FINAL
Preliminary Assessment Report
Camp Smith Training Facility
Cortlandt, New York

Perfluorooctane-Sulfonic Acid (PFOS) and Perfluorooctanoic Acid (PFOA) Impacted Sites
ARNG Installations, Nationwide

May 2019

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Table of Contents

Figures

Appendices

Tables

Acronyms and Abbreviations

AECOM	AECOM Technical Services, Inc.
AFFF	aqueous film forming foam
AOI	area of interest
ARNG	Army National Guard
bgs	below ground surface
Camp Smith	Camp Smith Training Facility
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFMO	Construction and Facilities Management Officer
CSM	conceptual site model
CSMS	Combined Support Maintenance Shop
°F	Fahrenheit
FTA	fire training area
gpm	gallons per minute
HA	Health Advisory
IED	Installations and Environment Division
mph	miles per hour
NYARNG	New York Army National Guard
NYS	New York State
PA	Preliminary Assessment
PFAS	per- and poly-fluoroalkyl substances
PFOA	perfluorooctanoic acid
PFOS	perfluorooctanesulfonic acid
ppt	parts per trillion
SI	Site inspection
SOP	Standard Operating Procedure
US	United States
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
VSI	visual site inspection

Executive Summary

The United States (US) Army Corps of Engineers (USACE) Baltimore District on behalf of the Army National Guard (ARNG)-Installations & Environment Division (IED), Cleanup Branch contracted AECOM Technical Services, Inc. (AECOM) to perform *Preliminary Assessments (PAs) and Site Inspections (SIs) for Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA) Impacted Sites at ARNG Facilities Nationwide*. The ARNG is assessing potential effects on human health related to processes at facilities that used per- and poly-fluoroalkyl substances (PFAS) (a suite of related chemicals), primarily in the form of aqueous film forming foam (AFFF) released during firefighting activities or training, although other PFAS sources are possible. In addition, the ARNG is assessing businesses or operations adjacent to the ARNG facility (not under the control of ARNG) that could potentially be responsible for a PFAS release.

AECOM completed a PA for PFAS at the New York (NY) Army National Guard (NYARNG) Camp Smith Training Facility (Camp Smith; also referred to as "the facility") in Cortlandt, NY to assess potential PFAS release areas and exposure pathways to receptors. The Camp Smith facility was established in 1882 and is a 1,585 acre training property, 94 percent of which is rugged mountainous terrain ideal for light infantry tactical maneuvers and paramilitary training. The remaining 95 acre cantonment area consists of outdoor ranges, training simulation facilities, administrative buildings, and a maintenance shop. The performance of this PA includes the following tasks:

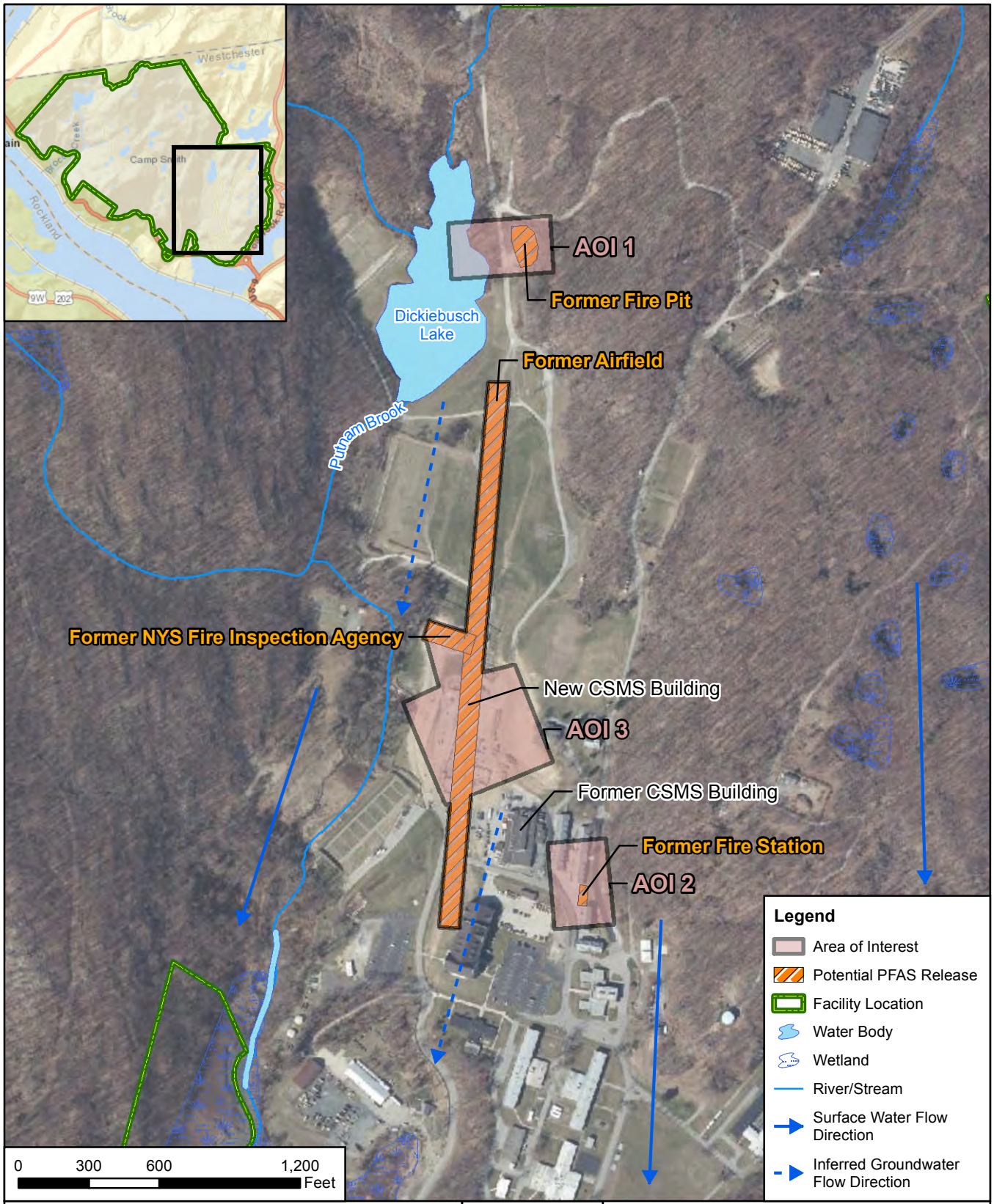
- Reviewed data resources to obtain information relevant to suspected PFAS releases
- Conducted a 1-day site visit on 28 June 2018
- Interviewed current and former NYARNG Camp Smith personnel during the site visit including the Environmental Manager, Maintenance Equipment Mechanic, Sanitation, and Camp Smith Post Director
- Completed visual site inspections (VSIs) at known or suspected PFAS release locations and documented with photographs
- Identified areas of interest (AOIs) and developed a conceptual site model (CSM) to summarize potential PFAS Source-Pathway-Receptor linkages for each AOI.

