
ENVIRONMENTAL ASSESSMENT

**IMPLEMENTATION OF BRAC 2005 REALIGNMENT
ACTIONS AT THE U.S. ARMY GARRISON
WEST POINT, NEW YORK**



November 2008

Prepared for:

**U.S. Army Garrison
West Point, NY**

Prepared by:

U.S. Army Corps of Engineers
Mobile District
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Prepared by:

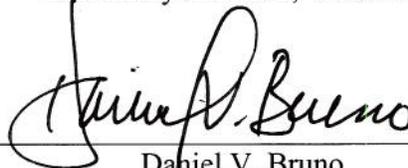
U.S. ARMY CORPS OF ENGINEERS
MOBILE DISTRICT



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Approved by:

U.S. Army Garrison, West Point



Daniel V. Bruno
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ENVIRONMENTAL ASSESSMENT

LEAD AGENCY: Mobile District, U.S. Army Corps of Engineers

TITLE OF PROPOSED ACTION: Implementation of BRAC 2005 Realignment Actions at the U.S. Army Garrison, West Point, New York.

AFFECTED JURISDICTION: Orange County

PREPARED BY: Col. Byron G. Jorns, Corps of Engineers, District Commander

APPROVED BY: Col. Daniel V. Bruno, Garrison Commander, U.S. Army Garrison, West Point, New York.

ABSTRACT:

On September 8, 2005, the Defense Base Realignment and Closure (BRAC) Commission recommended that certain realignment actions occur at the U.S. Army Garrison, West Point, NY. These recommendations were approved by the President on September 23, 2005, and forwarded to Congress. The Congress did not alter any of the BRAC Commission's recommendations, and on November 9, 2005, the recommendations became law. The BRAC Commission's recommendations must now be implemented as provided for in the Defense Closure and Realignment Act of 1990 (Public Law 101-510), as amended.

To implement this recommendation, the U.S. Army proposes to construct a new U.S. Military Academy Preparatory School campus, including supporting facilities, at West Point. As a discretionary action, the Army also proposes to realign Veterinary Command facilities to West Point. This EA analyzes the potential environmental impacts associated with the U.S. Army's Proposed Action at West Point, NY.

If the required mitigation measures are implemented, none of the predicted effects of the Proposed Action Alternatives would result in significant impacts at West Point. Mitigation will be necessary to offset the impacts to soils, surface water resources, wetlands, cultural resources, munitions and explosive of concern, and landfill disturbance. Therefore, preparation of an Environmental Impact Statement is not required and a Finding of No Significant Impact will be published in accordance with the National Environmental Policy Act.

REVIEW PERIOD:

Interested parties are invited to review and comment on the EA and Draft FNSI within 30 days of publication. The EA and Draft Finding of No Significant Impacts can be accessed on the World Wide Web:
http://www.hqda.army.mil/acsim/brac/env_ea_review.htm

Printed copies of the EA can be viewed at the following local libraries and town/village offices:

Village of Highland Falls Attn: Village Clerk 303 Main Street, Highland Falls, NY 10928	West Point Community Library 622 Swift Road West Point, NY 10996
Village Clerk Village of Cold Spring 85 Main Street Cold Spring, NY 10516	Julia L. Butterfield Memorial Library 10 Morris Avenue Routes 301 & 9D Cold Spring, NY 10516
The Alice Curtis Desmond & Hamilton Fish Library PO Box 265 Routes 403 & 9D Garrison, NY 10924	Woodbury Public Library 23 Smith Clove Road Central Valley, NY 10917-0038

Comments on the EA and Draft FNSI should be submitted during the 30-day public comment period via mail, fax, or electronic mail to the following:

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EXECUTIVE SUMMARY

ES.1 INTRODUCTION

On September 8, 2005, the Defense Base Realignment and Closure (BRAC Commission) recommended that certain realignment actions occur at the U.S. Army Garrison (USAG), West Point, NY. These recommendations were approved by the President on September 23, 2005, and forwarded to Congress. The Congress did not alter any of the BRAC Commission's recommendations, and on November 9, 2005, the recommendations became law. The BRAC Commission's recommendations must now be implemented as provided for in the Defense Closure and Realignment Act of 1990 (Public Law 101-510), as amended.

The following highlights the BRAC Commission's recommendations for West Point, New York: Close Fort Monmouth, New Jersey. Relocate the U.S. Army Military Academy Preparatory School (USMAPS) to West Point, New York.

The BRAC Commission's recommendation affecting West Point was to close Fort Monmouth and to realign the U.S. Army Military Academy Preparatory School (USMAPS) to West Point. In addition, as a discretionary action, the Army would relocate the U.S. Army Veterinary Command (VETCOM) Northeast District Veterinary Command Headquarters from Fort Monmouth to West Point.

The BRAC 2005 report cites the enhancement in military value that would be gained "by co-locating education activities with the schools they support" (BRAC Commission, 2005).

To implement this recommendation, the Army proposes to construct a new USMAPS campus, including supporting facilities, at West Point. Furthermore, as a discretionary action, the Army proposes to relocate VETCOM from Fort Monmouth to West Point and expand Building 630, an existing Veterinary Treatment Facility (VTF) at West Point, to accommodate VETCOM. This EA analyzes potential environmental impacts associated with the Army's Proposed Action at West Point.

The BRAC law exempts consideration of the need for the action or alternative installations in preparing environmental documentation pursuant to the National Environmental Policy Act (NEPA). However, an appropriate level of NEPA analysis and documentation is required to analyze how the BRAC actions will be implemented for concurrent actions, both BRAC-directed and discretionary, at each installation that is receiving realigned missions. A NEPA document is not required for those installations that are only losing activities. Table ES-1 lists major environmental statutes, regulations, and Executive Orders applicable to federal projects. It should be noted that although not listed in Table ES-1, in many instances there are corresponding laws and/or regulations of the State of New York, as many of the applicable federal laws noted provide for delegation of authority to states. Further discussion of state-specific issues is included within the narrative discussion of the EA.

Table ES-1: Major Environmental Statutes, Regulations, and Executive Orders Applicable to Federal Projects

Environmental Resources	Statute, Regulation, or Executive Order
<i>Air</i>	Clean Air Act (CAA) of 1970 (PL 91-604), as amended in 1977 (PL 95-95) and 1990 (PL 101-549); U.S. Environmental Protection Agency (USEPA), Subchapter C-Air Programs (40 CFR 50-99)
<i>Noise</i>	Noise Control Act of 1972 (PL 92-574) and Amendments of 1978 (PL 95-609); USEPA, Subchapter G-Noise Abatement Programs (40 CFR 201-211)
<i>Water</i>	Federal Water Pollution Control Act (FWPCA) of 1972 (PL 92-500) and Amendments; Clean Water Act (CWA) of 1977 (PL 95-217); USEPA, Subchapter D-Water Programs (40 CFR 100-149); Water Quality Act of 1987 (PL 100-4); USEPA, Subchapter N-Effluent Guidelines and Standards (40 CFR 400-471); Safe Drinking Water Act (SDWA) of 1972 (PL 93-523) and Amendments of 1986 (PL 99-339); USEPA, National Drinking Water Regulations and Underground Injection Control Program (40 CFR 141-149)
<i>Biological Resources</i>	Migratory Bird Treaty Act of 1918; Fish and Wildlife Coordination Act of 1958 (PL 85-624); Sikes Act of 1960 (PL 86-797) and Amendments of 1986 (PL 99-561), 1997 (PL 105-85 Title XXIX), and 2004 (PL 108-136); Endangered Species Act of 1973 (PL 93-205) and Amendments of 1988 (PL 100-478); Fish and Wildlife Conservation Act of 1980 (PL 96-366); Lacey Act Amendments of 1981 (PL 97-79); Responsibilities of Federal Agencies to Protect Migratory Birds (EO 13186)
<i>Wetlands and Floodplains</i>	Section 401 and 404 of the Federal Water Pollution Control Act of 1972 (PL 92-500); USEPA, Subchapter D-Water Programs 40 CFR 100-149 (105 ref); Floodplain Management-1977 (EO 11988); Protection of Wetlands-1977 (EO 11990); Emergency Wetlands Resources Act of 1986 (PL 99-645); North American Wetlands Conservation Act of 1989 (PL 101-233)
<i>Cultural Resources</i>	NHPA (16 USC 470 et seq.) (PL 89-665) and Amendments of 1980 (PL 96-515) and 1992 (PL 102-575); Protection and Enhancement of the Cultural Environment-1971 (EO 11593); Indian Sacred Sites-1966 (EO 13007); American Indian Religious Freedom Act (AIRFA) of 1978 (PL 95-341); Antiquities Act of 1906; Archaeological Resources Protection Act (ARPA) of 1979 (PL 96-95); Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (PL 101-601); Protection of Historic Properties (36 CFR 800); Consultation and Coordination with Indian Tribal Governments (EO 13175)
<i>Solid Waste/Hazardous Materials and Waste</i>	Resource Conservation and Recovery Act (RCRA) of 1976 (PL 94-580), as Amended by PL 100-582; USEPA, subchapter I-Solid Wastes (40 CFR 239-282); Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (42 USC 9601) (PL 96-510); Toxic Substances Control Act (TSCA) (PL 94-469); USEPA, Subchapter R-Toxic Substances Control Act (40 CFR 700-799); Federal Insecticide, Fungicide, and Rodenticide Control Act (40 CFR 150-189); Emergency Planning and Community Right-to-Know Act (40 CFR 350-399); Federal Compliance with Pollution Control Standards-1978 (EO 12088); Superfund Implementation (EO 12580); Strengthening Federal Environmental, Energy, and Transportation Management (EO 13423); <i>Underground Storage Tanks</i> (40 CFR 280-281)
<i>Health and Safety</i>	Occupational Safety and Health Act of 1970 (29 CFR 1900-2400)
<i>Environmental Justice</i>	Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations (EO 12898); Protection of Children from Environmental Health Risks and Safety Risks (EO 13045)
<i>Sustainability</i>	Strengthening Federal Environmental, Energy, and Transportation Management (EO 13423)

ES.2 BACKGROUND AND SETTING

USAG West Point is located on the Hudson River in the Town of Highlands, New York in Orange County. It is approximately 55 miles north of New York City off Route 9W.

ES.3 PROPOSED ACTION

The Proposed Action is to construct a new USMAPS to accommodate the BRAC 2005 required realignment of the preparatory school from the closing Fort Monmouth to West Point. Under the Proposed Action, the USMAPS campus would include general instructional and administrative space, a dining facility, student barracks, an athletic training facility, athletic fields, parking areas, and associated infrastructure improvements. The facilities would incorporate appropriate Anti-Terrorism/Force Protection (AT/FP) stand-off buffer areas for security, exterior lighting, access road improvements, and other site improvements to facilitate construction and operation of the USMAPS.

The Proposed Action would also entail an addition to Building 630 on the West Point campus, as well as interior renovation. The additions and renovations to this VTF would be comprised primarily of private and open administrative offices, a reception area, and building support facilities, to accommodate VETCOM.

All construction activity associated with implementation of the Proposed Action will be designed to achieve the Leadership in Energy and Environmental Design (LEED) Silver Standard.

USMAPS

The USMAPS campus would provide adequate academic, administrative, lodging, and athletic facilities to accommodate up to 240 Cadet Candidates annually. The following facilities are proposed:

- *Building facilities.* Approximately 255,000 square feet (ft²) of structures including a USMAPS Headquarters (HQ), an academic facility, a dining facility, an athletic facility, a student barracks, a general purpose auditorium, and an indoor multipurpose athletic field (USACE, 2008b).
- *Athletic facilities.* USMAPS athletic fields, totaling approximately 294,600 ft² and built to National Collegiate Athletic Association (NCAA) standards, would include a football field, a lacrosse field, and a soccer field with a surrounding track. The football, lacrosse, and soccer fields would be of either natural grass or artificial turf.
- *Water storage tank.* A 250,000 gallon above-ground water storage tank would be constructed to ensure that the required water storage capacity for fire protection at the USMAPS campus is available.
- *Paved areas.* Approximately 175,000 ft² of paving will be required for surface parking and roadway modifications (U.S. Army, 2006b, USMA, 2005b).
- *Infrastructure.* Supporting facility improvements include utilities, such as mechanical, electrical service, water, sewer, telecommunications and stormwater runoff; exterior lighting; fire protection and alarm systems; exterior building signage; AT/FP measures; walkways; and general site improvements.

VETCOM

- *Building facilities.* The VETCOM building would be expanded on the existing building 630 by increasing the size of the waiting area and treatment rooms, as well as adding a second floor to house VETCOM administrative functions. These additions and renovations will comprise 1,422 ft² of private and administrative office space. Supporting facilities would include utility connections, electrical service, fire protection and alarm systems, AT/FP measures, telecommunications and building information systems, and site improvements. This project is proposed to take place at Building 630, which would be partially renovated, and have a small addition (U.S. Army, 2006c).

Personnel – Implementation of the BRAC Commission’s recommendation to relocate the USMAPS from Fort Monmouth to West Point would result in the relocation of candidate cadets and work force personnel from Fort Monmouth to West Point. The relocation would result in the arrival of up to 240 candidate cadets and 66 staff/instructors made up of 19 military personnel (7 officers and 12 enlisted), 37 civilians, and up to 10 lieutenants

temporarily assigned to the USMAPS for a period of up to 6 months (Rugenstein, 2008). The relocation of VETCOM is expected to result in the arrival of approximately 7 staff (4 military and 3 civilians). It is anticipated that not all of the civilian work force would relocate from Fort Monmouth to West Point; therefore, it is likely that a percentage of the USMAPS civilian work force would be locally recruited (USMA, 2005b).

The potential direct and/or cumulative impacts to the environment from the increase in personnel at West Point will be considered in the EA. For analytical purposes the EA will consider direct and indirect effects (e.g., socioeconomic effects, effects on local transportation networks and air quality) of the relocation of the 240 candidate cadets and 73 full-time personnel, and will assume that all 73 full-time personnel positions are relocating into the West Point area.

ES.4 REALIGNMENT PROCESS

The timeline for implementing the BRAC action at the West Point began in late 2005 with Congressional and Presidential approval of the BRAC law followed by the initiation of this NEPA process and related planning activities at the West Point. New BRAC facilities at the West Point are programmed through fiscal year 2010 with realignment moves scheduled to occur by 2011. Under the BRAC law, the Army must initiate all realignments not later than September 15, 2007, and complete all realignments not later than September 15, 2011.¹ This BRAC EA examines the environmental impact from efforts that will take place within the BRAC implementation window.

ES.5 ALTERNATIVES

No Action Alternative – Under the No Action Alternative, the realignment of the USMAPS from Fort Monmouth, to West Point, would not occur, and construction to accommodate the USMAPS and VETCOM would also not occur. Implementation of this alternative is not possible due to the BRAC Commission’s realignment recommendations having the force of law. However, inclusion of the No Action Alternative is prescribed by Council on Environmental Quality (CEQ) regulations and serves as a baseline against which the impacts of the Proposed Action and alternatives can be evaluated. Accordingly, the No Action Alternative is evaluated in this EA.

Alternative 1 - Washington Gate Schematic E (Alternative 1 WG E): Under this alternative, the USMAPS Campus would be located at the Washington Gate Site, at the existing Department of Logistics (DOL) Motor Pool Facility. USMAPS barracks, academic buildings, and dining facility would be located along the southern edge of Landfill WSTPT-11, a 4.5-acre landfill located east of the existing Motor Pool fuel distribution system. The USMAPS track with soccer field would be located on the central area of Landfill WSTPT-11, on top of the landfill. The USMAPS football field and parking would be located in the area of the current DOL Motor Pool Facilities, requiring demolition of the existing facilities. The USMAPS lacrosse field would be located on top of Landfill WSTPT-11A, a 1.7-acre landfill west of the Motor Pool Maintenance Buildings. Relocation of a continuous section of the Sinclair Pond Brook would be required, in areas located north, west and southwest of the proposed westerly service drive and encompassing a total of approximately 500 linear feet (LF) of stream bed. Streambed displacement would vary between approximately 1 foot and 30 feet. The DOL Motor Pool would be relocated to Training Areas V and W (TA-V/W).

Alternative 2 - Washington Gate Schematic B (Alternative 2 WG B) - Under this alternative, the USMAPS Campus would be located at the Washington Gate Site, at the existing DOL Motor Pool Facility. The USMAPS academic buildings and dining facility would be located along the southern edge of Landfill WSTPT-11, with the barracks located in the area of the current Motor Pool facilities, requiring demolition of the existing facilities. A football or soccer field would be located adjacent to the barracks. The USMAPS track with soccer field or football field would be located on top of Landfill WSTPT-11. Practice fields or parking would be located on Landfill WSTPT-11A. Relocation of sections of Sinclair Pond Brook would be required, in areas located north and southwest of the proposed barracks building and encompassing a total of approximately 75 LF of stream bed. Streambed displacement

¹ Section 2904(a), Public Law 101-510, as amended, provides that the Army must “... initiate all closures and realignments no later than two years after the date on which the President transmits a report [by the BRAC Commission] to the Congress ... containing the recommendations for such closures or realignments; and ... complete all such closures and realignments no later than the end of the six year period beginning on the date on which the President transmits the report ...” The President took the specified action on September 15, 2005.

would vary between approximately 1 foot and 10 feet. Under this alternative, the relocation of the DOL Motor Pool to TA-V/W would be required in advance of USMAPS construction.

Alternative 3 - Washington Gate 15% Parametric Design (Alternative 3 WG 15% Design) - Under this alternative, the USMAPS Campus would be located at the Washington Gate Site, at the existing DOL Motor Pool Facility. The USMAPS barracks, academic buildings, and dining facility would be located south of Landfill WSTPT-11. The layout consists of a series of buildings predominantly positioned up the slope of the existing hill. The USMAPS track with soccer field would be located at the western edge of Landfill WSTPT-11, on top of the landfill. The USMAPS indoor athletic facility and football field would be located in the area of the current DOL Motor Pool Facilities, requiring demolition of the existing facilities. The USMAPS lacrosse field would be located on top of Landfill WSTPT-11A. For analysis purposes, it is assumed that this alternative would require relocation of Sinclair Pond Brook similar to Alternative 1. The DOL Motor Pool would be relocated to TA-V/W.

DOL Motor Pool - The three Washington Gate Site alternatives would require relocation of the existing DOL Motor Pool facilities and the existing six buildings on-site would be demolished and four Underground Storage Tanks (USTs) would need to be closed and removed in accordance with applicable regulations. The replacement DOL Motor Pool would be located at TA-V/W and would include construction of maintenance buildings, vehicle fueling facilities, and paved maintenance and parking areas, as described below:

- *Building facilities.* A Maintenance Facility of approximately 45,000 SF with a general purpose storage area of 5,000 SF incorporated into the design would be constructed. A Vehicle Wash Facility of approximately 3,900 SF and an Administration and Contractor Building of approximately 13,024 SF would also be constructed. A fueling station of approximately 2,090 SF would also be constructed.
- *Paved areas.* The DOL Motor Pool Facility would also include approximately 675,180 SF of paved areas that would include concrete maintenance apron and organizational vehicle parking.
- *Infrastructure.* AT/FP safety and security measures would include minimum building stand-off distances from roads, parking areas and vehicle unloading areas, as well as approximately 4,000 linear feet of fence would surround the DOL Motor Pool with two moving gates for controlled access. In addition there would be approximately 24 pole-mounted lights. Supporting facilities include utilities such as mechanical, electrical service, water, sewer, telecommunications and stormwater runoff; fire protection and alarm systems; oil-water separators; exterior building signage; and general site improvements. Source of water supply for the DOL Motor Pool would be Stilwell Lake, utilizing an existing Department of Public Works (DPW) pump house for intake. A 2000 gallon storage tank for domestic use would be constructed at the site and drinking water would be treated through a package membrane water treatment system with disinfection. An on-site industrial wastewater treatment system that discharges to a leach field or a septic system that discharges to a leach field would be required.
- *Fuel storage tanks.* All fuel for heating would be propane, stored in Aboveground Storage Tanks (ASTs), which will be owned and maintained by West Point's Fuel Supplier (Porco Fuel). The following number of 1,000 gallon ASTs are proposed for the listed buildings: Maintenance Building – nine; Administration and Contractor Building – six; and Vehicle Wash Facility Building – three. The final number of tanks, however, will be predicated on the number of tanks able to fit on the site from a practical basis and the frequency of the propane supplier to deliver on a timely basis. Vehicle refueling facilities would also be included on-site, and would consist of a fuel dispensing station and two separate 10,000-gallon underground storage tanks (USTs); one for motor gasoline (MOGAS) and one for diesel, and a 5,000 gallon UST for 85% ethanol (E-85). The USTs would be double walled, fiberglass, and with leak detection, monitoring, and alarm systems. All associated fuel pumps will be equipped with vapor recovery systems that are in conformance with New York regulatory requirements.

Satellite (Secondary) Vehicle Refueling Station – The only military vehicle refueling station on the Main Cantonment is currently located at the existing DOL Motor Pool site. The establishment of the USMAPS at Washington Gate Site would remove this refueling station and a new refueling facility would be constructed adjacent to Building 902 (the Salt Dome) north of Washington Gate. Vehicle refueling facilities would consist of a fuel dispensing station and two separate 10,000-gallon USTs; one for MOGAS and one for diesel, and a 5,000 gallon UST for 85% ethanol (E-85). The USTs will be double walled, fiberglass, and with leak detection, monitoring, and alarm

systems. All associated fuel pumps will be equipped with vapor recovery systems that are in conformance with New York regulatory requirements.

Alternative 4 - Lake Frederick Option 2a (Alternative 4 LF 2a): Under this alternative, the USMAPS Campus would be located at Lake Frederick, an area in the West Point reservation that is located approximately one mile northwest of Central Valley along Smith Clove Road. The site is currently used for training and recreation. The USMAPS barracks, academic buildings, and dining facility would be located along the southwestern edge of Lake Frederick with athletic fields located between the campus and Smith Clove Road. The existing campground would be relocated to the north of Lake Frederick in the area bounded by Lake Frederick Road, Proctoria Road, and a West Point Military Reserve Road. This alternative would also entail demolition of the caretaker's building at the campground. The alternative would have the same requirements as the Washington Gate site, with the following additions: Water Treatment Plant (50,000 gallons per day), Industrial Wastewater Treatment Plant (41,000 gallons per day - assumed 10,000 Gross Square Feet (GSF) total for both treatment plants) and Leach Field (assumed to be 175,000 GSF); and other support facilities including Fire Pump Building, Fire Station (current fire station on Route 293 would be closed and relocated), Water Pump Building, Access Control Point Station, PX and/or Shoppette, and a maintenance facility, with a total for the facilities assumed to be approximately 18,000 GSF).

Alternative 5 - Lake Frederick Option 2b (Alternative 5 LF 2b): Under this alternative, the USMAPS Campus would be located at Lake Frederick, an area in the West Point reservation that is located approximately one mile northwest of Central Valley along Smith Clove Road. The site is currently used for training and recreation. The USMAPS barracks, academic buildings, and dining facility would be located at the north end of Lake Frederick and the athletic facilities and fields would be located between the existing campground and Smith Clove Road. This alternative would retain the existing campground and would not require demolition of the caretaker's building. The alternative would have the same requirements as the Washington Gate site, with the same additions as under Alternative 4.

VETCOM: The proposed site for the new VETCOM facility would co-locate it with the existing with the existing USAG VTF, Building 630, and would consist of increasing the size of the waiting area and treatment rooms and adding a second floor to the building.

ES.6 ENVIRONMENTAL CONSEQUENCES

Regardless of which alternative is ultimately selected for implementation, so long as the corresponding mitigation measures that have been identified in the mitigation summary are implemented, there would be no significant adverse impacts. Moreover, through the introduction of LEED Silver standard design features, it is reasonably anticipated that there will be some long-term beneficial impacts associated with the implementation of the Proposed Action. Therefore, issuance of a FNSI that commits to the necessary mitigation measures is warranted.

Impacts requiring mitigation or management measures required by regulation would be experienced in the following resource areas:

- Soils
- Water Resources (Surface Waters)
- Water Resources (Coastal Zone)
- Wetlands
- Biological Resources (Wildlife)
- Munitions and Explosives of Concern
- Landfill Disruption

A summary of impacts by resource area for the No Action Alternative and the Proposed Action Alternatives is provided in Table ES-2.

ES.7 MITIGATION RESPONSIBILITY AND PERMIT REQUIREMENTS

In order to ensure that effects are not significant, the U.S. Army must obtain the following permits and implement management or mitigation measures, which would be required in implementing the projects identified in this analysis:

- A Notice of Intent, Stormwater Pollution Prevention Plan, and a soil erosion, and sediment control plan for the construction phase of the project would be necessary under West Point's New York State Pollutant Discharge Elimination System (NYSPDES) General Permit. West Point would also need to comply with stormwater discharge regulations detailed in the New York State Department of Environmental Conservation (NYSDEC) Stormwater Management Design Manual.
- United States Army Corps of Engineers (USACE) Nationwide Permit (NWP) 38, Cleanup of Hazardous and Toxic Waste and NYSDEC Section 401 Water Quality Certificate for the relocation of Sinclair Pond Brook, Washington Gate Site.
- Section 404 Permit could be required for placing of fill in Wetlands at DOL Motor Pool Site at Training Areas V and W.
- A Federal Consistency Determination in accordance with the Coastal Zone Management Act for this as well as the other Main Cantonment project sites will need to be submitted to the NYSDOS in conjunction with the NEPA process and Section 106 consultation with the New York SHPO. Any mitigation specified by the Coastal Zone Management process would need to be incorporated into a FNSI prior to implementing the Proposed Action.
- Consultation with New York State Office of Parks, Recreation and Historic Preservation (NYSOPRHP) would be required prior to construction under Section 106 of National Historic Preservation Act (NHPA) to avoid, minimize, or mitigate adverse impact to National Register of Historic Places (NRHP) eligible Building 1848, associated with the Proctor estate at Lake Frederick and Building 630, the existing VTF.
- Existing Title V air permit will need to be modified.

Similarly, in order to ensure that effects are not significant, the U.S. Army must implement the following mitigation measures, which would be required in implementing the projects identified in this analysis:

- To minimize the amount of landfill infiltration and leachate generation, and to provide the equivalent or improved protection of the environment of the existing cap, a NYSDEC-Part 360-compliant landfill cap would need to be constructed.
- Munitions and Explosives of Concern removal (up to 2 feet depth) will take place prior to intrusive activities. An MEC construction support team would be required during intrusive site activities and USACE guidelines would be followed.
- The East Landfill would need to be dynamically compacted to prevent differential settlement impacting athletic field viability. Leachate disposal would be accomplished by either treating on site with discharge to the Target Hill WWTP or under a DEC issued SPDES permit to Sinclair Pond Brook provided the effluent discharge limits specified in the permit are achievable. Alternatively, the leachate would be hauled to an off-post approved industrial waste treatment facility.
- For the proposed buildings within 1,000 feet of the East Landfill, a passive gas collection system would need to be installed under building footprints with vapor barrier under slab and the gas collection system vented to each building's roof.
- Relocation of Sinclair Pond Brook would occur during low flows and between 1 April and 30 September to reduce potential effects to aquatic life.

To address the required mitigation measures, West Point informed the NYSDEC of the following scope of work that would be included in the construction contract for the East Landfill (Appendix A):

- Leachate removal/dewatering to improve effectiveness of compaction process as well as to provide a long-term positive impact to the environment.
- Dynamic compaction of the site to reduce voids and to minimize long-term secondary compression.
- Installation of a Subtitle D cap on the landfill consisting of a gas collection layer (geocomposite) above a single-sided geocomposite drainage layer, which will be above a 40-mil geomembrane layer.
- Installation of a passive gas collection system in the buildings with ventilation provided to the roof. A spray applied membrane is to be applied on the subgrade below building slabs.
- Flexible utility connections at buildings to accommodate post-construction settlement.
- Replacement of existing monitoring wells as required, with an active gas collection system in the open areas of the site.

Additionally, BMPS such as requiring permission to work during nighttime hours and weekends and allowing limited truck ingress/egress during nighttime and weekends would limit the construction noise effect in the shrouding area. Furthermore, "green" design, construction, and operation such as utilization of alternate sources of energy (solar), green roofs, and LEED silver initiatives, would result in increased energy efficiency and savings.

Table ES-2: Summary of Impacts of the Alternatives

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
<p>Land Use: <i>Regional Geographic Setting and Location</i></p>	<p>Washington Gate Site: No effect.</p> <p>DOL Motor Pool (TA-V/W): No effect.</p> <p>DOL Secondary Refueling Station: No effect.</p>	Same as Alternative 1.	Same as Alternative 1.	USMAPS Lake Frederick Site: No effect.	Same as Alternative 4.	No effect.
VETCOM	No effect.					No effect.
<p>Land Use: Installation Land</p>	<p>USMAPS Washington Gate Site: Effects would not be significant; the proposed land use is compatible with current and surrounding on-post uses; beneficial impacts from the proposed mitigation measures to the landfill and contaminated soil/removal as well as construction of LEED Silver Standard certifiable buildings.</p> <p>DOL Motor Pool (TA-V/W): Effects would not be significant; although forested land would be developed, the current classification, for range and industrial uses, is compatible with the facility.</p> <p>DOL Secondary Refueling Station: No effect; compatible with the currently developed industrial area.</p>	Same as Alternative 1.	Same as Alternative 1.	USMAPS Lake Frederick Site: Effects would not be significant; the current campground would be relocated within the area and recreational functions would continue	USMAPS Lake Frederick Site: Effects would not be significant; the current campground would remain and recreational functions would continue.	No effect.
VETCOM	Effects would not be significant; the VETCOM facilities would be collocated with existing Veterinary Treatment Facility.					No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
Land Use: <i>Surrounding Land/Airspace Use</i>	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W) and DOL Secondary Refueling Station: No effect; the USMAPS facilities would occur within West Point boundary.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.	No effect.
Land Use: <i>Current and Future Development in the Region of Influence</i>	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W) and DOL Secondary Refueling Station: Effects would not be significant; all projects occur within West Point boundary; short-term construction requirements add financial capital to local and regional economy.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.	No effect.
VETCOM	No effects; the VETCOM facilities would be collocated with existing Veterinary Treatment Facility.					No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
Aesthetic and Visual Resources	<p>USMAPS Washington Gate Site: Beneficial effects; proposed design would enhance the visual character of the area.</p> <p>9W Viewshed: Beneficial effects; would create a new visual district consistent with Grey Ghost Housing area; nighttime illumination consistent with adjacent areas and temporary.</p> <p>Boscobel Viewshed: Proposed design would be consistent with the scale, materials and massing of the adjacent area in the Main Cantonment; nighttime illumination consistent with adjacent areas and temporary; no significant effects.</p> <p>Cold Spring Dock Viewshed: No noticeable effect. Nighttime illumination consistent with adjacent areas and temporary.</p> <p>DOL Motor Pool (TA-V/W): Natural landscape replaced by new structure element; however, could create a visual district in an area that lacks visual consistency; effects not significant.</p> <p>DOL Secondary Refueling Station: Effects to the viewshed minimal and not significant; fuel dispensing station and USTs in an industrial area.</p>	<p>USMAPS Washington Gate Site: Similar effects to visual character as in Alternative 1.</p> <p>9W Viewshed: Similar effects as in Alternative 1.</p> <p>Boscobel Viewshed: Similar effects as in Alternative 1.</p> <p>Cold Spring Dock Viewshed: Similar effects as in Alternative 1.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site: Similar effects to visual character as in Alternative 1.</p> <p>9W Viewshed: Similar effects as in Alternative 1.</p> <p>Boscobel Viewshed: Similar effects as in Alternative 1.</p> <p>Cold Spring Dock Viewshed: Similar effects as in Alternative 1.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick Site: Effects not significant; alteration of existing character is not adverse as there is currently not a high degree of consistency in the area.</p>	<p>USMAPS Lake Frederick Site: Similar to Alternative 4.</p>	No effect.
VETCOM	No effects if the expansion to Building 630 is in accordance with the scale, height, mass, and material of the existing building.					No effect.
Air Quality: Ambient Air Quality Conditions	<p>USMAPS Washington Gate Site/ Secondary Refueling Station and DOL Motor Pool (TA-V/W): Air emissions for airshed (includes both locations) are below <i>de minimis</i> levels and not regionally significant for general conformity; therefore air impacts are not significant. A RONA has been prepared. Title V air permit would be modified.</p>	Same as Alternative 1.	Same as Alternative 1.	<p>USMAPS Lake Frederick Site: Air emissions are below <i>de minimis</i> levels and not regionally significant for general conformity; therefore air impacts are not significant. A RONA has been prepared. Title V air permit would be modified.</p>	Same as Alternative 4.	No effect.
VETCOM	The analysis of air quality for VETCOM was considered under Alternatives 1-5 and does not have significant impacts.					No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
Noise: Construction and Demolition	<p>USMAPS Washington Gate Site: No significant effects; distance would reduce the noise levels to sensitive receptor (nearest at 330 feet); limit work activities to 0700-2200 hours and require permit from West Point Command for weekend/nighttime activities; employment of noise controlled construction equipments.</p> <p>DOL Motor Pool (TA-V/W): No significant effects; area is an undeveloped area with no sensitive receptors.</p> <p>DOL Secondary Refueling Station: No significant effects; in an industrial area in proximity to the salt dome.</p>	<p>USMAPS Washington Gate Site: Similar to Alternative 1.</p> <p>DOL Motor Pool (TA-V/W): Same as Alternative 1.</p> <p>DOL Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site: Similar to Alternative 1.</p> <p>DOL Motor Pool (TA-V/W): Same as Alternative 1.</p> <p>DOL Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick Site: No significant effects; campgrounds would be demolished and relocated.</p>	<p>USMAPS Lake Frederick Site: No significant effects; campgrounds would be retained; however, assumed not to be accessible during construction.</p>	No effect.
Noise: Facility Operation	<p>USMAPS Washington Gate Site: No significant effects; traffic noise levels would potentially be lower than existing due to the Motor Pool relocation; outdoor athletic competition would be temporary and distance would lower the noise levels to the nearest sensitive receptor.</p> <p>DOL Motor Pool (TA-V/W): No significant effects; area in an undeveloped area with no sensitive receptors.</p> <p>DOL Secondary Refueling Station: No significant effects; in an industrial area in proximity to the salt dome.</p>	<p>USMAPS Washington Gate Site: Similar to Alternative 1.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site: Similar to Alternative 1.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick Site: No significant effects; Athletic complex approximately 500 feet to nearest housing area with forest as buffer; additional coniferous trees could be planted for fall events; noise impacts to the Barracks from the Maddock Drop Zone not anticipated to be significant as the training occurs in day time hours and a few night time operations are before 1900 hours during daylight savings time.</p>	<p>USMAPS Lake Frederick Site: Same as Alternative 4.</p>	No effect.
VETCOM	No significant effect; construction noise to Brick Housing area offset with employment of noise reducing measures; facility operation would not significantly add to the noise in the area.					No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
Geology, Topography, and Soils: <i>Geology, Topography, and Soils</i>	<p>USMAPS Washington Gate Site: No significant effects, land disturbance of approximately 26 acres and permanent impervious area of 13.8 acres; excavation of rock required; approximately 60% of the new development on previously graded land with fill material (Udorthents). Best Management Practices (BMPs) would be implemented to minimize erosion and the amount and velocity of runoff; NYSDEC Erosion and Sediment Control Plan required as the footprint greater than one acre. For geotechnical requirements at the landfills see Landfill section below.</p> <p>DOL Motor Pool (TA-V/W): No significant effects, land disturbance of approximately 38 acres and permanent impervious 16.9 acres on previously undeveloped land; BMPs would be implemented to minimize the amount and velocity of runoff; NYSDEC Erosion and Sediment Control Plan required as the footprint greater than one acre; geotechnical requirements at the landfills (see Landfill).</p> <p>DOL Secondary Refueling Station: No significant effects; small area soil disturbance in a developed area.</p>	<p>USMAPS Washington Gate Site: No significant effects; land disturbance of approximately 26 acres and permanent impervious area of 14 acres; excavation of rock required; approximately 70% of the new development on previously graded land with fill material (Udorthents). BMPs would be implemented and NYSDEC Erosion and Sediment Control Plan required same as Alternative 1; For geotechnical requirements at the landfills see Landfill section below.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site: No significant effects; land disturbance of approximately 42 acres and permanent impervious area of 15 acres; excavation of rock required; approximately 50% of the new development on previously graded land with fill material (Udorthents); BMPs and NYSDEC Erosion and Sediment Control Plan required same as Alternative 1; geotechnical requirements at the landfills (see Landfill).</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick Site: No significant effects, land disturbance of approximately 64 acres and permanent impervious area 15.7 acres; development on previously developed and undeveloped land. BMPs would be implemented to minimize the amount and velocity of runoff; NYSDEC Erosion and Sediment Control Plan required as the footprint greater than one acre.</p>	<p>USMAPS Lake Frederick Site: Similar to Alternative 4.</p>	No effect.
VETCOM	No significant effects; BMPs would be implemented to minimize erosion and the amount and velocity of runoff; NYSDEC Erosion and Sediment Control Plan not required.					No effect.
Geology, Topography, and Soils: Prime Farmland	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W) and DOL Secondary Refueling Station: No effects; no lands suitable for classification as prime farmland.	Same as Alternative 1.	Same as Alternative 1.	USMAPS Lake Frederick Site: No effect; no agricultural use.	USMAPS Lake Frederick Site: Similar to Alternative 4.	No effect.
VETCOM	No effect; no lands suitable for classification as prime farmland.					No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
<p>Water Resources: <i>Surface Water</i></p>	<p>USMAPS Washington Gate Site: No significant effects; specific design measures to minimize athletic fields run-off to Sinclair Pond Brook if artificial turf; BMPs would be implemented to minimize the amount and velocity of runoff; NYSDEC Stormwater Pollution Prevention Plan and Erosion and Sediment Control Plan required as the footprint greater than one acre; construction of a NYSDEC Part 360 Compliant Landfill cap to minimize landfill infiltration and leachate generation; Nationwide Permit 38 and NYSDEC Section 401 Water Quality Permit required for Sinclair Brook Pond relocation of 500 linear feet to 1 to 30 feet east.</p> <p>DOL Motor Pool (TA-V/W): No significant effects; BMPs would be implemented to minimize the amount and velocity of runoff; Erosion and Sediment Control Plan required as the footprint greater than one acre; minimize the amount and velocity of runoff; NYSDEC Stormwater Pollution Prevention Plan for Industrial Activities required with quarterly inspection and sampling; a bio-retention system recommended prior to discharge to Stilwell Lake; coordination with NYSDOH for siting and design of the Motor Pool; measures to minimize potential leaks/spills from fueling tanks.</p> <p>DOL Secondary Refueling Station: No significant effects; in a developed area; measures to minimize potential leaks/spills from fueling tanks.</p>	<p>USMAPS Washington Gate Site: Same as Alternative 1; Nationwide Permit 38 and NYSDEC Section 401 Water Quality Permit required for Sinclair Brook Pond relocation of 75 linear feet to 1 to 10 feet east.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site: Same as Alternative 1.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1</p>	<p>USMAPS Lake Frederick: No significant effects; BMPs would be implemented to minimize the amount and velocity of runoff; NYSDEC Erosion and Sediment Control Plan required as the footprint greater than one acre; stormwater management to minimize potential effects from impervious surface.</p>	<p>USMAPS Lake Frederick: Same as Alternative 4.</p>	<p>No effect.</p>
<p>VETCOM</p>	<p>No significant effects; BMPs during construction would minimize impacts to Kinsley Farm Brook; increase in impervious surfaces would be very minor.</p>					<p>No effect.</p>

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
<p>Water Resources: <i>Wetlands</i></p>	<p>USMAPS Washington Gate Site: No effect; there are no wetlands in proximity to the proposed USMAPS campus.</p> <p>DOL Motor Pool (TA-V/W): No significant effects; Section 404 permit potentially required for placing of fill in a jurisdictional wetlands for access road; BMPs would be implemented to minimize the amount and velocity of runoff; stormwater measures would be implemented to prevent contaminated stormwater runoff.</p> <p>DOL Secondary Refueling Station: No effect; no wetlands in the area.</p>	<p>USMAPS Washington Gate Site: Same as Alternative 1.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site: Same as Alternative 1.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick: No significant effects; relocation of the campground could avoid wetlands; if wetlands are disturbed a Section 404 permit could be required.</p>	<p>USMAPS Lake Frederick: No significant effects; Section 404 permit potentially required for disturbing jurisdictional wetlands for the Barracks location.</p>	<p>No effect.</p>
VETCOM	No effect; there are no wetlands in proximity.					No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
Water Resources: <i>Hydrogeology/ Groundwater</i>	USMAPS Washington Gate Site: No significant effects; a NYSDEC Part 360 Compliant cap would be installed; deep dynamic compaction would be employed at east landfill and dewatering would be required; some beneficial effects from removal of two underground diesel storage tanks and the remediation of contaminated soil/ groundwater. DOL Motor Pool (TA-V/W): No significant effect; leaks from vehicles, vehicle maintenance operations, and fueling operations could pose a threat to groundwater sources; however, the potential for spills and leaks would be minimized by existing on-site clean-up procedures and equipment, the installation of oil water separators, and adherence to safety procedures for vehicle maintenance and the operation of equipment. A packaged wastewater treatment plant with infiltration gallery to provide tertiary treatment would be designed to comply with applicable regulations. DOL Secondary Refueling Station: No significant effect; in a developed area; measures to minimize potential leaks/spills from fueling tanks	USMAPS Washington Gate Site: Same as Alternative 1. DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.	USMAPS Washington Gate Site: Same as Alternative 1. DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.	USMAPS Lake Frederick Site: No significant effects; a packaged wastewater treatment plant with infiltration gallery to provide tertiary treatment would be designed to comply with applicable regulations.	USMAPS Lake Frederick Site: Same as Alternative 4.	No effect.
VETCOM	No effect; there are no wetlands in proximity.					No effect.
Water Resources: <i>Floodplains</i>	USMAPS Washington Gate Site: No effect; project area is outside of the 100- and 500-year floodplains. DOL Motor Pool (TA-V/W): No effect; project area is outside of the 100- and 500-year floodplains. DOL Secondary Refueling Station: No effect; project area is outside of the 100- and 500-year floodplains.	USMAPS Washington Gate Site: Same as Alternative 1. DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.	USMAPS Washington Gate Site: Same as Alternative 1. DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.	USMAPS Lake Frederick Site: No effect; project area is outside of the 100- and 500-year floodplains.	USMAPS Lake Frederick Site: Same as Alternative 4.	No effect.
VETCOM	No effect; project area is outside of the 100- and 500-year floodplains.					No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
Coastal Zone	<p>USMAPS Washington Gate Site: Area within the Hudson River Coastal Zone; eight policies affected – 7, 23, 24, 30, 33, 36, 38, and 39; a Federal Consistency Determination in conjunction with other Main Cantonment projects site will need to be submitted; any mitigation specified by the Coastal Zone Management process would need to be incorporated into a FNSI prior to implementing the Proposed Action.</p> <p>DOL Motor Pool (TA-V/W): No effect; the area is not within the Hudson River Coastal Zone.</p> <p>DOL Secondary Refueling Station: Area within the Hudson River Coastal Zone; eight policies affected – 7, 23, 24, 30, 33, 36, 38, and 39; a Federal Consistency Determination in conjunction with other Main Cantonment projects site will be submitted; any mitigation specified by the Coastal Zone Management process would be incorporated into FNSI prior to implementing the Proposed Action.</p>	<p>USMAPS Washington Gate Site: Same as Alternative 1.</p> <p>DOL Motor Pool (TA-V/W): Same as Alternative 1.</p> <p>DOL Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site: Same as Alternative 1.</p> <p>DOL Motor Pool (TA-V/W): Same as Alternative 1.</p> <p>DOL Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick Site: No effect; the area is not within the Hudson River Coastal Zone.</p>	<p>USMAPS Lake Frederick Site: Same as Alternative 4.</p>	No effect.
VETCOM	Area within the Hudson River Coastal Zone; eight policies affected – 7, 23, 24, 30, 33, 36, 38, and 39; a Federal Consistency Determination in conjunction with other Main Cantonment projects site will need to be submitted; any mitigation specified by the Coastal Zone Management process would be incorporated into FNSI prior to implementing Proposed Action.					No effect.
Biological Resources: Vegetation	<p>USMAPS Washington Gate Site: No significant effects from significant from removal of vegetation.</p> <p>DOL Motor Pool (TA-V/W): Effects are not significant; clearance of 38 acres of forested upland represents less than 1% of forested training and range area within West Point.</p> <p>DOL Secondary Refueling Station: No effect; area already developed.</p>	<p>USMAPS Washington Gate Site: Similar to Alternative 1.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site: No significant effects; clearance of 20 acres of forested upland represents 0.02% of forested area in the Main Cantonment.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick Site: No significant effects; clearance within 38 acres of young woodland forest represents less than 1% of forested training and range area; 26 acres of grassy habitat currently divided by roads and mowing.</p>	<p>USMAPS Lake Frederick Site: Same as Alternative 4.</p>	No effect.
VETCOM	No effect; area already developed.					No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
<p>Biological Resources: <i>Wildlife</i></p>	<p>USMAPS Washington Gate Site: No significant effect; area already developed; relocation of Sinclair Pond Brook during low flows and between April 1 and September 30 would avoid downstream trout spawning and hatching seasons.</p> <p>DOL Motor Pool (TA-V/W): No significant effects; loss of forested upland habitat represents less than 1 acre of forested training and range area at West Point; construction activities would likely result in mortality of less motile fauna, mobility of would not affected by fragmentation but would be subject to human activities; water supply to the facility would not impact aquatic resources of Stilwell Lake.</p> <p>DOL Secondary Refueling Station: No effect; area already developed.</p>	<p>USMAPS Washington Gate Site: Similar to Alternative 1.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site: No significant effects; clearance of 20 acres of forested upland represents 0.02% of forested area in the Main Cantonment; construction activities would likely result in mortality of less motile fauna, mobility of would not affected by fragmentation but would be subject to human activities.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick Site: No significant effects; clearance of 38 acres of young woodland forest represents less than 1% of forested training and range area; construction activities would likely result in mortality of less motile fauna, mobility of would not affected by fragmentation but would be subject to human activities, however the wildlife are common species that inhabit fringe habitat.</p>	<p>USMAPS Lake Frederick Site: Same as Alternative 4.</p>	No effect.
VETCOM	No effect; area already developed.					No effect.
<p>Biological Resources: <i>Sensitive Species</i></p>	<p>USMAPS Washington Gate Site and DOL Motor Pool (TA-V/W): No effects; Sensitive species are not present and USFWS concurred that there would be no effect on federally listed species.</p> <p>DOL Secondary Refueling Station: No effect; area already developed and does not have sensitive species.</p>	<p>USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick Site: No effects; impacts to a state listed plant species could be avoided in siting of the relocated camp ground.</p>	<p>USMAPS Lake Frederick Site: No effects; preservation of a state listed plant species through final design layout for the barracks and transplanting.</p>	No effect.
VETCOM	No effect; area already developed and does not have sensitive species.					No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
Biological Resources: <i>Wetlands Habitat</i>	USMAPS Washington Gate Site: No effect; there are no wetlands in proximity to the proposed USMAPS campus. DOL Motor Pool (TA-V/W): No significant effects; Section 404 permit potentially required for placing of fill in a jurisdictional wetlands for access road; BMPs would be implemented to minimize the amount and velocity of runoff; stormwater measures would be implemented to prevent contaminated stormwater runoff. DOL Secondary Refueling Station: No effect; there are no wetlands in proximity.	USMAPS Washington Gate Site: Same as Alternative 1. DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.	USMAPS Washington Gate Site: Same as Alternative 1. DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.	USMAPS Lake Frederick: No significant effects; relocation of the campground could avoid wetlands; if fill is placed in wetlands, a Section 404 permit could be required.	USMAPS Lake Frederick: No significant effects; Section 404 permit potentially required for placing of fill in jurisdictional wetlands for the Barracks location.	
VETCOM	No effect; there are no wetlands in proximity.					No effect.
Cultural Resources: <i>Archaeological</i>	USMAPS Washington Gate Site: No effect; SHPO concurrence with 2006 Phase I Cultural Resource Survey conclusion that no effect upon NRHP eligible archaeological resources. DOL Motor Pool (TA-V/W): No significant effect; a parking area for the DOL Motor Pool must avoid a potential NRHP site; consultation with the NYSOPRHP would be required. DOL Secondary Refueling Station: No effect; in a previously disturbed area of no potential for archaeological resources.	USMAPS Washington Gate Site: Same as Alternative 1. DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.	USMAPS Washington Gate Site: Same as Alternative 1. DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.	USMAPS Lake Frederick Site: No significant effects; the results of the Phase I Archaeological Survey, 14 archaeological isolates associated with the Proctoria Estate; these will be addressed with NYSOPRHP.	USMAPS Lake Frederick Site: Same as Alternative 4.	No effect.
VETCOM	No effect; renovation and a second story addition.					No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
Cultural Resources: <i>Built Environment</i>	USMAPS Washington Gate Site: No significant effect; construction of the new facilities in keeping with the Installation Design Guidelines, after consultation with the New York SHPO under Section 106, will ensure that they have no adverse effect under Section 106, NHPA. DOL Motor Pool (TA-V/W): No effect; outside NHDL and no NRHP eligible buildings adjacent. DOL Secondary Refueling Station: No significant effect; would be built at the center of an existing paved industrial area and screened from the Washington Road scenic corridor by trees and distance.	USMAPS Washington Gate Site: Same as Alternative 1 DOL Motor Pool (TA-V/W): Same as Alternative 1. DOL Secondary Refueling Station: Same as Alternative 1.	USMAPS Washington Gate Site: Same as Alternative 1. DOL Motor Pool (TA-V/W): Same as Alternative 1. DOL Secondary Refueling Station: Same as Alternative 1.	USMAPS Lake Frederick Site: Consultation with NYSOPRHP would be required prior to construction under Section 106 of NHPA to avoid, minimize, or mitigate adverse impact to NRHP eligible Building 1848, associated with the Proctor estate.	USMAPS Lake Frederick Site: No effect; no demolition or alteration of historic buildings.	No effect.
VETCOM	Consultation with NYSOPRHP would be required prior to construction under Section 106 of NHPA to avoid, minimize, or mitigate adverse impact to NRHP eligible Building 630.					No effect.
Cultural Resources: <i>Native American Resources</i>	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: No effect; there are no known Traditional Cultural Properties in the project area.	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.	USMAPS Lake Frederick Site: Same as Alternative 1.	USMAPS Lake Frederick Site: Same as Alternative 1.	No effect.
VETCOM	No effect; there are no known Traditional Cultural Properties in the project area.					No effect.
Socioeconomics: <i>Economic Development</i>	USMAPS Washington Gate Site DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Minor direct and indirect beneficial effects during construction; most of which will be temporary.	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.	USMAPS Lake Frederick Site: Same as Alternative 1.	USMAPS Lake Frederick Site: Same as Alternative 1.	No effect.
VETCOM	No significant effect; some construction related jobs would be created, most of which will be temporary.					No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
Socioeconomics: <i>Environmental Justice</i>	USMAPS Washington Gate Site DOL Motor Pool (TA-V/W), and Secondary Refueling Station: No significant effects; no disproportionately high and adverse impacts to minority or low income population.	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.	USMAPS Lake Frederick Site: Same as Alternative 1.	USMAPS Lake Frederick Site: Same as Alternative 1.	No effect.
VETCOM	No significant effects; some construction related jobs would be created, most of which will be temporary.					No effect.
Transportation: <i>Roadways and Traffic</i>	<p>USMAPS Washington Gate Site: No significant effect; short-term interruptions in local traffic patterns during the construction periods; long-term minor traffic improvement anticipated at Washington Gate from Motor Pool relocation would offset the USMAPS commuters; USMAPS candidate cadets travel off-peak.</p> <p>DOL Motor Pool (TA-V/W): No significant effect; short-term interruptions in local traffic patterns during the construction periods; adequate capacity for long term traffic on Route 293.</p> <p>DOL Secondary Refueling Station: No significant effect; short-term interruptions in local traffic patterns during the construction periods; primary fueling activities will be forklifts, construction vehicles, and land and yard maintenance tools.</p>	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.	USMAPS Lake Frederick Site: No significant effect; short-term interruptions in local traffic patterns during the construction periods; long-term USMAPS commuters in three shifts; USMAPS candidate cadets travel off-peak.	USMAPS Lake Frederick Site: Same as Alternative 4.	No effect.
VETCOM	No significant effect; VETCOM employee transportation impacts evaluated with USMAPS at Washington Gate.					No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
Utilities: <i>Water Supply</i>	<p>USMAPS Washington Gate Site: No significant effects; adequate treatment capacity and lines exist; however, an additional aboveground water storage tank would be provided to assure required water storage capacity for fire protection at the USMAPS campus. Runoff capture would water vegetation.</p> <p>DOL Motor Pool (TA-V/W): No significant effects; area is undeveloped and a new water treatment plant with water storage and distribution would provide adequate potable water; modification of Stilwell pump station would provide raw water for potable and non-potable uses.</p> <p>DOL Secondary Refueling Station: No effects.</p>	<p>USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick Site: Provision of water facilities would assure no significant effect. A new water treatment plant at Lake Frederick with water storage would provide adequate potable water; 2-6 new wells would provide raw water for potable and non-potable uses.</p>	<p>Same as Alternative 4.</p>	<p>No effect.</p>
VETCOM	VETCOM collocation with the VTF would entail minor modifications to existing water distribution and minor additional demand, resulting in no significant effect.					No effect.
Utilities: <i>Wastewater System</i>	<p>USMAPS Washington Gate Site: No significant effects; adds less than 2% to treatment plant capacity needs. Adequate lines exist.</p> <p>DOL Motor Pool (TA-V/W): No significant effects; area is undeveloped and a new wastewater treatment plant with infiltration gallery and distribution meeting applicable standards would provide adequate wastewater removal.</p> <p>DOL Secondary Refueling Station: No effects.</p>	<p>USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick Site: Provision of wastewater facilities would assure no significant effect. A new wastewater treatment plant at Lake Frederick with infiltration gallery and distribution meeting applicable standards would provide adequate wastewater removal.</p>	<p>Same as Alternative 4.</p>	<p>No effect.</p>
VETCOM	VETCOM collocation with the VTF would entail minor modifications to existing wastewater distribution and minor additional demand for no significant effect.					No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
<p>Utilities: <i>Stormwater System</i></p>	<p>USMAPS Washington Gate Site: No significant effects; stormwater features including sand filters will meet applicable guidelines.</p> <p>DOL Motor Pool (TA-V/W): No significant effects; area is undeveloped and a new stormwater system meeting applicable standards would provide adequate stormwater removal.</p> <p>DOL Secondary Refueling Station: No effects.</p>	<p>USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick Site: Provision of a new stormwater system meeting applicable standards would assure no significant effect.</p>	<p>Same as Alternative 4.</p>	<p>No effect.</p>
VETCOM	VETCOM collocation with the VTF would entail minor modifications to existing stormwater systems adding minor additional runoff: for no significant effect.					No effect.
<p>Utilities: <i>Energy Sources</i></p>	<p>USMAPS Washington Gate Site: No significant effects; existing power circuits will be reconfigured to serve this campus and nearby users. Backup power from gas generator intended. Steam and gas will be provided from nearby sources. Proposed new buildings would meet LEED Silver Design standards.</p> <p>DOL Motor Pool (TA-V/W): No significant effects; area is undeveloped and power will come from lines along nearby Route 293. Backup generators are planned. Propane will provide heat. Proposed new buildings would meet LEED Silver Design standards and would replace the existing older, less efficient buildings.</p> <p>DOL Secondary Refueling Station: No significant effects to power; adds backup generator.</p>	<p>USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick Site: Provision of new power from nearby grid and either natural gas or heat from fuel oil will pose construction costs, but no significant effect. Backup generator required. Adds backup generator. Proposed new buildings would meet LEED Silver Design standards.</p>	<p>Same as Alternative 4.</p>	<p>No effect.</p>
VETCOM	VETCOM collocation with the VTF would entail minor modifications to existing power and heating systems adding minor additional demand, resulting in no significant effect.					No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
Utilities: <i>Communications</i>	<p>USMAPS Washington Gate Site: No significant effects; existing communication lines are readily available and would be extended to campus.</p> <p>DOL Motor Pool (TA-V/W): No significant effects; adequate communication lines are available for extension to site.</p> <p>DOL Secondary Refueling Station: No effects.</p>	<p>USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick Site: Provision of new communication lines to this remote area will pose construction costs, but no significant effect.</p>	<p>Same as Alternative 4.</p>	<p>No effect.</p>
VETCOM	No effect.					No effect.
Utilities: <i>Solid Waste</i>	<p>USMAPS Washington Gate Site: There would be a temporary increase in the generation of solid waste as the result of site clearance and construction at USMAPS location. Additional personnel on-site would add minor amounts of waste during operations. No significant effect.</p> <p>DOL Motor Pool (TA-V/W): There would be a temporary increase in the generation of solid waste as the result of site clearance and construction at USMAPS location. Existing POL waste disposal process can handle new sludge and separator waste. No significant effect.</p> <p>DOL Secondary Refueling Station: No significant effects. Existing POL waste disposal process can handle new separator waste.</p>	<p>USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1, except greater amounts of rock requiring removal would add C & D waste requiring disposal at the USMAPS site.</p>	<p>USMAPS Lake Frederick Site: There would be a temporary increase in the generation of solid waste as the result of site clearance and construction at USMAPS location. Additional personnel on-site would add minor amounts of waste during operations. No significant effect.</p>	<p>Same as Alternative 4.</p>	<p>No effect.</p>
VETCOM	VETCOM would be collocated with the VTF by expanding and renovating that facility. This would entail minor modifications, adding minor amounts of construction waste on temporary basis, resulting in no significant effect.					No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
Hazardous and Toxic Substances	<p>USMAPS Washington Gate Site: No significant effect; hazardous materials and hazardous waste would be managed in accordance with the installation's established procedures and guideline; inspection for asbestos and lead based paint prior to demolition of the Motor Pool facilities.</p> <p>DOL Motor Pool (TA-V/W): No significant effect; hazardous materials and hazardous waste would be managed in accordance with the installation's established procedures and guidelines; Installation SPCC would be updated.</p> <p>DOL Secondary Refueling Station: No significant effect; hazardous materials and hazardous waste would be managed in accordance with the installation's established procedures and guidelines; Installation SPCC would be updated.</p>	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.	USMAPS Lake Frederick Site: No significant effect; hazardous materials and hazardous waste would be managed in accordance with the installation's established procedures and guideline; inspection for asbestos and lead based paint prior to demolition of the campground facilities.	USMAPS Lake Frederick Site: No significant effect; hazardous materials and hazardous waste would be managed in accordance with the installation's established procedures and guidelines; no building demolition required.	No effect.
VETCOM	No significant effect; handling of hazardous materials and hazardous waste, including asbestos containing material during renovation would be in accordance with the installation's established procedures and guideline; inspection for asbestos and lead based paint prior to renovation.					No effect.
Site Contamination: Underground Storage Tanks	<p>USMAPS Washington Gate Site: No significant effect; the removal of existing USTs and remediation of any contaminated soils associated with the USTs would be completed before initiating construction.</p> <p>DOL Motor Pool (TA-V/W): No effect; undeveloped area.</p> <p>DOL Secondary Refueling Station: No effect; no existing USTs.</p>	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1	USMAPS Lake Frederick Site: No effect; undeveloped area.	USMAPS Lake Frederick Site: No effect; undeveloped area.	No effect.
VETCOM	No effect.					No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
<p>Landfill Disruption:</p>	<p>USMAPS Washington Gate Site: Measures followed would avoid significant impacts:</p> <p>No building footprints would be placed over either of the landfills; however, athletic fields and parking would be on landfills. No significant effects expected by following NYSDEC/EPA solid waste regulations, to include installation of a NYSDEC-Part 360-compliant cap over the East Landfill to minimize the amount of landfill infiltration and leachate generation. For the proposed buildings within 1,000 feet of the landfill, a passive gas collection system would be installed under building footprints with vapor barrier under slab and the gas collection system would be vented to each building's roof. Potential presence of MEC: MEC removal (up to 2 feet depth) would take place prior to intrusive activities; MEC construction support team would be required during intrusive site activities and USACE guidelines would be followed.</p> <p>The landfills would need to be dynamically compacted to prevent differential settlement impacting athletic field viability.</p> <p>Special measures taken for utilities (above cap) and penetrations (minimized).</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: No effect; no landfill in the area.</p>	<p>USMAPS Washington Gate Site: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick Site: No effect; 1 no landfill in the area.</p>	<p>Same as Alternative 4.</p>	<p>No effect.</p>
<p>VETCOM</p>	<p>No effect; no landfill in the area.</p>					<p>No effect.</p>

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1.0 PURPOSE, NEED, AND SCOPE

1.1 INTRODUCTION

The U.S. Army's mission is to defend the United States and territories, support national policies and objectives, and defeat nations responsible for aggression that endangers the peace and security of the U.S. To carry out these tasks, the Army must adapt to changing world conditions and must improve its capabilities to respond to a variety of circumstances across the full spectrum of military operations. A key part of this adaptation is to realign and reorganize Army organizational structures and properly align facilities and infrastructure to support the changing conditions and threats that the Army must respond to worldwide. This Environmental Assessment (EA) addresses proposed Base Realignment and Closure (BRAC) actions at the United States Army Garrison (USAG), West Point, New York, as part of the overall Army restructuring and realignment.

On September 8, 2005, the BRAC Commission recommended that certain realignment actions occur at West Point, NY. These recommendations were approved by the President on September 23, 2005, and forwarded to Congress. The Congress did not alter any of the BRAC Commission's recommendations, and on November 9, 2005, the recommendations became law. The BRAC Commission's recommendations must now be implemented as provided for in the Defense Closure and Realignment Act of 1990 (Public Law 101-510), as amended.

The BRAC law exempts consideration of the need for the action or alternative installations in preparing environmental documentation pursuant to the National Environmental Policy Act of 1969 (NEPA). However, an appropriate level of NEPA analysis and documentation is required to analyze how the BRAC actions will be implemented for concurrent actions, both BRAC-directed and discretionary, at each installation that is receiving realigned missions.

The BRAC Commission's recommendation affecting West Point, New York was to close Fort Monmouth, New Jersey and to realign the US Army Military Academy Preparatory School (USMAPS) to West Point, New York. In addition, as a discretionary action, the Army would relocate the U.S. Army Veterinary Command (VETCOM) Northeast District Veterinary Command Headquarters from Fort Monmouth to West Point.

The BRAC 2005 report cites the enhancement in military value that would be gained "by co-locating education activities with the schools they support" (BRAC Commission, 2005).

To implement this recommendation, the Army proposes to construct a new USMAPS campus, including supporting facilities, at West Point. Furthermore, as a discretionary action, the Army proposes to relocate VETCOM from Fort Monmouth to West Point and expand Building 630, an existing Veterinary Treatment Facility (VTF) at West Point, to accommodate VETCOM. This EA analyzes potential environmental impacts associated with the Army's Proposed Action at West Point. Details on the Proposed Action are provided in Section 2.0.

1.2 PURPOSE AND NEED

The purpose of the Proposed Action is to implement the BRAC Commission's recommendations to close Fort Monmouth and relocate the USMAPS to West Point. Additionally, as a discretionary action, the Army proposes to relocate VETCOM to West Point from Fort Monmouth and expand Building 630, an existing VTF at West Point, to accommodate VETCOM.

The following discusses three major initiatives that contribute to the Army's need for the Proposed Action.

Base Realignment and Closure. In previous rounds of BRAC, the explicit goal was to save money and downsize the military to reap a "peace dividend." In the 2005 BRAC round, the DoD sought to reorganize its installation infrastructure to more efficiently support its forces, increase operational readiness, and facilitate new ways of doing business. Thus, BRAC represents more than cost savings; it supports advancing the goals of transformation, improving military capabilities, and enhancing military value. The Army needs to carry out the BRAC

recommendations at West Point, and the discretionary action to move VETCOM that results from closing Fort Monmouth, to achieve the objectives for which Congress established the BRAC process.

Army Transformation and the Army Modular Force. On October 12, 1999, the Secretary of the Army and the Chief of Staff articulated a vision about people, readiness, and transformation of the Army to meet challenges emerging in the 21st century, and the need to be able to respond more rapidly to different types of operations requiring military action. The strategic significance of land forces continues to lie in their ability to fight and win the Nation's wars and in their providing options to shape the global environment to the benefit of the United States and its allies. Transformation responds to the Army's need to become more strategically responsive and dominant at every point on the spectrum of operations. In March 2002, the Army published its Programmatic Environmental Impact Statement for Army Transformation for its proposal to conduct a multiyear, phased, and synchronized program of transformation. Over a 30-year period, the Army will conduct a series of transformation activities affecting virtually all aspects of Army doctrine, training, leader development, organizations, installations, materiel, and soldiers. On April 11, 2002, the Army issued a Record of Decision reflecting its intent to transform the Army. This EA evaluates a proposed action that comports with the transformation process, which is designed to provide the Nation with combat forces that are more responsive, deployable, agile, versatile, lethal, survivable, and sustainable.

Installation Sustainability. On October 1, 2004, the Secretary of the Army and the Chief of Staff issued The Army Strategy for the Environment. The strategy focuses on the interrelationships of mission, environment, and community. A sustainable installation simultaneously meets current and future mission requirements, safeguards human health, improves quality of life, and enhances the natural environment. A sustained natural environment is necessary to allow the Army to train and maintain military readiness.

Relocating the USMAPS to West Point will meet these needs by "increasing training to enhance coordination, doctrine development, training effectiveness and improve operational and functional efficiencies." (BRAC Commission, 2005).

The mission of the USMAPS is to provide focused academic, military, and physical instruction in a moral-ethical military school environment to prepare and motivate candidates for success at the U.S. Military Academy (USMA). USMAPS instruction and training is designed to set the intellectual and moral foundation for cadet candidates to be successful through a developmental process that is designed to attain the following objectives(USMAPS, 2006):

- Provide a challenging academic experience to fully prepare cadet candidates for success in the USMA.
- Provide a professional military environment focused on the development of six domains – intellectual, military, physical, spiritual, ethical, and social.
- Maintain a quality faculty dedicated to personal growth and providing an exciting and innovative curriculum to the student.
- Graduate cadet candidates from the program committed to a career as an officer in the Army.

1.3 SCOPE

This EA identifies, documents, and evaluates potential environmental impacts of the proposed realignment actions at West Point in Orange County, New York. The EA has been developed in accordance with NEPA and the implementing regulations issued by the President's Council on Environmental Quality (CEQ) and the Army.² The *Base Realignment and Closure Manual for Compliance with the National Environmental Policy Act* was used for guidance in preparing the EA (U.S. Army, 2006a). The purpose of the EA is to inform decision makers and the public of likely environmental consequences of the Proposed Action and alternatives.

² Council on Environmental Quality *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*, 40 *Code of Federal Regulations* (CFR) Parts 1500–1508, and *Environmental Analysis of Army Actions*, 32 CFR Part 651.14.

The Defense Base Closure and Realignment Act of 1990 specifies that NEPA does not apply to actions of the President, the Commission, or the DoD, except “(i) during the process of property disposal, and (ii) during the process of relocating functions from a military installation being closed or realigned to another military installation after the receiving installation has been selected but before the functions are relocated” (Sec. 2905(c)(2)(A), Public Law 101-510, as amended). The law further specifies that in applying NEPA provisions to the process, the Secretary of Defense and the secretaries of the military departments concerned do not have to consider “(i) the need for closing or realigning the military installation which has been recommended for closure or realignment by the Commission, (ii) the need for transferring functions to any military installation which has been selected as the receiving installation, or (iii) military installations alternative to those recommended or selected” (Sec. 2905(c)(2)(B)). The Commission’s deliberation and decision, as well as the need for closing or realigning a military installation, are exempt from NEPA. Accordingly, this EA does not address the need for realignment.

1.4 PUBLIC INVOLVEMENT

The Army invites public participation in the NEPA process. Consideration of the views and information of all interested persons promotes open communication and enables better decision making. All agencies, organizations, and members of the public having a potential interest in the proposed action, including minority, low-income, disadvantaged, and Native American groups, are urged to participate in the decision making process.

Public participation opportunities with respect to this EA and decision making on the proposed action are guided by 32 Code of Federal Regulations (CFR) Part 651.14. Upon completion and approval, the signed EA will be made available to the public for 30 days, along with a draft Finding of No Significant Impact (FNSI) or a draft Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS), whichever is appropriate depending on the level of impacts. After this 30-day public review period, the Army will consider any comments submitted by individuals, agencies, or organizations on the proposed action, the EA, or the draft FNSI/NOI. If no significant impacts are expected, the Army may then execute the FNSI and proceed with implementation of the Proposed Action. If it is determined prior to issuance of a final FNSI that implementation of the Proposed Action would result in significant impacts, the Army will publish in the Federal Register a NOI to prepare an EIS, commit to mitigation actions sufficient to reduce impacts below significance levels, or decide not to implement the Proposed Action.

Interested parties are invited to review and comment on the EA and Draft FNSI within 30 days of publication. The EA and Draft FNSI can be accessed on the World Wide Web:
http://www.hqda.army.mil/acsim/brac/env_ea_review.htm

Printed copies of the EA can be viewed at the following local libraries and town/village offices:

Village of Highland Falls Attn: Village Clerk 303 Main Street, Highland Falls, NY 10928	West Point Community Library 622 Swift Road West Point, NY 10996
Village Clerk Village of Cold Spring 85 Main Street Cold Spring, NY 10516	Julia L. Butterfield Memorial Library 10 Morris Avenue Routes 301 & 9D Cold Spring, NY 10516
The Alice Curtis Desmond & Hamilton Fish Library PO Box 265 Routes 403 & 9D Garrison, NY 10924	Woodbury Public Library 23 Smith Clove Road Central Valley, NY 10917-0038

Comments on the EA and Draft FNSI should be submitted during the 30-day public comment period via mail, fax, or electronic mail to the following:

George H. Markt, P.G.
NEPA Coordinator, Installation Support Division
United States Army Garrison, West Point
IMNE-MIL-PWF, 667A Ruger Road
West Point, NY 10996-1592
845.938.4459 Phone, 845.938.2529 fax, George.Markt@usma.edu

1.5 IMPACT ANALYSIS PERFORMED

An interdisciplinary team of environmental scientists, biologists, planners, economists, engineers, archaeologists, historians, and military technicians has analyzed the Proposed Action and alternatives in light of existing conditions and has identified relevant beneficial and adverse impacts associated with the action. Section 1.0 of the EA provides the purpose, need, and scope. The Proposed Action is described in Section 2.0, and alternatives, including the no action alternative, are described in Section 3.0. Conditions existing at the time of the BRAC commission's decision are considered to be the "baseline" conditions and are described in Section 4.0, Affected Environment and Environmental Consequences. The expected impacts of the Proposed Action, also described in Section 4.0, are presented immediately following the description of baseline conditions for each environmental resource addressed in the EA. Section 4.0 also addresses the potential for cumulative effects, and mitigation measures are identified where appropriate. Section 5.0 presents the findings and conclusions.

The impacts of the Proposed Action on socioeconomics were assessed using the Economic Impact Forecast System (EIFS) developed by the Army Construction Engineering Research Laboratory (CERL). This model allows all base closure and realignment actions to be evaluated in the same way.

1.6 FRAMEWORK FOR ANALYSIS

A decision on whether to proceed with the Proposed Action rests on numerous factors such as mission requirements, schedule, availability of funding, and environmental considerations. In addressing environmental considerations, West Point is guided by relevant statutes (and their implementing regulations) and Executive Orders (EOs) that establish standards and provide guidance on environmental and natural resources management and planning. Relevant statutes are listed in Table 1-1, and are addressed in various sections throughout this EA when relevant to environmental resources and conditions. The full text of the laws, regulations, and EOs is available on the Defense Environmental Network & Information Exchange Web site at <http://www.denix.osd.mil>. Although not listed in Table 1-1, in many instances there are corresponding laws and/or regulations of the State of New York, as many of the applicable federal laws noted provide for delegation of authority to states. Further discussion of state-specific issues is included within the narrative discussion of the EA.

Table 1-1: Relevant Statutes.

Environmental Resources	Statute, Regulation, or Executive Order
<i>Air</i>	Clean Air Act (CAA) of 1970 (PL 91-604), as amended in 1977 (PL 95-95) and 1990 (PL 101-549); U.S. Environmental Protection Agency (USEPA), Subchapter C-Air Programs (40 CFR 50-99)
<i>Noise</i>	Noise Control Act of 1972 (PL 92-574) and Amendments of 1978 (PL 95-609); USEPA, Subchapter G-Noise Abatement Programs (40 CFR 201-211)
<i>Water</i>	Federal Water Pollution Control Act (FWPCA) of 1972 (PL 92-500) and Amendments; Clean Water Act (CWA) of 1977 (PL 95-217); USEPA, Subchapter D-Water Programs (40 CFR 100-149); Water Quality Act of 1987 (PL 100-4); USEPA, Subchapter N-Effluent Guidelines and Standards (40 CFR 400-471); Safe Drinking Water Act (SDWA) of 1972 (PL 93-523) and Amendments of 1986 (PL 99-339); USEPA, National Drinking Water Regulations and Underground Injection Control Program (40 CFR 141-149)
<i>Biological Resources</i>	Migratory Bird Treaty Act of 1918; Fish and Wildlife Coordination Act of 1958 (PL 85-624); Sikes Act of 1960 (PL 86-797) and Amendments of 1986 (PL 99-561), 1997 (PL 105-85 Title XXIX), and 2004 (PL 108-136); Endangered Species Act of 1973 (PL 93-205) and Amendments of 1988 (PL 100-478); Fish and Wildlife Conservation Act of 1980 (PL 96-366); Lacey Act Amendments of 1981 (PL 97-79); Responsibilities of Federal Agencies to Protect Migratory Birds (EO 13186)
<i>Wetlands and Floodplains</i>	Section 401 and 404 of the Federal Water Pollution Control Act of 1972 (PL 92-500); USEPA, Subchapter D-Water Programs 40 CFR 100-149 (105 ref); Floodplain Management-1977 (EO 11988); Protection of Wetlands-1977 (EO 11990); Emergency Wetlands Resources Act of 1986 (PL 99-645); North American Wetlands Conservation Act of 1989 (PL 101-233)
<i>Cultural Resources</i>	NHPA (16 USC 470 et seq.) (PL 89-665) and Amendments of 1980 (PL 96-515) and 1992 (PL 102-575); Protection and Enhancement of the Cultural Environment-1971 (EO 11593); Indian Sacred Sites-1966 (EO 13007); American Indian Religious Freedom Act (AIRFA) of 1978 (PL 95-341); Antiquities Act of 1906; Archaeological Resources Protection Act (ARPA) of 1979 (PL 96-95); Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (PL 101-601); Protection of Historic Properties (36 CFR 800); Consultation and Coordination with Indian Tribal Governments (EO 13175)
<i>Solid Waste/Hazardous Materials and Waste</i>	Resource Conservation and Recovery Act (RCRA) of 1976 (PL 94-580), as Amended by PL 100-582; USEPA, subchapter I-Solid Wastes (40 CFR 239-282); Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (42 USC 9601) (PL 96-510); Toxic Substances Control Act (TSCA) (PL 94-469); USEPA, Subchapter R-Toxic Substances Control Act (40 CFR 700-799); Federal Insecticide, Fungicide, and Rodenticide Control Act (40 CFR 150-189); Emergency Planning and Community Right-to-Know Act (40 CFR 350-399); Federal Compliance with Pollution Control Standards-1978 (EO 12088); Superfund Implementation (EO 12580); Strengthening Federal Environmental, Energy, and Transportation Management (EO 13423); <i>Underground Storage Tanks</i> (40 CFR 280-281)
<i>Health and Safety</i>	Occupational Safety and Health Act of 1970 (29 CFR 1900-2400)
<i>Environmental Justice</i>	Federal Action to Address Environmental Justice in Minority Populations and Low-Income Populations (EO 12898); Protection of Children from Environmental Health Risks and Safety Risks (EO 13045)
<i>Sustainability</i>	Strengthening Federal Environmental, Energy, and Transportation Management (EO 13423)

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2.0 DESCRIPTION OF THE PROPOSED ACTION

2.1 INTRODUCTION

The Proposed Action would implement the BRAC Commission's recommendation as mandated by the BRAC legislation, Public Law 101-510. The BRAC Commission's recommendation affecting West Point was to close Fort Monmouth and to relocate the USMAPS to West Point. Furthermore, as a discretionary action, the Army proposes to relocate VETCOM from Fort Monmouth and expand Building 630, an existing VTF at West Point, to accommodate VETCOM. This section describes the Proposed Action for carrying out the BRAC Commission's recommendations to relocate the USMAPS to West Point and for the discretionary action that would also relocate VETCOM from Fort Monmouth to West Point.

2.2 CRITERIA FOR IDENTIFICATION OF PROPOSED BRAC ACTIONS

The DoD applied eight major criteria when evaluating individual facility BRAC actions.

MILITARY VALUE (HIGHER PRIORITY):

1. The current and future mission capabilities and the impact on operational readiness of the total DoD force, including impact on joint war-fighting, training, and readiness.
2. The availability and condition of land, facilities, and associated airspace (including training areas suitable for maneuver by ground, naval, or air forces throughout a diversity of climate and terrain areas and staging areas for the use of the Armed Forces in homeland defense missions) at both existing and potential receiving locations.
3. The ability to accommodate contingency, mobilization, surge, and future total force requirements at both existing and potential receiving locations to support operations and training.
4. The cost of operations and manpower implications.

OTHER CONSIDERATIONS:

1. The extent and timing of potential costs and savings, including the number of years, beginning with the date of completion of the closure or realignment, for savings to exceed costs.
2. The economic impact on existing communities in the vicinity of military installations.
3. The ability of the infrastructure of both existing and potential receiving communities to support forces, missions, and personnel.
4. The environmental impact, including the impact of costs related to potential environmental restoration, waste management, and environmental compliance (BRAC Commission, 2005).

The application of these criteria to the need to streamline the Army's portfolio of installations and optimize Military Value yielded a number of proposed facility changes, among them the proposed closing of Fort Monmouth and the subsequent relocation of the USMAPS and VETCOM to West Point.

This BRAC EA will examine the environmental impact from efforts that will take place within the 6-year BRAC implementation window. The site-specific BRAC related projects are defined by existing Defense Department (DD) Form 1391s. The DD Form 1391 is used by the DoD to submit requirements and justifications in support of funding requests for military construction to Congress.

2.3 PROPOSED ACTION/IMPLEMENTATION PROPOSED

The Proposed Action is to construct a new USMAPS to accommodate the BRAC 2005 required realignment of the preparatory school from the closing Fort Monmouth to West Point as well as the realignment of VETCOM facilities from Fort Monmouth to West Point. Under the Proposed Action, the USMAPS campus would include general instructional and administrative space, a dining facility, student barracks, an athletic training facility, athletic fields, parking areas, and associated infrastructure improvements. The facilities would incorporate appropriate Anti-Terrorism/Force Protection (AT/FP) stand-off buffer areas for security, exterior lighting, access road improvements, and other site improvements to facilitate construction and operation of the USMAPS. An expansion of Building 630 would accommodate VETCOM.

The Proposed Action is further detailed below, in the *Facilities* (Section 2.3.1) and *Personnel* (Section 2.3.2) subsections. Figure 2-1 is a general area map indicating the location of West Point in the larger community.

2.3.1 Facilities

Facilities required to support USMAPS and VETCOM are described in detail below.

USMAPS

The USMAPS campus would provide adequate academic, administrative, lodging, and athletic facilities to accommodate up to 240 Cadet Candidates annually. The following facilities are proposed:

- *Building facilities.* Approximately 255,000 square feet (ft²) of structures including a USMAPS Headquarters (HQ), an academic facility, a dining facility, an athletic facility, a student barracks, a general purpose auditorium, and an indoor multipurpose athletic field (USACE, 2008b).
- *Athletic facilities.* USMAPS athletic fields, totaling approximately 294,600 ft² and built to National Collegiate Athletic Association (NCAA) standards, would include a football field, a lacrosse field, and a soccer field with a surrounding track. The fields would be either natural grass or artificial turf.
- *Water storage tank.* A 250,000 gallon above-ground water storage tank would be constructed to ensure that the required water storage capacity for fire protection at the USMAPS campus is available.
- *Paved areas.* Approximately 175,000 ft² of paving will be required for surface parking and roadway modifications (U.S. Army, 2006b, USMA, 2005b).
- *Infrastructure.* Supporting facility improvements include utilities, such as mechanical, electrical service, water, sewer, telecommunications and stormwater runoff; exterior lighting; fire protection and alarm systems; exterior building signage; AT/FP measures; walkways; and general site improvements.

VETCOM

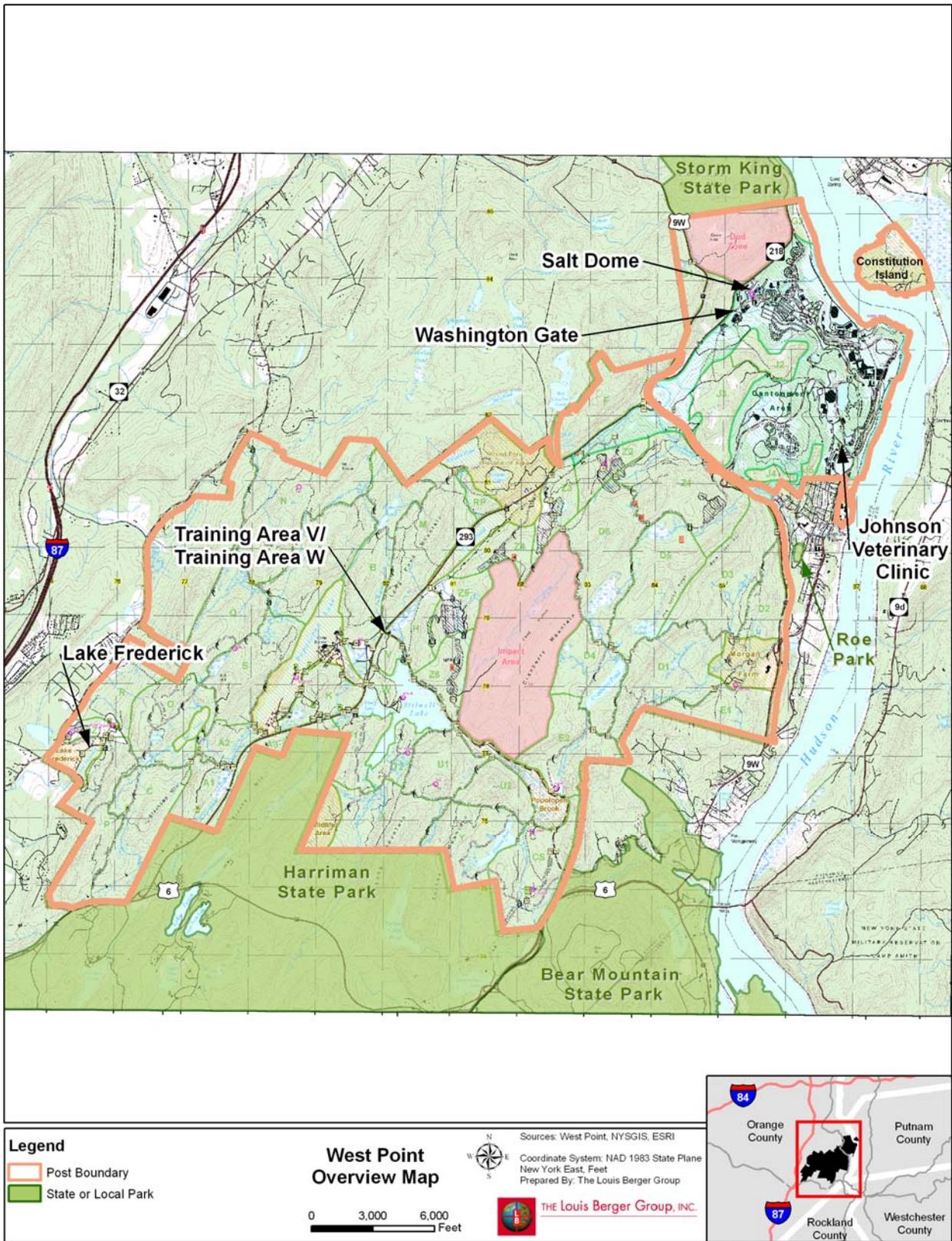
- *Building facilities.* The VETCOM building would expand the existing Building 630 by increasing the size of the waiting area and treatment rooms, as well as by adding a second floor to house VETCOM administrative functions. These additions and renovations will comprise 1,422 ft² of private and administrative office space. Supporting facilities would include utility connections, electrical service, fire protection and alarm systems, AT/FP measures, telecommunications and building information systems, and site improvements, including a total of 12 parking spaces at two locations (U.S. Army, 2006c and USACE, 2007a).

2.3.2 Personnel

Implementation of the BRAC Commission's recommendation to relocate the USMAPS from Fort Monmouth to West Point would result in the relocation of candidate cadets and work force personnel from Fort Monmouth to West Point. The relocation would result in the arrival of up to 240 candidate cadets and 66 staff/instructors made up of 19 military personnel (7 officers and 12 enlisted), 37 civilians, and up to 10 lieutenants temporarily assigned to the USMAPS for a period of up to 6 months (Rugenstein, 2008). The relocation of VETCOM is expected to result in the arrival of approximately 7 staff (4 military and 3 civilians). It is anticipated that not all of the civilian work force would relocate from Fort Monmouth to West Point; therefore, it is likely that a percentage of the USMAPS civilian work force would be locally recruited (USMA, 2005b).

The potential direct and/or cumulative impacts to the environment from the increase in personnel at West Point will be considered in the EA. For analytical purposes the EA will consider direct and indirect effects (e.g., socioeconomic effects, effects on local transportation networks and air quality) of the relocation of the 240 candidate cadets and 76 full-time personnel, and will assume that all 76 full-time personnel positions are relocating into the West Point area.

Figure 2-1: West Point Area Map



2.3.3 Schedule

Under the BRAC law, the Army must initiate all realignments not later than September 15, 2007, and complete all realignments not later than September 15, 2011.³ Facilities construction would be synchronized to meet the needs, on a priority basis, of functions and personnel being relocated in the near-term, and to address priority space needs. Establishment of new or realigned functions would occur as facilities for their operations and support become available.

³ Section 2904(a), Public Law 101-510, as amended, provides that the Army must "... initiate all closures and realignments no later than 2 years after the date on which the President transmits a report [by the BRAC Commission] to the Congress ... containing the recommendations for such closures or realignments; and ... complete all such closures and realignments no later than the end of the 6-year period beginning on the date on which the President transmits the report ... " The President took the specified action on September 15, 2005.

3.0 ALTERNATIVES

3.1 INTRODUCTION

A key principle of NEPA is the consideration by agencies of reasonable alternatives to a proposed action. Considering alternatives helps to avoid unnecessary impacts and allows analysis of reasonable alternative ways to achieve the stated purpose. To warrant detailed evaluation, an alternative must be reasonable. To be considered reasonable, an alternative must be affordable, capable of implementation, and satisfactory with respect to meeting the purpose of and need for the action. The following discussion identifies alternatives considered by the U.S. Army and identifies whether they are feasible and, hence, subject to detailed evaluation in this EA.

Alternatives to the Proposed Action have been examined according to three primary variables: means to physically accommodate realigned units, siting of new construction, and schedule. This section presents the Army's development of alternatives and addresses alternatives available for the Proposed Action. This section also describes the No Action Alternative, in which neither the Proposed Action nor an alternative is undertaken.

3.2 DEVELOPMENT OF ALTERNATIVES

Means to Accommodate Realigned Units. Relocation of units and establishment of new units involves ensuring that the installation has adequate physical accommodations for personnel and their operational requirements. The Army considers four means of meeting increased space requirements:

- Use of existing facilities
- Modernization or renovation of existing facilities
- Leasing of off-post facilities
- Construction of new facilities

Army Regulation 210-20, *Master Planning for Army Installations*, establishes Army policy to maximize use of existing facilities. The regulation directs that new construction will not be authorized to meet a mission that can be supported by existing underutilized adequate facilities, provided that the use of such facilities does not degrade operational efficiency. Under this policy, the selection and use of existing facilities to support mission requirements is an overriding first option. That is, if there are adequate existing facilities to accommodate requirements, and absent other overriding considerations, further examination of renovation, leasing, or construction alternatives is not required. Similarly, if a combination of use of existing facilities and renovation satisfies the Army's needs, leasing or new construction need not be addressed. New construction may proceed only when use of existing facilities, renovation, leasing, or a combination of such measures are inadequate to meet mission requirements.

Siting of New Construction. The Army considers new construction of facilities when use of existing facilities, renovation, or leasing would fail to provide for adequate accommodations of realigned functions. The Army considers both general and specific siting criteria for construction of new facilities.

General siting criteria include consideration of compatibility between the functions to be performed and the installation land use designation for the site, adequacy of the site for the function required, proximity to related activities, distance from incompatible activities, availability and capacity of roads, efficient use of property, development density, potential future mission requirements, and special site characteristics, including environmental incompatibilities.

Specific siting criteria include consideration of location of the workforce and efficient, streamlined management of functions. Collocation of similar types of functions, as opposed to dispersion, permits more efficient training and more efficient use of equipment, vehicles, and other assets.

Schedule. Alternatives for scheduling of proposed realignment actions are principally affected by three factors: the availability of facilities to house realigned personnel and functions, efforts to minimize potential disruption of mission activities based on the number of personnel involved in the relocation or the amount of work to be

performed, and early realization of benefits to be gained by completion of the realignments. In most cases, minor shifts in schedule would not produce different environmental results.

3.3 ALTERNATIVES TO IMPLEMENT THE PROPOSED ACTION

3.3.1 Use of Off-Post Leased Space

Use of off-post leased space to meet the requirements of the proposed new USMAPS location is not permitted under the BRAC action as authorized by the U.S. Congress and the President, and would involve several major drawbacks. Force protection policies specify certain facilities characteristics, such as physical security features, set-back from roadways, and “hardened” construction. Use of leased space in the private sector – having personnel and equipment both on-post and off-post – would adversely affect command and control functions, result in higher operational costs, and impair efficient use of resources.

The USMA conducted a Feasibility Study in 2003-2004, prior to the passage of the BRAC law, and identified and evaluated a large number of potential sites both on-post and off-post for potential relocation of the USMAPS campus. The difficulty in finding and potentially leasing off-post sites, the high potential cost, and a number of security concerns, as well as the inability to adequately meet other criteria led the Feasibility Study to rule out the lease of off-post space. Subsequently, the BRAC law was enacted in 2005 and directed that the USMAPS be relocated to West Point. For these reasons, use of leased space is not feasible and is not further evaluated in this EA.

The VETCOM was not part of the evaluation that examined the use of off-post leased space.

3.3.2 Acquisition of New Property

The Feasibility Study conducted in 2003-2004 identified and evaluated a large number of potential sites both on-post and off-post for potential relocation of the USMAPS campus. For the same reasons as described above under *Use of Off-Post Leased Space*, this alternative is not feasible and is not further evaluated in this EA.

The VETCOM was not part of the evaluation that examined the acquisition of new property.

3.3.3 Existing West Point Facilities

West Point does not have any adequate permanent facilities to support the relocation of the USMAPS to West Point (US Army, 2006b). At a minimum, the use of existing facilities would require substantial modifications, additions, and relocations of other functions. Further, the overriding objective of maintaining a separate, integrated, and self-contained USMAPS campus rules out the use of existing facilities in any more than a temporary mode. The space requirements of the USMAPS require a number of buildings and facilities in an integrated campus area, and existing facilities at West Point are inadequate to accommodate the incoming USMAPS candidate cadets, staff, and supporting facilities. Accordingly, new construction would be required, and the use of existing facilities for USMAPS at West Point is not further evaluated in this EA.

The West Point facilities were inventoried to determine if there were potential existing facilities that might be able to accommodate VETCOM. The existing VTF was identified as being suitable to meet the needs for VETCOM, with some specified renovations and additions.

3.3.4 New Construction

The elimination of the options above resulted in the proposed approach being construction of new facilities within the property boundaries of the U.S. Army Garrison, West Point. Sites for this construction were identified and screened using the criteria below.

3.3.4.1 Criteria

The key criteria applied to the screening of potential construction alternative sites evaluated them on their ability to: (1) Support the USMAPS and VETCOM missions; (2) Meet security requirements and provide supporting infrastructure; (3) Minimize disruption to other USMA functions and facilities; (4) Provide acceptable academic

and athletic training schedules for USMA and USMAPS; (5) Provide adequate property parcel characteristics; (6) Minimize cost; and (7) Meet the 2011 schedule. These are discussed below.

