Section 2.4.

P. 25 does not indicate the SASS's stated "Reason for Inclusion

The Highlands subunit is included in the Hudson Highlands SASS because it is of high scenic quality. The solid, massive hill has a unity of shape, while steep and rolling hillsides and several flat areas provide variety within the topography of the subunit. The dense woodlands, with the varying colors, tones and textures caused by seasonal changes to the vegetative cover, provide a contrasting and soft backdrop to the formal monolithic granite structures of the nearby military academy. The subunit is accessible from local roads and adjacent subunits and is recognized as part of the United States Military Academy at West Point. Discordant features do exist within the subunit, but these are mostly screened by topography and vegetation."

See Sections 4.10 and 4.10.1.

Thus any consultant's examination (p. 26) to be efficient would include a translation of its findings into the SASS terminology. It is my understanding that your office met with members of my office concerning interpretation of the standards and terminology. You may want to prepare a draft determination addressing policy #24. Coastal Program staff could then further discuss whether discordant elements and the policy are fully addressed and how to fully address items.

See Sections 4.10 and 4.10.1.

The following is the SASS text regarding that: a review of the types of activities proposed to determine if they would be likely to impair the scenic beauty of an identified resource.

Impairment includes:

See Sections 4.10 and 4.10.1.

(i) the irreversible modification of geologic forms; the destruction or removal of vegetation; the modification, destruction, or

removal of structures, whenever the geologic forms, vegetation or structures are significant to the scenic quality of an identified resource; and

See Sections 4.10 and 4.10.1.

(ii) the addition of structures which because of siting or scale will reduce identified views or which because of scale, form, or materials will diminish the scenic quality of an identified resource.

Policy 24 sets forth certain siting and facility-related guidelines to be used to achieve the policy, recognizing that each development situation is unique and that the guidelines will have to be applied accordingly. The guidelines are set forth below, together with comments regarding their particular applicability to this Scenic Area of Statewide Significance. In applying these guidelines to agricultural land it must be recognized that the overall scenic quality of the landscape is reliant on an active and viable agricultural industry. This requires that farmers be allowed the flexibility to farm the land in an economically viable fashion, incorporating modern techniques, changes in farm operation and resultant changes in farm structures. Policy 24 guidelines include:

**SITING STRUCTURES AND OTHER DEVELOPMENT SUCH AS HIGHWAYS, POWER LINES, AND SIGNS, BACK FROM SHORELINES OR IN OTHER INCONSPICUOUS LOCATIONS TO MAINTAIN THE ATTRACTIVE QUALITY OF THE SHORELINE AND TO RETAIN VIEWS TO AND FROM THE SHORE;**

**COMMENT:** For much of the length of the Hudson Highlands SASS, the Hudson River is bounded by steep, undeveloped wooded bluffs that figure prominently in views within the SASS, notably from and across the Hudson River. Siting of structures on the slopes or crests of these bluffs, on the immediate shoreline of the Hudson River or over the water surface of the Hudson River would introduce discordant elements into the landscape and impair the scenic quality of the SASS.

The siting of new residential development has the potential to threaten the future visual quality of the SASS. Areas which afford views, such as ridgelines, hilltops, and hillsides overlooking the Hudson River, are most attractive to new development, but also the most vulnerable to impairment from inappropriate development. The siting of residential development, structures and other discordant features such as large buildings, highways, power lines and signs on ridgelines, hilltops and exposed hillsides and in the direct viewshed of the Hudson River would introduce discordant elements into the landscape and impair the scenic quality of the SASS.

Iona Island Marsh, Manitou Marsh and Constitution Marsh are particularly critical scenic components in the SASS. Activities that would subdivide the large undisturbed appearance of these areas into smaller fragments, introduce structures into the low-lying landscape and eliminate wetland or shallow areas through dredging, filling or bulkheading would result in a direct impact on the shoreline, changing the character of the relationship between the Hudson River and its shorelands, and impairing the scenic quality of the SASS.

**CLUSTERING OR ORIENTING STRUCTURES TO RETAIN VIEWS, SAVE OPEN SPACE AND PROVIDE VISUAL ORGANIZATION TO A DEVELOPMENT;**

See Sections 4.10 and 4.10.1.

COMMENT: The Hudson Highlands SASS features a low intensity pattern of development that includes a large amount of functional open space. Historic estate houses punctuate the landscape of rolling upland pastures, landscaped estates and woodland. Recent poorly sited residential development has not respected the traditional patterns of development within the SASS and has disturbed the visual organization established through this traditional development pattern. Further expansion of new development into the open areas of the SASS would replace the varied vegetation types. The textures, colors, contrast and expansiveness of the natural landscape character and their interrelationship would be lost, impairing the scenic quality of the SASS. Failure to use topography, existing vegetation and the clustering of new development to blend new development into the landscape would impair the scenic quality of this SASS. Failure to continue the current pattern of preserved open space through the State Park network and respect the balance between formal recreation areas and wilderness would also impair the scenic quality of the SASS.