Three AOIs related to potential PFAS releases were identified at Camp Smith during the PA. The AOIs are shown on **Figures ES-1** and described in **Table ES-1** below.

Table ES- 1: AOIs at Camp Smith

Area of Interest	Name	Used by	Potential Release Dates
AOI 1	Former Fire Pit	NYARNG/Camp Smith Fire Department	Approximately 1980 to 1996
AOI 2	Former Fire Station	Camp Smith Fire Department	Approximately 1970 to 1996
AOI 3	Former Airfield/Former New York State Fire Inspection Agency	NYARNG/ New York State Fire Inspection Agency	Unknown to 1976/ Unknown to approximately 2014

Historical groundwater results at Camp Smith indicate that PFAS were detected in Wells A and B during four sampling rounds completed in 2017 through 2018. Groundwater concentrations were detected but below the US Environmental Protection Agency (USEPA) Health Advisories (HAs) for PFOA and PFOS (70 parts per trillion [ppt]), ranging between 3.47 and 49.9 ppt. Based on the PA findings, there is potential for exposure to PFAS contamination in surface soil to site workers, construction workers, recreational users, and trespassers via ingestion and inhalation of dust; groundwater, surface water and sediment to site workers, construction workers, recreational users, trespassers, and residents via ingestion; and subsurface soil to site and construction workers via ingestion. The CSM for Camp Smith is shown on **Figure ES-2**.



CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Camp Smith, NY			
REVISED	5/6/2019	GIS BY	MS	5/6/2019
SCALE	1:7,200	CHK BY	AG	5/6/2019
Base Map: NYS Digital Ortho-imagery Program (NYSDOP), 2016		PM	RG	5/6/2019

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Summary of Findings

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Figure ES-1

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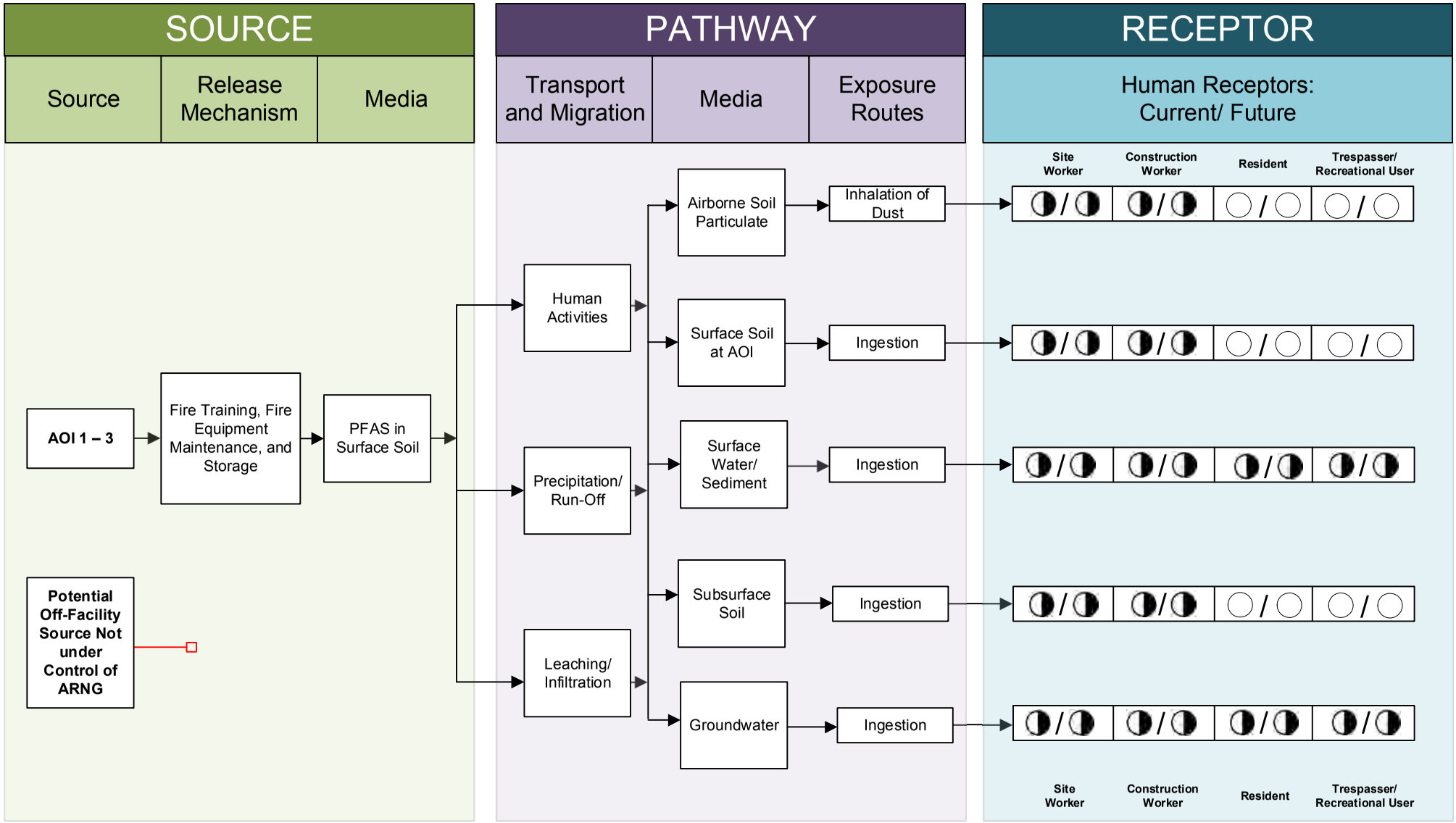