Support USMAPS Mission

Ensuring that the USMAPS can continue to meet its mission and objectives requires that the school remain an integrated, self-contained, and separate entity, both physically and functionally. This separation serves multiple purposes. First, it maintains the unique and distinct identity of USMAPS. Second, it ensures physical separation of preparatory school candidate cadets from the USMA Corps of Cadets. This separation is important to preserve the separate status of these two groups of students. The USMAPS cadet candidates are fundamentally different from USMA cadets. They have a different legal status, different uniforms, different privileges, and a different purpose. In addition, the institutions have different purposes, developmental models, and missions, all of which are best accomplished by physical separation. Co-locating and co-mingling of the cadet candidates with the cadets is also inconsistent with peer institutions and best practices. The USMA is a 4-year institution with a 47-month program to commission officers, while the USMAPS is a 1-year program to graduate future cadets. Co-mingling the USMAPS in facilities and within the academy day will inevitably lead to spillover, loss of identity and purpose for the USMAPS, and the perception that the USMA is a 5-year program (USMA, 2005a). This primary criterion ruled out the potential sharing of facilities with USMA cadets on a permanent basis, including shared academic, athletic, or dining facilities.

Support VETCOM Mission

The VETCOM mission is to provide the finest quality veterinary service support to include DOD animal medical expertise, comprehensive food safety and quality assurance to the Department of Defense and other activities supported in its area of operation and beyond if tasked. The functions required of VETCOM would be best served by co-locating it with existing VTF facilities on USMA for logistics and operational efficiency.

Security and Supporting Infrastructure

Siting of the new USMAPS campus within the secured fence line of the Main Cantonment is desirable for security reasons and to maximize the use of and/or proximity to existing infrastructure.

Any site considered must be able to meet AT/FP guidelines for site security, either through the establishment of acceptable set-backs and buffers, fence line security, and/or additional building physical security measures.

Access to cantonment support and maximizing the use of existing infrastructure, where such capacity is available currently, was also considered during the evaluation process. The ability to access or extend nearby utilities (electrical service, potable water, sewer service, stormwater management) and the ease of transportation access was considered an important criterion.

Minimize Disruption to Other USMA Functions and Facilities

Nearly all potential sites considered for the USMAPS campus would necessitate some level of disturbance to current operations. At some sites, disruptions would be more pronounced. The need to minimize disruptions and limit the need to relocate existing facilities and functions was considered during the evaluation of potential sites.

Acceptable Academic and Athletic Training Schedules for USMA and USMAPS

Current scheduling for USMA cadets and for USMAPS academics and athletics were evaluated, and alternative scheduling (e.g., reverse scheduling/split-scheduling) options were considered. This criterion was refined to require that current scheduling be maintained. Alternative approaches, such as reverse scheduling for the USMAPS in which athletic activities would take place in the mornings and academics in the afternoons, were considered to be detrimental to the missions of the USMA and the USMAPS. Specifically, reverse scheduling was judged to be a hindrance to acceptable academic requirements.

Adequate Property Parcel Characteristics

Property parcels were evaluated to ensure that the size, alignment, location, accessibility, and suitability (e.g., environmental issues, engineering issues) of potential sites were considered, and deemed sufficient to meet the requirements of the USMAPS.

Cost

Preliminary estimated construction costs of alternative sites were compared, as well as the long-term costs to operate and maintain each site. Ultimately the selected alternative must be within the funds available for construction.

Schedule

A key criterion was construction milestones for USMAPS facilities must allow USMAPS to transition to West Point within the date mandated by the BRAC law without disruption to its mission (i.e., by Fall 2011).

3.3.4.2 Site Screening

Alternative locations for new construction were identified and evaluated, using the criteria above, through several studies conducted in an effort to support the preparation of programming documentation for the BRAC relocation of USMAPS from Fort Monmouth to West Point. The following summarizes the studies undertaken.

A Feasibility Study was conducted in 2003-2004 that involved participation by representatives from the Directorate of Public Works (DPW), USMAPS, and the USACE, New York District. The study initially identified and evaluated 28 sites. Most of the sites were incompatible with the mission of USMAPS or were encumbered by limiting factors (e.g., inadequate to accommodate an integrated, self-contained USMAPS campus; lack of infrastructure; difficulty in accessing post support; site conditions).

In 2005, a USMAPS at West Point Planning Charrette was conducted and it focused on the development of a DD Form 1391 for the USMAPS campus at the Washington Gate Site and the relocation of the DOL Motor Pool facilities to TA-V near the entrance to Camp Buckner. This site compared favorably to others under evaluation for its security within the cantonment, accessibility through nearby Washington Gate, beneficial distance from the USMA campus and cadets, and the ability to extend existing electrical and other service lines, including steam for building heat from the nearby laundry plant.

Another USMAPS Planning Charrette was conducted in 2007 to update the 2005 Charrette Report and modify the 2005 DD Form 1391, which detailed costs for new construction of USMAPS campus at Washington Gate Site and the relocation of the DOL Motor Pool facilities to TA-V. The report produced the 15% parametric design for USMAPS at the Washington Gate Site.

In 2007, a site study was conducted to provide comprehensive cost estimates for the relocation of the USMAPS campus to two locations: Camp Buckner and Lake Frederick.

In 2008 a 35% design was prepared for the USMAPS campus at Washington Gate. The design placed buildings on top of the landfills at the DOL Motor Pool site to reduce significant costs attributable to necessary rock removal for buildings previously sited on the hillside by the 15% parametric design. Subsequent constructability analysis for the landfill, however, concluded that regulatory issues associated with the landfill posed significant risks of delays to start of construction for the 35% design, making implementation of the USMAPS campus by 2011 unlikely. In July 2008, an alternative site study identified two alternative layouts B and E for siting USMAPS at Washington Gate that did not place buildings on the landfill and would reduce probable regulatory delays. Two sites at Lake Frederick were also identified, drawing on the 2007 study.

3.4 ALTERNATIVES ANALYZED IN THE EA

Application of the criteria through the screening studies discussed in Section 3.3 resulted in five new construction alternatives located in two areas: Washington Gate and Lake Frederick, being carried forward for evaluation. This section presents further details on these alternatives.

3.4.1 USMAPS Washington Gate Site Alternatives

The USMAPS campus would be located at the current DOL Motor Pool, which is located in the vicinity of Washington Gate off State Highway 218. The site is located within the secured Main Cantonment, provides adequate size, access to cantonment infrastructure and services, easy access via Washington Gate, and meets the USMAPS requirements for an integrated, self-contained “campus” at a single site without shared use of USMA facilities. Additionally, high pressure steam from the existing Laundry Building Boiler Plant would be extended to the USMAPS facility to the Athletic and Academic Buildings (Diaz, pers. comm., 2008b). As discussed previously, the various studies focused on Washington Gate for the USMAPS campus. The focus on Washington Gate site was based on operation and maintenance costs, available infrastructure, and other factors such as opportunity for enhanced recruitment and retention from placing the USMAPS in the vicinity of USMA while maintaining some separation, allowing for appropriate exposure to USMA for the USMAPS candidate cadets, and facilitating their participation in a sponsorship program with USMA staff and faculty (USMA, 2008).

Under all three Washington Gate Alternatives, the current DOL Motor Pool complex would need to be relocated and a new Motor Pool constructed to accommodate the USMAPS campus. It is proposed that the six existing buildings at the current Motor Pool be relocated to Training Areas V and W (TA-V/W). The following describes the three alternative layouts at Washington Gate. Facility requirements for all three layouts would be similar to the requirements listed in Section 2.3.1. A detailed description of the replacement DOL Motor Pool requirements is also provided below following the Washington Gate Alternatives discussions.

3.4.1.1 Alternative 1 - Washington Gate Schematic E (Alternative 1 WG E)

Under this alternative, the USMAPS barracks, academic buildings, and dining facility would be located along the southern edge of Landfill WSTPT-11, a 4.5-acre landfill located east of the existing Motor Pool fuel distribution system (Figure 3-1). The USMAPS track with soccer field would be located on top of the central area of Landfill WSTPT-11. The USMAPS football field and parking would be located in the area of the current DOL Motor Pool Facilities. The USMAPS lacrosse field would be located on top of Landfill WSTPT-11A, a 1.7-acre landfill west of the Motor Pool Maintenance Buildings. As shown in Figure 3-1, relocation of a continuous section of the Sinclair Pond Brook would be required, in areas located north, west and southwest of the proposed westerly service drive. It would encompass approximately 500 linear feet (LF) of stream bed. Streambed displacement would vary between approximately 1 foot and 30 feet. The DOL Motor Pool would be relocated to TA-V/W.

3.4.1.2 Alternative 2 - Washington Gate Schematic B (Alternative 2 WG B)

Under this alternative, the USMAPS academic buildings and dining facility would be located along the southern edge of Landfill WSTPT-11, with the barracks located in the area of the current Motor Pool facilities (Figure 3-2). A football or soccer field would be located adjacent to the barracks. The USMAPS track with soccer field or football field would be located on top of Landfill WSTPT-11. Practice fields or parking would be located on Landfill WSTPT-11A. Relocation of sections of Sinclair Pond Brook would also be required, in areas located north and southwest of the proposed barracks building, encompassing a total of approximately 75 LF of stream bed. Streambed displacement would vary between approximately 1 to 10 feet. Under this alternative, the relocation of the DOL Motor Pool to TA-V/W would be required in advance of USMAPS construction.

3.4.1.3 Alternative 3 - Washington Gate 15% Parametric Design (Alternative 3 WG 15% Design)

As shown in Figure 3-3, under this alternative, the USMAPS barracks, academic buildings, and dining facility would be located south of Landfill WSTPT-11. The layout consists of a series of buildings predominantly positioned up the slope of the existing hill. The area is currently used as a parking lot for motor pool vehicles. The USMAPS track with soccer field would be located at the western edge of Landfill WSTPT-11, on top of the landfill. The USMAPS indoor athletic facility and football field would be located in the area of the current DOL Motor Pool Facilities. The USMAPS lacrosse field would be located on top of Landfill WSTPT-11A. For analysis purposes, it is assumed that this alternative would require relocation of Sinclair Pond Brook similar to Alternative 1. The DOL Motor Pool would be relocated to TA-V/W.

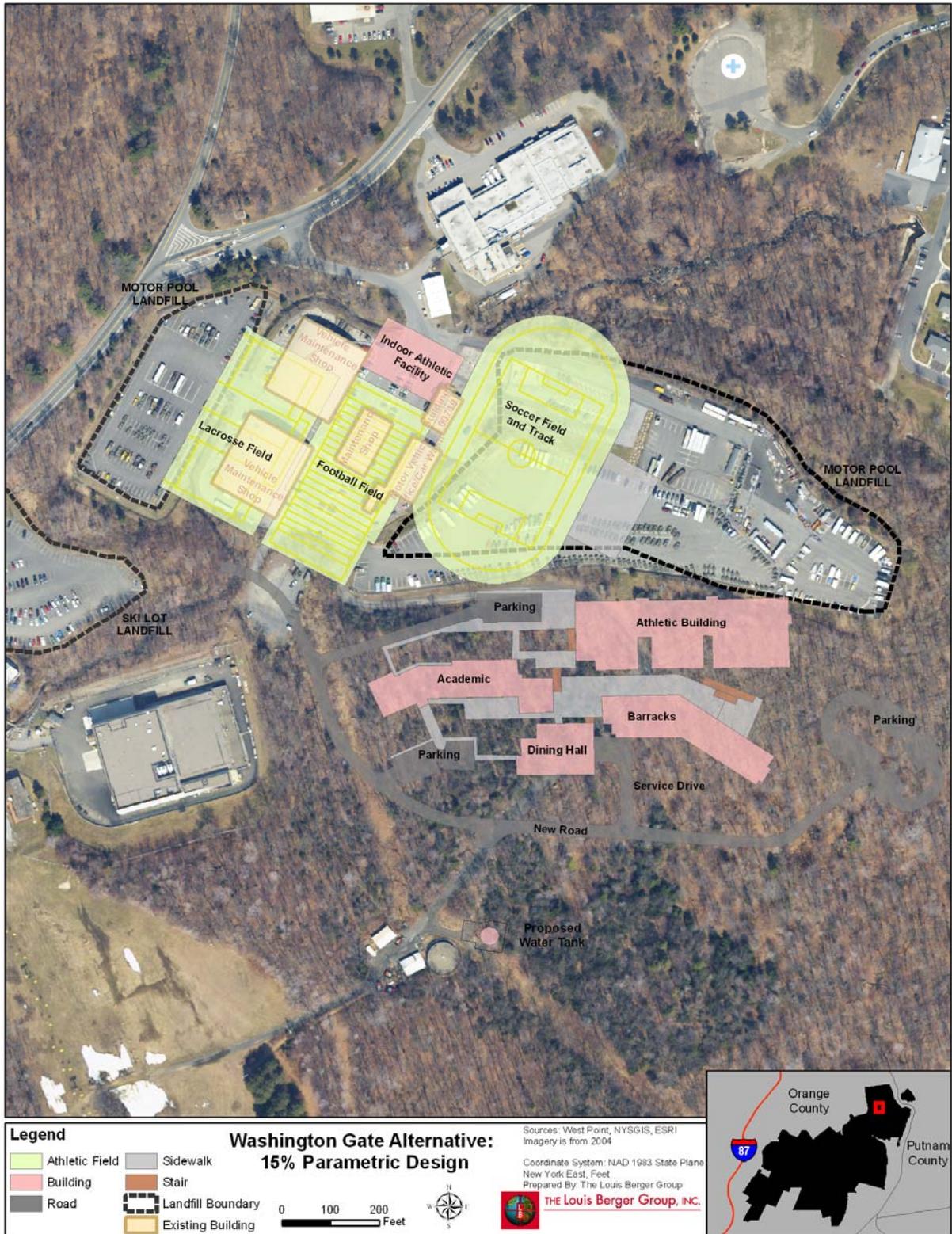
Figure 3-1: Alternative 1 - Washington Gate Schematic E



Figure 3-2: Alternative 2 - Washington Gate Schematic B



Figure 3-3: Alternative 3 - Washington Gate 15% Parametric Design



3.4.1.4 DOL Motor Pool

As discussed above, the three Washington Gate Site alternative layouts would require relocation of the existing DOL Motor Pool facilities and the existing six buildings on-site would be demolished and four Underground Storage Tanks (USTs) would need to be closed and removed in accordance with applicable regulations. The replacement DOL Motor Pool, as shown in Figure 3-4, would be located at TA-V/W and would include construction of maintenance buildings, vehicle fueling facilities, and paved maintenance and parking areas, as described below:

- *Building facilities.* A Maintenance Facility of approximately 45,000 SF with a general purpose storage area of 5,000 SF incorporated into the design would be constructed. A Vehicle Wash Facility of approximately 3,900 SF and an Administration and Contractor Building of approximately 13,024 SF would also be constructed. A fueling station of approximately 2,090 SF would also be constructed.
- *Paved areas.* The DOL Motor Pool Facility would also include approximately 675,180 SF of paved areas that include concrete maintenance apron and organizational vehicle parking.
- *Infrastructure.* AT/FP safety and security measures would include minimum building stand-off distances from roads, parking areas and vehicle unloading areas, as well as approximately 4,000 linear feet of fence would surround the DOL Motor Pool with two moving gates for controlled access. In addition there would be approximately 24 pole-mounted lights. Supporting facilities include utilities such as mechanical, electrical service, water, sewer, telecommunications and stormwater runoff; fire protection and alarm systems; oil-water separators; exterior building signage; and general site improvements. Source of water supply for the DOL Motor Pool would be Stilwell Lake, utilizing an existing Department of Public Works (DPW) pump house for intake (Scott, 2008). A 2000 gallon storage tank for domestic use would be constructed at the site and drinking water would be treated through a package membrane water treatment system with disinfection. An onsite industrial wastewater treatment system that discharges to a leach field or a septic system that discharges to a leach field would be required (Scott, 2008).
- *Fuel storage tanks.* All fuel for heating would be propane, stored in Aboveground Storage Tanks (ASTs), which will be owned and maintained by West Point's Fuel Supplier (Porco Fuel). The following number of 1,000 gallon ASTs are proposed for the listed buildings: Maintenance Building – nine; Administration and Contractor Building – six; and Vehicle Wash Facility Building – three. However, the final number of tanks will be predicated on the number of tanks able to fit on the site from a practical basis and the frequency of the propane supplier to deliver on a timely basis (Diaz, pers. comm., 2008c). Vehicle refueling facilities would also be included on-site, and would consist of a fuel dispensing station and two separate 10,000-gallon USTs; one for motor gasoline (MOGAS) and one for diesel, and a 5,000 gallon UST for 85% ethanol (E-85) (Diaz, pers. comm., 2008a, 2008c). The USTs will be double walled, fiberglass, and with leak detection, monitoring, and alarm systems. All associated fuel pumps will be equipped with vapor recovery systems that are in conformance with New York regulatory requirements.

3.4.1.5 Satellite (Secondary) Vehicle Refueling Station.

The only refueling station on the Main Cantonment is currently located at the existing DOL Motor Pool site. The establishment of the USMAPS at Washington Gate Site would remove this refueling station, and a new refueling facility would be constructed adjacent to Building 902 (the Salt Dome) north of Washington Gate (see Figure 3-5). Vehicle refueling facilities would consist of a fuel dispensing station and two separate 10,000-gallon USTs; one for MOGAS and one for diesel, and a 5,000 gallon UST for 85% ethanol (E-85) (Diaz, pers. comm., 2008a, 2008d). The USTs will be double walled, fiberglass, and with leak detection, monitoring, and alarm systems. All associated fuel pumps will be equipped with vapor recovery systems that are in conformance with New York regulatory requirements.

Figure 3-4: DOL Motor Pool Facility



Figure 3-5: DOL Secondary Refueling Station



3.4.2 USMAPS Lake Frederick Alternatives

Lake Frederick is located approximately one mile northwest of Central Valley along Smith Clove Road. The site is currently used for training and recreation. The site is located within an unfenced portion of the West Point reservation and the criterion for a secured cantonment area is not met by this site. Therefore, it is likely that installation of a security checkpoint and security fence would be required. The USMAPS Campus at Lake Frederick would have the same requirements as the Washington Gate site, with the following additions (USACE, 2008b):

- Water Treatment Plant (50,000 GPD) and Industrial Wastewater Treatment Plant (41,000 GPD) – total space for both plants assumed to be 10,000 Gross Square Feet (GSF) with a Leach Field (assumed to be 175,000 GSF)
- Fire Station (current fire station on Route 293 would be closed and relocated)
- Fire Pump Building
- Water Pump Building
- Access Control Point Station
- PX and/or Shoppette
- A Maintenance Facility for DPW equipments

The area required for the support facilities other than the Water and Industrial Wastewater Treatment Plants is assumed to be approximately 18,000 GSF.

Neither of the Lake Frederick alternatives would require the DOL Motor Pool to be relocated.

The following sections describe the two alternative layouts at Lake Frederick.

3.4.2.1 Alternative 4 - Lake Frederick Option 2a (Alternative 4 LF 2a)

Under Alternative 4, the USMAPS barracks, academic buildings, and dining facility would be located along the southwestern edge of Lake Frederick with athletic fields located between the campus and Smith Clove Road. The existing campground would be relocated to the north of Lake Frederick in the area bounded by Lake Frederick Road, Proctoria Road, and a West Point Military Reserve Road. This alternative would also entail demolition of the caretaker's building at the campground. Figure 3-6 shows the proposed layout for Alternative 4.

3.4.2.2 Alternative 5 - Lake Frederick Option 2b (Alternative 5 LF 2b)

As shown in Figure 3-7, under this alternative, the USMAPS barracks, academic buildings, and dining facility would be located at the north end of Lake Frederick and the athletic facilities and fields would be located between the existing campground and Smith Clove Road. This alternative would retain the existing campground and would not require demolition of the caretaker's building.

3.4.3 VETCOM Facility Alternative

The VETCOM facilities are proposed to be co-located with current USAG VTF and would consist of proposed interior renovations to Building 630, as well as a small expansion (See Figure 3-8). The renovation and expansion comprise 1,422 ft² of private and administrative office space.

Figure 3-6: Alternative 4 - Lake Frederick Option 2a



Figure 3-7: Alternative 5 - Lake Frederick Option 2b



Figure 3-8: VETCOM Facility

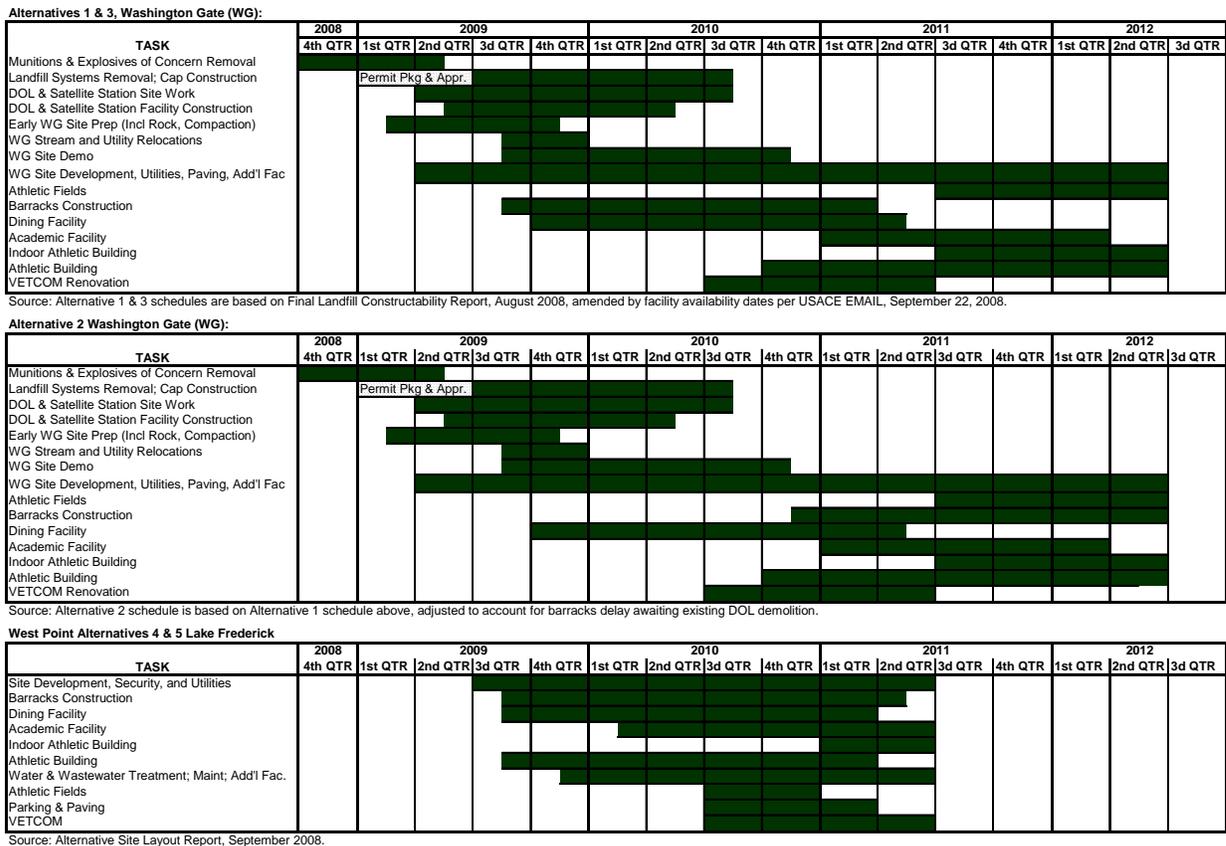


3.4.4 Implementation Schedule

The assessment of air emissions for each alternative on an annual basis and determination of the peak construction year for assessing socioeconomic impacts was based upon an assumed schedule for major activities within each alternative as shown in Figure 3-9 (Refer to Sections 4.4.2 and 4.11.2 and Appendix B). This schedule could change as designs finalize and construction is implemented, but the air and socioeconomic assessment conclusions are expected to remain valid. The schedule is governed by the following timing assumptions for construction tasks:

- The DOL motor pool must continue to operate while USMAPS is being built, necessitating its relocation before construction of USMAPS on its current site.
- The Goal for the Washington Gate Alternatives 1 and 3 is to complete “Critical” buildings (Barracks, Dining facility) for timely Cadet Candidate occupancy in July 2011. Alternative 2 WG B would not achieve barracks completion until 2012 because the barracks is sited on the existing motor pool and its construction cannot begin until the motor pool has been relocated and existing facilities demolished.
- Landfill cap construction approval is assumed to require 3-4 months. Delays would impact project schedule and ability for timely Cadet Candidate occupancy in July 2011 for Alternatives 1 and 3.
- Under Washington Gate Alternatives 1, 2, and 3, the USMAPS Cadet Candidates would co-use USMA athletic and academic facilities from July 2011 to May 2012 until USMAPS is completed in 2012.
- The Lake Frederick Alternatives 4 and 5 are not similarly encumbered by an existing operation and could be implemented during 2009 – 2011, with beneficial occupancy by September 2011.

Figure 3-9: Assumed Construction Schedules for Alternatives 1, 2, 3, 4, & 5



3.4.5 No Action Alternative

Under the No Action Alternative, the realignment of the USMAPS from Fort Monmouth to West Point would not occur, and construction to accommodate the USMAPS and VETCOM would not be relocated to West Point. Implementation of this alternative is not possible due to the BRAC Commission's realignment recommendations having the force of law. However, inclusion of the No Action Alternative is prescribed by CEQ regulations and serves as a baseline against which the impacts of the Proposed Action and alternatives can be evaluated. Accordingly, the No Action Alternative is evaluated in this EA.

3.5 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD FOR ANALYSIS

3.5.1 USMAPS Alternatives Considered but Not Carried Forward for Analysis

The following USMAPS alternatives were considered but dismissed from further consideration for the reasons cited below.

Washington Gate 35% Design – USMAPS Construction on Landfill

As shown in Figure 3-10, the Washington Gate 35% Design Alternative sited the barracks and a portion of the athletic facility over the existing landfill on the east, Landfill WSTPT-11. The facilities consist of a "one building" scheme that was designed to work with the existing site conditions and utilize the existing site features and resources (USACE, 2008a). In addition, a football field, paved parking areas, driveways, and landscaped court yards would be located on top of the landfill.

The Landfill Constructability Study conducted June – August 2008 included meetings with NYSDEC to determine what environmental permits and approvals would be required to implement Alternatives 1, 2, and 3 at the Washington Gate site. The conclusions reached from a meeting with NYSDEC on 13 June 2008 were that the East and West Landfills, because of their age, operational history, and proposed improvements to the existing capping systems, would likely fall under an exemption clause in the state regulations. Specifically NYCRR360 1.7(b)9 refers to: "Solid waste from nonhazardous inactive landfills, which has been excavated as part of a construction project and is being returned to the same excavation or other excavations containing similar solid waste or otherwise relocated within the landfill's existing footprint, provided the handling, relocation and disposal practices are deemed acceptable to the department in writing in advance." It is likely that the landfills would satisfy these code requirements, in which case a consent order for work around the landfill would not be required. NYSDEC, however, would require the submission of a Closure Plan for review and approval that contains all necessary documentation to show that closure would provide conditions equal to or more protective of human health and the environment than the existing site conditions. After approval of the Closure Plan by NYSDEC, construction on the landfills could commence. For Alternatives 1, 2, or 3, with buildings not sited on the landfill, which generates methane gas, review and approval of the Closure Plan by NYSDEC could take several months. On-board reviews and interim meetings between NYSDEC and the designers optimistically could reduce the review period to a number of weeks. For the 35% Design with closed buildings on top of the landfill, however, NYSDEC indicated the review would be much more extensive and likely to exceed two years. The conclusion was that procedures for the 35% Design, likely to delay start of USMAPS construction to the Spring of 2011 (refer to Figure 3-9), significantly delaying USMAPS occupancy beyond September 2011, making this alternative unacceptable.

Eichelberger Compound

Under this alternative, the USMAPS barracks and supporting facilities would use converted and improved Eichelberger barracks, construct additional modular barracks, and construct new athletic fields and facilities to be located at the current DOL Motor Pool site. The USMAPS campus and facilities would be separated, and the Eichelberger barracks could only serve as a temporary site. The requirement under this site option to establish athletic facilities at a separate location would impose logistical and scheduling burdens on the USMAPS that could affect the quality of both academic and athletic instruction. The alternative would also fail to meet the criteria of providing separation between cadet candidates and cadets; an integrated, self-contained campus; or easy access on/off cantonment. For these reasons, this site was determined to not be a reasonable.

Figure 3-10: Washington Gate Alternative – 35% Design



Hardee Place Compound

In the Hardee Place alternative, the USMAPS campus and athletic facilities would be separated, with the USMAPS academic campus located at the Hardee Place area and the athletic fields and facilities located at the current DOL Motor Pool site. The requirement under this site option to establish athletic facilities at a separate location would impose logistical and scheduling burdens on the USMAPS that could affect the quality of both academic and athletic instruction. Also under this alternative, the following facilities and functions would need to be relocated: current DOL Motor Pool complex, uniform shop, the USMA band, the USMA band administration, the USMA glee club, and the Office of Director of Intercollegiate Athletics (ODIA). Due to the inability of this alternative to meet the criteria of an integrated USMAPS campus, the substantial disruptions and dislocations of facilities and functions that would occur, and the cost to accommodate multiple relocations, this site was determined to not be a reasonable alternative.

Golf Annex

The Golf Annex Site alternative would place USMAPS on a hilltop to the western side of the cantonment area. The topography of the site and the distance to utility connections would not provide appropriate terrain for USMAPS athletic facilities. Furthermore, due to the exposed nature of the prospective site located on a hilltop, there would likely be significant impacts to aesthetics and visual resources during the construction phase, which could potentially cause further impacts once constructed. In addition, there is a likelihood of cultural resource and coastal zone impacts. For these reasons, this site was not considered reasonable (Sturtz, pers. comm., 2007a).

Camp Buckner/Camp Natural Bridge

The Camp Buckner/Camp Natural Bridge Site, located in the Training and Range Areas west of the Main Cantonment, is the location of Cadet Field Training, which plays an integral part in the military training component for cadets. This option would provide a significant disruption to the primary mission of USMA, and would also make the complete separation of cadets and cadet candidates virtually impossible (Sturtz, pers. comm., 2007a). Furthermore, its location outside the existing secured cantonment may compromise Security and Force Protection and presents several issues not faced at the Washington Gate site. Army regulations would require the construction of additional support facilities, which would require additional space, funds, and time. Steep slopes and rock outcrops present at the site would also complicate necessary excavation, requiring more time and additional funds, as well as requiring the USMAPS complex to be more spread out. Finally, the location of USMAPS at the Camp Buckner/Camp Natural Bridge site would require the relocation of existing activities occurring at Training Area B and Training Area 2 (USMA, 2007c). As a result of these factors, this site was discounted as a reasonable alternative (Sturtz, pers. comm., 2007b).

Training Area V

Training Area V was not initially considered as a potential location for USMAPS in the feasibility study process. Its location in the Training and Range Area of USMA places it outside the secured perimeter of the campus, and therefore may present Security and Force Protection concerns. Furthermore, its topography and close proximity to significant surface water sources place substantial restrictions on the amount of buildable land available. Therefore, taking all site constraints into consideration, there is not adequate site capacity at TA-V to support the 36-acre proposed USMAPS campus (Meyer, pers. comm., 2007a). This site is therefore not considered a reasonable alternative.

3.5.1.1 DOL Motor Pool Alternatives Considered but Not Carried Forward for Analysis

The following DOL Motor Pool alternatives were considered but not carried forward for analysis.

Range 2

Training Range 2 was considered, but ruled out due to the location of firing points and operational conflicts with current training functions. To accommodate the DOL Motor Pool at this site, Range 2 activities would likely have to be curtailed or eliminated. At a minimum, existing firing points and fans would have to be adjusted or relocated, and would impose unreasonable limitations and burdens on current training activities and schedules.

Camp Buckner/Natural Bridge

Use of the Camp Buckner/Natural Bridge areas for a relocated DOL Motor Pool was assessed to have substantial impacts on the current use of the camp during summer months for cadet training. The site could not accommodate both current summer training activities and support motor pool needs during summer months without substantial improvements and new facilities. Even with improvements, collocated motor pool activities and summer training activities are incompatible activities that would likely adversely impact the efficiency of both functions. Summer training activities are an essential component of the military training activities in which cadets participate, and disruption of those activities could disrupt USMA's primary mission.

Transfer Station

This site was considered due to compatibility with DOL Motor Pool functions, location, and existing infrastructure. However, the transfer station site was assessed to be too small to support the needs of the DOL Motor Pool, including the required building and vehicle parking areas. In addition, planned expansion of the transfer station would further reduce the size of the site for potential development as the new DOL Motor Pool site.

3.5.1.2 DOL Secondary Refueling Station Alternatives Considered but Not Carried Forward for Analysis

The following DOL Secondary Refueling Station alternatives were considered but not carried forward for analysis.

Gas Station – Army and Air Force Exchange Service Site

The gas station at the Army and Air Force Exchange Service (AAFES), Building 1204, was considered for the Secondary Refueling Station (Meyer, pers. comm., 2008a). The site is located within the Main Cantonment, off Stony Lonesome Road and close to Stony Lonesome Gate. However, due to the distance from the operational facilities of the equipments that would fuel at the Secondary Refueling Station, the site was not carried forward for further analysis (Meyer, pers. comm., 2008b).

Within DOL Motor Pool (TA-V/W)

The proposed DOL Motor Pool at TA-V/W was considered for the Secondary Refueling Station (Meyer, pers. comm., 2008). However, the truck traffic at the DOL Motor Pool, would allow limited maneuverability for the equipment and therefore, the site was not carried forward for further analysis (Meyer, pers. comm., 2008b).

3.5.1.3 VETCOM Sites Considered

After consideration of the space required for the VETCOM facilities, a design charrette determined that the most effective and efficient location for these facilities would be to utilize the existing VTF, with some modifications to account for the additional functions to be housed in the building. Building 630 is proposed to have an addition and renovations to ensure that it can adequately meet the needs of VETCOM (Meyer, pers. comm., 2007b).

3.5.2 Scheduling Alternatives

The schedule for implementation of the Proposed Action must balance facilities construction timeframes and planned arrival dates of inbound units and stand-up dates of newly-established units, all within the 6-year limitation of the BRAC law. Realignment earlier than that shown in the schedule in Section 2.3.3 is not feasible in light of the time required to build facilities. Shifting of schedules to accomplish realignment at a later date would unnecessarily delay realization of benefits to be gained. Since earlier implementation is not possible, and since delay is avoidable and unnecessary, alternative schedules are not further evaluated in this EA.

4.0 AFFECTED ENVIRONMENT AND CONSEQUENCES

4.1 INTRODUCTION

This section contains a description of the current environmental conditions of the areas that would be affected should the Proposed Action be implemented. It also includes analysis of potential effects arising from the implementation of the Proposed Action. The description of environmental conditions represents the baseline conditions, or the “as is” or “before the action” conditions at the installation. The baseline is further defined as the level of operations and environmental conditions at the time of the BRAC Commission’s fall 2005 decision. The baseline facilitates subsequent identification of changes in conditions that would result from realignment. The environmental consequences portion represents the culmination of scientific and analytic analysis of potential effects arising from the implementation of the Proposed Action. Direct, indirect, and cumulative effects of the Proposed Action are also addressed.

Baseline environmental conditions for each resource area or condition are presented first, followed immediately thereafter by the evaluation of potential effects of the No Action Alternative and the Proposed Action Alternatives for the USMAPS and the VETCOM. The three Alternatives of the USMAPS Campus at Washington Gate would require relocation of the existing DOL Motor Pool to TA-V/W and construction of the Secondary Refueling Station close to Building 902 (the salt dome), north of Washington Road. Therefore, the Washington Gate Alternatives include the evaluation of the new DOL Motor Pool at TA-V/W and, where appropriate, the secondary refueling station.

In addition to the environmental conditions usually discussed in environmental documents, this section also includes a discussion on landfill disruption at the Washington Gate Site. Section 4.15, Landfill Disruption, has been included as a stand alone section because of the potential effects of the Washington Gate Alternatives that would place some of the USMAPS facilities on and adjacent to the two landfills, Landfill WSTPT-11 and Landfill WSTPT-11A. Where appropriate, other sections refer to Section 4.15, Landfill Disruption.

4.2 LAND USE

4.2.1 Affected Environment

4.2.1.1 Regional Geographic Setting and Location

The USMA was established in 1802 and is the nation’s oldest service academy. It is located on the oldest continuously occupied United States military post, now referred to as the U.S. Army Garrison at West Point. West Point is located on a 16,000-acre (6,475 hectare) reservation on the Hudson River, approximately 50 miles (80 kilometers) north of New York City, in the Village of Highlands in Orange County, New York. West Point is one of the most popular tourist destinations in New York.

Orange County as a whole has seen a decrease in agricultural land and an increase in residential development since the 1987 Comprehensive Plan, with residential land use increasing by 6% from 1985 to 1999, and agricultural land use decreasing by approximately 8% in that same time. As development pressure in the region increases, the County must balance its desire to preserve open space and maintain a rural-urban balance with the desire to grow and develop.

4.2.1.2 Installation Land Use

The West Point Main Cantonment, consisting of approximately 2,500 acres (1,012 hectares), is where the majority of the academic, residential, and support facilities are located. It is home to approximately 4,200 cadets, with 1,200 new cadets entering the Academy each year. In addition, West Point is also home to over 4,200 military personnel and family members, who live at West Point or in the immediate area, and a civilian workforce of approximately 4,100 personnel (USMA, 2005c). West Point is unique in that, along with its primary function of education and training, it also incorporates functions of a military base and contains a 2,500 acre (1,012 hectare) National Historic Landmark District (NHL) that includes most of the Main Cantonment’s housing, designated in 1960.

Land uses at West Point can be divided into four general categories: Cadet, including academic, intramural athletic, billeting, and parading; Cadet Support, including intercollegiate athletic fields and other support facilities; Post Support, including housing, commercial, and service support; and Recreational, Industrial, and Field Training, including building and storage area support for industrial operations, field training areas, recreation areas, logistical operations, and open space. The Master Plan Report for the Year 2007 (USMA, 1999) divides the campus up by these four main land use categories, forming zones. These four zones are depicted in Figure 4-1. The biggest limiting factors to development at West Point are the topography, with slopes greater than 20% on which construction is not possible, and the historic policy objectives of the installation. Taking these restrictions into account, buildable land remaining at West Point is limited.

Washington Gate Site

This potential USMAPS site is located immediately south of the Washington Gate access control point at West Point in an area currently occupied by DOL Motor Pool Facilities (See Figures 3-1 through 3-3). The area is bounded by a stream that parallels the Gray Ghost Housing Area situated along Moore Loop to the south, and is an industrial area established over a former marshland that is currently used as a Transportation Motor Pool (TMP). Two large buildings for vehicle maintenance (Buildings 793 & 795) and two smaller buildings (Buildings 781 & 783) used for vehicle washing and administrative purposes occupy this area. Building 719 is also located in the area and Building 817 is located to the north of the area. Both buildings are listed as industrial use. Large paved areas surround the compound and are used for vehicular parking, a contractor staging area, a transformer holding area for the DPW Electrical Shop, and recreational vehicle storage.

DOL Motor Pool (TA-V/W)

The proposed site for the relocated DOL is in TA-V/W of the West Point Range and Training Area (Figure 3-4). The site is bounded on the west by New York State (NYS) Route 293, on the north by Mine Torne Road, on the east by Stilwell Lake, and on the south by TA-W. Both TA-V and TA-W, while designated as training areas, currently receive limited usage. The site is heavily wooded, and features many bedrock outcrops. The site is strategically located in the heart of the range and training areas. Access to the site is via two all-weather roads, NYS 293 in TA-W, and Mine Torne Road in TA-V. Elevations at the site vary from greater than 740 feet (msl) to 604 feet (normal pool) at Stilwell Lake.

The Secondary Refueling Station would be constructed adjacent to Building 902 (the Salt Dome), north of Washington Gate, in an area designated as Recreational/Industrial/Field Training Zone (See Figure 3-5).

Lake Frederick Site

Lake Frederick is located approximately one mile northwest of Central Valley along Smith Clove Road is currently used for training and recreation (See Figures 3-6 and 3-7). The site is occupied by approximately 38 acres of forest habit and 26 acres of field habitat. The site is currently utilized as a camping facility by West Point, and contains 15 buildings, all located within approximately 90 feet of Lake Frederick. Four buildings are designated as B1848, B1864, B1869, and B1876, and serve as lodge, assembly, dining and showering facilities respectively. The remaining buildings consist of 10 A-frame buildings, which are utilized by patrons of the facility as lodging facilities and a mobile home, which is utilized by the site caretaker as a residence. The Maddock Drop Zone, used for training, is adjacent to the site.

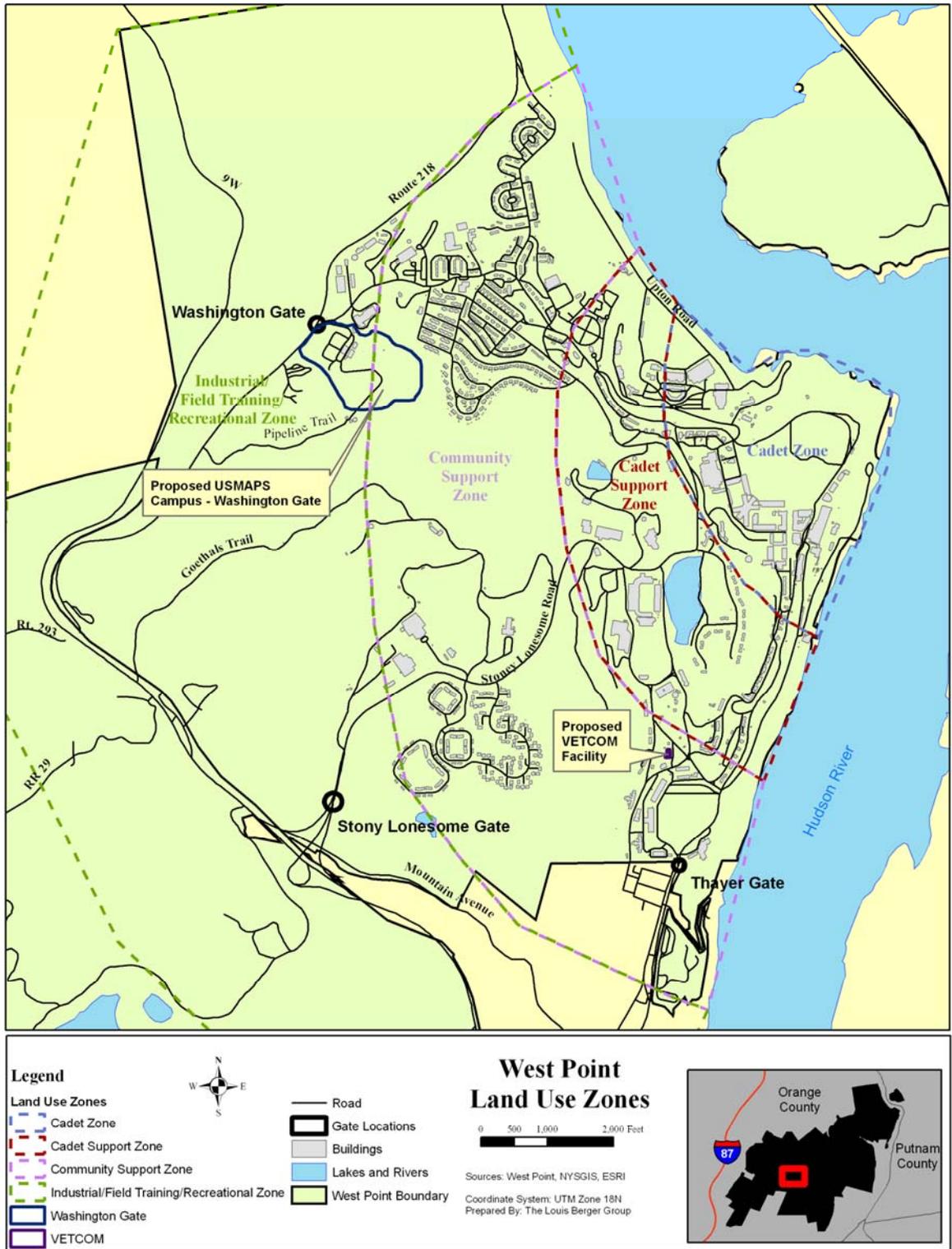
VETCOM Facility

The proposed VETCOM would be added to the VTF, which is located in the community support zone, at Hodges Place, behind the post office and craft / auto shop, to the north of the Buffalo Soldier Field (See Figure 3-8).

4.2.1.3 Surrounding Land/Airspace Use

The Village of Highland Falls is located directly outside the gates of West Point, within the Town of Highlands. The land use surrounding the installation is primarily rural in nature, with a small village center directly adjacent to the Thayer Gate, on the south side of the cantonment area.

Figure 4-1: Land Use Zones at West Point, Main Cantonment Area



There are three airports located in Orange County, Randall Airport in Middletown (34 miles away), Orange County Airport in Montgomery (27 miles away), and Stewart International Airport in Newburgh (16 miles away). Randall Airport, the smallest of the three airports, averages 62 air operations per day. In contrast, Orange County Airport and Stewart International Airport average 329 and 288 air operations per day, respectively.

4.2.1.4 Current and Future Development in the Region of Influence

Orange County has been under a Comprehensive Development Plan (CDP) since 1980. The plan was updated in 1985 and again in 1987. In 2003 the Orange County Planning Department developed a new Comprehensive Plan, *Strategies for Quality Communities*. This plan builds upon the 1987 CDP and the 2001 Draft Comprehensive Plan, *Strategies for Quality Communities* to face the 21st century challenges of the increased pace at which the area is being developed and integrated into the larger NY metropolitan region (OCPD, 2003). Central to the new comprehensive plan is the Urban-Rural concept that recommends that further growth in housing, business, and industry be focused in and around existing cities, villages, and urbanizing areas. Further developments should be planned in locations where existing major highways are nearby and central water and sewer services are available. The Urban-Rural concept also suggests that a major portion of Orange County be maintained as open, or green space, and that public services not be developed in these areas. West Point and the adjacent Village of Highland Falls are located within an area of Orange County defined as a Priority Growth Area. Priority Growth Areas are defined as general areas of preference for future development to maximize efficiency of infrastructure and services and to minimize the losses of open space. The primary function of the Priority Growth Areas is to serve as centers for future growth (OCPD, 2003).

4.2.2 Environmental Consequences

Impacts to land use were determined by the following criteria:

No Effect – No impacts to surrounding land use from the proposed project.

No Significant Effect – The impact to land use would be measurable or perceptible, but would be limited to a relatively small change in land use that is still consistent with the surrounding land uses.

Significant Effect – The impact to land use would be substantial. Surrounding land uses are expected to substantially change in the short- and long-term. The action would not be consistent with the surrounding land use.

4.2.2.1 No Action Alternative Consequences

The No Action Alternative would have no effect on land use at West Point. Under the No Action Alternative, USMAPS and the VETCOM would not come to West Point and the DOL Motor Pool would not move to TA-V/W and the Secondary Refueling Station would not be constructed adjacent to Building 902 (the Salt Dome), north of Washington Gate.

4.2.2.2 Alternative 1 WGE Consequences

Washington Gate Site: The implementation of USMAPS Alternative 1, locating USMAPS at Washington Gate on the existing DOL Motor Pool site deals exclusively with developments that would take place on West Point property and there would be no effects to surrounding land use, adjacent land use, or use of air space. The proposed USMAPS Campus would be located partially in the Community Support Zone and partially in the Industrial/Field Training/Recreational Zone. Per mission requirements, the USMAPS may not be located in the Cadet Zone of the Main Cantonment area, as the complete separation of the two student bodies has been deemed critical to the success of each, therefore its location in the Community Support Zone and the Industrial/Field Training/Recreational Zone allows it to be a self-contained campus within a supported zone at West Point, thus presenting a compatible land use. The replacement of the DOL Motor Pool with the USMAPS campus would represent a change in land use; however, the change would be anticipated to be beneficial as the proposed action would result in a more productive use of the landfill area from its current use. The proposed action would also result in implementation of mitigation measures, which as discussed in following sections, would provide an approved cap for a landfill as well as remediate contaminated soil and water in the current DOL Motor Pool area. In addition, the USMAPS campus would be located at the Main Cantonment and the proposed design for the

facility would be more consistent with the scale, massing, and materials of the adjacent areas than the current buildings being replaced. Similarly, the proposed new buildings would meet LEED Silver Design standards and would replace the existing older, less efficient buildings.

DOL Motor Pool (TA-V/W): There would be no significant effect on land use as a result of the DOL Motor Pool relocating to TA-V/W as part of the USMAPS Alternative 1. TA-V/W are located in the Industrial, Field Training, and Recreation Zone at West Point, therefore its conversion to a motor pool would be introduce an industrial use into an area designated as being inclusive of that use. Although the actual use of land would change from undeveloped land to developed land, this change would be consistent with its designation and not in conflict with surrounding uses, such as Camp Buckner and Camp Natural Bridge, therefore effects are not expected to be significant.

The Secondary Refueling Station would be located southwest of the salt dome, in an area designated as Industrial/Field Training/Recreational Zone. The refueling station would be a compatible land use and therefore, significant effects are not anticipated.

4.2.2.3 Alternative 2 WG B Consequences

Implementation of USMAPS Alternative 2 at the Washington Gate site would have same effects as USMAPS Alternative 1 at Washington Gate site, the proposed DOL Motor Pool (TA-V/W) Site, and the Secondary Refueling Station. Therefore, effects from the alternative are not expected to be significant.

4.2.2.4 Alternative 3 WG 15% Design Consequences

Implementation of USMAPS Alternative 3 at the Washington Gate site would have same effects as USMAPS Alternative 1 at Washington Gate site, the proposed DOL Motor Pool (TA-V/W) Site, and the Secondary Refueling Station. Therefore, effects from the alternative are not expected to be significant.

4.2.2.5 Alternative 4 LF 2a Consequences

Under Alternative 4, the USMAPS Campus would be located at the Lake Frederick site, an area currently designated as recreational and training area. Establishing separate secure installation would have long-term resource implications for West Point.

Under this alternative, the existing campground would be relocated to the north of Lake Frederick in the area bounded by Lake Frederick Road, Proctoria Road, and a West Point Military Reserve Road and would also entail demolition of the caretaker's building at the campground. The placement of USMAPS campus would represent a change in land use; however the change would not represent a significant impact as developments would take place on West Point property for purposes consistent with the overall mission for land use at West Point and there would be no effects to surrounding land use, adjacent land use, or use of air space. Additionally, as the campgrounds would be relocated within the same area, the recreational function would continue at the site and therefore, effects from the alternative are not expected to be significant.

4.2.2.6 Alternative 5 LF 2b Consequences

Similar to Alternative 4, under Alternative 5, the USMAPS would be located at Lake Frederick site. However, this alternative would retain the existing campground and would not require demolition of the caretaker's building. Therefore, similar to Alternative 4, the placement of USMAPS campus would represent a change in land use; however the change would not represent a significant impact as developments would take place on West Point property for purposes consistent with the overall mission for land use at West Point and there would be no effects to surrounding land use, adjacent land use, or use of air space. Similar to Alternative 4, establishing separate secure installation would have long-term resource implications for West Point.

4.2.2.7 VETCOM Consequences

There would be no significant effect on land use as a result of the VETCOM facility co-locating with the VTF. The new land use would not represent any functional difference from the existing use, just an expansion of the original purpose.

4.3 VISUAL RESOURCES

The visual identity of West Point is formed by its architectural character, historic resources, topography/natural landscapes, and viewsheds. These prominent features contributed to its designation as a National Historic Landmark on the National Register of Historic Places (USACE, 2007b).

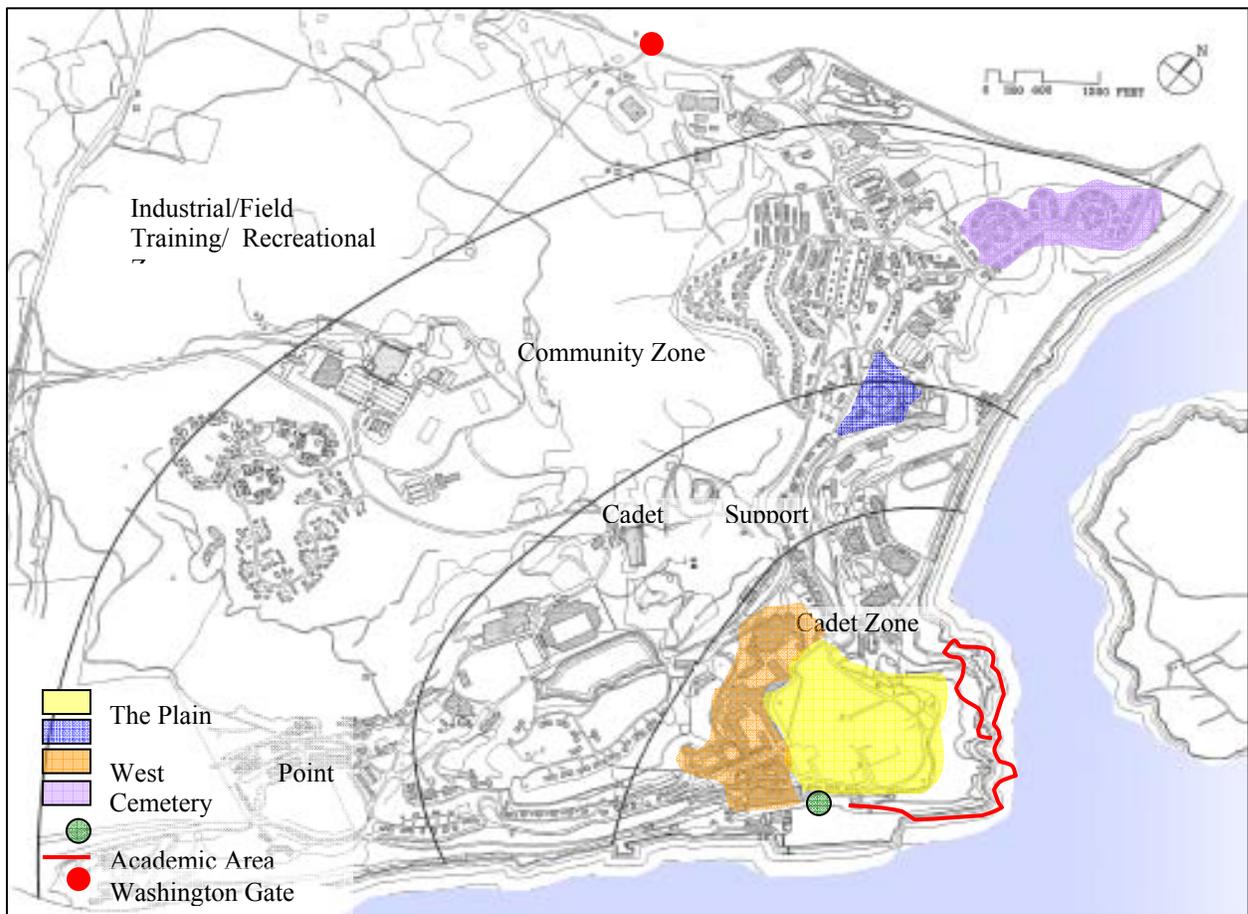
Architectural Character & Historic Resources

In the Master Plan Report for the Year 2007, four distinct architectural zones were developed for the Main Cantonment. Each zone is differentiated by the palette of building materials and type of function or land use (See Figure 4-2) as discussed in Section 4.2, Land Use: Cadet Zone, Cadet Support Zone, Community Support Zone and Industrial/Field Training/Recreational Zone.

With the exception of the Industrial/Field Training/Recreational Zone, the architectural zones are characterized primarily by red brick building facades, though grey granite buildings are the central characteristic of The Plain within the Cadet Zone (See Figures 4-1, 4-2). The Industrial/Field Training/Recreational Zone, particularly the two developed areas surrounding the Washington Gate, is characterized by concrete and steel structures.

There are also several historic feature landscapes and areas that contribute to the visual identity of West Point and contain prominent visual resources. These areas include the Plain, West Point Cemetery, the Academic Area, Lee Housing Area, Kosciusko Garden, and Flirtation Walk (See Figure 4-2).

Figure 4-2: West Point Master Plan Architectural Zones and Historic Resources



Scenic Resources: Topography, Natural Landscapes, and Viewsheds

Scenic Resources include the topography, natural landscapes, and viewsheds that contribute to an overall visual image of a place when perceived from a distance.

The topography at West Point is steep and varied, enabling numerous dramatic views and vistas both to and from the Main Cantonment. These reciprocal viewsheds have always played a significant role in the history, development, and character of the Main Cantonment.

The views from the campus toward the Hudson and points beyond were a major contributing factor to its original siting, yielding excellent river surveillance (USMA, 2002). West Point is also a part of the Highlands mountain landscape, a widely recognized image in the American Landscape, serving as inspiration to the Hudson River School of Landscape Painting and other renowned painters in the 19th century (USMA, 2002).

The views looking back toward West Point, both from points across the Hudson as well as from the lower elevations on post, capture the visual character of West Point from a distance. These “postcard” views reveal the aesthetic prominence and of the buildings, topography, and landscape that define the image of West Point. From a distance, particularly at locations across the river, West Point campus has a distinct skyline. The separate building masses, forms, and materials and their placement in the topography contribute to an overall unified image of West Point.

During the daytime there is a hierarchy of building forms, primarily identified by the Cadet Chapel and the profile of grey granite buildings in the Cadet Zone (See Figure 4-2). At night time, the general hierarchy is similarly reinforced by illumination of the Cadet Chapel and buildings in the Cadet Support and Community Zones. During sporting events, landmarks like the Cadet Chapel are overshadowed by the Stadiums which are more intensely illuminated.

Today, West Point is located within the Hudson Highlands Scenic Area of Statewide Significance (HHSASS) because of its importance as an integral part of the coastal scenic landscapes within the Hudson River Coastal Zone (NYDOS 2008). The HHSA is composed of multiple subunits, which have been defined based on the aesthetic quality and character of the landscape, uniqueness, public accessibility, and recognition (NYDOS 1993). The USMA is located within the Contemporary West Point Military Academy Subunit.

Guiding Framework for Visual Resources

West Point has developed a number of management plans that describe and classify the existing visual resources on the Main Cantonment and prescribe guidelines for future development (USMA, 2008):

- Historic Landscape Management Plan for the U.S. Military Academy at West Point
- USMA Installation Design Guide
- Identification and Analysis of the Historic Built Environment and Viewsheds
- Cadet Zone, USMA Perimeter Fence Line Views Analysis, West Point, New York

4.3.1 Affected Environment

The proposed action includes the relocation and construction of new facilities in four areas of the installation to support USMAPS, the new DOL Motor Pool and the Secondary Refueling Station, and VETCOM. These areas include the Washington Gate, Lake Frederick, training ranges V & W (TA-V/W) and area near the Salt Dome, and the existing VTF.

4.3.1.1 Washington Gate Site

The Washington Gate is the northern most entrance to the Main Cantonment, located in the Industrial/Field Training/ Recreational zone (See Figures 4-1, 4-2). This site is located in the northwestern portion of the Main Cantonment, south-east of the intersection of Highway 218 and Washington Road, and is currently occupied by the DOL Motor Pool (See Figure 4-3).

Figure 4-3: Aerial View of the Washington Gate Site Looking North



The majority of the site is developed and paved, with large expanses of parking areas. There are several large maintenance and storage structures to the north of the site and numerous sheds and trailers to the south of the site. The Washington Gate site is surrounded by a buffer of dense mature trees on all sides and particularly steep slopes along its southern edge.

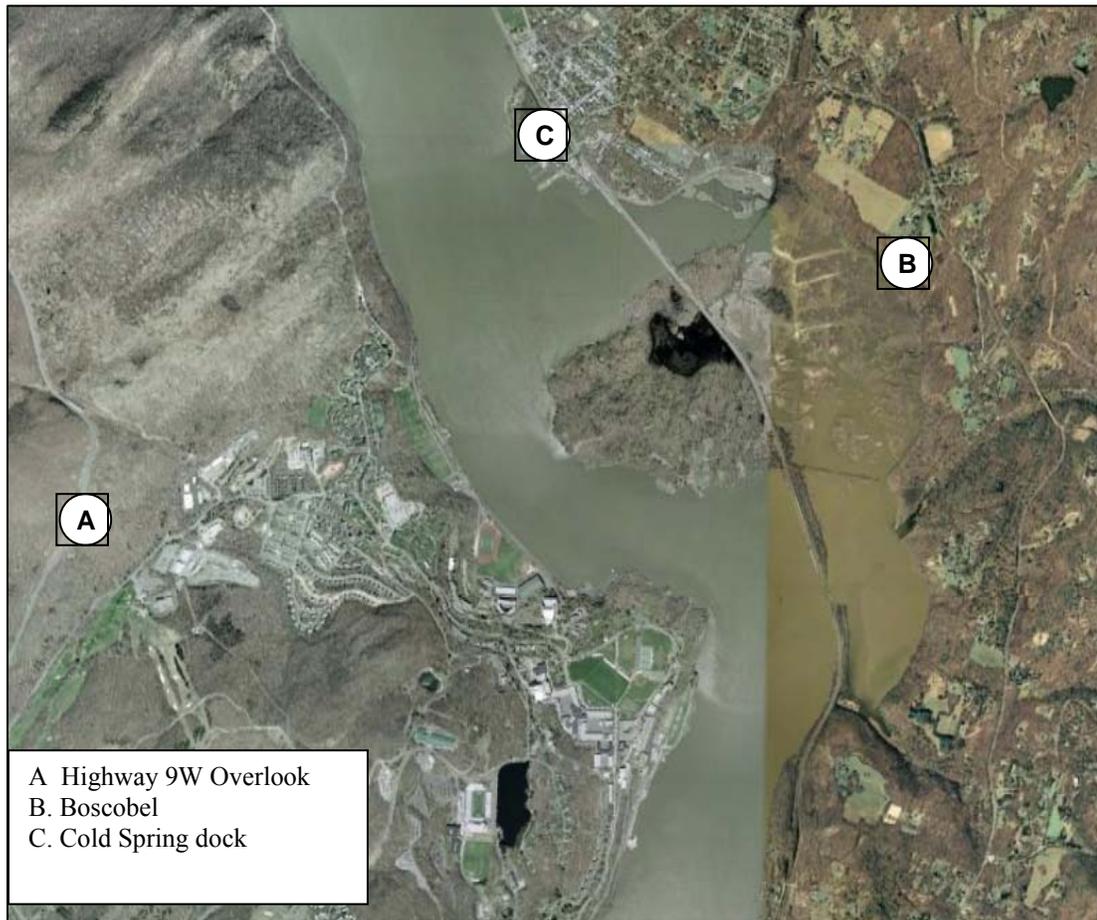
The character of the buildings is consistent with its location in the Industrial/Field Training/ Recreational zone; the majority is single story concrete and steel structures with little or no architectural embellishment or articulation. The placement and design of the buildings appears to be a product of their service and maintenance functions, with no intent for visual coherence or consistency.

Through a detailed Geographic Information System (GIS) analysis using Environmental Systems Research Institute (ESRI) ArcMap software conducted by the USAG DPW, site visits and consultation with the USACE project team, three locations were identified that provide the most salient views of the Washington Gate site. These include views from off West Point campus such as the overlook along Highway 9-W and across the Hudson River at Boscobel and Cold Spring Dock (See Figure 4-4). Figures 4-8 through 4-10, illustrating potential impacts to the viewshed in Section 4.3.2, include existing views from these locations. These views were deemed to be the most prominent public sites from which the proposed action would be visible.

The view from the 9W Overlook is relevant because US-9W is a New York State Scenic Roadway and Scenic Byway (Figure 4-8). The designated overlook offers a wide vista of the surrounding landscape, Hudson River, and West Point below. In the view looking east from the Overlook, the Washington Gate Motor Pool site is in the forefront. The viewshed includes the Hudson River, Grey Ghost Housing area, and the New Brick buildings in the distance.

The view from across the Hudson at the Cold Spring dock is important because is located within the Cold Spring subunit of the HHSASS (Figure 4-9). The view looking south toward West Point from the waterfront looks onto the north side skyline of the Main Cantonment. The Cadet Chapel is still the most prominent architectural feature, dominating the viewshed. The red brick structures surrounding the North Athletic Fields including the Gillis Field House, Eisenhower Hall, and the DPW are visible in the foreground. The Cadet Physical Development Center and Jewish Chapel are visible in the middle ground of the viewshed.

Figure 4-4: Views from which the Washington Gate Site is Visible



The view from Boscobel is important because it is located within the Garrison Four Corners subunit, an elongated area mainly located inland on the eastern shore lands of the Hudson River (Figure 4-10). From the amphitheater of the property, looking southwest, there is a view of West Point over Constitution Island. The Cadet Zone Academic Area is the focus of the view, primarily defined by the grey granite buildings that surround the Plain including Thayer Hall, Washington Hall, and the barracks. Michie Stadium and Arvin Gymnasium are visible to the right (west) in Figure 4-10.

4.3.1.2 Training Areas V and W

The proposed DOL Motor Pool site is in the central portion of the Training/ Range Area, south-east of the junction of Highway 293 and Mine Torne Road (See Figure 3-4). The western edge of the project site borders the eastern edge of Highway 293, with Mine Torne Road to the north, Stillwell Lake to the east and Mine Lake to the south. The existing site is an undeveloped, heavily forested knoll. The area has relatively steeply sloped margins leading to a plateau, all of which are covered with dense vegetation and tree stands.

4.3.1.3 The Secondary Refueling Station

The site for the Secondary Refueling Station is located to the northeast of the motor pool site in an industrial area along the US 9W. Similar to the motor pool site, the majority of the site is developed and paved, with large expanses of parking areas. There are several large maintenance and storage structures to the north and east of the site and a salt dome to the western portion of the site. The Secondary Fuel Station site is surrounded by a buffer of dense mature trees on all sides and US 9W along its northern edge (Figure 4-5).

The character of the buildings is consistent with its location in the Industrial/Field Training/ Recreational zone; the majority is single story concrete and steel structures with little or no architectural embellishment or articulation. The placement and design of the buildings appears to be a product of their service and maintenance functions, with no intent for visual coherence or consistency.



Figure 4-5: Secondary Refueling Station Site

4.3.1.4 Lake Frederick

Lake Frederick is located approximately 13 miles southwest of the Main Cantonment in Central Valley along Smith Clove Road. It is surrounded by sparsely populated residential land uses and the Central Valley Golf Club to the southwest. The lake and existing dense vegetation are the most prominent existing visual features. In addition, there are several small scale single story structures around the western perimeter of the lake that support the recreational uses of the site. A recreational path encircles the lake providing dramatic views of the areas to the west of the site (Figure 4-6).

Figure 4-6: Existing View at Lake Frederick, Looking West



4.3.1.5 VETCOM Facility

The proposed VETCOM would be added to the VTF, which is located in the community support zone, at Hodges Place, behind the post office and craft / auto shop, to the north of the Buffalo Soldier Field. The existing building is a two-story brick structure with white wood trim and a gable roof. It is surrounded by several storage sheds and the Post Office and Crafts/ Auto building, both of which are single-story brick buildings (Figure 4-7).

Figure 4-7: Veterinary Treatment Facility



4.3.2 Environmental Consequences

Methodology & Assumptions

Any proposed action that would change the overall visual character of West Point (particularly as perceived from a distance in the previously identified viewsheds) has the potential to create an adverse effect to visual resources. This visual impact assessment addresses potential changes to the visual character of the project area. In order to more accurately determine the effects of the proposed action, a site survey including a survey of topography and existing viewsheds was conducted in August 2008.

Because the proposed location of the USMAPS at the Washington Gate site has the largest area of impact and therefore has the most likely opportunity to affect the existing visual character of the Main Cantonment, a viewshed analysis was performed for the three alternatives at this location. It used existing photographs and computer generated 3d visual simulations of the proposed actions using GIS ESRI ArcMap Software. The perspective simulations utilize the three viewsheds identified in the previous section. Though diagrammatic in nature, the final product provides an accurate representation of the intensity and degree of effect specifically related to the location, scale and mass of the proposed designs within the surrounding context. In the viewshed analysis, the existing photograph is juxtaposed against the proposed action, with the USMAPS project shown in red.

The visual impact analysis at the Lake Frederick, proposed DOL Motor Pool site (TA-V/W) and the Secondary Refueling Station, and VETCOM location was evaluated as rigorously, however no viewshed analysis was performed at these locations. The determination of effects was based on the extent to which the proposed action would alter the existing visual character of the area.

Thresholds of Intensity of Effect for Visual Resources

Impacts to views and vistas are determined based on an analysis of the existing quality of West Point and the anticipated relationship of the proposed design elements (mass, scale, proportion) to the existing visual environment. The impacts to visual resources will be evaluated per alternative and will utilize the following criteria:

No Effect – No impacts to the existing visual character in the project area, nor any impacts to scenic vistas or viewsheds either to or from the installation as a result of the proposed action.

Not Significant Effect – No permanent direct or indirect impacts to the existing visual character in the project area, or any impacts to scenic vistas or viewsheds either to or from the installation would be

expected as a result of the proposed action. Any disturbances that alter the visual character or viewsheds would be temporary, and would be restored to its original condition following the action.

Significant Effect – Direct or indirect impacts to the existing visual character in the project area, or any impacts to scenic vistas or viewsheds either to or from the installation are expected as a result of the proposed action. These effects would be greater in intensity, extent, and/or duration than non-significant impacts. Significant impacts would result in a noticeable effect and would diminish or enhance the overall integrity of the existing visual character and quality of the project area and/or would create a noticeable effect on the existing scenic vistas and viewsheds.

This visual impact analysis takes into consideration that the views were taken in late summer, when the majority of vegetation is still dense. If the viewshed analysis was conducted in the winter months when the vegetation would be sparse, the views would certainly appear different, but the visual effects would not vary in significance or degree of effect, based on these thresholds of intensity.

The visual impact analysis for each alternative is divided into two parts: the effects on the visual character at the Washington Gate site and the effects on the viewsheds from the three locations identified in the Affected Environment. As discussed in the following sub sections, Figures 4-8 through 4-12 provide the viewshed simulation for the Washington Gate alternatives. These figures are also presented in larger format in Appendix E.

4.3.2.1 No Action Alternative Consequences

Under the No Action Alternative, no new construction would occur and there would be no changes to the existing viewsheds and aesthetics of the installation. Because the historic viewsheds and aesthetic resources of the installation would not change, there would be no effect.

4.3.2.2 Alternative 1 WG E Consequences

While the physical configuration of the buildings and recreational fields in the Alternative 1 WG E, Alternative 2 WG B, and Alternative 3 WG 15% Design vary slightly (See Figures 3-1, 3-2, and 3-3), each of the alternatives locates the majority of the academic, housing, dining, and athletic support facilities buildings along the southern edge of the site, against the existing tree line. When viewed from points afar at a great distance from the Main Cantonment, the overall effect of the three alternatives is not differentiable. The view from 9W Overlook is the only location from which there would be appreciable differences in the alternatives. Therefore, in the remaining views from Boscobel and Cold Spring dock, only one alternative is delineated and the effects are summarized accordingly.

Effects on the Visual Character – Washington Gate Site: The implementation of Alternative 1 at Washington Gate would have effects, as it would create direct impacts to the existing visual character in the DOL Motor Pool area and it would create a noticeable effect on the scenic viewsheds toward the installation from several locations.

Alternative 1 would require the demolition of the existing DOL Motor Pool facilities and the new construction of USMAPS barracks, academic building, dining facility, athletic building, and recreational fields. The buildings would be located to the south of the existing DOL Motor Pool in an area that is currently forested. The athletic fields would occupy the north side of the site.

The new USMAPS facilities would create a permanent noticeable direct effect on the visual character in the project area. These effects are considered beneficial, however, as the design is more consistent with the scale, massing, and materials of the adjacent areas in the Main Cantonment than the buildings being replaced. The implementation of this alternative would therefore enhance the visual character of the project area, which currently lacks architectural distinction and visual consistency, and would not cause significant adverse effects.

Landscape designs would incorporate the use of mature trees to restore the existing visual character of the site, to the maximum extent possible, particularly along the southern edge.

During demolition and construction, there would not be significant effects because the associated disturbances that alter the visual character or viewsheds would be temporary and would be restored to the original condition following completion of construction.

Effects on the Viewsheds - Washington Gate Site

A. 9W Overlook

As discussed earlier, the character of the buildings at the Washington Gate Site is consistent with its location in the Industrial/Field Training/ Recreational zone; the majority is single story concrete and steel structures with little or no architectural embellishment or articulation. The placement and design of the buildings appears to be a product of their service and maintenance functions, with no intent for visual coherence or consistency. The existing view from the 9W Overlook offers a wide vista of the surrounding landscape, Hudson River, and West Point below (See Figure 4-8). In the view looking east from the Overlook, the Washington Gate motor pool site is in the forefront. The viewshed includes the Hudson River, Grey Ghost Housing area, and the New Brick housing in the distance.

Alternative 1 would create a noticeable effect on the scenic viewshed from Overlook 9W toward the Main Cantonment. These effects would be beneficial because the new buildings in Alternative 1 would enhance the viewshed toward the Hudson River by creating a new visual district consistent with the adjacent Grey Ghost Housing area, complementing the image of the Main Cantonment in the distance as the proposed design would be more consistent with the scale, massing, and materials of the adjacent areas than the buildings being replaced.

While the USMAPS would introduce a new campus of buildings that would require illumination after dark, the effect would not be noticeable, compared to existing conditions, because the Motor Pool facility is illuminated at all times. As a result, the effect is not expected to be adverse because it would be not be more intense than present levels and would be consistent with the illumination levels of the adjacent housing areas, thus appearing as a continuation of the nighttime landscape. Additionally, the use of Light-Emitting-Diode (LED) technology light bollards is proposed instead of the conventional street lighting. Any impacts resulting from night use of the recreational fields or facilities would not be significant because they would be temporary and the normal level of illumination would be restored following the event. Figure 4-8 provides the viewshed simulation from Overlook 9W.

B. Boscobel Mansion

As discussed previously, the view of the Washington Gate Site from across the Hudson at the Cold Spring dock is important because is located within the Cold Spring subunit of the HHSASS. The existing view looking south toward West Point from the waterfront looks onto the north side skyline of the Main Cantonment (Figure 4-9). The Cadet Chapel is still the most prominent architectural feature, dominating the viewshed. The red brick structures surrounding the North Athletic Fields including the Gillis Field House, Eisenhower Hall, and the DPW are visible in the foreground. The Cadet Physical Development Center and Jewish Chapel are visible in the middle ground of the viewshed.

Alternative 1 would create a noticeable effect on the scenic viewshed from Boscobel looking southwest towards toward the Main Cantonment since it will be located at a high elevation on the hillside where there is currently forested area and would be perceived as the highest cluster of buildings. However, because the materials, scale, and massing are visually consistent with the other buildings that are prominent in the viewshed, particularly the grey granite buildings in the Cadet Zone that surround the Plain including Thayer Hall, Washington Hall, and the barracks, the effects would not be significant or adverse.

While the USMAPS would introduce a new campus of buildings that would require illumination after dark, the effect would not be noticeable, compared to existing conditions, because the Motor Pool facility is illuminated at all times. As a result, the effect is not expected to be adverse because it would be not be more intense than present levels and would be consistent with the illumination levels of the adjacent housing areas, thus appearing as a continuation of the nighttime landscape. Additionally, the use of LED technology light bollards is proposed instead of the conventional street lighting. Any impacts resulting from night use of the recreational fields or facilities would not be significant because they would be temporary and the normal level of illumination would be restored following the event. Figure 4-9 provides the viewshed simulation from Boscobel.

Figure 4-8: Existing View and Simulation of Alternative 1 at Washington Gate

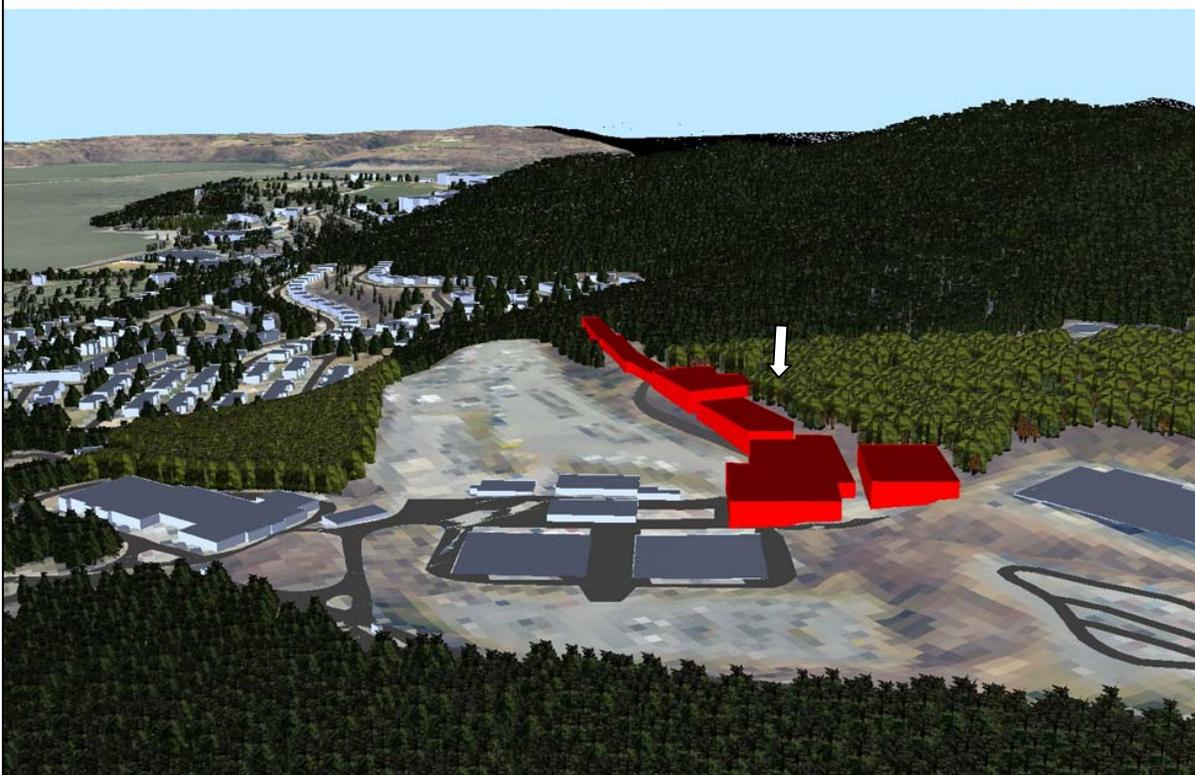
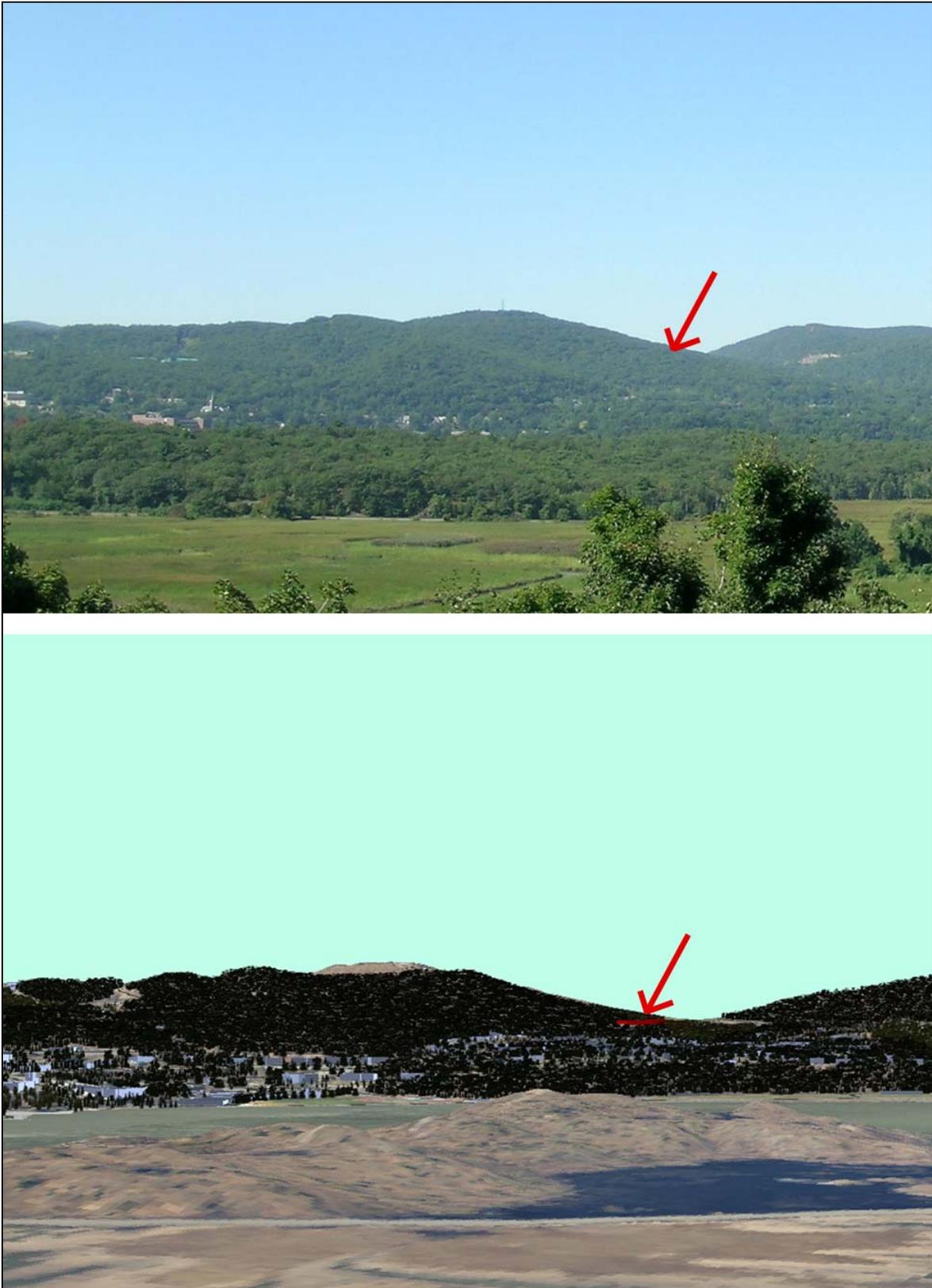


Figure 4-9: Existing View and Simulation of Alternative 1 at Boscobel



C. Cold Spring Dock

As discussed, the view from Boscobel is important because it is located within the Garrison Four Corners subunit, an elongated area mainly located inland on the eastern shore lands of the Hudson River (See Figure 4-10 for the existing view). From the amphitheater of the property, looking southwest, there is a view of West Point over Constitution Island. The Cadet Zone Academic Area is the focus of the view, primarily defined by the grey granite buildings that surround the Plain including Thayer Hall, Washington Hall, and the barracks. Michie Stadium and Arvin Gymnasium are visible to the right (west) in Figure 4-10.

Alternative 1 would not create a noticeable effect on the scenic viewshed from Cold Spring dock looking south toward the Main Cantonment, as the new buildings would not diminish the prominence of the buildings on the north side skyline such as the Cadet Chapel, Gillis Field House, Eisenhower Hall, DPW, Cadet Physical Development Center, or Jewish Chapel (Figure 4-10).

Figure 4-10: Existing View and Simulation of Alternative 1 at Cold Spring



While the USMAPS would introduce a new campus of buildings that would require illumination after dark, the effect would not be noticeable, compared to existing conditions, since the Motor Pool facility is illuminated at all times. As a result, the effect is not expected to be adverse because it would be not be more intense than present levels and would be consistent with the illumination levels of the adjacent housing areas, thus appearing as a continuation of the nighttime landscape. Additionally, the use of LED technology light bollards is proposed instead of the conventional street lighting. Any impacts resulting from night use of the recreational fields or facilities would not be significant because they would be temporary and the normal level of illumination would be restored following the event.

Effects on the Visual Character – DOL Motor Pool (TA-V/W): The proposed project site for the new DOL Motor Pool is currently undeveloped land that overlooks Stillwell Lake to the east and Mine Lake to the south. The proposed construction of the DOL Motor Pool would require the removal of the numerous mature trees within the natural landscape that would be replaced by new structures and elements that would have long-term impacts to the existing viewsheds. However, these new projects would not necessarily adversely affect the corridor viewshed. Although the design of the new structures is undetermined at this time, the proposed projects could create a new visual district in an area that currently lacks visual consistency.

Effects on the Visual Character – DOL Secondary Refueling Station: The Secondary Refueling Station would consist of a fuel dispensing station and USTs in an industrial area and would not require any demolition of existing facilities. The development would be in an industrial area with no current visual consistency; therefore, effects to viewshed are anticipated to be minimal and not significant. The views from 9W are considered fleeting due to the vehicles that travel at high speeds along this portion of the highway. Therefore, there would be no effect on the viewshed from 9W.

4.3.2.3 Alternative 2 WG B Consequences

Effects on the Visual Character – Washington Gate Site: The implementation of this alternative would have effects because it would create direct impacts to the existing visual character in the Washington Gate site and it would create a noticeable effect on the scenic viewsheds toward the installation from several locations.

This alternative would require the demolition of the existing DOL Motor Pool facilities and the new construction of USMAPS barracks, academic building, dining facility, athletic building, and recreational fields. The buildings would be located to the south of the existing Motor Pool in an area that is currently forested. The athletic fields would occupy the north side of the site.

The new USMAPS facilities would create a permanent noticeable direct effect on the visual character in the project area. These effects are considered beneficial, however, as the design is more consistent with the scale, massing, and materials of the adjacent areas in the Main Cantonment than the buildings being replaced. The implementation of this alternative would therefore enhance the visual character of the project area, which currently lacks architectural distinction and visual consistency, and would not cause significant adverse effects.

Landscape designs will incorporate the use of mature trees to restore the existing visual character of the site, to the maximum extent possible, particularly along the southern edge.

During demolition and construction, there would not be significant effects because the associated disturbances that alter the visual character or viewsheds would be temporary and would be restored to the original condition following completion of construction.

Effects on the Viewsheds - Washington Gate Site

A. 9W Overlook

Alternative 2 would create a noticeable effect on the scenic viewshed from Overlook 9W toward the Main Cantonment. These effects would be beneficial because the new buildings in Alternative 1 would enhance the viewshed toward the Hudson River by creating a new visual district consistent with the adjacent Grey Ghost Housing area, complementing the image of the Main Cantonment in the distance. Figure 4-11 provides the viewshed simulation from Overlook 9W.

Figure 4-11: Existing View and Simulation of Alternative 2 at Washington Gate



While the USMAPS would introduce a new campus of buildings that would require illumination after dark, the effect would not be noticeable, compared to existing conditions, since the Motor Pool facility is illuminated at all times. As a result, the effect is not expected to be adverse because it would be not be more intense than present levels and would be consistent with the illumination levels of the adjacent housing areas, thus appearing as a continuation of the nighttime landscape. Additionally, the use of LED technology light bollards is proposed instead of the conventional street lighting. Any impacts resulting from night use of the recreational fields or facilities would not be significant because they would be temporary and the normal level of illumination would be restored following the event.

B. Views from Cold Spring Dock and Boscobel

As previously described, the physical configuration of the buildings and recreational fields in the Washington Gate Alternatives vary slightly, but generally each of the alternatives locates the majority of buildings along the southern edge of the site, against the existing tree line. When viewed from points afar at a great distance from the Main Cantonment, the overall effect of the three alternatives is not differentiable. Therefore, the effects from views from these locations are similar to Alternative 1.

Effects on the Visual Character – DOL Motor Pool (TA-V/W): Under Alternative 2, changes at the proposed DOL Motor Pool site (TA-V/W) in terms of visual resources would be the same as under Alternative 1; therefore, adverse effects are not anticipated and although the design of the new structures is undetermined at this time, the proposed projects could create a new visual district in an area that currently lacks visual consistency.

Effects on the Visual Character – DOL Secondary Refueling Station: Same as under Alternative 1, the effects to viewshed would be minimal and not significant.

4.3.2.4 Alternative 3 WG 15% Design Consequences

Effects on the Visual Character - Washington Gate Site: The implementation of Alternative 3 WG 15% Design would have effects because it would create direct impacts to the existing visual character at the Washington Gate site and it would create a noticeable effect on the scenic viewsheds toward the installation from several locations. This alternative would require the demolition of the existing facilities on the DOL Motor Pool site and the new construction of USMAPS barracks, academic building, dining facility, athletic building, and recreational fields. The buildings will be located to the south of the existing Motor Pool in an area that is currently forested. The athletic fields would occupy the north side of the site.

The new USMAPS facilities would create a permanent noticeable direct effect on the visual character in the project area. These effects are considered beneficial, however, as the design is more consistent with the scale, massing, and materials of the adjacent areas in the Main Cantonment than the buildings being replaced. The implementation of this alternative would therefore enhance the visual character of the project area, which currently lacks architectural distinction and visual consistency, and would not cause significant adverse effects. Landscape designs will incorporate the use of mature trees to restore the existing visual character of the site, to the maximum extent possible, particularly along the southern edge.

During demolition and construction, there would not be significant effects because the associated disturbances that alter the visual character or viewsheds would be temporary and would be restored to the original condition following completion of construction.

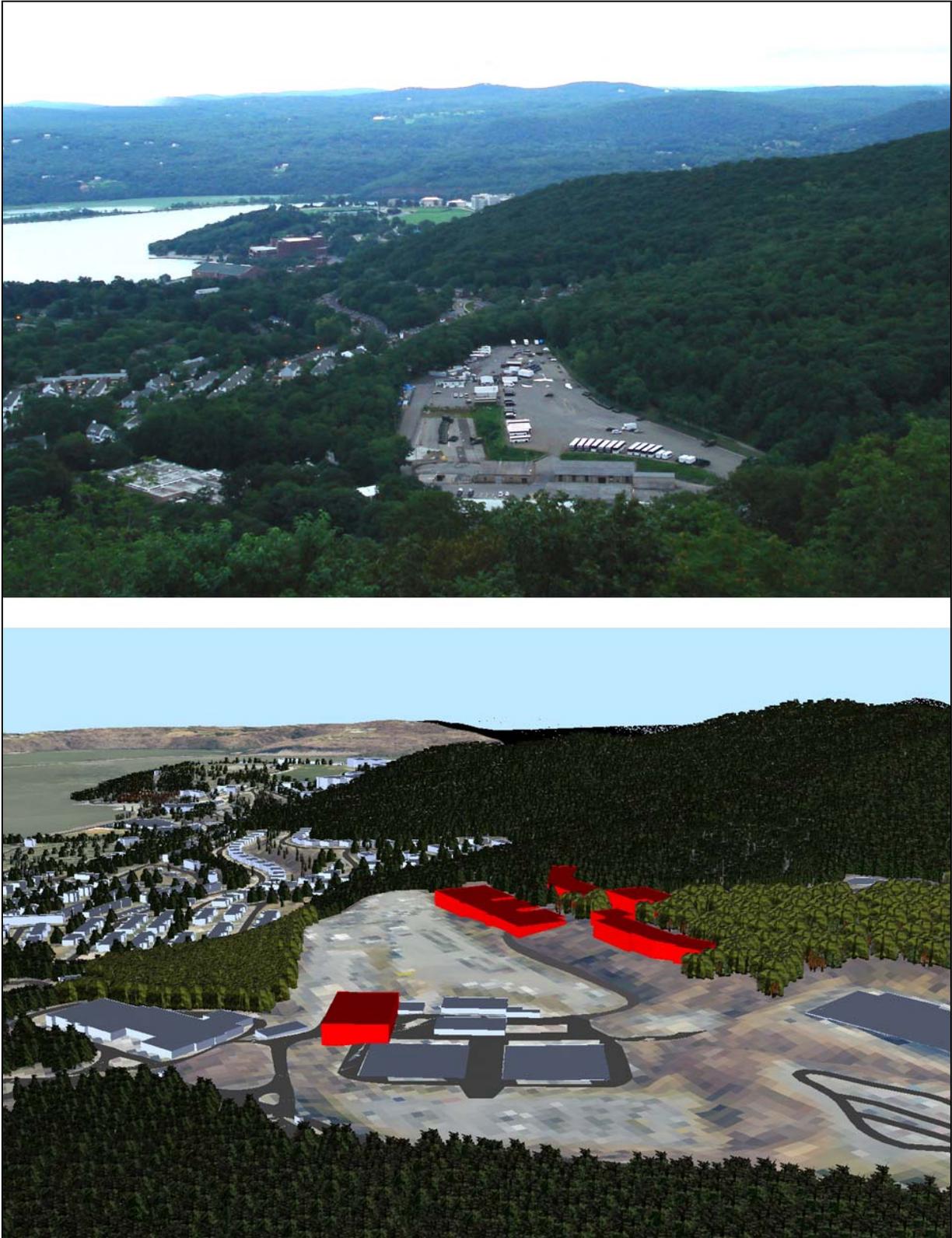
Effects on the Viewsheds – Washington Gate Site

A. 9W Overlook

Alternative 3 WG 15% Design would create a noticeable effect on the scenic viewshed from Overlook 9W toward the Main Cantonment. These effects would be beneficial because the new buildings in Alternative 1 would enhance the viewshed toward the Hudson River by creating a new visual district consistent with the adjacent Grey Ghost Housing area, complementing the image of the Main Cantonment in the distance.

Figure 4-12 provides the viewshed simulation from Overlook 9W.