**INCORPORATING SOUND, EXISTING STRUCTURES (ESPECIALLY HISTORIC BUILDINGS) INTO THE OVERALL DEVELOPMENT SCHEME;**

COMMENT: The Hudson Highlands SASS is a unique natural and cultural landscape. The loss of historic structures would alter the cultural character of the landscape, remove focal points from views and diminish the level of contrast between the natural landscape and the cultural landscape, thus impairing the scenic quality of the SASS.

**REMOVING DETERIORATED AND/OR DEGRADING ELEMENTS;**

COMMENT: The Hudson Highlands SASS is generally free of discordant features, and structures are generally well maintained.

**MAINTAINING OR RESTORING THE ORIGINAL LAND FORM, EXCEPT WHEN CHANGES SCREEN UNATTRACTIVE ELEMENTS AND/OR ADD APPROPRIATE INTEREST;**

COMMENT: The landform of the Hudson Highlands SASS is primarily in an undisturbed state and is the unifying factor in the SASS. The contrast in elevation and the juxtaposition of water and land contributes to the scenic quality of the SASS. The failure to maintain existing landforms and their interrelationships would reduce the unity and contrast of the SASS and impair its scenic quality.

**MAINTAINING OR ADDING VEGETATION TO PROVIDE INTEREST, ENCOURAGE THE PRESENCE OF WILDLIFE, BLEND STRUCTURES INTO THE SITE, AND OBSCURE UNATTRACTIVE ELEMENTS, EXCEPT WHEN SELECTIVE CLEARING REMOVES UNSIGHTLY, DISEASED OR HAZARDOUS VEGETATION AND WHEN SELECTIVE CLEARING CREATES VIEWS OF COASTAL WATERS;**

COMMENT: The variety of vegetation and the unifying continuous vegetative cover of the Hudson Highlands SASS make a significant contribution to the scenic quality of the SASS. The tidal marshes of Iona Island Marsh, Manitou Marsh and Constitution Marsh, and pastures, woodlands, and landscaped estates provide variety, unity and contrast to the landscape. The wildlife supported by this vegetation adds ephemeral

effects and increases the scenic quality of the SASS. Vegetation helps structures blend into the predominantly natural landscape and plays a critical role in screening facilities and sites which would otherwise be discordant elements and impair the scenic quality of the SASS.

See Sections 4.10 and 4.10.1.

Clearcutting or removal of vegetation on the wooded bluffs along the Hudson River and in the upland areas would change the character of the river corridor and impair its scenic quality. Iona Island Marsh, Manitou Marsh and Constitution Marsh are particularly critical scenic components in the SASS. Activities that would subdivide the large undisturbed appearance of these areas into smaller fragments, the introduction of structures into the low-lying landscape and the elimination of wetland or shallow areas through dredging, filling or bulkheading would result in a direct impact on the shoreline, changing the character of the relationship between the Hudson River and its shorelands and impairing the scenic quality of the SASS.

**USING APPROPRIATE MATERIALS, IN ADDITION TO VEGETATION, TO SCREEN UNATTRACTIVE ELEMENTS;**

COMMENT: The Hudson Highlands SASS is generally free of discordant elements. The failure to blend new structures into the natural setting, both within the SASS boundaries and in the viewshed of the SASS, would impair the scenic quality of the SASS.

**USING APPROPRIATE SCALES, FORMS AND MATERIALS TO ENSURE THAT BUILDINGS AND OTHER STRUCTURES ARE COMPATIBLE WITH AND ADD INTEREST TO THE LANDSCAPE.**

COMMENT: The existing structures located within the Hudson Highlands SASS generally are compatible with and add interest to the landscape because they are of a scale, design and materials that are compatible with the predominantly natural landscape. New development or alterations to existing structures can also be designed to complement the scenic quality of the SASS through use of a scale, form, color and materials which are compatible with the existing land use and architectural styles of the area and can be absorbed into the landscape composition. Failure to construct new buildings which are compatible with the cultural fabric of the SASS as represented in these historic structures would impair the scenic quality of the SASS.

Failure to use appropriate scale, form, and materials to ensure that new development is compatible with the surrounding landscape and does not distract from the landscape composition of a designated area would impair the scenic quality of the SASS. In addition, failure to mitigate the effects associated with development such as lighting, horizontal or vertical interruption of form, incongruous colors, or plume discharge would impair the quality of the landscape and the scenic quality of the SASS.

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February 26, 2004

United States Military Academy  
ATTN: Mr. Douglas R. Cubbison, Acting NEPA Coordinator  
Directorate of Housing and Public Works EP &SD  
Building 667  
Ruger Road  
West Point, NY 10996

RE: Draft Environmental Assessment (EA)  
Stony Lonesome Water Tank Project

Dear Mr. Cubbison:

Thank you for forwarding a copy of the Viewshed Analysis for the Stony Lonesome Water Tank Project.

Based on your explanation that the photographs provided in the analysis indicate that the proposed water tank will be obscured by intervening vegetation when viewed from Route 9W, we wish you the best in advancing this project.

Scenic Hudson appreciates your commitment to protecting the visual and historic resources of the National Historic landmark District at the US Military Academy at West Point. We look forward to working with you in future and contributing to the Master Plan process beginning this fall.

Sincerely,



Jeffrey Anzevino, AICP  
Senior Regional Planner

JA/kb