LEGEND

- Flow-Chart Stops
- Flow-Chart Continues
- Partial / Possible Flow
- Incomplete Pathway
- Potentially Complete Pathway
- Complete Pathway

Figure ES-2
Conceptual Site Model
Camp Smith Training Facility

1. Introduction

1.1 Authority and Purpose

The United States (US) Army Corps of Engineers (USACE) Baltimore District on behalf of the Army National Guard (ARNG)-Installations & Environment Division (IED), Cleanup Branch contracted AECOM Technical Services, Inc. (AECOM) to perform *Preliminary Assessments (PAs) and Site Inspections (SIs) for Perfluorooctanesulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA) Impacted Sites at ARNG Facilities Nationwide* under Contract Number W912DR-12-D-0014, Task Order W912DR17F0192, issued 11 August 2017. The ARNG is assessing potential effects on human health related to processes at their facilities that used per- and poly-fluoroalkyl substances (PFAS) (a suite of related chemicals), primarily releases of aqueous film forming foam (AFFF) released during firefighting activities or training, although other sources of PFAS are possible. In addition, the ARNG is assessing businesses or operations adjacent to the ARNG facility (not under the control of ARNG) that could potentially be responsible for a PFAS release.

PFAS are classified as emerging environmental contaminants that are garnering increasing regulatory interest due to their potential risks to human health and the environment. PFAS formulations contain highly diverse mixtures of compounds. Thus, the fate of PFAS compounds in the environment varies. The regulatory framework at both federal and state levels continues to evolve. The US Environmental Protection Agency (USEPA) issued Drinking Water Health Advisories (HAs) for PFOA and PFOS in May 2016, but there are currently no promulgated national standards regulating PFAS in drinking water. In the absence of federal maximum contaminant levels, some states have adopted their own drinking water standards for PFAS. The State of New York (NY) has not yet promulgated regulations regarding PFAS.

This report presents findings of a PA for PFAS at the New York Army National Guard (NYARNG) Camp Smith Training Facility (Camp Smith; also referred to as “the facility”) in Cortlandt, NY, in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, the National Oil and Hazardous Substances Pollution Contingency Plan (40 Code of Federal Regulations Part 300), and USACE requirements and guidance. This PA Report documents the known locations where PFAS may have been released into the environment at the Camp Smith. The term PFAS will be used throughout this report to encompass all PFAS chemicals being evaluated, including PFOS and PFOA, which are key components of AFFF.

1.2 Preliminary Assessment Methods

The performance of this PA included the following tasks:

- Reviewed data resources to obtain information relevant to suspected PFAS releases
- Conducted a 1-day site visit on 28 June 2018
- Interviewed current and former NYARNG Camp Smith personnel during the site visit including the Environmental Manager, Maintenance Equipment Mechanic, Sanitation, and Camp Smith Post Director
- Completed visual site inspections (VSIs) at known or suspected PFAS release locations and documented with photographs
- Developed a Conceptual Site Model (CSM) for any Area of Interest (AOI) identified during the PA

1.3 Report Organization

This report has been prepared in accordance with the USEPA *Guidance for Performing Preliminary Assessments under CERCLA* (USEPA, 1991). The report sections and descriptions of each are:

- **Section 1** – **Introduction:** identifies the project purpose and authority and describes the facility location, environmental setting, and methods used to complete the PA.
- **Section 2** – **Fire Training Areas:** describes the Fire Training Areas (FTAs) at the facility identified during the site visit.
- **Section 3** – **Non-Fire Training Areas:** describes other locations of PFAS releases at the facility identified during the site visit.
- **Section 4** – **Emergency Response Areas:** describes areas of AFFF release at the facility, specifically in response to emergency situations.
- **Section 5** – **Adjacent Sources:** describes sources of PFAS release adjacent to the facility that are not under the control of ARNG.
- **Section 6** – **Conceptual Site Model:** describes the pathways of PFAS transport and receptors at each AOI.
- **Section 7** – **Conclusions:** summarizes the data findings and presents the conclusions of the PA.
- **Section 8** – **References:** provides the references used to develop this document.
- **Appendix A** – Data Resources
- **Appendix B** – Preliminary Assessment Documentation
- **Appendix C** – Photographic Log

1.4 Facility Location and Description

Camp Smith is located in Cortlandt, Westchester County, NY (**Figure 1-1**). Camp Smith borders Putnam County to the north and the city of Peekskill to the east - southeast. The western and southern boundaries of Camp Smith are bordered by the Hudson River. Camp Smith can be accessed directly from New York State (NYS) Route 6. The Bear Mountain Bridge can be found in the northwest corner of Camp Smith, and the US Military Academy at West Point is located across the Hudson River, approximately 10 miles north of Camp Smith (NYSDMNA, 2018).