Figure 4-12: Existing View and Simulation of Alternative 3 at Washington Gate



B. Views from Cold Spring Dock and Boscobel

As previously described, the physical configuration of the buildings and recreational fields in the Washington Gate Alternatives vary slightly, but generally each of the alternatives locates the majority of buildings along the southern edge of the site, against the existing tree line. When viewed from points afar at a great distance from the Main Cantonment, the overall effect of the three alternatives is not differentiable. Therefore, the effects from views from these locations are similar to Alternative 1.

Effects on the Visual Character - DOL Motor Pool (TA-V/W): Under Alternative 3, changes at the proposed DOL Motor Pool site (TA-V/W) in terms of visual resources would be the same as under Alternative 1; therefore, adverse effects are not anticipated and although the design of the new structures is undetermined at this time, the proposed projects could create a new visual district in an area that currently lacks visual consistency.

Effects on the Visual Character - Secondary Refueling Station: Same as under Alternative 1, the effects to viewshed would be minimal and not significant.

4.3.2.5 Alternative 4 LF 2a Consequences

Under Alternative 4 LF 2a, the USMAPS barracks, academic buildings, and dining facility would be located along the southwestern edge of Lake Frederick with athletic fields located between the campus and Smith Clove Road.

Impacts associated with this option would alter the existing character of the project area, because it would require the require demolition of the NRHP eligible Building 1848, built in 1909, now the known as the Caretaker's Building. Consultation with the New York State Office of Parks, Recreation, and Historic Preservation (NYSOPRHP) would be required under Section 106 of NHPA to avoid, minimize, or mitigate adverse effect. As a result, there would not be an adverse visual effect because there is currently not a high degree of visual consistency in the project area. The proposed action would introduce the opportunity to create a beneficial impact and introduce a sense of visual consistency and architectural character to the Lake Frederick area similar in scale and stature to the Main Cantonment. There are currently no sensitive or historic viewsheds to or from this project area.

4.3.2.6 Alternative 5 LF 2b Consequences

Under Alternative 5 LF 2b, the USMAPS barracks, academic buildings, and dining facility would be located at the north end of Lake Frederick and the athletic facilities and fields would be located between the existing campground and Smith Clove Road.

Impacts associated with this option would alter the existing character of the project area, but they would not be adverse because there is currently not a high degree of visual consistency in the project area. The proposed action would introduce the opportunity to create a beneficial impact and introduce a sense of visual consistency and architectural character to the Lake Frederick area similar in scale and stature to the Main Cantonment. There are no sensitive or historic viewsheds to or from this project area.

4.3.2.7 VETCOM Consequences

The existing VETCOM facility is located in the historic Buffalo Soldiers Area in an area with a high degree of visual consistency. While none of the adjacent buildings have a high degree of architectural embellishment or articulation, they are easily distinguished as multi-story red brick structures with gable roofs. The area is not in close proximity to the historic Plain, nor does it intrude on any sensitive historic viewsheds.

The proposed construction would introduce a minor expansion to the existing facility. As part of the West Point National Landmark District, any expansion would require consultation with the NYSOPRHP under Section 106 of NHPA to avoid, minimize, or mitigate adverse effect. As long as the expansion is undertaken in accordance with the scale, height, mass, and materials of the existing buildings as proposed, the action would have no effect on the visual character of the building or the project area.

4.4 AIR QUALITY

The EPA defines ambient air in 40 CFR Part 50 as “that portion of the atmosphere, external to buildings, to which the general public has access.” In compliance with the 1970 CAA and the 1977 and 1990 Clean Air Act Amendments (CAAA), the EPA has promulgated ambient air quality standards and regulations. The National Ambient Air Quality Standards (NAAQS) were enacted for the protection of the public health and welfare, allowing for an adequate margin of safety. To date, the EPA has issued NAAQS for six criteria pollutants: carbon monoxide (CO), sulfur dioxide (SO₂), particulate matter (PM) (the EPA breaks PM down into particles with a diameter less than or equal to a nominal 10 micrometers (PM₁₀) and particles with a diameter less than or equal to a nominal 2.5 micrometers (PM_{2.5})), ozone (O₃), nitrogen dioxide (NO₂), and lead (Pb). Areas that do not meet NAAQS are called non-attainment areas.

4.4.1 Affected Environment

The ROI for the Proposed Action is Orange County, NY. The West Point area is part of the Mid-Hudson Ozone Non-Attainment Area, and has been classified by the EPA as being in moderate non-attainment for the criteria pollutant ozone, and in non-attainment for the criteria pollutant PM_{2.5}. The NAAQS for both pollutants are presented in Table 4-1.

Table 4-1: Ambient Air Quality Standards for Ozone and Particulate Matter (PM_{2.5})

Pollutant	Federal Standard	New York Standard ²
Ozone (O ₃) ¹ 8-Hour Average	0.075 ppm	0.075 ppm
Particulate Matter (PM _{2.5}) ¹ 24-Hour Average Annual Arithmetic Mean	35 µg/m ³ 15 µg/m ³	
Total Suspended Particulates (TSP) 12 Consecutive Months 24-Hour		75 µg/m ³ 250 µg/m ³

ppm = parts per million; µg/m³ = micrograms per cubic meter

¹ Federal primary and secondary standards for this pollutant are identical.

² New York standards are for total suspended particulates, including PM₁₀ and PM_{2.5}

Source: EPA, 2008a; NYSDEC, nd-b

To regulate the emission levels resulting from a project, federal actions located in non-attainment areas are required to demonstrate compliance with the general conformity guidelines established in 40 CFR Part 93 Determining Conformity of Federal Actions to State or Federal Implementation Plans (the Rule). The Proposed Action is located within an area designated by the EPA as a PM_{2.5} non-attainment area and a moderate ozone non-attainment area; therefore, a General Conformity Rule applicability analysis is required.

Section 93.153 of the Rule sets the applicability requirements for projects subject to the Rule through the establishment of *de minimis* levels for annual criteria pollutant emissions. These *de minimis* levels are set according to criteria pollutant non-attainment area designations. Projects below the *de minimis* levels are not subject to the Rule. Those at or above the levels are required to perform a conformity analysis as established in the Rule. The *de minimis* levels apply to direct and indirect sources of emissions that can occur during the construction and operational phases of the action.

To determine the applicability of the Rule to the Proposed Action, emissions were estimated for PM_{2.5} and the ozone precursor pollutants NO_x and volatile organic compounds (VOCs). Annual emissions for these compounds were estimated for each of the project actions (construction and operation) to determine if they would be below or above the *de minimis* levels established in the Rule. The *de minimis* levels for moderate ozone non-attainment areas are 100 tons per year (TPY) for NO_x and 50 TPY for VOCs.

Sources of NO_x and VOC associated with the Proposed Action include construction and operational emissions. The construction emissions include those from construction equipment and the painting of interior building

surfaces and parking spaces (VOCs only). Operational emissions include stationary heating units (boilers and water heaters), backup generators, commuters added to the installation work force, and the new E85 petroleum storage and dispensing operations (VOCs only).

On July 11, 2006 USEPA established *de minimis* levels for PM_{2.5}. The final rule established 100 TPY as the *de minimis* emission level under nonattainment for directly emitted PM_{2.5} and each of the precursors that form it (sulfur dioxide (SO₂), NO_x, VOC, and ammonia). This 100 TPY threshold applies separately to each precursor. This means that if an action's direct or indirect emissions of either PM_{2.5}, SO₂, NO_x, VOC, or ammonia exceed 100 TPY per pollutant, a General Conformity determination would be required. However, neither USEPA nor NYSDEC have found PM_{2.5} problems in the region to be caused by VOC or ammonia and ammonia is not further addressed by the EA (VOC is addressed as an ozone precursor, with *de minimis* of 50 TPY).

In addition to the evaluation of air emissions against *de minimis* levels, emissions are also evaluated for regional significance. A federal action that does not exceed the threshold emission rates of criteria pollutants may still be subject to a general conformity determination if the direct and indirect emissions from the action exceed 10% of the total emissions inventory for a particular criteria pollutant in a non-attainment or maintenance area. If the emissions exceed this 10% threshold, the federal action is considered to be a "regionally significant" activity, and thus, the general conformity rules apply.

4.4.1.1 Ambient Air Quality Conditions

Ozone and PM_{2.5} are monitored in Orange County by two monitoring sites. The ozone monitor is located at 55 Broadway while the PM_{2.5} monitor is located at 1175 Route 17k. The ozone monitor exceeded the ozone standard 12 times in 2001, but has averaged an exceedance only four times per year since. The PM_{2.5} monitors were not above the PM_{2.5} standard because up until 2005, no standard existed. Table 4-2 shows the existing monitoring data within Orange County, New York.

Table 4-2: Existing 8-hour Ozone and 24-hour Particulate Matter Monitoring Data within Orange County, New York

Monitoring Station	Year				
	2003	2004	2005	2006	2007
# 360710002 55 Broadway	44/40	37/36	46/36	41.8/31.7	41.4/35.9
# 360715001 1175 Route 17k	0.091/0.088	0.099/0.092	0.095/0.090	0.084/0.081	0.103/0.096

Ozone values are in ppm; 1st/2nd highest data

PM values are in µg/m³ 1st/2nd highest data

NAAQS: Eight-hour average = 0.075 ppm

Source: U.S. EPA, 2008b

4.4.1.2 Meteorology/Climate

Temperature is a parameter used in calculations of emissions for air quality applicability. The climate in the Hudson Valley varies seasonally, but is regulated to an extent by the Hudson River. The mean temperature in Orange County is 55 degrees F (TWC, ND).

4.4.1.3 Installation Emissions

The U.S. Army Garrison at West Point operates under a Title V air permit. The permit (ID - 3-3336-00022/00055) was issued on February 6, 2007 and expires February 5, 2012 (NYSDEC, 2007a). Primary sources of emissions at West Point include boilers, generators, and fuel storage and dispensing areas. Each year, West Point maintains an inventory of air pollutants emitted within the Installation and submits this inventory to NYSDEC. Total annual criteria pollutant emissions from 2006 are listed in Table 4-3.

Table 4-3: Criteria Pollutant Emissions (2006)

Pollutant	Emissions (TPY)
VOC	5.3
NO _x	36.6
CO	24.1
SO ₂	1.0
PM _{2.5}	2.1

Source: USACE, 2007c.

4.4.1.4 Regional Air Pollutant Emissions Summary

The EPA calculates the Air Quality Index (AQI) for five major air pollutants regulated by the CAA: ground-level ozone, particulate matter, carbon monoxide, sulfur dioxide, and nitrogen dioxide. Data collected for Orange County, NY are released in the form of the AQI, which ranges from zero to 300, with zero indicating no air pollution, and 300 representing severely unhealthy air pollution levels. An AQI value between 101 and 150 indicates that air quality is unhealthy for sensitive groups who may be subject to negative health effects. Sensitive groups may include those with lung or heart disease who will be negatively affected by higher levels of ground level ozone and particulate matter than the rest of the general public. An AQI value between 151 and 200 is considered to be unhealthy, and may result in negative health effects for the general public, with more severe effects possible for those in sensitive groups. AQI values above 200 are considered to be very unhealthy (US EPA, 2007a).

According to the EPA's AQI Report for Orange County, NY, in 2000 the county experienced 1 day where air quality was considered unhealthy for sensitive groups. In 2003, the area experienced 5 days that were unhealthy for sensitive groups, and in 2004, the area experienced 3 days that were unhealthy for sensitive groups. In 2005, the area experienced 8 days that were considered unhealthy for sensitive groups. In 2006 there were 5 unhealthy days for sensitive groups. In 2007 there were a total of 10 unhealthy days for sensitive groups and 2 unhealthy days, indicating that there are significant fluctuations seen from year to year, leaving the overall picture of air quality somewhat inconsistent (USEPA, 2008c).

West Point is located in the eastern-central part of Orange County, NY, in the Mid-Hudson Non-Attainment Region. Therefore, it is likely to be directly affected by regional changes in air quality, although it will be less subject to the air quality issues faced in southern Orange County, which is in much closer proximity to New York City, and the accompanying industry and density of development.

4.4.2 Environmental Consequences

In order to evaluate the alternatives, the following criteria have been established to define the level of impacts to air quality:

No Effect – No impacts to air quality from the proposed project.

Not Significant Effect – Impacts to air quality do not exceed the *de minimis* levels for a pollutant or exceed ten percent of the daily limits laid out in the State Implementation Plan (SIP).

Significant Effect – In order for the impact on air quality to be significant, the construction and operational emissions would have to exceed the *de minimis* levels for a pollutant or exceed ten percent of the daily limits laid out in the SIP.

4.4.2.1 No Action Alternative Consequences

Implementation of the No Action Alternative would not change current conditions and is not expected to significantly impact the current air quality conditions in the region.

4.4.2.2 Alternatives 1, 2, 3, 4, and 5 Air Quality Consequences

A project construction and operations-related General Conformity Determination Applicability Analysis was performed for the proposed construction and demolition activities for each alternative. This project construction- and operations-related General Conformity Determination applicability analysis with air emissions evaluation, provided in detail in Appendix B, followed the criteria in *40 CFR Parts 6, 51, and 93, Determining Conformity of General Federal Actions to State or Federal Implementation Plans; Final Rule* (November 30, 1993). It determined that air quality impacts are not significant.

The General Conformity Determination applicability analysis estimated the level of potential air emissions (NO_x, VOC, PM_{2.5}, and SO₂) for each alternative. It is assumed that the No-Action Alternative would not impact air quality beyond existing conditions; therefore, it was not included in the analysis. Appendix B contains a detailed description of the assumptions and methodology used to estimate potential emissions for both construction and operational phases of each alternative at West Point.

Tables 4-4 through 4-7 summarize the total annual emissions in TPY associated with the construction and operational phases of the proposed action for the Washington Gate and Lake Frederick alternatives at West Point. The annual tons during construction are estimated based upon an assumed construction schedule for each alternative (Figure B-1, Appendix B), as well as for assumed operations that begin either during or following the on-going construction, depending upon the alternative. These tables also compare results to *de minimis* standards for a region in moderate nonattainment for ozone and nonattainment for PM_{2.5} (See Section 4.4.1 above and Appendix B for additional discussion).

Construction-related emissions would be temporary and only occur during the construction phase. Additional VOC emissions, a component of Landfill Gas, would be expected from construction associated with the landfill. These emissions are not quantifiable in terms of a conformity analysis and are not included in the emissions totals. Currently, VOCs in the east landfill exceed the screening criteria. For the Washington Gate alternatives, all buildings would require gas collection and evacuation systems due to the proximity to the landfills.

USMAPS Alternative 1 WG E

Table 4-4: Summary of Annual Emissions – Alternative 1 WG E

	Total Annual Emissions –TPY			
	NO _x	VOC	PM _{2.5}	SO ₂
Federal <i>de minimis</i> standards	100	50	100	100
2009-2010: Construction	23.71	2.44	17.53	3.36
2010-2011: Construction and Operations	24.20	3.67	7.96	2.68
2011-2012: Construction and Operations	15.73	3.94	4.87	1.54
2012 & Beyond: Full Operations	10.87	2.21	0.45	0.75

USMAPS Alternative 2 WG B

Table 4-5: Summary of Annual Emissions – Alternative 2 WG B

	Total Annual Emissions –TPY			
	NO _x	VOC	PM _{2.5}	SO ₂
Federal <i>de minimis</i> standards	100	50	100	100
2009-2010: Construction	17.88	1.93	15.91	2.63
2010-2011: Construction and Operations	28.64	3.29	8.48	3.20
2011-2012: Construction and Operations	14.97	4.05	5.90	1.69
2012 & Beyond: Full Operations	10.87	2.21	0.45	0.75

USMAPS Alternative 3 WG 15% Design

Table 4-6: Summary of Annual Emissions – Alternative 3 WG 15%

	Total Annual Emissions –TPY			
	NO _x	VOC	PM _{2.5}	SO ₂
Federal <i>de minimis</i> standards	100	50	100	100
2009-2010: Construction	31.38	2.96	26.93	4.37
2010-2011: Construction and Operations	24.20	3.67	7.96	2.68
2011-2012: Construction and Operations	15.73	3.94	4.87	1.54
2012 & Beyond: Full Operations	10.87	2.21	0.45	0.75

USMAPS Alternative 4 LF 2a & 5 LF 2b

Table 4-7: Summary of Annual Emissions – Alternative 4 LF 2a & Alternative 5 LF 2b

	Total Annual Emissions –TPY			
	NO _x	VOC	PM _{2.5}	SO ₂
Federal <i>de minimis</i> standards	100	50	100	100
2009-2010: Construction	24.90	2.23	13.73	3.13
2010-2011: Construction	9.14	3.18	10.80	1.40
2011 & Beyond: Full Operations	1.60	0.82	0.09	0.10

As shown in Tables 4-4, 4-5, 4-6, and 4-7, annual pollutant emissions of concern from construction and operations at West Point for Alternatives 1, 2, 3, 4, and 5, when compared to the Federal *de minimis* values for this ozone moderate nonattainment and PM_{2.5} non-attainment area of 50 TPY for VOC and 100 TPY each for NO_x, PM_{2.5}, and SO₂, fall well below the *de minimis* values.

In addition to *de minimis* values, actions were also evaluated for regional significance. An action is considered to be regionally significant if the annual increase in emissions would make up 10% or more of the available regional emission inventory. The New York Metropolitan Area State Implementation Plan sets forth 2011 daily emission targets for non-road construction vehicles of 191.70 tons per day of VOC and 149.85 tons per day of NO_x for the New York Metropolitan 8-hour ozone non-attainment area where West Point is located (NYSDEC, 2008c). The 2011 point source emission targets are 13.68 tons per day VOC and 64.05 tons per day NO_x. The increase in annual emissions from the construction and operational activities would not make up ten percent or more of the available regional emission target for VOC or NO_x and would not be regionally significant. There is no SIP in place for the newly promulgated PM_{2.5} regulations. NYSDEC has submitted a draft proposal PM_{2.5} SIP to the EPA for approval. A finalized SIP is required to be in place by 2009.

Because the annual emissions are below *de minimis* levels and are not regionally significant, Alternatives 1, 2, 3, 4 and 5 are not subject to a General Conformity Determination and the air quality effects of the alternatives are not significant. The Army has prepared a Record of Non-Applicability (RONA), found in Appendix B.

Modifications to the existing Title V permit would be required to include the addition of new boilers, generators, and petroleum tanks.

4.5 NOISE

Noise is any unwanted sound that can interfere with hearing, concentration, or sleep. The major sources of noise include transportation vehicles, heavy equipment, machinery, and appliances. The Noise Control Act of 1972, 42 USC 4901 et seq. was enacted to establish noise control standards and to regulate noise emissions from

commercial products such as transportation and construction equipment. The Noise Control Act exempts noise from military weapons or equipment designated for combat use.

The standard measurement unit of noise is the decibel (dB), which represents the acoustical energy present and is an indication of the loudness or intensity of the noise. Noise levels are measured in A-weighted decibels (dBA), a logarithmic scale which approaches the sensitivity of the human ear across the frequency spectrum. Therefore, the dBA accounts for the varying sensitivity of the human ear by measuring sounds the way a human ear would perceive it. The dBA measurement is used to indicate damage to hearing based on noise levels, and is the basis for federal noise standards. A 3-dB increase is equivalent to doubling the sound pressure level, but is barely perceptible to the human ear. A 5-dB change in sound is very noticeable and a 10-dB change in sound almost doubles the loudness.

Regulatory Background

Because noise may be more objectionable at certain times, a measure known as Day-Night Average Sound Level (L_{dn}) has been developed. The L_{dn} is a 24-hour average sound level recommendation that includes a penalty of 10 dB to sound levels during the night (2200 – 0700 hours). This measurement is often used to determine acceptable noise levels and is endorsed by agencies such as the EPA, the Federal Highway Administration (FHWA), the Federal Aviation Administration (FAA), the U.S. Department of Housing and Urban Development (HUD), the Occupational Safety and Health Administration (OSHA), and DoD.

The FHWA has established noise abatement criteria for roadways. An exterior L_{eq} of 67 dBA is the standard typically used to evaluate noise levels, measured 50 feet (15 meters) from the centerline of travel. The L_{eq} represents the equivalent sound pressure level or the steady sound level that, over a specified period of time, would produce the same energy equivalence as the fluctuating sound level actually occurring. The EPA determined that a 24-hour L_{eq} limit of 70 dBA (both indoors and outdoors) would protect against hearing damage in commercial and industrial areas. The EPA also provides a short-term recommended noise standard maximum of 80 decibels during day time construction and 65 decibels during night time construction activities. Workplace noise standards set by OSHA are measured in two ways. A standard of 90 dBA for an 8-hour duration is the limit for constant noise and a maximum sound level for impulse noise is 140 dBA. Impulse noise is any sort of short blast, such as a gunshot. The DoD Hearing Conservation Program requires a written plan for the implementation of a comprehensive Hearing Conservation Program when continuous and intermittent noise levels have an 8-hour time-weighted average noise level of 85 dBA, or above. A significant impact is considered to occur if noise levels exceed EPA, OSHA, or DoD noise standards.

4.5.1 Affected Environment

The primary sources of noise originating from West Point are helicopter missions and firing exercises. Although there are no aviation facilities, such as runways and taxiways, helicopters land on West Point property to transport military personnel.

The Maddock Drop Zone is active drop zone used by West Point owned UH1s and visiting organizations that own UH 60s and UH 47s. The Helicopter flights usually originate/terminate at Stewart International Airport (Stewart Army Subpost).

The drop zone is used by the West Point parachute team two separate times every year (August – December and March – June). The usual operations are seven days every week from 1600 – 1830 hours during the week and 0800 – 1500 hours on Saturday. Night operations are also conducted at the drop zone a few days a year; however, this training is scheduled during daylight savings time and is completed prior to 1900 hours. Helicopter noise levels at the Maddock Drop Zone were measured at 67.7 dB, which is slightly above noise guidelines (65 dB).

In terms of firing noise, sound exposure contours for artillery training have been developed. These contours lie almost entirely within the boundaries of West Point (USMA, 2003).

Surrounding areas where sound exposure contours may extend beyond West Point boundaries are characterized as rural with extremely low population density. A noise survey was conducted at West Point in 1980 to determine sound quality (USMA, 1980). Measurements were taken at 15 noise monitoring sites. These sites included academic, residential, support, and special activity areas. In addition, twelve specific noise sources were identified

and measured. These sources included vehicular and railroad traffic, trash compactor activities, and power plant operations. Survey results indicate that sound quality associated with West Point may be characterized as good to excellent (USMA, 2003).

Construction and Demolition

Instances of increased noise are to be expected during the construction and demolition phases associated with nearly all projects at West Point. The following provides general information on noise related to construction and demolition, and serves as a prelude to the environmental consequences. Ways to limit or mitigate noise during construction and demolition include limiting activity at project sites to daytime hours (i.e., 0700-2200 hours); limiting truck traffic ingress/egress at the gates to daytime hours; promoting awareness that producing prominent discrete tones and periodic noises (e.g., excessive dump truck gate banging) should be avoided as much as possible; requiring that work crews seek pre-approval from Garrison Command for any weekend activities, or activities outside of daytime hours; and employing noise-controlled construction equipment to the maximum extent possible.

High levels of noise can also affect the health of construction/demolition workers. The application of OSHA standards for occupational noise exposure associated with construction (29 CFR 1926.52) is required. The EPA also provides a short-term recommended noise standard maximum of 80 decibels during day time construction and 65 decibels during night time construction activities. Applying the ways to limit or mitigate noise during construction and demolition activity described above can help in meeting this EPA recommendation.

Facility Operations

Once facilities are constructed, noise can be generated from facility operations and the vehicles associated with these facilities. Aside from negligible heating, ventilation, and air conditioning (HVAC) related noise, the majority of facilities on military installations, including West Point, do not generate high levels of noise themselves. The following provides general information on noise related to facility operations, and serves as a prelude to the environmental consequences. Industrial-related facilities may produce higher levels of noise, and during a power outage, emergency generators could run for hours at mission critical facilities, creating a short-term noise impact. Overall, most noise is usually created by vehicles associated with these facilities including organizational vehicles used for training and operations, government and private delivery vehicles, commuter shuttles or buses, and personal vehicles used for commuting purposes. At installations with airfield and range facilities, noise is often related to aircraft and ordnance associated with the facilities (hangars, firing points, etc.), however West Point does not have an airfield.

4.5.2 Environmental Consequences

The following criteria have been developed to assess noise impacts:

No Effect – Natural sounds would prevail; noise generated by construction and operation of the facility would be infrequent or absent, mostly immeasurable.

No Significant Effect – Noise levels would exceed natural sounds, as described under no effect, but would not exceed applicable noise standards.

Significant Effect – Noise levels would exceed applicable noise standards on a temporary, short-term, or permanent basis or for a prolonged period of time.

4.5.2.1 No Action Alternative

No effects would be expected. Implementation of the no action alternative would not alter noise levels in any of the areas being considered under the Proposed Action.

4.5.2.2 Alternative 1 WGE Consequences

Construction and Demolition Noise – USMAPS Washington Gate Site: No significant effects would be expected during the construction and demolition phases of each of the proposed projects. The proposed USMAPS

campus site is located several hundred feet from the West Point perimeter and Washington Gate. These distances lessen any noise impacts on the surrounding community. According to a previous study, the nearest sensitive noise receptor to the Washington Gate is located an additional 330 feet from the gate. Since a doubling of distance from the noise source results in a 6-dB decrease in noise level, noise levels at this sensitive noise receptor should be well below applicable noise standards during construction and demolition (USMA, 2005d). Within the West Point, the USMAPS campus is located several hundred feet from the Brick Housing Area. Any noise impacts to this housing area during the construction and demolition phases could be offset using a variety of best management practices. The practices could, among others, include limiting activity at project sites to daytime hours (i.e., 0700-2200 hours); limiting truck traffic ingress/egress at the gates to daytime hours; promoting awareness that producing prominent discrete tones and periodic noises (e.g., excessive dump truck gate banging) should be avoided as much as possible; requiring that work crews seek pre-approval from West Point Command for any weekend activities, or activities outside of daytime hours; and employing noise-controlled construction equipment to the maximum extent possible.

Facility Operations Noise – USMAPS Washington Gate Site: No significant effects would be expected related to noise generated from vehicles associated with these facilities including organizational vehicles used for training and operations, government and private delivery vehicles, commuter shuttles or buses, and personal vehicles. Noise emanating from the facilities themselves would not be significant and related mostly to HVAC equipment. Noise levels from traffic would potentially be lower than the existing conditions due to the relocation the vehicles and associated fueling to the proposed DOL Motor Pool.

Outdoor athletic competition would result in increased noise levels only for temporary periods of time. In addition, because of the doubling in distance from the noise source would result in a 6-dB decrease in the noise level, it is assumed that noise levels at the nearest sensitive receptor would be below applicable noise standards. Therefore, significant effects to the existing noise levels are not anticipated.

Construction and Demolition and Facility Operations Noise - DOL Motor Pool (TA-V/W): The proposed DOL Motor Pool would be located near the center of West Point in an undeveloped area and there is no noise receptor located in the vicinity of the site. Therefore, significant effects would not be expected during the construction and demolition phases and operation of the facility.

Construction and Demolition and Facility Operations Noise - DOL Secondary Refueling Station: The Secondary Refueling Station would primarily service forklifts, construction vehicles, and land and yard maintenance tools for the DPW. The area is industrial and in proximity to other facilities such as the salt dome, therefore, significant effects would not be expected during the construction and demolition phases and operation of the facility.

4.5.2.3 Alternative 2 WG B Consequences

Noise impacts under Alternative 2 would be similar to the impacts described under Alternative 1 and therefore, no significant effects would be expected during the construction and demolition phases and operation of USMAPS, the proposed DOL Motor Pool at TA-V/W and the Secondary Refueling Station.

4.5.2.4 Alternative 3 WG 15% Design Consequences

Noise impacts under Alternative 3 would be similar to the impacts described under Alternative 1 and therefore, no significant effects would be expected during the construction and demolition phases and operation of USMAPS, the proposed DOL Motor Pool at TA-V/W and the Secondary Refueling Station.

4.5.2.5 Alternative 4 LF 2a Consequences

Construction and Demolition Noise - Lake Frederick: Under Alternative 4, the construction of the USMAPS campus would be at the Lake Frederick site, an undeveloped area that is used for recreational and training purposes. There are camp buildings in the area; however, under Alternative 4, those buildings would be demolished and relocated to the area northeast of Lake Frederick. Therefore, no significant effects would be expected during the construction and demolition phases of Alternative 4.

Facility Operations Noise - Lake Frederick: Under Alternative 4, noise emanating from the operation of the facilities themselves would not be significant and related mostly to HVAC equipment. It is anticipated that the addition of the USMAPS would slightly increase ambient noise levels in the area from the increased vehicle traffic. However, the USMAPS staff number is modest and although some or all candidate cadets are anticipated to have access to private vehicles, they are not anticipated to have extensive free time for off-post activities. Therefore, increase in vehicle related noise levels are not anticipated to be significant. Likewise, noise from fire trucks is anticipated to be periodic and temporary, and is not anticipated to be significant. Outdoor athletic competition would result in increased noise levels only for temporary periods of time. The USMAPS athletic complex would be located approximately 500 ft from the nearest housing area with a forest serving as a buffer and because of the doubling in distance from the noise source would result in a 6-dB decrease in the noise level, it is assumed that noise levels at the nearest sensitive receptor would be below applicable noise standards. Additional plantings of coniferous trees would further reduce the spectator noise during fall events when the leaves fall off of the hardwoods. Therefore, significant effects to the existing noise levels are not anticipated.

The USMAPS Barracks, which are residential, would be located in an area adjacent to the Maddock Drop Zone. Helicopter noise levels at the Maddock Drop Zone were measured at 67.7 dB, which is above noise guidelines (65 dB) for residential use. However, the usual operations are seven days every week from 1600 – 1830 hours during the week and 0800 – 1500 hours on Saturday and a few night operations are scheduled during daylight savings time and is completed prior to 1900 hours. Therefore, noise impact to the Barracks from the Drop Zone activities is not anticipated to be significant.

4.5.2.6 Alternative 5 LF 2b Consequences

Lake Frederick - Construction and Demolition Noise: Under Alternative 5, the camp buildings in the area would be retained and the area would be affected by the noise levels from the construction and demolition activities for the USMAPS facilities. The noise effects would be temporary during the construction and demolition activities and it is likely that the area would not be accessible for recreational purposes during that period. Therefore, significant effects are not expected during the construction and demolition phases of Alternative 5.

Lake Frederick - Facility Operations Noise: Effects to noise levels Under Alternative 5 would be similar to Alternative 4 and therefore, significant effects are not anticipated neither to the existing noise levels from the USMAPS facilities nor to the Barracks from the Maddock Drop Zone helicopter noise.

4.5.2.7 VETCOM Consequences

Construction and Demolition and Facility Operations Noise: The VETCOM facility is proposed in the southern part of the campus, and would require renovation of an existing building as well as an addition. The existing building is primarily surrounded by administrative and community support facilities, and is several hundred feet away from Senior Enlisted Quarters. As with the USMAPS campus, proposed to be built in within several hundred feet of the Brick Housing Area, the detailed best management practices described may help to offset any noise impacts. The VETCOM facility would be co-located with an existing VTF, and its operation would not significantly add to the amount of noise in the southern part of the cantonment.

4.6 GEOLOGY AND SOILS

4.6.1 Affected Environment

4.6.1.1 Geologic and Topographic Conditions

West Point is located in the Hudson Highlands, a subset of a larger physiographic region, which is a low, rugged mountain range that is part of the Upland Section of the New England Physiographic Province beginning in Reading, Pennsylvania, and running northeasterly through New Jersey and New York to Connecticut and Massachusetts. These hill formations form a zone of folded and faulted metamorphic and igneous rocks that are subjected to extensive weathering and erosion (USMA, 2003). This area generally has shallow soils over bedrock and consists primarily of glacial deposits. Bedrock exposures are common and the bedrock geology consists of granite, gneisses, and schist.

The geology at West Point has been influenced by thrust faulting, folding, dike injection, jointing, uplift, and erosion that have historically occurred. West Point is located on the crest of an antiform that plunges to the northeast and is an “open fold” because the limbs of the antiform dip away from each other (USMA, 2003). There is a fault underlying West Point approximately along Routes 293 and 218 from the Hudson River to Long Pond. A second fault lies northwest to southeast from Popolopen Lake to east of Fort Montgomery. There are three fault zones through the Hudson Highlands. These faults were active during the Precambrian period and were reactivated during the period of Taconic mountain buildings. During the latter, some new faults became active. Shear zones are also common at West Point. According to the New York State Geological Survey, historically, there have not been any major seismic activities in this area (USMA, 2003).

Topography at West Point has been shaped by the geologic history of glacial forces and differential weathering of ancient rock, which resulted in the formation of the Hudson Highlands. The general topography of the post is described as having moderately steep hills and numerous escarpments with slopes ranging from 10 to 60 percent. In between the hills are small plains, basins, and narrow valleys with slopes less than 3% (USMA, 2003). The geology and topography in the proposed project areas is as follows (Figures 4-13 through 4-15):

Washington Gate Site: Available geological data indicates that the project site is underlain by granite, diorite, gneiss, and schist (Pennoni, 2008a). The topography of the northern half of the Washington Gate site, which is located at approximately 420 feet (128 meters) above mean sea level (amsl), is relatively level. The southern half of the site slopes upward from approximately 420 feet amsl (128 meters) to approximately 520 feet amsl (158 meters) over a distance of about 600 feet.

DOL Motor Pool (TA-V/W): Available geological data indicates rock outcrops, and gneiss bedrock at a depth of 0 to 4 feet throughout many portions of the site (USACE, 2007d). The topography of this site is best described as undulating and rugged with elevations ranging from 740 feet amsl (225 meters) to 640 feet amsl (194 meters) with slopes ranging from 10 to 60%.

DOL Secondary Refueling Station: The Secondary Refueling Station site would be located at approximately 390 feet amsl (119 meters).

Lake Frederick Site: Surficial geology consists of till ranging in thickness from 3 to 160 feet (1-50 meters). The fill is poorly sorted with particle sizes ranging from clay to silty-clay, to boulder clay, deposited under glacial ice. A reverse fault oriented at approximately 30 degrees east of north traverses approximately the center of Lake Frederick and created the original stream valley which was dammed to create Lake Frederick. The fault dips steeply to the east at an approximate dip of 80 degrees. The bedrock to the east of the fault is mapped as hornblende granite and granitic gneiss with subordinate leucogranite (Pennoni, 2008b). The gneiss is the metamorphosed product of pre-Cambrian and Cambrian aged sedimentary rock metamorphosed during the Taconic Orogeny. These rocks are over-thrust onto younger Ordovician-Cambrian aged carbonates of the Wappinger Group (Pennoni, 2008b).

The Lake Frederick site slopes downward from the south eastern portion of the site, on the eastern side of Lake Frederick, to the northwest. Elevations range from 900 feet amsl (274 meters) to about 570 feet amsl (173 meters). Slopes west of the lake range from 720 feet amsl (219 meters) to about 570 feet amsl (174 meters) over a distance of about 1,500 feet (457 meters).

VETCOM Facility: The site is most likely site underlain by granite, diorite, gneiss, and schist, with borings indicating that large cobbles or boulders may be present in the overlying fill (URS, 2007). The VETCOM site level and is located at approximately 220 feet (67 meters).

Figure 4-13: Washington Gate Site, Topography

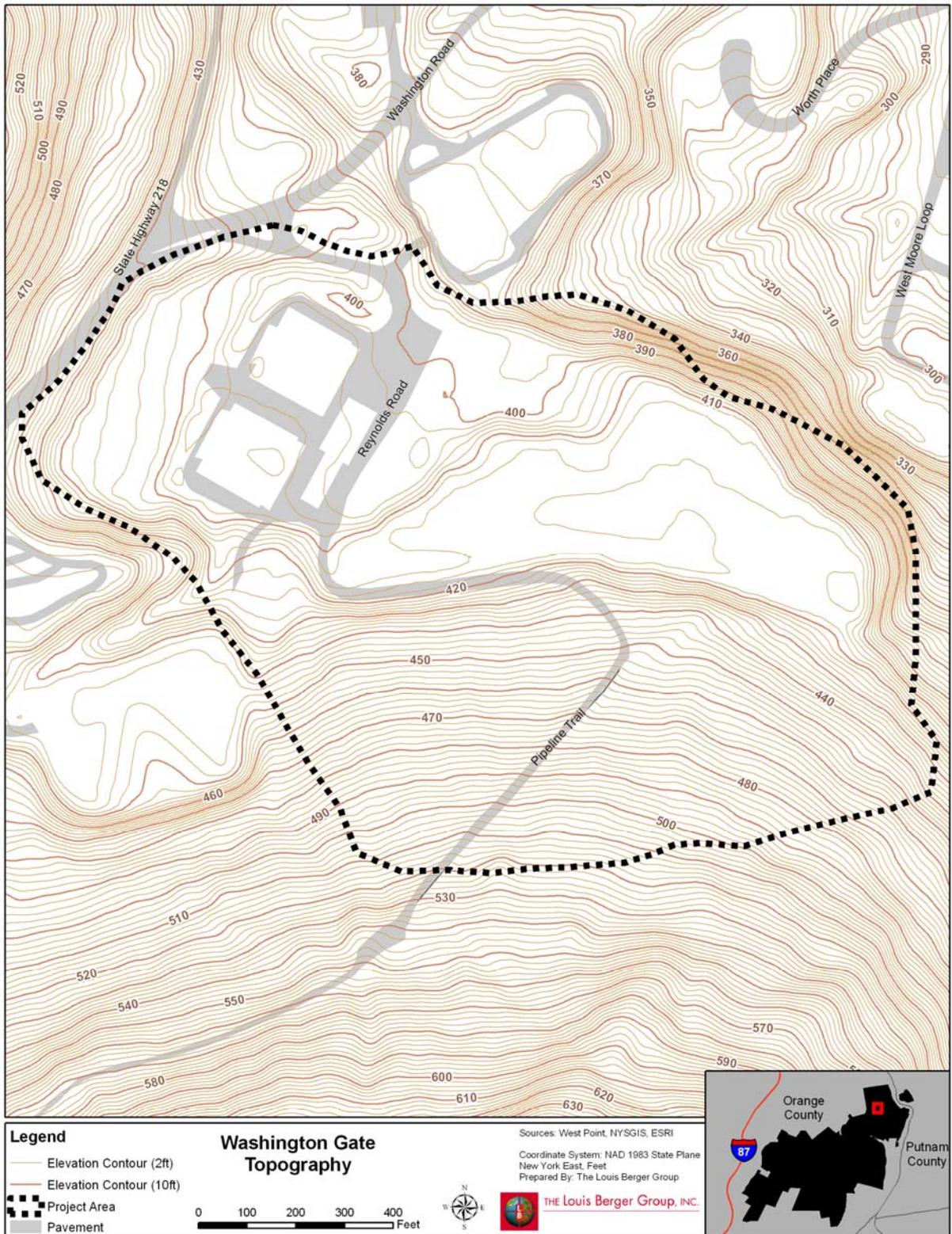


Figure 4-14: DOL Motor Pool Site (TA-V/W), Topography

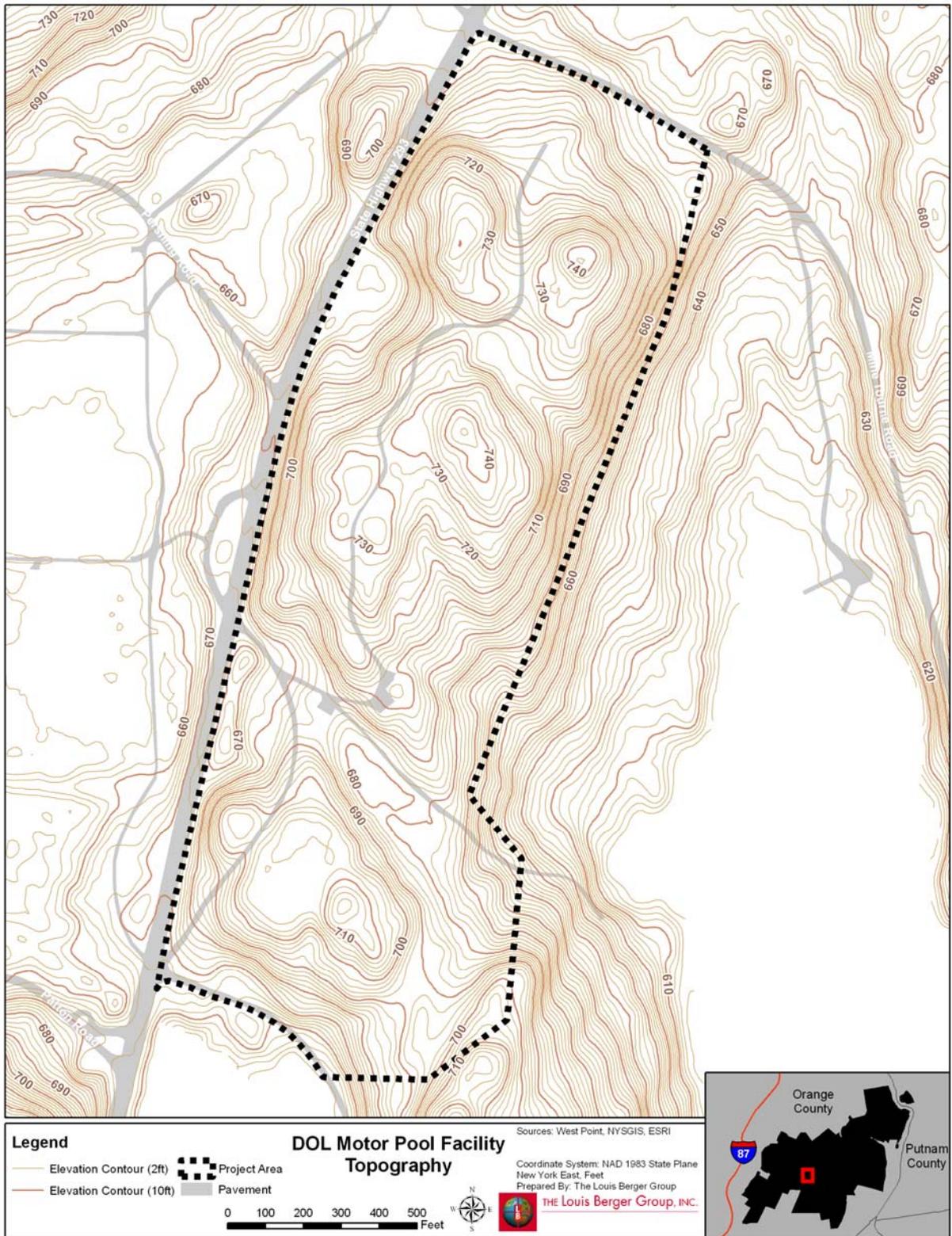
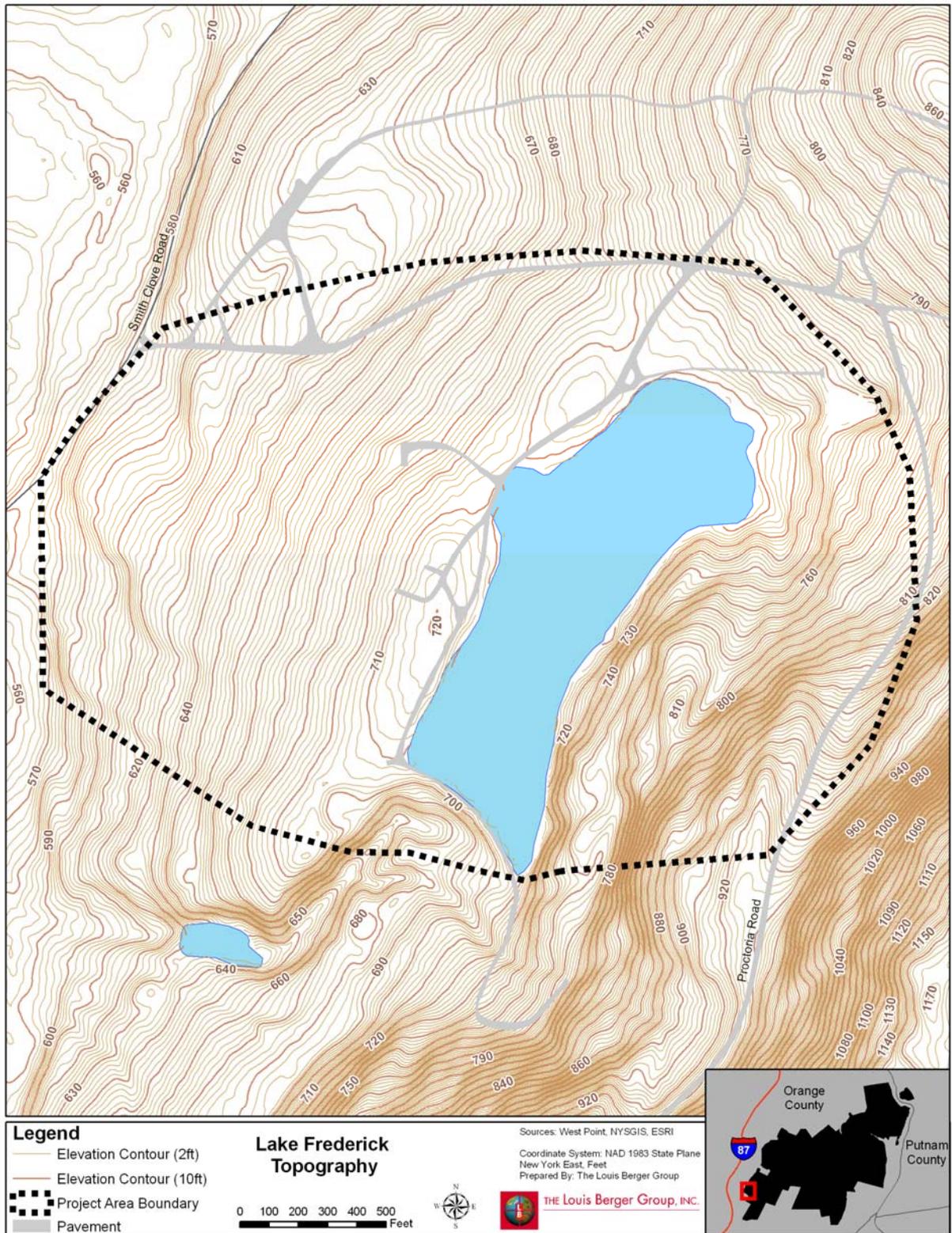


Figure 4-15: Lake Frederick Site, Topography



4.6.1.2 Soils

Soils at West Point can be characterized as shallow, stony, and boulder-strewn. The soils are less than 6 feet (1.8 meters) deep, and were formed from glacial till and alluvium derived from glacially transported sediment. Soils in the hilltops and hillsides are well drained and contain only shallow soils with frequent outcrops, while those in low-lying areas, such as depressions on hill summits and parts of the small floodplains in the valleys, are deeper and poorer draining soils. The dominant soil at West Point is the Hollis-Rock Outcrop Association. This association is characterized as steeply sloping, excessively-drained and well-drained, medium-textured soils overlying crystalline bedrock, on mountainous uplands (USMA, 2003). Other soil types on the post include sandy loams, gravelly loams, gravelly sandy loams, silt loams, gravelly silt loams, stony, and extremely stony (USMA, 2003). The following soil types are found within the proposed project areas (Figures 4-16 through 4-20):

Alden silt loam (Ab) – This soil is very deep and very poorly drained. Slopes range from 0 to 3%. The parent material consists of a silty mantle of local deposition overlying loamy till. Depth to the top of a seasonal high water table is 0 inches. Annual ponding is frequent. Shrink-swell potential is low. This soil is not flooded. It is frequently ponded. A seasonal zone of water saturation is at 0 inches during January, February, March, April, May, June, November, and December. Organic matter content in the surface horizon is about 7 percent. This soil meets hydric criteria.

Erie extremely stony soil (ESB) – This soil is somewhat poorly drained. Slopes range from 3-8% 0.24-0.28. The unit consists of extremely stony soils. This unit has seasonal high water table and runoff is medium.

Hollis soils, sloping (HLC) – This mapping unit is classified as shallow, well-drained to somewhat excessively-drained, and sloping and gently sloping. These soils were formed in glacial till deposits derived from crystalline rock that is dominantly schist, gneiss, and granite. This unit is found on hillcrests, hilltops, valley sides, and ridges of the mountainous uplands. Most areas with this unit are either idle or forests, with a few pastured or used for hay. This unit usually does not have a perched water table above the bedrock and moderate to moderately rapid permeability. Available water capacity is very low or low, runoff is medium to rapid, and bedrock is at a depth of 10 to 20 inches (25 to 51 cm). This unit is limited for most crops and is poorly suited to most urban and recreation uses because of the shallowness over bedrock and associated dryness. Deep excavation is very difficult as a result of the hardness of the underlying rock. This unit has severe limitations for the development of dwellings with or without basements, local roads and streets, shallow excavations, small commercial buildings, and lawns and landscaping (USDA, 2008).

Hollis soils, moderately steep (HLD) - This soil is shallow and well drained. Slopes range from 15 to 25%. The parent material consists of a thin mantle of loamy till derived mainly from schist, granite, and gneiss. Depth to a restrictive feature is 10 to 20 inches to bedrock. Depth to the top of a seasonal high water table is greater than 60 inches. Shrink-swell potential is low. Available water capacity is low. This soil does not meet hydric criteria.

Mardin gravelly silt loam (MdB) - This soil is very deep and moderately well drained. The parent material consists of loamy till derived mainly from acid sedimentary rock. Depth to a restrictive feature is 14 to 26 inches to a fragipan. Depth to the top of a seasonal high water table ranges from 18 to 24 inches. Shrink-swell potential is low. Available water capacity is low. The Kf erodibility factor assigned to the top mineral soil layer is .32 and the soil loss tolerance factor T is 2 (USDA, 2008).

Mardin gravelly silt loam, 8 to 15 percent slopes (MdC) - This soil is very deep and moderately well drained. The parent material consists of loamy till derived mainly from acid sedimentary rock. Depth to a restrictive feature is 14 to 26 inches to a fragipan. Depth to the top of a seasonal high water table ranges from 18 to 24 inches. Shrink-swell potential is low. Available water capacity is low. The Kf erodibility factor assigned to the top mineral soil layer is .32 and the soil loss tolerance factor T is 2 (USDA, 2008).

Rock outcrop-Hollis complex, sloping (ROC) – This unit is comprised of exposed bedrock and the shallow, somewhat excessively drained to well drained Hollis soils. The ROC unit can be found on hillcrests, hilltops, and ridges of the mountainous uplands. There is no free water perched above the bedrock in this unit, except where the rock is poorly jointed. This unit has moderate or moderately rapid permeability, low or very low water capacity, medium to rapid runoff, and a bedrock depth of 10 to 20 inches (25 to 51 cm). This complex of rock and soil is not suited to crop production, timber production, or urban uses. This unit has severe limitations for the

development of dwellings with or without basements, local roads and streets, shallow excavations, small commercial buildings, and lawns and landscaping (USDA, 2008).

Rock outcrop-Hollis complex, moderately steep (ROD) - No data are provided for this rock outcrop component. The Hollis component of this mapping unit is shallow and well drained. Slopes range from 15 to 25 percent. The parent material consists of a thin mantle of loamy till derived mainly from schist, granite, and gneiss. Depth to a restrictive feature is 10 to 20 inches to bedrock. Depth to the top of a seasonal high water table is greater than 60 inches. Shrink-swell potential and available water capacity are low. This soil does not meet hydric criteria.

Swartswood and Mardin very stony soils, sloping (SXC) - The Mardin component of this mapping unit is very deep and moderately well drained. Slopes range from 8 to 15 percent. The parent material consists of loamy till derived mainly from acid sedimentary rock. Depth to a restrictive feature is 14 to 26 inches to a fragipan. Depth to the top of a seasonal high water table ranges from 18 to 24 inches. Shrink-swell potential is low, and available water capacity is very low. The Swartswood component is also is very deep and well drained and is found on slopes ranging from 8 to 15 percent. The parent material consists of loamy till derived mainly from quartzite, conglomerate, and sandstone. Depth to a restrictive feature is 27 to 36 inches to a fragipan. Depth to the top of a seasonal high water table ranges from 23 to 31 inches. Shrink-swell potential and available water capacity is low.

Udorthents, smoothed (UH) – The UH mapping unit is formed in manmade cut and fill areas, which are generally near industrial sites, urban developments, or other construction sites. This unit is excessively-drained to moderately well-drained, with considerable variation in the depth to the seasonal high water table and permeability that is dependent on topography, degree of compaction, soil texture, and other related factors. The texture, stone content, soil pH, and depth to bedrock varies considerably from one area to another, but in general, bedrock is at depths greater than 5 feet. Unit is generally poorly suited for farming or recreation (USDA, 2008).

The soils found within each of the proposed project areas are as follows (Figures 4-16 through 4-20):

Washington Gate Site (Figure 4-16): The soil mapping units delineated within the Orange County Soil Survey at the Washington Gate Site include UH and HCL. The properties of these particular mapping units match the findings of a geotechnical survey done in the area in December of 2007. This survey revealed fill material containing concrete, wood, organics, brick, glass, metal, and trash with varying amounts of medium to coarse sand, gravel (boulder and cobble rock fragments), silt, and slightly to severely weathered gneiss/diorite/quartz (Pennoni, 2008a).

DOL Motor Pool (TA-V/W) (Figure 4-17): The soil mapping units delineated within the Orange County Soil Survey at the Washington Gate Site include HLC, ROC, and ROD. Soil borings conducted the 2007 revealed brown sand, gravel, and some silt (USACE, 2007d).

DOL Secondary Refueling Station (Figure 4-18): HLC is the soil mapping unit delineated within the Orange County Soil Survey at the Secondary Refueling Station.

Lake Frederick Site (Figure 4-19): The soil mapping units delineated within the Orange County Soil Survey at the Lake Frederick Site include MTB, MTC, ROC, and ROD. Soil borings conducted within the area in July of 2008 revealed a 3 to 18 in. thick layer of topsoil, with the underlying soils comprised of fine to coarse sand with varying amounts of clayey silt, little to some fine to coarse gravel (Pennoni, 2008b).

VETCOM (Figure 4-20): The soil mapping unit found within the area proposed for development in the VETCOM Site is shown in the Orange County Soil Survey is SXC. However, because of past development within and immediately adjacent to the current VETCOM building, the soils are primarily made up of fill material. The presence of fill materials was confirmed by the results of soil borings performed in October 2007. Fill was encountered across the entire site at depths ranging from at least 1.0 foot to 9.0 feet. The fill material was highly variable and generally consisted of silty sand or sandy silt with variable amounts of gravel and occasionally trace amount of cinders.

Figure 4-16: Washington Gate Site Soils

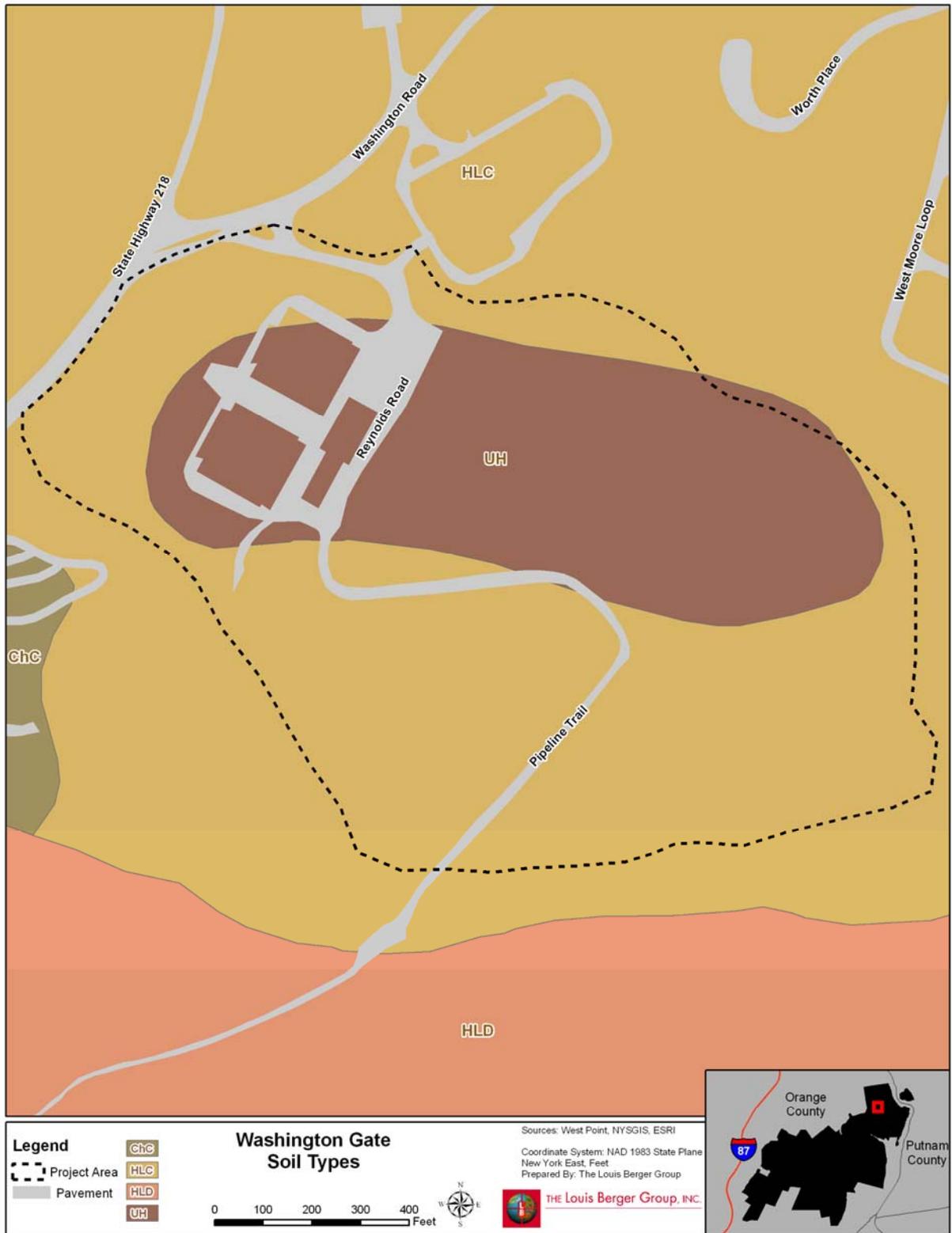


Figure 4-17: DOL Motor Pool Site (TA-V/W) Soils

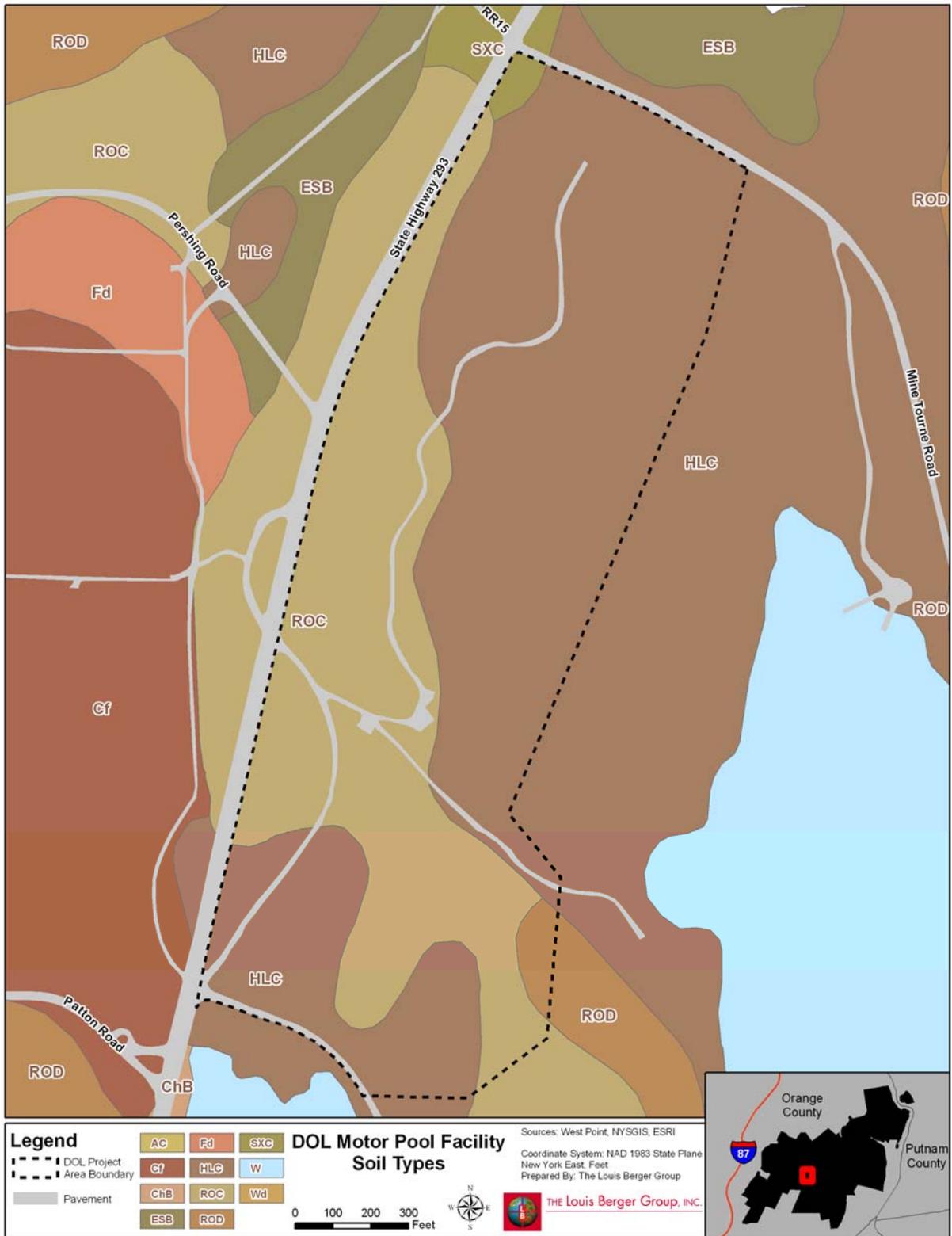


Figure 4-18: DOL Secondary Refueling Station Soils



Figure 4-19: Lake Frederick Site Soils

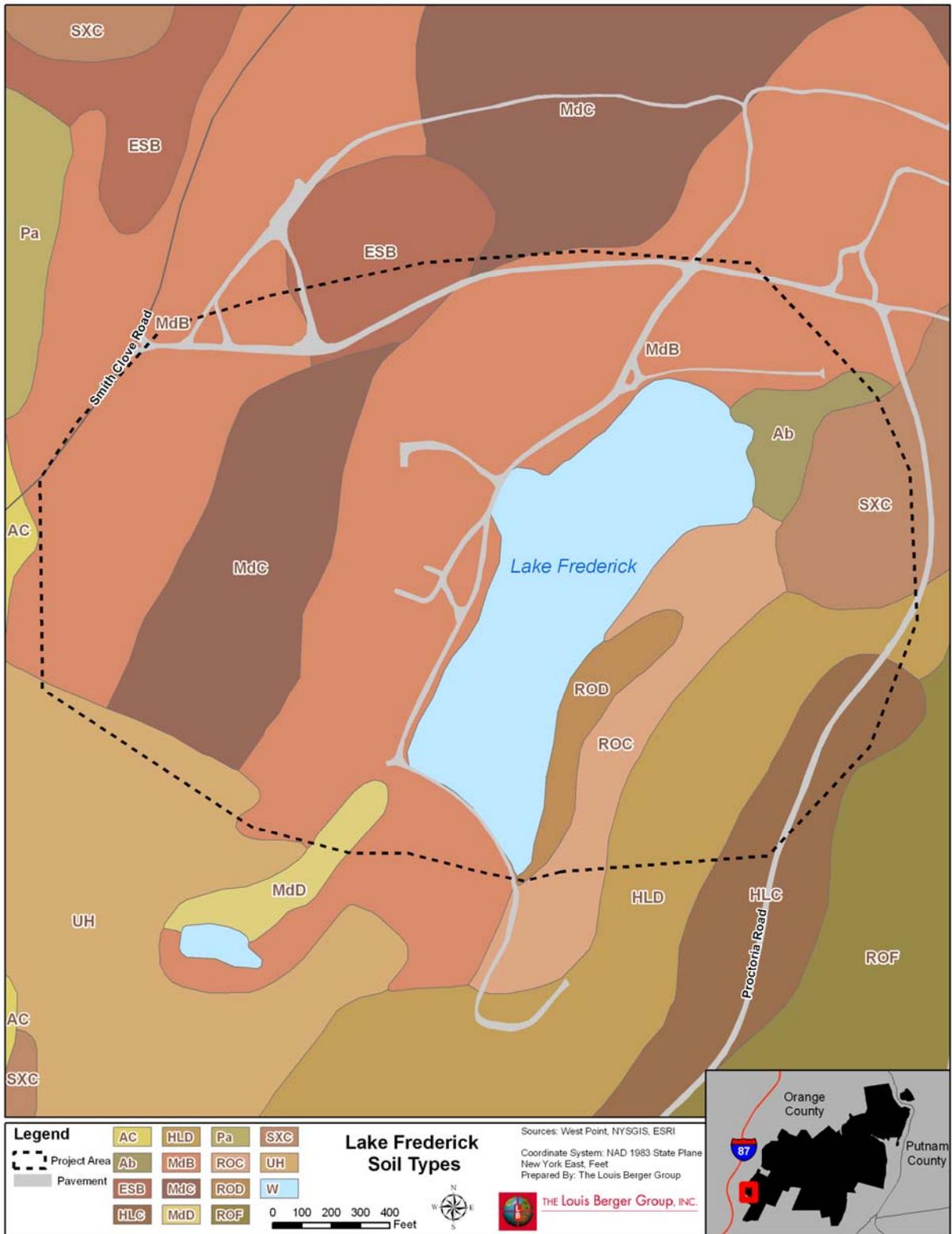
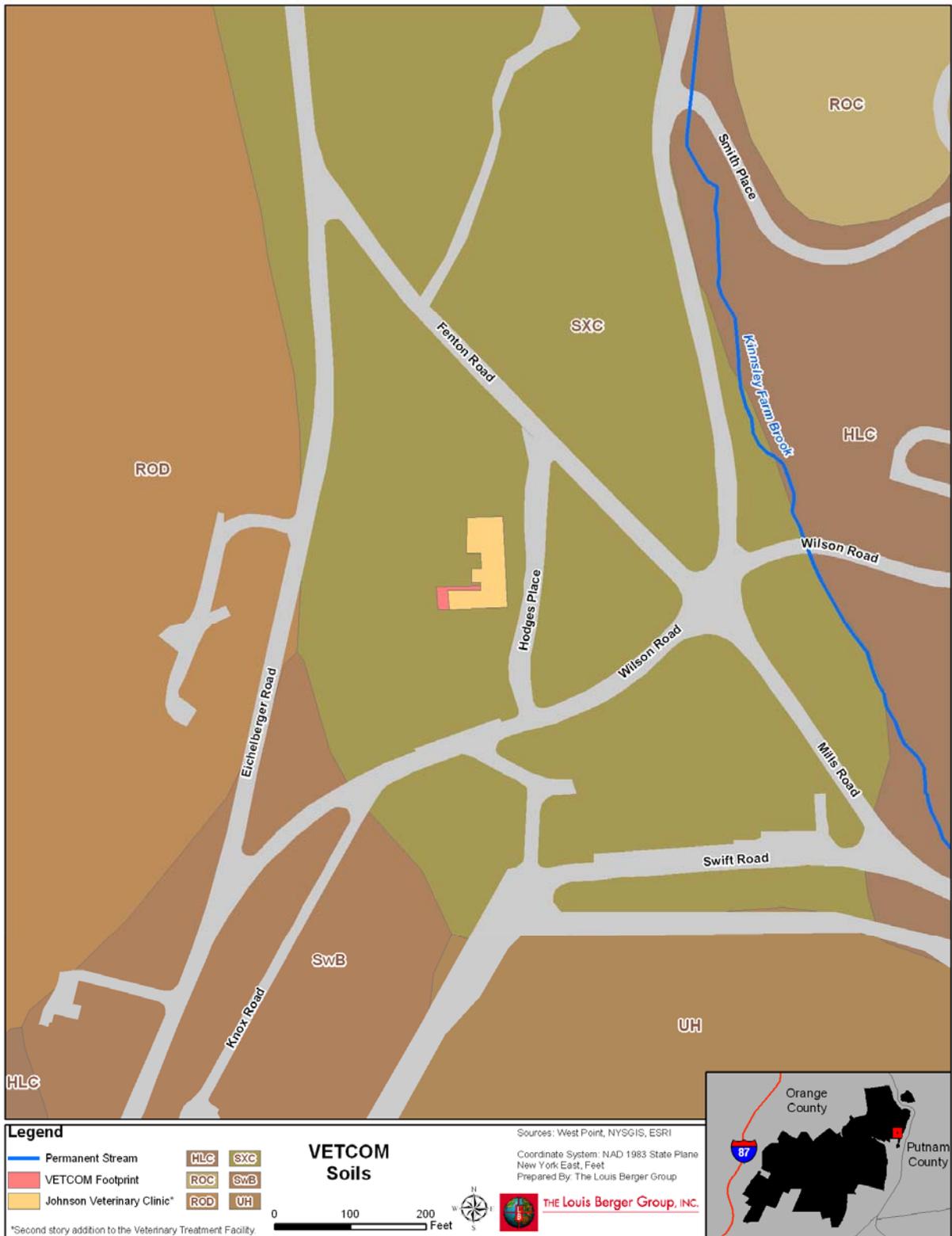


Figure 4-20: VETCOM Facility Soils



4.6.1.3 Prime Farmland

Prime farmland, as defined by the USDA, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. It could be cultivated land, pastureland, forestland, or other land, but it is not urban or built-up land or water areas (USDA, 2008). The criteria for defining and delineating farmland of statewide importance are determined by the appropriate State agencies. Generally, this land includes areas of soils that nearly meet the requirements for prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods (USDA, 2008).

The Mardin gravelly silt loam soils found within the Lake Frederick are classified by the state of New York as farmland soils of statewide importance. However, these areas are not considered prime farmlands because there is no agricultural use within these areas and portions of the site have been developed.

4.6.2 Environmental Consequences

To assess the magnitude of impacts to geology, topography, and soils at West Point resulting from the Proposed Action, the following impact threshold criteria were used:

No Effect - Geology, topography, or soils would not be impacted or the impact to these resources would be below or at the lower levels of detection. Any impacts would be slight.

No Significant Effect - Impacts to geology, topography, or soils would be detectable. Impacts to undisturbed areas would be proportionally small to the site.

Significant - Impacts on geology, topography, or soils would be readily apparent and result in a change to the character of the resource over a relatively wide area. Mitigation measures would be necessary to offset adverse impacts and may or may not be successful.

4.6.2.1 No Action Alternative Consequences

Because no ground disturbing activity would occur, the No Action Alternative would not impact the current geologic, topographic, or soil conditions at West Point and/or the surrounding area.

4.6.2.2 Alternative 1 WGE Consequences

Geology, Topography, and Soils – USMAPS Washington Gate Site: Alternative 1 would result in land disturbance of approximately 26 acres and permanent impervious surface of 601,128 ft² (55,847 m²) or approximately 13.8 acres (5.6 hectares). No significant impacts to geology, topography or existing soil conditions would be expected to occur during any excavation and grading needed for the proposed construction.

Under this alternative the majority (approximately 60%) of the proposed new development (i.e., the soccer field and track, football field, lacrosse field, assembly hall, and practice fields/parking) would occur on previously developed land made up of fill material (Udorthents) that have been previously graded. Excavation of rock would be required during the land clearing and grading and construction activities.

In addition, the Washington Gate Site is located on two landfills. See Section 4.15, Landfill Disruption, for a discussion on geotechnical requirements at the site. Based on boring data, competent bedrock should not be encountered in excavations to reach proposed finish floor elevations for the proposed buildings; however, encountering large boulders should be expected. Blasting should be anticipated for this project. The development of the academics building, the indoor field, dining hall, barracks, and associated other hardened surfaces would occur on previously undeveloped land and would increase the overall amount of impervious surface occurring in the area, which in effect would increase the amount of stormwater runoff. The Hollis Soils found in the vicinity of these facilities have moderate to moderately rapid permeability, and exhibits medium to rapid runoff. Increased runoff would increase the potential for erosion and sedimentation problems in areas adjacent to the site. To minimize the amount and velocity of runoff, appropriate erosion, sedimentation, and stormwater BMPs would be implemented where appropriate. The BMPs would be consistent with the New York State Stormwater Management Design Manual. The guidelines provided in the NYSDEC 2008 Better Site Design would also be followed as appropriate.

In addition, because the proposed project design at this site has a footprint greater than one acre (0.40 hectares) an NYSDEC Erosion and Sediment Control Plan would be required. This plan would provide appropriate vegetative and structural measures for reducing runoff velocity, stabilizing soil to prevent erosion, and capturing eroded sediment before it leaves the site. All practices would be designed in accordance with the New York Standards and Specifications for Erosion and Sediment Control.

Geology, Topography, and Soils - DOL Motor Pool (TA-V/W): The proposed relocation of the DOL Motor Pool site (TA-V/W) would result in land disturbance of approximately 38 acres and permanent impervious surface of 736,164 ft² (68,416 m²), or approximately 16.9 acres (6.8 hectares). No significant impacts to geology, topography or existing soil conditions would be expected to occur during any excavation and grading needed for the proposed construction. In addition, some blasting and ripping of rock could occur during the land clearing and grading and construction activities. The proposed construction of the maintenance building, administration and contractor building, the vehicle wash, and required parking and other hardened surfaces would be build almost entirely on previously undisturbed land. These soil mapping units found within this site exhibit limitations for the development of dwellings with or without basements, local roads and streets, shallow excavations, small commercial buildings, and lawns and landscaping. This proposed development would also increase the amount of impervious surface occurring in the area, which in effect would increase the amount of stormwater runoff. The Hollis soils and rock outcrops found in this area both exhibit medium to rapid runoff. Increasing runoff from the proposed new development would increase the potential of erosion and sedimentation problems in areas adjacent to the site. To minimize the amount and velocity of runoff, appropriate erosion, sedimentation, and stormwater BMPs would be implemented where appropriate. The BMPs would be consistent with the New York State Stormwater Management Design Manual. The guidelines provided in the NYSDEC 2008 Better Site Design would also be followed as appropriate.

In addition, because the proposed project design at this site has a footprint greater than one acre (0.40 hectares) an NYSDEC Erosion and Sediment Control Plan would be required. This plan would provide appropriate vegetative and structural measures for reducing runoff velocity, stabilizing soil to prevent erosion, and capturing eroded sediment before it leaves the site. All practices would be designed in accordance with the New York Standards and Specifications for Erosion and Sediment Control.

Geology, Topography, and Soils - DOL Secondary Refueling Station: The proposed Secondary Refueling Station would be located in a developed area with HLC soil. Appropriate erosion, sedimentation, and stormwater BMPs would be implemented during construction activities. The BMPs would be consistent with the New York State Stormwater Management Design Manual. The guidelines provided in the NYSDEC 2008 Better Site Design would also be followed as appropriate.

4.6.2.3 Alternative 2 WG B Consequences

Topography and Soils – USMAPS Washington Gate Site: Alternative 2 would result in land disturbance of approximately 26 acres and permanent impervious surface of 609,840 ft² (56,655 m²) or approximately 14 acres (5.6 hectares). Impacts to the topography, geology and soils associated with this alternative would be similar to those described under Alternative 1. However, under this alternative the majority (approximately 70%) of the proposed new development (i.e., the soccer field and track, football field, lacrosse field, barracks, assembly hall, academic and dining halls, and practice fields/parking) would occur on land made up of fill material (Udorthents) that have been previously graded. Excavation of rock would be required during the land clearing and grading and construction activities. In addition, the Washington Gate Site is located on two landfills. See Section 4.15, Landfill Disruption, for a discussion on geotechnical requirements at the site. Based on boring data, competent bedrock should not be encountered in excavations to reach proposed finish floor elevations for the proposed buildings; however, encountering large boulders should be expected. Blasting should be anticipated for this project. The development of the athletics building, the indoor field, a portion of the academic building, and associated other hardened surfaces would occur on previously undeveloped land and would increase the overall amount of impervious surface occurring in the area, which in effect would increase the amount of stormwater runoff. The Hollis Soils found in the vicinity of these facilities have moderate to moderately rapid permeability, and exhibits medium to rapid runoff. Increased runoff would increase the potential for erosion and sedimentation problems in areas adjacent to the site.

As described under Alternative 1, BMPs consistent with the New York State Stormwater Management Design Manual would be implemented to minimize the erosion and decrease the amount and velocity of runoff from the site. In addition, an NYSDEC Erosion and Sediment Control Plan would be required. The guidelines provided in the NYSDEC 2008 Better Site Design would also be followed as appropriate.

Geology, Topography, and Soils - DOL Motor Pool (TA-V/W): Under Alternative 2, the effects to geology, topography or existing soil conditions at the proposed DOL Motor Pool site (TA-V/W) would be the same as under Alternative 1 and therefore, are not anticipated to be significant.

Geology, Topography, and Soils - DOL Secondary Refueling Station: Under Alternative 2, the effects to geology, topography or existing soil conditions at the proposed DOL Secondary Refueling Station would be the same as under Alternative 1.

4.6.2.4 Alternative 3 WG 15% Design Consequences

Geology, Topography and Soils – USMAPS Washington Gate Site: Alternative 3 would result in land disturbance of approximately 42 acres and permanent impervious surface of approximately 653,400 ft² (60,703 m²), or approximately 15 acres (6 hectares). Impacts to the topography and soils associated with this alternative would be similar to those described under Alternative 1, with more substantial rock removal required under this alternative. Excavation of rock would be required during the land clearing and grading and construction activities. In addition, the Washington Gate Site is located on two landfills. See Section 4.15, Landfill Disruption, for a discussion on geotechnical requirements at the site. Based on boring data, competent bedrock should not be encountered in excavations to reach proposed finish floor elevations for the proposed buildings; however, encountering large boulders should be expected. Blasting should be anticipated for this project

Approximately half of the proposed development (i.e., the soccer field and track, football field, lacrosse field, and indoor athletic facility) would occur on land made up of fill material (Udorthents) that have been previously graded. The development of the athletic and academic buildings, the barracks, dining hall, and associated parking and other hardened surfaces would increase the amount of impervious surface occurring in the area, which in effect would increase the amount of stormwater runoff. The Hollis Soils found in the vicinity of these facilities have moderate to moderately rapid permeability, and exhibits medium to rapid runoff. Increased runoff could cause erosion and sedimentation problems in areas adjacent to the site.

As described under Alternative 1, BMPs consistent with the New York State Stormwater Management Design Manual would be implemented to minimize the erosion and decrease the amount and velocity of runoff from the site. The guidelines provided in the NYSDEC 2008 Better Site Design would also be followed as appropriate. In addition, an NYSDEC Erosion and Sediment Control Plan would be required.

Geology, Topography, and Soils – DOL Motor Pool (TA-V/W): Under Alternative 3, the effects to geology, topography or existing soil conditions at the proposed DOL Motor Pool site (TA-V/W) would be the same as under Alternative 1 and therefore, are not anticipated to be significant.

Geology, Topography, and Soils - DOL Secondary Refueling Station: Under Alternative 3, the effects to geology, topography or existing soil conditions at the proposed DOL Secondary Refueling Station would be the same as under Alternative 1.

4.6.2.5 Alternative 4 LF 2a Consequences

Geology, Topography, and Soils – USMAPS Lake Frederick Site: Alternative 4 would result in land disturbance of approximately 64 acres and permanent impervious surface of approximately 683,982 ft² (63,558 m²), or approximately 15.7 acres (6.4 hectares). Based on the findings of the geotechnical survey conducted in June of 2008, there would be no significant impacts to geology, topography, or soils on the site. Based on the findings, rock is not anticipated to impact site grading (Pennoni, 2008b). The majority of the proposed development (i.e., the soccer/track field, football field, lacrosse field, and parking) would occur on previously undeveloped, undisturbed lands that would require grading. While the remaining proposed development (i.e., academic building, barracks, dining hall, athletic field, indoor field, and required parking) would occur on previously graded somewhat developed land. The soils found within both the developed and undeveloped areas

are made up of Mardin gravelly silt loam soils, which are very deep, somewhat erodible and moderately well drained. Increased runoff both during and after construction (due to the increase in impermeable surfaces) would increase the potential erosion and sedimentation problems in areas adjacent to the site. To minimize the amount and velocity of runoff, appropriate erosion, sedimentation, and stormwater BMPs, consistent with the New York State Stormwater Management Design Manual, would be implemented where appropriate. The guidelines provided in the NYSDEC 2008 Better Site Design would also be followed as appropriate.

In addition, because the proposed project design at this site has a footprint greater than one acre (0.40 hectares) an NYSDEC Erosion and Sediment Control Plan would be required. This plan would detail the appropriate vegetative and structural measures for reducing runoff velocity, stabilizing soil to prevent erosion, and capturing eroded sediment before it leaves the site. All practices must be designed in accordance with the New York Standards and Specifications for Erosion and Sediment Control.

4.6.2.6 Alternative 5 LF 2b Consequences

Geology, Topography, and Soils – USMAPS Lake Frederick Site: Alternative 5 would result in the land disturbance of approximately 64 acres and permanent impervious surface of approximately 736,164 ft² (68,416 m²), or approximately 16.9 acres (6.84 hectares). Impacts associated with this alternative would be similar to those discussed under the Lake Frederick Alternative 2A. There would be no significant impacts to geology, topography, and existing soil conditions would be expected to occur during any excavation and grading needed for the proposed construction. The proposed development would occur on both undeveloped and somewhat developed lands and most would require varying amount of grading. Erosion, sedimentation, and stormwater BMPs, consistent with the New York State Stormwater Management Design Manual, would be implemented where appropriate. The guidelines provided in the NYSDEC 2008 Better Site Design would also be followed as appropriate. In addition, an NYSDEC Erosion and Sediment Control Plan would be required.

4.6.2.7 VETCOM Consequences

The proposed VETCOM facility would result in land disturbance of less than 1,422 ft² (132.11 m²), or approximately 0.033 acres (0.013 hectares). It is likely that during excavation, intact rock or large boulders would be encountered. If intact layers or large boulders are encountered within the limits of excavation for the expansion, which cannot be successfully ripped or moved with standard excavation equipment, it may be necessary to perform some rock breaking by drop hammer or hydraulic rock breaker, or blasting. Minor short-term impacts to microtopography and existing soil conditions would be expected to occur during any excavation and grading needed for the proposed construction. Soils at the proposed site are characterized by moderate erosion potential, and the increase in impervious surfaces could increase runoff, which could potentially increase erosion and sedimentation. To minimize the amount and velocity of runoff, appropriate erosion, sedimentation, and stormwater BMPs would be implemented where appropriate. The BMPs would be consistent with the New York State Stormwater Management Design Manual. The guidelines provided in the NYSDEC 2008 Better Site Design would also be followed as appropriate.

Since this proposed project design does not have a footprint greater than one acre (0.40 hectares), an NYSDEC Erosion and Sediment Control Plan would not be required.

4.7 WATER RESOURCES

4.7.1 Affected Environment

The following sections provide a summary of the general condition and character of water resources found at West Point, as well as more specific descriptions of the water resources in the immediate vicinity of the proposed project sites. West Point's Integrated Natural Resources Management Plan (INRMP) (USMA, 2003) has detailed information about all of the surface waters found on the installation, and unless otherwise noted, the water resources information provided below was drawn from the INRMP.

4.7.1.1 Surface Water

The surface water systems of West Point are composed of lakes, ponds, and streams scattered throughout the installation. The USMA lies in the drainage basin of the Hudson River, which flows along the eastern boundary of

the reservation, and is drained by many small tributaries that discharge into the Hudson River. Shallow soil, glacial geology, and abundant rainfall produce a regionally high water table, resulting in numerous wetlands, lakes, and ponds.

Twelve surface drainage systems are present on the reservation. The major surface drainage system, as well as the major source of potable water on USMA is the Popolopen Brook system, which discharges into the Hudson River just upstream of the Bear Mountain Bridge. The Highland Brook system flows just west of and drains about one quarter of the cantonment and ultimately discharges into the Hudson River. The rest of the cantonment is drained by the Crow's Nest Brook system, the Kinsley Farm Brook drainage, and an unconsolidated system of storm drains and culverts.

Other drainages on the east side of the Reservation include: to the southeast, the Cragston Brook/Cragston Lakes system, and an unnamed brook to the south of Cragston. In the northeast is the Rose Brook drainage, an unnamed, intermittent brook east of Rose Brook, and a small portion of the Upper Reservoir watershed that flows into Black Rock. The western side of West Point is made up of the Lake Frederick, Trout Brook, and Mineral Springs Brook sub-drainages that eventually meet in the Woodbury/Moodna Creek system.

The major surface water feature at West Point is the Hudson River, which creates the eastern border of the post. The Hudson River originates at Lake Tear of the Clouds in the Adirondack Mountains and flows 314 miles to its mouth in the Upper New York Bay. Over 13,514 square miles of watershed drain into the Hudson River. The portion of the river that flows between West Point and Constitution Island is an oligohaline estuarine reach. The water quality in this portion of the river is characterized by rapidly changing salinities from 1 to 5 parts per thousand (ppt) and moderate enrichment of nitrogen and phosphorous. The Hudson River is important habitat for many fish species and is used by both resident brackish water species and as a migratory pathway for anadromous or catadromous species. The Hudson River in the vicinity of West Point is listed as an impaired water body, NYSDEC Section 303(d). This river segment is listed for fish consumption advisories due to polychlorinated biphenyls (PCBs) and cadmium contamination, primarily in conjunction with past industrial waste discharges from the former Cold Spring Battery Plant (CSBP), located on the east bank of the Hudson River at Foundry Cove across from the cantonment area of West Point. Studies conducted in Foundry Cove revealed that cadmium levels in the cove and vicinity were several times the federal criterion of 3.98 mg/L calculated for aquatic health and 10 mg/L for human health. Aquatic sediments in the cove were also contaminated and though no evidence of toxic effects to biota were observed, elevated levels of cadmium were observed in invertebrates, fish, and aquatic plants. Environmental remediation and clean-up efforts at the CSBP site were completed in July, 1995 and the site was delisted from the National Priorities List pursuant to the CERCLA on October 18, 1996.

In addition to the Hudson River, numerous lakes, ponds, and streams are located throughout West Point. Many of the lakes and ponds were formed from artificial dams that have raised water levels within former wetland areas. Figures 4-21 through 4-23 show the water resources at West Point located in the vicinity of the project sites. Surface water features in the vicinity of each project site are described below:

Washington Gate Site: Sinclair Pond Brook, a tributary to Crows Nest Brook, crosses the western portion of the USMAPS site. This is designated as a Class C stream which means it is suitable for fisheries and other non-contact recreation. However, the brook is a highly segmented stream in an urbanized setting and the portion of stream that is within the Washington Gate Site has steep banks with large substrates (USFWS, 2006). The 2006 temperature data indicate average temperature of 63.84 °F during June and October with minimum and maximum temperatures at 46 and 82 °F, respectively.

Figure 4-21: Water Resources in the Vicinity of the Washington Gate Site.



Figure 4-22: Water Resources, Proposed DOL Motor Pool Site (TA-V/W).

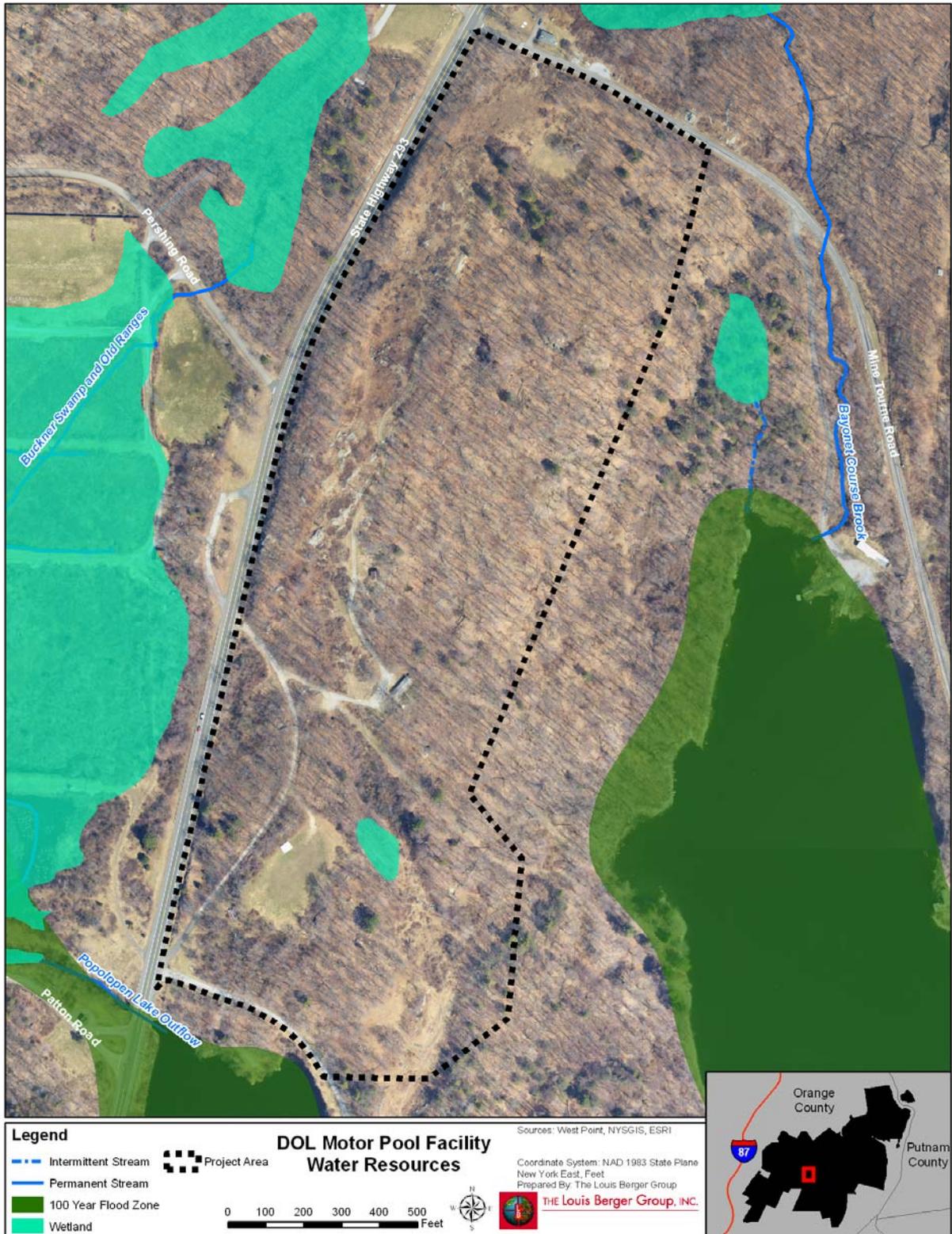


Figure 4-23: Water Resources, Lake Frederick.



DOL Motor Pool Site (TA -V/W): Stilwell Lake is located just southeast of TA-VW and is the main water feature in the vicinity of the proposed DOL site. The 129-acre lake was formed in 1949 by construction of a concrete dam across Popolopen Brook. The lake has an average depth of 20 feet with a maximum depth of 46 ft. The shorelines of Stilwell Lake are mostly gravel, though rock ledges and boulders are present at some locations. The lake is classified as a NYSDEC Class A waterbody, meaning that it is a suitable source of water supply for drinking, culinary or food processing purposes; primary and secondary contact recreation; and fishing. It also means the water is suitable for fish propagation and survival. Stilwell Lake is a popular recreation area at West Point. It is an outstanding fishery and supports the most popular largemouth bass fishery at West Point. The lake does occasionally experience algal blooms; once approximately every 3 years.

Popolopen Brook is the outlet stream of Stilwell Lake, traverses the south-central portion of West Point, and empties into the Hudson River. It is about 3.8 miles in length from its source to where it meets the Hudson River. The stream is about 30 feet wide with little gradient through its first mile, and it borders a wetland system. There is a moderate gradient with areas of rocky pools interspersed with riffles where Cranberry Brook and Weyant's Pond outlet meet Popolopen Brook. Outside of the reservation, the stream is quite steep. Popolopen Brook is classified as a Class A(t) stream between Stilwell Lake and West Point intake, and a Class C(t) stream downstream from West Point water intake. The (t) designation indicates that the water quality of the stream is suitable for trout. However, temperature data indicate that while the physical habitat of the stream is adequate, trout would be unable to survive the maximum temperatures experienced during the late summer, as temperatures during July and August rarely fall below 77 degrees Fahrenheit (°F) while maximum temperatures can reach 83 °F.

Raw water is drawn from Popolopen Brook 2.25 miles downstream of Stilwell Lake and conveyed through a cast iron pipe 6.3 miles into Lusk Reservoir for potable water supply for the cantonment area of West Point. One-quarter mile further downstream, treated effluent from the Camp Buckner secondary wastewater treatment plant is discharged into Popolopen Brook, approximately 1.5 miles upstream from its confluence with the Hudson River (in accordance with NPDES permit NY0023213).

Mine Lake is located south of the proposed DOL Motor Pool site. Mine Lake covers approximately 24 acres and has a maximum depth of 12 feet. It was formed as a result of the construction of a dam on Popolopen Brook. Both the Popolopen Lake outlet and Brooks Hollow Creek flow into Mine Lake. The Mine Lake outlet flows only a short distance to Stilwell Lake. Mine Lake is a NYSDEC Class A waterbody.

DOL Secondary Refueling Station: Crows Nest Brook is located in the northeast corner of West Point property. It has its origin in various small streams flowing down from the Crows Nest peak, which converge and discharge to the Hudson River. A portion of the stream flows parallel to and immediately adjacent to the southwest boundary of the proposed secondary fuels station. Crows Nest Brook is classified by the NYSDEC as Class C water. In 2001, USFWS personnel discovered evidence of spawning brown trout (*Salmo trutta*) near Target Field. Therefore, West Point treats the stretch of Crows Nest Brook from its junction with Sinclair Pond Brook downstream to the Hudson River as Class C (ts) and the stretch upstream of that junction as Class C.

Lake Frederick: The Lake Frederick site is located adjacent to the western shoreline of Lake Frederick, which is a 19 acre lake located in the southwest corner of West Point reservation. Lake Frederick is formed by an approximately 560 foot long earthen dam with a concrete core that was constructed in 1944 and remains in good condition according to an August 2006 inspection survey (USACE, 2006). The lake has an average depth of 12 feet with a maximum depth of 25 feet. The NYSDEC classifies Lake Frederick as a Class B waterbody, meaning it is suitable for primary (e.g. swimming) and secondary contact recreation and fishing, as well as meaning it is suitable for fish, shellfish, and wildlife propagation and survival (NYSDEC, 2008a and 2008b). The lake receives water from upland areas located to the east and from a small 0.5 acre pond located approximately 200 feet from the northeast corner of the lake; and it discharges water to an unnamed tributary of Woodbury Creek over a spillway during high water levels (USMA, 2003 and USACE, 2008b). Lake Frederick can become stratified during the summer months, as indicated by data collected during the summer of 1994. During this timeframe, dissolved oxygen (DO) and temperature data showed a distinct stratification occurring between the depths of 10 and 15 feet, with temperatures decreasing from 78.5 degree Celsius (°C) to 67.5 °C and DO decreasing from 5.96 ppm to 0.84 ppm.

Lake Frederick was oligotrophic (normal low nutrient levels) but then experienced an increase in nutrient levels potentially from multiple sources, including Canada geese and five years prior there was an blue algae bloom in the lake (Beemer, pers. comm., 2008b). Currently, two large mechanical aerators are operated from late April to early October to prevent algal bloom.

Three stormwater drainage areas are observed to exist on the Lake Frederick site. The first of these areas encompasses areas adjacent to Lake Frederick, including portions of Lake Frederick Drive. Stormwater impacting this area drains via sheet flow to Lake Frederick. The second drainage area encompasses the existing buildings and the majority of the forested area of the site. Stormwater impacting the second drainage area drains via sheet flow to a ditch located along Smith Clove Road south of Proctoria Road. This ditch discharges to piping passing beneath Smith Cove Road to an unnamed tributary of Woodbury Creek. The third drainage area encompasses the remainder of the forested area and plain habitat of the site, as well as Proctoria Road. Stormwater impacting this third area discharges via sheet flow to swales located along Proctoria Road, where it is combined with runoff from upland areas located north of the site. The runoff is subsequently discharged via 36-inch diameter piping and a 3 foot by 4 foot culvert, both within the Smith Clove Road right-of-way, to a ditch crossing the front yard of a residential property on the westerly side of the roadway.

As indicated above, stormwater from the Lake Frederick site eventually drains to Woodbury Creek via several unnamed tributaries, then to Moodna Creek and then to the Hudson River. Woodbury Creek is a Class C waterbody; however, downstream of the tributaries the segment of this stream from near Highland Mills to its junction with Moodna Creek has a wild trout population, and is therefore designated a trout spawning (ts) stream.

VETCOM: Kinsley Farm Brook is located approximately 500 feet from the proposed VETCOM facility. Kinsley Farm Brook is a NYSDEC Class B waterbody with permanent flows to the Hudson River. It is an extensively culverted watercourse that receives water from Lusk Reservoir and several stormwater culverts. Due to its restricted capacity and its relatively large, asphalted drainage basin, this brook can rapidly approach flood stage with even normal rainfall. It also tends to accumulate sand, silt, leaves and trash from storm water which further decreases capacity, and increases the likelihood of flood and erosion damage. In light of its propensity toward high water levels, this brook is regularly cleaned and maintained (Markt, pers. comm., 2007).

4.7.1.2 Wetlands

Certain wetlands are federally protected as a subset of “waters of the United States” under Section 404 of the CWA. The USACE defines wetlands as “those areas that are inundated or saturated with ground or surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted to life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and “similar areas” as defined in 33 CFR 328.

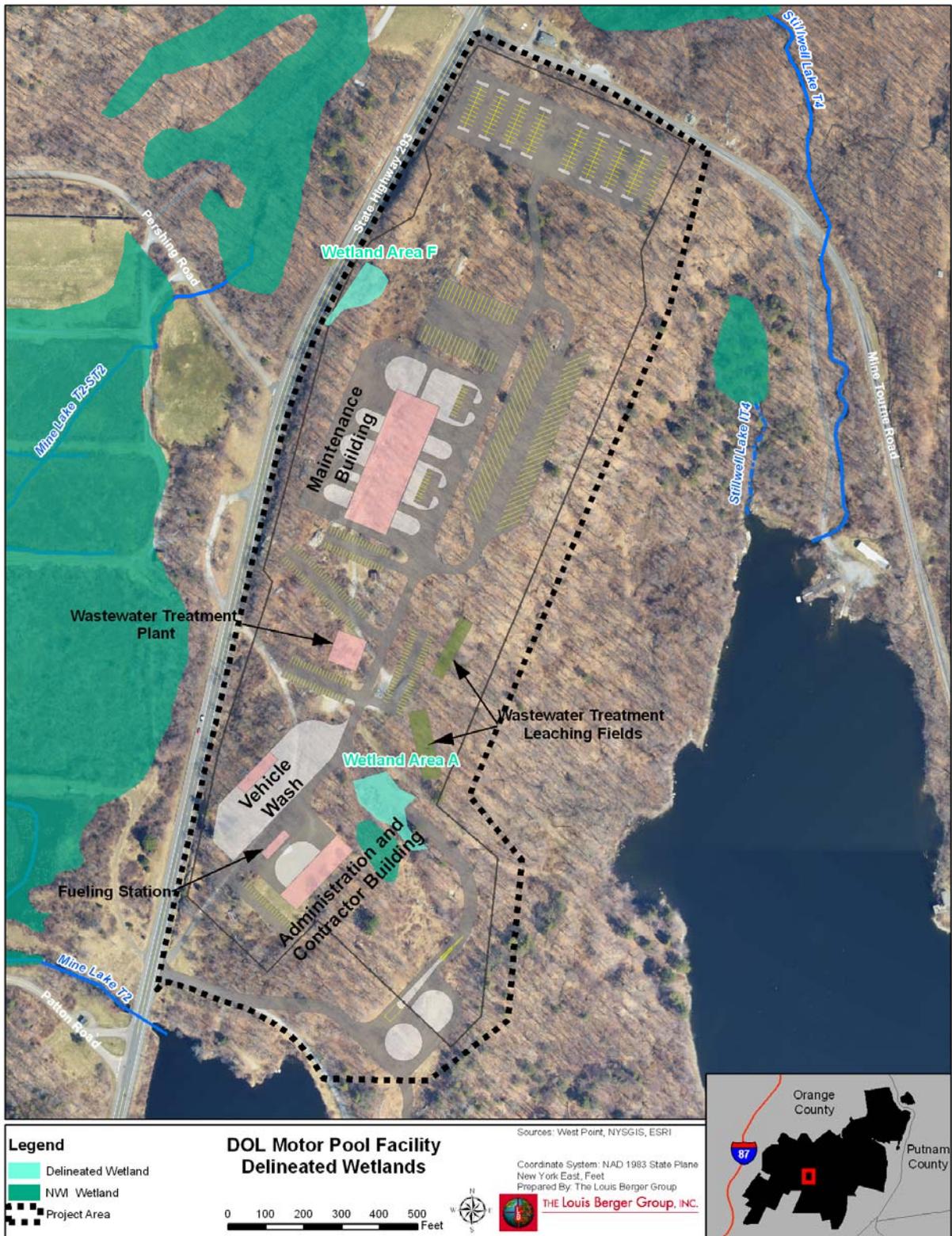
Wetlands are also protected in New York State under Article 24 of the New York Environmental Conservation Law, commonly known as the Freshwater Wetlands Act (the Act or Article 24). Freshwater wetlands, as defined by the Act, are wetland areas 12.4 acres or larger (except under special circumstances). The Act protects wetlands and a 100-foot buffer zone around them.

Wetland resources on West Point include approximately 1,010 acres of wetlands associated with streams, ponds, depressions, and seeps. In 1993, a wetland survey was conducted in accordance with the 1987 *Corps of Engineers Wetland Delineation Manual*, which mapped and characterized 146 distinct wetlands on West Point. Nine of these wetlands were characterized based on the 1987 *Corps of Engineers Wetland Delineation Manual*, and the remaining wetland boundaries were approximated in the field by observing indicators of hydrology, vegetation, and soils. The majority of the wetlands on West Point are small with areas of less than 5 acres. Only a few of the wetlands on the installation exceed 15 acres.

Washington Gate Site: There are no wetlands within or immediately adjacent to the proposed USMAPS campus at the Washington Gate site (Henderson, pers. comm., 2008).

DOL Motor Pool Site (TA-V/W): Two USACE jurisdictional wetlands are located within the project boundaries of the proposed DOL Motor Pool site; one (Wetlands A) is located in the southern portion of the project site and one is located in the northwest portion (Wetlands F) of the site (see Figure 4-24).

Figure 4-24: 2008 Wetlands Delineation, DOL Motor Pool (TA-V/W).



These wetlands were delineated in August 2008. The southern wetland is 0.37 acres in size and drains to the east through a series of upland and rock lined swales towards Lake Stilwell. It is classified as a Palustrine, scrub-shrub, broad-leaved deciduous wetland (USACE, 2008c). The wetland in the northwestern portion of the site is classified as a Palustrine, forested, broad-leaved deciduous wetland and drains to a 36-inch re-enforced concrete pipe which conveys water under Route 293 and discharges on the west side of Route 293.

DOL Secondary Refueling Station: There are no wetlands within or immediately adjacent to the proposed DOL secondary refueling station site.

Lake Frederick Site: Adjacent to the northeast side of Lake Frederick there are three wetlands composed of three wetland types: Palustrine emergent, persistent; Palustrine unconsolidated bottom-mud; and Palustrine forested-broad-leaved deciduous (see Figure 4-25) (USACE, 2008d). All three wetlands are manmade features with the purpose of either improving drainage properties or sequestering waters from local high-gradient ephemeral streams. Wetland Area A is approximately 0.22 acres and is located within a drainage feature in a mowed field. Wetland Area B is approximately 0.40 acres located within a cement-walled pond with emergent wetland vegetation. When waters are sufficiently high in this wetland/pond, the pond discharges through a cement and stone spillway at its eastern end to wetlands adjoining Lake Frederick. Wetland Area C is approximately 0.46 acres and is located adjacent to Lake Frederick.

VETCOM: There are no wetlands within or immediately adjacent to the proposed VETCOM.

4.7.1.3 Hydrogeology/Groundwater

Groundwater at West Point occurs in both an unconsolidated aquifer consisting of alluvial deposits and a consolidated bedrock aquifer. The water in this aquifer occurs primarily in the sands and gravels of the stratified drift deposits, which are thin and generally have fairly small well yields averaging 40 gallons per minute (gpm). Local precipitation is the primary source of recharge to the aquifer. Some groundwater flow occurs from the alluvial aquifer to the underlying bedrock aquifer. In low lying areas, upward seepage of groundwater from the bedrock aquifer to the overlying alluvial aquifer may occur. Another source of groundwater underlying West Point is in the upper weathered, jointed, and fractured section of the bedrock that underlies the post. Recharge to the bedrock aquifer occurs in upland areas by precipitation, and discharge occurs in lowland areas through springs and upward seepage. The limited extent of the joint and fracture systems in the bedrock aquifer result in extremely slow permeability and water movement creating well yields that are generally sufficient for small demands such as domestic use. Potable water at West Point is supplied mainly from surface sources; however, approximately 17 small-diameter, shallow wells that most likely draw water from the stratified alluvial sand and gravel deposits aquifer and the upper weathered bedrock aquifer are located on post. These wells have depths ranging from 25 to 40 feet and yield of 3.5 to 6.0 gpm.

4.7.1.4 Floodplain

Floodplains are described as areas likely to be inundated by a particular flood. For example, a flood that has a one-percent chance of occurring in any one year is the 100-year flood. The 100-year floodplain includes some land areas that are flooded by small and often dry watercourses. A review of New York State GIS depicting the Federal Emergency Management Agency's (FEMA) National Flood Insurance Program (NFIP) maps shows all three proposed project sites are located in Zone X. This designation is for areas outside both the 100-year and 500-year floodplains.

Figure 4-25: 2008 Wetlands Delineation, Lake Frederick.



4.7.2 Environmental Consequences

An assessment of impacts to water resources on West Point was conducted and the following thresholds are used to describe the level of magnitude of these effects:

No Effect – Current water quality and hydrologic conditions would not be altered or conditions do not exist for impacts to occur.

No Significant Effect – Impacts (chemical, physical, or biological effects) would be either not detectable, or detectable, but at or below water quality standards or criteria. Alterations in water quality and hydrologic conditions relative to historical baseline may occur, however, only on a localized and short-term basis.

Significant Effect – Impacts (chemical, physical, or biological effects) would be detectable and would be frequently altered from the historical baseline or desired water quality conditions; and/or chemical, physical, or biological water quality standards or criteria would be locally, slightly and singularly, exceeded on either a short-term or prolonged basis.

4.7.2.1 No Action Alternative Consequences

Implementation of the No Action Alternative would not alter the existing water resources at the sites being considered under the Proposed Action. No effects would be expected.

4.7.2.2 Alternative 1 WGE Consequences

The consequences to water resources under Alternative 1 occur at two locations: the Washington Gate Site and TA-V/W. These are discussed separately for each water resource below.

Surface Water – USMAPS Washington Gate Site: With the specific design measures proposed for the construction of the USMAPS campus at the existing DOL Motor Pool, the project would minimize impacts to Sinclair Pond Brook to levels where there would be no significant adverse effects.

The site drains to Sinclair Pond Brook which eventually flows into Crow's Nest Brook approximately 3,300 feet downstream. The stretch of Crow's Nest Brook between its junction with Sinclair Pond Brook downstream to the confluence with the Hudson River is considered to be a trout spawning stream. This designation limits any discharges that would raise the stream temperature or impair the water quality.

The athletic fields associated with the USMAPS campus could be artificial turf, which can become very hot during the summer. One possible solution for cooling the athletic fields off would be to use some form of irrigation (USMA, 2007b). However, runoff from this type of cooling, or from stormwater runoff, would likely discharge water with elevated temperatures into Sinclair Pond Brook that may exceed New York State criteria for governing thermal discharges into trout waters (6 NYCRR 704.2). To minimize this potential impact, the design of the synthetic athletic fields would include a zero percent grade and an 18-24 inch gravel aggregate layer that underlays the fields with collection piping, similar to French drains, threaded throughout the aggregate layer. With the zero percent grade, cooling and/or stormwater runoff will filter through the synthetic turf into the aggregate layer and into the collection pipes where it will eventually discharge into Sinclair Pond Brook approximately 0.75 miles upstream from its junction with Crow's Nest Brook (Stout, pers. comm., 2008). With this design, heat will be transferred from the cooling water/stormwater runoff to the aggregate prior to entering the collection system and discharging into Sinclair Pond Brook.

In addition, surface runoff containing fertilizer and pesticides/insecticides used on the proposed landscaped areas of the USMAPS campus, including athletic fields if natural grass turf is chosen, could also impact the water quality of Sinclair Pond Brook and the trout waters downstream. Minimizing the amount of fertilizers and pesticides/insecticides and using environmentally friendly products to the maximum extent possible/practicable would minimize any potential impacts.

Both construction and post-construction stormwater runoff would require management and potential treatment prior to discharge. Construction activities for the USMAPS campus would involve extensive excavation,

including hard rock excavation. Because the project involves disturbing more than 1 acre of land, a Notice of Intent (NOI), Stormwater Pollution Prevention Plan (SWPPP or SWP3) and an Erosion Control Plan would be required under the New York State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity, GP0-08-001 for the construction phase of the project. Additionally, as part of the SWPPP, a Notice of Termination (NOT) would be required at the end of the project to verify that the BMPs were implemented and the site stabilized as per the SWP3. During construction, the use of BMPs for erosion and sedimentation control would minimize any potential soil erosion and subsequent sedimentation to Sinclair Pond Brook or any other surrounding surface waters. Specifically, BMPs for erosion and sedimentation control would be outlined in an Erosion Control Plan required to be prepared by the contractor and approved by West Point prior to the initiation of construction activities. The Erosion Control Plan would ensure compliance with NYSDEC's current stormwater management regulations for construction activities pursuant to the SPDES permit.

The design of the USMAPS campus would reduce the overall impervious surface of the site by approximately 14 percent reducing the amount of stormwater flow draining from the site (Ewing Cole, 2008). Storm water from the impervious surfaces would be collected into a series of storm drainage inlets to intercept surface flow prior to it reaching Sinclair Pond Brook. The storm water inlets would convey the surface runoff to a storm water management facility before discharging the storm water into the brook. The required quality treatment would be achieved in the proposed design by conveying runoff collected from pavement and sidewalks to underground sand filters (USACE, 2008a). Proper treatment of the storm water by the management facility would minimize any potential impacts that storm water at the USMAPS campus might have on Sinclair Pond Brook and the waters downstream from the site. In addition, Municipal Storm Water (MS4) Permit # NYR20A334 applies to sources of storm water discharges on post within the cantonment area, and BMPs in accordance with the MS4 Permit would be employed to the maximum extent possible to help reduce the amount of storm water runoff from the site that needs to be treated.

Leachate seeps are known to emanate from the down gradient perimeter sides of the landfills located on the east and west sides of Sinclair Pond Brook (WSTPT-11 and WSTP-11A), respectively. At WSTPT-11 West Point installed a new leachate collection system in the form of a phyto-remediation/wetland in FY05. The landfill is included in West Point's Sampling and Analysis Plan for Long Term Monitoring and maintenance and ground water sampling is conducted at the site. During construction of the WSTPT 11A cover in 2002 a leachate seep was observed. As a result, a cap and drainage system improvements were designed, constructed and completed in FY02 (USMA, 2005b).

Dynamic compaction of the landfill will produce leachate. One option being considered for its disposal is to treat the leachate for pollutants with an on site industrial WT facility (temporary) and discharge the treated waste stream under a DEC issued SPDES permit to Sinclair Pond Brook provided the effluent discharge limits specified in the permit are achievable. This would only be done if an acceptable quality effluent is achievable, assuring no significant effects to the stream.

Removal of the existing asphalt cap over WSTPT 11 and replacing it in part with grass and landscaped areas will reduce the amount of impervious surface on the site by approximately 14 percent, increasing the potential for stormwater infiltration into the landfill and subsequently increasing leachate generation. To minimize the amount of landfill infiltration and leachate generation, and to provide the equivalent or improved protection of the environment of the existing cap, a NYSDEC Part 360 compliant landfill cap would be constructed. To accomplish this, the new landfill cap would, among other things, include a drainage layer along with perimeter drainage aggregate and piping (USACE, 2008a). As part of the proposed construction project, the three existing leachate collection trenches located along the northerly toe of landfill slope will not be impacted. However, the leachate collection trench located within the northwest corner of the landfill itself would be impacted and would likely be abandoned in-place (USACE, 2008a). Given the NYSDEC Part 360 compliant landfill cover and other improved surface drainage features of the site, it is likely that this leachate collection system is not needed. If, in the future, leachate flow becomes an issue, additional leachate collection systems could be installed along the northern toe of the landfill with minimal impacts to campus activities (USACE, 2008a).

To accommodate the new USMAPS facilities under Alternative 1, a continuous 500-foot section of Sinclair Pond Brook flowing through the project site would need to be filled and relocated. Relocation of the streambed would

vary between approximately 1 foot and 30 feet to the east. To accomplish the relocation without impacting the brook's water quality, the new landfill cap would be "turned down" to create a new stream bed for the brook to flow in without causing additional infiltration into the landfill and preventing leachate from seeping into the brook. In addition, the relocated stream would be designed to mimic the vegetated drainage channels that occur naturally. Design strategies that would increase the efficacy of the stream include reinforcing the channel bottom with biodegradable materials, such as coconut matting, and large stones to provide check dams to slow the water and create small basins to hold sediment, and planting the stream bank swales with native plants to help provide bio-filtration of any pollutants that may be carried by stormwater runoff (Diaz, pers. comm., 2008d). Because 500 feet of the original streambed would be filled, a USACE permit would be required; however, because relocating the stream would be considered a part of the landfill mitigation for the project an individual permit would not be required. Instead, a Nationwide Permit (NWP) 38, Cleanup of Hazardous and Toxic Waste, issued under 33 CFR 330 is what would be required (Capelli, pers. comm., 2008). In addition, a separate Section 401 Water Quality Certificate would need to be applied for and obtained from the NYSDEC because the NYSDEC denies Section 401 Water Quality Certifications to NWP 38 permits (NYSDEC, 2007b).

Surface Water – USMAPS DOL Motor Pool TA - V/W: Construction of the DOL Motor Pool at TA-V/W would have no significant adverse effects on nearby surface waters, if measures are taken in accordance with the NYSDEC stormwater discharge regulations detailed in the Stormwater Management Design Manual, which would result in treatment of 90 percent of runoff from impervious surfaces, at a minimum. With these mitigation measures, impacts would be minimized to levels where there would be no significant adverse effects.

The TA-V/W site drains directly to Stilwell Lake or indirectly to roadside swales, flowing to wetlands west of Route 293 that drain to Mine Lake. Stilwell Lake is a NYSDEC Class A waterbody and has one of the surface water withdrawals that supplies West Point with drinking water. It is also an excellent fishery. Both construction and post-construction storm water runoff would require management and potential treatment prior to discharge. Construction activities for the DOL Motor Pool would involve extensive excavation, including hard rock excavation. As with the USMAPS Campus a NOI, SWP3, an Erosion Control Plan and a NOT would be required under the SPDES General Permit. The use of BMPs for erosion and sedimentation control during construction would minimize any potential soil erosion and subsequent sedimentation to Stilwell Lake or any other surrounding surface waters and a West Point approved Erosion Control Plan would ensure compliance with NYSDEC's current storm water management regulations for construction pursuant to the SPDES permit.

Currently, storm water management and/or treatment is not required at Camp Buckner under West Point's existing MS4 Permit. However, management and/or treatment would still be required for the DOL Motor Pool at the TA-V/W site because the DOL Motor Pool would maintain its status under the Storm Water Pollution Plan for Industrial Activities. This General Permit has been revised and is now the Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activities and it requires quarterly inspections and stormwater sampling. Multiple drainage inlets with oil/water separators and grit chambers would likely be installed throughout the maintenance shops, wash rack, and parking areas in order to collect and filter runoff prior to discharging it into open drainage channels. Because Stilwell Lake is a source of drinking water, it is further recommended that a bio-retention system is installed to provide further water quality and quantity control prior to discharging the water to Stilwell Lake.

The DOL Motor Pool would include a fuel dispensing station and two separate 10,000-gallon USTs; one for motor gasoline (MOGAS) and one for diesel, and a 5,000 gallon UST for 85% ethanol (E-85). To minimize potential spills/leaks and impacts to the surrounding surface waters the tanks would be double-walled fiberglass tanks with alarm systems, have berms surrounding them and the refueling point, and would have oil/water separators located at the base of the bermed area. An oil-water separator equipped with an automatic discharge pipe shutoff valve (in the event of a large petroleum spill) would also be installed.

Due to TA-V/W's proximity to Stilwell Lake, the main source of drinking water for West Point Main Cantonment, to further ensure that there would be no significant impacts to the area surface waters, West Point would coordinate the siting and design of the DOL Motor Pool with the local Department of Health (DOH).

Surface Water - DOL Secondary Refueling Station: Construction of the DOL Secondary Fuel Station would have no significant adverse effects on surface waters. During construction, the use of BMPs for erosion and

sedimentation control would minimize any potential soil erosion and subsequent sedimentation to Crow's Nest Brook and oil/water separators associated with the two 10,000 gallon USTs and the 5,000 gallons UST and the fueling station would capture storm water runoff prior to it entering the brook. The USTs would be double walled construction and have berms around them. These measures in conjunction with the oil/water separators would minimize any impacts potentially caused by leaks or spills.

Wetlands – USMAPS Washington Gate Site: There would be no effect on wetlands. There are no wetlands associated with Sinclair Pond Brook or other locations in proximity to the proposed USMAPS campus. As a result, the Proposed Action would have no direct impact on federal or state jurisdictional wetlands. Therefore, implementation of the Proposed Action would not require permits from the NYSDEC pursuant to Article 24 (Freshwater Wetlands) of the New York State Environmental Conservation Law (NYSECL), or from the USACE pursuant to Section 404 of the CWA.

Wetlands – DOL Motor Pool TA V/W: There are two jurisdictional wetlands located on the proposed DOL Motor Pool site. The wetland in the northwest portion of the site is not located within the footprint of any of the proposed facilities or parking areas. During site preparation, earthworks, and construction activities BMPs for erosion and sedimentation controls would be implemented to ensure that storm water runoff would not cause or exacerbate erosion and potentially adversely impact the wetland. In addition, proposed stormwater measures such as drainage inlets, oil water separators, and grit chambers would prevent any stormwater runoff contaminated with petroleum, oils, or lubricants (POLs) from impacting the wetland.

Construction of the access road to the DOL Motor Pool site would require the placing of fill on a portion or all of the jurisdictional wetland located in the southern portion of the project site, and could require a Clean Water Act Section 404 permit issued by the USACE. Any Section 404 permit would likely include some form of mitigation to offset the adverse impacts to the wetland and could take the form of wetlands creation or enhancement. Implementing any mitigation measures associated with the Section 404 permit would reduce the level of impacts to wetlands to no significant effect.

Wetlands – DOL Secondary Refueling Station: There would be no effects on wetlands to the Secondary Refueling Station as there are no wetlands in proximity.

Hydrology/Groundwater – USMAPS Washington Gate Site: Some beneficial effects would result from the construction of the USMAPS campus at the Washington Gate site. Prior to construction of the USMAPS campus two 10,000 gallon diesel fuel UST and two 10,000 gallon gasoline USTs would be removed in accordance with NYSDEC regulations. The USTs are known to have leaked in the past, and although those leaks were appropriately addressed and leaking tanks removed upon discovery, removal of the current tanks will provide an opportunity to make sure that any residual contamination is removed and properly disposed of at a licensed disposal facility (Pers. Comm. Jarbeau, 2008).. It is assumed that 500 cubic yards and 2,500 gallons of residual POL contaminated soil and water respectively will require removal and disposal. This clean up action would prevent any potential future contamination of the groundwater from these sites. Other demolition activities prior to the construction of the USMAPS campus include removing oil water separators, a wash rack, two in-ground bus lifts that have experienced hydraulic leaks and groundwater infiltration, and the demolition of five buildings that may potentially contain asbestos, PCBs and/or lead based paint. Surveys would be conducted prior to the demolition of these facilities and the appropriate removal and disposal of all contaminants would be conducted in accordance with all applicable federal and state regulations, preventing contamination of the surrounding soils and potentially groundwater.

As part of the study to evaluate the feasibility of constructing the USMAPS campus on the DOL landfill, groundwater levels were measured and 8 groundwater samples (4 wells at the east landfill and 4 wells at the west landfill) plus five Quality Assurance/Quality Control (QA/QC) samples were collected and analyzed (USACE, 2008a). Depth to groundwater ranged from 4.6 feet to 11.5 feet at the east landfill and analytical results for the were similar to results of ground water monitoring in June 1995 with no volatile organic compounds (VOCs) or semivolatle organic compounds (SVOC) detected above NYSDEC Class GA ground water quality standards for drinking water. There were exceedances for the standards for several inorganic parameters, including iron, manganese and sodium concentrations, again, similar to the 1995 results. The iron and manganese water quality standards are based on aesthetic effects such as taste and staining in drinking water rather than on health concerns.

The sodium standard is related to salt content in drinking water and the detected concentrations are probably related to road salt use and runoff (USACE, 2008a).

At the west landfill, depth to groundwater ranged from 1.9 feet to 7.7 feet. The groundwater analytical results showed similar exceedances of NYSDEC Class GA groundwater quality standards for the same three inorganic analytes (iron, manganese, and sodium) as were reported for the east landfill. In addition, cadmium was detected in a down gradient monitoring well at 59.2 micrograms per liter ($\mu\text{g/L}$), which is above the NYSDEC drinking water standard of 5 $\mu\text{g/L}$. One SVOC and several VOCs were also detected in the west landfill groundwater in excess of their NYSDEC Class GA groundwater quality standards. The two monitoring wells detecting the exceedances are both located within or just outside the west landfill boundary and the ground water results likely represent impacts from west landfill leachate (USACE, 2008a). The groundwater in the west landfill is very close to the ground surface and it is believed that its level is influenced by seasonal groundwater flow in the area (USACE, 2008a). For this reason in order to accommodate the proposed facilities in this area, additional fill over the footprint of the landfill would be used to increase the elevation of the final surface. In addition, a drainage control system would be installed in and around the landfill to manage the groundwater flow. Leachate seeps are known to occur at both the WSTPT-11 and WSTPT-11A landfills; however, the existing leachate collection system collects the leachate and discharges it to the sanitary sewer system, preventing it from entering the ground water. The current leachate collection network consists of two separate systems. Leachate collection trenches are currently located along the northern and northeastern toe of the east landfill to intercept leachate seeps present along the slope. The second system consists of a leachate collection trench located at the northwest corner of the east landfill within the limits of the landfill itself.

In addition to groundwater, five leachate samples were also collected from the landfills as part of the feasibility study; three from the east landfill (WSTPT-11), one from the west landfill (WSTPT- 11A) and one composite sample from three temporary well points at the east landfill. Analysis of the leachate results indicated that the leachate is non-hazardous according to Resource Conservation and Recovery Act (RCRA) hazardous waste standards. Comparison against the NYSDEC groundwater effluent standards revealed that the criteria for metals (cadmium and lead), pesticides (aldrin, dieldrin, endrin, and eptachlor), VOCs (benzene), and SVOC (1,4-dichlorobenzene) were exceeded in at least one of the leachate samples (USACE, 2008a). These detected analytes have the potential to impact groundwater concentrations down gradient of the east landfill; however, the continued operation of the leachate collection system and discharge to the sanitary sewer should mitigate any potential contamination.

Construction of the USMAPS campus under this alternative would impact the collection trench located within the landfill; however, its functionality is currently unknown and with the planned improvements to surface water drainage at the site and the installation of a NYSDEC Part 360 compliant cap, the leachate collection trench would likely not be needed and could be abandoned in place. If leachate flows in the future become an issue again, additional leachate collection trenches could be installed along the northern toe of the landfill with minimal disruption to campus activities (USACE, 2008a).

To minimize future primary compaction of the east landfill after construction deep dynamic compaction would be employed at the site. To make this effective dewatering of the landfill would be necessary. An existing leachate mound was found to be present within the landfill and could be removed using a series of temporary dewater wells and pumping the leachate from these wells to holding tanks and then properly disposing of it either through the existing sanitary sewer system or if the Target Hill Wastewater Treatment Plant won't accept it to an offsite facility. A third option is discharge to Sinclair Pond Brook after on site treatment under SPDES permit if permit standards can be achieved. Dewatering the 11 million gallons of leachate would prevent it from potentially impacting groundwater during the deep dynamic compression. For the west landfill, conventional compaction equipment (i.e. heavy-duty vibratory rollers) would be used to compact the landfill.

The WSTPT-11 and WSTPT-11A landfills are included in West Point's Sampling and Analysis Plan for Long Term Monitoring and maintenance and ground water sampling is conducted at this site and would continue to be conducted, as the eight existing groundwater monitoring wells that need to be decommissioned for the project will be replaced in-kind where they won't interfere with the campus layout (USMA, 2005e and USACE, 2008a).

Hydrology/Groundwater – DOL Motor Pool TA V/W: No significant adverse impacts would be expected on ground water as a result of constructing the DOL Motor Pool at TA V/W. A packaged wastewater treatment plant with infiltration gallery (leaching fields) to provide tertiary treatment would be designed to comply with applicable regulations. Leaks from vehicles, vehicle maintenance operations, and fueling operations could pose a threat to ground water sources; however, the potential for spills and leaks would be minimized by existing on-site clean-up procedures and equipment, the installation of oil water separators, and adherence to safety procedures for vehicle maintenance and the operation of equipment. Any construction, demolition, and operation of facilities on these sites would continue to adhere to existing applicable ground water protection protocols as required under the Safe Drinking Water Act (1974, with amendments 1986). These measures would ensure that any potential effects would likely be negligible.

Two recent wells drilled at TA V/W were dry, resulting in a conclusion that use of groundwater for water supply was not feasible; therefore water supply for potable and fire suppression use would not impact groundwater.

Hydrology/Groundwater – DOL Secondary Refueling Station: No significant effects would be expected on groundwater as a result of the DOL Secondary Refueling Station. Leaks from fueling operations could pose a threat to ground water sources; however, the potential for spills and leaks would be minimized by existing on-site clean-up procedures and equipment, the installation of oil water separators, and adherence to safety procedures for vehicle refueling. Any construction, demolition, and operation of facilities on this site would continue to adhere to existing applicable ground water protection protocols as required under the Safe Drinking Water Act (1974, with amendments 1986). These measures would ensure that any potential effects would likely not be significant.

Floodplains – USMAPS Washington Gate Site: The Washington Gate project site is not located within the 100- or 500-year floodplain. Therefore, implementing the proposed action under this alternative would have no impact on floodplains.

Floodplains – DOL Motor Pool TA V/W: TA V/W site is not located within the 100- or 500-year floodplain. Therefore, constructing the DOL motor pool at this site would have no effects on floodplains.

Floodplains – DOL Secondary Refueling Station: The proposed DOL Secondary Refueling Station would not be located within the 100- or 500- year floodplain; therefore, there would be no effects on floodplains.

4.7.2.3 Alternative 2 WG B Consequences

Surface Water: Impacts to surface water would be the same as described under Alternative 1 and would not be significant.

Under this alternative the Sinclair Pond Brook would be relocated in disjointed sections in areas north and southwest of the proposed barracks building and encompassing a total of approximately 75 linear feet. Relocation would vary between approximately 1 foot and 10 feet for each section moved. However, similar to Alternative 1, because portions of the original stream bed would be filled in a NWP 38 issued by the USACE would be required, as would a separate NYSDEC Section 401 Water Quality Certification.

Wetlands: Similar to Alternative 1, there would be no impacts to wetlands at the Washington Gate Site or at the DOL Secondary Refueling Station. Impacts to wetlands at the DOL Motor Pool site would not be significant.

Hydrology/Groundwater: Impacts would be similar to Alternative 1 and would not be significant.

Floodplains: Similar to Alternative 1 there would be no effects on floodplains.

4.7.2.4 Alternative 3 WG 15% Design Consequences

Surface Water: Impacts to surface water would be the same as described under Alternative 1 and would not be significant.

Under Alternative 3, it is assumed that a continuous section of Sinclair Pond Brook encompassing approximately 500 linear feet flowing through the project site would need to be relocated approximately 100 feet to the east.

However, similar to Alternative 1, because portions of the original stream bed would be filled in a NWP 38 issued by the USACE would be required, as would a separate NYSDEC Section 401 Water Quality Certification.

Wetlands: Similar to Alternative 1, there would be no impacts to wetlands at the Washington Gate Site or at the DOL Secondary Refueling Station. Impacts to wetlands at the DOL Motor Pool site would not be significant.

Hydrology/Groundwater: Impacts would be similar to Alternative 1 and would not be significant.

Floodplains: Similar to Alternative 1 there would be no effects on floodplains.

4.7.2.5 Alternative 4 LF 2a Consequences

Surface Water – Lake Frederick Site: Under this alternative the DOL Motor Pool would remain at its current Washington Gate site and not move to TA V/W. Therefore the proposed action would only potentially impact the surface waters in the vicinity of Lake Frederick. With the specific design measures proposed for the construction of the USMAPS campus at the Lake Frederick site, the project would minimize impacts to area surface waters to levels where there would be no significant adverse effects.

Surface flow at the proposed USMAPS at Lake Frederick drains to unnamed tributaries, either directly or via Lake Frederick, that eventually discharge to Woodbury Creek. Downstream of the tributaries Woodbury Creek is designated as a trout spawning stream which limits any discharges that would raise the stream temperature or impair the water quality.

The athletic fields associated with the USMAPS campus could be artificial turf, which can become very hot during the summer. One possible solution for cooling the athletic fields off would be to use some form of irrigation (USMA, 2007b). However, runoff from this type of cooling, or from stormwater runoff, would likely discharge water with elevated temperatures into the unnamed tributaries leading to Woodbury Creek that may exceed New York State criteria for governing thermal discharges into trout waters (6 NYCRR 704.2). To minimize this potential impact, runoff from the synthetic athletic fields would be collected and conveyed to detention basins, allowing temperatures to moderate prior to discharging the runoff into the unnamed tributaries.

In addition, surface runoff containing fertilizer and pesticides/insecticides used on the proposed landscaped areas of the USMAPS campus, including athletic fields if natural grass turf is chosen, could also impact the water quality of both Lake Frederick and the Woodbury Creek via the unnamed tributaries. Minimizing the amount of fertilizers and pesticides/insecticides used and using environmentally friendly products to the maximum extent possible/practicable would minimize any potential impacts.

Both construction and post-construction stormwater runoff would require management and potential treatment prior to discharge. Construction activities for the USMAPS campus would involve approximately 64 acres will be disturbed during construction activities. Because the project involves disturbing more than 1 acre of land, a NOI, SWP3, an Erosion Control Plan, and a NOT would be required under the New York SPDES General Permit for Stormwater Discharges from Construction Activity, GP0-08-001, for the construction phase of the project. During construction, the use of BMPs for erosion and sedimentation control would minimize any potential soil erosion and subsequent sedimentation to Lake Frederick or other area surface waters. Specifically, BMPs for erosion and sedimentation control would be outlined in an Erosion Control Plan required to be prepared by the contractor and approved by West Point prior to the initiation of construction activities. The Erosion Control Plan would ensure compliance with NYSDEC's current stormwater management regulations for construction activities pursuant to the SPDES permit.

The design of the USMAPS campus would result in approximately 15.7 acres of impervious surfaces. Storm water from these surfaces would be collected into a series of storm drainage inlets to intercept surface flow. The storm water inlets would convey the surface runoff to detention ponds before discharging the storm water into the unnamed tributaries. Proper treatment of the storm water by the management facility would minimize any potential impacts that storm water at the USMAPS campus might have on Lake Frederick, the unnamed tributaries, and Woodbury Creek.

Wetlands – Lake Frederick Site: The USMAPS campus under this alternative would not directly impact any of the wetlands along the northern periphery of Lake Frederick (Figure 4-26). However, under this alternative the existing camp facilities at Lake Frederick would be relocated to the northern end of the lake in the vicinity of the wetlands. At this time, a design layout for the relocated camp is not available; however, it is anticipated that the wetlands could be avoided. While there are no buffer requirements associated with USACE jurisdictional wetlands, West Point does employ a 100-foot buffer around all wetlands on the installation (USMA, 2003); however, upon review of a project within the 100-foot buffer, if it is not going to adversely impact the wetland, it is generally allowed to continue (Beemer, pers. comm., 2008a). Given the nature of these small, manmade, wetlands it is not likely that they would be adversely affected by the relocation of the Lake Frederick camp facilities even if they encroached upon the 100 foot buffer as long as any impervious surfaces were not constructed immediately adjacent to them. If relocation of the camp facilities were to require the placing fill on any portion of the wetlands then a Clean Water Act Section 404 permit issued by the USACE could be needed and may require some form of wetland mitigation measures.

Hydrology/Groundwater – Lake Frederick Site: No significant effects would occur to hydrology or groundwater as a result of constructing the USMAPS campus at this site. To accommodate the USMAPS at this site a new packaged wastewater treatment plant would need to be constructed. The plan would be designed to provide tertiary treatment to accommodate year-round activities from the school, and treated effluent would be released to a 41,000 GPD infiltration gallery that would comply with applicable regulations. Additionally, any construction, demolition, and operation of facilities on the site would continue to adhere to existing applicable ground water protection protocols as required under the Safe Drinking Water Act (1974, with amendments 1986). These measures would ensure that any potential effects would have no significant impacts.

At Lake Frederick, two water wells are located on the easterly side of building B1848 having yields of 51 and 48 gpm (USACE, 2008b). Discussions with the caretaker of the site revealed that excessive pumping of wells of a nearby residential development in the past had significantly impacted the amount of water able to be withdrawn from the two site wells in addition to wells located on surrounding properties; however, the caretaker indicated that this condition has not reoccurred since the residential development was provided with an alternative water source (USACE, 2008b). With the nearby residential development on an alternative water supply and with a total water demand for the USMAPS site of 40 gpm proposed to be supplied by 2 to 6 onsite wells, assumed to be capable of supplying the water demand, there should be no significant impact on the hydrology or groundwater of the site.

Floodplains – Lake Frederick Site: The Lake Frederick site is located outside of the 100- and 500-year floodplain. Therefore it would have no effects on floodplains.

Alternative 5 LF 2b Consequences

Surface Water – Lake Frederick Site: Impacts would be similar to those indicated under Alternative 4.

Wetlands – Lake Frederick Site: As currently designed, the layout of the USMAPS campus under this alternative could potentially require placing fill on a portion of Wetland A along the northern portion of Lake Frederick (see Figure 4-26). This small wetland is within a drainage feature in a mowed field, and any action to fill this wetland could likely require a Section 404 permit issued by the USACE. Any mitigation measures stipulated in a permit would minimize the overall impacts to wetlands on the West Point installation.

Hydrology/Groundwater – Lake Frederick Site: Impacts would be similar to those under Alternative 4.

Floodplains – Lake Frederick Site: The Lake Frederick site is located outside of the 100- and 500-year floodplain. Therefore it would have no effects on floodplains.

Figure 4-26: 2008 Delineated Wetlands at Lake Frederick Site (Alternative 5).



4.7.2.6 VETCOM Consequences

Surface Water: Construction of the VETCOM additions at Building 630 would have no significant effects on surface waters. During construction, the use of BMPs for erosion and sedimentation control would minimize any potential soil erosion and subsequent sedimentation to Kinsley Farm Brook. After construction, the increase in impervious surfaces may lead to slightly increased runoff, which would likely run to Kinsley Farm Brook. However, since the increase in impervious surfaces is expected to be very small, the increase in runoff is expected to be proportionally small, and would not have a significant effect.

Wetlands: There would be no effects on wetlands. There are no wetlands in proximity to the proposed VETCOM facility. As a result, the Proposed Action would have no direct impact on federal or state jurisdictional wetlands or require permits for effects at the VETCOM site.

Hydrology/Groundwater: The VETCOM entails interior renovations and a small expansion of the building, however, no effects would be expected to groundwater as the result of the VETCOM facility at Building 630.

Floodplains: Building 630 is not located in the 100- or 500-year floodplain. Therefore, the proposed VETCOM would have no effect on floodplains.

4.8 COASTAL ZONE

The Coastal Zone Management Act of 1972 (11 USC 1451 et seq), as amended through the Coastal Zone Protection Act of 1996, requires federal agencies to review its actions for impacts on coastal resources and for consistency with the state's federally approved Coastal Management Program (CMP). New York State's Coastal Management Plan, developed by the NYSDOS, is guided by 44 development policies covering development, fish and wildlife, flooding and erosion hazards, general policy, public access, recreation, historic and scenic resources, agricultural lands, energy and ice management, and water and air resources that must be complied with for any action/undertaking within the coastal zones of New York. Federal consistency provisions apply to activities both in the State's coastal area and outside of the coastal area when the activities would affect coastal resources or coastal land and water uses (see 15 CFR 930.11(b) and 15 CFR 930.11(g)). Furthermore, pursuant to 15 CFR Part 930.34(d), the federal agency must notify the NYSDOS CMP of project consistency with State Coastal Policies at least 90 days prior to project implementation, and coordinate and consult with the NYSDOS CMP and other agencies to ensure that the Proposed Action would be consistent with NYSDOS' State Coastal Policies, and would have no undue adverse effects on New York State coastal zone resources.

4.8.1 Affected Environment

West Point's main post is located within the Hudson River Coastal Management Zone, while the majority of the training range and Lake Frederick areas are located outside of this zone. The designated Coastal Zone extends from the Hudson River, as far west as Route 9W.

The proposed USMAPS campus at the Washington Gate site is located within the Hudson River Coastal Management Zone. As a result, a Federal Consistency Determination in accordance with the Coastal Zone Management Act for this as well as the other main cantonment project sites will be submitted to the NYSDOS in conjunction with the NEPA process and Section 106 consultation with the New York SHPO. Additionally, the proposed DOL Secondary Refueling Station and the VETCOM facility, both on the main cantonment, also would be located within the Hudson River Coastal Management Zone.

The DOL Motor Pool TA-V/W and Lake Frederick site are located outside of the Hudson River Coastal Management Zone. Therefore, the proposed DOL Motor Pool and Alternatives 4 and 5 would not have impacts on the Coastal Zone and are not addressed below. Likewise, the No Action Alternative is not addressed below because under the No Action Alternative, no resources would be at risk for adverse effects.

To facilitate the coastal zone consistency determination process, eight of the 44 State Coastal Policies, were found to be applicable to Alternatives 1, 2, and 3, including the Secondary Refueling Station, and the VETCOM facility (presented below). Any mitigation specified by the Coastal Zone Management process would be incorporated into the FNSI prior to implementing the Proposed Action. Applicable policies include:

- Policy 7 – Significant coastal fish and wildlife habitats will be protected, preserved, and where practical, restored so as to maintain their viability as habitats.
- Policy 23 – Protect, enhance and restore structures, districts, areas or sites that are of significance in the history, architectures, archaeology or culture of the state, its communities, or nation.
- Policy 24 – Prevent impairment of scenic resources of statewide significance.
- Policy 30 – Municipal, industrial, and commercial discharge of pollutants, including but not limited to, toxic and hazardous substances, into coastal waters will conform to state and national water quality standards.
- Policy 33 – Best management practices will be used to ensure the control of stormwater runoff and combined sewer overflows draining into coastal waters.
- Policy 36 – Activities related to the shipment and storage of petroleum and other hazardous materials will be conducted in a manner that will prevent or at least minimize spills into coastal waters; all practicable efforts will be undertaken to expedite the cleanup of such discharges; and restitution for damages will be required when these spills occur.
- Policy 38 – The quality and quantity of surface water and groundwater supplies, would be conserved and protected, particularly where such waters constitute the primary or sole source of water supply.
- Policy 39 – The transport, storage, treatment and disposal of solid wastes, particularly hazardous wastes, within coastal areas will be conducted in such a manner so as to protect ground water and surface water supplies, significant fish and wildlife habitats recreation areas, important agricultural land, and scenic resources.

4.8.2 Environmental Consequences

West Point has determined that the construction of a new USMAPS campus to accommodate the BRAC 2005 realignment of the preparatory school from the closing Fort Monmouth to West Point and the construction and renovations of the existing Building 630 to accommodate VETCOM may reasonably affect the land or water uses or natural resources of the State of New York’s coastal zone. The following discussion provides an assessment of potential effects of facility development and operation at the alternative sites and an analysis of the consistency of project development at the alternative sites with each of the eight applicable state coastal policies of the New York CMP.

As discussed, the DOL Motor Pool (TA-V/W) and Lake Frederick sites are located outside of the Hudson River Coastal Management Zone. Therefore, the proposed DOL Motor Pool and Alternatives 4 and 5 would not have impacts on the Coastal Zone and State Coastal Policies would not apply. Likewise, the No Action Alternative is not addressed below because under the No Action Alternative, no coastal resources would be at risk for adverse effects.

4.8.2.1 No Action Alternative

Under the No Action Alternative, no effects on coastal resources would be expected.

4.8.2.2 Alternative 1 WGE Consequences

Policy 7 – Significant coastal fish and wildlife habitats will be protected, preserved, and where practical, restored so as to maintain their viability as habitats.

Based on analyses in Sections 4.7 (Water Resources) and 4.8 (Biological Resources), Alternative 1 would be consistent with Policy 7. Construction of new facilities at the USMAPS Washington Gate and DOL Secondary Refueling Station site would not have significant effects to coastal fish and wildlife habitats within the Hudson River Watershed.

USMAPS Washington Gate Site: To minimize the potential impact of runoff from the synthetic athletic fields, the design of the facilities would include a zero percent grade and an 18-24 inch gravel aggregate layer that underlays the fields with collection piping, similar to French drains, threaded throughout the aggregate layer. With this design, heat will be transferred from the cooling water/stormwater runoff to the aggregate prior to entering the collection system and discharging into Sinclair Pond Brook and downstream waters, including the Hudson River.

In addition, surface runoff containing fertilizer and pesticides/insecticides used on the proposed landscaped areas of the USMAPS campus could also impact the water quality of Sinclair Pond Brook and the trout waters downstream. Minimizing the amount of fertilizers and pesticides/insecticides and using environmentally friendly products to the maximum extent possible/practicable would minimize any potential impacts.

In-stream construction activities in Sinclair Pond Brook would adversely impact aquatic organisms, including wild trout populations downstream, both directly and indirectly by temporarily increasing sediment loads and the subsequent deposition of sediments downstream. Given the temporary nature of construction activities and the natural flushing of streams, impacts to benthic invertebrates and fish populations are generally short-term in nature. However, to avoid any potential significant adverse impacts to the wild brown trout populations downstream of the project and to minimize potential impacts to all aquatic organisms, construction activities associated with the relocation of the stream would be conducted during low flows and only between the dates of April 1 and September 30 to avoid the trout spawning and hatching seasons.

The design of the USMAPS campus would reduce the overall impervious surface of the site by approximately 14 percent reducing the amount of stormwater flow draining from the site. Proper treatment of the storm water by the management facility would minimize any potential impacts that storm water at the USMAPS campus might have on Sinclair Pond Brook and the waters downstream from the site. In addition, Municipal Storm Water (MS4) Permit # NYR20A334 applies to sources of storm water discharges on post within the cantonment area, and BMPs in accordance with the MS4 Permit would be employed to the maximum extent possible to help reduce the amount of storm water runoff from the site that needs to be treated.

Use of BMPs to minimize soil erosion during construction activities as well as compliance with stormwater regulations and the special design features of the athletic fields would help protect the water quality of Sinclair Pond Brook, thus minimizing the potential impacts to coastal fish and wildlife or their habitats from construction and operational activities associated with the USMAPS campus.

DOL Secondary Refueling Station: Construction of the DOL Secondary Refueling Station would not have significant adverse effects on coastal fish and wildlife habitats. During construction, the use of BMPs for erosion and sedimentation control would minimize any potential soil erosion and subsequent sedimentation to Crow's Nest Brook. New facilities would consist of a fuel dispensing station and two separate 10,000-gallon USTs; one for motor gasoline and one for diesel, and a 5,000 gallon UST for 85% ethanol (E85). The USTs would be double walled, fiberglass, and with leak detection, monitoring, and alarm. With these measures, potential impacts to coastal fish and wildlife habitat would be minimized.

Policy 23 – Protect, enhance and restore structures, districts, areas or sites that are of significance in the history, architectures, archaeology or culture of the state, its communities, or nation.

Based on analyses in Sections 4.3 (Aesthetic and Visual Resources) and 4.9 (Cultural Resources), Alternative 1 would be consistent with Policy 23. Construction of new facilities at the USMAPS Washington Gate and DOL Secondary Refueling Station would not have significant effects to historic and scenic resources that are within the state-designated coastal zone areas.

USMAPS Washington Gate Site: At the USMAPS Washington Gate Site, the proposed design would enhance the visual character of the area. Much of the future USMAPS complex would be built on the previously disturbed DOL Motor Pool facilities, including on landfill; however, Alternative 1 would require construction upon apparently undisturbed land, particularly to the south. Any undisturbed land above the stream banks would be a moderate to high probability zone for Native American sites. More detailed plans, when available, including limits of construction, would be reviewed by the West Point Cultural Resource Manager in consultation with the NYSOPRHP to determine if a Phase I Archaeological Survey is warranted and the geographical scope of the investigation. Based upon planning level information, there would be no significant effect for archaeology.

Six National Historic Landmark District (NHLD) non-contributing buildings would have to be demolished to clear the site. Although the old motor pool complex has no historic significance in itself and is nowhere near West Point's historic core, the Plain, it is adjacent to the Washington Road scenic and historic corridor, so the new USMAPS complex may have an effect upon the contributing "roadways" element of the Historic Landscape Management Plan. The Washington Gate, Building 711, and Washington Gate Comfort Station, Building 729, were built in 1942 and 1943 respectively and are contributing to the NHLD. The former has a symbolic importance as one of the major entrances to the NHLD. The new 250,000 gallon Water Tank that would be built 700 feet above the USMAPS Washington Gate site is adjacent to Building 676, the existing water tank.

There are no known Traditional Cultural Properties at the project site and with procedures in place in the event of any issue unexpectedly arising, there would be no effect to Native American resources from implementation of this alternative.

DOL Secondary Refueling Station: The Secondary Fueling Station would be built in a previously disturbed area of no potential for archaeological resources. Although the site is located within the NHLD, the Secondary Fueling Station and its associated three USTs would be built at the center of an existing paved industrial area, surrounded on three sides by non-NRHP eligible structures, and screened from the Washington Road scenic corridor by trees and distance. No effect on the historic built environment would be expected.

Policy 24 – Prevent impairment of scenic resources of statewide significance.

Based on analyses in Section 4.3 (Aesthetic and Visual Resources), Alternative 1 would be consistent with Policy 24. Construction of new facilities at the USMAPS Washington Gate and DOL Secondary Refueling Station would not have significant effects to visual resources in areas designated as SASS within a state-designated coastal zone area.

USMAPS Washington Gate Site: The implementation of the new USMAPS facilities at Washington Gate would have effects, as it would create direct impacts to the existing visual character in the DOL Motor Pool area and it would create a permanent noticeable effect on the scenic viewsheds toward the installation from several locations. These effects are considered beneficial, however, as the design is more consistent with the scale, massing, and materials of the adjacent areas in the Main Post than the buildings being replaced. The implementation of Alternative 1 would therefore enhance the visual character of the project area, which currently lacks architectural distinction and visual consistency, and would not cause significant adverse effects. Landscape designs will incorporate the use of mature trees to restore the existing visual character of the site, to the maximum extent possible, particularly along the southern edge. Landscape designs will incorporate the use of mature trees to restore the existing visual character of the site, to the maximum extent possible, particularly along the southern edge.

In addition, three locations were identified that provide the most salient views of the Washington Gate site. These include views from off the USMA campus such as the overlook along Highway 9-W and across the Hudson River at Boscobel and Cold Spring Dock.

The view from the 9W Overlook is relevant because US-9W is a New York State Scenic Roadway and Scenic Byway. Alternative 1 would create a noticeable effect on the scenic viewshed from Overlook 9W toward the Main Post. These effects would be beneficial because the new buildings would enhance the viewshed toward the Hudson River by creating a new visual district consistent with the adjacent Grey Ghost Housing area, complementing the image of the Main Post in the distance.

The view from Boscobel is significant because it is located within the Garrison Four Corners subunit, an elongated area mainly located inland on the eastern shore lands of the Hudson River. Implementation of this alternative would create a noticeable effect on the scenic viewshed from Boscobel looking southwest towards toward the Main Post because it will be located at a high elevation on the hillside where there is currently forested area and would be perceived as the highest cluster of buildings. However, because the materials, scale, and massing are visually consistent with the other buildings that are prominent in the viewshed, particularly the grey granite buildings in the Cadet Zone that surround the Plain including Thayer Hall, Washington Hall, and the barracks, the effects would not be significant or adverse.

The view from across the Hudson at the Cold Spring dock is significant because is located within the Cold Spring subunit of the Hudson Highlands Scenic Areas of Statewide Significance (HHSASS). This alternative would not create a noticeable effect on the scenic viewshed from Cold Spring dock looking south toward the Main Post, as the new buildings would not diminish the prominence of the buildings on the north side skyline such as the Cadet Chapel, Gillis Field House, Eisenhower Hall, Directorate of Housing and Public Works, Cadet Physical Development Center, or Jewish Chapel.

DOL Secondary Refueling Station: New facilities at this site would consist of a fuel dispensing station and USTs in an industrial area; therefore, effects to the viewshed are anticipated to be minimal and not significant.

Policy 30 – Municipal, industrial, and commercial discharge of pollutants, including but not limited to, toxic and hazardous substances, into coastal waters will conform to state and national water quality standards.

Based on analyses in Sections 4.7 (Water Resources) and 4.14 (Hazardous Materials), this alternative would be consistent with Policy 30. Construction of new facilities at the USMAPS Washington Gate and DOL Secondary Refueling Station would not have significant effects to state and national water quality standards.

USMAPS Washington Gate Site: Leachate seeps are known to emanate from the down gradient perimeter sides of the landfills located on the east and west sides of Sinclair Pond Brook (WSTPT-11 and WSTP-11A), respectively. At WSTPT-11 West Point installed a new leachate collection system in the form of a phyto-remediation/wetland in FY05. The landfill is included in West Point's Sampling and Analysis Plan for Long Term Monitoring and maintenance and ground water sampling is conducted at the site. During construction of the WSTPT 11A cover in 2002 a leachate seep was observed. As a result, a cap and drainage system improvements were designed, constructed and completed in FY02.

Removal of the existing asphalt cap over WSTPT 11 and replacing it in part with grass and landscaped areas will reduce the amount of impervious surface on the site by approximately 14 percent, increasing the potential for stormwater infiltration into the landfill and subsequently increasing leachate generation. To minimize the amount of landfill infiltration and leachate generation, and to provide the equivalent or improved protection of the environment of the existing cap, a NYSDEC Part 360 compliant landfill cap would be constructed. To accomplish this, the new landfill cap would, among other things, include a drainage layer along with perimeter drainage aggregate and piping. As part of the proposed construction project, the three existing leachate collection trenches located along the northerly toe of landfill slope will not be impacted. However, the leachate collection trench located within the northwest corner of the landfill itself would be impacted and would likely be abandoned in-place. Given the NYSDEC Part 360 compliant landfill cover and other improved surface drainage features of the site, it is likely that this leachate collection system is not needed. If, in the future, leachate flow becomes an issue, additional leachate collection systems could be installed along the northern toe of the landfill with minimal impacts to campus activities.

Three alternatives for landfill leachate treatment & disposal being considered for the Washington Gate USMAPS site – 1) Treat leachate for pollutants with an on site industrial Water Treatment facility (temporary) and discharge the treated waste stream according to NYS Department of Environmental Conservation approved pre-treatment standards to the Target Hill Waster Water Treatment Plant at selected times to minimize impact to the plant's already challenged capacity. Effluent will also be biochemical oxygen demand (BOD) enriched to be more compatible with the plant's BOD influent requirements; 2) treat leachate for pollutants with an on site industrial WT facility (temporary) and discharge the treated waste stream under a DEC issued State Pollutant Discharge Elimination System (SPDES) permit to Sinclair Pond Brook provided the effluent discharge limits specified in the permit are achievable; and 3) haul the untreated leachate to an off-post approved industrial waste treatment facility.

DOL Secondary Refueling Station: Construction of the DOL Secondary Refueling Station would have no significant adverse effects on surface waters. During construction, the use of BMPs for erosion and sedimentation control would minimize any potential soil erosion and subsequent sedimentation to Crow's Nest Brook. New facilities would consist of a fuel dispensing station and two separate 10,000-gallon USTs; one for motor gasoline and one for diesel, and a 5,000 gallon UST for 85% ethanol (E-85). The USTs would be double walled, fiberglass,

and with leak detection, monitoring, and alarm. With these measures, potential impacts to water quality would be minimized.

Policy 33 – Best management practices will be used to ensure the control of stormwater runoff and combined sewer overflows draining into coastal waters.

Based on analyses in Sections 4.6 (Geology and Soils) 4.7 (Water Resources) and 4.13 (Utilities), this alternative would be consistent with Policy 33. Construction of new facilities at the USMAPS Washington Gate and DOL Secondary Refueling Station would utilize BMPs in the control of stormwater runoff draining into coastal waters.

USMAPS Washington Gate Site: The design of the USMAPS campus would reduce the overall impervious surface of the site by approximately 14 percent reducing the amount of stormwater flow draining from the site. Stormwater from the impervious surfaces would be collected into a series of storm drainage inlets to intercept surface flow prior to it reaching Sinclair Pond Brook. Proper treatment of the stormwater by the management facility would minimize any potential impacts that storm water at the USMAPS campus might have on Sinclair Pond Brook and the waters downstream from the site. In addition, Municipal Storm Water (MS4) Permit # NYR20A334 applies to sources of storm water discharges on post within the cantonment area, and BMPs in accordance with the MS4 Permit would be employed to the maximum extent possible to help reduce the amount of storm water runoff from the site that needs to be treated.

Chapter 9 of the New York State Stormwater Management Design Manual (NYS SMDM) is applicable to the entire project. Stormwater BMPs would be implemented where appropriate and would be consistent with the NYS SMDM. The proposed layout design decreases the cover of impervious surface and results in a lowering of stormwater discharge rates. Because there is no change in hydrology that increases the discharge rate from predevelopment to post development, the project as designed would not require the installation of stormwater management features to accommodate channel protection, Overbank Flood and Extreme Storm requirements of the NYS SMDM. The required quality treatment is achieved in the proposed design by conveying runoff collected from the pavement, sidewalks to underground sand filters (USACE, 2008a).

The stormwater conveyance system would be designed to accommodate runoff from the proposed improvements and to accommodate stormwater runoff from off-site areas that drain through the project area. This would be accomplished by a system of catch basins and HDPE pipe, with a portion of the stormwater directed to the aforementioned sand filters, while the remainder discharges directly to the stream.

DOL Secondary Refueling Station: Oil/water separators associated with the two 10,000 gallon USTs and the 5,000 gallons UST and the fueling station would capture stormwater runoff prior to it entering the Crow's Nest Brook. The USTs would be double walled construction and have berms around them.

Policy 36 – Activities related to the shipment and storage of petroleum and other hazardous materials will be conducted in a manner that will prevent or at least minimize spills into coastal waters; all practicable efforts will be undertaken to expedite the cleanup of such discharges; and restitution for damages will be required when these spills occur.

Based on analyses in Sections 4.7 (Water Quality) and 4.14 (Hazardous Materials), this alternative would be consistent with Policy 36. Construction of new facilities at the USMAPS Washington Gate and DOL Secondary Refueling Station would not have significant effects to coastal resources in regards to hazardous materials discharged into such waters.

Washington Gate Site: Implementing Alternative 1 would result in no significant adverse effects to coastal resources in regards to the discharge of hazardous or toxic substances into such waters. The removal of existing USTs and oil/water separators would occur and any associated contaminated soil will need to be remediated before new construction begins. Coordination with the West Point Environmental Division would be necessary during the planning phase of the project.

Potentially hazardous materials that could be used on-site during construction activities include paints, thinners, cleaners, asphalt, and fuel and motor oils for vehicles and equipment. All materials would be handled in

accordance with the installation's established procedures and guideline. Hazardous waste disposal would be handled in accordance with regulatory, Army, and installation procedures and guidelines.

Leachate seeps are known to emanate from the down gradient perimeter sides of the landfills located on the east and west sides of Sinclair Pond Brook (WSTPT-11 and WSTP-11A), respectively. At WSTPT-11 West Point installed a new leachate collection system in the form of a phyto-remediation/wetland in FY05. The landfill is included in West Point's Sampling and Analysis Plan for Long Term Monitoring and maintenance and ground water sampling is conducted at the site. During construction of the WSTPT 11A cover in 2002 a leachate seep was observed. As a result, a cap and drainage system improvements were designed, constructed and completed in FY02.

Removal of the existing asphalt cap over WSTPT 11 and replacing it in part with grass and landscaped areas will reduce the amount of impervious surface on the site by approximately 14 percent, increasing the potential for stormwater infiltration into the landfill and subsequently increasing leachate generation. To minimize the amount of landfill infiltration and leachate generation, and to provide the equivalent or improved protection of the environment of the existing cap, a NYSDEC Part 360 compliant landfill cap would be constructed. To accomplish this, the new landfill cap would, among other things, include a drainage layer along with perimeter drainage aggregate and piping. As part of the proposed construction project, the three existing leachate collection trenches located along the northerly toe of landfill slope will not be impacted. However, the leachate collection trench located within the northwest corner of the landfill itself would be impacted and would likely be abandoned in-place. Given the NYSDEC Part 360 compliant landfill cover and other improved surface drainage features of the site, it is likely that this leachate collection system is not needed. If, in the future, leachate flow becomes an issue, additional leachate collection systems could be installed along the northern toe of the landfill with minimal impacts to campus activities.

Three alternatives for landfill leachate treatment & disposal being considered for the Washington Gate USMAPS site – 1) Treat leachate for pollutants with an on site industrial Water Treatment facility (temporary) and discharge the treated waste stream according to NYS Department of Environmental Conservation approved pre-treatment standards to the Target Hill Waster Water Treatment Plant at selected times to minimize impact to the plant's already challenged capacity. Effluent will also be biochemical oxygen demand (BOD) enriched to be more compatible with the plant's BOD influent requirements; 2) treat leachate for pollutants with an on site industrial WT facility (temporary) and discharge the treated waste stream under a DEC issued State Pollutant Discharge Elimination System (SPDES) permit to Sinclair Pond Brook provided the effluent discharge limits specified in the permit are achievable; and 3) haul the untreated leachate to an off-post approved industrial waste treatment facility.

DOL Secondary Refueling Station: The Secondary Refueling Facility would consist of a fuel dispensing station and two separate 10,000-gallon USTs; one for motor gasoline and one for diesel, and a 5,000 gallon UST for 85% ethanol (E-85). The USTs will be double walled, fiberglass, and with leak detection, monitoring, and alarm. The USTs will be double walled, fiberglass, and with leak detection, monitoring, and alarm. In addition, the facility's SPCC Plan will be updated.

Policy 37 - Best Management Practices will be utilized to minimize the non-point discharge of excess nutrients, organics, and eroded soils into coastal waters.

Based on analyses in Sections 4.6 (Geology and Soils) and 4.7 (Water Resources), this alternative would be consistent with Policy 37. Construction of new facilities at the USMAPS Washington Gate and DOL Secondary Refueling Station would utilize BMPs to minimize the discharge of non-point source discharges into coastal waters.

Washington Gate Site: Construction of the USMAPS at this site would result in land disturbance of approximately 26 acres and permanent impervious surface of 601,128 ft² (55,847 m²) or approximately 13.8 acres (5.6 hectares). Under this alternative the majority (approximately 60%) of the proposed new development would occur on previously developed land made up of fill material that have been previously graded. Facilities proposed to be developed on previously undeveloped land and would increase the overall amount of impervious surface occurring in the area, which in effect would increase the amount of stormwater runoff. The Hollis Soils found in the vicinity of these facilities have moderate to moderately rapid permeability, and exhibits medium to rapid

runoff. Increased runoff would increase the potential for erosion and sedimentation problems in areas adjacent to the site. To minimize the amount and velocity of runoff, appropriate erosion, sedimentation, and stormwater BMPs would be implemented where appropriate. The BMPs would be consistent with the New York State Stormwater Management Design Manual. Since the proposed project design at this site has a footprint greater than one acre (0.40 hectares) a NYSDEC Erosion and Sediment Control Plan would be required. This plan would provide appropriate vegetative and structural measures for reducing runoff velocity, stabilizing soil to prevent erosion, and capturing eroded sediment before it leaves the site. All practices would be designed in accordance with the New York Standards and Specifications for Erosion and Sediment Control.

DOL Secondary Refueling Station: Construction of the DOL Secondary Fuel Station would have no significant adverse effects on coastal resources. During construction, the use of BMPs for erosion and sedimentation control would minimize any potential soil erosion and subsequent sedimentation to Crow's Nest Brook.

Policy 38 – The quality and quantity of surface water and groundwater supplies, would be conserved and protected, particularly where such waters constitute the primary or sole source of water supply.

Based on analyses in Sections 4.7 (Water Resources) and 4.13 (Utilities), this alternative would be consistent with Policy 38. Construction of new facilities at the USMAPS Washington Gate and DOL Secondary Refueling Station would conserve and protect the quality and quantity of surface water and groundwater supplies.

Washington Gate Site: Surface runoff containing fertilizer and pesticides/insecticides used on the proposed landscaped areas of the USMAPS campus could impact the water quality of Sinclair Pond Brook and the trout waters downstream. Minimizing the amount of fertilizers and pesticides/insecticides and using environmentally friendly products to the maximum extent possible/practicable would minimize any potential impacts.

Use of BMPs to minimize soil erosion during construction activities as well as compliance with stormwater regulations and the special design features of the athletic fields would help protect the water quality of Sinclair Pond Brook, thus minimizing the potential impacts to coastal fish and wildlife or their habitats from construction and operational activities associated with the USMAPS campus.

Some beneficial effects would result from the construction of the USMAPS campus at the Washington Gate site. Prior to construction of the USMAPS campus two 10,000 gallon diesel fuel UST and two 10,000 gallon gasoline USTs would be removed in accordance with NYSDEC regulations. The USTs are known to have leaked in the past, and although those leaks were appropriately addressed and leaking tanks removed upon discovery, removal of the current tanks will provide an opportunity to make sure that any residual contamination is removed and properly disposed of at a licensed disposal facility (Pers. Comm. Jarbeau, 2008). Other demolition activities prior to the construction of the USMAPS campus include removing oil water separators, a wash rack, two in-ground bus lifts that have experienced hydraulic leaks and groundwater infiltration, and the demolition of five buildings that may potentially contain asbestos, PCBs and/or lead based paint. Surveys would be conducted prior to the demolition of these facilities and the appropriate removal and disposal of all contaminants would be conducted in accordance with all applicable federal and state regulations, preventing contamination of the surrounding soils and potentially groundwater.

DOL Secondary Refueling Station: Facilities at this site would consist of a fuel dispensing station and two separate 10,000-gallon USTs; one for motor gasoline and one for diesel, and a 5,000 gallon UST for 85% ethanol (E-85). The USTs will be double walled, fiberglass, and with leak detection, monitoring, and alarm systems.

Policy 39 – The transport, storage, treatment and disposal of solid wastes, particularly hazardous wastes, within coastal areas will be conducted in such a manner so as to protect ground water and surface water supplies, significant fish and wildlife habitats recreation areas, important agricultural land, and scenic resources.

Based on analyses in Sections 4.13 (Utilities), 4.14 (Hazardous Materials,) and 4.15 (Landfill Disruption), this alternative would be consistent with Policy 39. Construction of new facilities at the USMAPS Washington Gate and DOL Secondary Refueling Station would protect coastal resources during the transport, storage, treatment and disposal of solid waste.

Washington Gate Site: There would be a temporary increase in the generation of solid waste as the result of site demolition and construction at the USMAPS site. Potentially hazardous materials that could be used on-site during construction activities include paints, thinners, cleaners, asphalt, and fuel and motor oils for vehicles and equipment. All materials would be handled in accordance with regulatory, Army, and installation procedures and guidelines.

Due to the age of buildings to be demolished at the existing DOL Motor Pool, the potential of environmental impacts of special hazards such as ACM and LBP would be evaluated by EPA certified inspectors and addressed as specified in the appropriate regulatory requirements before initiating any demolition activities. Demolition that involves lead-based paints (LBP) or asbestos-containing materials (ACM) would be evaluated for compliance with the OSHA standard at 29 CFR Part 1926.62; USEPA 40 CFR 61 Subpart M and Housing and Urban Development standards; and state, federal, and Army regulations. Measures to control airborne asbestos and lead dust would be implemented. Disposal of ACM and lead waste must comply with applicable NYSDEC and Army regulations. Identification, accumulation, transportation, and disposal of hazardous waste shall be coordinated with the Solid Waste Management Branch. West Point is engaged with state regulators regarding state HAZMAT requirements, and coordination will be undertaken with appropriate state agencies as part of the process of implementing Alternative 1.

Landfill Mitigation Measures would be taken in accordance with NYSDEC/EPA solid waste regulations, to include installation of a NYSDEC-Part 360-compliant cap over the East Landfill. No building footprints are to be placed directly over either of the landfills.

DOL Secondary Refueling Facility: The hazardous material used and hazardous waste generated at the new facility would be managed as discussed under affected environment and therefore, significant effects are not expected.

4.8.2.3 Alternative 2 WG B Consequences

Federal Consistency Determination for Alternative 2 would be similar to that of Alternative 1.

4.8.2.4 Alternative 3 WG 15% Design Consequences

Federal Consistency Determination for Alternative 3 would be similar to that of Alternative 1.

4.8.2.5 Alternative 4 LF 2a Consequences

The Lake Frederick site is located outside of the Hudson River Coastal Management Zone; therefore, impacts to coastal resources would not be expected.

4.8.2.6 Alternative 5 LF 2b Consequences

The Lake Frederick site is located outside of the Hudson River Coastal Management Zone; therefore, impacts to coastal resources would not be expected.

4.8.2.7 VETCOM Consequences

Policy 7 – Significant coastal fish and wildlife habitats will be protected, preserved, and where practical, restored so as to maintain their viability as habitats.

Based on analyses in Sections 4.7 (Water Resources) and 4.8 (Biological Resources), the proposed relocation of VETCOM to Building 630 would be consistent with Policy 7. Construction and renovation activities at the existing VTF facility would not have significant effects to coastal fish and wildlife habitats within the Hudson River Watershed.

Construction of the VETCOM additions at Building 630 would have no significant effects on surface waters. During construction, the use of BMPs for erosion and sedimentation control would minimize any potential soil erosion and subsequent sedimentation to Kinsley Farm Brook. After construction, the increase in impervious surfaces may lead to slightly increased runoff, which would likely run to Kinsley Farm Brook. However, because

the increase in impervious surfaces is expected to be very small, the increase in runoff is expected to be proportionally small, and would not have a significant effect.

Policy 23 – Protect, enhance and restore structures, districts, areas or sites that are of significance in the history, architectures, archaeology or culture of the state, its communities, or nation.

Based on analyses in Sections 4.3 (Aesthetic and Visual Resources) and 4.10 (Cultural Resources), the proposed relocation of VETCOM to Building 630 would be consistent with Policy 23.

Building 630 is contributing to the West Point NHL, located in the historic Buffalo Soldiers Area in an area with a high degree of visual consistency. While none of the adjacent buildings have a high degree of architectural embellishment or articulation, they are easily distinguished as multi-story red brick structures with gable roofs. The area is not in close proximity to the historic Plain, nor does it intrude on any sensitive historic viewsheds.

Under proposed action, Building 630 would be renovated and a second story addition constructed. Consultation with NYSOPRHP would be required prior to construction under Section 106 of NHPA to avoid, minimize, or mitigate adverse impact to Building 630.

Policy 24 – Prevent impairment of scenic resources of statewide significance

Based on analyses in Section 4.3 (Aesthetic and Visual Resources), the proposed relocation of VETCOM to Building 630 would be consistent with Policy 24.

Building 630 is contributing to the West Point NHL, located in the historic Buffalo Soldiers Area in an area with a high degree of visual consistency. While none of the adjacent buildings have a high degree of architectural embellishment or articulation, they are easily distinguished as multi-story red brick structures with gable roofs. The area is not in close proximity to the historic Plain, nor does it intrude on any sensitive historic viewsheds.

Under proposed action, Building 630 would be renovated and a second story addition constructed. Consultation with NYSOPRHP would be required prior to construction under Section 106 of NHPA to avoid, minimize, or mitigate adverse impact to Building 630.

Policy 30 – Municipal, industrial, and commercial discharge of pollutants, including but not limited to, toxic and hazardous substances, into coastal waters will conform to state and national water quality standards.

Based on analyses in Sections 4.7 (Water Resources) and 4.14 (Hazardous Materials), the proposed relocation of VETCOM to Building 630 would be consistent with Policy 30. Construction and renovation activities at the existing VTF facility would not have significant effects to state and national water quality standards.

Construction of the VETCOM additions at Building 630 would have no significant effects on surface waters. During construction, the use of BMPs for erosion and sedimentation control would minimize any potential soil erosion and subsequent sedimentation to Kinsley Farm Brook.

No significant adverse effects would be expected from storage of hazardous and/or toxic substances or hazardous waste disposal. Hazardous materials would be handled and stored in accordance with applicable regulations. Hazardous waste disposal, including medical waste from the facility, would be handled in accordance with regulatory, Army, and installation procedures and guidelines.

Policy 33 – Best management practices will be used to ensure the control of stormwater runoff and combined sewer overflows draining into coastal waters.

Based on analyses in Sections 4.6 (Geology and Soils) 4.7 (Water Resources) and 4.13 (Utilities), the proposed relocation of VETCOM to Building 630 would be consistent with Policy 33. Construction and renovation activities at the existing VTF facility would utilize BMPs in the control of stormwater runoff draining into coastal waters.

Construction of the VETCOM additions at Building 630 would have no significant effects on surface waters. During construction, the use of BMPs for erosion and sedimentation control would minimize any potential soil erosion and subsequent sedimentation to Kinsley Farm Brook.

Policy 36 – Activities related to the shipment and storage of petroleum and other hazardous materials will be conducted in a manner that will prevent or at least minimize spills into coastal waters; all practicable efforts will be undertaken to expedite the cleanup of such discharges; and restitution for damages will be required when these spills occur.

Based on analyses in Sections 4.7 (Water Quality) and 4.14 (Hazardous Materials), the proposed relocation of VETCOM to Building 630 would be consistent with Policy 36. Construction and renovation activities at the existing VTF facility would not have significant effects to coastal resources in regards to hazardous materials discharged into such waters.

Construction of the VETCOM additions at Building 630 would have no significant effects on surface waters. During construction, the use of BMPs for erosion and sedimentation control would minimize any potential soil erosion and subsequent sedimentation to Kinsley Farm Brook.

No significant adverse effects would be expected from storage of hazardous and/or toxic substances or hazardous waste disposal. Hazardous materials would be handled and stored in accordance with applicable regulations. Hazardous waste disposal, including medical waste from the facility, would be handled in accordance with regulatory, Army, and installation procedures and guidelines.

Policy 37 - Best Management Practices will be utilized to minimize the non-point discharge of excess nutrients, organics, and eroded soils into coastal waters.

Based on analyses in Sections 4.6 (Geology and Soils) and 4.7 (Water Resources), the proposed relocation of VETCOM to Building 630 with Policy 37. Construction and renovation activities at the existing VTF facility would utilize BMPs to minimize the discharge of non-point source discharges into coastal waters.

The proposed VETCOM facility would result in land disturbance of less than 1,422 ft² (132.11 m²), or approximately 0.033 acres (0.013 hectares). To minimize the amount and velocity of runoff, appropriate erosion, sedimentation, and stormwater BMPs would be implemented where appropriate. The BMPs would be consistent with the New York State Stormwater Management Design Manual.

As this proposed project design does not have a footprint greater than one acre (0.40 hectares), an NYSDEC Erosion and Sediment Control Plan would not be required. Construction of the VETCOM additions at Building 630 would have no significant effects on surface waters. During construction, the use of BMPs for erosion and sedimentation control would minimize any potential soil erosion and subsequent sedimentation to Kinsley Farm Brook.

Policy 38 – The quality and quantity of surface water and groundwater supplies, would be conserved and protected, particularly where such waters constitute the primary or sole source of water supply.

Based on analyses in Sections 4.7 (Water Resources), the proposed relocation of VETCOM to Building 630 would be consistent with Policy 38. Construction and renovation activities at the existing VTF facility would conserve and protect the quality and quantity of surface water and groundwater supplies.

The VETCOM entails interior renovations and a small expansion of the building; however, no effects would be expected to groundwater as the result of the VETCOM facility at Building 630.

Policy 39 – The transport, storage, treatment and disposal of solid wastes, particularly hazardous wastes, within coastal areas will be conducted in such a manner so as to protect ground water and surface water supplies, significant fish and wildlife habitats recreation areas, important agricultural land, and scenic resources.

Based on analyses in Sections 4.14 (Hazardous Materials), the proposed relocation of VETCOM to Building 630 would be consistent with Policy 39. Construction and renovation activities at the existing VTF facility would protect coastal resources during the transport, storage, treatment and disposal of solid waste.

No hazardous materials or petroleum products are known to have been used or stored on the VETCOM site. Any hazardous waste generated during construction and operation of the proposed VETCOM site would be expected to be nominal quantities and would be managed in accordance with the West Point Hazardous Waste Management Plan.

4.9 BIOLOGICAL RESOURCES

4.9.1 Affected Environment

4.9.1.1 Vegetation

West Point is classified by 28 terrestrial community types under the categories open upland, barrens and woodlands, forested uplands, and cultural.

Washington Gate Site: The Washington Gate Campus is composed of forested uplands, specifically a combination of hemlock-northern hardwood forest, Appalachian oak-hickory forest, and landscaped vegetation.

Table 4-8 lists characteristic species for each community type relevant for the proposed action.

Table 4-8: Characteristic Plant Species of the Washington Gate Site

Latin Name	Common Name
Appalachian Oak-Hickory Forest	
<i>Acer rubrum</i>	Red Maple
<i>Amelanchier stolonifera</i>	Shadbush
<i>Asplenium platyneuron</i>	Ebony Spleenwort
<i>Carex albicans</i> var. <i>albicans</i>	White-Tinged Sedge
<i>Carya glabra</i>	Pignut Hickory
<i>Comptonia peregrina</i>	Sweetfern
<i>Cornus florida</i>	Flowering Dogwood
<i>Gaultheria procumbens</i>	Wintergreen
<i>Gaylussacia baccata</i>	Black Huckleberry
<i>Hamamelis virginiana</i>	Witch Hazel
<i>Opuntia humifusa</i>	Prickly Pear Cactus
<i>Polypodium</i> sp.	Polypody Ferns
<i>Prunus virginiana</i>	Choke Cherry
<i>Quercus alba</i>	White Oak
<i>Q. coccinea</i>	Scarlet Oak
<i>Q. montana</i>	Chestnut Oak
<i>Q. rubra</i> var. <i>borealis</i>	Northern Red Oak
<i>Q. velutina</i>	Black Oak
Hemlock-Northern Hardwood Forest	
<i>Acer pensylvanicum</i>	Striped maple
<i>A. rubrum</i>	Red maple
<i>A. saccharum</i>	Sugar maple
<i>Betula lenta</i>	Black birch
<i>B. lutea</i>	Yellow birch
<i>Fagus grandifolia</i>	Beech
<i>Leucobryum glaucum</i>	Leucobryum moss
<i>Mitchella ripens</i>	Partridgeberry
<i>Pinus strobus</i>	White pine
<i>Polystichum acrostichoides</i>	Christmas fern
<i>Quercus montana</i>	Chestnut oak
<i>Q. rubra</i>	Red oak

Latin Name	Common Name
<i>Tilia americana</i>	Basswood
<i>Tsuga canadensis</i>	Hemlock
Source: USMA, 2003.	

DOL Motor Pool Site (TA-V/W): The DOL Motor Pool site at TA-V/W is characterized primarily by Appalachian oak-hickory forest. These forested uplands communities contain at least 60% canopy cover, with a substrate characterized by less than 50% rock outcrop or shallow soil over bedrock (USMA, 2003).

DOL Secondary Refueling Station: The Secondary Refueling Station site is a developed site with limited landscaped vegetation.

Lake Frederick Site: For the most part, the vegetation at the Lake Frederick site has been disturbed in the recent past, but falls within the general category of Appalachian oak forest. The site is specifically composed of young woodland predominated by early successional trees and shrubs, meadow, and landscaped vegetation. Species within the young woodland are listed in Table 4-9.

Table 4-9: Plant Species of the Affected Environment

Latin Name	Common Name
<i>Acer rubrum</i>	Red maple
<i>A. saccharum</i>	Sugar maple
<i>Betula populifolia</i>	Grey birch
<i>Fraxinus sp.</i>	Ash
<i>Juniperus virginiana</i>	Red cedar
<i>Larix sp.</i>	Larch
<i>Parthenocissus vitacea</i>	Virginia creeper
<i>Picea mariana</i>	Black spruce
<i>Populus tremuloides</i>	Quaking aspen
<i>Prunus serotina</i>	Black cherry
<i>Robinia pseudoacacia</i>	Black locust
<i>Viburnum dentatum</i>	Arrowwood viburnum
<i>Vitis sp.</i>	Grape
Source: USACE, 2008b.	

The meadow consists of both cool and warm season grasses and is occasionally mowed (USACE, 2008b).

VETCOM: This site is a developed site with limited landscaped vegetation.

4.9.1.2 Wildlife

West Point is home to a variety of wildlife including 41 species of mammals, 249 species of birds, 19 species of reptiles, 18 species of amphibians, 43 species of fish and numerous species of invertebrates (USMA, 2003). A wide range of mammals have been observed and/or documented on West Point including large and medium-sized mammals. Of the 249 bird species observed on or near West Point, 110 species have been identified as breeding on the installation. Another 10 non-breeders are considered winter residents. USMA's INRMP provides a complete list of all of the various wildlife species found within the reservation (USMA, 2003).

Washington Gate Site: Terrestrial and bird species likely to be found in the wooded areas that comprise part of the Washington Gate site are typical of species found in urban forest habitats, including white-tailed deer (*Odocoileus virginianus*), gray fox (*Urocyon cinereoargenteus*), opossum (*Didelphis virginiana*), gray squirrel (*Sciurus carolinensis*), eastern cottontail (*Sylvilagus floridanus*), raccoon (*Procyon lotor*), skunk (*Mephitidae sp.*), white-footed mouse (*Peromyscus leucopus*), sparrows (*Passeridae sp.*), mourning dove (*Zenaida macroura*), woodpeckers (*Picidae sp.*), and various amphibian and reptile species. Fish species found in Sinclair Pond Brook include Eastern blacknose dace (*Rhinichthys atratulus*) and creek chub (*Semotilus atromaculatus*) (USMA, 2003).

The stretch of Crow's Nest Brook between its junction with Sinclair Pond Brook downstream to the confluence with the Hudson River is considered to be a trout spawning stream. Brook, Brown and Rainbow trout inhabit Crow's Nest Brook. Per Natural Resources Manager of West Point, only brown trout (*Salmo trutta*) have been confirmed spawning in Crows Nest Brook, over several years and wild-born individuals of the other two species had been encountered, but they had been hatched in other unidentified tributaries to the Hudson River (Beemer, pers. comm., 2008c). New York State criteria for governing thermal discharges into trout waters (6 NYCRR 704.2) limits any discharges that would raise the stream temperature or impair the water quality. Presence of trout in streams raises the level of protective measures that must be taken when disturbing the bed or banks of protected waters. This is due to the fact that trout species require water bodies that have higher oxygen levels, lower ambient temperatures, and lower levels of suspended sediments.

DOL Motor Pool Site (TA-V/W): Typical terrestrial and bird species similar to those found at the Washington Gate site would also be found at the TA-V/W site. Fish species found within Stilwell Lake include American eel (*Anguilla rostrata*), alewife (*Alosa pseudoharengus*), brown bullhead (*Ameiurus nebulosus*), channel catfish (*Ictalurus punctatus*), white sucker (*Catostomus commersoni*), golden shiner (*Notemigonus crysoleucas*), flathead minnow (*Pimephales promelas*), chain pickerel (*Esox niger*), pumpkinseed (*Lepomis gibbosus*), bluegill (*Lepomis macrochirus*), smallmouth bass (*Micropterus dolomieu*), largemouth bass (*Micropterus salmoides*), black crappie (*Pomoxis nigromaculatus*), yellow perch (*Perca flavescens*), and walleye (*Stizostedion vitreum*). Fish species found in Mine Lake include brown bullhead, golden shiner, eastern mudminnow (*Umbra pygmaea*), chain pickerel, pumpkinseed, bluegill, largemouth bass, black crappie, and yellow perch.

DOL Secondary Refueling Station: This site is fully developed, however, typical terrestrial and bird species similar to those found at the Washington Gate site would also be found in the surrounding vicinity of this site. Fish species found within Crow's Nest Brook include American eel, goldfish (*Carassius auratus*), flathead minnow, eastern blacknose dace, brook char (*Salvelinus fontinalis*), brown trout (*Salmo trutta*), rainbow trout (*Oncorhynchus mykiss*), and redbreast sunfish (*Lepomis auritus*).

Lake Frederick Site: Typical terrestrial and bird species similar to those found at the Washington Gate site would also be found at the Lake Frederick site. Fish species found within Lake Frederick include channel catfish, goldfish, golden shiner, green sunfish (*Lepomis cyanellus*), pumpkinseed, warmouth (*Lepomis gulosus*), bluegill, smallmouth and largemouth bass, black crappie and yellow perch.

4.9.1.3 Threatened, Endangered, and Sensitive Species

The Endangered Species Act (ESA) (16 USC 1531 et seq.) mandates that all federal agencies consider the potential affects of their actions on species listed as threatened or endangered. Section 7 of the Endangered Species Act requires federal agencies that fund, authorize, or carry out an action to ensure that their action is not likely to jeopardize the continued existence of any threatened or endangered species (including plant species) or result in the destruction or adverse modification of designated critical habitats. If West Point determines that an action may affect a federally listed species, consultation with the USFWS is required to ensure minimization of potential adverse impacts to the species or its designated critical habitat (USMA, 2003).

In 1990 and 1993, a vegetation survey was conducted for West Point by the New York State Biological Survey and Brooklyn Botanical Garden. An additional survey for threatened and endangered flora and fauna was conducted in 1991 and 1992 by the New York State Biological Survey. The results of this survey indicated that no federal species listed as threatened or endangered were found to be permanent residents of or to breed on West Point. The bald eagle, a then-federally threatened species (delisted on June 28, 2007) and still protected under the Bald Eagle Protection Act of 1940 ([16 U.S.C. 668-668d, 54 Stat. 250](#)), as amended, was found to be a frequent winter visitor. It was also found that suitable habitat exists for the Indiana bat (federally endangered) and the then-threatened peregrine falcon (delisted on August 25, 1999). Species listed by the state at that time which were observed, but not considered to be residents, included the golden eagle, red-shouldered hawks, and osprey. These species are no longer state listed. One state-listed species that is considered a permanent resident of West Point, the timber rattlesnake, was found (USMA, 2003). Since this initial survey, some species have been downgraded from the endangered species list, while some have become rarer and are now listed. A complete list of federal and state listed endangered and threatened species found on West Point is provided in the USMA INRMP (USMA, 2003). The following provides more detailed descriptions of habitat for the three federally-listed species found at USMA.

Indiana Bat (*Myotis sodalis*). Indiana bats have been observed three times on the reservation, and there is evidence to suggest that the species may use some parts of West Point for foraging and resting.

In September 1992, James Beemer, the post biologist, observed a single Indiana bat perched on a wall in an abandoned mine near the main impact area. In January 1993, a return visit to the mine found eight or nine bats huddled in a bore hole at the back of the mine. These two sightings seem to be an anomaly, and have never been repeated in subsequent surveys. In the winter of 1999-2000, the reason became clear. The Indiana bat has a very narrow range of acceptable temperatures in which it can hibernate. If conditions are too warm, the bat's metabolism never slows sufficiently, and the bats starve before spring; if it is too low, the sleeping bats freeze. A thermograph placed in the mine in 1999 recorded temperatures that were too warm to support sleeping bats (Gannon and Sherwin, 2000).

The likely explanation for the sightings in 1992-93 is that bats were aware of the mine, and may have used it as a stop-over during migration. This is supported by the sighting of the single bat in September. The winter of 1992-93 arrived early with freezing temperatures below normal. It is theorized that the bats seen in January 1993 were short-stopped before they could reach their normal hibernaculum, and spent the winter in what is normally a temporary shelter.

In 1999 and 2000, a survey to document the bat communities on West Point properties was conducted (Gannon and Sherwin, 2000). During the survey, one male Indiana bat was captured in a mist net, and 39 call sequences attributed to the species were recorded with ANABAT detectors. These findings prompted a second survey in 2002 following USFWS Indiana bat survey protocols to further document the population of Indiana bats using the West Point Military Reservation (USMA, 2003). In 96 trap-nights, no Indiana bats were caught. The conclusion that was drawn from this was that while Indiana bats may use the WPMR, it may be that only transient males or non-breeding females use the property for foraging.

Breeding females, which are closely tied to their communal nurseries, would have certainly been caught had there been a nursery in the vicinity of the mist nets used. The greater concentrations of feeding bats around a nursery tree would have increased the probability of their capture. Males and non-breeding females wander during the summer and are much more dispersed, utilizing a wider variety of habitats. This would make them less likely to be captured, and would explain both the single bat caught in the 1999-2000 survey, as well as the 39 recorded bat calls purportedly identified as Indiana bats (USMA, 2003).