Camp Smith comprises roughly 1,600 acres of training property for the NYARNG. Approximately 94 percent of Camp Smith is rugged mountainous terrain, while the remaining 95 acre cantonment area consists of outdoor ranges, training simulation facilities, administrative buildings, and a maintenance shop sitting on a plateau overlooking the Hudson River. Camp Smith has no air support facilities. Camp Smith is approximately 30 miles north of New York City and approximately 0.75 miles east of the Hudson River (NYSDMNA, 2018)

1.5 Facility Environmental Setting

Westchester County is a predominately suburban area largely consisting of rolling hills in the Hudson Valley region of New York. The terrain of the facility is consistent with the majority of Westchester County. The county comprises a total of 430.5 square miles (U.S. Census, 2010), and the nearest residential properties to the facility are along the northern property line. The Camp Smith trail head is approximately 0.5 miles to the west of the facility. Two miles to the

west across the Hudson River lies Iona Island and the Iona Island Component Hudson River National Estuarine Research Reserve.

1.5.1 Geology

Camp Smith is east of the Hudson River within the eastern geological region of the Hudson Highlands formation (NYARNG, 2015), a segment of the New England Uplands physiographic province. This region forms part of the Reading Prong, an extension of the Ridge and Valley province extending from Pennsylvania, through northern New Jersey and southern New York, and ending in Connecticut. The Hudson Highlands were formed as a result of periods of mountain building during Precambrian, Ordovician, and Devonian periods. These mountains were consequently scoured and leveled by glaciation events during the Pleistocene.

Most of the 95 acre cantonment area lies in a shallow valley outwash plain. The majority of both the surface and underlying material of the northern section of Camp Smith are Pleistocene age unconsolidated glacial deposits, recent floodplain deposits, and lacustrine delta. These sediments consist of silts underlain by fine sands and gravels of variable thicknesses ranging between 40 to nearly 200 feet (Berkley et al., 1919; Isachsen et al., 2000). This overlies Precambrian bedrock consisting of hornblende gneiss which comprises two-thirds of all rock found at Camp Smith.

A previous NYARNG subsurface investigation indicated that the southern portion of Camp Smith contains intermixed layers of unconsolidated sand, silt, and clay, with variable amounts of gravel and a variable layer of peat and organic clay. The majority of this southern portion is poorly drained Ipswich mucky peat (69.9 percent), well drained Riverhead loam (24.8 percent), and somewhat poorly drained Udorthents (1.4 percent).

On the southernmost boundary of Camp Smith, near the Hudson River, is exposed (or within 3 feet of surface) Precambrian bedrock, which travels north along the western boundary of the training facility (Eric et al., 1954; Klemic et al., 1959). Many of the drinking water wells in the Hudson Valley come from bedrock; however, they do not yield as much as unconsolidated sediments.

1.5.2 Hydrogeology

Based on the USEPA's map of Sole Source Aquifers, a sole source aquifer does not lie beneath Camp Smith. The New York State Department of Environmental Conservation's Map of Principal and Primary Aquifers in New York State indicates that a primary aquifer does not lie beneath the Camp Smith cantonment area. Unconsolidated aquifers make up over 60 acres of the 95 acre cantonment area. Infiltration of precipitation and runoff is the sole source of recharge for aquifers at Camp Smith (USGS, 1995).

Unconsolidated glacial deposits of thick sand and gravel underlie flood plains and terraces along tributaries to the Hudson River and occupy many valleys (Chazen, 2003), yielding the largest supply to wells in Westchester County. However, more than 70 percent of the drinking water wells in Westchester County are gneiss or schist bedrock wells with yields averaging 30 gallons per minute (gpm). If limestone is tapped, yields can range from 2 to as much as 450 gpm.

Groundwater in the Camp Smith cantonment area generally flows from north to south towards the Hudson River (**Figure 1-2**) or towards various creeks and surface water features that run south to the Hudson River. Four potable wells in the cantonment area supply drinking water to Camp Smith. Wells A and B are the primary sources for drinking water and are located on the edge of the wetlands area in the southern portion of Camp Smith (**Figure 1-2**). Well A is 80 feet

deep with a screen installed between 65 and 80 feet below ground surface (bgs), and Well B is 100 feet deep with a screen installed between 82 and 100 feet bgs (NYARNG, 2015). Groundwater was sampled at Wells A and B during four sampling events completed from April 2017 to February 2018. Groundwater concentrations were detected but were below the USEPA HAs for PFOA and PFOS. Borings from the wetland area in a previous NYARNG study indicate a thick organic clay confining unit that separates surface water from the confined aquifer below. Wells A and B draw water from the confined aquifer. The extent of this clay layer is not known. It is possible that the clay layer thins out and is not present further up-gradient in the northern cantonment area. This would potentially allow upgradient surface water and groundwater to infiltrate the deeper aquifer, where groundwater is drawn from.

1.5.3 Hydrology

Camp Smith is in the Lower Hudson River watershed, which is a part of the 13,300 square mile Hudson River basin. The main channel of the Hudson River spans nearly 1,000 feet of Camp Smith's western and southern boundaries and forms a deep gorge through the Hudson Highlands in this area (NYARNG, 2015). Surface water resources at Camp Smith include natural streams, rivers, and open water features. Several unnamed intermittent tributaries and numerous vernal pools and wetlands are scattered throughout the facility. All surface runoff from Camp Smith eventually drains into the Hudson River.

Dickiebusch Lake is on the northeastern end of Camp Smith (**Figure 1-2** and **1-3**). Dickiebusch Lake covers approximately six acres and is connected to several streams, one of which is Putnam Brook. The headwaters of Putnam Brook flow into the northern-most portion of Dickiebusch Lake, which then drains south, bordering Camp Smith on the west, before draining into the Annsville Creek impoundment. Annsville Creek borders Camp Smith on the eastern side of the facility before turning southwest to border the southern portion.