Bog Turtle (*Glyptemys muhlenbergii*). This federally and state endangered turtle, formerly classified as *Clemmys muhlenbergii*, shows historic occurrences in the vicinity of West Point, documented approximately 60 years ago. Its range extends from New York and western Massachusetts down to northern Georgia and eastern Tennessee, but the population is highly fragmented and discontinuous. The species is semi-aquatic and can be found in swamps, bogs, fens, and slow-moving streams in marshy meadows along the East Coast of the United States. In New York, it is generally found in wet meadows and boggy areas dominated by sedge or sphagnum moss (Olori, 2004, NYSDEC, nd-a). There have been no documented occurrences of *G. muhlenbergii* since the original sighting in the vicinity; therefore, it may be concluded that it is very unlikely that it is a resident or visitor at West Point (Beemer, pers. comm., 2007).

Shortnose Sturgeon (*Acipenser brevirostrum*). This federally and state endangered fish occurs at West Point in the Hudson River adjacent to the cantonment area and Constitution Island. West Point occurs at river mile 51-53, and owns three miles of the western shore, and 1.5 miles of shoreline at the island on the east bank. This includes the river bottom from the shore out to the river's midpoint.

While the shortnose sturgeon does occur offshore of the Reservation, recent studies by the New York Cooperative Fish and Wildlife Research Unit at Cornell University and other researchers suggests that the species may be limited in its usage of this part of the Hudson River. Juvenile shortnose sturgeon show a preference for water depths greater than two meters and were more common in depths exceeding six meters (Haley et al 1996). Further, juveniles were not sampled below river mile 64 (Haley et al). In the Hudson River, the shortnose sturgeon's spawning area is located north of Catskill, NY up to the Troy Dam. Little is known about the distribution of non-breeding adults, but pre-spawn adults overwinter in the section of the river near Kingston

before heading towards Troy in the spring when water temperatures are right. The species is a deepwater benthic feeder, feeding on mollusks and other macroinvertebrates (USMA, 2003).

In addition to special concern species surveys for rare species have been conducted at West Point including surveys of rare Odonata (dragonflies and damselflies), butterflies, and plants. Although not protected formally under federal or state law, the Army affords special consideration and protection to rare species as a matter of responsible land stewardship. The Odonata survey, which began in 1994, was conducted over four years. Preliminary results, presented after the second field season, detailed the presence of 101 species from 53 survey sites. Fourteen (14) of the species documented were considered rare or otherwise noteworthy. The butterfly survey conducted at West Point was initiated in 1995 and lasted into 1997. This survey identified eight species designated as rare in New York State, six species designated as regionally rare in southeastern New York State, and two species designated as rare at West Point (USMA, 2003).

Rare plant surveys were conducted at West Point in 1994/1995, with a follow-up survey during the 2000 growing season. These surveys resulted in 75 plant species on the West Point rare plant list, 62 of which have been state-rare, or New York National Heritage Program (NYNHP) listed, and 18 that have been species rare in the Hudson Highlands region or rare for West Point lands. The 62 state-listed species consist of 13 species on the NYNHP watch list, seven dropped from all NYNHP lists, and 22 on the NYNHP active list. There are also six possibly extirpated species that West Point maintains information on in the case they reappear (USMA, 2003).

4.9.1.4 Wetland Habitat

The majority of the wetlands on West Point are small, with areas of less than 5 acres. Only a few of the wetlands on the installation exceed 15 acres. There are multiple classes of wetlands on West Point, with over 60 percent of wetlands classified as predominantly palustrine forested, with the remainder composed of wetlands that are either predominantly palustrine emergent, palustrine scrub shrub, or a mix of the two (USMA, 2003). Table 4-10 lists the primary wetland plant species found at West Point.

Table 4-10: Wetland Plant Species Found at West

Latin Name	Common Name	Latin Name	Common Name
<i>Acer rubrum</i>	Red maple	<i>Polygonum sp.</i>	Smartweed
<i>Athyrium filix-femina</i>	Lady's fern	<i>Spirea alba</i>	Meadowsweet
<i>Betula lutea</i>	Yellow birch	<i>Spirea tomentosa</i>	Steeplebush
<i>Carex sp.</i>	Sedge	<i>Thelypteris noveboracensis</i>	New York fern
<i>Clethra alnifolia</i>	Sweet pepperbush	<i>Thelypteris palustris</i>	Marsh fern
<i>Juncus sp.</i>	Rush	<i>Typha angustifolia</i>	Narrow-leaved cattail
<i>Osmunda cinnamomea</i>	Cinnamon fern	<i>Vaccinium angustifolium</i>	Lowbush blueberry
<i>Phragmites australis</i>	Common reed	<i>Vaccinium corybosum</i>	Highbush blueberry

Washington Gate Site: There are no wetlands within or immediately adjacent to the proposed USMAPS campus at the Washington Gate site.

DOL Motor Pool Site – TA-V/W: There are two USACE jurisdictional wetlands located within the project boundaries of the proposed DOL Motor Pool site; one is located in the southern portion of the project site and one is located in the northwest portion of the site (see Figure 4-24). The southern wetland is 0.37 acres in size and drains to the east through a series of upland and rock lined swales towards Lake Stilwell. It is classified as a Palustrine, scrub-shrub, broad-leaved deciduous wetland. The vegetation within the wetlands is comprised of southern arrowwood (*Viburnum dentatum*), red osier dogwood (*Cornus sericea*), red maple var. trilobum (*Acer rubrum* var. *trilobum*), common buttonbush (*Cephalanthus occidentalis*), common rush (*Juncus effuses*), common reed (*Phragmites australis*), Tussock's sedge (*Carex stricta*), and American witchhazel (*Hamamelis virginiana*) (USACE, 2008c). The wetland in the northwestern portion of the site is classified as a Palustrine, forested, broad-leaved deciduous wetland and drains to a 36-inch re-enforced concrete pipe which conveys water under Route 293 and discharges on the west side of Route 293. Vegetation within the wetland consists of green ash (*Fraxinus*

pennsylvanica), red maple (*Acer rubrum*), red maple var. trilobum, American hornbeam (*Carpinus caroliniana*), highbush blueberry (*Vaccinium corymbosum*), cinnamon fern (*Osmunda cinnamomea*), sensitive fern (*Onoclea sensibilis*), and jewelweed (*Impatiens capensis*).

There are no wetlands within or immediately adjacent to the proposed DOL secondary refueling station site.

Lake Frederick Site: Adjacent to the northeast side of Lake Frederick there are three wetlands composed of three wetland types: Palustrine emergent, persistent; Palustrine unconsolidated bottom-mud; and Palustrine forested-broad-leaved deciduous (see Figure 4-25) (USACE, 2008d). All three wetlands are manmade features with the purpose of either improving drainage properties or sequestering waters from local high-gradient ephemeral streams. Wetland Area A is approximately 0.22 acres and is located within a drainage feature in a mowed field. It is classified as a Palustrine emergent, persistent wetland and consists largely of common reed and Georgia bulrush (*Scirpus georgianus*). Wetland Area B is approximately 0.40 acres located within a cement-walled pond with emergent wetland vegetation consisting largely of jewelweed and swamp smartweed (*Polygonum hydropiperoides*). When waters are sufficiently high in this wetland/pond, the pond discharges through a cement and stone spillway at its eastern end to wetlands adjoining Lake Frederick. Wetland Area C is approximately 0.46 acres and is located adjacent to Lake Frederick. The forested wetland vegetation of this wetland consists primarily of speckled alder (*Alnus rugosa*), green ash, and silver maple (*Acer saccharinum*).

VETCOM: There are no wetlands within or immediately adjacent to the proposed VETCOM.

4.9.2 Environmental Consequences

The following thresholds were used to determine the magnitude of effects on wildlife and wildlife habitat and vegetation, with separate criteria being used to evaluate impacts to threatened and endangered species:

No Effect – No impacts to native species, their habitats, or the natural processes sustaining them would occur, or such conditions do not exist for impacts to occur.

No Significant Effect – Impacts would be detectable, but would not be expected to be outside the natural range of variability and would not have any long-term effects on native species, their habitats, or the natural processes sustaining them. Occasional responses to disturbance by some individuals could be expected, but without interference to feeding, reproduction, or other factors affecting population levels. Sufficient habitat would remain functional to maintain viability of all species.

Significant Effect – Impacts on native species, their habitats, or the natural processes sustaining them would be detectable, and they would be expected to be outside the natural range of variability for long periods of time or be permanent. Population numbers, population structure, genetic variability, and other demographic factors for species might have large, short-term declines, with long-term population numbers significantly depressed. Frequent responses to disturbance by some individuals would be expected, with negative impacts to feeding, reproduction, or other factors resulting in a long-term decrease in population levels. Loss of habitat might affect the viability of at least some native species.

Impacts to threatened and endangered species were classified using the following terminology, as defined under the ESA:

No effect – The proposed action would not affect a listed species or designated critical habitat OR listed species or designated critical habitat are not present.

May affect / not likely to adversely affect – Effects on special status species are discountable (i.e., extremely unlikely to occur and not able to be meaningfully measured, detected, or evaluated) or completely beneficial.

May affect / likely to adversely affect – When an adverse effect to a listed species may occur as a direct or indirect result of proposed actions and the effect is either not discountable or completely beneficial.

Likely to jeopardize proposed species/adversely modify proposed critical habitat – The appropriate conclusion when West Point identifies situations in which actions could jeopardize the continued existence of a proposed species or adversely modify critical habitat to a species within and/or outside West Point boundaries.

4.9.2.1 No Action Alternative

Under the No Action Alternative, there would be no construction at the Washington Gate site, or at TA-V/W, the proposed DOL Motor Pool site, or at Lake Frederick. Consequently there would be no effects on biological resources resulting from the No Action Alternative.

4.9.2.2 Alternative 1 WG E Consequences

The consequences to biological resources under Alternative 1 occur at two locations: the Washington Gate Site and TA-V/W. These are discussed separately for each biological resource below.

There would be no effects to vegetation, wildlife, sensitive species and wetlands from the Secondary Refueling Station as the proposed area is already developed and does not contain any of the resources; therefore it is not further discussed below.

Vegetation – USMAPS Washington Gate Site: There would be no significant effect at the Washington Gate site on vegetation as a result of implementing this alternative. Construction of USMAPS at the Washington Gate site would result in the clearing of approximately 3.45 acres of forested uplands at West Point; this represents a very small fraction of approximately 1,054 acres of forested area on the Main Cantonment. The parcel to be cleared is directly adjacent to the existing DOL Motor Pool, and therefore has already been subject to disturbance and edge effects.

Vegetation – DOL Motor Pool TA V/W: There would be no significant effect on vegetation as a result of constructing the DOL Motor Pool at TA-V/W. Construction on the site would require the clearing of approximately 38 acres of forested uplands, less than one percent of the 14,617 acres of range and training lands at West Point, which includes 12,128 acres for maneuvers and 2,489 acres of impact area.

Wildlife – USMAPS Washington Gate Site: There would be no significant effect on wildlife as a result of constructing the USMAPS at the Washington Gate site. The existing DOL Motor Pool is a developed site, and does not contain any wildlife habitat. The acreage to the south of the DOL Motor Pool, which would contain the USMAPS campus facilities, represents a minor loss of forested upland habitat. Construction activities would likely result in mortality of some less mobile fauna, such as reptiles, amphibians, and small mammals. Mobility of wildlife species in the area would not be greatly affected by habitat fragmentation resulting from construction, although it would be subject to disturbance from human activities.

As indicated in Water Resources *Section 4.7.2.2 Alternative 1 WG E Consequences* the use of BMPs to minimize soil erosion during construction activities as well as compliance with stormwater regulations and the special design features of the athletic fields would help protect the water quality of Sinclair Pond Brook, thus minimizing the potential impacts to aquatic organisms from non-water dependent construction and operational activities associated with the USMAPS campus.

To accommodate the new USMAPS facilities under Alternative 1, a continuous 500-foot section of Sinclair Pond Brook flowing through the project site would need to be filled and relocated. In-stream construction activities would adversely impact aquatic organisms, including wild trout populations downstream, both directly and indirectly by temporarily increasing sediment loads and the subsequent deposition of sediments downstream. Increased sediment loads from in-stream construction activities can decrease benthic invertebrate populations due to direct burial, increased downstream drift rates of species to avoid the construction area, and decreased downstream habitat suitability due to sedimentation. Increased sediment loads can also adversely affect fish populations due to a decrease in food abundance, increased stress, burial of eggs, and decreased habitat suitability due to sedimentation. Given the temporary nature of construction activities and the natural flushing of streams, impacts to benthic invertebrates and fish populations are generally short-term in nature, with populations usually recovering within six months to one year (Reid and Anderson, 1999). However, to avoid any potential significant adverse impacts to the wild brown trout populations downstream of the project and to minimize potential impacts

to all aquatic organisms, construction activities associated with the relocation of the stream should be conducted during low flows and only between the dates of April 1 and September 30 to avoid the trout spawning and hatching seasons. As indicated in Water Resources *Section 4.7.2.2 Alternative 1 WG E Consequences* a Section 401 Water Quality Certificate will need to be applied for and obtained from the NYSDEC for this project and it is likely that the NYSDEC would include these conditions as part of that certificate.

Wildlife – DOL Motor Pool TA V/W: There would be no significant effect on wildlife as a result of relocating the DOL Motor Pool to the TA-V/W site. The loss of habitat that would result from the clearing of upland forests to accommodate the construction necessary represents a small fraction of the total available upland forest habitat available in the Industrial/Field Training/Recreational Zone at West Point. Construction activities would likely result in mortality of some less mobile fauna, such as reptiles, amphibians, and small mammals. Mobility of wildlife species in the area would not be affected by habitat fragmentation resulting from construction, although it would be subject to disturbance from human activities. Water supply for the new facilities would come from Stilwell Lake via the existing Stilwell Lake pump station. However, an increase of 6,000 gallons per day to supply the DOL motor pool will not significantly impact the aquatic resources of Stilwell Lake.

Sensitive Species – USMAPS Washington Gate Site: There would be no effect on the bog turtle (*Glyptemys mühlenbergii*) or the Indiana myotis (*Myotis sodalis*). No suitable wetlands for bog turtle habitat are found in proximity to the Washington Gate site. A survey for Indiana bats in accordance with recovery plan guidelines was conducted at West Point by the New York Natural Heritage Program in 2002. The survey did not capture any Indiana bats, nor has any potential maternal colony site been identified at the Washington Gate site. At this point, neither species are considered residents, and no effect on either species (individuals and populations) is likely to occur if the proposed action is completed.

Bald eagles are considered a winter resident at West Point. Several preferred daytime usage areas have been identified at West Point, none of which are in proximity to Washington Gate.

Consultation with USFWS was completed for this action, and USFWS concurred that there would be no effect on any sensitive species resulting from the proposed action (Appendix A and Pers. Comm. USFWS).

Sensitive Species – DOL Motor Pool TA V/W: There would be no effect on the bog turtle (*Glyptemys mühlenbergii*) or the Indiana myotis (*Myotis sodalis*). No suitable wetlands for bog turtle habitat are found at TA V/W. A survey for Indiana bats in accordance with recovery plan guidelines was conducted at West Point by the New York Natural Heritage Program in 2002. The survey did not capture any Indiana bats, nor has any potential maternal colony site been identified in the TA-V/W region. At this point, neither species are considered residents, and no effect on either species (individuals and populations) is likely to occur if the proposed action is completed.

Bald eagles are considered a winter resident at West Point. Several preferred daytime usage areas have been identified at West Point, with one area located adjacent to the DOL Motor Pool site in TA-V/W. Stilwell Lake sees some bald eagle usage during winter months, often scavenging abandoned fish left behind by ice anglers. Locations at Stilwell Lake where the eagles have been seen are no closer than one kilometer from the DOL Motor Pool site at TA-V/W. Therefore, it is unlikely that the proposed action would have an adverse impact on bald eagles (individuals and populations).

Consultation with USFWS was completed for this action, and USFWS concurred that there would be no effect on any sensitive species resulting from the proposed action (Appendix A and Pers. Comm. USFWS).

Wetland Habitat – USMAPS Washington Gate Site: There would be no effect on wetland habitats. There are no wetlands associated with Sinclair Pond Brook or other locations in proximity to the proposed USMAPS campus.

Wetland Habitat – DOL Motor Pool TA V/W: There are two jurisdictional wetlands located on the proposed DOL Motor Pool site. The wetland in the northwest portion of the site is not located within the footprint of any of the proposed facilities or parking areas. During site preparation, earthworks, and construction activities BMPs for erosion and sedimentation controls would ensure that storm water runoff would not cause or exacerbate erosion and potentially adversely impact the wetland. In addition, proposed stormwater measures such as drainage inlets,

oil water separators, and grit chambers would prevent any stormwater runoff contaminated with petroleum, oils, or lubricants (POLs) from impacting the wetland.

Construction of the access road to the DOL Motor Pool site would require placing of fill in a portion or all of the jurisdictional wetland located in the southern portion of the project site could require a Clean Water Act Section 404 permit issued by the USACE. Any Section 404 permit would likely include some form of mitigation to offset the adverse impacts to the wetland and could take the form of wetlands creation or enhancement. Implementing any mitigation measures associated with the Section 404 permit would reduce the level of impacts to wetlands to no significant effect.

4.9.2.3 Alternative 2 WG B Consequences

Vegetation: With some slight differences in the total amount (2.90 acres) of vegetation that would be cleared, impacts under this alternative would be similar to those discussed under Alternative 1.

Wildlife: Impacts would be similar to those indicated under Alternative 1.

Sensitive Species: Impacts would be similar to those indicated under Alternative 1.

Wetlands: Similar to Alternative 1, impacts to wetlands would not be significant.

4.9.2.4 Alternative 3 WG 15% Design Consequences

Vegetation: Construction of USMAPS at the Washington Gate site would result in the clearing of approximately 20 acres of forested uplands at West Point. This represents 0.02% of approximately 1,054 acres of forested area on the Main Cantonment, and the parcel to be cleared is directly adjacent to the existing DOL Motor Pool, and therefore has already been subject to disturbance and edge effects.

Wildlife: Impacts would be similar to those indicated under Alternative 1.

Sensitive Species: Impacts would be similar to those indicated under Alternative 1.

Wetland Habitat: Similar to Alternative 1, impacts to wetlands would not be significant.

4.9.2.5 Alternative 4 LF 2a Consequences

Vegetation: Under this alternative there would be no significant effect at the Lake Frederick site on vegetation as a result of implementing this alternative. The site borders Smith Cove Road, a golf course and Lake Frederick. Construction of USMAPS under this alternative would result in the clearing within approximately 38 acres of young woodland forest. This represents less than one percent of the 14,617 acres of range and training lands at West Point. Some of this loss could be offset with the replanting zones of trees and shrubs on-site. In addition to the woodland forest, construction of the USMAPS campus would disturb approximately 26 acres of grassy habitat, though this habitat is somewhat divided by access roads and is already disturbed by occasional mowing.

Wildlife: There would be no significant effect on wildlife as a result of constructing the USMAPS campus at the Lake Frederick site. The loss of habitat that would result from the clearing of young woodland forest to accommodate the construction necessary represents a small fraction of the total available forest habitat available in the Industrial/Field Training/Recreational Zone at West Point. Construction activities would likely result in mortality of some less mobile fauna, such as reptiles, amphibians, and small mammals. Because the site is bounded by a golf course and Smith Cove Road, the mobility of wildlife species in the area would not be affected by habitat fragmentation resulting from construction. Wildlife in areas around Lake Frederick would be subject to an increase in back ground noise levels as well as periods of increased noise during sporting and other events on campus. However, species in this area are likely to be fairly common species that inhabit fringe habitats and have grown accustomed to street and other manmade noise levels.

Sensitive Species: There would be no effect on the bog turtle (*Glyptemys muhlenbergii*) or the Indiana myotis (*Myotis sodalis*). No suitable wetlands for bog turtle habitat are found at Lake Frederick. A survey for Indiana bats in accordance with recovery plan guidelines was conducted at West Point by the New York Natural Heritage

Program in 2002. The survey did not capture any Indiana bats, nor has any potential maternal colony site been identified in the TA V/W region. At this point, neither species are considered residents, and no effect on either species (individuals and populations) is likely to occur if the proposed action is completed.

Bald eagles are considered a winter resident at West Point. Several preferred daytime usage areas have been identified at West Point, though not at Lake Frederick.

Consultation with USFWS was completed for this action, and USFWS concurred that there would be no effect on any federally listed sensitive species resulting from the proposed action (Appendix A and Pers. Comm. USFWS).

Georgia bulrush (*Scirpus georgianus*), a state-threatened plant is found within wetland habitat surrounding Lake Frederick. Though not likely to be impacted by the construction of the USMAPS campus, relocating the camp facilities from the western shore of Lake Frederick to the northern shore of Lake Frederick could possibly impact this species, though it could probably be preserved through avoidance during siting of the facilities.

Wetland Habitat: The USMAPS campus under this alternative would not directly impact any of the wetlands along the northern periphery of Lake Frederick. However, under this alternative the existing camp facilities at Lake Frederick would be relocated to the northern end of the lake in the vicinity of the wetlands. At this time, a design layout for the relocated camp is not available; however, it is anticipated that the wetlands could be avoided. While there are no buffer requirements associate with USACE jurisdictional wetlands, West Point does employ a 100-foot buffer around all wetlands on the installation (USMA, 2003); however, upon review of a project within the 100-foot buffer, if it is not going to adversely impact the wetland, it is generally allowed to continue (Beemer, pers. comm., 2008a). Given the nature of these small, manmade, wetlands it is not likely that that they would be adversely affected by the relocation of the Lake Frederick camp facilities even if they encroached upon the 100 foot buffer as long as any impervious surfaces were not constructed immediately adjacent to them. If relocation of the camp facilities were to require the placement of fill in any portion of the wetlands than a Clean Water Act Section 404 permit issued by the USACE could be required and may require some form of wetland mitigation measures.

4.9.2.6 Alternative 5 LF 2b Consequences

Vegetation: Impacts would be similar to Alternative 4, and would not be significant.

Wildlife: Impacts would be similar to Alternative 4, and would not be significant.

Sensitive Species: Impacts would be similar to Alternative 4, though with the existing design layout impacting Wetland A along the northern portion of Lake Frederick, some loss of habitat for the state-listed plant Georgia bulrush as well as individual plants could occur. Though, some preservation could be accomplished through avoidance in final design layout and through transplanting.

Wetlands Habitat: As currently designed, the layout of the USMAPS campus under this alternative could potentially require placing fill a portion of Wetland A along the northern portion of Lake Frederick. This small wetland is within a drainage feature in a mowed field, and could likely require a Section 404 permit issued by the USACE. Any mitigation measures stipulated in a permit would minimize the over all impacts to wetlands on the West Point installation.

4.9.2.7 VETCOM Consequences

Vegetation: There would be no significant effect on vegetation as a result of constructing the addition to Building 630. The area directly surrounding the existing VTF is currently developed, and has already been subjected to disturbance.

Wildlife: There would be no significant effect on wildlife as a result of constructing the addition to Building 630. It is a developed site, and does not contain any wildlife habitat. Construction activities would likely result in mortality of some less mobile fauna, such as reptiles, amphibians, and small mammals.

Sensitive Species: There is no available habitat at or in close proximity to Building 630 for sensitive species; therefore, there would be no effect. Consultation with USFWS was completed for this action, and USFWS

concluded that there would be no effect on any sensitive species resulting from the proposed action (Appendix A and Pers. Comm. USFWS).

Wetland Habitat: There would be no effects on wetlands. There are no wetlands in proximity to the proposed VETCOM facility.

4.10 CULTURAL RESOURCES

This section presents information on buildings, sites, structures, districts, and objects eligible for or included in the National Register of Historic Places (NRHP); cultural items as defined in the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990; Native American sacred sites for which access is protected under the American Indian Religious Freedom Act (AIRFA) of 1978; archaeological resources as defined by the Archaeological Resources Protection Act of 1979; and archaeological artifact collections and associated records as defined by 36 CFR Part 79.

The affected environment for cultural resources is potentially the entire 16,000 acre installation plus any adjacent off post resources on or eligible for the NRHP that may be impacted by development or operations at West Point. The identification of significant cultural resources, however, depends upon professional cultural resource surveys carried out with reference to established contexts and the official criteria for NRHP eligibility.

4.10.1 Affected Environment

West Point is one of the most historically significant Army properties in the United States. Its development began as an American fortification during the Revolutionary War and has continued through many successive historical periods and construction initiatives. Of prime importance has been the Academy's relationship to its setting within the scenically spectacular Hudson River Highlands and the history of the nearby towns, villages, and farmsteads along the Hudson.

Because of the large size of the West Point landholding, approximately 16,000 acres, and the comparatively limited and localized impacts of the Alternatives analyzed in this Environmental Assessment, only a brief summary of the wealth of historical and cultural resources management data available on West Point and its region will be given below as a general framework. Information of direct relevance to the analysis is presented in greater detail.

4.10.1.1 Prehistoric and Historic Background

The presence of humans in the part of the Hudson Highlands in which West Point is located dates back 12,000 years. The rugged terrain of the Highlands and the narrow channel of the Hudson River would not have encouraged long term occupation until after the post glacial melt flow had abated. The prehistory of this region of New York is conventionally divided into the Paleo-Indian (10,500 - 8,000 B.C.E.), Archaic (8000.-1000 B.C.E.) Woodland (1000 B.C.E.-1600 C. E.), and Protohistoric/Contact cultural periods (1600-1660 C.E.). The Paleo-Indian Period in the West Point area is characterized by a very sparse distribution of camp or quarry workshop sites. The hunter/gatherers of this period are thought to have subsisted from small game, fishing, and readily available plants. Only by the Late Archaic Period with its far more specialized tools suitable for exploiting the denser deciduous broadleaf forest environment that now prevailed is there an increase in sites around West Point. By the end of the Archaic, heavy carved soapstone bowls appear in sites, implying a more settled habitation. In the Woodland Period, which extends essentially until the Contact, pottery, large palisaded villages, and horticulture all make their appearance.

The Mohicans, Mohawks and Delaware (or Lenape) were the three major American Indian nations that occupied the Hudson River Valley at the time of the arrival of the Europeans. The Dutch established a fort in Albany in 1614 thus inaugurating a complicated period of trading, alliances, and conflicts which involved all parties. The effects of disease and conflict were to push residual American Indian populations further out from the Hudson Highlands as the Dutch set up a system of landholdings called patroonships. Toward the end of the seventeenth century, the British took over Dutch colonial interests (USMA, 2007d).

Although European settlement of the area in which West Point is located began in the Colonial era, the scarcity of flat land suitable for agriculture as well as the potential for conflict with the French and their Indian allies to the

north inhibited settlement for most of the eighteenth century. During the mid-eighteenth century American colonists of British descent moved into the western highlands from Westchester County and Long Island. The towns of Highland Falls, which lies directly south of West Point, and Cornwall date to that period. Both towns initially developed around small sawmill operations (O'Brien 1981).

During the Revolutionary War West Point's location along the river made it an important location in the strategic plan for the war. Americans constructed an extensive series of fortifications along the Hudson River in the highlands and made a particular effort at West Point to close the river to British warships (Diamant 1989; Palmer 1969). Reasoning among the Americans was that if the British managed to gain control of the Hudson River, which was the main artery between New York City and Montreal, Canada, they could drive a wedge between the New England colonies and those to the south. British control of the river would also increase the efficiency of their supply route to their Native American allies in the Mohawk Valley and would interrupt the intercolonial flow of agricultural products and manufactured goods that supplied the American army. The Hudson Valley therefore became the single most important military theater of the war, as protection of the Hudson River was critical to the success of the American cause (Diamant, 1989; Miller et al., 1988). The narrow, sharply bending channel between West Point and Constitution Island (then called Martelaer's Rock) made the area an obvious site for fortification.

After the end of the Revolutionary War the duty status of the West Point fortifications was reduced to a level of bare maintenance, and a small body of troops was garrisoned there (Palmer, 1969).

West Point lay nearly dormant for two decades after the war's end in 1783. A small garrison continued to be stationed there, guarding stores of supplies while the fortifications slowly crumbled. In 1790 Congress obtained clear title to the land containing most of the fortifications on the western side of the river by purchasing 1,795 acres at West Point from Stephen Moore. Finally, in 1802, after much debate over the merits of a trained officer corps and a standing army in the young American republic, Congress authorized the establishment of a military academy at West Point as a branch of the newly formed Corps of Engineers (Ambrose 1966; Boynton 1883; Palmer, 1969).

In the beginning the primary goal of the Academy was the production of a cadre of officers and civilians with a strong technical background and a thorough familiarity with American military traditions, tactics, and doctrine. Following the War of 1812 the Academy focused more specifically on civil engineering and its application to the nation's internal expansion. The growth of scientific knowledge in the latter half of the nineteenth century and the increase in technical and engineering schools encouraged another shift in the academic curriculum, as the strong emphasis on engineering was replaced by a more diverse education that served as only the first step in an Army officer's education. The nation's involvement in two world wars and numerous regional conflicts required continuing revision of the Academy's military curriculum in the twentieth century; science and technology, physical education, and international relations have received great emphasis (Greenwood 1975).

With the expansion of the railroads and enhanced transportation systems, including landings and ferry routes along the river, and an increased interest in tourism to the area for its Revolutionary War sites and scenic beauty, West Point and the Highlands became a vacation destination.

During the nineteenth century the size of the military reservation increased by 541 acres, taking in all the land down to West Point's present Thayer Gate. More land was purchased or donated, including Constitution Island, in the early part of the twentieth century. The expansion of the military reservation culminated in the West Point Land Acquisition Act of 1931, which added 15,135 acres to the Academy's land holdings (Salo et al. 2002). This act led to a threefold expansion of property at West Point, which allowed the Academy to improve its water supply, have enough space to build an airfield, and expand its training areas. The expansion also insulated the Academy from future civilian development on its doorstep (Historic American Buildings Survey [HABS] 1983).

Sylvanus Thayer, the "Father of West Point," was superintendent of the Academy from 1817 to 1833. He instituted a rigorous academic program of study and a strict code of cadet behavior. Thayer was astute at garnering Congressional support for the Academy by encouraging tourism and entertaining distinguished members of the arts, politics, business, and society. Thayer's construction of a hotel at the Academy had a profoundly beneficial effect on his public relations program. West Point became a historic and scenic destination for visitors, who then became a supportive national constituency.

West Point's early appearance was a reflection of the Academy's dual mission as teaching facility and military post. In the beginning the architectural character varied among the early buildings at the Academy. The Academic area, which contains the oldest remaining buildings on the post, is a mix of early nineteenth-century officers' quarters and mid-nineteenth-century Gothic style buildings situated in relationship to the Plain.

One of the first major episodes of construction or expansion occurred during the term of Major Richard Delafield, superintendent of the Academy from 1856 to 1861. Delafield is credited with adopting the style of architecture that dominates the Academy today. The Military Gothic style, rooted in English medieval architecture, constitutes a highly suitable aesthetic for military-academic purposes. It incorporates motifs such as castellated towers, battlements, and narrow windows, emphasizing the structure's defensive strength (Greenwood 1975). Other construction efforts at that time embraced the Gothic Revival cottage aesthetic popularized by A.J. Davis and A.J. Downing, although there are few surviving examples of this at West Point today.

A gradual expansion of the post occurred at the end of nineteenth century with the construction of buildings and residences of diverse style. The greatest expansion and construction program ever undertaken at West Point began at the turn of the twentieth century (HABS 1983). West Point and its graduates had successfully proven themselves on several battlefronts, and the U.S. Government sought to strengthen its appearance, acknowledging that reports stated that the facilities at West Point were not sufficient. Also, 1902 marked the Centennial of West Point, and in that year Congress, as perhaps a nod to West Point's role in American military history, appropriated a large sum for the enlargement of West Point's facilities (HABS 1983). That same year invitations to bid on the project were sent to ten architectural firms by Superintendent Albert L. Mills with several stipulations about the expectations of the winning design, among them the ability to create a sense of harmony with the present buildings, which included Neo-Classical and Military Gothic structures. Ultimately, the Gothic-style plan of Cram, Goodhue and Ferguson was chosen. This firm set the architectural tone for West Point in the twentieth century. With their first commission of several buildings in the Academic area, the firm's Military Gothic designs created the architectural cohesiveness West Point was looking for.

Throughout the twentieth century building campaigns have increased the facilities of West Point. As the number of cadets attending the Academy increased throughout the twentieth century, the faculty and their needs grew proportionally. A community of early to mid-twentieth-century houses with a suburban layout of cul-de-sacs and loops developed southwest of the Early Enlisted Men's area just north of the Academic area.

4.10.1.2 Status of Cultural Resource Inventories and NHPA Section 106 Consultations

The first official designation of the U.S. Military Academy as a National Historic Landmark occurred in 1960. It was then documented in a NRHP nomination in 1966, the year that the National Historic Preservation Act (NHPA) was signed into law. In 1975 the Historic Sites Survey developed a more detailed nomination of the West Point as a National Historic Landmark District (NHLD). As with many early official historic designations, the amount of accompanying documentation was limited and has been followed by successive rounds of cultural resource surveys and management plans responding to the evolving standards of preservation and cultural resource management practice.

The early designations established boundaries for a 2,000 acre NHLD which reflected the Hudson River on the east and Route 9-W with its traditional gates to the West Point on the west. The current size of the NHLD is 2,234 acres, which reflects the extension of the eastern boundary to include Constitution Island. Later studies reflected the need to address the potential for cultural resources in the entire 16,000 acre military reservation beyond the NHLD.

The "United States Military Academy, West Point Integrated Cultural Resources Management Plan: Revised Draft" of September 2007 (2007 ICRMP), prepared by Geo-Marine, Inc. is the latest management plan. It synthesizes and incorporates by reference the results of many years of previous cultural resource studies. A specific goal of the 2007 ICRMP was to "provide cultural resources-related guidance and support for BRAC actions, such as the movement of USMAPS from Fort Monmouth to West Point."

According to the 2007 ICRMP, cultural resources surveys, inventories, and assessments carried out as of 2006 at West Point have identified a wide range of historic properties, including:

- National Historic Landmark District
- Queensboro Furnace (National Register-listed)
- West Point Bullion Depository (National Register-listed; property of the U.S. Mint)
- 167 known archaeological sites (53 prehistoric and 114 historic)
- 334+ historic buildings
- 17 historic landscapes
- 35+ historic monuments and plaques (this number likely exceeds the 35 currently identified)
- 18 historic bridges
- 18 historic dams
- 14 cubic yards of artifacts and associated records (USMA, 2007d)

Although the great majority of the historic buildings and structures are located in the NHLD, the preponderance of archaeological sites is in the larger territory outside the NHLD. West Point is particularly rich in its inventory of less conventional historic built resources such as bridges, dams, and monuments. It is also a prime example of a complex of resources organized around traditional designed landscape and urban design frameworks. The concept of the “cultural landscape” as an organizing scheme for cultural resources, one that is particularly applicable to many Army posts with their recurring features parade grounds and barracks has gained ground in recent years. Studies of the West Point have played a key role in developing this concept.

Archaeological Investigations – From the late nineteenth century the West Point territory has been the subject of numerous archaeological investigation by avocationalists, academics, and cultural resources specialists. In Table D-1 of the 2007 ICRMP, nearly one hundred Archaeological Surveys, Probability Models, and Studies are listed. As of 2007, the coverage of West Point’s 14,500 acres which are available to terrestrial archaeology was estimated to be over 30%. Archaeological studies at West Point have now resulted in the identification of 223 sites of which 91 are NRHP eligible. The sites include prehistoric, Revolutionary War, early settlement, early industrial, multi-component, and unidentified historic sites. Cultural resources studies, including archaeological surveys and evaluations have increased in frequency as a consequence of more intensive Section 106 and 110 compliance efforts in support of various Range Control, Timber Harvesting, DPW, and Directorate of Military Instruction projects. The locations of archaeological sites are retained in West Point’s GIS but not shown on public documents with wide distribution (such as this EA) to avoid facilitating vandalism (USMA, 2007d).

Historic Built Environment Studies – As indicated above, the vast size of the West Point Military Reservation and its distinctive topography and natural setting have seemingly demanded the development of some organizing tool or tools based upon the spatial framework of the landscape and the placement of historic buildings and other features on it. Even the 2,234 acre NHLD (only about 14% of the total) constitutes an enormous historic district. Its boundaries were essentially defined by the original property acquisition and extend far beyond the obvious historic core formed by the buildings grouped around “the Plain” and extending up the encircling mountain at the actual point along the river. Constitution Island to the east is a critical component of the historic landscape. Also views and vistas from many vantage points (both part of the West Point property and not) on both sides of the river are of great significance (USMA, 2007d). The major study that has documented the cultural landscape of West Point is the one carried out by Suzanne Keith Loechl at the Army’s Civil Engineering Research Lab.

- Historic Landscape Management Plan for the U. S. Military Academy at West Point, New York. U.S. Army Corps of Engineers, Engineering Research and Development Center, CERL. Loechl et al., 2002.

The 2007 ICRMP indicates that there have been three inventories or reviews of contributing buildings within the NHLD:

- Historic Structures Inventory, United States Military Academy, West Point, New York. Historic American Building Survey/Historic American Engineering Record (HABS/HAER). Tompkins et al., NPS. 1984
- Research and Review of the 1984 Historic American Buildings Survey (HABS) Inventory, United States Military Academy, West Point, Orange County, New York. Nolte and Cinquino, Panamerican Consultants, Inc. 1999.
- National Historic Landmark District Nomination (Revised): United States Military Academy. Prior et al., Geo-Marine, Inc., Plano, Texas. 2002.

In 2000, as part of the preparation of the revised NHLD nomination form, Geo-Marine, Inc. developed a list of contributing, potentially contributing, and noncontributing properties to the NHLD (Prior et al. 2002). Although it did not comprehensively reassess buildings and structures was, numerous properties, including housing constructed in the 1930s and 1940s, were determined as contributing elements of the district and therefore NRHP eligible. It also proposed the extension of the NHLD boundaries to the portion of Constitution Island which is a part of the West Point territory on the eastern shore of the Hudson River.

The classification of Periods of Significance or Historic Context has varied somewhat in the various studies and management plans. The 2007 ICRMP uses the following contexts for the periods beginning with the American military presence at West Point: “War for American Independence Period” (1775–1783); “Establishment Period” (1783–1817); “The Thayer Period” (1817–1833); “The Civil War Era Period” (1833–1902); “The Centennial Revitalization Period” (1903–1930); “World War II-Era Expansion Period” (1930–1960); and “Vietnam War Expansion Period” (1961–1974).

Specialized investigations have also been carried out on the abundance of historic structures such as dams, bridges, and monuments at West Point. One of these was an historical and architectural investigation of West Point access gates (Washington Gate, Thayer Gate, Wilson Gate, Lee Gate, and Stony Lonesome Gate) and was prepared by Geo-Marine in 2004. The report documented the evolution of access gates from academy establishment through the construction of the most recent gate, Stony Lonesome Gate. Architectural studies focused on documenting the appearance and condition of each gate, NRHP evaluation of Thayer Gate, and HABS (Level I) documentation of Washington Gate.

- Historic and Architectural Investigation of Access Gates, United States Military Academy, New York. Prior et al. Geo-Marine, Inc. Plano, TX 2004.

The West Point has an active Cultural Resources Management Program. A draft proposed Programmatic Agreement intended for ratification in 2007 has been prepared and appended to the 2007 ICRMP. The status of knowledge of NRHP resources at West Point appears sufficient to allow the potential effects of construction projects and other activities that may constitute an undertaking be assessed in accordance with Section 106, NHPA.

4.10.1.3 Native American Resources

To date, no Native American or non Indian Traditional Cultural properties or Native American sacred sites have been identified at the project sites. Some federally recognized American Indian tribes may have a historical affiliation with the post regardless of the tribes’ present location. Therefore, consultation with remotely located tribes may be warranted. To carry out its Native American consultation responsibilities, in 2005, West Point signed a Memorandum of Understanding with the Stockbridge-Munsee Band of Mohican Indians of Wisconsin, which also represents the interest of the Munsee Delaware and Mohican tribes. West Point has initiated consultation with this nation during the preparation of the EA.

The current 2007 ICRMP contains a complete list of laws and procedures relating to American Indian patrimony which would be implemented in the event of an unanticipated discovery.

4.10.2 Environmental Consequences

Potential impacts to cultural resources have been evaluated based on the extent of resources that are eligible for or listed on the NRHP in the area. This analysis parallels the procedures for determining the effects of a Federal undertaking upon historic properties under 36 CFR 800 implementing Section 106 of the NHPA.

For each valid alternative in the EA, an assessment has been made of what NRHP resources, if any, are within its potential area of impact and the reasonably foreseeable nature and extent of any impact. Usually, Cultural Resource Management Plans and underlying historic architectural and archaeological studies for Federal installations provide sufficient data to make this assessment. Where such information is inadequate, the requirement for additional effort to identify historic properties is noted.

The following provides an explanation of the characterization of impacts to cultural resources as “no effect, not significant, and significant” in comparison with the terminology of “no effect, no adverse effect, and adverse effect” used in NHPA.

Section 106 Scale

Per 36 CFR 800.11 (i) *effect* means alteration to the characteristics of a historic property that qualify it for inclusion or eligibility for the National Register. Per 36 CFR 800.5 (a) (1), the effect becomes *adverse* when “an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association.” Examples of adverse effects include: the physical destruction of all or part of the historic property; an alteration of the property that is not consistent with the Secretary of Interior’s Standards for the Treatment of Historic Properties (36 CFR 68); the removal of the property from its historic setting; changing the character of the property’s use or of the physical features of its setting that contribute to its significance; and the introduction of visual, aural, and atmospheric elements that diminish the integrity of the property’s significant historic features.

Environmental Impacts to Cultural Resources vs. the Section 106 Scale

No Effect – This equates to *no effect* for Section 106.

Not Significant Effect – An impact that alters or has the potential to alter the historic characteristics or setting of an NRHP property but does not diminish its integrity. This equates to *no adverse effect* for Section 106.

Significant Effect – An impact that diminishes or destroys the integrity of an NRHP property. This equates to *adverse effect* for Section 106; however, consultation measures taken under Section 106 can assure the effect is minimized or mitigated such that the effect is not significant for purposes of NEPA.

In the practice of Section 106 consultation, adverse effects can often, but not always, be mitigated, when the loss of integrity of the NRHP resource is justified, balanced against other competing interests. The results of the consultation process are usually memorialized in a Section 106 Memorandum of Agreement containing mitigation stipulations. Neither the initial identification of a potential significant impact to cultural resources nor a determination of adverse effect under Section 106 necessarily precludes a FNSI under NEPA. The loss of NRHP cultural resources would have to be major in scale and importance and without any acceptable feasible mitigation measures to negate a FNSI.

4.10.2.1 No Action Alternative Consequences

There would be no adverse effect under Section 106 of the National Historic Preservation Act upon any built environment, or archaeological resources on or eligible for the National Register of Historic Places. There would be no adverse effect upon any American Indian traditional Cultural properties or sacred sites.

4.10.2.2 Alternative 1 WGE Consequences

Archaeological Resources – USMAPS Washington Gate Site: It should be noted that the term “Washington Gate Site” refers to the site below the Washington Gate and centered on the current DOL Motor Pool for which the three alternatives for siting the USMAPS campus within the NHLD have been developed, not the site of the Washington Gate structures themselves. Although much of the future USMAPS complex would be built on the previously disturbed DOL Motor Pool facilities, including on landfill, all three alternatives require construction upon apparently undisturbed land, particularly to the south. An area to the south, east, and north of the DOL Motor Pool facilities which encompasses the layouts of all three alternatives for the development of USMAPS below Washington Gate was included as Task Four in a 2006 Phase I Cultural Resource Survey carried out by Alexander Archaeological Consultants (AAC), Mary F. Trudeau, principal investigator. The study concluded that:

The Preparatory School Section contains one (1) previously unrecorded site, A07109.001062. Site A07109.001062, an undifferentiated prehistoric lithic scatter, does not warrant nomination to the NRHP under Criterion D and therefore AAC does not recommend further investigation of this site. (Trudeau, 2006)

This conclusion was accepted in an April 11, 2006 letter from NYSOPRHP. Therefore, the construction of USMAPS under any of the Washington Gate site alternatives would have no effect upon NRHP eligible archaeological resources.

Archaeological Resources - DOL Motor Pool (TA-V/W): TA-V/W, where the new DOL Motor Pool would be located, correspond to two study areas (H and I) that were surveyed in September 1998 as documented in the Long Pond- North Stilwell-Chippewa Range Timber Harvest Phase I Cultural Resources Survey that was reviewed and concurred with by the SHPO. The survey identified several sites that were potentially eligible for the NRHP and recommended buffer zones of 50 feet from the edges of each so that they could be avoided. Alternatively the sites could be excavated in a Phase II archaeological investigation that would determine their NRHP eligibility and boundaries. One site in Area H, PCI/WP Site-13, a small prehistoric lithic workshop, would be covered by the northernmost paved vehicular area at the intersection of Route 293 and Mine Torne Road, as shown on the DOL Motor Pool site plan. It appears that the layout of the vehicle parking area could be reconfigured to avoid the protected archaeological site as represented by the buffer zone. Again, further archaeological investigation of PCI/WP Site-13 is also an option. In either case, consultation with NYSOPRHP under Section 106 of NHPA would be required. At the current planning level stage and following the procedures identified above, which are also required by the West Point ICRMP, there would be No Significant Effect for archaeology.

Archaeological Resources – Secondary Refueling Station: The Secondary Refueling Station would be built in a previously disturbed area of no potential for archaeological resources.

Historical Built Environment – USMAPS Washington Gate Site: The Washington Gate Site lies just within the NHLD below the Washington Gate. The existing DOL Motor Pool site, which would be the focus of USMAPS construction, is composed of extensive hardstand and utilitarian structures. Six NHLD non-contributing buildings would have to be demolished to clear the site. Although the old motor pool complex has no historic significance in itself and is nowhere near West Point’s historic core, the Plain, it is adjacent to the Washington Road scenic and historic corridor, so the new USMAPS complex may have an effect upon the contributing “roadways” element of the Historic Landscape Management Plan. The Washington Gate, Building 711, and Washington Gate Comfort Station, Building 729, were built in 1942 and 1943 respectively and are contributing to the NHLD. The former has a symbolic importance as one of the major entrances to the NHLD. The new 250,000 gallon Water Tank that would be built 700 feet above the USMAPS Washington Gate site is adjacent to Building 748, which has not yet been evaluated for the NRHP; however, the construction of the tank is very unlikely to have a significant impact. Construction of the new facilities in keeping with the Installation Design Guidelines will ensure that they have no adverse effect under Section 106, NHPA and therefore, there would be no significant effect.

Historical Built Environment - DOL Motor Pool (TA-V/W): The site is well outside the NHLD and there are no adjacent NRHP eligible buildings, structures, landscapes, or objects. There would be no effect for the historic built environment.

Historical Built Environment – Secondary Refueling Station: Although located within the NHL, the Secondary Refueling Station and its associated two Underground Storage Tanks would be built at the center of an existing paved industrial area, surrounded on three sides by non NRHP eligible structures, and screened from the Washington Road scenic corridor by trees and distance. There would be no effect on the historic built environment.

Native American Resources – USMAPS Washington Gate Site and DOL Motor Pool (TA-V/W): With no known Traditional Cultural Properties at the project site and procedures in place in the event of any issue unexpectedly arising, there would be no effect to Native American resources from implementation of Alternative 1.

4.10.2.3 Alternative 2 WG B Consequences

Under Alternative 2, impacts to cultural resources would be similar to Alternative 1.

4.10.2.4 Alternative 3 WG 15% Design Consequences

Under Alternative 3, impacts to cultural resources would be similar to Alternative 1.

4.10.2.5 Alternative 4 LF 2a Consequences

Archaeological Resources – Lake Frederick Site: Alternative 4 has the potential to impact historic archaeological resources connected with the early twentieth century estate, “Proctoria”, owned by Frederick F. Proctor, the “Dean of Vaudeville”, once an extensive complex of buildings west of the lake. The West Point DPW contracted with Alexander Archaeological Consultants (AAC) in 2007 to carry out a Phase I Archaeological Reconnaissance Survey of 120.8 acres roughly corresponding to the potential USMAPS site. (The development of the two conceptual site plans represented by Alternatives 4 LF 2a and 4 LF 2b took place after the initiation of the archaeological study). An August 2008 “End of Fieldwork Report” prepared by Mary F. Trudeau of AAC indicates the location of 14 archaeological isolates associated with the Proctor estate within the project area (Trudeau, 2008). In an August 12, 2008 memorandum to DPW, Ms. Trudeau indicated that the information on the Phase I isolates would be submitted to NYSOPRHP for consideration as an archaeological district. If the concept of an archaeological district associated with the Proctoria estate is accepted, it is likely that NYSOPRHP will require further investigation to insure that any NRHP eligible archaeological resources are avoided or mitigated. The location of the isolates that were mapped within the project area does not overlay the footprints of the major buildings in either conceptual USMAPS site plan, however, this is a preliminary finding. Based upon current Phase I information, there would be no significant effect for archaeology under Alternative 4.

Historical Built Environment – Lake Frederick Site: Alternative 4 would require demolition of the NRHP eligible Building 1848, built in 1909, now the known as the Caretaker’s Building. Consultation with the NYSOPRHP would be required under Section 106 of NHPA to avoid, minimize, or mitigate adverse effect. It may be anticipated that the NYSOPRHP would request justification for not seeking an alternate solution with regard to the historic building such as incorporating it into the plans for USMAPS. Measures taken after consultation, including potential mitigation, would assure effects are not significant for purposes of NEPA. If one of the Lake Frederick alternatives is ultimately selected for implementation, the idea of trying to incorporate an adaptive reuse for the Caretaker's Building into the overall design for the new USMAPS campus may be examined more closely in cooperation with concluding the Section 106 process, understanding that mission requirements remain a primary concern for the implementation of the proposed action.

Native American Resources – Lake Frederick Site: Same as Alternative 1, there would be no effect to Native American Resources under Alternative 4.

4.10.2.6 Alternative 5 LF 2b Consequences

Archaeological Resources – Lake Frederick Site: Similar to Alternative 4, under Alternative 5, the location of the Phase I isolates that were mapped within the project area does not overlay the footprints of the major buildings in either conceptual USMAPS site plan, however, this is a preliminary finding. Based upon current Phase I information, there would be no significant effect for archaeology under Alternative 5.

Historical Built Environment – Lake Frederick Site: Alternative 5 would not require demolition or alteration of historic buildings. Therefore, there would be no effect.

Native American Resources – Lake Frederick Site: Same as Alternative 1, there would be no effect to Native American Resources under Alternative 5.

4.10.2.7 VETCOM Consequences

Archaeological Resources: As an interior renovation and a second story rear addition there would be no effect for archaeology.

Historical Built Environment: The existing VTF or Building 630 is contributing to the West Point NHL. It would be renovated and a second story rear addition constructed. Consultation with NYSOPRHP would be required prior to construction under Section 106 of NHPA to avoid, minimize, or mitigate adverse impact to Building 630.

Native American Resources: With no known Traditional Cultural Properties at the project site and procedures in place in the event of any issue unexpectedly arising, there would be no effect to Native American resources from implementation of VETCOM.

4.11 SOCIOECONOMICS

4.11.1 Affected Environment

The socioeconomic ROI for the installation is located in West Point, New York in Orange County and comprises the area in which the predominant socioeconomic effects of the Proposed Action would take place. The geographical extent of the ROI is based on the residential distribution of the installation's military, civilian, and contracting personnel and the location of businesses that provide goods and services to the installation and its employees.

The baseline year for the socioeconomic analysis is 2007, although much of the economic and demographic data for the ROI are only available through the years 2005 and 2006. The descriptions of the affected environment are based on the most recent data available to accurately reflect the current economic and social conditions of the ROI. Due to the fact that the estimated incoming personnel is very small in number, this section will only briefly overview regional economic activity and demographic data and trends.

4.11.1.1 Economic Development

Regional Economic Activity: West Point is situated in the Hudson Valley, a developed regional economy approximately one hour north of New York City. The ROI's regional economy is dominated by non-farm industries such as retail, health care and social services, and government and government enterprises. These sectors provide just over 48% of jobs in the region. The construction, manufacturing, administration and waste services, accommodation and food services, and technical and professional services sectors represent moderate contributions to the local economy, or 25.3% of jobs in the ROI. Farm jobs in Orange County contributed only 1,425 out of the 179,734 jobs recorded in 2006 (USBEA, 2006a).

There are 178,377 people in the labor force in the ROI. At 4.3% in 2007, the unemployment rate for the ROI is below that of the national unemployment rate of 4.6%. It is also below New York State's unemployment rate of 4.5%. The ROI annual unemployment rate has increased by about 26% from a low of 3.4% in 2000. (USBLS, 2007a, 2007b)

Installation Contribution to the Local Economy: During Fiscal Year 2006 (FY06), West Point supported 5,466 military (including cadets and enlisted soldiers), 2,532 civilian, 667 contracted personnel, and 1,296 tenants (Sturtz, 2007c). The total installation population including retirees living within a 60 mile radius of the campus, and full-time personnel is 117,426 and employment at West Point and accounts for between 5 and 6.7% of all ROI employment.

4.11.1.2 Demographics

The most recent Census Bureau estimates indicate that the ROI's population has reached 377,169 inhabitants in 2007. Orange County's population is the 12th most populous county in New York State and has had the second fastest rate of growth (22.6%) in the state since 1990. (Stats Indiana, 2007a). Population data for New York and the United States are also provided in Table 4-11 for comparison purposes.

Table 4-11: ROI Population Growth 1980 -2007

Location	1980	1990	2000	2007
Orange County	259,603	307,571	341,367	377,169
New York	17,558,165	17,990,778	18,976,457	19,297,729
United States	226,542,250	248,790,925	281,421,906	301,621,157

Source: Stats Indiana 2007a, 2007b

4.11.1.3 Housing

Characteristics of the ROI housing stock are summarized in Table 4-12, which estimates for 2006 both owner-occupied and renter-occupied homes, along with median home values. The housing units identified in the table include all structure types (e.g., single-family homes, apartments, and mobile homes). As shown in Table 4-12, the 2007 median value of owner-occupied housing units in the ROI exceeds the 2007 national median value of \$185,200 by over \$100,000 (US Census, 2006).

Table 4-12: Housing Characteristics for Orange County

	Orange County
Total Housing Units	132,983
Occupied Housing Units	121,887
Owner-occupied	85,306
Renter-occupied	36,581
Vacant Housing Units	11,096
Median Home Value (Owner-occupied)	\$319,300

Source: U.S. Census 2006

4.11.1.4 Quality of Life

Quality of Life refers to those amenities available to the installation's military personnel, their dependents, and civilian employees and which contribute to their well being. The relative importance of these amenities to a person's well-being is subjective (e.g., some individuals consider educational opportunities essential to their well-being, others may place a high value on the availability of health care services, and still others may hold public safety as their primary quality-of-life concern). BRAC quality-of-life analyses typically address issues relating to potential impacts of the proposed action on the availability of public services and leisure activities that contribute to quality of life of the affected installation's workforce and their dependents. For purposes of this study, the affected environment for quality of life includes schools for DoD dependents, family support services, medical facilities, shops and services, and recreational opportunities.

Health Care Facilities: There are numerous health care services available throughout the ROI. In addition to a variety of clinics and other healthcare providers, there are two major hospitals in Orange County: Arden Hill Hospital and St. Luke's Hospital. The Cornwall Hospital is about 5 miles from West Point, and the Hudson Valley Hospital is approximately 11 miles away in Peekskill, NY.

Law Enforcement and Fire Protection: There are 48 fire departments in Orange County and there are over 39 law enforcement agencies that have offices within Orange County that serve the whole ROI.

West Point has a mutual aid agreement with Orange County, New York for mutual aid for fire/rescue/hazardous materials response/weapons of mass destruction response. West Point operates its own Military Police/ Provost

Marshal Department and operates its own Fire and Rescue service. This includes a satellite fire station along Route 293 that provides response to the training areas.

Educational Services for DoD Dependents: The U.S. Department of Education provides federal impact aid to school districts that have federal lands within their jurisdiction. This federal impact aid is authorized under Public Law 103-282 as payment in lieu of taxes that would have been paid if the land were not held by the federal government. School districts receive federal impact aid for each federally connected student whose parent or parents live on or work on federal property. The amount of federal impact aid a school receives is dependent on the number of “federal” students the district supports in relation to the total district student population. Schools received more federal impact aid for those students whose parents both live and work on federal property. Total federal impact aid varies year by year according to congressional appropriations for the program, but in general federal impact aid has ranged from \$250 to \$2,000 per student.

Schools: There are 18 independent school districts within Orange County. During the 2005-2006 school year, over 66,000 students were enrolled in Orange County’s 93 schools (NCES 2007). At West Point itself, there are two schools: the West Point Elementary School and West Point Middle School.

Family Support Services: The Child Care Council of Orange County, a voluntary and non-profit organization, assists families in identifying child care resources throughout the ROI. The Council offers free advertising for child care professionals and provides referrals to employers who want to assist their employees in identifying suitable child care options.

4.11.1.5 Environmental Justice

On February 11, 1994, President Clinton issued Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*. The Executive Order is designed to focus the attention of federal agencies on the human health and environmental conditions in minority communities and low-income communities. Environmental justice analyses are performed to identify potential disproportionately high and adverse impacts from proposed actions and to identify alternatives that might mitigate these impacts. Data from the U.S. Department of Commerce 2000 Census of Population and Housing were used for this environmental justice analysis. Minority populations included in the census are identified as Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and other Pacific Islander, Hispanic, of two or more races, and other. Poverty status, used in this EA to define low-income status, is reported as the number of persons with income below poverty level. The 2000 Census defines the poverty level as \$8,794 of annual income, or less, for an individual, and \$17,603 of annual income, or less, for a family of four.

In 2006, the median household income was \$64,947 for Orange County residents compared to \$51,384 for the State of New York (U.S. Census 2006). The poverty rate for Orange County in 2005 was 10.5%; this was less than the national poverty rate of 13.3%, and less than New York State’s poverty rate of 13.9% (Stats Indiana 2007c). In 2007, the total population of Orange County was 377,169 and was comprised of the following ethnic groups: 85% white, 10.6% black, 2.4% Asian, 0.5% American Indian/Alaskan Native, 0.1 percent Hawaiian Native/Pacific Islander and 15.9% Hispanic. The elderly accounted for 9.8% of the population (Stats Indiana, 2007d).

4.11.1.6 Protection of Children

On April 21, 1997, President Clinton issued Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*. This Executive Order directs each federal agency to ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health risks or safety risks. EO 13045 recognizes that a growing body of scientific knowledge demonstrates that children may suffer disproportionately from environmental health risks and safety risks. These risks arise because children’s neurological, immunological, digestive, and other bodily systems are still developing; children eat more food, drink more fluids, and breathe more air in proportion to their body weight than adults; children’s size and weight may diminish their protection from standard safety features; and children’s behavior patterns make them more susceptible to accidents because they are less able to protect themselves. Therefore, to the extent permitted by law and appropriate, and consistent with the agency’s mission, President Clinton directed each federal agency to (1) make it a high priority to identify and assess environmental health risks and safety risks that may

disproportionately affect children, and (2) ensure that the agency's policies, programs, and standards address disproportionate health risks to children that result from environmental health risks or safety risks. Examples of risks to children include increased traffic volumes and industrial or production-oriented activities that would generate substances or pollutants children might come into contact with or ingest. Actions or alternatives indicating potential disproportionate risks to children will be identified and addressed in Section 4.11.2 of this EA.

4.11.2 Environmental Consequences

EIFS Model Methodology: The economic impacts of implementing the Proposed Action are estimated using the EIFS model, a computer-based economic tool that calculates multipliers to estimate the direct and indirect impacts resulting from a given action. Changes in spending and employment associated with the renovation of housing represent the direct impacts of the action. Based on the input data and calculated multipliers, the model estimates changes in sales volume, income, employment, and population in the ROI, accounting for the direct and indirect impacts of the action.

For purposes of this analysis, a change is considered significant if it falls outside the historical range of ROI economic variation. To determine the historical range of economic variation, the EIFS model calculates a rational threshold value (RTV) profile for the ROI. This analytical process uses historical data for the ROI and calculates fluctuations in sales volume, income, employment, and population patterns. The historical extremes for the ROI become the thresholds of significance (i.e., the RTVs) for social and economic change. If the estimated impact of an action falls above the positive RTV or below the negative RTV, the impact is considered to be significant.

The analysis is conducted on an annual basis and therefore an estimate for peak year funding is necessary. EIFS Models for construction spending and incoming personnel were run separately because the impacts would not coincide. The peak year for construction impacts would be 2010 under Alternatives 1, 3, 4, and 5 and 2011 for Alternative 2, which delays barracks construction until 2011. Note that total construction costs for Alternatives 1, 2, and 3 are spread across three years while those for Alternatives 4 and 5 are spread over only two years. Thus peak year costs for Alternatives 4 and 5 are greater, even though total construction costs for Alternatives 1, 2, and 3, which include the DOL relocation, are greater. The peak year for incoming personnel would occur after construction is completed. Additionally, the 240 incoming candidate cadets were not counted in the EIFS model; given their student status they are not likely to contribute significantly to economic impacts.

Appendix C discusses this methodology in more detail and presents the model input and output tables developed for this analysis.

Impacts to socioeconomics were identified using the following criteria:

No Effects – No change to socioeconomic conditions.

Not Significant Effect – A change that does not fall outside the historic range of ROI economic variation.

Significant Effect – A change is considered significant if it falls outside the historical range of ROI economic variation.

4.11.2.1 No Action Alternative Consequences

No direct or indirect effects would be expected. Under the No Action Alternative, the installation working population and installation expenditures would remain unchanged from baseline levels and no new construction would take place. Therefore, economic activity levels and ROI population growth would be the same as under the baseline conditions. In addition, there would be no disproportionately high and adverse impacts to minority or low income populations. Hence, the No Action Alternative would not result in any environmental justice impacts.

4.11.2.2 Alternative 1 WGE Consequences

Economic Development – USMAPS Washington Gate Site and DOL Motor Pool (TA-V/W): Minor direct and indirect benefits would be expected due to construction for Alternative 1. In 2010, an estimated \$71,000,000 would be spent on construction generating an additional \$152,650,000 in induced spending. This increase in

spending would represent a 2.82% increase in the region's sales volume, a minor beneficial impact that falls short of the region's positive RTV value of 13.14%. Alternative 1 would also generate minor positive changes in other economic indicators measured by the EIFS model, including a 0.58% increase in income and 0.79% increase in employment. Tables 4-13, 4-14, and 4-15 provide summaries of the EIFS model inputs, outputs, and RTV values respectively for construction.

Table 4-13: West Point – Forecast Input

Forecast Input	
Change In Local Expenditures (Peak Year)	\$71,000,000
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	0
Average Income of Affected Military	\$0
Percent of Military Living On-post	0

Table 4-14: EIFS Report for West Point – Forecast Output

Forecast Output		
Employment Multiplier	3.15	
Income Multiplier	3.15	
Sales Volume – Direct	\$71,000,000	
Sales Volume – Induced	\$152,650,000	
Sales Volume – Total	\$223,650,000	2.82 %
Income – Direct	\$14,341,210	
Income – Induced	\$30,833,600	
Income – Total (place of work)	\$45,174,800	0.58%
Employment – Direct	372	
Employment – Induced	800	
Employment – Total	1172	0.79%
Local Population	0	
Local Off-base Population	0	0%

Table 4-15: EIFS Report for West Point – RTV Summary

RTV Summary				
	Sales Volume	Income	Employment	Population
Positive RTV	13.14%	11.4 %	2.97 %	1.01 %
Negative RTV	-6.02 %	-4.58 %	-3.64 %	-0.69 %

Incoming civilian and military personnel would be expected to relocate to the ROI once construction is complete. There are 33 military and 40 civilian personnel expected to relocate to the ROI. The beneficial economic impacts to the ROI resulting from this relocation would be minor. The change in personnel would generate a 0.12% increase in sales volume and a 0.08% increase in personal income. The EIFS model run detailing the impacts from personnel changes after construction can be found in Appendix C.

The socioeconomic impacts in the EIFS model calculations for the Washington Gate Alternatives include the DOL Motor Pool relocation, Secondary Refueling Station, and VETCOM, whose construction costs are included in these projects.

Demographics – USMAPS Washington Gate Site and DOL Motor Pool (TA-V/W): No negative direct and indirect effects would be expected. Under Alternative 1, the ROI population would increase by 0.06%, and this is below the historical RTV value of 1.01%. Additionally, there would be no negative effects on housing, as the increased population represents less than 1% of existing housing supply.

Environmental Justice – USMAPS Washington Gate Site and DOL Motor Pool (TA-V/W): No effects would be expected. Implementation of Alternative 1 would not result in significant adverse impacts to any demographic group residing or working in the economic ROI. Therefore, there would be no disproportionately high and adverse impacts to minority or low income populations. Hence, the alternative would not result in any environmental justice impacts.

No effects would be expected to the protection of children. The alternative would not result in significant adverse impacts to any children residing or working in the economic ROI.

Quality of Life and Public Services – USMAPS Washington Gate Site and DOL Motor Pool (TA-V/W): No negative effects would be expected for the Alternative. Under the Proposed Alternatives, the school age population would increase by up to 42 students. The 93 schools in Orange County should be able to absorb this addition in population. No effects to other public services including fire protection would be expected.

4.11.2.3 Alternative 2 WG B Consequences

Economic Development – USMAPS Washington Gate Site and DOL Motor Pool (TA-V/W): Minor direct and indirect benefits would be expected due to construction for Alternative 2. In 2011, \$77,000,000 would be spent on construction generating an additional \$165,550,000 in induced spending. This increase in spending would represent a 3.06% increase in the region's sales volume, a minor beneficial impact that falls short of the region's positive RTV value of 13.14%. Alternative 2 would also generate minor positive changes in other economic indicators measured by the EIFS model, including a 0.63% increase in income and 0.86% increase in employment. Tables 4-16 and 4-17 provide summaries of the EIFS model inputs, outputs, and RTV values respectively for construction.

Incoming civilian and military personnel would be expected to relocate to the ROI once construction is complete. There are 23 military and 40 civilian personnel expected to relocate to the ROI. The beneficial economic impacts to the ROI resulting from this relocation would be minor. The change in personnel would generate a 0.12% increase in sales volume and a 0.08% increase in personal income. The EIFS model run detailing the impacts from personnel changes after construction can be found in Appendix C.

The socioeconomic impacts in the EIFS model calculations for the Washington Gate Alternatives include the DOL Motor Pool relocation, Secondary Refueling Station, and VETCOM, whose construction costs are included in these projects.

Table 4-16: West Point – Forecast Input

Forecast Input	
Change In Local Expenditures (Peak Year)	\$77,000,000
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	0
Average Income of Affected Military	\$0
Percent of Military Living On-post	0

Table 4-17: EIFS Report for West Point – Forecast Output

Forecast Output		
Employment Multiplier	3.15	
Income Multiplier	3.15	
Sales Volume – Direct	\$77,000,000	
Sales Volume – Induced	\$ 165,550,000	
Sales Volume – Total	\$ 242,550,000	3.06%
Income – Direct	\$ 15,553,140	
Income – Induced	\$ 33,439,250	
Income – Total (place of work)	\$ 48,992,390	0.63%
Employment – Direct	404	
Employment – Induced	868	
Employment – Total	1272	0.86%
Local Population	0	
Local Off-base Population	0	0%

The potential impacts to demographics, environmental justice, quality of life, and public services from implementation of Alternative 2 would be similar as those described for Alternative 1.

4.11.2.4 Alternative 3 WG 15% Design Consequences

Economic Development – USMAPS Washington Gate Site and DOL Motor Pool (TA-V/W): Minor direct and indirect beneficial effects would be expected from Alternative 3. In 2010, \$80,000,000 would be spent on construction, generating an additional \$172,000,000 in induced spending. This increase in spending would represent a 3.18% increase in the region’s sales volume, a minor beneficial impact that falls short of the region’s positive RTV value of 13.14%.

Construction for Alternative 3 in 2010 would generate 419 direct and 902 induced jobs for a total of 1,321 jobs in the economic ROI. This increase in employment would represent a 0.89% increase in the region’s employment levels and would fall far short of the positive RTV Value of 2.97% to make any significant positive difference. It should be noted that the increased employment and any other economic benefits associated with construction would only be temporary and would be spread out over the project lifespan. Overall, the increases in economic

activity are very minor, and do not exceed the positive RTV values for their respective categories. Tables 4-18 and 4-19 provide summaries of the EIFS model inputs, outputs, and RTV values respectively for construction.

Incoming civilian and military personnel would be expected to relocate to the ROI once construction is complete. The beneficial economic impacts to the ROI resulting from this relocation would be minor. The change in personnel would generate a 0.12% increase in sales volume and a 0.08% increase in personal income. The EIFS model run detailing the impacts from incoming personnel after construction can be found in Appendix C.

Table 4-18: West Point – Forecast Input

Forecast Input	
Change In Local Expenditures (Peak Year)	\$80,000,000
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	0
Average Income of Affected Military	\$0
Percent of Military Living On-post	0

Table 4-19: EIFS Report for the West Point – Forecast Output

Forecast Output		
Employment Multiplier	3.15	
Income Multiplier	3.15	
Sales Volume – Direct	\$80,000,000	
Sales Volume – Induced	\$172,000,000	
Sales Volume – Total	\$252,000,000	3.18%
Income – Direct	\$16,159,110	
Income – Induced	\$34,742,080	
Income – Total (place of work)	\$50,901,180	0.66%
Employment – Direct	419	
Employment – Induced	902	
Employment – Total	1321	0.89%
Local Population	0	0
Local Off-base Population	0	0%

The potential impacts to demographics, environmental justice, quality of life, and public services from implementation of Alternative 3 would be similar as those described for Alternative 1.

4.11.2.5 Alternative 4 LF 2a Consequences

Economic Development – Lake Frederick Site: Minor direct and indirect benefits would be expected due to construction for Lake Frederick Option 2a. In 2010, \$103,000,000 would be spent on construction, generating an additional \$221,450,000 in sales volume. This increase in spending would represent a 4.09% increase in the region’s sales volume, a minor beneficial impact that falls short of the region’s positive RTV value of 13.14%.

Lake Frederick Option 2a would also generate minor positive changes in other economic indicators measured by the EIFS model, including a 0.85% increase in income and a 1.15% increase in employment. Tables 4-20 and 4-21 provide summaries of the EIFS model inputs, outputs, and RTV values respectively for construction.

Incoming civilian and military personnel would be expected to relocate to the ROI once construction is complete. The beneficial economic impacts to the ROI resulting from this relocation would be minor. The change in personnel would generate a 0.12% increase in sales volume and a 0.08% increase in personal income. The EIFS model run detailing the impacts from personnel changes after construction can be found in Appendix C.

Table 4-20: West Point – Forecast Input

Forecast Input	
Change In Local Expenditures (Peak Year)	\$103,000,000
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	0
Average Income of Affected Military	\$0
Percent of Military Living On-post	0

Table 4-21: EIFS Report for the West Point – Forecast Output

Forecast Output		
Employment Multiplier	3.15	
Income Multiplier	3.15	
Sales Volume – Direct	\$103,000,000	
Sales Volume – Induced	\$ 221,450,000	
Sales Volume – Total	\$ 324,450,000	4.09%
Income – Direct	\$ 20,804,850	
Income – Induced	\$ 44,730,420	
Income – Total (place of work)	\$ 65,535,270	0.85%
Employment – Direct	540	
Employment – Induced	1161	
Employment – Total	1701	1.15%
Local Population	0	
Local Off-base Population	0	0%

The potential impacts to demographics, environmental justice, and quality of life from implementation of Alternative 4 would be similar as those described for Alternative 1. At the Lake Frederick site, local or state police may have jurisdictional authority and would require coordination with the appropriate authorities. A satellite fire station would be relocated from Route 293 to Lake Frederick to ensure adequate service at the USMAPS campus.

4.11.2.6 Alternative 5 LF 2b

The potential impacts to economic development, demographics, environmental justice quality of life, and public service from implementing Alternative 5 would be the same as those described for Alternative 4.

4.12 TRANSPORTATION

4.12.1 Affected Environment

The current DOL Motor Pool is located near the Washington Gate at the site for the proposed USMAPS (Alternatives 1, 2, and 3). Among other facilities and capabilities pertinent to its mission, DOL Motor Pool has four 10,000 gallon tanks - two for diesel fuel and two for regular gasoline. The DOL fueling site serves two distinct sets of “clients” – the Motor Pool and the DPW.

DPW is DOL Motor Pool’s largest customer, with 1,172 pieces of equipment ranging from backhoes, fork lifts, loaders, and dump trucks to chainsaws and weed trimmers used for construction and land and ground maintenance (Rizzo, 2007 & 2008). All require intermittent refueling, some from gas cans, some directly from the pumps. Maintenance emphasis is on the cantonment portion of the reservation. DPW equipment is restricted to on-post use, and therefore has no impact on traffic off-post.

The Motor Pool is responsible for 376 Non-Tactical vehicles including buses, trucks, vans, and sedans, and 252 Tactical Vehicles/ equipment (not included in the equipment counts above). No personal vehicles may be fueled or maintained by DOL Motor Pool; most vehicles are housed and dispatched by the facility. DOL Motor pool vehicles are used both on and off the Post for training as well as general transportation.

The fueling station pumps are staffed from 07:45 to 16:30 hours when most activity takes place; after hours DOL Motor Pool staff must be summoned to unlock the pumps. All fueling records are maintained by an electronic register directly linked to the accounting system. DOL Motor Pool reports an average of approximately 50 transactions per day during normal operating hours.

Alternatives 4 and 5 are located near Lake Frederick off Smith Clove Road. This area is currently used as a camping and drop site.

4.12.1.1 Roadways and Traffic

The Hudson River borders West Point to the east. Six major highways serve the West Point area. Direct access to the Main Cantonment is by US Route 9W and NY Route 218. Interstate 84 is approximately 15 miles north of the Main Cantonment. Interstate 87 (I-87) is 9 miles west of the Main Cantonment. US Route 6 lies south of the reservation. It provides an east-west connection between I-87 (and points west) and US Route 9W and the Palisades Interstate Parkway (PIP or 987C) to the east. PIP begins 5 miles south of the Main Cantonment and leads to Interstate 287 (I-287, New York State Thruway). East of the Parkway on I-287 is the Tappan Zee Bridge, which provides access to New York City. West of the PIP on I-287 is the terminus for the Garden State Parkway.

The Lake Frederick site is most directly accessed from I-87, exiting west on Route 17, proceeding north on Route 32 to Smith Clove Road. Woodbury Commons, a major outlet mall is accessed via Route 32 directly north of Route 17, from the section of roadway that includes four through lanes (two in each direction) and a center turn lane.

New York State Department of Transportation performs and publishes periodic counts on roads throughout the state. The following selected Annual Average Daily Traffic (AADT) from the most current NYDOT counts available on-line as of June 2007 provide a snapshot of the relative volumes of the most significant roadways for West Point (Table 4-22). The current estimated AADT is provided; ** indicate that NYDOT has developed the estimate based on previous volumes and counts at nearby stations. Dates in parentheses indicate the year of the most recent count for such locations (NYDOT, 2007). Note that the detailed traffic count reports accessed in September, 2008 are the same as those accessed in 2007. For 2008, NYDOT is transitioning to a GIS-based visual display (NYDOT, 2008). Estimated AADTs derived from the Traffic Data Viewer (TDV) map function are provided in the final column of Table 4-23.

Table 4-22: Annual Average Daily Traffic Counts for West Point Roads

Route	Section Length	Count Station Number	Section End Description	Latest Count	
				YEAR	AADT
218	1.29	568	Washington Rd.	** (2004)	4,750
218	0.76	567 CC	End 9W Loop	2005	16,240
293	6.82	0570	Rt 9W 218 – end 293	2005	3,270
6	3.05	0027	Rt 293 Start	2005	27,080
9W	0.76	0567 CC	End 218	2005	16,240
I-84	1.59	0001	Acc Routes 32 & 9W	** (2002)	63,800
I-87	9.93	0100	Inter 16 Rts 6 & 17	2005	92,840
PIP	2.20	0029	Jct 9W 202 End 6	** (2004)	16,900

Table 4-23: Annual Average Daily Traffic Counts for West Point Roads Pertaining to the Lake Frederick Alternatives

Route	Section Length	Start Description	End Description	AADT per 2003 Volume Report	AADT per TDV
17	0.59	End of Rt. 6	Rt. 32	44,682	27,500
32	1.32	Rts. 6 & 17	Smith Clove Road CR9	20,826	19,390
Smith Clove Rd CR 9	3.04	RR Bridge	CR 34	4,570	No data

4.12.1.2 Installation Transportation

US Route 9W is a major divided state highway, which runs roughly north-south for 3.5 miles through the West Point Military reservation. There are approximately 16 miles of paved secondary roads that provide access within the reservation, including NY Route 293, which traverses the reservation from southeast to northwest. In addition, there are approximately 60 miles of unimproved roads that provide access to all of the training areas and ranges.

The roads on the Main Cantonment were developed in response to the topography of the land as well as the historic and scenic nature of the area. All roads on West Point are hard-surfaced with designed drainage. Traffic circulates throughout the Academy cantonment area primarily by means of a curving, continuous roadway consisting of Mills Road and Washington Road. This roadway runs from Thayer Gate on the Southeast of the installation to Washington Gate. Merritt Road provides parallel capacity from the center of the reservation to Washington Gate. The more heavily used spines include Thayer Road as well as Washington Road. Stony Lonesome Road provides access to the new Post Exchange (PX) complex and commissary, and to the Stony Lonesome Gate that restricts access from Route 9W. Figure 4-27 displays the road network for the cantonment area, including the USMAPS Washington Gate Alternatives site. State Route 293, various unimproved numbered Rural Routes (1, 2, 3, 8, 9, 10, 12, 12a, 13, 15, 15a, 16, 17, 26, 27 and 28) and named routes such as Round Pond Road, Mine Torne Road and Patton Road provide access to training areas in the central and western portions of the reservation. Figure 4-28 shows these areas of the Post including the location of the DOL Motor Pool site (TA-V/W).

There is no current access to Lake Frederick from the Main Cantonment except indirect access via unimproved roads, or the 16-mile circuitous route south to Route 6, west on Route 6 crossing I-87, then north on Rt. 32 to CR 9, Smith Clove Road. Figure 4-29 shows the Lake Frederick site and associated roadways (including dirt and local roads) in relation to the Main Cantonment.

Figure 4-27: Installation Road Network – West Point, Main Cantonment.

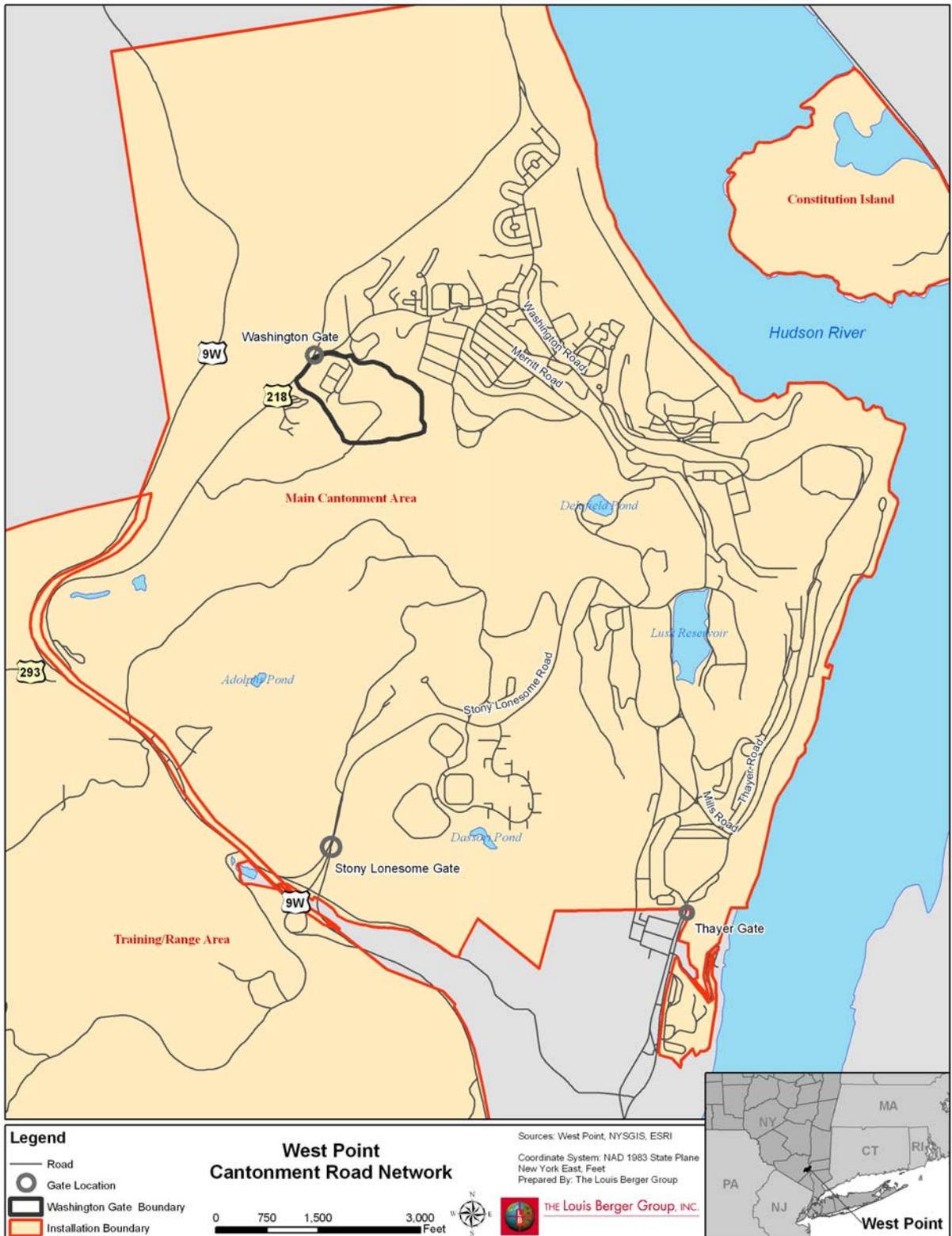


Figure 4-28: Installation Road Network – Range and Training Area.

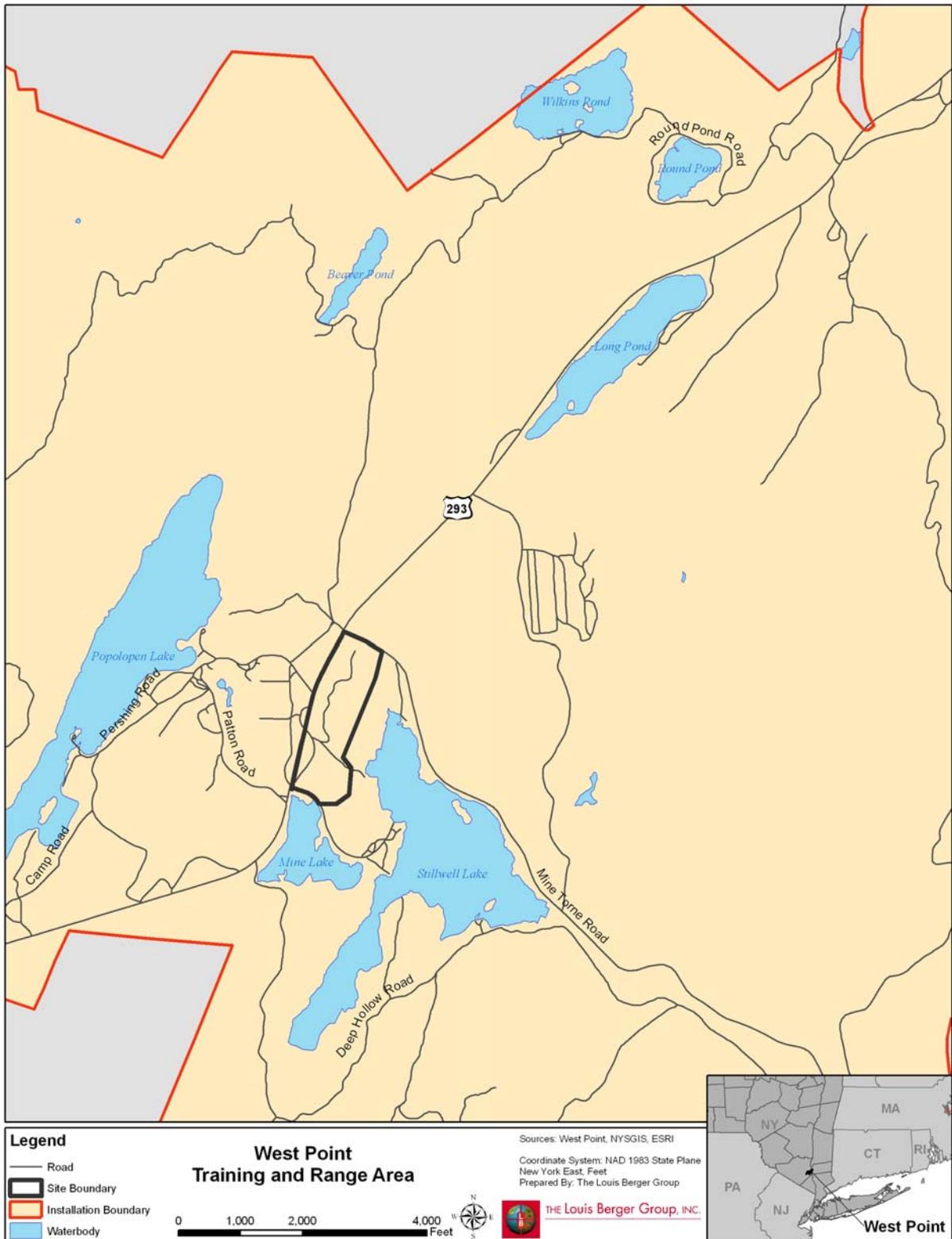
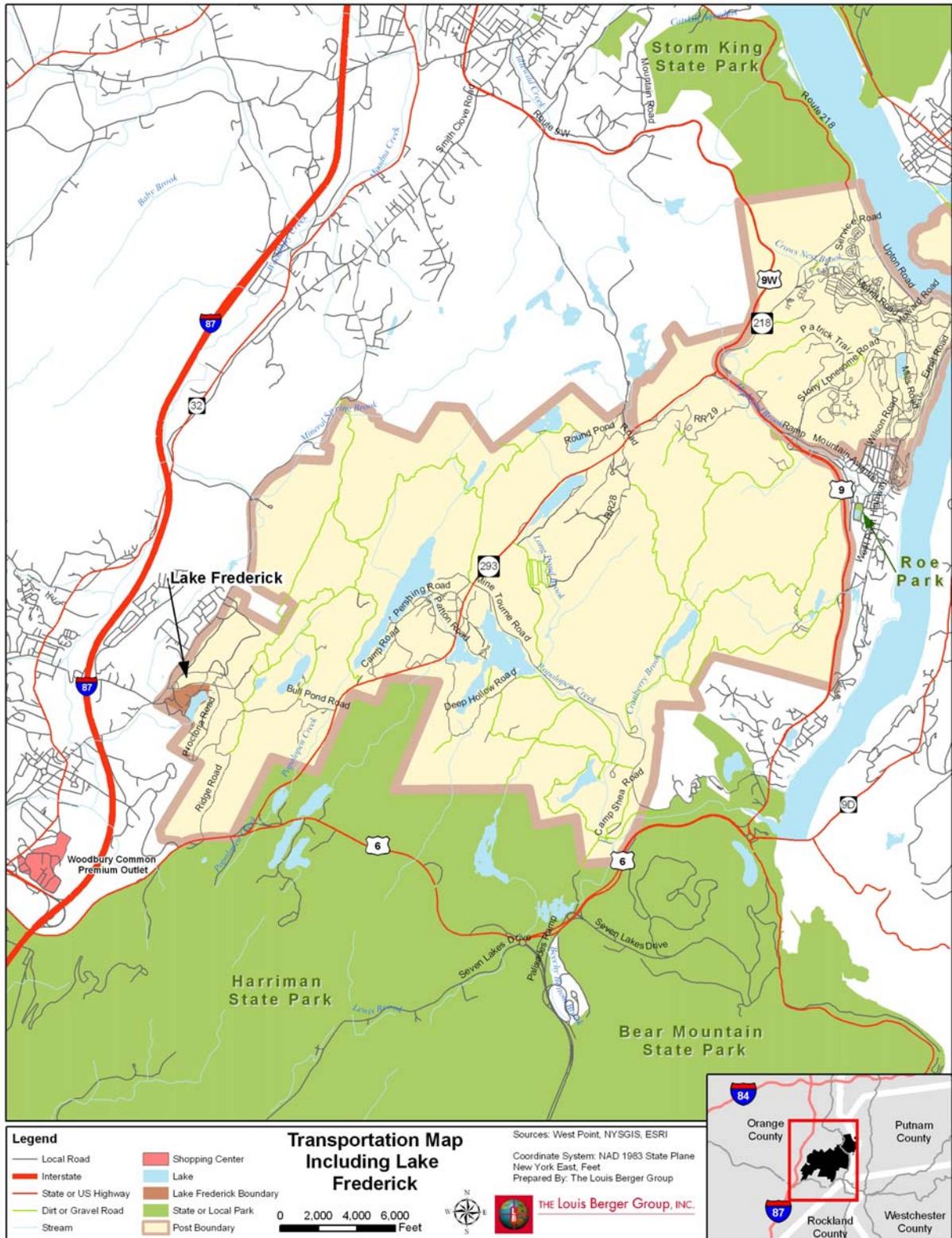


Figure 4-29: Installation and Neighboring Road Network – Lake Frederick Area



4.12.1.3 Public Transportation and On-Post Shuttle Buses

Orange County and the New York State Department of Transportation contract with “Coach USA” to provide scheduled bus services in the area. Commuter bus service from Newburgh, NY to West Point and Village of Highland Falls (via New Windsor and Cornwall) includes one early morning bus (leaving Newburgh at 6:50 am on weekdays and 8:00 am on Saturdays, Sundays and holidays). Return service leaves the West Point Visitor’s Center at 12:57 pm and 4:37 pm weekdays and at 12:57 pm and 7:57 pm Saturdays, Sundays and holidays. Some towns in Orange County have “Dial-a-Bus” services, but the Village of Highland Falls is not one of them. Commuter bus services to New York City (and limited intercity bus services to other New York counties) are available from Highland Mills and Central Valley, approximately 14 miles west-southwest from Village of Highland Falls. This service provides approximately 13 daily round trips into New York City.

West Point operates a post shuttle Monday through Friday from 6:15 a.m. to 4:45 pm to reduce traffic congestion. It runs every 30 minutes along a route that passes by most duty locations, as well as the PX, commissary and hospital. An express shuttle runs from Buffalo Soldier Field (BSF), through Central Post Area and ends at the old PX before making a loop back to BSF. This shuttle operates Monday through Friday from 5:45 until 9 a.m. and 3 until 6:30 p.m. The 30-minute shuttle bus schedule is posted at the bus stops and in the public folders on the electronic mail system (USMA 2008a).

4.12.2 Environmental Consequences

The following criteria have been developed to assess the transportation impacts for each of the alternatives:

No Effect – No alterations of traffic patterns and trends would result from the action.

No Significant Effect – Short- or long-term alterations of traffic patterns and trends would result from the action. The intersections and gates may reach capacity but this change would be temporary or managed through improvements.

Significant Effect – Traffic patterns would be permanently altered from the action. The intersections and gates would reach capacity and extensive delays would develop.

4.12.2.1 No Action Alternative Consequences

The No Action Alternative would not create new traffic or change existing traffic or parking patterns. There would be no impacts to transportation under the No Action Alternative.

4.12.2.2 Alternative 1 WGE Consequences

Short Term Impacts – USMAPS Washington Gate Site and DOL Motor Pool (TA-V/W): The proposed construction of USMAPS and the proposed DOL Motor Pool (TA-V/W) could temporarily affect local traffic. Site work would generate greater volumes of localized traffic due to workers arriving and departing the site, movement of materials and equipment, and removal of construction waste (in particular waste from the demolition of the existing DOL Motor Pool Facilities) and rock from excavation. Interruptions in local traffic patterns could be expected during the construction periods. These adverse impacts to local traffic would be minor and only last as long as the construction took place. The impacts would be noticeable, but would result in little inconvenience to local commuters. According to West Point – DPW, construction traffic is likely to be routed through Stoney Lonesome Gate unless a separate (construction site only) entrance is established for this project.

Long Term Impacts – USMAPS Washington Gate Site and DOL Motor Pool (TA-V/W): Long-term, USMAPS would add 66 employees to the Installation. The civilian and military staff would be responsible for three shifts of service at USMAPS, although the majority would be daily commuters. Some or all candidate cadets are anticipated to have access to private vehicles but are not anticipated to have extensive free time for off-post activities. Moreover, student travel off-post will be most likely in the evenings, with little or no travel during the peak hour of the morning or afternoon. Modest additional traffic for USMAPS staff at the Washington Gate is anticipated to be more than offset by the relocation of approximately 300 vehicles and associated fueling to the new DOL Motor Pool (TA-V/W).

The DOL Motor Pool (TA-V/W) would be relocated to the southwestern quadrant of the installation, approximately six miles from the current location and immediately east of NY Route 293. The DOL Motor Pool (TA-V/W) would have two of the four current 10,000 gallon fuel tanks, one for diesel fuel and one for regular fuel, as well as an additional 5,000 gallon tank for an ethanol blend. The sole entrance/exit would be off Route 293 at the existing Training Area W entrance, which would be improved and include a turn into the Motor Pool before reaching the Training Area proper. The DOL Motor Pool (TA-V/W) would house and dispatch both tactical and non-tactical trucks, buses, vans, Humvees, and other transportation vehicles. The majority of the tactical vehicles to be relocated would benefit from proximity to training areas, as they are primarily committed to support of units whose population is housed at Camp Buckner, Camp Natural Bridge, and various other buildings and training areas in the immediate area during the Cadet summer training period ramp-up, execution, and stand down. Some tactical vehicles are also used to support training within the Main Cantonment, but they are kept in the Cadet/Central Post area much of the summer. Movement of tactical vehicles to and from the main post in support of training does occur, but only during the times they are moved to and from the Ranges and Training Areas from their housing base in the Cadet Area. This currently occurs predominantly in the second half of the summer. During the last two weeks of the summer the entire operation is moved out to Camp Buckner until the final March-Back that concludes Cadet summer training, again minimizing travel of tactical vehicles on Route 293.

This improvement in tactical vehicle location and resulting reduced traffic on Route 293 between Washington Gate and TA-V/W would likely be offset by increases in non-tactical vehicle movement between the motor pool and Main Cantonment. If there is a resultant increase in traffic on Route 293, as noted in Table 4-22 above, Annual Average Daily Traffic Counts for Route 218 and Washington Road at 4,750 are about 45% greater than the volumes on Route 293, indicating that Route 293 has adequate capacity to handle additional traffic.

The Secondary Refueling Station is proposed to be situated north of Washington Road, immediately east of NY Route 218 and close to the Washington Gate and the DPW, its main customer. The secondary DOL will retain the remaining two 10,000 gallon fuel tanks, one for diesel fuel and one for regular, and add a tank for ethanol blend. Primary fueling activities will be forklifts, construction vehicles, and land and yard maintenance tools, as described under the existing condition.

Management measures during construction may be useful to reduce disruption to local traffic from removal of construction debris and rock. Measures can include establishing on-site disposal for rock and other materials, as feasible, as well as ensuring that transport of construction materials and debris uses non-congested roadways in non-peak hours.

Based on this assessment, there would be no long-term impacts to transportation.

4.12.2.3 Alternative 2 WG B Consequences

Transportation impacts of Alternative 2 are anticipated to be similar to Alternative 1.

4.12.2.4 Alternative 3 WG 15% Design Consequences

Transportation impacts of Alternative 3 are anticipated to be similar to Alternative 1.

4.12.2.5 Alternative 4 LF 2a Consequences

Short Term Impacts – Lake Frederick Site: The proposed construction of USMAPS could temporarily affect local traffic. Site work would generate greater volumes of localized traffic due to workers arriving and departing the site, movement of materials and equipment, and removal of construction waste. The Lake Frederick alternatives generate much less rock removal and construction waste than the Washington Gate alternatives, but will generate additional construction activity due to the need for constructing a remote gate, water and sewage treatment plant, and other ancillary facilities. Interruptions in local traffic patterns could be expected during the construction periods. These adverse impacts to local traffic would be minor and only last as long as the construction took place. The impacts would be noticeable, but would result in little inconvenience to local commuters. Construction staging and routing for the Lake Frederick alternatives are not yet confirmed.

Long Term Impacts – Lake Frederick: Long-term, USMAPS would add 66 employees to the Installation. (VETCOM would not be co-located with the Lake Frederick USMAPS alternative.) Additionally, a small number of staff would be added for the supporting facilities such as the PX/Shoppette and Fire Station. The civilian and military staff would be responsible for three shifts of service at USMAPS, although the majority would be daily commuters. Some or all candidate cadets are anticipated to have access to private vehicles but are not anticipated to have extensive free time for off-post activities. Moreover, student travel off-post will be most likely in the evenings, with little or no travel during the peak hour of the morning or afternoon. Based on this assessment, there would be no long-term adverse impacts to transportation.

4.12.2.6 Alternative 5 LF 2b Consequences

Transportation impacts of Alternative 5 are anticipated to be similar to Alternative 4.

4.12.2.7 VETCOM Consequences

As the VETCOM would add seven (7) employees only, transportation impacts of the facility are evaluated with the USMAPS traffic.

4.13 UTILITIES

4.13.1 Affected Environment

The alternatives are sited in five locations:

1. USMAPS development would be sited in the vicinity of Washington Gate at the current location of the DOL Motor Pool under Alternatives 1, 2, and 3;
2. The proposed site for the new DOL Motor Pool under Alternatives 1, 2, and 3 is TA-V/W near the entrance to Camp Buckner;
3. USMAPS would be sited at Lake Frederick under Alternatives 4, and 5 and the DOL Motor Pool would not move;
4. The proposed site for the new VETCOM facility would co-locate with the existing VTF at West Point a short distance from Buffalo Soldiers Field.
5. The Secondary Refueling Station is located in an industrial area near the Washington Gate Site.

This section will discuss the existing utility conditions at the Washington Gate DOL Motor Pool Site, the proposed site for the DOL Motor Pool at TA-V/W, and the proposed Lake Frederick Sites. The collocation of VETCOM at the existing VTF is not expected to affect utilities and the VTF existing conditions will not be further discussed.

4.13.1.1 Water Supply Affected Environment

Potable water at West Point is supplied primarily from three water treatment plants at the installation. These three plants include the Lusk Water Plant, the Stony Lonesome Plant, and the Camp Buckner Plant. These plants are supplied with water by several lakes and reservoirs within the Popolopen watershed, including Popolopen Lake, Stilwell Lake, Mine Lake, Long Pond, and Lusk Reservoir. There is also water supply at Round Pond drawn from a well and at the Lake Frederick camp site provided by two wells. The total volume of water produced at West Point in 2007 was 973 million gallons (MG) and the average volume treated was 2.7 million gallons per day (MGD). The highest single day total in 2007 from the combined Lusk and Stony Lonesome Plants was 5.1 MGD (USAG, 2008). West Point also has a license agreement with the Palisades Interstate Park Commission for additional potable water supply during the peak demand period of October 16th through May 31st, regardless of how much is needed. The agreement also states that West Point will be provided with a minimum of 300,000 gallons per day in the nonpeak period, as long as the Queensboro watershed levels are maintained (USMA, 2003).

There are five water supply districts at West Point; the Stony Lonesome Plant supplies three low-pressure districts and Lusk Plant supplies two high-pressure districts in the cantonment area. Water may be moved between districts

using a system of pumps and pressure-reducing stations, if needed. The Camp Buckner Plant operates seasonally, serving only Camp Buckner and Camp Natural Bridge. It is not winterized and only operates from April through October (USMA, 2005c).

The Lusk Water Plant has an average capacity of 2.8 MGD; water for the plant is supplied by a 20-inch gravity pipeline that originates at Popolopen Brook and flows to Lusk Reservoir and the plant. Water is distributed throughout the cantonment area through a network of buried water mains and lines, varying in diameter from 4 to 24 inches. The Stony Lonesome Plant has a 2.0 MGD average capacity, the supply for which is pumped from Long Pond through a 20-inch line. The Camp Buckner Plant has a 0.75 MGD capacity and draws its water from Popolopen Lake (Baty, pers. comm., 2007). The three plants use a wide variety of water treatment techniques prior to the water's entrance to the delivery system. All three plants also have emergency auxiliary generators for use in the event of a power loss (USMA, 2003; USMA 2005c).

An underground 12" water main, oriented in an approximate north-south alignment, passes through the Washington Gate project area along the westerly side of Buildings 783 and 719. This main provides water service to the DOL Buildings, as well as the Mint Building and Ski Slope Buildings located south of the project area. An underground 8" water main, oriented in an approximate northeast-southwest alignment, passes through the project area beneath the water tank access road. This main provides water service to residences located to the east of the project area.

At Lake Frederick, two water wells are located on the easterly side of B1848. Discussions with the caretaker of the site revealed that water collected from these wells is stored within an aboveground storage tank located within B1848 prior to it being distributed to exterior spigots of the site and interior building fixtures. These discussions also revealed that excessive pumping of wells of a nearby residential development in the past had significant impacted the amount of water able to be withdrawn from the two site wells in addition to wells located on surrounding property. The caretaker indicated that this condition has not reoccurred since the residential development was provided with an alternative water source. In a phone conversation on July 1, 2008, West Point representatives noted the two existing wells on site have yields of 51 and 48 gallons per minute (USACE, 2008b). Several fire hydrants were observed along Smith Clove Road, suggesting the presence of a water main alongside the roadway (USACE, 2008b).

Water is not currently supplied to TA-V/W.

4.13.1.2 Wastewater System Affected Environment

Two wastewater treatment systems and plants serve West Point, including the Target Field Wastewater Treatment Plant and the Camp Buckner Wastewater Treatment Plant. The Target Field Wastewater Treatment Plant has a capacity of 2.0 MGD and discharges into the Hudson River under a State Pollutant Discharge Elimination System (SPDES) permit. It currently operates at about 87% of capacity. It is also equipped with an auxiliary generator in the event of a power loss. The wastewater collection system is separate from the stormwater collection system and consists of lines and more than 800 wastewater collection manholes to bring wastewater into the plant from the north and the south. The USMAPS Washington Gate Campus would be served by the Target Field Wastewater Treatment Plant (USMA, 2005c). An underground 8" sanitary sewerage main, oriented in an approximate north-south alignment, passes through the Washington Gate site along the easterly side of Buildings 793 and 795. The main provides service to the DOL buildings, as well as the Mint Building located south and up gradient of the project area.

The Camp Buckner Wastewater Treatment Plant serves both Camp Buckner and Camp Natural Bridge. It is an extended aeration activated sludge plant, with a capacity of 0.25 MGD and an SPDES permit to discharge into Popolopen Creek (USMA, 2003).

Wastewater treatment does not currently exist at TA-V/W. Sanitary sewerage generated on the Lake Frederick site is disposed of in a septic field located on the westerly side of B1849. Discussion with the site caretaker revealed that a septic holding tank previously utilized to collect effluent from portable showers is located west of Lake Frederick Drive in the vicinity of a dumpster storage area or Lake Frederick (USACE, 2008b).

4.13.1.3 Stormwater System Affected Environment

Stormwater drainage on the cantonment area is accomplished through various surface water bodies, such as Crow's Nest Brook, Highland Brook, Kinsley Farm Brook, and Dassori Pond, or through open channels or pipes, catch basins, swales, and buried stormwater pipes, all of which empty into the Hudson River. The Washington Gate site is fully developed and is drained by a series of gutters, open ditches, pipes and natural streams running through the property. Three drainage areas located to the south of the project area drain through the project area. A stream located on the easterly side of Buildings 793 and 795 conveys stormwater runoff from the largest of these areas. A drainage ditch and underground piping located on the easterly side of Buildings 793 and 718 conveys stormwater runoff from another of these off-site drainage areas. Swales located along the water tank access road convey stormwater runoff from another of these off-site drainage areas.

Stormwater drainage at largely natural TA-V/W is accomplished through natural swales and sheet flow toward Mine and Stilwell Lakes.

Three stormwater drainage areas are observed to exist on the Lake Frederick site. The first of these areas encompasses areas adjacent to Lake Frederick, including portions of Lake Frederick Drive. Stormwater impacting this area drains via sheet flow to Lake Frederick. The second drainage area encompasses the buildings and the majority of the forested area of the site. Stormwater impacting the second drainage area drains via sheet flow to a ditch located along Smith Clove Road south of Proctoria Road. This ditch discharges to piping passing beneath Smith Cove Road to an unnamed tributary of Woodbury Creek. The third drainage area encompasses the remainder of the forested area and plain habitat of the site, as well as Proctoria Road. Stormwater impacting this third area discharges via sheet flow to swales located along Proctoria Road, where it is combined with runoff from upland areas located north of the site. The runoff is subsequently discharged via 36 inch diameter piping and a 3 foot by 4 foot culvert, both within the Smith Clove Road right-of-way, to a ditch crossing the front yard of a residential property on the westerly side of the roadway. It should be noted that based upon site visit observations the flow capacity of the ditch within the residential property appears to less than that of the upstream piping and culvert. Discussion with the site caretaker revealed that the flow capacity of the ditch within the residential property has been exceeded during rainfall events (USACE, 2008b).

4.13.1.4 Energy Sources Affected Environment

Electricity: The electrical distribution system at West Point is composed of primary and secondary overhead and underground distribution lines, transformers, regulators, substation switchgear, oil and air switchgear, and switching cabinets. Electricity is supplied to all of West Point, except for Constitution Island and Lake Frederick, by Orange and Rockland Utilities and enters the post at two main locations with 34.5 kilovolts (KV) lines that are then transformed into 13.8 and 4.16 KV lines. West Point electrical distribution in the existing motor pool area has two underground feeders, one at 13.8 KV and one at 4.16 KV.

Orange and Rockland Utilities also serves Camp Buckner and Camp Natural Bridge, providing power through overhead lines that connect to the Orange and Rockland Dean Substation at the intersection of Rt. 293 and Mine Road (USMA, 2005c).

Electric power is provided to the Lake Frederick site via an underground service connection originating at a utility pole located along the Smith Clove Road frontage of the subject property. Electricity is distributed to the buildings and exterior light fixtures via overhead wires and underground conduit (USACE, 2008b).

Natural Gas: West Point's natural gas distribution system consists of high-, medium-, and low-pressure lines regulated by Central Hudson Gas & Electric Company stations, and some individual regulators in the cantonment area. There are approximately 200 regulators and 13 regulator stations for approximately 27 miles of lines that range from pressure maintained as high as 120 pounds per square inch (psi) to as low as 0.5 psi (USMA, 2005c). The existing DOL Motor Pool at the Washington Gate site has steam and condensate return service provided via underground piping between the DOL Buildings and Building 845. Natural gas is the fuel used by the steam plant boilers; a natural gas main exists at Building 845.

There are no natural gas mains at TA-V/W or Lake Frederick.

4.13.1.5 Communications Affected Environment

Communications systems at West Point consist of telephone, fire alarm, security, fire, and cable. Telephone service is provided by Verizon, but all infrastructure is owned by the Army. Many of the buildings are connected to fiber optic cables. The Gamewell fire alarm and security systems use these cables. Cable television is provided through three services operated by a local cable company (USMA, 2005c).

4.13.1.6 Solid Waste Affected Environment

Solid waste generated at West Point, including municipal solid waste (MSW), is hauled by a contractor to a West Point-owned, contractor-operated transfer station on the installation. Dewatered sludge from the sewage treatment facilities is taken directly to a permitted landfill, and the remaining solid waste is then hauled to a state-permitted landfill facility (USMA, 2005c).

4.13.2 Environmental Consequences

To assess whether impacts to utilities were potentially significant, the following impact thresholds were used to define significance for each utility:

No effect – The proposed action does not impact the human or natural environment

No Significant Effect – An impact to the human and/or natural environment would occur, but it is less than thresholds indicated below for “significant effect.”

Significant Effect – thresholds for significance are defined below:

General Utility Construction – Impacts from construction of utilities would be considered potentially significant if expected to cause human health and safety issues considerably above industry norms, or if disruptions to West Point operations or mission were expected to exceed what was acceptable by the Army and there were no ways to mitigate the disruptions.

Potable Water Supply – Impacts would be considered potentially significant if the proposed action or alternatives would require more potable water than could be reliably provided by the combination of available potable water sources, leading to shortages, or if regulatory limitations on withdrawals or the treatment plant would potentially be exceeded. Major systemic distribution constraints could also be potentially significant; however, the fact that major investments would be required to provide potable water reliably would not necessarily constitute a significant impact if the investments were reasonable for the overall magnitude of proposed construction, or to provide needed restoration or modernization, and would prevent shortages or harm to the environment.

Wastewater System – Impacts would be considered potentially significant if the proposed action or alternatives would require more wastewater treatment capacity than could be reliably provided by the wastewater treatment system after any necessary upgrades necessitated by the Proposed Action are implemented, potentially leading to the discharge of effluents in excess of standards, or if regulatory limitations on the wastewater treatment plant would potentially be exceeded. Major shortfalls in collection capacity could also be potentially significant; however, the fact that major investments would be required to collect or treat wastewater reliably would not necessarily constitute a significant impact if the investments were reasonable for the overall magnitude of proposed construction, or to provide needed restoration or modernization, and would prevent overflows or harm to the environment.

Stormwater System – Impacts would be considered potentially significant if the proposed action or alternatives would not comply with State or Federal laws governing stormwater discharges.

Energy Sources – Impacts would be considered potentially significant if the proposed action or alternatives would require energy in quantities that would exceed local and/or regional capacities for supply, leading to potentially unreliable service or shortfalls of power or other energy that could affect West Point’s mission. Major systemic distribution constraints could also be potentially significant;

however, the fact that major investments would be required to provide energy reliably would not necessarily constitute a significant impact if the investments were reasonable for the overall magnitude of proposed construction, or to provide needed restoration or modernization, and would prevent shortages that could affect West Point's mission.

Communications – Impacts would be considered potentially significant if the proposed action or alternatives would require communication systems to meet mission requirements that could not be provided without major modifications to the existing Installation systems.

Municipal Solid Waste – Impacts would be considered potentially significant if the proposed action or alternatives would require collection and/or disposal that could not be provided in a reliable manner, which could cause waste to accumulate or be disposed of in a manner that could adversely affect human health or the environment.

4.13.2.1 No Action Alternative Consequences

Under the No Action Alternative, USMAPS and VETCOM would not be realigned to West Point, and the DOL Motor Pool would not be relocated to TA-V/W. There would be no effect on utilities as a result of the No Action Alternative.

4.13.2.2 Alternative 1 WG E Consequences

The consequences to utilities under Alternative 1 occur at two locations: the Washington Gate Site and TA-V/W. These are discussed separately for each utility resource below.

Water Supply – USMAPS Washington Gate Site: There would be no significant effects on the water supply as a result of realigning USMAPS to West Point. Potable and fire protection water for USMAPS would be supplied from West Point's existing water supply system, which currently operates below capacity (USMA, 2007a) and has an agreement with the PIP Commission for additional water supply as needed. The increased demand for 240 resident candidate cadets and 66 staff would be approximately 50,000 GPD, which represents a small fraction of the remaining available capacity of 3.0 MGD. Water for USMAPS would come from District 2 of the existing water supply system through a new underground main that would connect to an existing 12-inch main located west of the Washington Gate site. This main would feed into the Stony Lonesome Water Treatment Plant, and would result in a total District water storage capacity of 1,000,000 gallons. On the USMAPS campus, lines would be added to achieve a looped system. An additional 250,000 gallon aboveground water storage tank would be necessary to ensure the required water storage capacity for fire protection at the USMAPS campus.

Because most of the site plantings are anticipated to be over landfill and/or disturbed soil, with interrupted groundwater movement limiting soil moisture, the landscape plantings would benefit from irrigation, limited to areas near the buildings. There will be no potable water hookup for irrigation of plantings. Three to four sources of water are anticipated for the water harvesting: roof runoff, footing drains, pavement runoff, and air conditioning condensate. Water would be collected in below-grade cisterns for supplemental watering during drought.

The academic building would require a fire pump; system pressure in all other buildings is adequate for fire protection without fire pumps.

Water Supply – DOL Motor Pool TA-V/W: Water must be supplied for domestic use, industrial uses including vehicle wash, and fire protection. Two recent wells drilled at TA-V/W were dry, resulting in a conclusion that use of groundwater for water supply was not feasible. The proposed system would include 1) improvements to the existing Stilwell Lake pump station for raw water supply, including removal of existing equipment and installation of new equipment; 2) two transmission mains of approximately 4,500 linear feet to transport raw water from the Stilwell Lake pump station to the proposed Directorate of Logistics (DOL) facilities; 3) a package membrane water treatment system with disinfection to treat raw water for domestic (potable) use; 4) two 2,000-gallon water storage tanks with booster pump systems; and 5) three water distribution systems of approximately 1,000 linear feet for fire protection, domestic use, and industrial use. A 150 kW generator would provide backup power (USACE, 200b).

With these water supply facilities, there would be no significant effects to the water system.

Water Supply – Secondary Refueling Station: No effects; water supply not required.

Wastewater System – USMAPS Washington Gate Site: The effects on the wastewater system capacity resulting from the realignment of USMAPS to West Point are not considered to be significant. The estimated increase in sanitary flow would be approximately 41,000 GPD, offset by the elimination of DOL wastewater, estimated as 5,000 GPD. The current Target Hill Wastewater Plant, with rated capacity of 2 million GPD, is at 87% capacity during average flows. This increase from USMAPS represents less than 2% of the capacity and would bring average flows to less than 89%. The conclusion is that there is not much surplus capacity and the plant may need to be upgraded or system improvements implemented to handle storm events; however, the additional flows from USMAPS, though not helpful, are not a significant cause for these potential upgrades, which would be needed, regardless. Sanitary wastewater from USMAPS would be collected by the underground 8” sanitary sewerage main that passes through the project area along the easterly side of Buildings 793 and 795. This would likely require relocation and from there it would continue to flow to the Target Hill Wastewater Treatment Plant. As designs progress, the main’s capacity will be evaluated and upgraded as required.

Dynamic compaction of the landfill will produce leachate. One leachate disposal option being considered is to treat the leachate for pollutants with an on site industrial WT facility (temporary) and discharge the treated waste stream according to DEC approved pre-treatment standards to the Target Hill WWTP at selected times to minimize impact to the plant’s already challenged capacity. Effluent would also be BOD enriched to be more compatible with the plant’s BOD influent requirements. This option, carefully managed, would not significantly impact the WWTP. A second option is to treat leachate for pollutants with an on site industrial WT facility (temporary) and discharge the treated waste stream under a DEC issued SPDES permit to Sinclair Pond Brook provided the effluent discharge limits specified in the permit are achievable. A third option would haul the untreated leachate to an off-post approved industrial waste treatment facility. Either second or third option would have no effect on the wastewater treatment system.

Wastewater System – DOL Motor Pool TA-V/W: The proposed increase in demand for wastewater treatment at the DOL Motor Pool site would be approaching the capacity of the Camp Buckner Wastewater Treatment Plant; during the peak summer usage; therefore, a new Industrial Wastewater Treatment Plant (IWTP) and a treated effluent infiltration gallery is proposed. The IWTP would have an average capacity of 5,000 GPD and peak capacity of 7,500 GPD. The industrial sources of wastewater include a vehicle wash system and vehicle wash rack with usage estimated at 1,000 GPD. Domestic wastewater sources include sanitary facilities for site employees. An effluent pipeline of approximately 250 ft of 4-inch below grade High Density Polyethylene (HDPE) pipe would be constructed from the IWTP to an infiltration gallery site located at Camp Buckner, which would distribute treated effluent to the soil. A small emergency generator with automatic transfer switch would provide backup power for the IWTP. An oil/water separator and pretreatment for industrial (washrack) wastewater would be included, with oil/water separator waste, screenings, grit and liquid sludge to be disposed offsite by truck transport. The infiltration gallery would meet NYSDEC or Department of Health (DOH) requirements (USACE, 2008b).

With these upgrades to wastewater treatment facilities, there would be no significant effects to the wastewater system.

Wastewater System – Secondary Refueling Station: No effects; wastewater is not generated.

Stormwater System – USMAPS Washington Gate Site: Chapter 9 of the New York State Stormwater Management Design Manual (NYS SMDM) is applicable to the entire project. The proposed layout design decreases the cover of impervious surface and results in a lowering of stormwater discharge rates. Because there is no change in hydrology that increases the discharge rate from predevelopment to post development, the project as designed would not require the installation of stormwater management features to accommodate channel protection, Overbank Flood and Extreme Storm requirements of the NYS SMDM. The required quality treatment is achieved in the proposed design by conveying runoff collected from the pavement, sidewalks to underground sand filters (USACE, 2008a).

The stormwater conveyance system would be designed to accommodate runoff from the proposed improvements and to accommodate stormwater runoff from off-site areas that drain through the project area. This would be accomplished by a system of catch basins and HDPE pipe, with a portion of the stormwater directed to the aforementioned sand filters, while the remainder discharges directly to the stream.

There would be no significant effects to the stormwater system at West Point resulting from the realignment of USMAPS.

Stormwater System – DOL Motor Pool TA-V/W: There would be no significant effects to the stormwater system at TA-V/W. Surface drainage at the DOL Motor Pool site would be collected into various drainage inlets to be located along the perimeter of the site. The site would generally slope toward Route 293. Oil/water separators and grit chambers would be installed at each storm drainage inlet to filter surface runoff prior to discharge into open drainage channels (USMA, 2007b), eventually discharging into Mine Lake. For a discussion of potential impacts to water quality, see section 4.7, Water Resources.

Stormwater System – Secondary Refueling Station: No effects; minimal surface in an industrial area would use existing stormwater drainage.

Energy Sources – USMAPS Washington Gate Site

Electricity: There would be no significant effects on the supply of electricity at West Point as a result of the realignment of USMAPS.

All utilities within the area of site development would be demolished and removed, including all the low voltage wiring. The Mint, water tank air compressor, Ski Slope facility and buildings, the new secondary refueling station, and the golf course irrigation system require new feeders due to the removal of the feeders within the area of the site development. New feeders must be installed and re-connected for electrical power prior to removal of the existing services in order to maintain electrical power for continued operation of these facilities during the construction of USMAPS. All electrical utility shut-downs would be done during off peak hours and require a minimum of (10) working days notice to the USMA DPW. Off peak hours are Saturday and Sunday between 24:00 and 4:00 hours. Temporary generators would be provided to support loads that are required to remain in operation for feeder shutdowns lasting longer than four (4) hours (USACE, 2008a).

Electrical service for USMAPS would be supplied from the existing West Point base distribution system via one 13.8 KV circuit with a second 13.8 KV circuit used as an alternate feed. Primary electrical manholes would be installed where needed for building connections and pull locations. All 13.8 KV cable connections would be made in transformer primary compartments or in manholes via multi-gang separable cable elbows. Pad-mounted transformers would be provided to supply utilization voltage. New 15 KV feeders would be connected to both 13.8 KV circuits.

Natural Gas: There would be no significant effects to the natural gas supply at West Point as a result of Alternative 1. Steam and condensate return service is currently provided via underground piping between the DOL Buildings and Building 845 from boilers heated by natural gas. Under the proposed alternative, new underground steam and condensate piping would to be installed between Building 845 and the USMAPS facilities. It is proposed that natural gas service be provided to the Indoor Athletic Field, Dining Facility and a 150 kW emergency generator. It is proposed that natural gas be provided to these improvements via a 6” main from a distribution main located on the northerly side of Building 845.

Energy Sources – DOL Motor Pool TA-V/W

Significant impacts for energy are not expected.

Electricity: There would be no significant effects on the supply of electricity to TA-V/W as a result of the proposed action. Electrical service to the DOL Motor Pool would be provided from the Orange & Rockland (O&R) electrical utility company’s 4.16 KV overhead distribution line that runs along Route 293. Service would be underground and would be provided by pad-mounted transformers. Five backup generators would be provided at the site.

Natural Gas: The DOL facilities would use propane.

Energy Sources – Secondary Refueling Station: No significant effects to electricity; existing service in area would be routed to power pumps. A small backup generator would provide emergency power.

Communications – USMAPS Washington Gate Site

There would be no significant effects on communication systems at West Point resulting from the realignment of USMAPS. Copper and fiber-optic cable necessary to support network connectivity from USMAPS would be fed from an existing distribution node. A medium-sized telephone switch would be required to support telephone service at USMAPS.

Communications – DOL Motor Pool TA-V/W

There would be no significant effects on communication systems at West Point resulting from the relocation of the DOL Motor Pool to TA-V/W. Copper and fiber-optic cable necessary to support network connectivity from USMAPS would be fed from an existing distribution node at Camp Buckner.

Communications – Secondary Refueling Station

There would be no effects; existing communications copper could be routed to station as needed.

Solid Waste – USMAPS Washington Gate Site

There would be no significant effects on the solid waste disposal system at West Point. There would be a temporary increase in the generation of solid waste as the result of site demolition and construction at both USMAPS and the DOL Motor Pool. During the operation phase, the increase in staff and candidate cadets expected at USMAPS would represent a relatively small increase in the demand for municipal solid waste collection and disposal.

Dynamic compaction of the landfill will produce leachate. One leachate disposal option being considered is to haul the untreated leachate to an off-post approved industrial waste treatment facility. This option would be temporary and coordinated to have no effect on management of other waste at West Point.

Solid Waste – DOL Motor Pool TA-V/W

Disposal of oil/water separator waste, screenings, grit and liquid sludge would be disposed by the current contract process for petroleum/oil/lubricant (POL) waste disposed from the DOL Motor Pool. This is a small volume increase, however, and there would be no significant effect on this disposal process at West Point.

Solid Waste – Secondary Refueling Station: Disposal of oil/water separator waste would be disposed by the current contract process for petroleum/oil/lubricant (POL) waste disposed from the DOL Motor Pool. This is a small volume increase, however, and there would be no significant effect on this disposal process at West Point.

4.13.2.3 Alternative 2 WG B Consequences

Impacts for utilities under Alternative 2 WG B would be the same as for Alternative 1 WG E, with slightly different facility layouts that would have essentially the same utilities demands and comparable utility layouts and services. Impacts would not be significant.

4.13.2.4 Alternative 3 WG 15% Design Consequences

Impacts for utilities under Alternative 3 WG 15% Design would be the same as for Alternative 1 WG E, with slightly different facility layouts that would have essentially the same utilities demands and comparable utility layouts and services. Impacts would not be significant.

4.13.2.5 Alternative 4 LF 2a Consequences

Water Supply – Lake Frederick Site 2a: A water treatment system would be installed onsite in order to provide both domestic and fire water to the USMAPS campus. The system would include a package treatment plant with 50,000 GPD capacity to meet an estimated demand of 49,000 GPD for the USMAPS campus, a 75,000 gallon water storage tank, and potable water distribution as well as a fire protection water supply and distribution system. Lake Frederick is a Class B body of water with an unknown volume and unknown source and is therefore not proposed as a primary supply. A public water system exists in Clear Valley, but details of this system are unknown and it appears to be sufficiently distant from the Lake Frederick site that a transmission costs may be significant. Therefore, the source of water is proposed to be 2 to 6 onsite wells, assumed to be capable of supplying the 40 gpm water demand. (In a phone conversation on July 1, 2008, West Point representatives noted the two existing wells on-site have yields of 51 and 48 gpm (USACE, 2008b). Further investigations would determine the site for these facilities. A 150 kilowatt (kW) backup generator would provide emergency power. With these water supply facilities, there would be no significant water system impacts.

Wastewater System – Lake Frederick Site 2a: Sanitary wastewater from the USMAPS facilities would be collected into a new underground, sewer collection system. The sewage would flow via gravity to a new, packaged wastewater treatment plant. Current plans would position the treatment plant along the north side of the USMAPS entrance road, approximately 500 feet from Smith Clove Road. This wastewater plant would be designed to provide tertiary treatment to accommodate year-round activities from the school. Treated effluent from the wastewater plant would be released to a 41,000 GPD infiltration gallery that would comply with applicable regulations. This would require an area of approximately 34,000 ft² to 82,000 ft² on level ground or 102,000 ft² to 246,000 ft² when placed on slopes. The infiltration gallery would meet NYSDEC or DOH requirements and with these wastewater facilities, there would be no significant wastewater impacts.

Stormwater System – Lake Frederick Site 2a: Storm drainage at the USMAPS campus would be collected into a series of storm drainage inlets to intercept surface flow. The storm drainage inlets would be connected to a single stormwater culvert collection system that would convey surface runoff to a stormwater management facility before discharging drainage into an existing roadside ditch along Smith Clove Road. This stormwater management facility should be sized appropriately to help reduce peak storm water discharges and improve water quality.

Energy Sources – Lake Frederick Site 2a

Electricity: A high voltage circuit would be needed, supplied by commercial power, and transformers for 3250 kilo volt amperes (kVA) would be required. A 150 kW backup generator for the total site emergency power, including the waste water treatment and water management facilities, would be required. Provision of this power from commercial entities is not expected to pose significant impacts to the regional grid.

Natural Gas: There is no natural gas on-site; a natural gas line from commercial suppliers would be needed for natural gas, or fuel oil would be the source of energy for boilers. Propane or electricity would provide power for kitchen facilities and the treatment facilities if gas is not available. Significant impacts would not be expected.

Communications – Lake Frederick Site 2a: There would be no significant effects on communication systems at West Point resulting from the realignment of USMAPS. Copper and fiber-optic cable necessary to support network connectivity from USMAPS would be fed from the nearest distribution node. A medium-sized telephone switch would be required to support telephone service at USMAPS.

Solid Waste – Lake Frederick Site 2a: There would be a temporary increase in the generation of solid waste as the result of site demolition and construction Lake Frederick. During the operation phase, the increase in staff and candidate cadets expected at USMAPS would represent a relatively small increase in the demand for municipal solid waste collection and disposal at West Point. Disposal of screenings, grit and liquid sludge for water/wastewater treatment would add some volume to that expected from Alternatives 1, 2, or 3. This is a small volume increase, however, and there would be no significant effect on the solid waste disposal system at West Point.

4.13.2.6 Alternative 5 LF 2b Consequences

Impacts for utilities under Alternative 5 LF 2b would be essentially the same as for Alternative 4 LF 2a, with slightly different facility layouts that would have essentially the same utilities demands and comparable utility layouts and services. Impacts would not be significant.

4.13.2.7 VETCOM Consequences

Under all five alternatives, VETCOM would be collocated with the VTF by expanding and renovating that facility. This would entail minor modifications to existing utilities, resulting in no significant effect

4.14 HAZARDOUS MATERIALS USE, HANDLING, AND STORAGE

4.14.1 Affected Environment

Hazardous materials are used in many facilities at West Point, ranging from small quantities of cleaners and printing supplies to larger quantities of fuels, oils, and various chemicals. Current West Point hazardous materials policy requires compliance with all Federal, State, and local laws and regulations governing the use of and reporting requirements for hazardous materials and the control of hazardous materials to minimize hazards to public health and damage to the environment.

West Point has a hazardous substance management system (HSMS) which establishes procedures for ordering, storing, and managing hazardous materials. The HSMS includes a HSMS database which allows cradle-to-grave tracking of hazardous materials (USMA, 2002).

Disposal of hazardous waste is coordinated through the Solid Waste Management Branch of the DPW. Construction activities may involve the transport and use of solvents, paints, petroleum products, lubricants, and sealants. Transport, temporary storage, use would comply with the West Point Spill Prevention, Control and Countermeasures Plan.

The following describes hazardous materials (hazardous or toxic substances) expected to be used, handled, and/or stored at the BRAC-related facilities assessed in this EA and the description of the facilities provided.

Washington Gate Site: The proposed USMAPS site is the existing DOL Motor Pool Site, which contains a fuel dispensing facility, installed in 1994, and four 10,000 gallon USTs for storing gasoline and diesel fuel. The USTs are known to have leaked in the past, and although those leaks were appropriately addressed and leaking tanks removed upon discovery, removal of the current tanks will provide an opportunity to make sure that any residual contamination is removed and properly disposed of at a licensed disposal facility (Pers. Comm. Jarbeau, 2008). It is assumed that 500 cubic yards and 2,500 gallons of residual POL contaminated soil and water respectively will require removal and disposal. There are three oil/water separators on the site and a waste oil tank. A solvent separator and waste solvent tank were formerly located adjacent to Building 793. The existing DOL Motor Pool structures will be removed to make way for the USMAPS facilities. Section 4.7.1.3, Hydrogeology/Groundwater presents a discussion on groundwater contamination at Washington Gate Site.

The USMAPS Campus alternatives would locate facilities at the landfills WSTPT-11 and WSTPT-11A. These contaminated sites are discussed in detail in Section 4.15, Landfill Disruption.

DOL Motor Pool (TA-V/W) and Secondary Refueling Station: There has been no known storage or use of hazardous materials or petroleum products on the proposed DOL Motor Pool site. The proposed DOL Motor Pool facility would include a fuel dispensing station, an approximately 10,000-gallon aboveground storage tank (AST) for motor gasoline (MOGAS), and an approximately 10,000-gallon AST for diesel fuel.

A new refueling facility would be constructed adjacent to Building 902 (the Salt Dome) north of Washington Gate.

Lake Frederick Site: No known usage or storage of hazardous materials or petroleum products has occurred on the Lake Frederick Site.

VETCOM Facility

No hazardous materials or petroleum products are known to have been used or stored on the VETCOM site. Any hazardous waste generated during construction and operation of the proposed VETCOM site would be expected to be nominal quantities and would be managed in accordance with the West Point Hazardous Waste Management Plan.

4.14.1.1 Hazardous Waste Generation, Storage and Disposal

West Point is a large quantity generator of hazardous waste. Hazardous wastes are generated by many activities including automotive repair shops, pest control activities, school, and photography laboratories. Hazardous substances are handled in accordance with USEPA, NYSDEC, and Army regulations (USMA, 2006a). Hazardous substances are stored and managed in accordance with West Point policies and procedures. The installation has a hazardous waste management plan (HWMP) which provides procedures for accumulation, packaging, labeling, storage, record keeping and disposal of hazardous waste.

Washington Gate Site: The current activities on the site related to the existing DOL Motor Pool site include solvents used in parts washers and paint waste in spray booths. These wastes are collected and disposed of offsite as hazardous waste by a private contractor. Used oil and contaminated fuel are also generated on the site. These wastes are picked up and transported off site and used as fuel by licensed contractors. New and spent car batteries are stored on-site. The contractor who supplies new batteries collects the old batteries for recycling. West Point does not have a permitted hazardous waste treatment, storage or disposal facility.

Four 10,000-gallon USTs and three oil/water separators will require removal from the site before construction of the new USMAPS complex.

DOL Motor Pool (TA-V/W): The proposed new DOL Motor Pool Site has no history of or known hazardous waste generation, storage or disposal.

Lake Frederick: There is no history of or known hazardous waste generation, storage or disposal at the Lake Frederick site. There is no indication that the Lake Frederick site was ever used for activities that may have contaminated the site.

4.14.1.2 Medical Wastes

No known medical wastes have been generated, stored, or disposed on either the proposed Washington Gate site, DOL Motor Pool site, or the Lake Frederick Site. Small quantities of medical wastes are generated at the VETCOM site are managed in accordance with application regulations.

4.14.1.3 Asbestos and Asbestos Containing Material

Asbestos management is conducted in accordance with the West Point installation's policies and procedures for the identification, abatement, and disposal of asbestos-containing materials (ACM). The buildings located on the existing DOL Motor Pool site and Lake Frederick site would be inspected for asbestos by a USEPA-certified inspector and any asbestos found would be removed prior to demolition. Any ACM discovered will be handled in accordance with applicable USEPA and OSHA regulations by a licensed contractor.

Surveys conducted at the VTF did not find LBP at the surfaces tested. ACM was found in 9-inch floor tile, mastic to 9-inch floor tile, and old window/door caulking and roof flashing cement (USACE, 2007a).

4.14.1.4 Lead-based Paint

Lead-based paint (LBP) was formerly used as coatings and finishes before the hazards associated with lead accumulation in children were identified. Buildings located on the existing DOL Motor Pool and Lake Frederick sites are suspected of containing lead-based paint based on the age of the buildings. LBP surveys will be conducted on each building before demolition is implemented. LBP disturbed on buildings would be done in accordance with applicable OSHA and Army regulations. Lead waste from buildings that are demolished would require disposal in accordance with USEPA, NYSDEC, and installation regulations.

4.14.1.5 Polychlorinated Biphenyls

Polychlorinated Biphenyls (PCBs) are industrial compounds used in electrical transformers, capacitors, adhesives, refrigerants, and other equipment for their properties of remaining stable at high temperatures and being electrically nonconductive. The buildings located on the existing DOL Motor Pool and Lake Frederick sites will be inspected for potential PCBs. When PCB-containing items, such as small capacitors and light ballasts, are identified or removed from service, their transport, storage, treatment, and disposal are handled by licensed contractor. Material Safety Data Sheets (MSDS) will be on-site when in use. No PCB contamination is known to exist at the proposed sites, although there may be PCB-containing fluorescent light ballasts in buildings to be demolished.

4.14.2 Environmental Consequences

For the purposes of assessing the significance of impacts related to hazardous and toxic substances, the following impact thresholds were developed:

No Effect – None of the above-listed conditions would occur.

No Significant Effect – Action would result in an increase in the amount of materials or waste to be handled, stored, used, or disposed; but all hazardous or toxic materials and/or wastes could be safely and adequately managed in accordance with all applicable regulations and policies, with limited exposures or risks.

Significant Effect – Action would result in a substantial increase (more than 100%) in the amount of materials or waste to be handled, stored, used, or disposed of, and this could not be safely or adequately handled or managed by the proposed staffing, resulting in unacceptable risk, exceedance of available waste disposal capacity, or probable regulatory violation. Site contamination conditions would preclude development of the site for the proposed use.

This section discusses impacts of hazardous waste generation, storage and disposal; medical wastes; asbestos and ACM; LBP; and PCB. Impacts of the USMAPS Campus alternatives on the landfills WSTPT-11 and WSTPT-11A at the existing DOL Motor Pool are discussed in detail in Section 4.145 Landfill Disruption.

4.14.2.1 No Action Alternative Consequences

No adverse effects would be expected related to hazardous and toxic substances. West Point would continue to follow its current policies regarding the management of hazardous and toxic substances, and the required activities of the Installation's Restoration Program to address past releases of hazardous materials.

4.14.2.2 Alternative 1 WGE Consequences

Washington Gate Site: Implementing Alternative 1 WGE would result in no significant adverse effects in relation to hazardous or toxic substances. The removal of existing USTs and oil/water separators will need to occur and any associated contaminated soil will need to be remediated before new construction begins. Coordination with the Environmental Division would be necessary during the planning phase of the project.

Potentially hazardous materials that could be used on-site during construction activities include paints, thinners, cleaners, asphalt, and fuel and motor oils for vehicles and equipment. All materials would be handled in accordance with the installation's established procedures and guideline.

No significant adverse effects would be expected from hazardous waste disposal. Hazardous waste disposal would be handled in accordance with regulatory, Army, and installation procedures and guidelines.

Due to the age of buildings to be demolished at the existing DOL Motor Pool, the potential of environmental impacts of special hazards such as ACM and LBP would be evaluated by EPA certified inspectors and addressed as specified in the appropriate regulatory requirements before initiating any demolition activities. Demolition that involves LBP or ACM would be evaluated for compliance with the OSHA standard at 29 CFR Part 1926.62; USEPA 40 CFR 61 Subpart M and Housing and Urban Development standards; and state, federal, and Army regulations. Measures to control airborne asbestos and lead dust would be implemented. Disposal of ACM and

lead waste must comply with applicable NYSDEC and Army regulations. Identification, accumulation, transportation, and disposal of hazardous waste shall be coordinated with the Solid Waste Management Branch.

West Point is engaged with state regulators regarding state HAZMAT requirements, and coordination will be undertaken with appropriate state agencies as part of the process of implementing Alternative 1.

DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Vehicle refueling facilities would be included on-site, and would consist of a fuel dispensing station and two separate 10,000-gallon USTs; one for MOGAS and one for diesel, and a 5,000 gallon UST for 85% ethanol (E85) (Diaz, pers. comm., 2008a, 2008c). Oil/water separators will be located as appropriate to cover the fueling station, the wash rack, the vehicle wash station, and the vehicle parking areas (USMA, 2007b). The USTs will be double walled, fiberglass, and with leak detection, monitoring, and alarm. In addition, the facility's Spill Prevention Control and Countermeasure (SPCC) Plan will be updated.

Activities at the proposed Motor Pool would be similar to the activities at the existing DOL Motor Pool. The hazardous material used and hazardous waste generated at the new facility would be managed as discussed under affected environment and therefore, significant effects are not expected.

The Secondary Refueling Station would consist of a fuel dispensing station and two separate 10,000-gallon USTs; one for MOGAS and one for diesel, and a 5,000 gallon UST for 85% ethanol (E85) (Diaz, pers. comm., 2008a, 2008c). The USTs will be double walled, fiberglass, and with leak detection, monitoring, and alarm.

4.14.2.3 Alternative 2 WG B

Alternative 2 would have the same facilities and functions as Alternative 1, therefore, significant effect are not anticipated.

4.14.2.4 Alternative 3 WG 15% Design

Alternative 3 would have the same facilities and functions as Alternative 1, therefore, significant effect are not anticipated.

4.14.2.5 Alternative 4 LF 2a

Alternative 4 would require demolition of the camp buildings and care taker's building at Lake Frederick. Due to the age of buildings, the potential of environmental impacts of special hazards such as ACM and LBP would be evaluated by EPA certified inspectors and addressed as specified in the appropriate regulatory requirements before initiating any demolition activities. Demolition that involves LBP or ACM would be evaluated for compliance with the OSHA standard at 29 CFR Part 1926.62; USEPA 40 CFR 61 Subpart M and Housing and Urban Development standards; and state, federal, and Army regulations. Measures to control airborne asbestos and lead dust would be implemented. Disposal of ACM and lead waste must comply with applicable NYSDEC and Army regulations. Identification, accumulation, transportation, and disposal of hazardous waste shall be coordinated with the Solid Waste Management Branch.

4.14.2.6 Alternative 5 LF 2b

Alternative 5 would not require demolition of the camp buildings and caretaker's building at Lake Frederick, therefore, no potential removal of ACM and LBP is anticipated.

4.14.2.7 VETCOM Consequences

No significant adverse effects would be expected from storage of hazardous and/or toxic substances or hazardous waste disposal. Hazardous materials would be handled and stored in accordance with applicable regulations. Hazardous waste disposal, including medical waste from the facility, would be handled in accordance with regulatory, Army, and installation procedures and guidelines. Demolition that involves ACM would be evaluated for compliance with the OSHA standard at 29 CFR Part 1926.62; USEPA 40 CFR 61 Subpart M and Housing and Urban Development standards; and state, federal, and Army regulations. Measures to control airborne asbestos and lead dust would be implemented. Disposal of ACM and lead waste must comply with applicable NYSDEC and Army regulations.

4.15 LANDFILL DISRUPTION

There are currently two existing landfills in the Washington Gate site; the Motor Pool Landfill (East Landfill - WSTPT-11) and the West Landfill (WSTPT-11A). The proposed facilities under the Washington Gate Alternatives 1-3 would be located on the east landfill and west landfills. The focus of these designs was to minimize or eliminate the construction of a building on either of the landfills and allow only the athletic fields to be constructed on top of the landfills.

4.15.1 Affected Environment

At the Washington Gate Site, the East Landfill (WSTPT-11), a 4.5-acre landfill located east of the existing Motor Pool fuel distribution system and the West Landfill (WSTPT-11A) 1.7-acre landfill west of the Motor Pool Maintenance Buildings, would be altered as part of the construction for any of the proposed Washington Gate USMAPS Campus alternatives. Strict adherence to landfill engineering practices and landfill federal and state laws and regulations is crucial to maintaining a healthy environment and protecting human health from potential landfill hazards following completion of the project.

The East Landfill was in operation from 1964 to 1969 and reportedly received primarily sanitary and domestic wastes (USACE, 2008a). It is possible that waste from the Motor Pool and/or nearby laundry have been placed in the landfill. Anecdotal evidence also indicated that vehicle parts and chassis may have been disposed of in the landfill. The landfill was considered closed in the 1970s by constructing the original soil and asphalt cap. This closure was modified through the 1990s by installing an improved asphalt cap, perimeter drainage controls, a gas venting system, and a leachate collection trench. The construction of the asphalt pavement was intended to minimize storm water infiltration and reduce the volume leachate that would be generated. The leachate collection trench was constructed along the northern perimeter to capture leachate emanating from several visible seeps close to the toe of the north slope. This leachate collection trench was connected directly to the existing sanitary sewer located close to the toe of the landfill slope. The gas venting system was installed to transmit landfill gas from the waste mass through the asphalt cap and into the atmosphere.

The West Landfill is covered with an asphalt cap. The site is currently used for equipment storage and parking. Based on previous investigations, the landfill appears to be composed of soil waste and wood debris. There is reason to believe that the groundwater and leachate levels in the west landfill is very close to the ground surface and that the level is influenced by seasonal groundwater flow in the area. The current approach to reuse the West Landfill is to place additional fill over its footprint to increase the final surface elevations. A drainage control system will be installed in and around the landfill to manage the groundwater flow. Prior to placing fill over the landfill, the site will be compacted using conventional compaction equipment, such as heavy-duty vibratory rollers.

The environmental issues associated with the construction of the proposed alternatives on and close to the East and West Landfills are described below.

4.15.1.1 Landfill Gas

Landfill gas from municipal solid waste is typically composed mainly of carbon dioxide, methane, oxygen, and nitrogen. Twenty-six subsurface soil vapor implants were installed through the footprint of the east and west landfills to determine the presence and/or absence of typical landfill gases and volatile organic compounds (VOCs) in the landfills. Currently, the footprints of the East and West Landfills are paved and in use as parking areas. The majority (23) of the soil vapor implants were installed at the East Landfill, as it was historically shown to contain waste material. Methane concentrations measured in the landfill gas ranged from not detected to 75% by volume and averaged 39% by volume across the east landfill. At the West Landfill the methane readings were below 2%.

4.15.1.2 Geotechnical

A review of the study reports for West Point at the landfills indicated significant issues that may be encountered during the planned vertical and horizontal development. Of the previous studies the Landfill Constructability Report by Ewing Cole provides a general evaluation of potential development alternatives, including improvement of the landfill material and potential difficulties.

4.15.1.3 Munitions and Waste Excavation

The Washington Gate Site has been identified as being located within the Artillery Firing Range Munitions Response Site (MRS). These ranges were in use from 1906 to the late 1930's and have been the subject of a number of investigations related to Munitions and Explosives of Concern (MEC). MEC have been found at multiple locations within the site. There is a potential that MEC may have been disposed of in the landfills.

4.15.2 Environmental Consequences

The following criteria have been developed to assess landfill impacts:

No Effect – No impacts to the landfill or any solid waste contained in the landfill. Waste will not be generated or removed.

No Significant Effect – No permanent direct or indirect impacts to the landfill or any solid waste contained in the landfill are expected. Any disruption to the landfill or the solid waste would be returned to its original state after the action has occurred.

Significant Effect – Direct or indirect impacts to the landfill or solid waste are anticipated, and these effects would be greater in number, extent, and/or duration than non-significant impacts. Significant impacts could include disturbances (such as the excavation and removal of solid waste) that could alter the character of the landfill, and the landfill might not resume its original state following the action.

4.15.2.1 No Action Alternative

No effects would be expected. Implementation of the no action alternative would not alter the landfills in any of the areas being considered under the proposed action.

4.15.2.2 Alternative 1 WG E

Landfill – USMAPS Washington Gate Site: Alternative 1 is not anticipated to have significant adverse effects on the landfills if measures listed in Section 4.15.3, Landfill Mitigation Measures are taken in accordance with NYSDEC/EPA solid waste regulations, to include installation of a NYSDEC-Part 360-compliant cap over the East Landfill. No building footprints are to be placed directly over either of the landfills. The soccer field and track, the football and lacrosse fields would be placed on top of the landfills. For any proposed buildings within 1,000 feet of the East Landfill, a passive gas collection system would need to be installed.

The athletic fields over the East and West Landfills would have effects on the landfill. The landfills would need to be dynamically compacted to prevent differential settlement. Without dynamic compaction the athletic fields placed on the landfill could settle in such a way as to prevent the fields from complying with NCAA standards for field pitch, as well as to prevent ponding.

Methane controls would still need to be put in place to prevent the landfill gas from migrating off site or collecting under one of the nearby buildings. Several gas vents would need to be installed around the landfill areas and all utilities that pass through the landfill would need to be installed so that gas cannot migrate off site (i.e. clay barrier around pipe). A vapor barrier would also be required under the proposed buildings that surround the landfill footprint within 1,000 feet. This would further prevent any landfill gas from migrating into the buildings.

DOL Motor Pool (TA-V/TA-W): There would be no effects as there are no landfills at the proposed DOL Motor Pool site of the Secondary Refueling Station.

4.15.2.3 Alternative 2 WG B

Landfill – USMAPS Washington Gate Site: Similar to Alternative 1, Alternative 2 would not be expected to have significant effects on the landfills if measures listed in Section 4.15.3, Landfill Mitigation Measures are taken in accordance with NYSDEC/EPA solid waste regulations, to include installation of a NYSDEC-Part 360-compliant cap over the East Landfill. No building footprints are to be placed over either of the landfills. For any buildings proposed within 1,000 feet of the East Landfill, a passive gas collection system would need to be installed.

The athletic fields and parking over the East and West Landfills would have effects on the landfill. The landfills would need to be dynamically compacted to prevent differential settlement. Without dynamic compaction the athletic fields placed on the landfill could settle in such a way as to prevent the fields from complying with NCAA standards for field pitch, as well as to prevent ponding. The methane controls discussed for Alternative 1 would also be required for Alternative 2.

4.15.2.4 Alternative 3 WG 15% Design

Landfill – USMAPS Washington Gate Site: Similar to Alternative 1, Alternative 3 would not be expected to have significant effect on the landfills if measures listed in Section 4.15.3, Landfill Mitigation Measures are taken in accordance with NYSDEC/EPA solid waste regulations, to include installation of a NYSDEC-Part 360-compliant cap over the East Landfill. This design does not have any of the building footprints placed over either the West or East Landfills. The only construction that would be placed on top of the landfills would be the soccer field and track, the football field, and the lacrosse field. Parking would remain for the West Landfill. The same methane protection measures for buildings discussed for Alternative 1 would be needed for Alternative 3, although many buildings are at a greater distance and are therefore less likely to be affected.

4.15.2.5 Alternative 4 LF 2a

There would be no effects as there are no landfills at the site.

4.15.2.6 Alternative 5 LF 2b

There would be no effects as there are no landfills at the site.

4.15.2.7 VETCOM Consequences

There would be no effects as there are no landfills at the site.

4.15.3 Mitigation Measures

4.15.3.1 Landfill Gas Mitigation Measures

Landfill methane controls would need to be incorporated into the design given these concentrations. If these controls are not put into place, landfill gas could migrate into buildings and adversely affect human health.

Utility trenches required to pass through the existing landfill would need to be protected from becoming gas migration corridors. This could be accomplished by surrounding the pipe bedding with clay around the edge of the landfill. If this action is not taken, the pipe bedding can act as a corridor for gas migration and the landfill gas could go offsite. For any buildings proposed within 1,000 feet of the East Landfill, a passive gas collection system would need to be installed. The system could include a spray-applied membrane or welded geomembrane that would act a barrier to vertical migration of landfill gas through the building floor slabs and perforated pipes placed in a layer of gravel. A gas monitoring and alarm system should also be put in place in the all the buildings. The routine maintenance required by this system could be performed by West Point-trained personnel.

National Electrical Manufacturers Association (NEMA) 4X enclosures would also be required as the presence of Munitions and Explosives of Concern (MEC) could result in damage to utilities. NEMA 4X enclosures would be capable of withstanding the pressures resulting from an internal explosion sufficiently that an explosive gas-air mixture existing in the atmosphere surrounding the enclosure would not be ignited.

4.15.3.2 Geotechnical Mitigation Measures

A review of the study reports for West Point at the landfills indicated significant issues that may be encountered during the planned vertical and horizontal development. Of the previous studies, the Landfill Constructability Report by Ewing Cole provides a general evaluation of potential development alternatives, including improvement of the landfill material and potential difficulties.

In addition to what is included in the report, the following conditions or issues should be re-evaluated prior to finalization of the development plans:

1. The landfill material is heterogeneous. Further time dependent total and differential settlements would be inevitable with the installing additional fill on the landfill. Therefore, no site development should be finalized without a significant and detailed ground improvement program to develop an adequate subgrade support. Unless frequent repair and maintenance is planned, the ground improvement program should cover the athletic facilities, light poles, bleachers, at-grade parking areas and access roads.
2. The ground improvement program must address handling of UXO (unexploded explosive ordnance) that may be buried within the landfill material. This can cause hazardous conditions during dynamic compaction, excavation or other construction activities.
3. The ground improvement program should cover the improvement of oversize materials as well as oversize waste (i.e. car chassis, engines, etc), boulders, tree stumps, etc.
4. The development plans should allow for settlement despite some degree of ground improvement. The vertical development designs should include measures to mitigate long term settlement (this may be significantly reduced after an effective ground improvement program).
5. Light poles and fence poles would require satisfactory bearing soil to withstand lateral forces and resist tilting. The ground improvement program or a deep foundation system should be developed to mitigate potential settlement, tilting, or failure.
6. Based on the existing subsurface data, it is considered that the site can be classified as Site Class F, not D as reported in the constructability report, which would require site-specific analysis and the results of which should be considered in the structural design development.
7. All utilities connecting to the proposed development requires special design procedure so that they would be damaged, or cause hazardous conditions due to differential and total settlements,
8. Piles recommended in the constructability report (pipe piles and H-piles) for light standards and other athletic field features would probably yield many early refusals and fail to achieve the design capacity due to oversize and foreign materials. In order to mitigate against early refusals design development should consider drilled piles of small diameter (i.e. micro piles), which can provide up to 600 kips design capacity.
9. The California Bearing Ratio (CBR) value recommended in the constructability report (10%) should be reduced significantly to provide a satisfactory pavement section for the access roads and the parking areas. The CBR is a penetration test for evaluation of the mechanical strength of road subgrades and base courses.
10. In the western part, in place of the excavated waste, structural fill could be placed for vertical development using a shallow foundation system. Site grading plans should be re-evaluated to minimize the placement of additional fill.
11. Typical artificial athletic fields turf systems have minimal slopes (approximately 1%). Because the proposed athletic fields could be artificial turf on the landfill footprint, design considerations would need to be made to minimize potential settlement that could affect field drainage.

4.15.3.3 Munitions and Waste Excavation Mitigation Measures

Munitions and Explosives of Concern removal (up to 2 feet depth) would take place prior to intrusive activities. During construction work an MEC construction support team would be required during intrusive site activities and all relevant USACE guidelines would be followed. Three feet of fill should be placed over landfill prior to dynamic compaction.

4.15.3.4 Landfill Capping System Mitigation Measures

The East Landfill is currently used as a parking and vehicle storage area. The majority of the landfill is capped with a relatively impervious asphalt pavement. The proposed design alternatives for the USMAPS campus would

result in a removal of relatively impervious pavement and installation of grassed and landscaped areas for the proposed athletic fields, which would tend to allow more infiltration of surface water into the landfill. This would result in an increase of the volume of leachate generated. To maintain equivalent or improved protection of the environment, a NYSDEC-Part 360-compliant cap should be installed over the East Landfill. This should consist of, from bottom to top, a gas collection layer, a barrier layer (40 mil polyethylene geomembrane), and a drainage layer. The cap would prevent the infiltration of surface water and would also act as a barrier to the uncontrolled gas emissions to the atmosphere. Landfill gas would accumulate below the barrier layer, then would be conveyed in the gas collection system to the proposed vents, and discharged. It is recommended that soil and waste excavation associated with the installation of the landfill cap accommodate installation of utilities. Incorporating the utility trenches above the cap would significantly reduce the potential for gas to migrate into the pipes, conduits, and trenches and therefore reduce the potential of gas migration into buildings.

Furthermore, it could be necessary to install a NYSDEC-Part 360- compliant landfill for the West Landfill depending on its final use; this is yet to be determined.

4.15.3.5 Redesign of Leachate Collection System Mitigation Measures

The current leachate collection network consists of two separate systems. Leachate collection trenches are currently located along the northern and northeastern toe of the East landfill to intercept leachate seeps present along the slope. The second system consists of a leachate collection trench located at the northwest corner of the east landfill within the limits of the landfill. Both leachate collections systems are reportedly connected to the existing sanitary sewer. Implementation of each of the three Washington Gate layout alternatives would impact the collection trench located within the landfill. It appears that the three leachate collection trenches located at the toe of the landfill slope would only be impacted in the Washington Gate Alternative 1 – 15% Parametric Design, in the northeastern portion of the east landfill.

- The leachate system could be left in place and the existing manhole and cleanout extended to the proposed ground surface elevations or the system can be abandoned. Currently, the functionality of this system is unknown and the impacted leachate collection systems may not be necessary upon site development. If, in the future, leachate flow becomes an issue, additional leachate collection trenches could be installed along the northern toe of the landfill with minimal disruption to campus activities. Dewatering would also be necessary for dynamic compaction to be effective at the site. An existing leachate mound was found to be present within the landfill and could be removed using a series of temporary dewatering wells and pumping the leachate from these wells to holding tanks. Because the currently generated leachate is discharged to the existing sewer system it is assumed that leachate generated during onsite activities could also be discharged into the sewer system. The leachate would first need to be treated before discharging so that it meets the requirements of the existing Target Hill Wastewater Treatment Plant. Assuming the WWTP can operate at 95% of its design capacity, it could receive an additional 114 gpm or 164,000 GPD over the course of 67 days (assuming constant operation). Any flow restrictions imposed by the WWTP could affect the schedule and limit the amount of dewatering that could occur. Approval from the DPW would be required to continue with the discharge and to determine the required discharge quality. Alternative leachate disposal options being considered include treating on site with discharge under a DEC issued SPDES permit to Sinclair Pond Brook, provided the effluent discharge limits specified in the permit are achievable, or hauling it to an off-post approved industrial waste treatment facility.

4.15.3.6 Piles Mitigation Measures

Leachate and landfill gas generated within the landfill can wear out steel piles and result in potential corrosion of the piles. It is recommended that the design engineer evaluate available corrosion data and design the foundation piles to account for an appropriate corrosion rate.

4.16 CUMULATIVE EFFECTS SUMMARY

A cumulative impact is defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future action regardless of what agency (federal or non-federal) or person undertakes such other actions” (40 CFR 1508.7). This section goes on to note

“such impacts can result from individually minor but collectively significant actions taking place over a period of time.” Cumulative impacts associated with implementation of the BRAC actions at West Point would include any incremental impacts that would occur when the Proposed Action is added to other “actions” at West Point. Such incremental impacts to be considered would include additional traffic, runoff from increased impervious surfaces, air emissions, noise, vegetation removal, and soil disturbance for construction and operation of the proposed project.

4.16.1 No Action Alternative

Under the No Action Alternative, the realignment of the USMAPS from Fort Monmouth to West Point would not occur, and construction to accommodate the USMAPS and the relocated DOL Motor Pool would not occur and VETCOM would not be relocated to West Point. There would be no cumulative effects associated with the No Action Alternative. Development in and around the installation would continue as it has, with increasing development pressure on the small town and relatively rural pattern of development.

4.16.2 Proposed Action Alternatives

There would be no significant effects resulting from the cumulative impacts of the Proposed Action with any past, present, or reasonably foreseeable future actions at West Point. There is a large list of projects completed or planned at West Point. The following past, present, and reasonably foreseeable future projects were considered in the cumulative impacts analysis:

Past and Present Actions:

- Annual Timber Harvest at Washington Gate Area
- Access Gates Security Upgrades (ongoing): Installation of permanent security measures at the three West Point access gates, which include Washington Gate, Stony Lonesome Gate, and Thayer Gate.
- Rehabilitation of Family Housing at USMA (ongoing): Revitalization of revitalize 44 historic senior officer, field grade, company grade, and noncommissioned officer family quarters, as well as six non-historic quarters at Bartlett Loop, to current standards.
- Jefferson Hall (ongoing): Construction of a new 150,000 SF Library & Learning Center in the Main Cantonment / academic area.
- 28 NCO Quarters Duplex Units Revitalization (ongoing): Revitalization of Army Family Housing project on Merritt Road, Sladen Place and Washington Road.
- New Brick Revitalization (2008): Revitalization of Army Family Housing project is located in an area bordered on east by Merritt Road. East Moore Loop traverses across the northeast of the area and connects with Connor Road.
- Stony Lonesome Water Tank (2007): 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.
- Foley Center Indoor Athletic Training Facility (2006): Construction of an indoor athletic training facility (IATF) on Howze Field to support the multiple athletic programs at USMA.
- Perimeter Security Fence Project (2005): Construction of a new and enhanced security measure along 5.8 miles of the perimeter of Main Cantonment/academic area.
- Fiber Optics Upgrades (2005): Upgrade of fiber optics infrastructure throughout the main campus, and out to Camp Buckner.
- Gray Ghost Housing (1998): Revitalization of Army Family Housing project.

Reasonably Foreseeable Future Actions:

- Child Development Center: Construction and operation of a Child Development Center at the old PX and adjacent area.
- Keller Army Community Hospital Expansion: A 50,000 ft² 3-story expansion includes an addition on the east end of the existing hospital and new parking.
- ODIA Coaches Housing (ongoing): Residential development of former NCO Club Area on Worth Place.
- North Post Access Road: Construction of road to link Washington Gate Community to Stony Lonesome Area.
- Electronic Entry Gate Signs: Electronic community bulletin board notification system for West Point Gates.
- Sinclair Pond Brook Stream Restoration Project: Regrading and stabilization of stream banks and channel.
- HQ Fire Station: Expansion of current fire station Building 721.
- Medical Department Activities Warehouse Facility: Construction of new warehouse and conversion of portion of existing Bldg. 733 into medical supply storage building.
- West Point Utilities Privatization Project: Privatization of potable water, natural gas and electric services to the West Point.
- West Point Cemetery Expansion Project: Expand the cemetery to increase the current capacity for full body interments by at least 25 years and cremation interments by at least 200 years.
- USMA Science Center Buildings 753 and 757 Renovation Project: Renovate existing buildings into a Science Center for life sciences, chemistry, physics, and photonics programs to include library archives and special collections.

The extent of cumulative effects resulting from the Proposed Action, when taken in conjunction with the projects mentioned above, would be determined in large part by factors such as construction schedules. Should the construction timeline of the Proposed Action coincide with that of any of these projects, cumulative impacts to aesthetics and visual resources, air quality, noise, water resources, and transportation may be expected.

Land Use

All projects are consistent with land use designations for the installation or would not impact land use adversely in a significant way; therefore, they would not add to other actions in a manner to cause significant cumulative impacts to land use at or in the vicinity of West Point.

Visual Resources

The region of influence for cumulative aesthetics and visual resource impacts is restricted to the Main Cantonment. Proposed construction and renovation actions would have minor effects on the existing viewsheds and site character of the West Point. The USMAPS campus is expected to be consistent with the aesthetic quality of the surrounding buildings and will complement the overall visual environment. While new construction in these areas would have a noticeable effect on the existing visual character of the project area, the overall effect of the proposed action would complement it, both at the Washington Gate site and as viewed from distance across the Hudson River.

The proposed projects are expected to adhere to the rigorous standards intended to preserve the integrity and enhance the visual environment of the Main Cantonment. Consequently, these projects would not adversely cause significant impacts when added cumulatively to the effects of other construction as long as existing regulations and guidance provided in the Installation Design Guide (IDG), INRMP, Resource Protection Management Plan

(RPMP), and Code of Environmental Management Principles for Federal Agencies (CEMP) are followed for all new construction and renovation projects.

Air Quality

Neither NO_x, VOC, PM_{2.5}, nor SO₂ would exceed their respective de minimis levels during construction or operation of the proposed projects. Air emissions were also evaluated to determine regional significance and found not to be regionally significant. The Army has prepared a RONA (see Appendix B). This analysis specifically considers the entire airshed with its potential activities and by determining that the project emissions are below de minimis levels, also determines that the cumulative effects of the proposed project are not significant.

Noise

Cumulative effects to noise would not be significant. Under any of the Washington Gate Site Alternatives, if the construction schedule coincides with that of other projects in close proximity, there would be minor cumulative effects to noise resulting from demolition and construction activities, as well as noise from construction vehicles. Lake Frederick Alternatives and proposed DOL Motor Pool (TA-V/W) under Washington Gate Site Alternatives are located in areas where cumulative projects are not anticipated. There would be no significant cumulative effects resulting from operation of the Proposed Action Alternatives.

Geology and Soils

The proposed construction would include localized soil disturbance and compliance with all applicable soil erosion regulations and guidelines to ensure that any potential impact from soil disturbance would be minor and not add to other actions in a way to cause significant cumulative impacts.

Water Resources

The implementation of past, present, and reasonably foreseeable future development in the project area likely would have no significant direct or indirect effects on surface water or ground water resources. Cumulatively with the USMAPS project the Sinclair Pond Brook Restoration Project would have beneficial cumulative impacts on the stream by stabilizing the stream banks to minimize erosion and contributing to improved water quality. Cumulatively, other projects such as the Annual Timber Harvest at Washington Gate, North Post Access Road, Perimeter Security Fence Project, and others would result in a potential temporary adverse impact on surface water due to potential soil erosion during construction activities. However, the need to obtain appropriate permits to ensure the use of site-specific erosion control measures and best management practices during site preparation and construction activities as well as treatment of runoff resulting from increased impervious surfaces per NYSDEC regulations would reduce potential temporary erosion and sedimentation and stormwater runoff effects to levels that would not be significant.

Biological Resources

Implementation of past, present and reasonably foreseeable future development in the project area would increase the potential for adverse impacts on biological resources, including long-term direct loss or conversion of common vegetation types, and subsequent short-term direct loss or indirect displacement of wildlife. However, because of the extensive amount of habitat at West Point, and the existing biological resources are common to Orange County and upstate New York, cumulatively these impacts would not be significant. Any potential significant impacts to vegetation communities and rare, threatened or endangered 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 NY State species protection laws. In addition, any impacts to jurisdictional wetlands would also be avoided, minimized, or mitigated to a level that is not significant in accordance with Section 404 of the Clean Water Act, Article 15 (Protection of Waters) of the NYSECL, Article 24 (Freshwater Wetlands) of the NYSECL, and NYSDEC 401 Water Quality Certification.

Cultural Resources

Compliance with the Integrated Cultural Resources Management Plan and Historic Landscape Management Plan for the United States Military Academy at West Point, New York is essential to the evaluation of projects with the potential to impact cultural resources. Appropriate levels of archaeological investigation would be required for both the Washington Gate and Lake Frederick USMAPS sites. The demolition of an NRHP eligible building at Lake Frederick under Alternative 4 would be avoided, minimized, or mitigated. One project on the list of cumulative projects, the Security gate upgrades including Washington Gate, an NRHP eligible structure, is sensitive, but no adverse incremental effects are anticipated from the construction of the USMAPS in this area. Therefore, cumulative effects to cultural resources would not be significant.

Socioeconomics

The impacts from the Proposed Action construction is beneficial and not of a scale to add incrementally to other actions to produce significant incremental impacts. There are negligible socioeconomic impacts from operations; therefore the long-term operations would not produce significant cumulative impacts

Transportation

Short-term cumulative effects to transportation, specifically to traffic flow in and around the installation, would result from overlapping construction schedules. These effects would not be significant, and may be improved through staggered construction schedules. Long-term cumulative effects resulting from an increased number of employees on post would not be significant, because reasonably foreseeable projects do not significantly add to traffic in areas where Proposed Action adds traffic.

Utilities

The utility demands for the Proposed Action are not large and therefore their small additions in demand would not be the cause for significant cumulative impacts. The short-term disposal of construction debris is also not considered to be of a scale to cause cumulative impacts in this region.

Hazardous Materials Use, Handling, and Storage

No significant effect; hazardous materials and hazardous waste would be managed in accordance with the installation's established procedures and guideline; inspection for asbestos and lead based paint prior to demolition of the Motor Pool facilities. This would assure minimal impacts and when added to other actions, would not produce incremental impacts that are significant.

Landfill Disruption

The impacts from landfill disruption are local to the Washington Gate area and would not add impacts incrementally to other actions at West Point.

4.17 MITIGATION SUMMARY

In order to ensure that effects are not significant, the U.S. Army must obtain the following permits and implement management or mitigation measures, which would be required in implementing the projects identified in this analysis:

- A Notice of Intent, Stormwater Pollution Prevention Plan, and a soil erosion, and sediment control plan for the construction phase of the project would be necessary under West Point's New York State Pollutant Discharge Elimination System (NYS PDES) General Permit. West Point would also need to comply with stormwater discharge regulations detailed in the New York State Department of Environmental Conservation (NYS DEC) Stormwater Management Design Manual.

- United States Army Corps of Engineers (USACE) Nationwide Permit (NWP) 38, Cleanup of Hazardous and Toxic Waste and NYSDEC Section 401 Water Quality Certificate for the relocation of Sinclair Pond Brook, Washington Gate Site.
- Section 404 Permit could be required for placing of fill in Wetlands at DOL Motor Pool Site at Training Areas V and W.
- A Federal Consistency Determination in accordance with the Coastal Zone Management Act for this as well as the other Main Cantonment project sites will need to be submitted to the NYSDOS in conjunction with the NEPA process and Section 106 consultation with the New York SHPO. Any mitigation specified by the Coastal Zone Management process would need to be incorporated into a FNSI prior to implementing the Proposed Action.
- Existing Title V air permit will need to be modified.

Similarly, in order to ensure that effects are not significant, the U.S. Army must implement the following mitigation measures, which would be required in implementing the projects identified in this analysis:

- To minimize the amount of landfill infiltration and leachate generation, and to provide the equivalent or improved protection of the environment of the existing cap, a NYSDEC-Part 360-compliant landfill cap would need to be constructed.
- Munitions and Explosives of Concern removal (up to 2 feet depth) will take place prior to intrusive activities. An MEC construction support team would be required during intrusive site activities and USACE guidelines would be followed.
- The East Landfill would need to be dynamically compacted to prevent differential settlement impacting athletic field viability. Leachate disposal would be accomplished by either treating on site with discharge to the Target Hill WWTP or under a DEC issued SPDES permit to Sinclair Pond Brook provided the effluent discharge limits specified in the permit are achievable. Alternatively, the leachate would be hauled to an off-post approved industrial waste treatment facility.
- For any proposed buildings within 1,000 feet of the East Landfill, a passive gas collection system would need to be installed..
- Relocation of Sinclair Pond Brook would occur during low flows and between 1 April and 30 September to reduce potential effects to aquatic life.

To address the required mitigation measures, West Point informed the NYSDEC of the following scope of work that would be included in the construction contract for the East Landfill (Appendix A):

- Leachate removal/dewatering to improve effectiveness of compaction process as well as to provide a long-term positive impact to the environment.
- Dynamic compaction of the site to reduce voids and to minimize long-term secondary compression.
- Installation of a Subtitle D cap on the landfill consisting of a gas collection layer (geocomposite) above a single-sided geocomposite drainage layer, which will be above a 40-mil geomembrane layer.
- Installation of a passive gas collection system in the buildings with ventilation provided to the roof. A spray applied membrane is to be applied on the subgrade below building slabs.
- Flexible utility connections at buildings to accommodate post-construction settlement.
- Replacement of existing monitoring wells as required, with an active gas collection system in the open areas of the site.

Additionally, BMPS such as requiring permission to work during nighttime hours and weekends and allowing limited truck ingress/egress during nighttime and weekends would limit the construction noise effect in the shrouding area. Furthermore, "green" design, construction, and operation such as utilization of alternate sources of energy (solar), green roofs, and Leadership in Energy and Environmental Design (LEED) silver initiatives, would result in increased energy efficiency and savings.

5.0 FINDING AND CONCLUSIONS

5.1 FINDINGS

5.1.1 Consequences of No Action Alternative

Under the No Action Alternative, USMAPS would not come to West Point and VETCOM would not relocate to West Point. No environmental impacts would occur as a result of the No Action Alternative.

5.1.2 Consequences of Proposed Action Alternatives

There would be no significant effects resulting from the Proposed Action at West Point as listed in Table 5-1, Summary of Effects Alternative, based on implementation of the identified mitigation and management measures.

5.2 CONCLUSIONS

Regardless of which alternative is ultimately selected for implementation, so long as the corresponding mitigation measures that have been identified and explained are implemented, there would be no significant adverse impacts. Moreover, through the introduction of LEED Silver standard design features, it is reasonably anticipated that there will be some long-term beneficial impacts associated with the implementation of the Proposed Action. Therefore, issuance of a FNSI that commits to the necessary mitigation measures is warranted.

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Table 5-1: Summary of Impacts of the Alternatives

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
<p>Land Use: <i>Regional Geographic Setting and Location</i></p>	<p>Washington Gate Site: No effect.</p> <p>DOL Motor Pool (TA-V/W): No effect.</p> <p>DOL Secondary Refueling Station: No effect.</p>	Same as Alternative 1.	Same as Alternative 1.	USMAPS Lake Frederick Site: No effect.	Same as Alternative 4.	No effect.
VETCOM	No effect.					No effect.
<p>Land Use: Installation Land</p>	<p>USMAPS Washington Gate Site: Effects would not be significant; the proposed land use is compatible with current and surrounding on-post uses; beneficial impacts from the proposed mitigation measures to the landfill and contaminated soil/removal as well as construction of LEED Silver Standard certifiable buildings.</p> <p>DOL Motor Pool (TA-V/W): Effects would not be significant; although forested land would be developed, the current classification, for range and industrial uses, is compatible with the facility.</p> <p>DOL Secondary Refueling Station: No effect; compatible with the currently developed industrial area.</p>	Same as Alternative 1.	Same as Alternative 1.	USMAPS Lake Frederick Site: Effects would not be significant; the current campground would be relocated within the area and recreational functions would continue	USMAPS Lake Frederick Site: Effects would not be significant; the current campground would remain and recreational functions would continue.	No effect.
VETCOM	Effects would not be significant; the VETCOM facilities would be collocated with existing Veterinary Treatment Facility.					No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
Land Use: <i>Surrounding Land/Airspace Use</i>	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W) and DOL Secondary Refueling Station: No effect; the USMAPS facilities would occur within West Point boundary.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.	No effect.
Land Use: <i>Current and Future Development in the Region of Influence</i>	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W) and DOL Secondary Refueling Station: Effects would not be significant; all projects occur within West Point boundary; short-term construction requirements add financial capital to local and regional economy.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.	Same as Alternative 1.	No effect.
VETCOM	No effects; the VETCOM facilities would be collocated with existing Veterinary Treatment Facility.					No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
Aesthetic and Visual Resources	<p>USMAPS Washington Gate Site: Beneficial effects; proposed design would enhance the visual character of the area.</p> <p>9W Viewshed: Beneficial effects; would create a new visual district consistent with Grey Ghost Housing area; nighttime illumination consistent with adjacent areas and temporary.</p> <p>Boscobel Viewshed: Proposed design would be consistent with the scale, materials and massing of the adjacent area in the Main Cantonment; nighttime illumination consistent with adjacent areas and temporary; no significant effects.</p> <p>Cold Spring Dock Viewshed: No noticeable effect. Nighttime illumination consistent with adjacent areas and temporary.</p> <p>DOL Motor Pool (TA-V/W): Natural landscape replaced by new structure element; however, could create a visual district in an area that lacks visual consistency; effects not significant.</p> <p>DOL Secondary Refueling Station: Effects to the viewshed minimal and not significant; fuel dispensing station and USTs in an industrial area.</p>	<p>USMAPS Washington Gate Site: Similar effects to visual character as in Alternative 1.</p> <p>9W Viewshed: Similar effects as in Alternative 1.</p> <p>Boscobel Viewshed: Similar effects as in Alternative 1.</p> <p>Cold Spring Dock Viewshed: Similar effects as in Alternative 1.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site: Similar effects to visual character as in Alternative 1.</p> <p>9W Viewshed: Similar effects as in Alternative 1.</p> <p>Boscobel Viewshed: Similar effects as in Alternative 1.</p> <p>Cold Spring Dock Viewshed: Similar effects as in Alternative 1.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick Site: Effects not significant; alteration of existing character is not adverse as there is currently not a high degree of consistency in the area.</p>	<p>USMAPS Lake Frederick Site: Similar to Alternative 4.</p>	No effect.
VETCOM	No effects if the expansion to Building 630 is in accordance with the scale, height, mass, and material of the existing building.					No effect.
Air Quality: Ambient Air Quality Conditions	<p>USMAPS Washington Gate Site/ Secondary Refueling Station and DOL Motor Pool (TA-V/W): Air emissions for airshed (includes both locations) are below <i>de minimis</i> levels and not regionally significant for general conformity; therefore air impacts are not significant. A RONA has been prepared. Title V air permit would be modified.</p>	Same as Alternative 1.	Same as Alternative 1.	<p>USMAPS Lake Frederick Site: Air emissions are below <i>de minimis</i> levels and not regionally significant for general conformity; therefore air impacts are not significant. A RONA has been prepared. Title V air permit would be modified.</p>	Same as Alternative 4.	No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
VETCOM	The analysis of air quality for VETCOM was considered under Alternatives 1-5 and does not have significant impacts.					No effect.
Noise: Construction and Demolition	<p>USMAPS Washington Gate Site: No significant effects; distance would reduce the noise levels to sensitive receptor (nearest at 330 feet); limit work activities to 0700-2200 hours and require permit from West Point Command for weekend/nighttime activities; employment of noise controlled construction equipments.</p> <p>DOL Motor Pool (TA-V/W): No significant effects; area is an undeveloped area with no sensitive receptors.</p> <p>DOL Secondary Refueling Station: No significant effects; in an industrial area in proximity to the salt dome.</p>	<p>USMAPS Washington Gate Site: Similar to Alternative 1.</p> <p>DOL Motor Pool (TA-V/W): Same as Alternative 1.</p> <p>DOL Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site: Similar to Alternative 1.</p> <p>DOL Motor Pool (TA-V/W): Same as Alternative 1.</p> <p>DOL Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick Site: No significant effects; campgrounds would be demolished and relocated.</p>	<p>USMAPS Lake Frederick Site: No significant effects; campgrounds would be retained; however, assumed not to be accessible during construction.</p>	No effect.
Noise: Facility Operation	<p>USMAPS Washington Gate Site: No significant effects; traffic noise levels would potentially be lower than existing due to the Motor Pool relocation; outdoor athletic competition would be temporary and distance would lower the noise levels to the nearest sensitive receptor.</p> <p>DOL Motor Pool (TA-V/W): No significant effects; area in an undeveloped area with no sensitive receptors.</p> <p>DOL Secondary Refueling Station: No significant effects; in an industrial area in proximity to the salt dome.</p>	<p>USMAPS Washington Gate Site: Similar to Alternative 1.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site: Similar to Alternative 1.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick Site: No significant effects; Athletic complex approximately 500 feet to nearest housing area with forest as buffer; additional coniferous trees could be planted for fall events; noise impacts to the Barracks from the Maddock Drop Zone not anticipated to be significant as the training occurs in day time hours and a few night time operations are before 1900 hours during daylight savings time.</p>	<p>USMAPS Lake Frederick Site: Same as Alternative 4.</p>	No effect.
VETCOM	No significant effect; construction noise to Brick Housing area offset with employment of noise reducing measures; facility operation would not significantly add to the noise in the area.					No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
Geology, Topography, and Soils: <i>Geology, Topography, and Soils</i>	<p>USMAPS Washington Gate Site: No significant effects, land disturbance of approximately 26 acres and permanent impervious area of 13.8 acres; excavation of rock required; approximately 60% of the new development on previously graded land with fill material (Udorthents). Best Management Practices (BMPs) would be implemented to minimize erosion and the amount and velocity of runoff; NYSDEC Erosion and Sediment Control Plan required as the footprint greater than one acre. For geotechnical requirements at the landfills see Landfill section below.</p> <p>DOL Motor Pool (TA-V/W): No significant effects, land disturbance of approximately 38 acres and permanent impervious 16.9 acres on previously undeveloped land; BMPs would be implemented to minimize the amount and velocity of runoff; NYSDEC Erosion and Sediment Control Plan required as the footprint greater than one acre; geotechnical requirements at the landfills (see Landfill).</p> <p>DOL Secondary Refueling Station: No significant effects; small area soil disturbance in a developed area.</p>	<p>USMAPS Washington Gate Site: No significant effects; land disturbance of approximately 26 acres and permanent impervious area of 14 acres; excavation of rock required; approximately 70% of the new development on previously graded land with fill material (Udorthents). BMPs would be implemented and NYSDEC Erosion and Sediment Control Plan required same as Alternative 1; For geotechnical requirements at the landfills see Landfill section below.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site: No significant effects; land disturbance of approximately 42 acres and permanent impervious area of 15 acres; excavation of rock required; approximately 50% of the new development on previously graded land with fill material (Udorthents). BMPs and NYSDEC Erosion and Sediment Control Plan required same as Alternative 1; geotechnical requirements at the landfills (see Landfill).</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick Site: No significant effects, land disturbance of approximately 64 acres and permanent impervious area 15.7 acres; development on previously developed and undeveloped land. BMPs would be implemented to minimize the amount and velocity of runoff; NYSDEC Erosion and Sediment Control Plan required as the footprint greater than one acre.</p>	<p>USMAPS Lake Frederick Site: Similar to Alternative 4.</p>	No effect.
VETCOM	No significant effects; BMPs would be implemented to minimize erosion and the amount and velocity of runoff; NYSDEC Erosion and Sediment Control Plan not required.					No effect.
Geology, Topography, and Soils: Prime Farmland	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W) and DOL Secondary Refueling Station: No effects; no lands suitable for classification as prime farmland.	Same as Alternative 1.	Same as Alternative 1.	USMAPS Lake Frederick Site: No effect; no agricultural use.	USMAPS Lake Frederick Site: Similar to Alternative 4.	No effect.
VETCOM	No effect; no lands suitable for classification as prime farmland.					No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
<p>Water Resources: <i>Surface Water</i></p>	<p>USMAPS Washington Gate Site: No significant effects; specific design measures to minimize athletic fields run-off to Sinclair Pond Brook if artificial turf; BMPs would be implemented to minimize the amount and velocity of runoff; NYSDEC Stormwater Pollution Prevention Plan and Erosion and Sediment Control Plan required as the footprint greater than one acre; construction of a NYSDEC Part 360 Compliant Landfill cap to minimize landfill infiltration and leachate generation; Nationwide Permit 38 and NYSDEC Section 401 Water Quality Permit required for Sinclair Brook Pond relocation of 500 linear feet to 1 to 30 feet east.</p> <p>DOL Motor Pool (TA-V/W): No significant effects; BMPs would be implemented to minimize the amount and velocity of runoff; Erosion and Sediment Control Plan required as the footprint greater than one acre; minimize the amount and velocity of runoff; NYSDEC Stormwater Pollution Prevention Plan for Industrial Activities required with quarterly inspection and sampling; a bio-retention system recommended prior to discharge to Stilwell Lake; coordination with NYS DOH for siting and design of the Motor Pool; measures to minimize potential leaks/spills from fueling tanks.</p> <p>DOL Secondary Refueling Station: No significant effects; in a developed area; measures to minimize potential leaks/spills from fueling tanks.</p>	<p>USMAPS Washington Gate Site: Same as Alternative 1; Nationwide Permit 38 and NYSDEC Section 401 Water Quality Permit required for Sinclair Brook Pond relocation of 75 linear feet to 1 to 10 feet east.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site: Same as Alternative 1.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1</p>	<p>USMAPS Lake Frederick: No significant effects; BMPs would be implemented to minimize the amount and velocity of runoff; NYSDEC Erosion and Sediment Control Plan required as the footprint greater than one acre; stormwater management to minimize potential effects from impervious surface.</p>	<p>USMAPS Lake Frederick: Same as Alternative 4.</p>	<p>No effect.</p>
<p>VETCOM</p>	<p>No significant effects; BMPs during construction would minimize impacts to Kinsley Farm Brook; increase in impervious surfaces would be very minor.</p>					<p>No effect.</p>