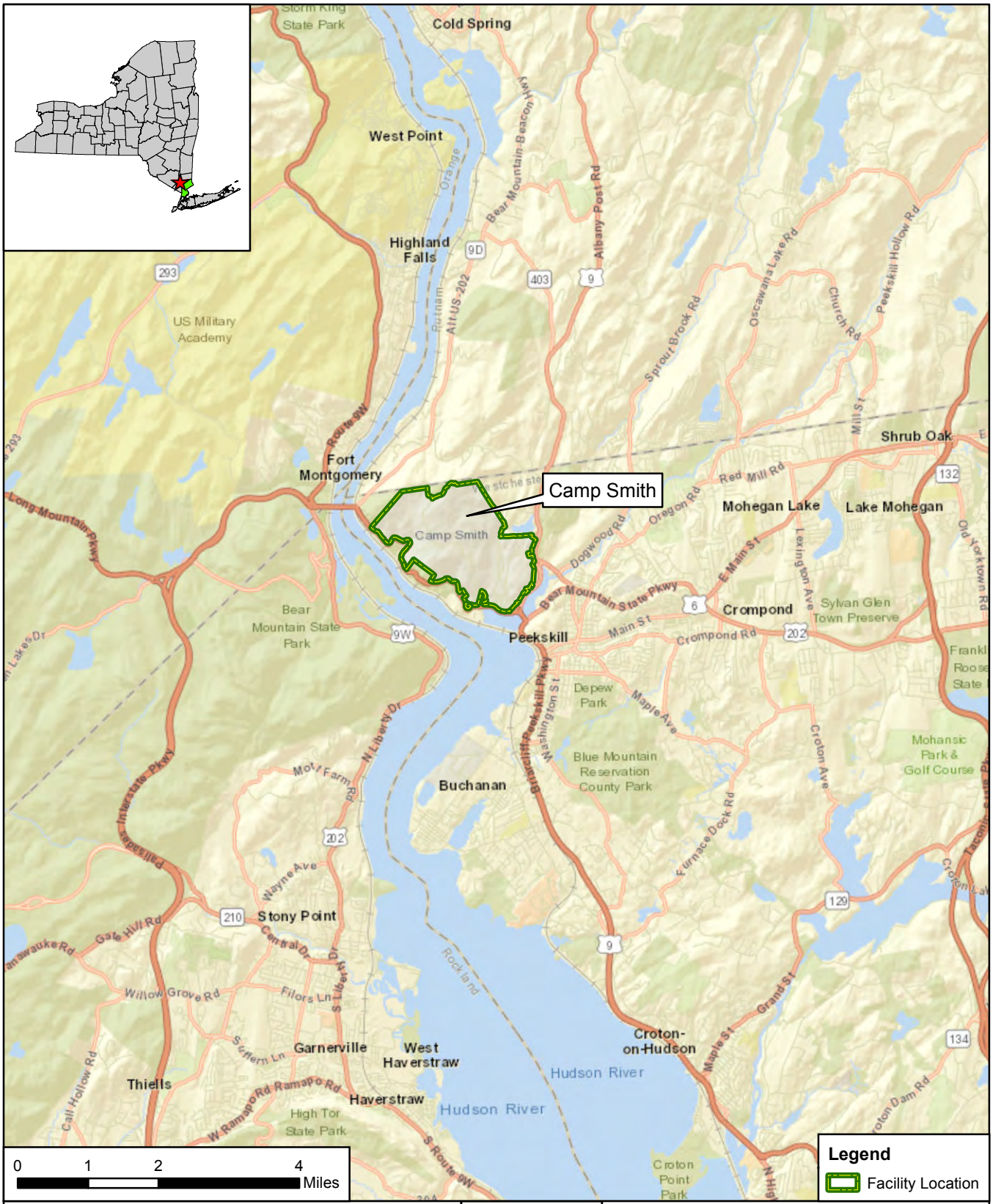
The confluence of the Annsville Creek and Putnam Brook at the Annsville Creek impoundment is tidally influenced, as this impoundment is connected to the Hudson River (**Figure 1-3**). This small bay/impoundment/tidal wetland was artificially created by a railroad berm.

1.5.4 Climate

The climate at Camp Smith and the surrounding Westchester County is predominantly continental, with an average annual temperature of 52.45 degrees Fahrenheit (°F). Seasonally, temperatures vary from an average summer high of 61.2 °F, to average winter lows of 26 °F (NOAA, 2018). The annual average wind speed is 8.9 miles per hour (mph), although winter months can have gusts up to 35 mph. The total mean annual precipitation is 42.3 inches. July is the driest month, with an average of 2.91 inches of precipitation, while August is the wettest month with 4.49 inches. Short, intense thunderstorms are the major sources of summer precipitation. The average annual snowfall is 55 inches.

1.5.5 Current and Future Land Use

Camp Smith is a private facility with one access point through a guarded security gate off of Route 202 that runs parallel to the Hudson River. The majority of the property is a NYARNG installation used for military training. Approximately 94 percent of Camp Smith is rugged mountainous terrain ideal for light infantry tactical maneuvers and paramilitary training (NYSDMNA, 2018). The remaining 95 acres cantonment area consists of outdoor ranges, training simulation facilities, administrative buildings, and a maintenance shop sitting on a plateau overlooking the Hudson River (NYSDMNA, 2018). There are no current expansion plans for Camp Smith and, in general, the future use of the facility is not expected to change.



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SCALE	1:126,720	CHK BY	AG	5/6/2019
Base Map: Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI,		PM	RG	5/6/2019

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Facility Location

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Figure 1-1

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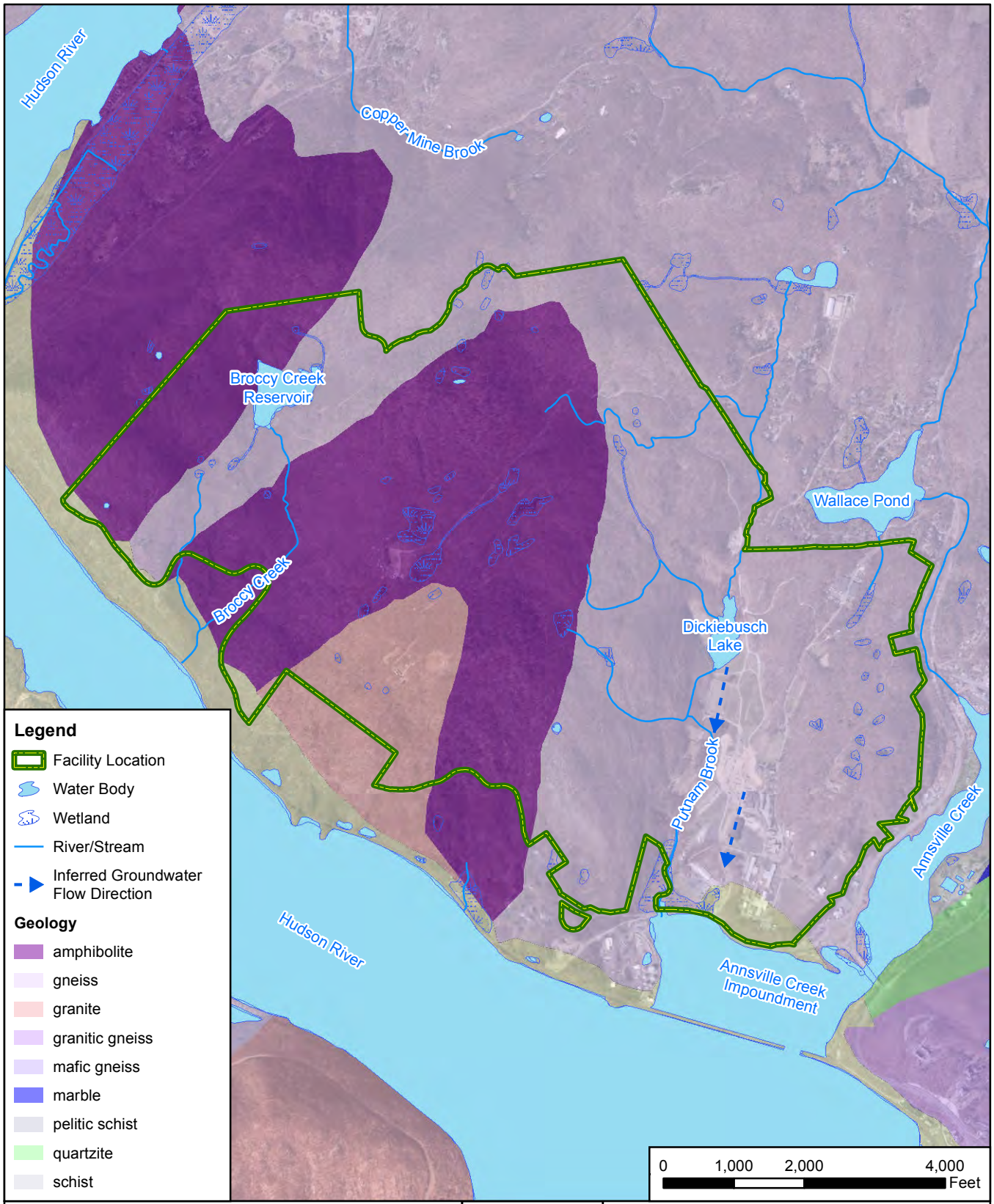

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NOTES	Preliminary Assessment for PFAS at Camp Smith, NY			
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SCALE	1:24,000	CHK BY	AG	5/6/2019
Base Map: NYS Digital Ortho-imagery Program (NYSDOP), 2016		PM	RG	5/6/2019

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Groundwater Features

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Figure 1-2

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CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Camp Smith, NY			
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SCALE	1:24,000	CHK BY	AG	5/6/2019
Base Map: NYS Digital Ortho-imagery Program (NYSDOP), 2016		PM	RG	5/6/2019

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Surface Water Features

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Figure 1-3

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2. Fire Training Areas

Two FTAs were identified during the PA at Camp Smith. Descriptions of the FTAs are presented below, and the FTAs are shown on **Figure 2-1**. Interview records appear in **Appendix B**. Photographs of the FTAs appear in **Appendix C**.

2.1 Former Fire Pit

The Former Fire Pit is on the northern end of the property, adjacent to Dickiebusch Lake (**Figure 2-1**) at geographic coordinates 41°18'36.96"N; 73°56'24.19"W. This area is approximately 184 feet long by 113 feet wide and is essentially a dirt expanse of sand and gravel on the eastern side of N. Camp Road.