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
<p>Water Resources: <i>Wetlands</i></p>	<p>USMAPS Washington Gate Site: No effect; there are no wetlands in proximity to the proposed USMAPS campus.</p> <p>DOL Motor Pool (TA-V/W): No significant effects; Section 404 permit potentially required for placing of fill in a jurisdictional wetlands for access road; BMPs would be implemented to minimize the amount and velocity of runoff; stormwater measures would be implemented to prevent contaminated stormwater runoff.</p> <p>DOL Secondary Refueling Station: No effect; no wetlands in the area.</p>	<p>USMAPS Washington Gate Site: Same as Alternative 1.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site: Same as Alternative 1.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick: No significant effects; relocation of the campground could avoid wetlands; if wetlands are disturbed a Section 404 permit could be required.</p>	<p>USMAPS Lake Frederick: No significant effects; Section 404 permit potentially required for disturbing jurisdictional wetlands for the Barracks location.</p>	<p>No effect.</p>
VETCOM	No effect; there are no wetlands in proximity.					No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
Water Resources: <i>Hydrogeology/ Groundwater</i>	USMAPS Washington Gate Site: No significant effects; a NYSDEC Part 360 Compliant cap would be installed; deep dynamic compaction would be employed at east landfill and dewatering would be required; some beneficial effects from removal of two underground diesel storage tanks and the remediation of contaminated soil/ groundwater. DOL Motor Pool (TA-V/W): No significant effect; leaks from vehicles, vehicle maintenance operations, and fueling operations could pose a threat to groundwater sources; however, the potential for spills and leaks would be minimized by existing on-site clean-up procedures and equipment, the installation of oil water separators, and adherence to safety procedures for vehicle maintenance and the operation of equipment. A packaged wastewater treatment plant with infiltration gallery to provide tertiary treatment would be designed to comply with applicable regulations. DOL Secondary Refueling Station: No significant effect; in a developed area; measures to minimize potential leaks/spills from fueling tanks	USMAPS Washington Gate Site: Same as Alternative 1. DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.	USMAPS Washington Gate Site: Same as Alternative 1. DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.	USMAPS Lake Frederick Site: No significant effects; a packaged wastewater treatment plant with infiltration gallery to provide tertiary treatment would be designed to comply with applicable regulations.	USMAPS Lake Frederick Site: Same as Alternative 4.	No effect.
VETCOM	No effect; there are no wetlands in proximity.					No effect.
Water Resources: <i>Floodplains</i>	USMAPS Washington Gate Site: No effect; project area is outside of the 100- and 500-year floodplains. DOL Motor Pool (TA-V/W): No effect; project area is outside of the 100- and 500-year floodplains. DOL Secondary Refueling Station: No effect; project area is outside of the 100- and 500-year floodplains.	USMAPS Washington Gate Site: Same as Alternative 1. DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.	USMAPS Washington Gate Site: Same as Alternative 1. DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.	USMAPS Lake Frederick Site: No effect; project area is outside of the 100- and 500-year floodplains.	USMAPS Lake Frederick Site: Same as Alternative 4.	No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
VETCOM	No effect; project area is outside of the 100- and 500-year floodplains.					No effect.
Coastal Zone	<p>USMAPS Washington Gate Site: Area within the Hudson River Coastal Zone; eight policies affected – 7, 23, 24, 30, 33, 36, 38, and 39; a Federal Consistency Determination in conjunction with other Main Cantonment projects site will need to be submitted; any mitigation specified by the Coastal Zone Management process would need to be incorporated into a FNSI prior to implementing the Proposed Action.</p> <p>DOL Motor Pool (TA-V/W): No effect; the area is not within the Hudson River Coastal Zone.</p> <p>DOL Secondary Refueling Station: Area within the Hudson River Coastal Zone; eight policies affected – 7, 23, 24, 30, 33, 36, 38, and 39; a Federal Consistency Determination in conjunction with other Main Cantonment projects site will be submitted; any mitigation specified by the Coastal Zone Management process would be incorporated into FNSI prior to implementing the Proposed Action.</p>	<p>USMAPS Washington Gate Site: Same as Alternative 1.</p> <p>DOL Motor Pool (TA-V/W): Same as Alternative 1.</p> <p>DOL Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site: Same as Alternative 1.</p> <p>DOL Motor Pool (TA-V/W): Same as Alternative 1.</p> <p>DOL Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick Site: No effect; the area is not within the Hudson River Coastal Zone.</p>	<p>USMAPS Lake Frederick Site: Same as Alternative 4.</p>	No effect.
VETCOM	Area within the Hudson River Coastal Zone; eight policies affected – 7, 23, 24, 30, 33, 36, 38, and 39; a Federal Consistency Determination in conjunction with other Main Cantonment projects site will need to be submitted; any mitigation specified by the Coastal Zone Management process would be incorporated into FNSI prior to implementing Proposed Action.					No effect.
Biological Resources: Vegetation	<p>USMAPS Washington Gate Site: No significant effects from significant from removal of vegetation.</p> <p>DOL Motor Pool (TA-V/W): Effects are not significant; clearance of 38 acres of forested upland represents less than 1% of forested training and range area within West Point.</p> <p>DOL Secondary Refueling Station: No effect; area already developed.</p>	<p>USMAPS Washington Gate Site: Similar to Alternative 1.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site: No significant effects; clearance of 20 acres of forested upland represents 0.02% of forested area in the Main Cantonment.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick Site: No significant effects; clearance within 38 acres of young woodland forest represents less than 1% of forested training and range area; 26 acres of grassy habitat currently divided by roads and mowing.</p>	<p>USMAPS Lake Frederick Site: Same as Alternative 4.</p>	No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
VETCOM	No effect; area already developed.					No effect.
Biological Resources: <i>Wildlife</i>	<p>USMAPS Washington Gate Site: No significant effect; area already developed; relocation of Sinclair Pond Brook during low flows and between April 1 and September 30 would avoid downstream trout spawning and hatching seasons.</p> <p>DOL Motor Pool (TA-V/W): No significant effects; loss of forested upland habitat represents less than 1 acre of forested training and range area at West Point; construction activities would likely result in mortality of less motile fauna, mobility of would not affected by fragmentation but would be subject to human activities; water supply to the facility would not impact aquatic resources of Stilwell Lake.</p> <p>DOL Secondary Refueling Station: No effect; area already developed.</p>	<p>USMAPS Washington Gate Site: Similar to Alternative 1.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site: No significant effects; clearance of 20 acres of forested upland represents 0.02% of forested area in the Main Cantonment; construction activities would likely result in mortality of less motile fauna, mobility of would not affected by fragmentation but would be subject to human activities.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick Site: No significant effects; clearance of 38 acres of young woodland forest represents less than 1% of forested training and range area; construction activities would likely result in mortality of less motile fauna, mobility of would not affected by fragmentation but would be subject to human activities, however the wildlife are common species that inhabit fringe habitat.</p>	<p>USMAPS Lake Frederick Site: Same as Alternative 4.</p>	No effect.
VETCOM	No effect; area already developed.					No effect.
Biological Resources: <i>Sensitive Species</i>	<p>USMAPS Washington Gate Site and DOL Motor Pool (TA-V/W): No effects; Sensitive species are not present and USFWS concurred that there would be no effect on federally listed species.</p> <p>DOL Secondary Refueling Station: No effect; area already developed and does not have sensitive species.</p>	<p>USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick Site: No effects; impacts to a state listed plant species could be avoided in siting of the relocated camp ground.</p>	<p>USMAPS Lake Frederick Site: No effects; preservation of a state listed plant species through final design layout for the barracks and transplanting.</p>	No effect.
VETCOM	No effect; area already developed and does not have sensitive species.					No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
Biological Resources: <i>Wetlands Habitat</i>	<p>USMAPS Washington Gate Site: No effect; there are no wetlands in proximity to the proposed USMAPS campus.</p> <p>DOL Motor Pool (TA-V/W): No significant effects; Section 404 permit potentially required for placing of fill in a jurisdictional wetlands for access road; BMPs would be implemented to minimize the amount and velocity of runoff; stormwater measures would be implemented to prevent contaminated stormwater runoff.</p> <p>DOL Secondary Refueling Station: No effect; there are no wetlands in proximity.</p>	<p>USMAPS Washington Gate Site: Same as Alternative 1.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site: Same as Alternative 1.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick: No significant effects; relocation of the campground could avoid wetlands; if fill is placed in wetlands, a Section 404 permit could be required.</p>	<p>USMAPS Lake Frederick: No significant effects; Section 404 permit potentially required for placing of fill in jurisdictional wetlands for the Barracks location.</p>	
VETCOM	No effect; there are no wetlands in proximity.					No effect.
Cultural Resources: <i>Archaeological</i>	<p>USMAPS Washington Gate Site: No effect; SHPO concurrence with 2006 Phase I Cultural Resource Survey conclusion that no effect upon NRHP eligible archaeological resources.</p> <p>DOL Motor Pool (TA-V/W): No significant effect; a parking area for the DOL Motor Pool must avoid a potential NRHP site; consultation with the NYSOPRHP would be required.</p> <p>DOL Secondary Refueling Station: No effect; in a previously disturbed area of no potential for archaeological resources.</p>	<p>USMAPS Washington Gate Site: Same as Alternative 1.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site: Same as Alternative 1.</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick Site: No significant effects; the results of the Phase I Archaeological Survey, 14 archaeological isolates associated with the Proctoria Estate; these will be addressed with NYSOPRHP.</p>	<p>USMAPS Lake Frederick Site: Same as Alternative 4.</p>	No effect.
VETCOM	No effect; renovation and a second story addition.					No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
Cultural Resources: <i>Built Environment</i>	USMAPS Washington Gate Site: No significant effect; construction of the new facilities in keeping with the Installation Design Guidelines, after consultation with the New York SHPO under Section 106, will ensure that they have no adverse effect under Section 106, NHPA. DOL Motor Pool (TA-V/W): No effect; outside NHDL and no NRHP eligible buildings adjacent. DOL Secondary Refueling Station: No significant effect; would be built at the center of an existing paved industrial area and screened from the Washington Road scenic corridor by trees and distance.	USMAPS Washington Gate Site: Same as Alternative 1 DOL Motor Pool (TA-V/W): Same as Alternative 1. DOL Secondary Refueling Station: Same as Alternative 1.	USMAPS Washington Gate Site: Same as Alternative 1. DOL Motor Pool (TA-V/W): Same as Alternative 1. DOL Secondary Refueling Station: Same as Alternative 1.	USMAPS Lake Frederick Site: Consultation with NYSOPRHP would be required prior to construction under Section 106 of NHPA to avoid, minimize, or mitigate adverse impact to NRHP eligible Building 1848, associated with the Proctor estate.	USMAPS Lake Frederick Site: No effect; no demolition or alteration of historic buildings.	No effect.
VETCOM	Consultation with NYSOPRHP would be required prior to construction under Section 106 of NHPA to avoid, minimize, or mitigate adverse impact to NRHP eligible Building 630.					No effect.
Cultural Resources: <i>Native American Resources</i>	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: No effect; there are no known Traditional Cultural Properties in the project area.	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.	USMAPS Lake Frederick Site: Same as Alternative 1.	USMAPS Lake Frederick Site: Same as Alternative 1.	No effect.
VETCOM	No effect; there are no known Traditional Cultural Properties in the project area.					No effect.
Socioeconomics: <i>Economic Development</i>	USMAPS Washington Gate Site DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Minor direct and indirect beneficial effects during construction; most of which will be temporary.	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.	USMAPS Lake Frederick Site: Same as Alternative 1.	USMAPS Lake Frederick Site: Same as Alternative 1.	No effect.
VETCOM	No significant effect; some construction related jobs would be created, most of which will be temporary.					No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
Socioeconomics: <i>Environmental Justice</i>	USMAPS Washington Gate Site DOL Motor Pool (TA-V/W), and Secondary Refueling Station: No significant effects; no disproportionately high and adverse impacts to minority or low income population.	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.	USMAPS Lake Frederick Site: Same as Alternative 1.	USMAPS Lake Frederick Site: Same as Alternative 1.	No effect.
VETCOM	No significant effects; some construction related jobs would be created, most of which will be temporary.					No effect.
Transportation: <i>Roadways and Traffic</i>	<p>USMAPS Washington Gate Site: No significant effect; short-term interruptions in local traffic patterns during the construction periods; long-term minor traffic improvement anticipated at Washington Gate from Motor Pool relocation would offset the USMAPS commuters; USMAPS candidate cadets travel off-peak.</p> <p>DOL Motor Pool (TA-V/W): No significant effect; short-term interruptions in local traffic patterns during the construction periods; adequate capacity for long term traffic on Route 293.</p> <p>DOL Secondary Refueling Station: No significant effect; short-term interruptions in local traffic patterns during the construction periods; primary fueling activities will be forklifts, construction vehicles, and land and yard maintenance tools.</p>	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.	USMAPS Lake Frederick Site: No significant effect; short-term interruptions in local traffic patterns during the construction periods; long-term USMAPS commuters in three shifts; USMAPS candidate cadets travel off-peak.	USMAPS Lake Frederick Site: Same as Alternative 4.	No effect.
VETCOM	No significant effect; VETCOM employee transportation impacts evaluated with USMAPS at Washington Gate.					No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
<p>Utilities: <i>Water Supply</i></p>	<p>USMAPS Washington Gate Site: No significant effects; adequate treatment capacity and lines exist; however, an additional aboveground water storage tank would be provided to assure required water storage capacity for fire protection at the USMAPS campus. Runoff capture would water vegetation.</p> <p>DOL Motor Pool (TA-V/W): No significant effects; area is undeveloped and a new water treatment plant with water storage and distribution would provide adequate potable water; modification of Stilwell pump station would provide raw water for potable and non-potable uses.</p> <p>DOL Secondary Refueling Station: No effects.</p>	<p>USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick Site: Provision of water facilities would assure no significant effect. A new water treatment plant at Lake Frederick with water storage would provide adequate potable water; 2-6 new wells would provide raw water for potable and non-potable uses.</p>	<p>Same as Alternative 4.</p>	<p>No effect.</p>
VETCOM	VETCOM collocation with the VTF would entail minor modifications to existing water distribution and minor additional demand, resulting in no significant effect.					No effect.
<p>Utilities: <i>Wastewater System</i></p>	<p>USMAPS Washington Gate Site: No significant effects; adds less than 2% to treatment plant capacity needs. Adequate lines exist.</p> <p>DOL Motor Pool (TA-V/W): No significant effects; area is undeveloped and a new wastewater treatment plant with infiltration gallery and distribution meeting applicable standards would provide adequate wastewater removal.</p> <p>DOL Secondary Refueling Station: No effects.</p>	<p>USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick Site: Provision of wastewater facilities would assure no significant effect. A new wastewater treatment plant at Lake Frederick with infiltration gallery and distribution meeting applicable standards would provide adequate wastewater removal.</p>	<p>Same as Alternative 4.</p>	<p>No effect.</p>
VETCOM	VETCOM collocation with the VTF would entail minor modifications to existing wastewater distribution and minor additional demand for no significant effect.					No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
<p>Utilities: <i>Stormwater System</i></p>	<p>USMAPS Washington Gate Site: No significant effects; stormwater features including sand filters will meet applicable guidelines.</p> <p>DOL Motor Pool (TA-V/W): No significant effects; area is undeveloped and a new stormwater system meeting applicable standards would provide adequate stormwater removal.</p> <p>DOL Secondary Refueling Station: No effects.</p>	<p>USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick Site: Provision of a new stormwater system meeting applicable standards would assure no significant effect.</p>	<p>Same as Alternative 4.</p>	<p>No effect.</p>
VETCOM	VETCOM collocation with the VTF would entail minor modifications to existing stormwater systems adding minor additional runoff: for no significant effect.					No effect.
<p>Utilities: <i>Energy Sources</i></p>	<p>USMAPS Washington Gate Site: No significant effects; existing power circuits will be reconfigured to serve this campus and nearby users. Backup power from gas generator intended. Steam and gas will be provided from nearby sources. Proposed new buildings would meet LEED Silver Design standards.</p> <p>DOL Motor Pool (TA-V/W): No significant effects; area is undeveloped and power will come from lines along nearby Route 293. Backup generators are planned. Propane will provide heat. Proposed new buildings would meet LEED Silver Design standards and would replace the existing older, less efficient buildings.</p> <p>DOL Secondary Refueling Station: No significant effects to power; adds backup generator.</p>	<p>USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick Site: Provision of new power from nearby grid and either natural gas or heat from fuel oil will pose construction costs, but no significant effect. Backup generator required. Adds backup generator. Proposed new buildings would meet LEED Silver Design standards.</p>	<p>Same as Alternative 4.</p>	<p>No effect.</p>
VETCOM	VETCOM collocation with the VTF would entail minor modifications to existing power and heating systems adding minor additional demand, resulting in no significant effect.					No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
Utilities: <i>Communications</i>	<p>USMAPS Washington Gate Site: No significant effects; existing communication lines are readily available and would be extended to campus.</p> <p>DOL Motor Pool (TA-V/W): No significant effects; adequate communication lines are available for extension to site.</p> <p>DOL Secondary Refueling Station: No effects.</p>	<p>USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick Site: Provision of new communication lines to this remote area will pose construction costs, but no significant effect.</p>	<p>Same as Alternative 4.</p>	<p>No effect.</p>
VETCOM	No effect.					No effect.
Utilities: <i>Solid Waste</i>	<p>USMAPS Washington Gate Site: There would be a temporary increase in the generation of solid waste as the result of site clearance and construction at USMAPS location. Additional personnel on-site would add minor amounts of waste during operations. No significant effect.</p> <p>DOL Motor Pool (TA-V/W): There would be a temporary increase in the generation of solid waste as the result of site clearance and construction at USMAPS location. Existing POL waste disposal process can handle new sludge and separator waste. No significant effect.</p> <p>DOL Secondary Refueling Station: No significant effects. Existing POL waste disposal process can handle new separator waste.</p>	<p>USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1, except greater amounts of rock requiring removal would add C & D waste requiring disposal at the USMAPS site.</p>	<p>USMAPS Lake Frederick Site: There would be a temporary increase in the generation of solid waste as the result of site clearance and construction at USMAPS location. Additional personnel on-site would add minor amounts of waste during operations. No significant effect.</p>	<p>Same as Alternative 4.</p>	<p>No effect.</p>
VETCOM	VETCOM would be collocated with the VTF by expanding and renovating that facility. This would entail minor modifications, adding minor amounts of construction waste on temporary basis, resulting in no significant effect.					No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
Hazardous and Toxic Substances	<p>USMAPS Washington Gate Site: No significant effect; hazardous materials and hazardous waste would be managed in accordance with the installation's established procedures and guideline; inspection for asbestos and lead based paint prior to demolition of the Motor Pool facilities.</p> <p>DOL Motor Pool (TA-V/W): No significant effect; hazardous materials and hazardous waste would be managed in accordance with the installation's established procedures and guidelines; Installation SPCC would be updated.</p> <p>DOL Secondary Refueling Station: No significant effect; hazardous materials and hazardous waste would be managed in accordance with the installation's established procedures and guidelines; Installation SPCC would be updated.</p>	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1.	USMAPS Lake Frederick Site: No significant effect; hazardous materials and hazardous waste would be managed in accordance with the installation's established procedures and guideline; inspection for asbestos and lead based paint prior to demolition of the campground facilities.	USMAPS Lake Frederick Site: No significant effect; hazardous materials and hazardous waste would be managed in accordance with the installation's established procedures and guidelines; no building demolition required.	No effect.
VETCOM	No significant effect; handling of hazardous materials and hazardous waste, including asbestos containing material during renovation would be in accordance with the installation's established procedures and guideline; inspection for asbestos and lead based paint prior to renovation.					No effect.
Site Contamination: Underground Storage Tanks	<p>USMAPS Washington Gate Site: No significant effect; the removal of existing USTs and remediation of any contaminated soils associated with the USTs would be completed before initiating construction.</p> <p>DOL Motor Pool (TA-V/W): No effect; undeveloped area.</p> <p>DOL Secondary Refueling Station: No effect; no existing USTs.</p>	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1	USMAPS Washington Gate Site, DOL Motor Pool (TA-V/W), and Secondary Refueling Station: Same as Alternative 1	USMAPS Lake Frederick Site: No effect; undeveloped area.	USMAPS Lake Frederick Site: No effect; undeveloped area.	No effect.
VETCOM	No effect.					No effect.

Resource	Alternative 1 WG E	Alternative 2 WG B	Alternative 3 WG 15% Design	Alternative 4 LF 2a	Alternative 5 LF 2b	No Action Alternative
Landfill Disruption:	<p>USMAPS Washington Gate Site: Measures followed would avoid significant impacts:</p> <p>No building footprints would be placed over either of the landfills; however, athletic fields and parking would be on landfills. No significant effects expected by following NYSDEC/EPA solid waste regulations, to include installation of a NYSDEC-Part 360-compliant cap over the East Landfill to minimize the amount of landfill infiltration and leachate generation. For the proposed buildings within 1,000 feet of the landfill, a passive gas collection system would be installed under building footprints with vapor barrier under slab and the gas collection system would be vented to each building's roof. Potential presence of MEC: MEC removal (up to 2 feet depth) would take place prior to intrusive activities; MEC construction support team would be required during intrusive site activities and USACE guidelines would be followed.</p> <p>The landfills would need to be dynamically compacted to prevent differential settlement impacting athletic field viability.</p> <p>Special measures taken for utilities (above cap) and penetrations (minimized).</p> <p>DOL Motor Pool (TA-V/W) and Secondary Refueling Station: No effect; no landfill in the area.</p>	<p>USMAPS Washington Gate Site: Same as Alternative 1.</p>	<p>USMAPS Washington Gate Site: Same as Alternative 1.</p>	<p>USMAPS Lake Frederick Site: No effect; 1 no landfill in the area.</p>	<p>Same as Alternative 4.</p>	<p>No effect.</p>
VETCOM	No effect; no landfill in the area.					No effect.

6.0 List of Preparers

U.S. Army Corps of Engineers, Mobile District

Name	Title	Education/Responsibility	Experience
Beverley Stout	BRAC NST Project Manager	B.S.C.E., Civil Engineering. M.E.M., Environmental Management. Responsible for the overall management of the BRAC NEPA document preparation.	20 years

U.S. Army Garrison at West Point

Name	Title	Education/Responsibility	Experience
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Elizabeth McGinnis	Realty Specialist, DPW	M.S., Historic Preservation.	20 years
Carl Meyer	Chief, Installation Support Branch	B.A., Architecture. Responsible for coordinating with LBG team for analysis and document preparation.	22 years
John Sturtz	Engineering Plans and Services Division	B.S., Environmental Engineering. Responsible for coordinating with LBG team for analysis and document preparation.	14 years

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Name	Title	Education/Responsibility	Experience
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Jill Cavanaugh, AIA Assoc.	Architect/Planner	B. Architecture. MS Architecture & Urban Design. Responsible for Visual Impact Analysis.	9 years
Jess Commerford, AICP	Senior Vice President	B.G.S. Political Science. M.S. Urban and Regional Planning. Responsible for all sections prepared by Louis Berger staff.	17 years
Christopher Corliss, P.E.	Manager, Landfill Design	B.S. Bio-Environmental Engineering. Responsible for landfill and geotechnical issues.	13 years
Dincer Egin, Ph.D., P.G., P.E.	Manager, Geotechnical Engineering	Ph.D. Rock Mechanics /Tunneling, B.S. & M.S. in Geological Engineering. Responsible for geotechnical issues associated with the landfill	25 years
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Name	Title	Education/Responsibility	Experience
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Joel Gorder, AICP	Planner/Environmental Scientist	M.U.R.P. Urban Planning. Responsible for Geology and Soils.	11 years
Deborah Matherly, AICP	Senior Associate, Transportation Planner	B.A. Public Administration, MBA Business, Finance. Responsible for Transportation.	28 years
Catherine Price	Senior Environmental Engineer	B.S., Chemistry, B.S., Chemical Engineering. Responsible for Hazardous and Toxic Substances.	27 years
Frank Skidmore, PE	Senior Project Manager	B.S. General Engineering. M.S. Civil Engineering (Engineering Economic Planning). Responsible for Quality Control.	35 years
Suni Shrestha	Environmental Scientist	B.S. Environmental Analysis and Planning. Responsible for project management and Land Use, Noise, and Hazardous Wastes and Toxic Substances, as well as document management.	12 years
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8.0 PERSONS CONSULTED

This section identifies tribal, state and federal agencies that were contacted or consulted during the EA process.

Federal Officials and Agencies

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10.0 ACRONYMS AND ABBREVIATIONS

AADT	Annual Average Daily Traffic
ACBM	Asbestos Containing Building Material
ACB	Asbestos Containing Material
AD	anno Domini (in the year of the Lord)
AEPI	Army Environmental Policy Institute
AFRC	Armed Forces Reserve Center
AIRFA	American Indian Religions Freedom Act
AMSA	Area Maintenance Support Activity
ANGB	Air National Guard Base
AQI	Air Quality Index
ARNG	Army National Guard
ARPA	Archaeological Resources Protection Act
AST	Above Ground Storage Tank
AT/FP	Anti-Terrorism/Force Protection
BC	Before Christ
BMP	Best Management Practice
BRAC	Base Realignment and Closure
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CBR	California Bearing Ratio
CDP	Comprehensive Development Plan
CEMP	Code of Environmental Management Principles for Federal Agencies
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERL	U.S. Army Construction Engineering Research Laboratory
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CME	Contract Man-year Equivalents
CMP	Coastal Management Plan
CO	Carbon Monoxide
COBRA	Cost of Base Realignment Actions
CSBP	Cold Spring Battery Plant
CUCV	Commercial Utility Combat Vehicle
CWA	Clean Water Act
\$	Dollars
dB	Decibel
dBA	A-weighted Decibel
DD	Defense Department
DO	Dissolved Oxygen
DoD	Department of Defense
DOH	Department of Health
DOL	Department of Logistics
DOPAA	Description of Proposed Action and Alternatives
DPW	Department of Public Works
EA	Environmental Assessment
EIFS	Economic Impact Forecast System
EIS	Environmental Impact Statement
EO	Executive Order

EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
ESRI	Environmental Systems Research Institute
°F	Fahrenheit
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FNSI	Finding of No Significant Impact
FPPA	Farm Protection Policy Act
ft ²	Square Feet
FWPCA	Federal Water Pollution Control Act
FY04	Fiscal Year 2004
GIS	Geographic Information System
GPD	Gallons per Day
GPM	Gallons per Minute
GSF	Gross Square Feet
HAZCOM	Hazardous Communication Plan
HABS	Historic American Buildings Survey
HDPE	High Density Polyethylene
HMMWV	High Mobility Multi-Purpose Wheeled Vehicles
HQ	Headquarters
HR	Hour
HSMS	Hazardous Substance Management System
HUD	U.S. Department of Housing and Urban Development
HVAC	Heating, Ventilation, and Air Conditioning
HWMP	Hazardous Waste Management Plan
ICRMP	Integrated Cultural Resource Management Plan
IDG	Installation Design Guide
INRMP	Integrated Natural Resource Management Plan
ISCP	Installation Spill Contingency Plan
IWTP	Industrial Wastewater Treatment Plant
km	Kilometer
kW	Kilowatt
kVA	Kilo Volt Amperes
lb	Pound
LBP	Lead-Based Paint
lbs	Pounds
LED	Light-Emitting-Diode
LFG	Landfill Gases
m ³	Cubic Meters
MEC	Munitions and Explosives of Concern
MEP	Military Equipment Parking
MGD	Million Gallons per Day
MOGAS	Motor Gasoline
MRS	Munitions Response Site
MSDS	Material Safety Data Sheet
MSW	Municipal Solid Waste

NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NCAA	National Collegiate Athletic Association
NCO	Non Commissioned Officer
NEDVC	Northeast District Veterinary Command
NEMA	National Electrical Manufacturers Association
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHLA	National Historic Landmark District
NHPA	National Historic Preservation Act
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxide
NOI	Notice of Intent
NOI	Notice of Termination
NPDES	National Pollution Discharge Elimination System
NPV	Net Present Value
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
NWP	Nationwide Permit
NYDOT	New York Department of Transportation
NYNHP	New York National Heritage Program
NYS	New York State
NYSDEC	New York State Department of Environmental Conservation
NYSDOS	New York State Department of State
NYSECL	New York State Environmental Conservation Law
NYSOPRHP	New York State Office of Parks, Recreation and Historic Preservation
O ₃	Ozone
ODIA	Office of Directorate of Intercollegiate Athletics
OMS	Organizational Maintenance Shop
OPRHP	Office of Parks, Recreation, and Historic Preservation
OSHA	Occupational Safety and Health Administration
Pb	Lead
PCB	Polychlorinated Biphenyls
PIP	Palisades Interstate Parkway
PM	Particulate Matter
PM ₁₀	Particulate Matter (particles with a diameter less than or equal to a nominal 10 micrometers)
PM _{2.5}	Particulate Matter (particles with a diameter less than or equal to a nominal 2.50 micrometers)
POL	Petroleum, Oils, and Lubricants
POV	Privately-Owned Vehicle
ppm	Parts Per Million
ppt	Parts per Thousand
psi	Pounds per Square Inch
PX	Post Exchange
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RDAT&E	Research, Development, Acquisition, Testing, and Evaluation
ROI	Region of Influence
RONA	Record of Non-Applicability
RPMP	Resource Protection Management Plan
RRC	Regional Readiness Command

RSO	Religious Support Office
RTV	Rational Threshold Value
SDWA	Safe Drinking Water Act
Sec.	Section
SHPO	State Historic Preservation Office(r)
SIA	Stewart International Airport
SIP	State Implementation Plan
SMDM	Stormwater Management Design Manual
SO ₂	Sulfur Dioxide
SPCC	Spill Prevention Control and Countermeasures
SPDES	State Pollution Discharge Elimination System
SVOC	Semivolatile Organic Compound
SWPPP	Storm Water Pollution Prevention Plan
SWP3	Storm Water Pollution Prevention Plan
TA	Training Area
TDA	Table of Distribution and Allowances
TDV	Traffic Data Viewer
TIP	Transportation Improvement Plan
TMP	Transportation Motor Pool
TSCA	Toxic Substances Control Act
TPY	Tons Per Year
ug	Micrograms
USACE	U.S. Army Corps of Engineers
USAG	U.S. Army Garrison
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USMA	U.S. Military Academy
USMAPS	U.S. Military Academy Preparatory School
UST	Underground Storage Tank
UXO	Unexploded Ordnance
VETCOM	U.S. Army Veterinary Command
VOC	Volatile Organic Compound
VTF	Veterinary Treatment Facility
WWTP	Wastewater Treatment Plant
yd ²	Square Yards

**APPENDIX A — FEDERAL AND STATE COORDINATION
LETTERS**

US Fish and Wildlife Service



DEPARTMENT OF THE ARMY
INSTALLATION MANAGEMENT AGENCY
UNITED STATES ARMY GARRISON, WEST POINT
Directorate of Public Works 667A Ruger Road
WEST POINT, NY 10996-1554

REPLY TO
ATTENTION OF: IMNE-MIL-PWE-N

7 March 2007

US Fish and Wildlife Service – New York Office
Attn: Ms. Sandra Doran
3817 Luker Road
Cortland, NY 13045

Dear Ms. Doran:

On September 8, 2005, the Base Realignment And Closure (BRAC) Commission recommended that certain realignment actions occur at the United States Military Academy, West Point, NY (USMA). These recommendations were approved by the President on September 23, 2005, and forwarded to Congress. The Congress did not alter any of the BRAC Commission's recommendations, and on November 9, 2005, the recommendations became law. The BRAC Commission's recommendations must now be implemented as provided for in the Defense Closure and Realignment Act of 1990 (Public Law 101-510), as amended.

The BRAC law exempts consideration of the need for the action or alternative installations in preparing environmental documentation pursuant to the National Environmental Policy Act of 1969 (NEPA). However, an appropriate level of NEPA analysis and documentation is required to analyze how the BRAC actions will be implemented for concurrent actions, both BRAC-directed and discretionary, at each installation that is receiving realigned missions.

The following highlights the BRAC Commission's recommendations for West Point, NY:

- Close Fort Monmouth, NJ and relocate the United States Military Academy Preparatory School to West Point.

To implement this recommendation, the U.S. Army proposes to construct a new U.S. Military Academy Preparatory School (USMAPS) campus, including supporting facilities, at the USMA in the main cantonment of the garrison.

As part of the NEPA process, potential impacts – adverse or otherwise – to any species listed as “threatened” or “endangered” under the Endangered Species Act of 1973 (ESA) must be identified and addressed. The United States Army Garrison at West Point, NY, as a federal agency, must also consult with the Department of Interior, United States Fish and Wildlife Service in accordance with Section 7 of the ESA if potential impacts to listed species are identified.

The Natural Resources Branch at West Point has been inventorying and managing the natural resources at the 16K-acre installation for over 30 years. Much of this information is included in the installation Integrated Natural Resources Management Plan, which the Region 5 office of USFWS is a co-signator. The installation natural resources manager – Mr. James Beemer, CWB – looked at the preferred sites and alternative sites for the BRAC action to determine if any potential impacts are likely for the bald eagle (*Haliaeetus leucocephalus*), the bog turtle (*Glyptemys mühlenbergii*), and the Indiana myotis (*Myotis sodalis*). Maps showing the sites are included (Fig. 1 and 2). These sites are found on the USGS 7.5' series topographic maps for the West Point and Popolopen Lake quadrangles in New York.

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No suitable wetlands for bog turtle habitat are found at any of the sites depicted in the maps shown. A survey for Indiana bats in accordance with recovery plan guidelines was conducted at West Point by the New York Natural Heritage Program in 2002. The survey did not capture any Indiana bats, nor has any potential maternal colony site been identified in the depicted sites. At this point, neither species is considered a resident and no effect to either species (individuals and populations) is likely to occur if the BRAC action is completed.

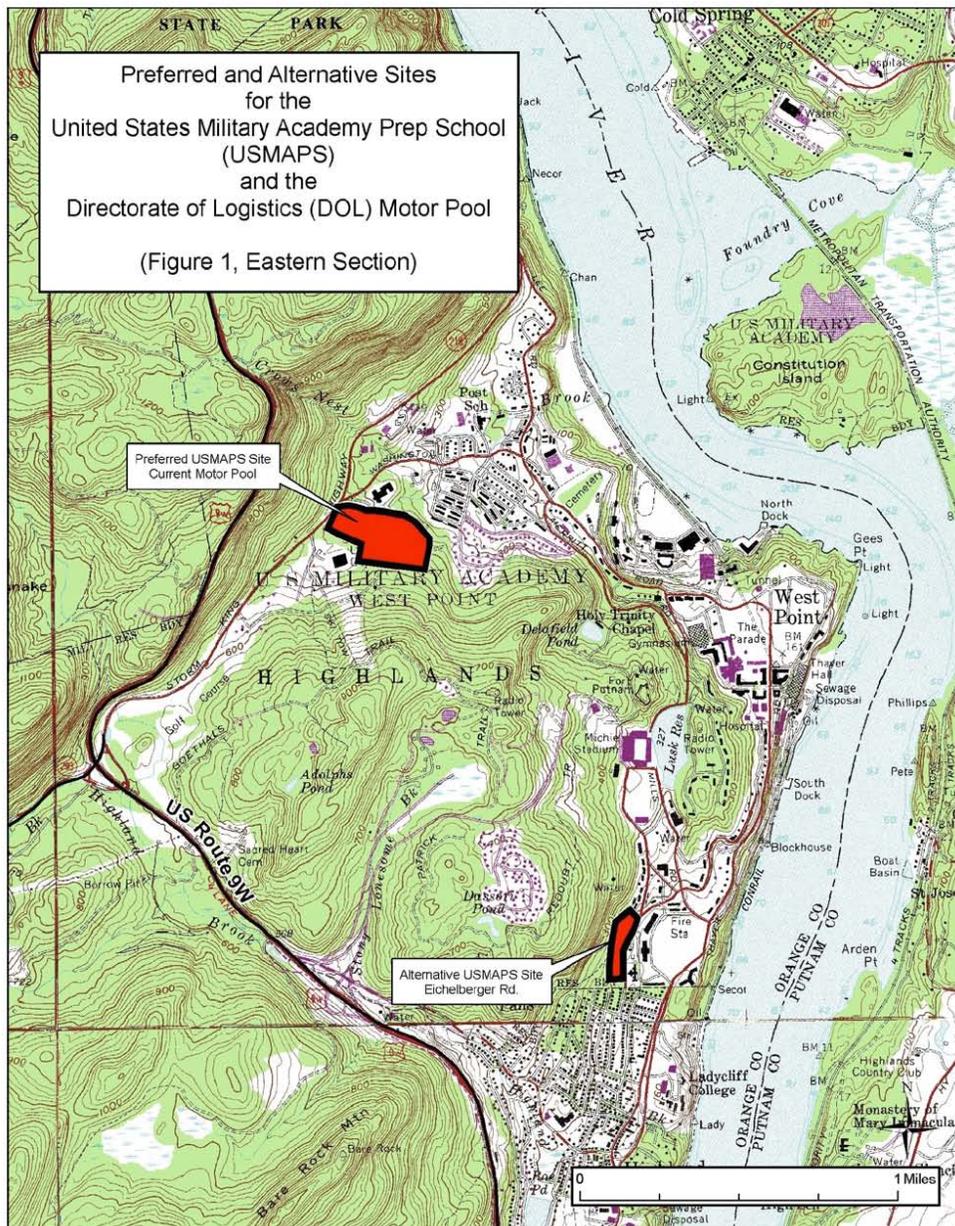
Regarding bald eagles, the species is considered a winter resident at West Point. Several preferred daytime usage areas have been identified at West Point, none of which are in the various sites. One area is adjacent to the preferred DOL site in Training Area "V". Stilwell Lake sees some bald eagle usage during winter months, often scavenging abandoned fish left behind by ice anglers. Locations at Stilwell Lake where the eagles have been seen are no closer than one kilometer from the preferred DOL site. Therefore, the BRAC action would have no effect on bald eagles (individuals and populations).

In consideration of the above facts and discussion, Mr. Beemer's professional opinion is that no effect to listed threatened or endangered species is likely to occur if the BRAC action is implemented. He therefore recommends that no Section 7 consultation – informal or formal – is required and that the USFWS provide written concurrence. Should you have any specific questions of Mr. Beemer, he can be reached at (845) 938-3857 or e-mail james.beemer@usma.edu.

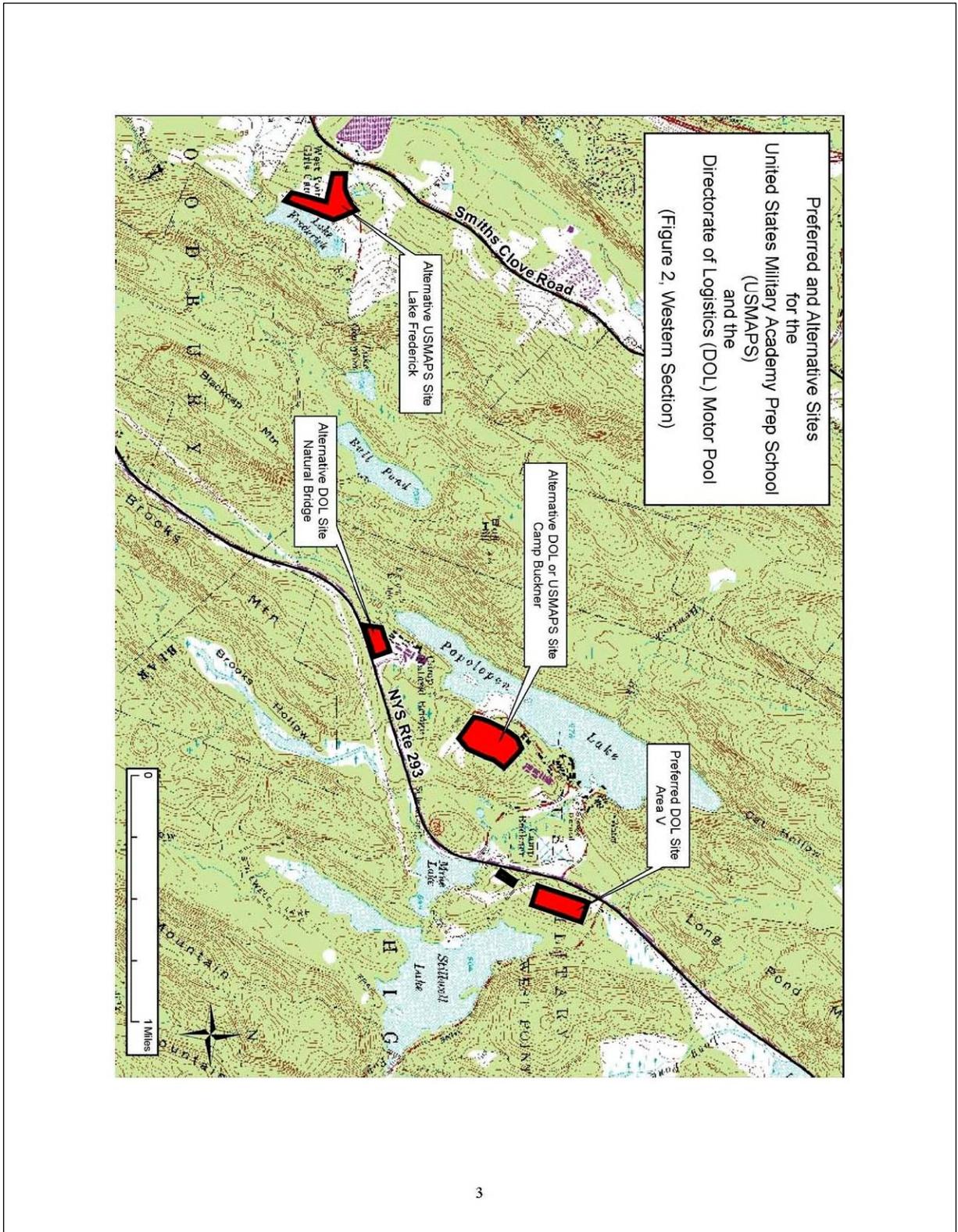
We look forward to hearing from you.

Respectfully,

/s/
Jennifer A. Butkus, P.E.
Chief, Environmental Management Division
Directorate of Public Works



Note: At the time of the consultation letter preparation, the Washington Gate Site was deemed the preferred alternative site and therefore was depicted as such in the attached figure. However, the current EA evaluates both Washington Gate and Lake Frederick sites and does not identify a preferred alternative.



Note: At the time of the consultation letter preparation, the Washington Gate Site was deemed the preferred alternative site and therefore was depicted as such in the attached figure. However, the current EA evaluates both Washington Gate and Lake Frederick sites and does not identify a preferred alternative.

New York State Office of Park, Recreation and Historic Preservation



DEPARTMENT OF THE ARMY
INSTALLATION MANAGEMENT AGENCY
HEADQUARTERS, UNITED STATES ARMY GARRISON, WEST POINT
681 HARDEE PLACE
WEST POINT, NY 10996-1514

REPLY TO
ATTENTION OF:

April 3, 2006

Directorate of Public Works (EP&SD)

Subject: Final Phase I Cultural Resources Survey for Five Tasks, U.S. Military Academy, West Point, Orange County, New York

Mr. Kenneth Markunas
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. Markunas:

The U.S. Military Academy, West Point, Orange County, New York performed Phase I cultural resources surveys of approximately six hundred sixty (660) acres during fall 2005. Undertakings surveyed include the following:

- Recurring Cadet Annual Summer Training involving excavation of individual and crew served weapons fighting positions, in West Point Training Area T-1;
- Annual Timber Harvest in the vicinity of Mine Torne Road and Stilwell Lake;
- Proposed Urban Assault Course, two tentative locations surveyed to assist in project siting, in vicinity of Mineral Springs Road and Camp Shea/ Queensboro Furnace; and
- Proposed Transfer of Property to local community, small parcel at Cranston Dock.

These represent a continuous effort to perform Phase I Cultural Resources Surveys for the entire USMA installation. Eight hundred sixty (860) acres are scheduled for a Phase I survey during the spring/summer of 2006.

Enclosed find the Final Phase I Cultural Resources Survey Report prepared for the fall 2005 surveys, provided for your permanent files.

Should you have any questions, please contact Mr. Douglas R. Cubbison, Cultural Resources Manager, at (845) 938-3522, Fax (845) 938-2529, or E-mail Douglas.cubbison@usma.edu.

Sincerely,

Raj Hunjan
Chief, Engineering Plans and Services Division

Enclosure (as stated):
- Final Report

New York State Office of Park, Recreation and Historic Preservation



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

Bernadette Castro
Commissioner

April 11, 2006

Rajinder Hunjan
Chief, Engineering Plans and Services
United States Military Academy
Bldg. 667 Ruger Road
West Point, NY 10996

Re: **ARMY/DOD**
5 projects (660 acres)
Highlands, Orange County
06PR01626

Dear Mr. Hunjan:

Thank you for requesting the comment of the State Historic Preservation Office (SHPO). We have had an opportunity to initiate the review of the project in accordance with Section 106 of the National Historic Preservation Act of 1966 and relevant implementing regulations.

Based upon our review of the Phase 1 Cultural Resource Survey, the SHPO agrees with the archeological recommendations contained within the submitted report.

The noted transfer of the Cranston Dock property to the Village of Highland Falls should have the enclosed covenant prepared and attached to the deed at the time of property conveyance.

If you have any questions regarding this letter, please feel free to contact me at your convenience. Ext. 3273

Sincerely,

Kenneth Markunas
Historic Sites
Restoration Coordinator

✓ Cc: Douglas R. Cubbison

Attachment: sample covenant

An Equal Opportunity/Affirmative Action Agency
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New York State Department of Environmental Concern



REPLY TO
ATTENTION OF:

DEPARTMENT OF THE ARMY
INSTALLATION MANAGEMENT AGENCY
UNITED STATES ARMY GARRISON
DIRECTORATE OF PUBLIC WORKS
667A RUGER ROAD
WEST POINT, NY 10996-1592

IMNE-MIL-PWE

SUBJECT: BRAC Relocation of USMAPS to Washington Gate site, West Point

New York State Department of Environmental Conservation
Division of Solid and Hazardous Materials, Region 3
Attention: Steven J. Parisio
21 South Putt Corners Road
New Paltz, New York 12561

Dear Mr. Parisio:

As was discussed during a June 13, 2008 meeting that was held in the Region 3 NYSDEC offices, the US Military Academy Preparatory School (USMAPS) is relocating from Fort Monmouth, NJ to the United States Military Academy (USMA) at West Point under a Base Realignment and Closure (BRAC) action. Several viable sites to build this campus were evaluated during a design charette process that studied site availability, topography, existing utility systems, as well as a site's ability to meet the mission of USMAPS as well as the Academy at West Point. At the completion of this site analysis, it was determined that an area adjacent to Washington Gate was the most optimum site and an A/E firm was contracted to prepare a design/build RFP. This site is currently occupied by a motor pool which will be relocated to an off-post location.

There are two existing inactive landfills located within the boundaries of the Washington Gate site, (see attached layout). The landfill on the west of the site is a C&D landfill that was shut down in the 1950's; the larger landfill on the eastern side is a MSW landfill that was shut down in the late 1960's and has been monitored in accordance with NYSDEC regulators and the DPW Environmental Management Division at West Point. Based upon known existing conditions and confirmation through recent site analysis performed by the A/E, the eastern landfill is known to produce methane gas. Eight monitoring wells with an existing active gas collection system are currently located in this landfill.

In an initial design, the A/E attempted to optimize the flattest terrain of the site by placing the structures along the eastern and southern perimeter of the site. This translated to some of the building footprints being located within the limits of the landfill. In an attempt to determine the environmental impacts associated with this design layout, a meeting was conducted with the USMAPS design team and Region 3 of NYSDEC to review the existing site conditions and the proposed USMAPS site layout. Because of the concerns raised during this meeting, combined with a potentially lengthy review/approval process, it was subsequently determined that under a revised site plan at Washington Gate, the structures would be relocated to the rocky hillside on the southern edge of the site. Only athletic sports fields, roadways and parking will be built on the landfill area; no enclosed structure is to be located on top of the landfill.

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Note: Figure 3-1 in the EA shows the landfill boundaries and the revised layout.

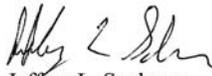
Please find attached a revised site layout for the USMAPS campus at the Washington Gate site. The following scope of work is to be included in the construction contract in order to mitigate the existing MSW landfill:

- Leachate removal/dewatering to improve effectiveness of compaction process as well as to provide a long-term positive impact to the environment;
- Dynamic compaction of the site to reduce voids and to minimize long-term secondary compression;
- Installation of a Subtitle D cap on the landfill consisting of a gas collection layer (geocomposite) above a single-sided geocomposite drainage layer, which will be above a 40-mil geomembrane barrier layer;
- Installation of a passive gas collection system in the buildings, with ventilation provided to the roof. A spray applied membrane is to be applied on the subgrade below building slabs;
- Installation of monitoring systems and alarms in the buildings;
- Flexible utility connections at buildings to accommodate post-construction settlement;
- Replacement of existing monitoring wells as required, with an active gas collection system in the open areas of the site.

Based on discussions held during the June 13, 2008 meeting, we are seeking concurrence from NYSDEC that the design as proposed would be considered acceptable in order to proceed with preparation of the design/build RFP. It is our intent to ensure that as a result of this project, the site will be in a state better than it is currently and will demonstrate that the design will not pose a undue risk to the health, safety and welfare of the public.

Please contact Mr. Jeffrey Sanborn of our Environmental Division for any additional information. He can be reached at (845) 938-5041.

Sincerely,



Jeffrey L. Sanborn
Acting Chief, Environmental Management Division

Enclosures

New York State Historic Preservation Office

Alexander Archæological Consultants, Inc.

P.O. Box 62
209 Walker Road
Wildwood, Georgia 30757

25 September 2008

Mr. Douglas Mackey
New York State Historic Preservation Office
Peebles Island Resource Center
P.O. Box 189
Waterford, NY 12188-0189

Re: DRAFT Report: Phase I Cultural Resource Reconnaissance Survey of Ten Separate Tasks
Totaling 878.15 acres (355.4 ha), The United States Military Academy, Orange County, New
York.

Mr. Mackey,

On behalf of our client, the United States Military Academy Directorate of Public Works, we are submitting to you one (1) bound copy of the above referenced report for your review and comment. Also included are site forms for thirty-seven (37) previously unrecorded sites, and one (1) updated site form for a previously recorded site, A07109. 000987. Please contact me at the number below, or e-mail me with the new permanent site numbers so we can update our records. Once we have the updated information, we will provide a Final copy of the report to your office on archival photo quality paper.

Additionally, once you have completed your review of the report could you also provide your comments to our client, address listed below:

George Markt
NEPA Coordinator & Cultural Resources Manager
United States Military Academy
667A Ruger Road
West Point, New York 10996

Thank you and if you have questions, please contact me.

Sincerely,



Mary F. Trudeau, MS
Archaeologist
Alexander Archaeological Consultants, Inc.
706.820.0909
mtrudeau@alexanderconsultants.net

cc: file
enclosures

office: 706.820-4344 fax: 706.820-4076 www.alexanderconsultants.net

**Stockbridge Munsee Band of the Mohican Indians of
Wisconsin**



**DEPARTMENT OF THE ARMY
INSTALLATION MANAGEMENT AGENCY
HEADQUARTERS, UNITED STATES ARMY GARRISON, WEST POINT
681 HARDEE PLACE
WEST POINT, NY 10996-1554**

REPLY TO
ATTENTION OF:

November 4, 2008

Directorate of Public Works

SUBJECT: Proposed BRAC Commission Realignment Recommendations
U.S. Army Garrison
West Point, New York

Mr. Robert Chicks
President
The Stockbridge-Munsee Tribe of Wisconsin
P.O. Box 70
Bowler, Wisconsin 54416

Dear Mr. Chicks:

In accordance with the Defense Closure and Realignment Act of 1990 and the Defense Base Realignment and Closure (BRAC) Commission recommendations the U.S. Army proposes to construct a new U.S. Military Academy Preparatory School (USMAPS) campus, including supporting facilities at the U.S. Army Garrison (USAG) West Point, NY. As a discretionary action, the Army also proposes to realign Veterinary Command facilities to USAG. In keeping with the October 2005 Memorandum of Understanding (MOU) between the USAG West Point and the Stockbridge-Munsee Nation we wish to consult with your nation on these proposed undertakings and plan to provide you with a copy of the Draft Environmental Assessment (EA) currently scheduled for public review on 21 November 2008.

The proposed USMAPS campus will consist of barracks, academic buildings, a dining facility and associated athletic fields. Five new construction alternatives are being considered for the campus and are carried forward for evaluation in the EA (attached map). Three of these alternatives are located in the Washington Gate area in the area occupied by the present Directorate of Logistics (DOL) Motor Pool and two alternatives located in the Lake Frederick area. The replacement of the present DOL Motor Pool would be located at Training Area (TA) V/W and would include construction of maintenance 4 buildings, vehicle fueling facilities, and paved maintenance and parking areas. A new refueling facility would also be constructed adjacent to Building 902 (the Salt Dome) north of Washington Gate to provide for the refueling of vehicles within the Main Cantonment.

The proposed Veterinary Command realignment would expand the existing Building 630 by increasing the size of the waiting area and treatment rooms, as well as by adding a second floor to house administrative functions. All expansion will occur within the existing building footprint.

The area of potential effect for three proposed alternatives at the Washington Gate Site, the Salt Dome refueling facility and one proposed action at the USMA Veterinary Command (Bldg. 630, Johnson Veterinary Clinic) Facility north of Buffalo Soldier's Field are within the USMA National Historic Landmark District (NHLD) and the Hudson River Valley National Heritage Area, however none of the buildings slated for demolition are eligible for inclusion on the National Register of Historic Places. A Phase I Cultural Resources Survey conducted in 1998 within TA-V/W (reference attached) identified several sites that were potentially eligible for the National Register of Historic Places (NRHP) and recommended avoidance. The New York State Historic Preservation Office (NYSHPO) concurred with this finding.

Phase I Cultural Resources Surveys conducted between 2006 and 2008 of the Washington Gate and the Lake Frederick sites (references attached) did not identify archaeological resources warranting nomination to the NRHP within areas of proposed ground disturbance at the Washington Gate Site and it was deemed that further study of this area was not warranted. These investigations did, however, reveal fourteen (14) previously unrecorded sites at

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the Lake Frederick site, all associated with the Proctoria estate, warranting potential nomination to the NRHP and subsequent avoidance during construction. As such and in accordance with Section 106 of the National Historic Preservation Act, we have consulted with the NYSHPO for review and comment on our no adverse effect determinations and are awaiting a response.

No Native American or non Indian Traditional Cultural properties or Native American sites were discovered during the completion of these surveys. USAG will, however ensure that all project construction associated with this proposed action is conducted in accordance with the aforementioned MOU and the USMA Integrated Cultural Resources Master Plan (ICRMP) (specifically ICRMP SOP #15, Procedures for Discoveries of Human Remains during Archaeological Excavations and ICRMP SOP # 16-1 Protection of Archaeological or Historical Artifacts).

Should you require further information, please contact me at (845) 938-4459, Fax (845) 938-2529 or E-mail me at George.Markt@usma.edu.

George H. Markt
NEPA Coordinator
US Army Garrison
IMNE-MIL-PWF
667A Ruger Road
West Point, New York 10996

cc: Ms. Sherry White, Cultural Preservation Officer
The Stockbridge-Munsee Tribe of Wisconsin

References

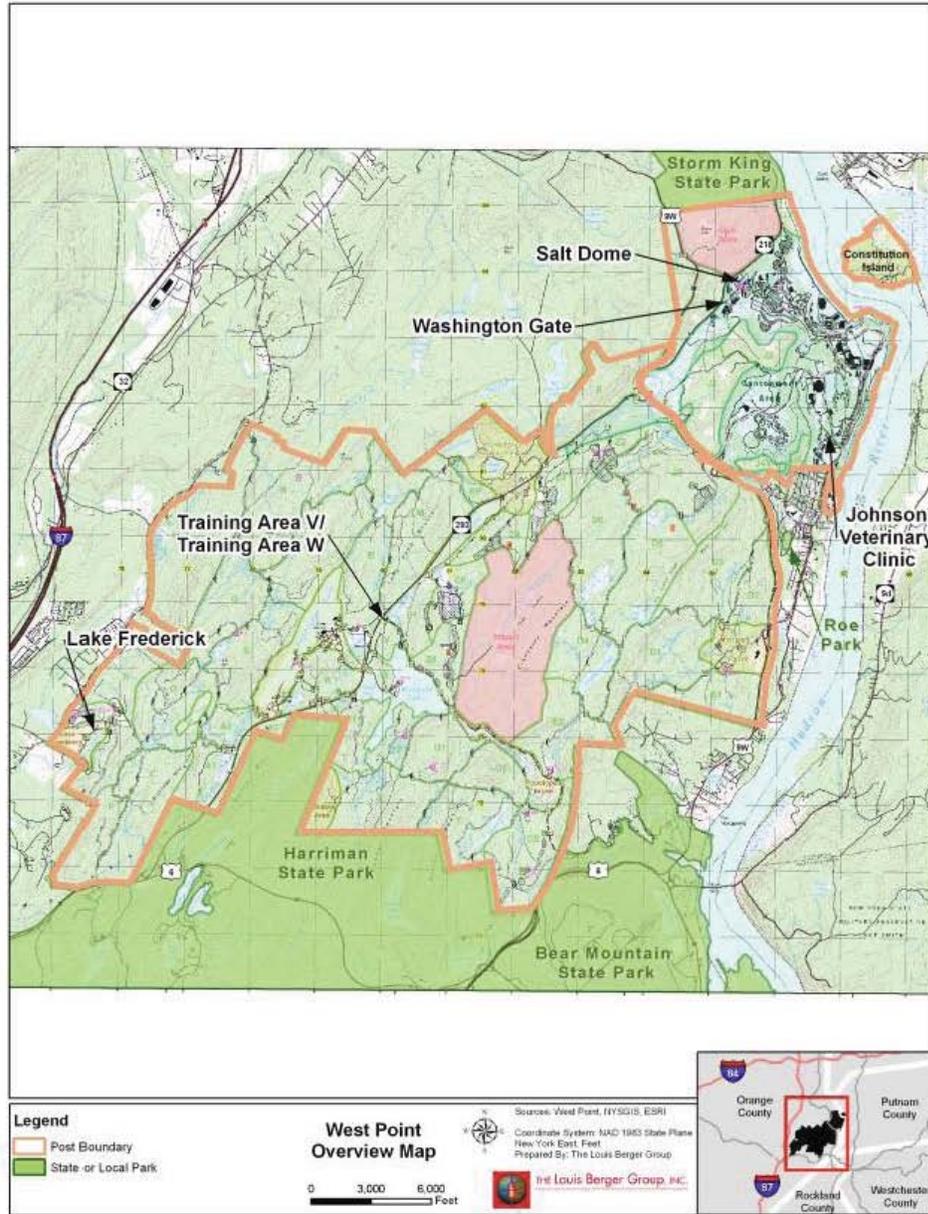
- (Trudeau, 2008). Phase I Archaeological Reconnaissance Survey of 120.8 Acres (48.9 ha) on Lake Frederick for the Proposed USMAPS, The United States Military Academy, West Point, Orange County, New York. End of Fieldwork Report Mary F. Trudeau, Alexander Archaeological Consultants, Inc., Wildwood, GA, August, 2008.
- (Trudeau, 2006). Phase I Cultural Resource Survey for Five Tasks, The United States Military Academy, West Point, Orange County, New York. Mary F. Trudeau, Alexander Archaeological Consultants, Inc., Wildwood, GA, March, 2006.
- (USMA, 2007d). *United States Military Academy, USMA Integrated Cultural Resources Management Plan*. United States Army Garrison, USMA. February 2007.
- (Panamerican, 1998). Phase I Cultural Resources Survey Long Pond- North Stilwell-Chippewa Range Timber Harvest, The United States Military Academy, West Point, Orange County, New York, Panamerican Consultants, Inc. Depew, NY, September, 1998.

Note:

Digital copy of these references available upon request.



West Point Area Map



2

U.S. Army Corps of Engineers, Mobile District
 Draft Environmental Assessment West Point, NY
 October 2008

Description of the Proposed Action
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APPENDIX B — AIR QUALITY APPLICABILITY ANALYSIS

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GENERAL CONFORMITY APPLICABILITY ANALYSIS

This air quality applicability analysis was conducted to identify potential increases or decreases in criteria air pollutant emissions associated with the proposed construction at the U.S. Military Academy, West Point, New York. The project will occur within a U.S. EPA designated moderate non-attainment zone for ozone and non-attainment for PM_{2.5} and is subject to the federal conformity requirements. The purpose of the analysis is to apply the Federal General Conformity Rule established in 40 CFR, Part 93 entitled: *Determining Conformity of Federal Actions to State or Federal Implementation Plans* to the Proposed Action Alternative in order to determine any effect on air quality.

The federal conformity rules were established to ensure that federal activities do not hamper local efforts to control air pollution. In particular, Section 176(c) of the Clean Air Act (CAA) prohibits federal agencies, departments or instrumentalities from engaging in, supporting, licensing, or approving any action, in an area that is in non-attainment of the National Ambient Air Quality Standards (NAAQS), which does not conform to an approved state or federal implementation plan. Therefore, the agency must determine whether or not the project would interfere with the clean air goals in the State Implementation Plan (SIP).

1.0 PROJECT DESCRIPTION

The Proposed Action is to construct a new USMAPS to accommodate the BRAC 2005 required realignment of the preparatory school from the closing Fort Monmouth in NJ to West Point, NY. It also realigns VETCOM from Fort Monmouth to West Point. Under the Proposed Action, the USMAPS campus would include general academic and administrative space, a dining facility, student barracks, an athletic training facility, athletic fields, parking areas, and associated infrastructure improvements. The facilities would incorporate appropriate Anti-Terrorism/Force Protection (AT/FP) stand-off buffer areas for security, exterior lighting, access road improvements, and other site improvements to facilitate construction and operation of the USMAPS.

The actions involve four sites for USMAPS, an additional site for a relocated DOL Motor Pool, and VETCOM (Washington Gate, Lake Frederick, TA-V/W, and the VTF) with additional USMAPS layout alternatives at the two sites proposed for USMAPS (Washington Gate and Lake Frederick). These alternatives are described in detail in Section 3 of the EA.

The approximate size of the USMAPS buildings is estimated as approximately 255,000 SF, with the associated parking and road improvements estimated as 161,000 SF at the Washington Gate site and 209,000 SF at Lake Frederick. In addition, there would be approximately 88,000 SF of facilities for the DOL Motor Pool relocation, as well as 675,000 SF of DOL Motor Pool paved areas.

2.0 METEOROLOGY/CLIMATE

Temperature is a parameter used in calculations of emissions for air quality applicability. The climate in the Hudson Valley varies seasonally, but is regulated to an extent by the Hudson River. The mean temperature in Orange County, which includes West Point, is 55 degrees F (TWC, ND).

3.0 CURRENT AMBIENT AIR QUALITY CONDITIONS

The airshed containing the Proposed Action is Orange County, NY. The West Point area is part of the Mid-Hudson Ozone Non-Attainment Area, and has been classified by the EPA as being in moderate non-attainment for the criteria pollutant ozone, and in non-attainment for the criteria pollutant PM_{2.5}.

4.0 AIR QUALITY REGULATORY REQUIREMENTS

The U.S. EPA defines ambient air in 40 CFR Part 50 as “that portion of the atmosphere, external to buildings, to which the general public has access.” In compliance with the 1970 Clean Air Act (CAA) and the 1977 and 1990 Clean Air Act Amendments (CAAA), the U.S. EPA has promulgated National Ambient Air Quality Standards (NAAQS). The NAAQS were enacted for the protection of the public health and welfare, allowing for an adequate margin of safety. To date, the EPA has issued NAAQS for six criteria pollutants: carbon monoxide (CO), sulfur dioxide (SO₂), particles with a diameter less than or equal to a nominal 10 micrometers (PM₁₀),

particles with a diameter less than or equal to a nominal 2.5 micrometers (PM_{2.5}), ozone (O₃), nitrogen oxides (NO_x), and lead (Pb). Areas that do not meet NAAQS are called non-attainment areas.

The NAAQS for ozone and PM_{2.5} are in Table B-1.

Table B-1: Ambient Air Quality Standards for Ozone and PM_{2.5}

Pollutant	Federal Standard	New York Standard ²
Ozone (O ₃) ¹ 8-Hour Average	0.075 ppm	0.075 ppm
Particulate Matter (PM _{2.5}) ¹ 24-Hour Average Annual Arithmetic Mean	35 µg/m ³ 15 µg/m ³	
Total Suspended Particles (NY only) 12 Consecutive Months 24-Hour		75 µg/m ³ 250 µg/m ³

¹ Federal primary and secondary standards for this pollutant are identical.

² New York standards are for suspended particulates, including PM₁₀

Sources: USEPA, 2008a; NYSDEC, ND

To regulate the emission levels resulting from a project, federal actions located in non-attainment areas are required to demonstrate compliance with the general conformity guidelines established in 40 CFR Part 93 *Determining Conformity of Federal Actions to State or Federal Implementation Plans* (the Rule). The project area is located within a non-attainment area; therefore, a General Conformity Rule applicability analysis is warranted.

Section 93.153 of the Rule sets applicability requirements for projects subject to the Rule through establishment of *de minimis* levels for annual criteria pollutant emissions. These *de minimis* levels are set according to criteria pollutant non-attainment area designations. Projects below the *de minimis* levels are not subject to the Rule. Those at or above the levels are required to perform a conformity analysis as established in the Rule. The *de minimis* levels apply to direct and indirect sources of emissions that can occur during the construction and operation phases of the action.

Direct emissions are those caused by or initiated by the federal action that occur at the same time and place as the action. Indirect emissions are those caused by the action, but which occur later in time and/or at a distance removed from the action itself, yet are reasonably foreseeable and the federal agency responsible for the action can maintain control as part of the actions program responsibility. Emissions are estimated for the ozone precursor pollutants nitrogen oxides (NO_x) and volatile organic compounds (VOC). Annual emissions for these compounds were estimated for the project to determine if it would be below or above the *de minimis* levels established in the Rule. The *de minimis* for moderate non-attainment areas for ozone in an ozone transport region is 100 tons per year (TPY) for NO_x and 50 TPY for VOC.

On July 11, 2006 USEPA established *de minimis* levels for PM_{2.5}. The final rule established 100 TPY as the *de minimis* emission level under nonattainment for directly emitted PM_{2.5} and each of the precursors that form it (sulfur dioxide (SO₂), NO_x, VOC, and ammonia). This 100 TPY threshold applies separately to each precursor. This means that if an action's direct or indirect emissions of PM_{2.5}, SO₂, NO_x, VOC, or ammonia exceed 100 TPY, a General Conformity determination would be required. However, neither USEPA nor New York have found PM_{2.5} problems in the region to be caused by VOC or ammonia and ammonia is not further addressed by the EA (VOC is addressed as an ozone precursor).

In addition to the evaluation of air emissions against *de minimis* levels, emissions are also evaluated for regional significance. A federal action that does not exceed the threshold emission rates of criteria pollutants may still be subject to a general conformity determination if the direct and indirect emissions from the action exceed ten percent of the total emissions inventory for a particular criteria pollutant in a non-attainment or maintenance area. If the emissions exceed this ten percent threshold, the federal action is considered to be a "regionally significant" activity, and thus, the general conformity rules apply.

5.0 GENERAL CONFORMITY APPLICABILITY ANALYSIS

This project construction- and operations-related General Conformity analysis was performed for the proposed action at West Point. This conformity analysis and air emissions evaluation will follow the criteria regulated in *40 CFR Parts 6, 51, and 93, Determining Conformity of General Federal Actions to State or Federal Implementation Plans; Final Rule* (November 30, 1993).

5.1 CONSTRUCTION PHASE EMISSIONS

Construction emissions would result from the operation of heavy equipment and the painting of the building structures and parking spaces. The project would utilize a mix of heavy equipment for demolition and construction.

5.1.1 Emissions from Heavy Equipment

Annual emissions were calculated for various types of diesel construction vehicles using model emission rate input for the year 2010 in U.S. EPA's *Nonroad2005 Emission Inventory Model: Diesel Construction Equipment, Orange County, New York* (USEPA, 2005). Truck emission levels were calculated using EPA's *MOBILE6* model for an average temperature of 55 °F (USEPA 2006). The total annual emissions, in tons per year were determined for each vehicle based on the number of vehicles used and the number of operating hours per year. The assumed schedule for each construction component varies by alternative and has been calculated from an assumed start in mid-2009 to conclusion in mid-2012 for Alternatives 1, 2, and 3 and to conclusion in mid-2011 for Alternatives 4 and 5. Figure B-1 provides the assumed schedule for major activities within each alternative. The schedules are based on the reports prepared in August and September 2008 for Alternatives 1, 4, and 5, with subsequent adjustments in projected completions provided by USACE in September that delayed several USMAPS facilities at Washington Gate until 2012. Alternative 3's schedule is assumed to match that of Alternative 1, while Alternative 2 varies only in its delayed start for the barracks until necessary demolition of existing DOL buildings on its footprint is completed.

Building construction is programmed to utilize heavy equipment to prepare sites in the initial half of each building's construction period and progresses toward interior work in the latter stages, supported by cranes or manlifts and delivery vehicles throughout. Paving is assumed to occur toward the end of site construction to avoid being damaged by heavy equipment.

It was assumed that delivery trucks would travel 20 miles per trip, making three trips a day, for a total of 60 miles a day. The pick-up truck would travel 10 miles per day, used primarily in job management. Water tankers were assumed to travel 20 miles per day supporting earth operations, and dump trucks were assumed to make two-34-mile round trips per day for a total of 68 miles per day. Emissions factors used for construction vehicles are shown in Table B-2.

Figure B-1: Assumed Construction Schedules for Alternatives 1, 2, 3, 4, & 5

Alternatives 1 & 3, Washington Gate (WG):

TASK	2008	2009				2010				2011				2012		
	4th QTR	1st QTR	2nd QTR	3d QTR	4th QTR	1st QTR	2nd QTR	3d QTR	4th QTR	1st QTR	2nd QTR	3d QTR	4th QTR	1st QTR	2nd QTR	3d QTR
Munitions & Explosives of Concern Removal																
Landfill Systems Removal; Cap Construction																
DOL & Satellite Station Site Work		Permit Pkg & Appr.														
DOL & Satellite Station Facility Construction																
Early WG Site Prep (Incl Rock, Compaction)																
WG Stream and Utility Relocations																
WG Site Demo																
WG Site Development, Utilities, Paving, Add'l Fac																
Athletic Fields																
Barracks Construction																
Dining Facility																
Academic Facility																
Indoor Athletic Building																
Athletic Building																
VETCOM Renovation																

Source: Alternative 1 & 3 schedules are based on Final Landfill Constructability Report, August 2008, amended by facility availability dates per USACE EMAIL, September 22, 2008.

Alternative 2 Washington Gate (WG):

TASK	2008	2009				2010				2011				2012		
	4th QTR	1st QTR	2nd QTR	3d QTR	4th QTR	1st QTR	2nd QTR	3d QTR	4th QTR	1st QTR	2nd QTR	3d QTR	4th QTR	1st QTR	2nd QTR	3d QTR
Munitions & Explosives of Concern Removal																
Landfill Systems Removal; Cap Construction		Permit Pkg & Appr.														
DOL & Satellite Station Site Work																
DOL & Satellite Station Facility Construction																
Early WG Site Prep (Incl Rock, Compaction)																
WG Stream and Utility Relocations																
WG Site Demo																
WG Site Development, Utilities, Paving, Add'l Fac																
Athletic Fields																
Barracks Construction																
Dining Facility																
Academic Facility																
Indoor Athletic Building																
Athletic Building																
VETCOM Renovation																

Source: Alternative 2 schedule is based on Alternative 1 schedule above, adjusted to account for barracks delay awaiting existing DOL demolition.

West Point Alternatives 4 & 5 Lake Frederick

TASK	2008	2009				2010				2011				2012		
	4th QTR	1st QTR	2nd QTR	3d QTR	4th QTR	1st QTR	2nd QTR	3d QTR	4th QTR	1st QTR	2nd QTR	3d QTR	4th QTR	1st QTR	2nd QTR	3d QTR
Site Development, Security, and Utilities																
Barracks Construction																
Dining Facility																
Academic Facility																
Indoor Athletic Building																
Athletic Building																
Water & Wastewater Treatment; Maint; Add'l Fac.																
Athletic Fields																
Parking & Paving																
VETCOM																

Source: Alternative Site Layout Report, September 2008.

5.1.1.1 Calculations for Construction Emissions

Equipment and Vehicle Emissions

Using the emissions factors in Table B-2, construction emissions were calculated for the proposed construction at West Point. Using the assumptions described above, the emissions in tons of NO_x, VOC, SO₂ and PM_{2.5} for construction were calculated for each vehicle type using the appropriate equations displayed in Table B-3.

Table B-2: Emissions Factors for Construction Vehicles

Construction Vehicle Type	Emissions Factors lbs/hr-vehicle			
	NO _x	VOC	PM _{2.5}	SO ₂
Front End Loader	3.402	0.204	0.194	0.496
Excavator	2.763	0.204	0.149	0.529
Dozer	2.714	0.199	0.180	0.496
Pneumatic Tire Roller	0.927	0.099	0.090	0.156
Steel Wheel Roller	0.927	0.099	0.090	0.156
Asphalt Paver	1.284	0.100	0.082	0.215
Vibratory Roller	1.466	0.116	0.105	0.240
Grader	1.513	0.121	0.107	0.265
Concrete Pumper Truck	2.941	0.237	0.101	0.331
Concrete Truck	2.941	0.237	0.101	0.331
Crane/Manlift	1.156	0.116	0.099	0.182
Backhoe	1.470	0.353	0.322	0.213
Water Tanker*	9.984	0.242	0.242	0.0132
Dump Truck*	8.804	0.765	0.213	0.0033
Pick-Up Truck*	0.924	1.469	0.0118	0.0087
Delivery Truck (Medium)*	2.418	2.813	0.0515	0.0169
Delivery Truck (Heavy)*	0.721	0.414	0.081	0.003
Air Compressor	0.051	0.558	0.049	0.093
Chipping Machine	1.169	0.119	9.119	0.165
Chain Saw/Portable Auger	0.208	0.029	1.846	0.037

* Units are in grams/mile/vehicle

Table B-3: Equations for Construction Emissions Calculations

Emission Source	Equation	Sample Calculation
Heavy Equipment Emissions, On-Site Activities	(# of vehicle type) (Emission factor) (Total # of days in operation) (percent usage) (hours/day) (1 ton/2000 lbs) = tons of air emissions	(1 grader) (1.513 lbs/hr/vehicle) (89 days in operation) (100% usage) (8 hours/day) (1 ton/2000 lbs) = 0.54 tons of NO _x of equipment emissions
Construction Truck Emissions with Vehicle-miles	(# vehicle type) (Emission factor) (Total # of days in operation) (miles/day)(1 ton/2000 lbs) = tons of air emissions	(1 dump truck) (8.804 grams/mile/vehicle) (1439 days)(68 miles/day)(1 lb/453.59 grams) (1 ton/2000 lb) = 0.95 tons NO _x of vehicle emissions

Surface Disturbance (Fugitive PM_{2.5})

The quantity of dust emissions of PM_{2.5} from construction operations is assumed proportional to the days of construction activity on unpaved surfaces. The following sources for emission factors, with a capture fraction of

50% and silt and moisture contents of 20%, were used in PM_{2.5} emission calculations for fugitive emissions (AP-42 Section 13.2; USEPA 2006).

- The unpaved road equation 13.2.2.1 equation 1a (AP-42 Chapter 13.2.2) is used to estimate fugitive emissions for the concrete pumper truck, concrete truck, crane, water truck, dump truck pickup truck, and delivery truck. Mileage on unpaved surface for each day of operation by vehicle type is estimated, then multiplied by the number of construction days.
- Front end loader and backhoe emissions combine unpaved road travel from equation 13.2.2.1 equation 1a and the dumping equation from AP-42 Chapter 11, Chapter 11.9-4.
- Dozer, pneumatic tire roller, and vibratory roller emissions are based on the dozer equation from AP-42 Chapter 11, Table 11.9-1.
- Grader emissions are based on the grader equation from AP-42 Chapter 11, Table 11.9-1.
- Scraper emissions are based on the “removing topsoil” equation from AP-42 Chapter 13, Table 13.2.3-1 and dumping equation from Chapter 11, table 11.9-4.2.

Resultant emission rates in lb/day are presented in Table B-4.

Table B-4: Fugitive PM_{2.5} Emission Factors for Construction Vehicles

Equipment/Vehicle Type	Fugitive PM _{2.5} (lb/day)	Equipment/Vehicle Type	Fugitive PM _{2.5} (lb/day)
Front End Loader	4.49	Concrete Pumper Truck	1.16
Dozer	1.77	Concrete Truck	1.16
Pneumatic Tire Roller	0.89	Water Tanker	13.39
Vibratory Roller	0.89	Dump Truck	11.16
Grader	0.01	Pick-Up Truck	2.64
Scraper	20.62	Delivery Truck (Medium)	5.44
Backhoe	2.25	Delivery Truck (Heavy)	7.44
Crane/Manlift	1.00		

5.1.1.2 Alternatives 1, 2, 3 – Washington Gate (Including DOL & Secondary Refueling Station)

Equipment requirements were estimated for the construction activities associated with site preparation for USMAPS facilities, including the landfill construction and DOL demolition, trenching for utilities, and construction of DOL and Secondary Refueling Station facilities.

Mid-2009 – Mid-2010

Tables B-5, B-6, and B-7 provide the equipment assumptions and resultant total equipment emissions for Alternatives 1, 2, and 3 respectively during mid-2009 – mid-2010 in tons per year (TPY). Emissions are calculated and combined for construction at Washington Gate, the new DOL site, and the Secondary Refueling Station.

The differences between Alternatives 1 and 2 reflect slight differences in site preparation and retaining wall construction, and the initiation of barracks construction under Alternative 1, which must be delayed for one year under Alternative 2. The major difference between Alternative 3 and Alternatives 1 or 2 reflects assumptions of major increases in the rock excavation and removal under Alternative 3.

Table B-5: Emissions for Construction Equipment – Alt 1 WG E – Mid-2009 to Mid-2010

Construction Vehicle Type	Vehicle Days of Operation	Total Annual Emissions – TPY				
		NO _x	VOC	PM _{2.5}	Fugitive PM _{2.5}	SO ₂
Front End Loader	287	3.78	0.23	0.20	0.64	0.56
Excavator	114	1.28	0.10	0.08	0.00	0.24
Dozer	119	1.29	0.09	0.07	0.11	0.24
Pneumatic Tire Roller	42	0.16	0.02	0.02	0.02	0.03
Steel Wheel Roller	21	0.08	0.01	0.01	0.00	0.01
Asphalt Paver	169	0.57	0.05	0.04	0.00	0.09
Vibratory Roller	177	0.81	0.06	0.05	0.08	0.13
Grader	128	0.78	0.06	0.05	0.00	0.14
Concrete Pumper Truck	271	3.19	0.26	0.20	0.16	0.36
Concrete Truck	612	7.20	0.58	0.45	0.35	0.81
Crane/Manlift	354	1.64	0.16	0.12	0.18	0.41
Backhoe	14	0.08	0.02	0.01	0.02	0.01
Water Tanker	93	0.02	0.00	0.00	0.63	0.00
Dump Truck	1184	0.78	0.07	0.02	6.60	0.00
Pick-Up Truck	450	0.005	0.007	0.000	0.59	0.00
Delivery Truck (Medium)	450	0.07	0.08	0.00	1.23	0.00
Delivery Truck (Heavy)	450	0.02	0.01	0.00	1.67	0.00
Air Compressor	673	1.50	0.13	0.14	0.00	0.25
Chipping Machine	38	0.18	0.02	1.39	0.00	0.03
Chain Saw/Auger	326	0.27	0.04	2.41	0	0.05
Total Emissions		23.71	2.00	5.25	12.27	3.36

Table B-6: Emissions for Construction Equipment – Alt 2 WG B – Mid-2009 to Mid-2010

Construction Vehicle Type	Vehicle Days of Operation	Total Annual Emissions – TPY				
		NO _x	VOC	PM _{2.5}	Fugitive PM _{2.5}	SO ₂
Front End Loader	277	3.68	0.22	0.19	0.62	0.54
Excavator	104	1.17	0.09	0.07	0.00	0.22
Dozer	117	1.27	0.09	0.07	0.10	0.23
Pneumatic Tire Roller	42	0.16	0.02	0.02	0.02	0.03
Steel Wheel Roller	21	0.08	0.01	0.01	0.00	0.01
Asphalt Paver	169	0.57	0.05	0.04	0.00	0.09
Vibratory Roller	159	0.70	0.06	0.04	0.07	0.11
Grader	126	0.77	0.06	0.05	0.00	0.13
Concrete Pumper Truck	152	1.79	0.14	0.11	0.09	0.20
Concrete Truck	352	4.14	0.33	0.26	0.20	0.47
Crane/Manlift	264	1.22	0.12	0.09	0.13	0.35
Backhoe	8	0.05	0.01	0.01	0.01	0.01
Water Tanker	93	0.02	0.00	0.00	0.63	0.00
Dump Truck	1184	0.78	0.07	0.02	6.60	0.00
Pick-Up Truck	330	0.003	0.005	0.000	0.435	0.000
Delivery Truck (Medium)	330	0.05	0.06	0.00	0.90	0.00
Delivery Truck (Heavy)	330	0.02	0.01	0.00	1.23	0.00
Air Compressor	433	0.97	0.09	0.09	0.00	0.16
Chipping Machine	38	0.18	0.02	1.39	0.00	0.03
Chain Saw/Auger	326	0.27	0.04	2.41	0	0.05
Total Emissions		17.88	1.49	4.87	11.04	2.63

Table B-7: Emissions for Construction Equipment – Alt 3 WG 15% – Mid-2009 to Mid-2010

Construction Vehicle Type	Vehicle Days of Operation	Total Annual Emissions – TPY				
		NO _x	VOC	PM _{2.5}	Fugitive PM _{2.5}	SO ₂
Front End Loader	668	8.97	0.54	0.47	1.50	1.32
Excavator	203	2.36	0.18	0.15	0.00	0.43
Dozer	119	1.29	0.09	0.07	0.11	0.24
Pneumatic Tire Roller	42	0.16	0.02	0.02	0.02	0.03
Steel Wheel Roller	21	0.08	0.01	0.01	0.00	0.01
Asphalt Paver	269	0.79	0.07	0.06	0.00	0.13
Vibratory Roller	177	0.81	0.06	0.05	0.08	0.13
Grader	128	0.78	0.06	0.05	0.00	0.14
Concrete Pumper Truck	271	3.19	0.26	0.20	0.16	0.36
Concrete Truck	612	7.20	0.58	0.45	0.35	0.81
Crane/Manlift	354	1.64	0.16	0.12	0.18	0.41
Backhoe	14	0.08	0.02	0.01	0.02	0.01
Water Tanker	93	0.02	0.00	0.00	0.63	0.00
Dump Truck	2644	1.74	0.15	0.04	14.75	0.00
Pick-Up Truck	450	0.00	0.01	0.00	0.59	0.00
Delivery Truck (Medium)	450	0.07	0.08	0.00	1.23	0.00
Delivery Truck (Heavy)	450	0.02	0.01	0.00	1.67	0.00
Air Compressor	773	1.73	0.15	0.16	0.00	0.29
Chipping Machine	38	0.18	0.02	1.39	0.00	0.03
Chain Saw/Auger	326	0.27	0.04	2.41	0	0.05
Total Emissions		31.38	2.52	5.66	21.28	4.37

Mid-2010 – Mid-2011

It is assumed that the emissions for Alternatives 1 and 3 are essentially the same. Alternative 2 differs in its schedule for the barracks construction (Figure B-1). Table B-8 provides the equipment assumptions and resultant total equipment emissions for Alternatives 1 and 3 in the mid-2010 – mid-2011 time period; Table B-9 provides emissions for Alternative 2.

Table B-8: Emissions for Construction Equipment – Alts 1 WG E & 3 WG 15% – Mid-2010 to Mid-2011

Construction Vehicle Type	Vehicle Days of Operation	Total Annual Emissions – TPY				
		NO _x	VOC	PM _{2.5}	Fugitive PM _{2.5}	SO ₂
Front End Loader	39	0.52	0.03	0.03	0.09	0.08
Excavator	6	0.07	0.00	0.00	0.00	0.01
Dozer	29	0.31	0.02	0.02	0.03	0.06
Pneumatic Tire Roller	0	0.00	0.00	0.00	0.00	0.00
Steel Wheel Roller	0	0.00	0.00	0.00	0.00	0.00
Asphalt Paver	34	0.08	0.01	0.01	0.00	0.01
Vibratory Roller	23	0.06	0.00	0.00	0.01	0.01
Grader	6	0.04	0.00	0.00	0.00	0.01
Concrete Pumper Truck	366	4.31	0.35	0.27	0.21	0.48
Concrete Truck	621	7.31	0.59	0.46	0.36	0.82
Crane/Manlift	372	1.72	0.17	0.13	0.19	0.32
Backhoe	4	0.02	0.01	0.00	0.00	0.00
Water Tanker	0	0.00	0.00	0.00	0.00	0.00
Dump Truck	241.2	0.159	0.014	0.004	1.35	0.000
Pick-Up Truck	560	0.006	0.009	0.000	0.74	0.000
Delivery Truck (Medium)	560	0.09	0.10	0.00	1.52	0.00
Delivery Truck (Heavy)	560	0.03	0.02	0.00	2.08	0.00
Air Compressor	364	0.81	0.07	0.07	0.00	0.14
Chipping Machine	0	0.00	0.00	0.00	0.00	0.00
Chain Saw	0	0.00	0.00	0.00	0	0.00
Total Emissions		15.51	1.40	1.00	6.58	1.94

Table B-9: Emissions for Construction Equipment – Alt 2 WG B – Mid-2010 to Mid-2011

Construction Vehicle Type	Vehicle Days of Operation	Total Annual Emissions – TPY				
		NO _x	VOC	PM _{2.5}	Fugitive PM _{2.5}	SO ₂
Front End Loader	49	0.62	0.04	0.03	0.11	0.09
Excavator	16	0.18	0.01	0.01	0.00	0.03
Dozer	30	0.33	0.02	0.02	0.03	0.06
Pneumatic Tire Roller	0	0.00	0.00	0.00	0.00	0.00
Steel Wheel Roller	0	0.00	0.00	0.00	0.00	0.00
Asphalt Paver	34	0.08	0.01	0.01	0.00	0.01
Vibratory Roller	27	0.08	0.01	0.01	0.01	0.01
Grader	9	0.05	0.00	0.00	0.00	0.01
Concrete Pumper Truck	471	5.54	0.45	0.35	0.27	0.62
Concrete Truck	867	10.20	0.82	0.64	0.50	1.15
Crane/Manlift	372	1.72	0.17	0.13	0.19	0.32
Backhoe	10	0.06	0.01	0.01	0.01	0.01
Water Tanker	0	0.00	0.00	0.00	0.00	0.00
Dump Truck	241	0.159	0.014	0.004	1.35	0.000
Pick-Up Truck	560	0.006	0.009	0.000	0.74	0.000
Delivery Truck (Medium)	560	0.09	0.10	0.00	1.52	0.00
Delivery Truck (Heavy)	560	0.03	0.02	0.00	2.08	0.00
Air Compressor	364	0.81	0.07	0.07	0.00	0.14
Chipping Machine	0	0.00	0.00	0.00	0.00	0.00
Chain Saw	0	0.00	0.00	0.00	0	0.00
Total Emissions		19.95	1.76	1.28	6.81	2.46

Mid-2011 – Mid-2012

It is assumed that the emissions for Alternatives 1 and 3 are essentially the same. Alternative 2 differs in its schedule for the barracks construction (Figure B-1). Table B-10 provides the equipment assumptions and resultant total equipment emissions for Alternatives 1 and 3 in the mid-2011 – mid-2012 time period; Table B-11 provides emissions for Alternative 2.

Table B-10: Emissions for Construction Equipment – Alt 1 WG E & 3 WG 15% – Mid-2011 to Mid-2012

Construction Vehicle Type	Vehicle Days of Operation	Total Annual Emissions – TPY				
		NO _x	VOC	PM _{2.5}	Fugitive PM _{2.5}	SO ₂
Front End Loader	8	0.11	0.01	0.01	0.02	0.02
Excavator	5	0.05	0.00	0.00	0.00	0.01
Dozer	39	0.43	0.03	0.02	0.03	0.08
Pneumatic Tire Roller	4	0.02	0.00	0.00	0.00	0.00
Steel Wheel Roller	9	0.03	0.00	0.00	0.00	0.01
Asphalt Paver	4	0.02	0.00	0.00	0.00	0.00
Vibratory Roller	90	0.53	0.04	0.03	0.04	0.09
Grader	85	0.52	0.04	0.03	0.00	0.09
Concrete Pumper Truck	31	0.36	0.03	0.02	0.02	0.04
Concrete Truck	75	0.88	0.07	0.06	0.04	0.10
Crane/Manlift	298	1.38	0.14	0.10	0.15	0.22
Backhoe	5	0.03	0.01	0.00	0.01	0.00
Water Tanker	4	0.00	0.00	0.00	0.02	0.00
Dump Truck	19	0.01	0.00	0.00	0.10	0.00
Pick-Up Truck	470	0.00	0.01	0.00	0.62	0.00
Delivery Truck (Medium)	470	0.08	0.09	0.00	1.28	0.00
Delivery Truck (Heavy)	470	0.02	0.01	0.00	1.75	0.00
Air Compressor	375	0.84	0.07	0.08	0.00	0.14
Chipping Machine	0	0.00	0.00	0.00	0.00	0.00
Chain Saw	0	0.00	0.00	0.00	0	0.00
Total Emissions		5.30	0.56	0.37	4.09	0.79

Table B-11: Emissions for Construction Equipment – Alt 2 WG B – Mid-2011 to Mid-2012

Construction Vehicle Type	Vehicle Days of Operation	Total Annual Emissions – TPY				
		NO _x	VOC	PM _{2.5}	Fugitive PM _{2.5}	SO ₂
Front End Loader	8	0.11	0.01	0.01	0.02	0.02
Excavator	5	0.05	0.00	0.00	0.00	0.01
Dozer	39	0.43	0.03	0.02	0.03	0.08
Pneumatic Tire Roller	4	0.02	0.00	0.00	0.00	0.00
Steel Wheel Roller	9	0.03	0.00	0.00	0.00	0.01
Asphalt Paver	4	0.02	0.00	0.00	0.00	0.00
Vibratory Roller	90	0.53	0.04	0.03	0.04	0.09
Grader	85	0.52	0.04	0.03	0.00	0.09
Concrete Pumper Truck	31	0.36	0.03	0.02	0.02	0.04
Concrete Truck	75	0.88	0.07	0.06	0.04	0.10
Crane/Manlift	388	1.79	0.18	0.13	0.19	0.28
Backhoe	5	0.03	0.01	0.00	0.01	0.00
Water Tanker	4	0.00	0.00	0.00	0.02	0.00
Dump Truck	19	0.01	0.00	0.00	0.10	0.00
Pick-Up Truck	590	0.01	0.01	0.00	0.78	0.00
Delivery Truck (Medium)	590	0.09	0.11	0.00	1.61	0.00
Delivery Truck (Heavy)	590	0.03	0.02	0.00	2.19	0.00
Air Compressor	615	1.37	0.12	0.13	0.00	0.23
Chipping Machine	0	0.00	0.00	0.00	0.00	0.00
Chain Saw	0	0.00	0.00	0.00	0	0.00
Total Emissions		6.28	0.68	0.45	5.06	0.95

5.1.1.3 Alternatives 4, 5 – Lake Frederick Site

It is assumed that the emissions for activities for Alternatives 4 and 5 are essentially the same in both years beginning in mid-2009 and ending in mid-2010 and beginning in mid-2010 and ending in mid-2011. Tables B-12 and B-12 provide the equipment assumptions and resultant total equipment emissions for Alternatives 4 and 5 in the mid-2009 – mid-2010 time period and mid-2010 – mid-2011 time period respectively.

Table B-12: Emissions for Construction Equipment – Alts 4, 5 LF – Mid-2009 to Mid-2010

Construction Vehicle Type	Vehicle Days of Operation	Total Annual Emissions – TPY				
		NO _x	VOC	PM _{2.5}	Fugitive PM _{2.5}	SO ₂
Front End Loader	102	1.28	0.08	0.07	0.23	0.20
Excavator	102	1.20	0.09	0.07	0.00	0.22
Dozer	73	0.79	0.06	0.04	0.06	0.14
Pneumatic Tire Roller	0	0.00	0.00	0.00	0.00	0.00
Steel Wheel Roller	0	0.00	0.00	0.00	0.00	0.00
Asphalt Paver	0	0.00	0.00	0.00	0.00	0.00
Vibratory Roller	37	0.22	0.02	0.01	0.02	0.04
Grader	14	0.08	0.01	0.01	0.00	0.01
Concrete Pumper Truck	488	5.74	0.46	0.36	0.28	0.65
Concrete Truck	1034	12.16	0.98	0.76	0.60	1.37
Crane/Manlift	409	1.89	0.19	0.14	0.20	0.30
Backhoe	17	0.10	0.02	0.01	0.02	0.01
Water Tanker	0	0.00	0.00	0.00	0.00	0.00
Dump Truck	128	0.08	0.01	0.00	0.71	0.00
Pick-Up Truck	785	0.01	0.01	0.00	1.04	0.00
Delivery Truck (Medium)	845	0.14	0.16	0.00	2.30	0.00
Delivery Truck (Heavy)	785	0.04	0.02	0.00	2.92	0.00
Air Compressor	330	0.74	0.07	0.07	0.00	0.12
Chipping Machine	38	0.18	0.02	1.39	0.00	0.03
Chain Saw/Auger	326	0.27	0.04	2.41	0	0.05
Total Emissions		24.90	2.23	5.35	8.38	3.13

Table B-13: Emissions for Construction Equipment – Alts 4, 5 LF – Mid-2010 to Mid-2011

Construction Vehicle Type	Vehicle Days of Operation	Total Annual Emissions – TPY				
		NO _x	VOC	PM _{2.5}	Fugitive PM _{2.5}	SO ₂
Front End Loader	35	0.40	0.03	0.02	0.08	0.07
Excavator	30	0.34	0.02	0.02	0.00	0.06
Dozer	42	0.46	0.03	0.03	0.04	0.08
Pneumatic Tire Roller	6	0.02	0.00	0.00	0.00	0.00
Steel Wheel Roller	11	0.04	0.00	0.00	0.00	0.01
Asphalt Paver	6	0.03	0.00	0.00	0.00	0.00
Vibratory Roller	93	0.54	0.04	0.03	0.04	0.09
Grader	87	0.53	0.04	0.03	0.00	0.09
Concrete Pumper Truck	39	0.46	0.04	0.03	0.02	0.05
Concrete Truck	83	0.98	0.08	0.06	0.05	0.11
Crane/Manlift	473	2.19	0.22	0.16	0.24	0.34
Backhoe	12	0.07	0.02	0.01	0.01	0.01
Water Tanker	5	0.00	0.00	0.00	0.03	0.00
Dump Truck	24	0.02	0.00	0.00	0.14	0.00
Pick-Up Truck	965	0.01	0.02	0.00	1.27	0.00
Delivery Truck (Medium)	1025	0.16	0.19	0.00	2.79	0.00
Delivery Truck (Heavy)	965	0.05	0.03	0.01	3.59	0.00
Air Compressor	1185	2.65	0.23	0.24	0.00	0.44
Chipping Machine	0	0.00	0.00	0.00	0.00	0.00
Chain Saw/Auger	250	0.21	0.03	1.85	0	0.04
Total Emissions		9.14	1.03	2.50	8.30	1.40

5.1.2 Emissions from Painting Activities

For painting building structures, it was assumed that water-based latex paint would be used with a VOC content of one pound per gallon and one gallon of paint covers approximately 300 square feet. Emissions from painting parking spaces painting were based on four-inch wide stripes. It was assumed that the average parking space is 9 feet wide by 19 feet long and every two parking spaces share a common line. Approximately 10 square feet would be painted for every parking space. For parking spaces, it was assumed that alkyd paint would be used with a VOC content of three pounds per gallon and one gallon of paint covers approximately 200 square feet. One coat of paint would be applied to the parking surfaces.

5.1.2.1 Alternatives 1, 2, & 3 – Washington Gate

Mid-2009 – Mid-2010

The following painting activities were assumed to occur in the year beginning in mid-2009 and ending in mid-2010:

- Construction of DOL facilities at TA-V/W

The DOL building interiors are assumed to be painted.

Three coats of paint (one primer and two finishes) of water-based latex paint with a VOC content of one pound per gallon (one gallon of paint covers approximately 300 square feet) would be applied to approximately 88,000 square feet of interior surfaces. These values assume the interior space consists of rooms with drop ceilings or other surfaces not requiring paint and a ratio of walls needing paint to floor space of 1 to 1. Based on these assumptions, approximately 880 gallons of paint are needed for the Washington Gate Alternatives 1, 2, or 3 interior wall surfaces. Total interior painting for buildings constructed during 2009 – 2010 create approximate VOC emissions of 0.44 tons.

It is assumed that parking stripes are not applied at the new DOL Motor Pool.

Mid-2010 – Mid-2011

The following painting activities were assumed to occur in the year beginning in mid-2010 and ending in mid-2011 for Alternatives 1 & 3:

- Construction of Barracks and Dining Facility at the Washington Gate site with supporting utilities
- Expansion and renovation of the VTF facility to accommodate VETCOM

Three coats of paint (one primer and two finishes) of water-based latex paint with a VOC content of one pound per gallon (one gallon of paint covers approximately 300 square feet) would be applied to approximately 90,000 square feet of interior surfaces. These values assume the interior space consists of rooms with drop ceilings or other surfaces not requiring paint and a ratio of walls needing paint to floor space of 1 to 1 in the Dining Facility and 2:1 in the Barracks and VETCOM. Based on these assumptions, approximately 1,660 gallons of paint are needed for the Washington Gate Alternatives 1 or 3 interior wall surfaces. Total interior painting for buildings constructed over during 2010 - 2011 create approximate VOC emissions of 0.83 tons.

Under Alternative 2, the barracks interior painting would be delayed, resulting in only the dining facility and VETCOM painting. These facilities, with approximately 16,000 SF of floor space and 18,000 SF of surfaces requiring paint, would require 180 gallons of paint and would create approximate VOC emissions of 0.09 tons.

Mid-2011 – Mid-2012

The following painting activities were assumed to occur in the year beginning in mid-2011 and ending in mid-2012 under Alternatives 1 & 3:

- Construction of Academic Building, Athletic Building and Indoor Field at the Washington Gate site with supporting utilities
- Construction and paving of all required parking and roads at the Washington Gate site

Three coats of paint (one primer and two finishes) of water-based latex paint with a VOC content of one pound per gallon (one gallon of paint covers approximately 300 square feet) would be applied to approximately 230,000 square feet of interior surfaces. These values assume the interior space consists of rooms with drop ceilings or other surfaces not requiring paint and a ratio of walls needing paint to floor space of 1 to 1 in the Athletic Building, 2:1 in the Academics building, and none in the Interior Field. Based on these assumptions, approximately 2,300 gallons of paint are needed for the Washington Gate Alternatives 1, 2, or 3 interior wall surfaces. Total interior painting for buildings constructed over during 2011 - 2012 create approximate VOC emissions of 1.15 tons.

Emissions from parking spaces painting were based on four-inch wide stripes. It was assumed that the average parking space is 9 feet wide by 19 feet long and every two parking spaces share a common line. Approximately 10 square feet would be painted for every parking space. For parking spaces, it was assumed that alkyd paint would be used with a VOC content of three pounds per gallon and one gallon of paint covers approximately 200 square feet. One coat of paint would be applied to the parking surfaces. Based on an assumption that a total of 500 spaces will be striped during the period, approximate VOC emissions for painting parking spaces would be 0.04 tons. Total VOC emissions are therefore 1.19 tons.

Under Alternative 2, the barracks interior spaces would also be painted, adding 148,000 SF of interior space to that calculated for Alternatives 1 & 3. This would add 1,480 gallons and .74 tons of VOC, for approximate VOC emissions of 1.93 tons total.

5.1.2.2 Alternatives 4, 5 – Lake Frederick Site

Mid-2009 – Mid-2010

No painting activities are assumed in this period.

Mid-2010 – Mid-2011

The following painting activities were assumed to occur in the year beginning in mid-2010 and ending in mid-2011:

- Completion of the Barracks, Athletic Building, Academic Facility, Interior Athletic Facility, Dining Facility, treatment plant, pump house, shoppette, fire station, and maintenance building
- Completion of 100% of required parking and roads at Lake Frederick
- Expansion and renovation of the VTF facility to accommodate VETCOM

Three coats of paint (one primer and two finishes) of water-based latex paint with a VOC content of one pound per gallon (one gallon of paint covers approximately 300 square feet) would be applied to approximately 421,000 square feet of interior surfaces. These values assume the USMAPS building interior space consists of rooms with drop ceilings or other surfaces not requiring paint and a ratio of walls needing paint to floor space of 1 to 1 in the Athletic Building, Dining Facility, treatment plant, pump house, fire station, and maintenance facility (approximately 106,000 SF). A ratio of walls needing paint to floor space of 2 to 1 is assumed in the Academics and Barracks buildings and proposed Shoppette as well as in the VETCOM/VTF (157,500 x 2 = 315,000 SF). The Interior Athletic Facility is assumed to not be painted. . Based on these assumptions, approximately 4,210 gallons of paint are needed for the Lake Frederick Alternatives 4 or 5 interior wall surfaces during this annual period. Therefore, total interior painting for buildings constructed over during 2010 - 2011 create approximate VOC emissions of 2.11 tons.

Emissions from parking spaces painting were based on four-inch wide stripes. It was assumed that the average parking space is 9 feet wide by 19 feet long and every two parking spaces share a common line. Approximately 10

square feet would be painted for every parking space. For parking spaces, it was assumed that alkyd paint would be used with a VOC content of three pounds per gallon and one gallon of paint covers approximately 200 square feet. One coat of paint would be applied to the parking surfaces. Based on an assumption that a total of 500 spaces will be striped and all 500 spaces during the period, approximate VOC emissions for painting parking spaces would be 0.04 tons. Total VOC emissions are therefore 2.15 tons.

5.1.3 Summary of Construction Emissions

After emissions analysis was performed for all aspects of construction, the totals were added to determine the combined construction emissions. Tables B-14 through B-22 display a summary of the results. Additional VOC emissions, a component of Landfill Gas would be expected from construction associated with the landfill. These emissions are not quantifiable in terms of a conformity analysis and are not included in the emissions totals. Currently, VOCs in the east landfill exceed the screening criteria. For the Washington Gate alternatives, all buildings would require gas collection and evacuation systems due to the proximity to the landfills.

Table B-14: Total Emissions for Construction – Alt 1 WG E – Mid-2009 to Mid-2010

Construction Activity	Total Annual Emissions – TPY			
	NO _x	VOC	PM _{2.5}	SO ₂
Use of Heavy Equipment	23.71	2.00	17.53	3.36
Painting		0.44		
Total Emissions from Construction	23.71	2.44	17.53	3.36

Table B-15: Total Emissions for Construction – Alt 2 WG B – Mid-2009 to Mid-2010

Construction Activity	Total Annual Emissions – TPY			
	NO _x	VOC	PM _{2.5}	SO ₂
Use of Heavy Equipment	17.88	1.49	15.91	2.63
Painting		0.44		
Total Emissions from Construction	17.88	1.93	15.91	2.63

Table B-16: Total Emissions for Construction – Alt 3 WG 15% – Mid-2009 to Mid-2010

Construction Activity	Total Annual Emissions – TPY			
	NO _x	VOC	PM _{2.5}	SO ₂
Use of Heavy Equipment	31.38	2.52	26.93	4.37
Painting		0.44		
Total Emissions from Construction	31.38	2.96	26.93	4.37

Table B-17: Total Emissions for Construction – Alts 1 WG E & 3 WG 15% – Mid-2010 to Mid-2011

Construction Activity	Total Annual Emissions – TPY			
	NO _x	VOC	PM _{2.5}	SO ₂
Use of Heavy Equipment	15.51	1.40	7.58	1.94
Painting		0.83		
Total Emissions from Construction	15.51	2.23	7.58	1.94

Table B-18: Total Emissions for Construction – Alt 2 WG B – Mid-2010 to Mid-2011

Construction Activity	Total Annual Emissions – TPY			
	NO _x	VOC	PM _{2.5}	SO ₂
Use of Heavy Equipment	19.95	1.76	8.09	2.46
Painting		0.09		
Total Emissions from Construction	19.95	1.85	8.09	2.46

Table B-19: Total Emissions for Construction – Alts 1 WG E & 3 WG 15% – Mid-2011 to Mid-2012

Construction Activity	Total Annual Emissions – TPY			
	NO _x	VOC	PM _{2.5}	SO ₂
Use of Heavy Equipment	5.30	0.56	4.46	0.79
Painting		1.19		
Total Emissions from Construction	5.30	1.75	4.46	0.79

Table B-20: Total Emissions for Construction – Alt 2 WG B – Mid-2011 to Mid-2012

Construction Activity	Total Annual Emissions – TPY			
	NO _x	VOC	PM _{2.5}	SO ₂
Use of Heavy Equipment	6.28	0.68	5.52	0.95
Painting		1.93		
Total Emissions from Construction	6.28	2.61	5.52	0.95

Table B-21: Total Emissions for Construction – Alts 4, 5 LF – Mid-2009 to Mid-2010

Construction Activity	Total Annual Emissions – TPY			
	NO _x	VOC	PM _{2.5}	SO ₂
Use of Heavy Equipment	24.90	2.23	13.73	3.13
Painting		0.00		
Total Emissions from Construction	24.90	2.23	13.73	3.13

Table B-22: Total Emissions for Construction – Alts 4, 5 LF – Mid-2010 to Mid-2011

Construction Activity	Total Annual Emissions – TPY			
	NO _x	VOC	PM _{2.5}	SO ₂
Use of Heavy Equipment	9.14	1.03	10.80	1.40
Painting		2.15		
Total Emissions from Construction	9.14	3.18	10.80	1.40

5.2 OPERATIONAL EMISSIONS

This section analyzes operational emissions from building heating sources, generators, new commuters, and new petroleum storage and dispensing operations.

5.2.1 Heating Source Emissions

Designs for the proposed facilities have not yet been prepared; therefore, actual boiler or furnace types and sizes have not been determined. Operational heating requirements for the EA analysis are based on the most recent Commercial Buildings Energy Consumption Survey (CBECS) in 2003 conducted by the Department of Energy, Energy Information Administration. Table C30 from this document indicates that the average energy intensity for buildings using natural gas in climate zone 2, which includes Orange County, NY (DOE, 2003). The energy intensity requirements for the building types included in the Proposed Action are available in Table B-23.

Water heating is assumed to be included in these estimates or provided electrically.

Table B-23: Annual Heating Requirement per Square Foot

Building Type	Standard Cubic Foot (SCF)/SF
Office	41
Education	49.4
Food Service	134.4
Lodging	72.8
Public Assembly	55
Service	52.1
Warehouse/Storage	26.4

The USMAPS Campus space and water heating for 11,000 SF of office space, 68,000 SF educational space, 14,000 SF food service space, 74,000 SF lodging space, and 89,000 of public assembly space (athletic areas) requires annually:

- $(11,000 \text{ SF})(41 \text{ SCF/SF}) + (68,000 \text{ SF})(49.4) + (14,000 \text{ SF})(134.4) + (74,000 \text{ SF})(72.8) + (89,000 \text{ SF})(55) = 16.0$ million SCF annually (add an estimated 28,000 SF of heated service space for support facilities at Lake Frederick for an additional 1.46 million SCF or 17.46 SCF for Alternatives 4 and 5).

Additionally, the current DOL is heated by natural gas. If relocated under the Washington Gate alternatives, the DOL will be heated by propane, decreasing the demand on the existing steam plant. Using the same assumptions listed above for DOL space of 4,550 SF of office, 63,340 SF of service, and 20,000 SF of storage, it is estimated that the current DOL consumes 4.01 million SCF annually. Under the Washington Gate alternatives, the DOL usage will go offline while USMAPS energy usage would be added. The net increase in natural gas usage from the Washington Gate alternatives is approximately 12 million SCF annually.

The new buildings to be constructed for USMAPS are assumed to be heated by small boilers that operate at less than 100 million Btu per hour. Operational heating emissions are based on the USEPA's *AP-42 Fifth Edition, Compilation of Air Pollution Emission Factors Volume I, Chapter 1: Stationary Sources, Supplement E* (EPA, 1998a).

The following natural gas emission rates are assumed:

- $\text{NO}_x = 100 \text{ lb}/10^6 \text{ SCF}$
- $\text{VOC} = 5.5 \text{ lb}/10^6 \text{ SCF}$
- $\text{PM}_{2.5} = 7.6 \text{ lb}/10^6 \text{ SCF}$
- $\text{SO}_2 = 0.6 \text{ lb}/10^6 \text{ SCF}$

Under the Washington Gate alternatives, heating at the relocated DOL Motor pool would be fueled by propane. One SCF of natural gas is equivalent to 0.211 gallons of heating fuel. This conservative estimate is used to calculate the gallons of propane required.

The following propane emission rates are assumed:

- $\text{NO}_x = 13 \text{ lb}/10^3 \text{ gal}$
- $\text{VOC} = 1 \text{ lb}/10^3 \text{ gal}$
- $\text{PM}_{2.5} = 0.7 \text{ lb}/10^3 \text{ gal}$
- $\text{SO}_2 = 0.018 \text{ lb}/10^3 \text{ gal}$

The expansion of VTF for VETCOM could replace the current fuel oil boiler with natural gas. This would be expected to reduce emissions. Therefore, as a conservative approach, these potential positive changes are not included in this analysis.

Given these assumptions the annual heating emissions at full operation are available in Table B-24.

Table B-24: Annual Heating Emissions

Alternative	Total Annual Emissions – TPY			
	NO_x	VOC	$\text{PM}_{2.5}$	SO_2
Alternatives 1, 2, 3 – Washington Gate & TA-V/W sites	6.10	0.46	0.34	0.01
Lake Frederick Alternatives 4, 5	0.87	0.05	0.07	0.01

5.2.2 Vehicle Emissions from Daily Commuters

Vehicle emissions from commuter vehicles are based on the *MOBILE6* air modeling program, estimating the emissions per vehicle per mile traveled. The *MOBILE6* modeling program takes into account the vehicle age, average speed, and vehicle type to create average emission factors to be used in an overall analysis. The analysis assumed that the annual average temperature is 49° F. Based on this assumption, the emissions factors for NO_x , VOC, $\text{PM}_{2.5}$, and SO_2 from average vehicles are provided in Table B-25.

Table B-25: Emission Factors for Commuter Vehicles

Pollutant	Emissions Factor - grams/mile/vehicle
NO_x	0.718
VOC	1.136
$\text{PM}_{2.5}$	0.0115
SO_2	0.0067

The annual emissions in tons per year of NO_x , VOC, $\text{PM}_{2.5}$, and SO_2 for full time commuter emissions were calculated using the appropriate equations displayed in Table B-26.

Table B-26: Equations for Operations Emissions Calculation

Emission Source	Equation	Sample Calculation
Operations, Commuters	$(\# \text{ of vehicles}) (\# \text{ of trips/day}) (\# \text{ miles/trip})$ $(\# \text{ days/year}) = \# \text{ miles/year}$ $(\# \text{ miles/year}) (\text{emissions factor grams/mile}) (1 \text{ lb}/453.59 \text{ grams}) (1 \text{ ton}/2000 \text{ lb}) = \text{TPY of Vehicle Emissions}$	$(76 \text{ vehicles}) (2 \text{ trips/day}) (15 \text{ miles/trip}) (240 \text{ days/year}) (0.718 \text{ g/mile/vehicle}) (1 \text{ lb}/453.59 \text{ grams}) (1 \text{ ton}/2000 \text{ lbs}) = \mathbf{0.433 \text{ TPY NO}_x}$

For the analysis, it is assumed that there will be 76 full time employees traveling to and from the installation daily. It is assumed that the students will live on the installation and will not have a daily commute. Based on these assumptions, the commuter vehicle emissions are shown in Table B-27.

Table B-27: Annual Emissions from Daily Vehicle Traffic

Pollutant	Total Annual Emissions – TPY
NO _x	0.433
VOC	0.685
PM _{2.5}	0.007
SO ₂	0.004

5.2.3 Emissions from Generators

Backup generators are assumed at each site as follows:

- USMAPS: 1 each 150 kW (Natural Gas at WG; Diesel at LF)
- Secondary Refueling Station at WG: 1 each 75 KVA
- DOL IWTP: 1 each standby 50 kW
- Maintenance Facility: 2 each 300 KVA
- Admin/Fuel station: 1 each 225 KVA
- DOL Water Supply - Fire Pump – 1 each 300-550 kW

The emission rates for a standard 150 kW natural gas generator for use at USMAPS under Alternatives 1, 2, and 3 are derived from the EPA’s Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling – Compression- Ignition manual and are as follows (USEPA, 1998b) and are as follows:

- NO_x = 8.5 g/bhp-hr
- VOC = 0.36 g/bhp-hr
- SO₂ and PM_{2.5} = negligible

For backup diesel generators, 60 kW/75 KVA was assumed for both Secondary Refueling Station and DOL IWTP requirements; emission data for all four pollutants were based on a Tier 3 Cummins 60 kW generator (Cummins, 2008). For the USMAPS 150 kW diesel generator at Lake Frederick under Alternatives 4 and 5, emission rates for NO_x, VOC and PM_{2.5} was also based on Cummins Tier 3 150 kW generator emissions data (Cummins, 2008). The 225 KVA and the two 300 KVA generators use emissions data for NO_x, VOC and PM_{2.5} for a 230 kW/288 KVA Cummins Tier 3 generator (Cummins, 2008). The DOL Water Supply Fire Pump generator assumes a Cummins Tier 2 500 kW generator. – 1 each 300-550 kW. SO₂ for all generators except 60 kW/75 KVA are also derived

from the EPA’s Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling – Compression- Ignition manual (USEPA, 1998b). The emission rates are as follows:

- NO_x = 2.37 g/bhp-hr (60 kW), 2.7 g/bhp-hr (150 & 230 kW), and 4.85 g/bhp-hr (500 kW)
- VOC = 0.042 g/bhp-hr (60 kW), 0.32 g/bhp-hr (150 & 230 kW), and 0.16 g/bhp-hr (500 kW))
- SO₂ = 0.14 g/bhp-hr (60 kW), 0.823 g/bhp-hr (150, 230 & 500 kW), and
- PM_{2.5} = 0.06 g/bhp-hr (60 kW), 0.15 g/bhp-hr (150 & 230 kW) and .05 g/bhp-hr (500 kW)

Note, for the 150 kW and 230 kW generators where NO_x + HC = 3.0, HC is assumed to be 0.3, where VOC = 1.053 x HC.

Using an assumption of 500 annual hours each, the annual emissions of NO_x, VOC, PM_{2.5}, and SO₂ were calculated as shown in Table B-28.

Table B-28: Total Annual Emissions from Generators

Generator	Total Annual Emissions – TPY			
	NO _x	VOC	PM _{2.5}	SO ₂
Alternatives 1, 2, 3 – Washington Gate & TA-V/W sites	4.32	0.27	0.10	0.74
Lake Frederick Alternatives 4, 5	0.30	0.08	0.02	0.09

5.2.4 VOC Emissions from New Petroleum Tanks

The existing DOL motor pool has two 10,000-gallon MOGAS underground storage tanks (USTs) and two 10,000-gallon diesel tanks. One MOGAS and one diesel 10,000-gallon tank will move to the new DOL site and one MOGAS and one diesel 10,000-gallon tank will be placed at the new Secondary Refueling Station, for a net no change. However, two new 5,000 gallon E85 USTs will be provided – one at the DOL site and one at the Secondary Refueling site. These new tanks have been considered for their potential contribution to VOC emissions.

VOC emissions can occur from the filling of underground gasoline storage tanks at service stations, underground tank breathing, and filling equipment or vehicles from the pump. The following VOC analysis uses emission factors provided by Section 5.2.2.2 in USEPA’s AP 42 (USEPA, 2008b).

It is assumed that the new E85 tanks will use submerged filling. An average emission rate for submerged filling is 7.3 lb/1000 gal of transferred gasoline. It is also assumed that emissions from underground tank filling operations will be reduced by the use of a vapor balance system (Stage I vapor control) as currently required for other petroleum operations in West Point’s Title V air permit. Organic emissions from underground tank filling operations at a service station employing a vapor balance system and submerged filling are not expected to exceed 40 mg/L (0.3 lb/1000 gal) of transferred gasoline.

Underground tank breathing losses occur daily and are attributable to gasoline evaporation and barometric pressure changes. An average breathing emission rate is 1.0 lb/1000 gal of throughput.

Service station vehicle refueling activity also produces evaporative emissions from spillage and from vapors displaced from the automobile tank by dispensed gasoline. An average spillage loss is 0.7 lb/1000 gal of dispensed gasoline. It is estimated that the uncontrolled emissions from vapors displaced during vehicle refueling average 11.0 lb/1000 gal of dispensed gasoline; however, it is assumed that West Point will employ Stage II vapor control as required elsewhere by West Point’s air permit. Tests on a few systems have indicated overall systems control efficiencies in the range of 88 to 92; this analysis assumes 90%.

The resultant emission factor is $(0.3 + 1.0 + 0.7 + (0.1 \times 11))$ lb/1000 gallons = 3.1 lbs/1000 gallons throughput. Assuming the tanks are refilled weekly, for 520,000 gallons of annual use, the resultant VOC emissions are:

$$3.1 \text{ lbs/1000 gallons} \times 520,000 \text{ gallons} = 1612 \text{ lbs} = 0.81 \text{ tons per year.}$$

The AP 42 emission factors above are for gasoline. E85 (15% gasoline and 85% ethanol) fuel contains ethanol, which adds oxygen for improving combustion and reducing exhaust emissions. Adding ethanol to gasoline also dilutes the potency of toxic chemicals—and greenhouse gas emissions. Studies have shown that ethanol would:

- Reduces tailpipe carbon monoxide emissions by as much as 30 percent
- Reduces exhaust volatile organic compounds (VOC) emissions by 12 percent
- Reduces toxic emissions by 30 percent
- Reduces particulate matter (PM) emissions by more than 25 percent

However, during refueling at fuel stations, the use of ethanol / oxygenated fuels would lead to an increase in the emissions associated with permeation of VOC through vehicle fuel system components - such as hoses and seals. The increase of VOC occurs with the use of ethanol as an oxygenate, because ethanol acts to boost the Reid Vapor Pressure (RVP) of the fuel. The California State CARB estimates that commingling would increase VOC emissions by an amount equivalent to an overall increase in RVP of 0.1 psi. Thus a 0.1 psi lower RVP would offset the minor VOC increase during operation of fueling system. Considering all factors, the overall emissions resulting from the use (fuel combustion and refueling system) of E85 can be assumed lower than the use of regular gasoline. Therefore, the estimates from AP-42 for gasoline are considered conservative.

5.2.5 Summary of Operational Emissions

Operational emissions include emissions from heating the building space and water, generator use, and emissions from employee traffic. Table B-29 combines all operational emissions when 100% of operations are occurring.

Table B-29: Total Emissions from Operations at 100% Operations

Operational Activity	Total Annual Emissions – TPY			
	NOx	VOC	PM2.5	SO2
Alternatives 1, 2, 3 – Washington Gate & TA-V/W sites	10.87	2.21	0.45	0.75
Lake Frederick Alternatives 4, 5	1.60	0.82	0.09	0.10

5.2.6 Sensitivity of Lake Frederick Heating Emissions to Natural Gas Assumption

The analysis in Section 5.2.1 assumed natural gas would be used for heating. To demonstrate the sensitivity of results to this assumption, the following evaluation assumes fuel oil is used instead. The 17.04 million SCF of natural gas (17.46 Billion BTU) used for heating at Lake Frederick, for #2 fuel oil with 142,000 BTU per gallon, would require 17.46 $((10^9)/142,000 =$ approximately 123 $(10)^3$ gallons of fuel oil annually. The following fuel oil emission rates are assumed based on the U.S. Environmental Protection Agency’s (EPA) AP-42 Fifth Edition, Compilation of Air Pollution Emission Factors Volume I, Chapter 1: Stationary Sources, Supplement E (EPA, 1998a):

- NOx = 20 lb/10³ gal of oil
- VOC = 0.34 lb/10³ gal of oil
- PM_{2.5} = 2 lb/10³ gal of oil
- SO₂ = 28.4 lb/10³ gal of oil

The resultant heating emissions would be:

- $\text{NO}_x = (20 \text{ lb}/10^3 \text{ gal of oil})(123) = 2460 \text{ lbs} = 1.23 \text{ TPY}$, an increase of 0.38 TPY versus natural gas
- $\text{VOC} = (0.34 \text{ lb}/10^3 \text{ gal of oil}) (123) = 41.82 \text{ lbs} = 0.02 \text{ TPY}$, a reduction of .03 TPY versus natural gas
- $\text{PM}_{2.5} = (2 \text{ lb}/10^3 \text{ gal of oil}) (123) = 246 \text{ lbs} = 0.12 \text{ TPY}$, an increase of 0.06 TPY versus natural gas
- $\text{SO}_2 = (28.4 \text{ lb}/10^3 \text{ gal of oil}) (123) = 3493 \text{ lbs} = 1.75 \text{ TPY}$, an increase of 1.74 TPY versus natural gas

These increases are very small and do not affect conclusions.

5.3 COMBINED ANNUAL EMISSIONS FROM CONSTRUCTION AND OPERATIONS

Under Washington Gate Alternatives, 1, 2, and 3, operation of the DOL Motor Pool at TA-V/W would replace operation of the DOL Motor Pool in 2010. USMAPS barracks and Dining Facility operations would begin in 2011 under Alternatives 1 and 3. It is assumed that the backup generators would be in place. These would combine with construction emissions in 2010 – 2012 for purposes of this analysis. Lake Frederick Alternatives 4 and 5 would not involve operations during construction. Tables B-30, B-31, B-32, and B-33 summarize the total emissions associated with the partial operation phases of the Alternatives 1, 2, and 3 during 2010 – 2012.

Table B-30: Total Emissions from Operations, Alts 1 WG E & 3 WG 15% – Mid-2010 to Mid-2011

Operational Activity	Total Annual Emissions – TPY			
	NO _x	VOC	PM _{2.5}	SO ₂
DOL Motor Pool Heating, TA-V/W	5.31	0.41	0.28	0.01
DOL Generators	3.38	0.23	0.10	0.74
Petroleum Tanks		0.81		
Total 2010-2011 Operations	8.69	1.45	0.38	0.74

Table B-31: Total Emissions from Operations, Alt 2 WG B – Mid-2010 to Mid-2011

Operational Activity	Total Annual Emissions – TPY			
	NO _x	VOC	PM _{2.5}	SO ₂
DOL Motor Pool Heating, TA-V/W	5.31	0.41	0.28	0.01
DOL Generators	3.38	0.23	0.10	0.74
Petroleum Tanks		0.81		
Total 2010-2011 Operations	8.69	1.45	0.38	0.74

Table B-32: Total Emissions from Operations, Alts 1 WG E & 3 WG 15% – Mid-2011 to Mid-2012

Operational Activity	Total Annual Emissions – TPY			
	NO _x	VOC	PM _{2.5}	SO ₂
DOL and USMAPS Heating	5.68	0.43	0.31	0.01
DOL and USMAPS Generators	4.32	0.27	0.10	0.74
Commuters	0.43	0.69	0.01	0.00
Petroleum Tanks		0.81		
Total 2011-2012 Operations	10.43	2.19	0.42	0.75

Table B-33: Total Emissions from Operations, Alt 2 WG B – Mid-2011 to Mid-2012

Operational Activity	Total Annual Emissions – TPY			
	NOx	VOC	PM2.5	SO2
DOL and USMAPS Heating	5.31	0.413	0.282	0.006
DOL and USMAPS Generators	3.38	0.23	0.10	0.74
Commuters	0.00	0.00	0.00	0.00
Petroleum Tanks		0.81		
Total 2011-2012 Operations	8.69	1.45	0.38	0.74

Combined project emissions for 2009-2012 and beyond for each alternative adds the construction and operations emissions, as shown in Tables B-34, B-35, B-36, and B-37 below. These tables also compare results to *de minimis* standards. Federal *de minimis* standards are based on the 8-hour ozone nonattainment determination.

Table B-34: Summary of Annual Emissions – Alternative 1 WG E

	Total Annual Emissions – TPY			
	NOx	VOC	PM _{2.5}	SO ₂
Federal <i>de minimis</i> standards	100	50	100	100
2009-2010: Construction	23.71	2.44	17.53	3.36
2010-2011: Construction and Operations	24.20	3.67	7.96	2.68
2011-2012: Construction and Operations	15.73	3.94	4.87	1.54
2012 & Beyond: Full Operations	10.87	2.21	0.45	0.75

Table B-35: Summary of Annual Emissions – Alternative 2 WG B

	Total Annual Emissions – TPY			
	NOx	VOC	PM _{2.5}	SO ₂
Federal <i>de minimis</i> standards	100	50	100	100
2009-2010: Construction	17.88	1.93	15.91	2.63
2010-2011: Construction and Operations	28.64	3.29	8.48	3.20
2011-2012: Construction and Operations	14.97	4.05	5.90	1.69
2012 & Beyond: Full Operations	10.87	2.21	0.45	0.75

Table B-36: Summary of Annual Emissions – Alternative 3 WG 15%

	Total Annual Emissions – TPY			
	NOx	VOC	PM _{2.5}	SO ₂
Federal <i>de minimis</i> standards	100	50	100	100
2009-2010: Construction	31.38	2.96	26.93	4.37
2010-2011: Construction and Operations	24.20	3.67	7.96	2.68
2011-2012: Construction and Operations	15.73	3.94	4.87	1.54
2012 & Beyond: Full Operations	10.87	2.21	0.45	0.75

Table B-37: Summary of Annual Emissions – Alternative 4 LF 2a & Alternative 5 LF 2b

	Total Annual Emissions – TPY			
	NO _x	VOC	PM _{2.5}	SO ₂
Federal <i>de minimis</i> standards	100	50	100	100
2009-2010: Construction	24.90	2.23	13.73	3.13
2010-2011: Construction	9.14	3.18	10.80	1.40
2011 & Beyond: Full Operations	1.60	0.82	0.09	0.10

The results in Tables B-34 through B-37 show that the emissions associated with constructing and operating the proposed facilities, when compared to the *de minimis* values for this moderate ozone non-attainment area and PM_{2.5} nonattainment area, fall well below the Federal *de minimis* levels of 100 TPY for NO_x, 50 TPY for VOC, and 100 for PM_{2.5} and SO₂ even under the initial conservative assumptions that were employed.

5.4 REGIONAL SIGNIFICANCE

In addition to *de minimis* values, actions are also evaluated for regional significance. An action is considered to be regionally significant if the annual increase in emissions would make up 10 percent or more of the available regional emission inventory. The *New York Metropolitan Area State Implementation Plan* (NYSDEC, 2008) sets forth 2011 daily emission targets for non-road construction vehicles of 191.70 tons per day of VOC and 149.85 tons per day of NO_x for the New York Metropolitan 8-hour ozone non-attainment area where West Point is located (NYSDEC, 2008). The 2011 point source emission targets are 13.68 tons per day VOC and 64.05 tons per day NO_x. The increase in annual emissions from the construction and operational activities would not make up ten percent or more of the available regional emission target for VOC or NO_x and would not be regionally significant. There is no SIP in place for the newly promulgated PM_{2.5} regulations. NYSDEC has submitted a draft proposal PM_{2.5} SIP to the EPA for approval. A finalized SIP is required to be in place by 2009.

5.5 CONCLUSION

The results in Tables B-34 through B-37 show that the emissions associated with constructing and operating the proposed facilities, when compared to the *de minimis* values for this moderate ozone non-attainment area and PM_{2.5} nonattainment area, fall well below the Federal *de minimis* levels of 100 TPY for NO_x, 50 TPY for VOC, and 100 for PM_{2.5} and SO₂ even under the initial conservative assumptions that were employed. They are also below New York *de minimis* levels. Emissions also are not regionally significant. Therefore, a full conformity determination is not required for any of the alternatives. A Record of Non-Applicability (RONA) can be found in Attachment One of this appendix.

6.0 REFERENCES

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**ATTACHMENT ONE
AIR QUALITY
RECORD OF NON-APPLICABILITY (RONA)**

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GENERAL CONFORMITY – RECORD OF NON-APPLICABILITY

Project/Action

Name: Implementation of BRAC 05 Realignment at U.S. Army Garrison, West Point, NY

Project/Action

Point of Contact: Gerard Macri
U.S. Army Garrison
ATTN: IMNE-MIL-PWE -M
Directorate of Public Works
West Point, NY 10996

Begin Date: September 23, 2005

End Date: September 15, 2011

General Conformity under the Clean Air Act, Section 176 has been evaluated for the project described above according to the requirements of 40 CFR 93, Subpart B. The General Conformity Rule applies to federal actions occurring in regions designated as being in non-attainment for the NAAQS or attainment areas subject to maintenance plans (maintenance areas). Threshold (*de minimis*) rates of emissions have been established for federal actions with the potential to have significant air quality impacts. If a project/action located in an area designated as non-attainment exceeds these *de minimis* levels, a general conformity analysis is required. Orange County is designated as a moderate ozone (8-hour) non-attainment area in an ozone transport region, and a nonattainment area for particulate mater (2.5 microns) thus the NO_x, VOC, PM_{2.5}, and SO₂ thresholds apply.

A General Conformity Determination for this project/action is not required because maximum annual direct and indirect emissions from this project/action have been estimated for each alternative as:

Alternative 1: NO_x: 24.20 tons per year (TPY); VOC: 3.94 TPY; PM_{2.5}: 17.53 tons; SO₂: 3.36 TPY
Alternative 2: NO_x: 28.64 TPY; VOC: 4.05 TPY; PM_{2.5}: 15.91 TPY; SO₂: 3.20 TPY
Alternative 3: NO_x: 31.38 TPY; VOC: 3.94 TPY; PM_{2.5}: 26.93 TPY; SO₂: 4.37 TPY
Alternative 4 & 5: NO_x: 24.90 TPY; VOC: 3.18 TPY; PM_{2.5}: 13.73 TPY; SO₂: 3.13 TPY

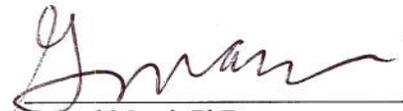
These are below the *de minimis* levels established in 40 CFR 93.153 (b) of:

NO_x: 100 tons; VOC: 50 tons; PM_{2.5}: 100 tons; SO₂: 100 tons

Furthermore, the project/action is not considered regionally significant under 40 CFR 93.153 (i).

Orange County is in attainment for criteria pollutants PM₁₀, CO, and Pb and therefore these pollutants are not subject to a further general conformity analysis.

Supporting documentation and emissions estimates can be found in Section 4.4 and Appendix B of the Environmental Assessment document.



Gerard Macri, PhD
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**APPENDIX C – ECONOMIC IMPACT FORECAST SYSTEM
(EIFS) MODEL**

ECONOMIC IMPACT FORECAST SYSTEM (EIFS) MODEL

SOCIOECONOMIC IMPACT ASSESSMENT

Socioeconomic impacts are linked through cause-and-effect relationships. Military payrolls and local procurement contribute to the economic base for the region of influence (ROI). In this regard, the BRAC realignment actions proposed for West Point would have a multiplier effect on the local and regional economy. With the Proposed Action, direct jobs would be created, generating new income and increasing personal spending. This spending generally creates secondary jobs, increases business volume, and increases revenues for schools and other social services.

THE ECONOMIC IMPACT FORECAST SYSTEM

The U.S. Army, with the assistance of many academic and professional economists and regional scientists, developed the Economic Impact Forecast System (EIFS) to address the economic impacts of NEPA-requiring actions and to measure their significance. As a result of its designed applicability, and in the interest of uniformity, EIFS should be used in NEPA assessments for BRAC. The entire system is designed for the scrutiny of a populace affected by the actions being studied. The algorithms in the EIFS model are simple and easy to understand, but still have firm, defensible bases in regional economic theory.

EIFS is developed under a joint project of the U.S Army Corps of Engineers (USACE), the Army Environmental Policy Institute (AEPI), and the Computer and Information Science Department of Clark Atlanta University, Georgia. EIFS is an on-line system, and the EIFS Web application is hosted by the USACE, Mobile District. The system is available to anyone with an approved user-id and password. University staff and the staff of USACE, Mobile District are available to assist with the use of EIFS.

The databases in EIFS are national in scope and cover the approximately 3,700 counties, parishes, and independent cities that are recognized as reporting units by federal agencies. EIFS allows the user to define an economic ROI by identifying the counties, parishes, or cities to be analyzed. Once the ROI is defined, the system aggregates the data, calculates multipliers and other variables used in the various models in EIFS, and prompts the user for forecast input data.

THE EIFS MODEL

The basis of the EIFS analytical capabilities is the calculation of multipliers that are used to estimate the impacts resulting from Army-related changes in local expenditures or employment. In calculating the multipliers, EIFS uses the economic base model approach, which relies on the ratio of total economic activity to basic economic activity. Basic, in this context, is defined as the production or employment engaged to supply goods and services outside the ROI or by federal activities (such as military installations and their employees). According to economic base theory, the ratio of total income to basic income is measurable (as the multiplier) and sufficiently stable so that future changes in economic activity can be forecast. This technique is especially appropriate for estimating aggregate impacts and makes the economic base model ideal for the EA and EIS process.

The multiplier is interpreted as the total impact on the economy of the region resulting from a unit change in its base sector; for example, a dollar increase in local expenditures due to an expansion of its military installation. EIFS estimates its multipliers using a location quotient approach based on the concentration of industries within the region relative to the industrial concentrations for the nation.

The user inputs into the model the data elements which describe the Army action: the change in expenditures, or dollar volume of the construction project(s); change in civilian or military employment; average annual income of affected civilian or military employees; the percent of civilians expected to relocate due to the Army's action; and the percent of military living on-post. Once these are entered into the EIFS model, a projection of changes in the local economy is provided. These are projected changes in sales volume, income, employment, and population. These four indicator variables are used to measure and evaluate socioeconomic impacts. Sales volume is the direct and indirect change in local business activity and sales (total retail and wholesale trade sales, total selected service receipts, and value-added by manufacturing). Employment is the total change in local employment due to the Proposed Action, including not only the direct and secondary changes in local employment, but also those

personnel who are initially affected by the military action. Income is the total change in local wages and salaries due to the Proposed Action, which includes the sum of the direct and indirect wages and salaries, plus the income of the civilian and military personnel affected by the Proposed Action. Population is the increase or decrease in the local population as a result of the Proposed Action.

THE SIGNIFICANCE OF SOCIOECONOMIC IMPACTS

Once model projections are obtained, the Rational Threshold Value (RTV) profile allows the user to evaluate the significance of the impacts. This analytical tool reviews the historical trends for the defined region and develops measures of local historical fluctuations in sales volume, income, employment, and population. These evaluations identify the positive and negative changes within which a project can affect the local economy without creating a significant impact. The greatest historical changes define the boundaries that provide a basis for comparing an action’s impact on the historical fluctuation in a particular area. Specifically, EIFS sets the boundaries by multiplying the maximum historical deviation of the following variables:

		Increase	Decrease
Sales Volume	X	100%	75%
Income	X	100%	67%
Employment	X	100%	67%
Population	X	100%	50%

These boundaries determine the amount of change that will affect an area. The percentage allowances are arbitrary, but sensible. The maximum positive historical fluctuation is allowed with expansion because economic growth is beneficial. While cases of damaging economic growth have been cited, and although the zero-growth concept is being accepted by many local planning groups, military base reductions and closures generally are more injurious to local economics than are expansion.

The major strengths of the RTV are its specificity to the region under analysis and its basis on actual historical data for the region. The EIFS impact model, in combination with the RTV, has proven successful in addressing perceived socioeconomic impacts. The EIFS model and the RTV technique for measuring the intensity of impacts have been reviewed by economic experts and have been deemed theoretically sound.

The following are the EIFS inputs and output data and the RTVs for the ROI. These data form the basis for the socioeconomic impact analysis presented in Section 4.10.

Summary of Assumptions

For purposes of running the EIFS model, the peak year for incoming personnel and the peak year for construction spending were selected to determine the maximum impact that Proposed Actions could have on the regional economy. However, construction impacts and impacts from incoming personnel would be expected to occur over different time periods as construction spending would occur temporarily during 2009-2011 while incoming personnel would not arrive until construction is completed. Therefore, EIFS models for construction impacts and incoming personnel impacts were run separately to account for their staggered impacts. It was assumed that all incoming military and civilian personnel would re-locate to within the ROI. The incoming personnel data was obtained through USMAPS sources and estimates were determined based on available income data for civilian and military employees at West Point. The 240 incoming students were not counted in the EIFS model as they are assumed to have little impact on the ROI given their economic/student status. The impacts from incoming personnel are shown below.

PERSONNEL ONLY EIFS RUN (FOR ALL ALTERNATIVES)

West Point – Forecast Input

Forecast Input	
Change In Local Expenditures	\$0
Change In Civilian Employment	40
Average Income of Affected Civilian	\$65,346
Percent Expected to Relocate	100
Change In Military Employment	33
Average Income of Affected Military	\$58,180
Percent of Military Living On-post	0

EIFS Report for West Point – Forecast Output

Forecast Output		
Employment Multiplier	3.15	
Income Multiplier	3.15	
Sales Volume – Direct	\$3,040,378	
Sales Volume – Induced	\$6,536,814	
Sales Volume – Total	\$9,577,191	0.12%
Income – Direct	\$4,533,780	
Income – Induced	\$1,320,363	
Income – Total (place of work)	\$5,854,144	0.08%
Employment – Direct	89	
Employment – Induced	34	
Employment – Total	123	0.08%
Local Population	182	
Local Off-base Population	182	0.06%

EIFS Report for West Point – RTV Summary

RTV Summary				
	Sales Volume	Income	Employment	Population
Positive RTV	13.14%	11.4%	2.97%	1.01%
Negative RTV	-6.02 %	-4.58 %	-3.64 %	-0.69 %

In addition to the EIFS model run for incoming personnel, an EIFS model was run for construction costs for each alternative. Construction costs were allocated to major tasks according to an estimated construction schedule and the resultant input to the model are peak year costs that reflect the year in which the largest annual change from construction spending for the Proposed Alternatives would occur. Effects during other years of the Proposed Action would be expected to be less than the peak year. Note that total construction costs for Alternatives 1, 2, and 3, which sum to a larger total estimate than those for Alternatives 4 and 5, are spread across three years while

those for Alternatives 4 and 5 are spread over only two years. Thus peak year costs for Alternatives 4 and 5 are greater, even though total construction costs for Alternatives 1, 2, and 3, which include the DOL relocation, are greater.

West Point – Forecast Input for Alternative 1 WG E

Forecast Input	
Change In Local Expenditures	\$71,000,000
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	0
Average Income of Affected Military	\$0
Percent of Military Living On-post	0

EIFS Report for West Point – Forecast Output for Alternative 1 WG E

Forecast Output		
Employment Multiplier	3.15	
Income Multiplier	3.15	
Sales Volume – Direct	\$71,000,000	
Sales Volume – Induced	\$152,650,000	
Sales Volume – Total	\$223,650,000	2.82%
Income – Direct	\$14,341,210	
Income – Induced	\$30,833,600	
Income – Total (place of work)	\$45,174,800	0.58%
Employment – Direct	372	
Employment – Induced	800	
Employment – Total	1172	0.79%
Local Population	0	
Local Off-base Population	0	0%

West Point – Forecast Input for Alternative 2 WG B

Forecast Input	
Change In Local Expenditures	\$77,000,000
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	0
Average Income of Affected Military	\$0
Percent of Military Living On-post	0

EIFS Report for West Point – Forecast Output for Alternative 2 WG B

Forecast Output		
Employment Multiplier	3.15	
Income Multiplier	3.15	
Sales Volume – Direct	\$77,000,000	
Sales Volume – Induced	\$165,550,000	
Sales Volume – Total	\$242,550,000	3.06 %
Income – Direct	\$15,553,140	
Income – Induced	\$33,439,250	
Income – Total (place of work)	\$48,992,390	0.63%
Employment – Direct	404	
Employment – Induced	868	
Employment – Total	1272	0.86%
Local Population	0	
Local Off-base Population	0	0%

West Point – Forecast Input for Alternative 3 WG 15% Design

Forecast Input	
Change In Local Expenditures	\$80,000,000
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	0
Average Income of Affected Military	\$0
Percent of Military Living On-post	0

EIFS Report for West Point – Forecast Output for Alternative 3 WG 15% Design

Forecast Output		
Employment Multiplier	3.15	
Income Multiplier	3.15	
Sales Volume – Direct	\$80,000,000	
Sales Volume – Induced	\$172,000,000	
Sales Volume – Total	\$252,000,000	3.18%
Income – Direct	\$16,159,110	
Income – Induced	\$34,742,080	
Income – Total (place of work)	\$50,901,180	0.66%
Employment – Direct	419	
Employment – Induced	902	
Employment – Total	1321	0.89%
Local Population	0	0
Local Off-base Population	0	0%

West Point – Forecast Input for Alternative 4 LF 2a

Forecast Input	
Change In Local Expenditures	\$103,000,000
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	0
Average Income of Affected Military	\$0
Percent of Military Living On-post	0

EIFS Report for West Point – Forecast Output for Alternative 4 LF 2a

Forecast Output		
Employment Multiplier	3.15	
Income Multiplier	3.15	
Sales Volume – Direct	\$103,000,000	
Sales Volume – Induced	\$221,450,000	
Sales Volume – Total	\$324,450,000	4.09%
Income – Direct	\$20,804,850	
Income – Induced	\$44,730,420	
Income – Total (place of work)	\$65,535,270	0.85%
Employment – Direct	540	
Employment – Induced	1161	
Employment – Total	1701	1.15%
Local Population	0	
Local Off-base Population	0	0%

West Point – Forecast Input for Alternative 5 LF 2b

Forecast Input	
Change In Local Expenditures	\$103,000,000
Change In Civilian Employment	0
Average Income of Affected Civilian	\$0
Percent Expected to Relocate	0
Change In Military Employment	0
Average Income of Affected Military	\$0
Percent of Military Living On-post	0

EIFS Report for West Point – Forecast Output for Alternative 5 LF 2b

Forecast Output		
Employment Multiplier	3.15	
Income Multiplier	3.15	
Sales Volume – Direct	\$103,000,000	
Sales Volume – Induced	\$221,450,000	
Sales Volume – Total	\$324,450,000	4.09%
Income – Direct	\$20,804,850	
Income – Induced	\$44,730,420	
Income – Total (place of work)	\$65,535,270	0.85%
Employment – Direct	540	
Employment – Induced	1161	
Employment – Total	1701	1.15%
Local Population	0	
Local Off-base Population	0	0%

APPENDIX D – LAKE FREDERICK WETLAND DELINEATION

LAKE FREDERICK SITE

WOODBURY, ORANGE COUNTY, NEW YORK

Wetland Delineation Report

Submitted to:
U.S. Army Corps of Engineers
Mobile District

Prepared by:
The Louis Berger Group, Inc.
Morristown, New Jersey

November, 2008

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APPENDICES

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Appendix C	Wetland Delineation Map

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1.0 INTRODUCTION

On behalf of the U.S. Military Academy at West Point, The Louis Berger Group, Inc. (Berger) delineated wetlands in the vicinity of the northern end of Lake Frederick, in Woodbury, New York, in August of 2008. The purpose of Berger's efforts is to assist the U.S. Military Academy in identifying environmental constraints for relocating the U.S. Military Academy Preparatory School (USMAPS) at Lake Frederick. The location of the Lake Frederick site is shown in Figure 1.

Information provided in this report includes background information on the project area, wetland delineation methodology used, vegetation, soils, and hydrology found in the area. Appendix A presents photographs of wetland and adjacent upland plant communities at the site, Appendix B presents the field data sheets with soil borings, and Appendix C is the wetland delineation map.

2.0 WETLAND DELINEATION METHODOLOGY

A wetland delineation was performed to determine the federal-jurisdictional wetland boundaries in the vicinity of the northern end of Lake Frederick. The wetland delineation was based on the presence of hydrophytic vegetation, wetland hydrology, and hydric soils, as outlined in the U.S. Army Corps of Engineers' Wetland Delineation Manual (Environmental Laboratory, 1987). The "Routine On-Site Inspection Methodology," as set forth in the manual was employed. The wetland delineation was performed on August 27, 2008, by individuals trained in the 1987 three-parameter methodology adopted by the U.S. Corps of Engineers as set forth in the above mentioned manual.

Additionally, the following U.S. Army Corps of Engineers guidance letters and reports were viewed and followed when performing the wetland delineation: Regulatory Guidance Letter, No. 08-02, Subject: Jurisdictional Determinations; Regulatory Guidance Letter, No. 07-01, Subject: Practices For Documenting Jurisdiction; Regulatory Guidance Letter, No. 05-02, Subject: Expiration of Geographic Jurisdiction Determinations; Memorandum-EPA, Clean Water Act Jurisdictional Following the U.S. Supreme Court's Decision in *Rapanos v. United States & Carabell v. United States*; Memorandum-EPA and U.S. Army Corps of Engineers Coordination of Jurisdictional Determinations under Clean Water Act Section 404 in Light of the SWANCC and *Rapanos* Supreme Court Decisions; and U.S. Army Corps Of Engineers Jurisdictional Determination Form Instructional Guidebook, May 30, 2007.

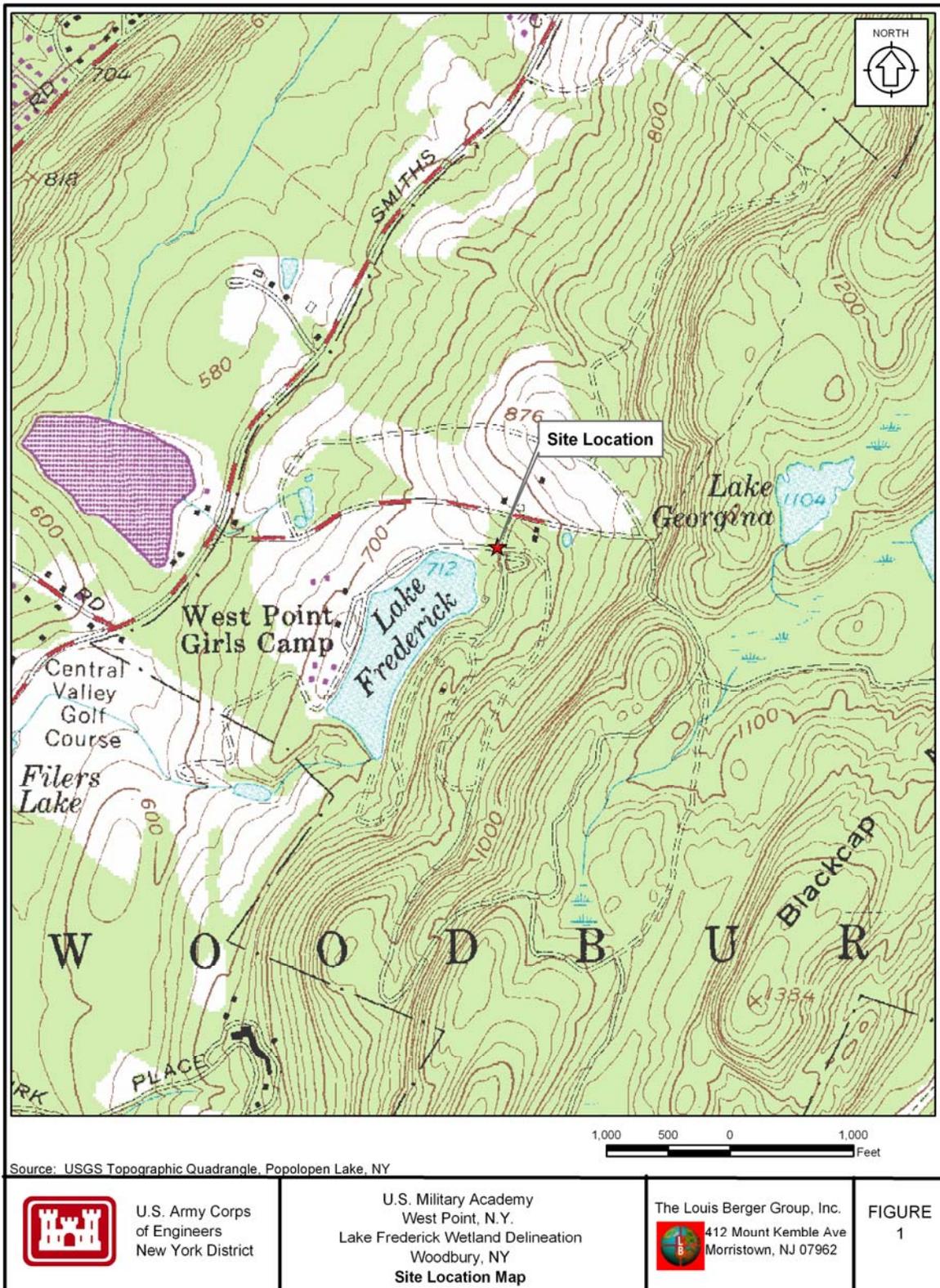
The boundaries of the wetlands were marked in the field with sequentially numbered flags, located with a Trimble Pro XRS with Asset Surveyor Global Positioning System (GPS) and plotted on a topographic base map. Photographs taken from representative points within the wetland areas are included in Appendix A. Field data sheets documenting the soil, vegetation, and hydrologic conditions are presented in Appendix B. The wetland delineation map appears in Appendix C.

3.0 PROJECT SITE ECOLOGY

3.1 HYDROLOGY

The Lake Frederick site is within the Hudson-Wappinger Watershed (U.S. Geological Survey Cataloging Unit: 02020008), which drains into New York/New Jersey Harbor. All delineated wetlands in the Lake Frederick study area are manmade features, with the purpose of either improving drainage properties or sequestering waters from a local stream. An isolated wetland located north of the lake is associated with a ditch that was excavated by the Lake Frederick caretaker a number of years ago to help drain recreational areas upslope of the northern end of the lake.

Figure 1: Site Location Map (USGS 24K Topographic Quadrangle)



The remaining delineated wetlands in the vicinity of the northern end of Lake Frederick are dammed sections of a high-gradient ephemeral stream, which drains the hills to the northeast of the lake. These wetlands are hydrologically connected to Lake Frederick, which is itself dammed at the southern end, and discharges to an unnamed stream flowing into Woodbury Creek, then to Moodna Creek and then to the Hudson River.

3.2 SOILS

Soils in the Mill Creek area (Figure 2) consist of Alden and Mardin/Swartswood (USDANRCS, 2006). Alden soils are described as nearly level, very poorly drained, and are considered a hydric soil. Its parent material consists of a silty mantle of local deposition overlying loamy till. This component can be found in depressions. The Mardin/Swartswood, however, are described as slightly sloped, moderately well drained, and are not considered a hydric soil. Its parent material consists of loamy till derived from acid sedimentary rock. This component can be found on drumlinoid ridges, hills, and till plains.

3.3 VEGETATIVE COMMUNITIES

The wetland and upland communities identified during the field delineation are described below. Vegetation observed in the project area is listed in Table 1. Supporting documentation is included in Appendices A and B.

3.3.1 Wetlands

Wetlands in the northern area of Lake Frederick were delineated. These wetlands, as classified by Cowardin et al. (1979), are composed of three (3) wetland types. The wetland areas consist of Palustrine emergent, persistent (PEM1), Palustrine unconsolidated bottom-mud (PUB3), and Palustrine forested-broad-leaved deciduous (PFO1), wetland communities. The general characteristics of the delineated wetlands, including approximate size and plant community classifications, are summarized in Table 2. The wetlands delineated are shown on an aerial photograph in Figure 3.

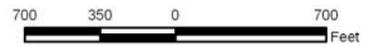
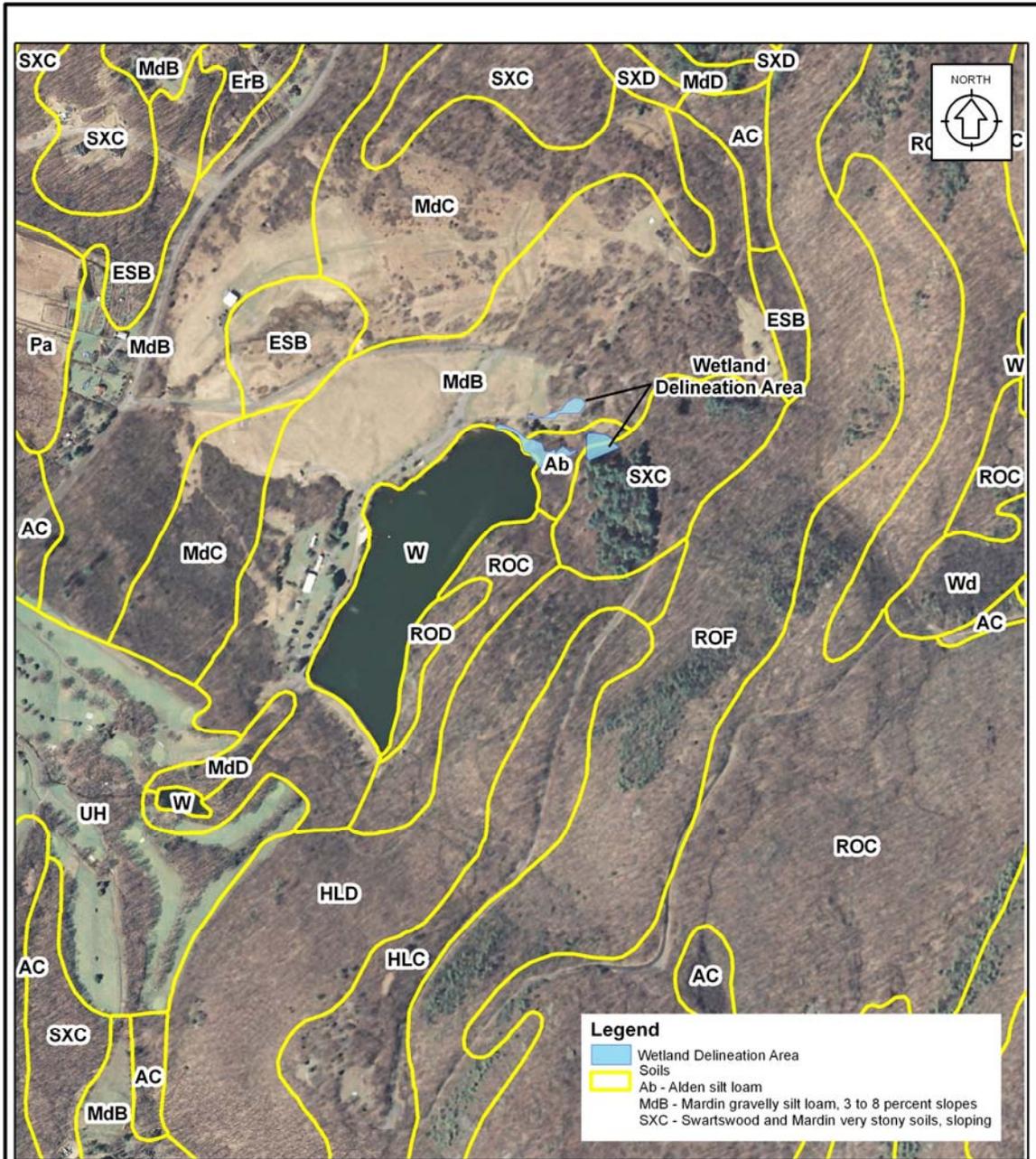
■ Palustrine Emergent, Persistent Wetlands (PEM1):

Palustrine emergent, persistent wetlands occur at wetlands A, B, and C (See figure in Appendix C). Wetland A is entirely composed of this wetland type, which is here vegetated primarily with common reed (*Phragmites australis*) and Georgia bulrush (*Scirpus georgianus*). Wetland B contains a fringe of this wetland type, surrounding shallow waters with an unconsolidated bottom. Persistent emergent vegetation common in wetland B includes jewelweed (*Impatiens capensis*) and swamp smartweed (*Polygonum hydropiperoides*). Wetland C also contains a small area of persistent, emergent vegetation, consisting primarily of jewelweed and purple loosestrife (*Lythrum salicaria*). Photographs of this wetland type in the study area wetlands are presented in Photographs 1, 4, and 7 of Appendix A.

■ Palustrine Unconsolidated Bottom Wetlands (PUB3):

Palustrine unconsolidated bottom wetlands occur within the manmade pond located northeast of Lake Frederick. This pond is a dammed portion of a high-gradient ephemeral stream flowing to Lake Frederick. The pond is entirely contained within a cement wall and is underlain with approximately one foot of clay, though surficial sediments are muddy. When water levels are sufficiently high, the pond discharges through a cement and stone spillway at its eastern end to wetlands adjoining Lake Frederick, shown in Photograph 6 of Appendix A. At the time of the wetland delineation, conditions were dry and there was no water entering into or being discharged from the pond. The bottom of the pond appears to be clear of vegetation, probably due to fluctuating water levels as a result of rainfall amounts in a given season. Sunfish (*Lepomis* sp.) and frogs (*Rana* sp.) inhabit the pond.

Figure 2: Soils



Source: NYS Digital Ortho, 2001, USDA, NRCS Orange County, NY Soils Data, Berger 2008.

	<p>U.S. Army Corps of Engineers New York District</p>	<p>U.S. Military Academy West Point, N.Y. Lake Frederick Wetland Delineation Woodbury, NY NRCS Soils</p>	<p>The Louis Berger Group, Inc. 412 Mount Kemble Ave Morristown, NJ 07962</p>	<p>FIGURE 2</p>
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Figure 3: 2008 Delineated Wetlands and NYSDEC Regulated Wetlands

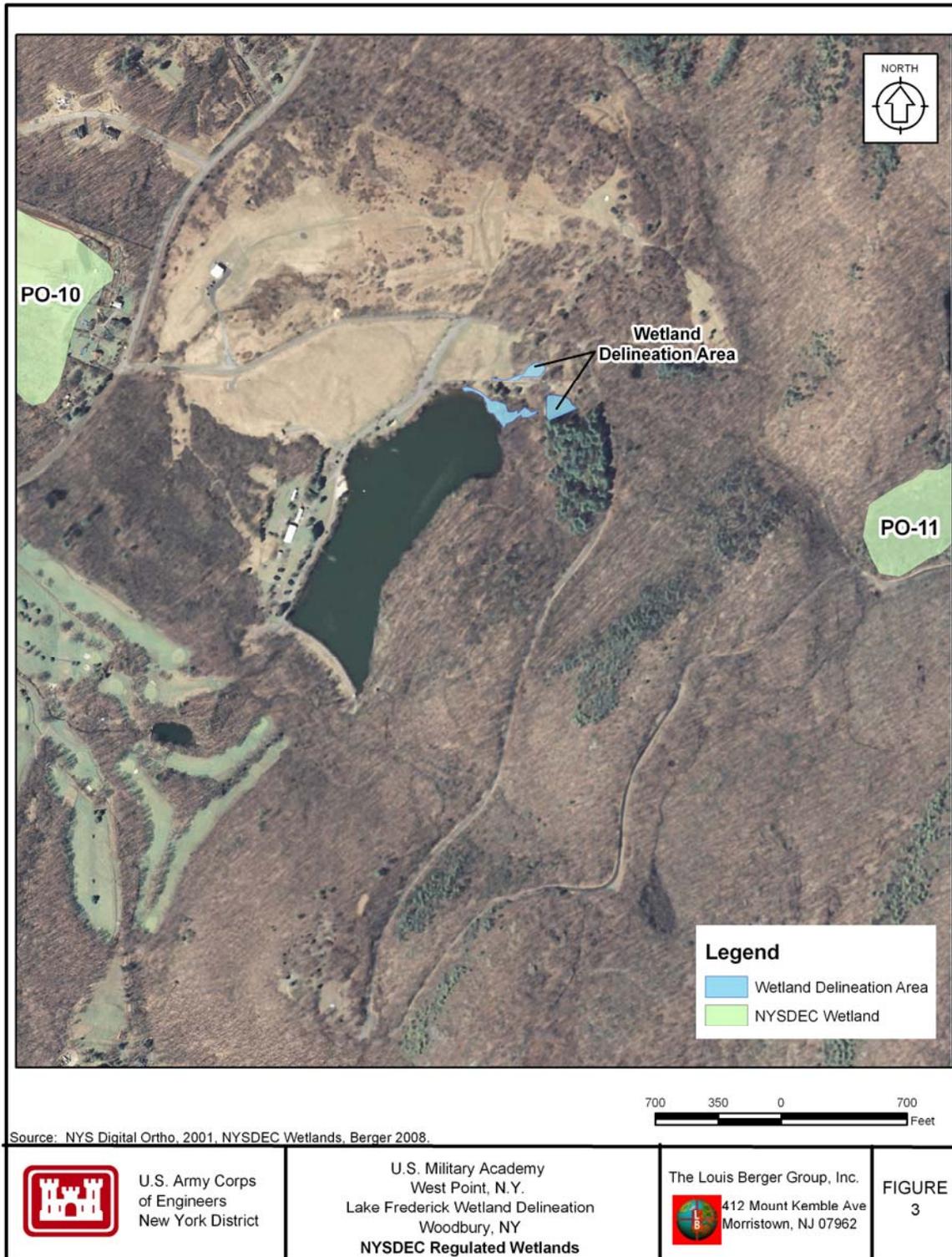


Table 1: Vegetation observed within the Lake Frederick study area*Herbaceous*

Common name	Scientific name	Indicator Status
umbrella sedge	<i>Cyperus strigosus</i>	FACW
common reed	<i>Phragmites australis</i>	FACW
bearded sedge	<i>Carex comosa</i>	OBL
sensitive fern	<i>Onoclea sensibilis</i>	FACW
grasses	<i>Poa</i> spp.	—
swamp smartweed	<i>Polygonum hydropiperoides</i>	OBL
jewelweed	<i>Impatiens capensis</i>	FACW
Queen Anne's lace	<i>Daucus carota</i>	NL
curly dock	<i>Rumex crispus</i>	FACU
goldenrod	<i>Solidago</i> spp.	—
New York ironweed	<i>Vernonia noveboracensis</i>	FACW+
Georgia bulrush	<i>Scirpus georgianus</i>	OBL
purple loosestrife	<i>Lythrum salicaria</i>	FACW+
chicory	<i>Cichorium intybus</i>	NL
iris	<i>Iris</i> spp.	—

Trees/Shrubs/Vines

Common name	Scientific name	Indicator Status
speckled alder	<i>Alnus rugosa</i>	FACW+
Black willow	<i>Salix nigra</i>	FACW
red spruce	<i>Picea rubens</i>	FACU
white mulberry	<i>Morus alba</i>	UPL
Poison ivy	<i>Toxicodendron radicans</i>	FAC
Chinese wisteria	<i>Wisteria sinensis</i>	NL
white oak	<i>Quercus alba</i>	FACU-
Oriental bittersweet	<i>Celastrus orbiculata</i>	UPL
Norway maple	<i>Acer platanoides</i>	NL
multiflora rose	<i>Rosa multiflora</i>	FACU
green ash	<i>Fraxinus pennsylvanica</i>	FACW
silver maple	<i>Acer saccharinum</i>	FACW

Key to indicator categories

OBL: Obligate Wetland, occur almost always (estimated probability >99%) under natural conditions in wetlands.

FACW: Facultative Wetland, usually occur in wetlands (estimated probability 67% - 99%), but occasionally found in nonwetlands.

FAC: Facultative, equally likely to occur in wetlands or nonwetlands (estimate probability 34% - 66%).

FACU: Facultative Upland, usually occur in nonwetlands (estimated probability 67% - 99%), but occasionally found in wetlands (estimate probability 1% - 33%).

UPL: Obligate Uplands, occur almost always (estimated probability, >99%) under natural conditions in uplands.

NL: Not found on national listing of plants occurring in wetlands.

A positive (+) sign following an indicator indicates a frequency toward the higher end of a category.

A negative (-) sign following an indicator indicates a frequency toward the lower end of a category.

Source: Resource Management Group, Inc., 1999.

Table 2: Summary of delineated wetlands within the Lake Frederick study area.

Wetland Area	Wetland Line	Wetland Acres	Wetland Cover Type	Notes
A	A1-A14	.22	PEM1	This wetland is within a drainage feature in a mowed field. Wetland vegetation consists largely of <i>Phragmites</i> , Georgia bulrush, and sensitive fern.
B	B1-B14	.40	PUB3, PEM1	Wetland is within a cement-walled pond. Emergent wetland vegetation consists largely of jewelweed and swamp smartweed.
C	C1-C26	.46	PFO1, PEM1	Wetland is adjacent to Lake Frederick. Forested wetland vegetation consists largely of speckled alder, green ash, and silver maple.

■ Palustrine Forested-broad-leaved deciduous (PFO1):

Palustrine forested-broad-leaved deciduous wetlands are present in wetland C. This wetland occurs in a relatively flat area adjacent to the northeast corner of Lake Frederick, extending eastward to below the spillway where wetland B discharges during rainy conditions. Broad-leaved deciduous vegetation common within wetland C includes speckled alder (*Alnus rugosa*), green ash (*Fraxinus pennsylvanica*), and silver maple (*Acer saccharinum*). A low cement wall with a narrow spillway is present within the center of this wetland, resulting in a bottleneck shape, as seen in Figure 3. The spillway and wall are pictured in Photograph 10 in Appendix A.

3.3.2 Uplands

Upland communities in the Lake Frederick area consist of forested land and mowed fields. Vegetative cover of forested areas consists primarily of red spruce, white oak, Norway maple, white mulberry, poison ivy, multiflora rose, and *Wisteria sinensis*. Large areas of the understory are covered with *Wisteria sinensis*, a non-native aggressive vine, which covers many trees and reaches out over woody vegetation in wetland areas at Lake Frederick. The non-native vine Oriental bittersweet (*Celastrus orbiculata*) also covers significant areas of understory. Photograph 6 in Appendix A is a representative portrayal of the degree of cover of *Wisteria* and *Celastrus* in upland areas in the Lake Frederick area. A variety of herbaceous species occur in regularly or occasionally mowed areas of the Lake Frederick area. Some of the more common species in mowed areas, aside from grasses, are goldenrods (*Solidago* sp.), Queen Anne's lace, curly dock, and chicory. Photographs 3 and 5 of Appendix A show upland habitats adjacent to delineated wetlands at Lake Frederick.

4.0 SUMMARY

The wetland delineation was based on the presence of hydrophytic vegetation, wetland hydrology and hydric soils, as outlined in the U.S. Army Corps of Engineers' *Wetlands Delineation Manual* (Environmental Laboratory, 1987). The wetland lines were marked in the field with sequentially numbered flags, and surveyed with a GPS unit. Wetlands identified within the Lake Frederick study area consisted of Palustrine emergent, persistent wetlands (PEM1), Palustrine unconsolidated bottom-mud wetlands (PUB3), and Palustrine forested-broad-leaved deciduous wetlands (PFO1). All delineated wetlands in the Lake Frederick study area are manmade features, with the purpose of either improving drainage properties or sequestering waters from local high-gradient ephemeral streams. Representative photographs are presented in Appendix A; field data forms are located in Appendix B; and the wetland delineation map is located in Appendix C.

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Appendix A
Site Photographs

Site Photographs



Photograph 1: Wetland vegetation at flag A3 within wetland A.



Photograph 2: Georgia bulrush found within wetland A.



Photograph 3: Upland vegetation located at flag A11.



Photograph 4: Wetland vegetation at wetland B, and unconsolidated bottom of pond, near wetland flag B1.



Photograph 5: Upland vegetation adjacent to wetland B, near wetland flag B1.



Photograph 6: Spillway between wetland B and wetland C, under dry conditions.



Photograph 7: Purple loosestrife and other wetland vegetation within wetland C.



Photograph 8: Woody vegetation in wetland area C



Photograph 9: Wetland area C adjacent to Lake Frederick.



Photograph 10: Concrete spillway in center of wetland C.

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Appendix B
Field Data Sheets

FIELD DATA FORM

Job Number: JR2821	Nearest Wetland Flag: A1
Field Investigators: KB/TS	Date: 8/26/2008
Project/Site: West Point	County: Orange
Applicant/Owner: USMA	State: NY

Wetland: SP1 **Upland: SP2**

Wetland Vegetation			Upland Vegetation		
Dominant Plant Species	Stratum	Indicator Status	Dominant Plant Species	Stratum	Indicator Status
1 <i>Phragmites australis</i>	H	FACW	1 <i>Daucus carota</i>	H	---
2 <i>Onoclea sensibilis</i>	H	FACW	2 <i>Cichorium intybus</i>	H	---
3 <i>Vernonia noveboracensis</i>	H	FACW+	3 <i>poa</i> spp.	H	---
4 <i>Scirpus georgianus</i>	H	OBL	4		
5			5		
6			6		
7			7		
8			8		

>50% FAC or Wetter, or Prevalence Index <3? <input checked="" type="checkbox"/> Yes (Hydrophytic Vegetation Criterion Met) <input type="checkbox"/> No (Hydrophytic Vegetation Criterion Not Met)	>50% FAC or Wetter, or Prevalence Index <3? <input type="checkbox"/> Yes (Hydrophytic Vegetation Criterion Met) <input checked="" type="checkbox"/> No (Hydrophytic Vegetation Criterion Not Met)
---	---

Wetland Soils					Upland Soils				
Soil Series/Phase: <u>Mardin gravelly silt loam</u>					Soil Series/Phase: <u>Mardin gravelly silt loam</u>				
Is the Soil Listed as Hydric? <u>No</u>					Is the Soil Listed as Hydric? <u>No</u>				
Depth (Inches)	Matrix	Mottling	%	Texture	Depth (Inches)	Matrix	Mottling	%	Texture
0-5	10YR2/1			Sandy loam	0-8	10YR4/2			Loam
5-11	10YR3/2	10YR3/6	5	Sandy silt	8+	Refusal			
11-18	10YR4/1	10YR4/6	10	Sandy silt					
18+	10YR3/1	10YR4/6	10	Clayey silt					

Hydric Soil Criterion Met? <input checked="" type="checkbox"/> Yes (Hydric Soil Criterion Met) <input type="checkbox"/> No (Hydric Soil Criterion Not Met) Rationale: _____	Hydric Soil Criterion Met? <input type="checkbox"/> Yes (Hydric Soil Criterion Met) <input checked="" type="checkbox"/> No (Hydric Soil Criterion Not Met) Rationale: _____
--	--

Wetland Hydrology	Upland Hydrology
Ground Surface Inundated? <u>No</u> Depth (Inches): <u>N/A</u>	Ground Surface Inundated? <u>No</u> Depth (Inches): <u>N/A</u>
Soil Saturated? <u>No</u> Depth to Saturation (Inches): <u>N/A</u>	Soil Saturated? <u>No</u> Depth to Saturation (Inches): <u>N/A</u>
Depth to Free-standing Water in Probe Hole (Inches): <u>N/A</u>	Depth to Free-standing Water in Probe Hole (Inches): <u>N/A</u>
Field Evidence of Hydrology: <u>drainage pattern</u>	Field Evidence of Hydrology: <u>None</u>

Evidence of Prolonged Saturation and/or Inundation? <input checked="" type="checkbox"/> Yes (Wetland Hydrology Criterion Met) <input type="checkbox"/> No (Wetland Hydrology Criterion Not Met)	Evidence of Prolonged Saturation and/or Inundation? <input type="checkbox"/> Yes (Wetland Hydrology Criterion Met) <input checked="" type="checkbox"/> No (Wetland Hydrology Criterion Not Met)
---	---

Atypical Situation in Upland and/or Wetland? Yes Comments: Wetland is associated with a manmade drainage feature in a mowed field

FIELD DATA FORM

Job Number: JR2821	Nearest Wetland Flag: B1
Field Investigators: KB/TS	Date: 8/26/2008
Project/Site: West Point	County: Orange
Applicant/Owner: USMA	State: NY

Wetland: SP1 **Upland: SP2**

Wetland Vegetation			Upland Vegetation		
Dominant Plant Species	Stratum	Indicator Status	Dominant Plant Species	Stratum	Indicator Status
1 <i>Impatiens capensis</i>	H	FACW	1 <i>Wisteria frutescens</i>	T	FACW-
2 <i>Polygonum hydropiperoides</i>	H	OBL	2 <i>Quercus alba</i>	T	FACU-
3 <i>Iris</i> spp.	H	—	3 <i>Acer platanoides</i>	T	—
4			4 <i>Poa</i> spp.	H	—
5			5 <i>Rumex crispus</i>	H	FACU
6			6		
7			7		
8			8		

>50% FAC or Wetter, or Prevalence Index <3? <input checked="" type="checkbox"/> Yes (Hydrophytic Vegetation Criterion Met) <input type="checkbox"/> No (Hydrophytic Vegetation Criterion Not Met)	>50% FAC or Wetter, or Prevalence Index <3? <input type="checkbox"/> Yes (Hydrophytic Vegetation Criterion Met) <input checked="" type="checkbox"/> No (Hydrophytic Vegetation Criterion Not Met)
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Wetland Soils					Upland Soils				
Soil Series/Phase: <u>Alden Silt Loam</u>					Soil Series/Phase: <u>Mardin gravelly silt loam</u>				
Is the Soil Listed as Hydric? <u>Yes</u>					Is the Soil Listed as Hydric? <u>No</u>				
Depth (Inches)	Matrix	Mottling	%	Texture	Depth (Inches)	Matrix	Mottling	%	Texture
0-1	10YR2/1			Silty sand	0-3	10YR4/2			Sandy loam
1-4	10YR3/1			Silty sand	3+		Refusal		Gravel Fill
4-6	2.5YR5/2			Sandy clay					
6-18	10YR5/4			Clay					

Hydric Soil Criterion Met? <input checked="" type="checkbox"/> Yes (Hydric Soil Criterion Met) <input type="checkbox"/> No (Hydric Soil Criterion Not Met) Rationale: <u>Low Chroma</u>	Hydric Soil Criterion Met? <input type="checkbox"/> Yes (Hydric Soil Criterion Met) <input checked="" type="checkbox"/> No (Hydric Soil Criterion Not Met) Rationale: _____
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Wetland Hydrology		Upland Hydrology	
Ground Surface Inundated? <u>Yes</u> Depth (Inches): <u>0</u>	Ground Surface Inundated? <u>No</u> Depth (Inches): <u>N/A</u>	Soil Saturated? <u>Yes</u> Depth to Saturation (Inches): <u>0</u>	Soil Saturated? <u>No</u> Depth to Saturation (Inches): <u>N/A</u>
Depth to Free-standing Water in Probe Hole (Inches): <u>N/A</u>	Depth to Free-standing Water in Probe Hole (Inches): <u>N/A</u>	Field Evidence of Hydrology: <u>inundation</u>	Field Evidence of Hydrology: <u>None</u>

Evidence of Prolonged Saturation and/or Inundation? <input checked="" type="checkbox"/> Yes (Wetland Hydrology Criterion Met) <input type="checkbox"/> No (Wetland Hydrology Criterion Not Met)	Evidence of Prolonged Saturation and/or Inundation? <input type="checkbox"/> Yes (Wetland Hydrology Criterion Met) <input checked="" type="checkbox"/> No (Wetland Hydrology Criterion Not Met)
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Atypical Situation in Upland and/or Wetland? Yes Comments: Wetland is dammed portion of ephemeral stream

FIELD DATA FORM

Job Number: JR2821	Nearest Wetland Flag: C5
Field Investigators: KB/TS	Date: 8/26/2008
Project/Site: West Point	County: Orange
Applicant/Owner: USMA	State: NY

Wetland: SP1 **Upland: SP2**

Wetland Vegetation			Upland Vegetation		
Dominant Plant Species	Stratum	Indicator Status	Dominant Plant Species	Stratum	Indicator Status
1 <i>Alnus rugosa</i>	T	FACW+	1 <i>poa spp.</i>	H	—
2 <i>Fraxinus pennsylvanica</i>	T	FACW	2 <i>Picea rubens</i>	T	FACU
3 <i>Salix nigra</i>	T	FACW	3 <i>Morus alba</i>	T	UPL
4 <i>Acer saccharinum</i>	T	FACW	4 <i>Daucus carota</i>	H	—
5 <i>Onoclea sensibilis</i>	H	FACW	5 <i>Rosa multiflora</i>	S	FACU
6 <i>Lythrum salicaria</i>	H	FACW+	6		
7 <i>Impatiens capensis</i>	H	FACW	7		
8			8		

>50% FAC or Wetter, or Prevalence Index <3? <input checked="" type="checkbox"/> Yes (Hydrophytic Vegetation Criterion Met) <input type="checkbox"/> No (Hydrophytic Vegetation Criterion Not Met)	>50% FAC or Wetter, or Prevalence Index <3? <input type="checkbox"/> Yes (Hydrophytic Vegetation Criterion Met) <input checked="" type="checkbox"/> No (Hydrophytic Vegetation Criterion Not Met)
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Wetland Soils					Upland Soils				
Soil Series/Phase: <u>Alden Silt Loam</u>					Soil Series/Phase: <u>Mardin gravelly silt loam</u>				
Is the Soil Listed as Hydric? <u>Yes</u>					Is the Soil Listed as Hydric? <u>No</u>				
Depth (Inches)	Matrix	Mottling	%	Texture	Depth (Inches)	Matrix	Mottling	%	Texture
0-2	10YR2/1			Organic	0-4	10YR3/2			Loam
2-10	10YR2/1			Loamy silt	4-10	2.5YR5/3			Sand
10-16	10YR3/1			coarse to fine sandy silt	10+	10Y3/1	10YR3/6	20	Sandy silt
16/18	10YR3/1			fine sandy silt					

Hydric Soil Criterion Met? <input checked="" type="checkbox"/> Yes (Hydric Soil Criterion Met) <input type="checkbox"/> No (Hydric Soil Criterion Not Met) Rationale: <u>Low Chroma</u>	Hydric Soil Criterion Met? <input type="checkbox"/> Yes (Hydric Soil Criterion Met) <input checked="" type="checkbox"/> No (Hydric Soil Criterion Not Met) Rationale: _____
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Wetland Hydrology Ground Surface Inundated? <u>No</u> Depth (Inches): <u>N/A</u> Soil Saturated? <u>Yes</u> Depth to Saturation (Inches): <u>0</u> Depth to Free-standing Water in Probe Hole (Inches): <u>N/A</u> Field Evidence of Hydrology: <u>portions inundated, drift lines present</u>	Upland Hydrology Ground Surface Inundated? <u>No</u> Depth (Inches): <u>N/A</u> Soil Saturated? <u>No</u> Depth to Saturation (Inches): <u>N/A</u> Depth to Free-standing Water in Probe Hole (Inches): <u>N/A</u> Field Evidence of Hydrology: <u>None</u>
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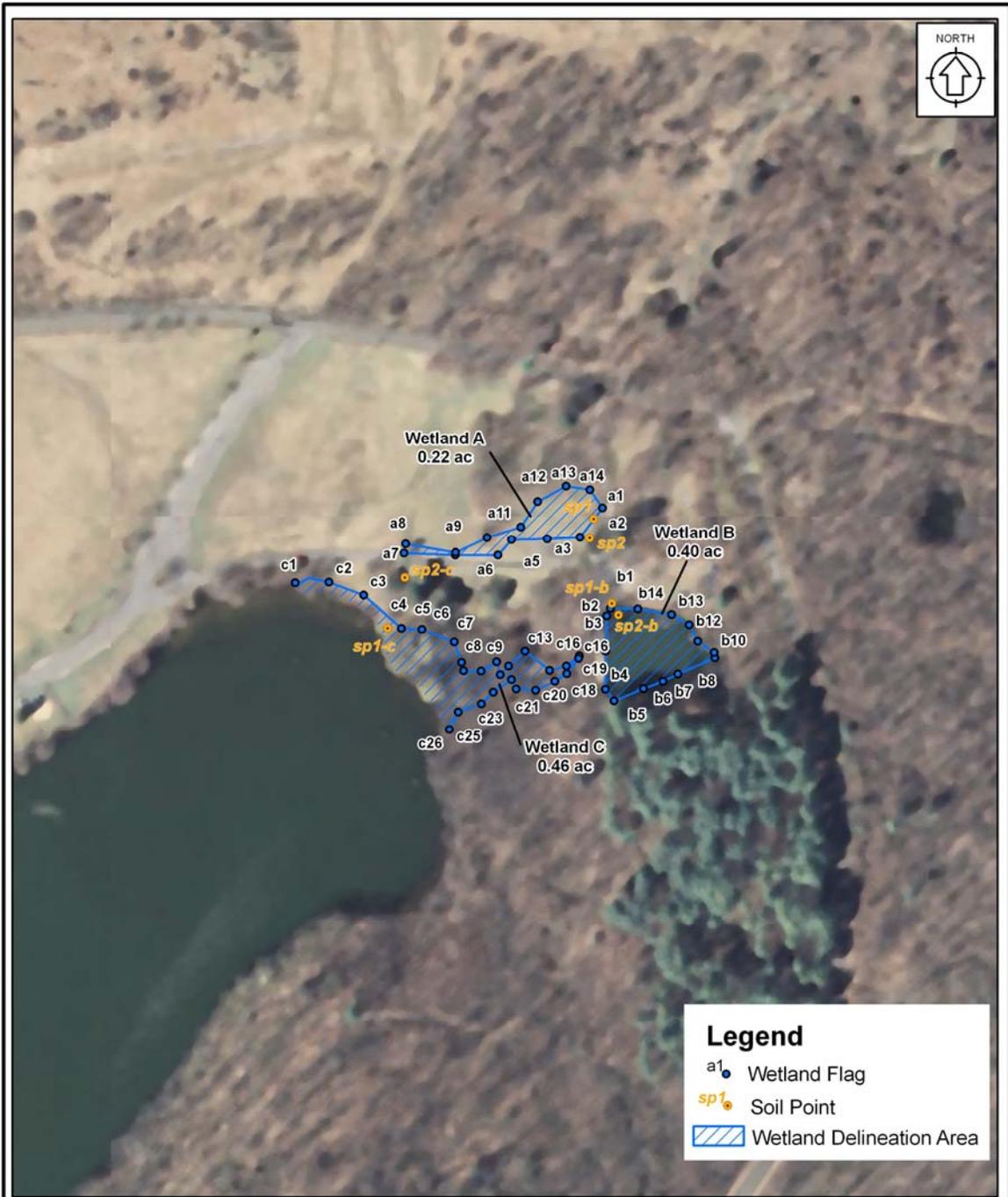
Evidence of Prolonged Saturation and/or Inundation? <input checked="" type="checkbox"/> Yes (Wetland Hydrology Criterion Met) <input type="checkbox"/> No (Wetland Hydrology Criterion Not Met)	Evidence of Prolonged Saturation and/or Inundation? <input type="checkbox"/> Yes (Wetland Hydrology Criterion Met) <input checked="" type="checkbox"/> No (Wetland Hydrology Criterion Not Met)
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Atypical Situation in Upland and/or Wetland? Yes Comments: portion of wetland is confined by a cement spillway

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Appendix C
Wetland Delineation Map

2008 Wetlands Delineation Map – Lake Frederick



Source: NYS Digital Ortho, 2001, Wetland Delineation - Berger 2008.

	<p>U.S. Army Corps of Engineers New York District</p>	<p>U.S. Military Academy West Point, N.Y. Lake Frederick Wetland Delineation Woodbury, NY Wetland Delineation Map</p>	<p>The Louis Berger Group, Inc. 412 Mount Kemble Ave Morristown, NJ 07962</p>	<p>APPENDIX C</p>
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APPENDIX E — EXISTING AND SIMULATED VIEWS

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Figure E-1: Existing View at Washington Gate Site



Figure E-2: Simulation of Alternative 1 at Washington Gate Site

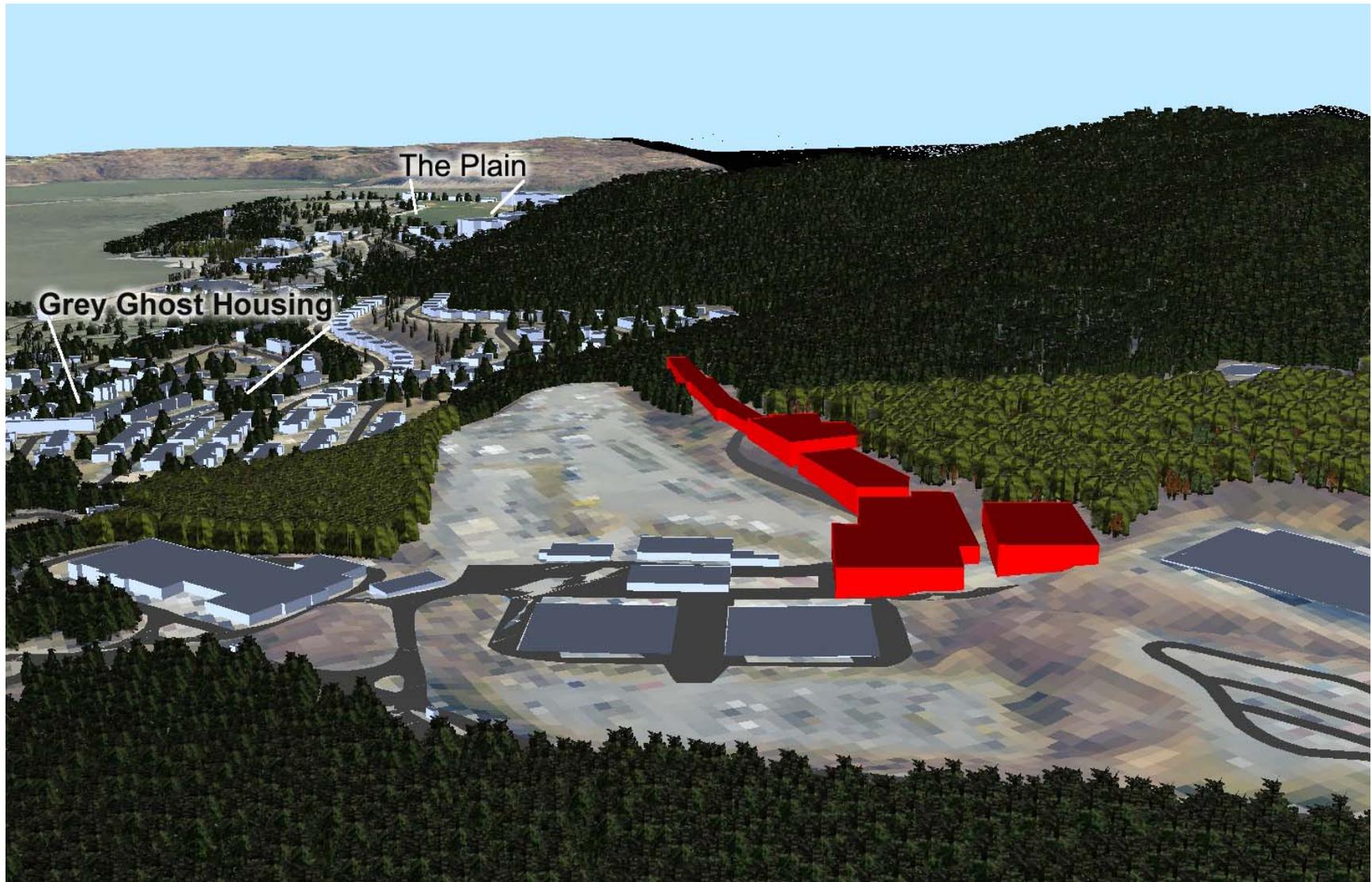


Figure E-3: Simulation of Alternative 2 at Washington Gate Site



Figure E-4: Simulation of Alternative 3 at Washington Gate Site

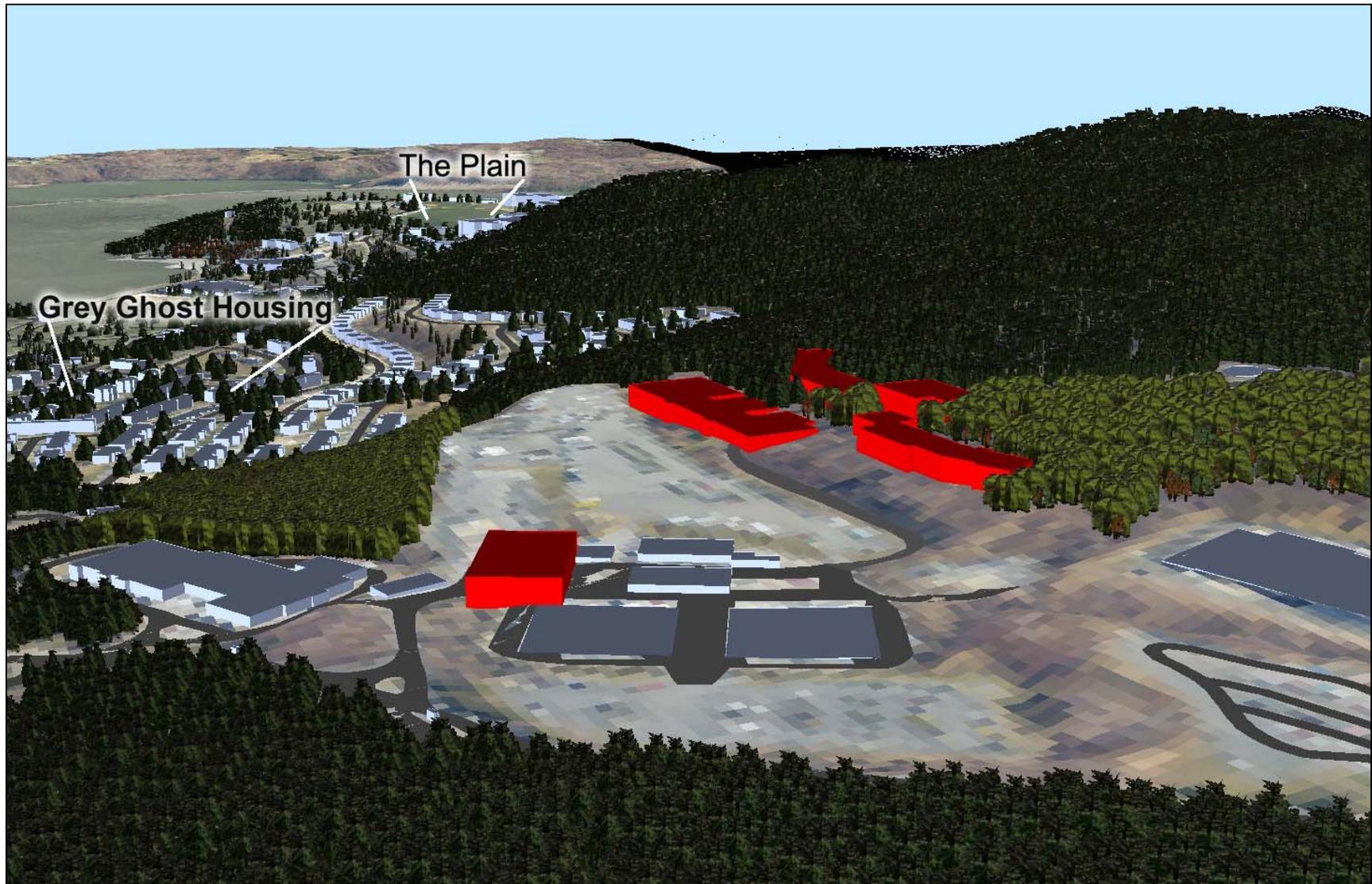


Figure E-5: Existing View at Boscobel



Figure E-6: Simulation of Alternative 1 at Boscobel



Figure E-7: Existing View at Cold Spring



Figure E-8: Simulation of Alternative 1 at Cold Spring



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