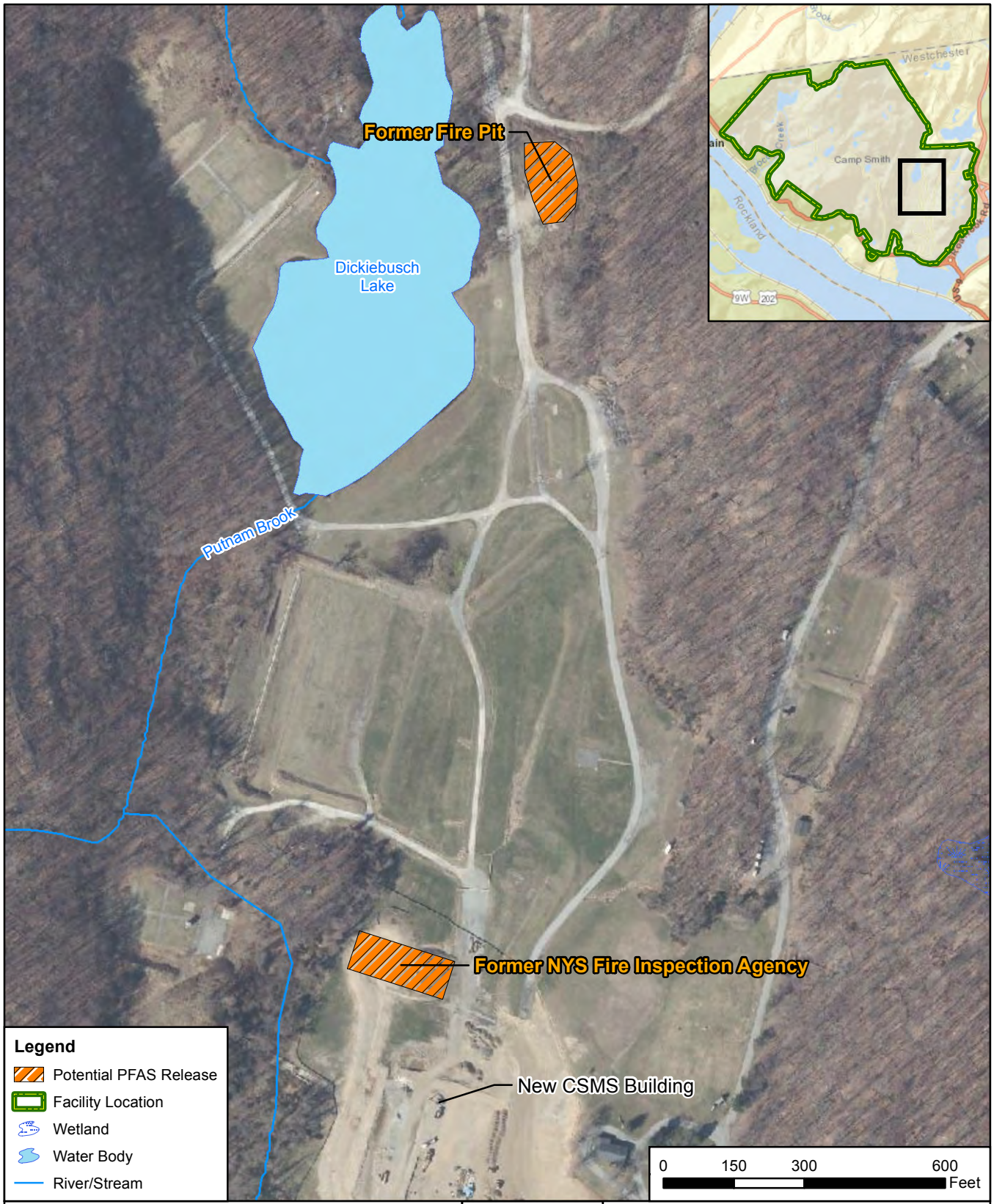
During the VSI, a bare earthen patch was observed that appeared to have been smoothed and paved over multiple times in the past. Interviewees described it as a former live fire training exercise area where fire training exercises occurred with some frequency, possibly once per month; however, the presence or use of AFFF for these exercises could not be confirmed during the VSI or interviews with NYARNG personnel. The Former Fire Pit was the training ground for the Camp Smith firefighters and emergency responders and was active between 1980 and 1996.

2.2 Former New York State Fire Inspection Agency

An interview with the Construction and Facilities Management Officer (CFMO) was performed at the NYARNG headquarters in Latham, NY (directly adjacent to the NYARNG Albany Army Aviation Support Facility). The CFMO stated that a former NYS Fire Inspection Agency was formerly located on-post, located slightly northwest of the new combined support maintenance shop (CSMS) building (**Figure 2-1; Appendix C**), and was associated with a cluster of former buildings. The duration of occupancy of the buildings by the NYS Fire Inspection Agency is unclear; however, historic aerials indicate that the buildings were built sometime between 1974 and 1984 and demolished sometime between October 2014 and April 2016. The interviewee indicated that they were occupied until at least 1996.

Activities at the NYS Fire Inspection Agency were described as including classroom training, fire services, forensics, and arson investigation. Because personnel with first-hand knowledge of training activities that occurred at the Agency were not available for interviews during the PA, there are data gaps for this location. It is unknown if any of the training activities that occurred at the facility included fire training with AFFF or other firefighting foams. As such, PFAS may have been released at the former NYS Fire Inspection Agency and is thus a potential release area (**Figure 2-1**).

Following demolition of the buildings in approximately 2014, nearly 8 feet of fill from the general area of the Former NYS Fire Inspection Agency was removed and transported for use in the foundation of the new CSMS building. Because of this, potentially PFAS contaminated soil was spread from the source location to below the new CSMS building.



CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Camp Smith, NY			
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SCALE	1:3,600	CHK BY	AG	5/6/2019
Base Map: NYS Digital Ortho-imagery Program (NYSDOP), 2016		PM	RG	5/6/2019

Fire Training Areas

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Figure 2-1

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3. Non-Fire Training Areas

Three non FTAs were identified during the PA. A description of the non-FTAs is presented below, and the non-FTAs' locations are shown on **Figure 3-1**. Interview records appear in **Appendix B**. Photographs of the non-FTAs appear in **Appendix C**.

3.1 Former Airfield

Located at the southeastern end of Dickiebusch Lake, geographic coordinates 41°18'31.19"N; 73°56'24.87"W, and approximately 2,500 feet in length running north to south, interviews during the VSI described an area referred to as the "former airfield" (**Figure 3-1**). Aerial photographs (**Appendix A**) confirm a runway existed after 1955, but before 1960, and was later removed in the late 1970s. The Camp Smith Maintenance Equipment Mechanic, working at Camp Smith since 1988, stated that the Former Airfield was possibly active during parts of the Korean and Vietnam wars, but he is unware of any incidents that occurred which required the use of AFFF.

3.2 Former Fire Station

Based on aerial photographs (**Appendix A**), the Former Fire Station was approximately 500 feet east of the southern end of the former airfield runway, geographic coordinates 41°18'10.01"N; 73°56'21.34"W, and was active between 1980 and 1996. When operational, the interviewee stated that two trucks were parked inside the Former Fire Station: an old Chevy half-deuce water truck and an old Ford that was not operational. In its last few years of operation, there were only civilian hourly employees on-site during the weekends. The interviewee indicated he was not aware of any AFFF use or storage at Camp Smith. After 1996, the Former Fire Station was torn down and replaced with a parking lot (**Figure 3-1**). The two trucks were given to the Continental Village Fire Department, the municipal fire department for Westchester County, which provides emergency services for all major incidents at Camp Smith.

3.3 Former Combined Support Maintenance Shop

The Former CSMS building was adjacent to the Former Firehouse from approximately 1976, until a new building was finished in 2018 (**Figure 3-1**). The interviewee stated there were no documents confirming AFFF storage, discharge, or use in the former CSMS building. A 2009 NYARNG Camp Smith Standard Operating Procedure (SOP) mandated that firefighting equipment be stored on-site and ready for use during refueling activities, but no firefighting equipment was observed during the VSI. The SOP was unclear as to what type of firefighting equipment was required. The interviewee also indicated that the CSMS personnel were the first to respond to any minor fire-related incidents that occurred after 1996.

CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Camp Smith, NY			
REVISED	5/6/2019	GIS BY	MS	5/6/2019
SCALE	1:4,800	CHK BY	AG	5/6/2019
Base Map: NYS Digital Ortho-imagery Program (NYSDOP), 2016		PM	RG	5/6/2019

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Non-Fire Training Areas

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Figure 3-1

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4. Emergency Response Areas

No instances of emergency response were identified at Camp Smith during the PA. The Camp Smith Maintenance Equipment Mechanic indicated that since 1996, firefighting support for major incidents has been provided by the Continental Village Fire Department, the municipal fire department of Westchester County, roughly 2.25 miles north of Camp Smith. The Combined Support Maintenance building mechanics respond on-site to all other minor fire related incidents. During VSI, the interviewee was not aware of any crashes that have occurred at Camp Smith.

5. Adjacent Sources

Information acquired during PA interviews (**Appendix B**), the VSI, as well as data presented in the Environmental Data Resource report indicated that no adjacent off-facility sources of PFAS are located near the Camp Smith.

6. Conceptual Site Model

Based on the PA findings, three AOIs were identified at Camp Smith: AOI 1 Former Fire Pit, AOI 2 Former Fire Station, and AOI 3 Former Airfield/ Former NYS Fire Inspection Agency. The AOI locations are shown on **Figure 6-1**. The following sections describe the CSM components and the specific CSMs developed for AOIs 1 through 3. The CSM identifies the three components necessary for a potentially complete exposure pathway: (1) source, (2) pathway, (3) receptor. If any of these elements are missing, the pathway is considered incomplete.

In general, the potential PFAS exposure pathways are ingestion and inhalation. Studies have shown that dermal contact is not to be considered a potential exposure pathway, as PFAS absorption through skin is very limited (NGWA, 2018). Receptors at Camp Smith include site workers, construction workers, recreational users, and trespassers. The CSM for Camp Smith indicates which specific receptors could potentially be exposed to PFAS.

NYARNG began quarterly sampling of drinking water at potable water wells on-facility, Wells A and B, located approximately 0.7 miles south of Dickiebusch Lake, in April 2017. Four rounds of samples were taken from the spigot and tap of buildings within 100 feet of Wells A and B. Since the initial sampling event, PFAS chemicals have consistently been detected in drinking water below the USEPA Drinking Water HA level of 70 parts per trillion (ppt), ranging between 3.47 and 49.9 ppt. No Drinking Water HA risk levels have been promulgated by the state of New York at the time of reporting. The quarterly sampling results from Well A and Well B and sampling results from a blended sample point representative of both wells are summarized in **Table 6-1**, **Table 6-2**, and **Table 6-3**, respectively.

Table 6-1: Well A Quarterly Sampling Results

Analyte	April 2017	August 2017	November 2017	February 2018
Perfluorooctanesulfonic acid (PFOS)	42.8	49.9	49.1	46.6
Perfluorooctanoic acid (PFOA)	3.84 J	3.90 J	4.35 J	3.89 J
Perfluorohexanesulfonic acid (PFHxS)	26.5	31.5	31.2 J	26.6
Perfluoroheptanoic acid (PFHpA)	1.72 J	1.97 J	2.10 J	1.90 J
Perfluorononanoic acid (PFNA)	--	--	--	--
Perfluorobutanesulfonic acid (PFBS)	3.65 J	4.46 J	4.29 J	4.06 J

Units = parts per trillion = ppt -- = not detected J = estimated concentration

Table 6-2: Well B Quarterly Sampling Results

Analyte	April 2017	August 2017	November 2017	February 2018
PFOS	NA	49.6	48.3	46.7
PFOA	NA	3.44 J	3.76 J	3.47 J
PFHxS	NA	30.1	29	25.1
PFHpA	NA	1.68 J	1.89 J	1.42 J
PFNA	NA	--	--	--

PFBS	NA	4.25 J	4.07 J	3.62 J

Units = parts per trillion = ppt -- = not detected J = estimated concentration NA = not applicable

Table 6-3: Blended Sample: Well A and Well B Representative Quarterly Sampling Results

Analyte	April 2017	August 2017	November 2017	February 2018
PFOS	41.3	47	51	45.3
PFOA	3.83 J	4.26 J	5.22 J	3.57 J
PFHxS	26.3	31.9	29.6	26.4
PFHpA	1.69 J	2.04 J	2.12 J	1.68 J
PFNA	--	3.27 J	--	--
PFBS	3.84 J	4.39 J	4.23 J	3.81 J

Units = parts per trillion = ppt -- = not detected J = estimated concentration

6.1 AOI 1 Former Fire Pit

AOI 1 includes the former fire pit training area and the eastern portion of Dickiebusch Lake. PFAS have consistently been detected downgradient in the drinking water wells (Wells A and B) located approximately 0.7 miles south of AOI 1. Potential PFAS releases to soil may have occurred during the monthly live fire training exercises; however, there are no documented reports of AFFF use during these training exercises.

The former training area is less than 100 feet from the eastern side of Dickiebusch Lake, and included in the AOI extent (**Figure 6-1**). Surface water runoff near the former pit drains into Dickiebusch Lake. The headwaters of Putnam Brook flow from Dickiebusch Lake and travel south, passing within 500 feet to the west of Wells A and B until finally discharging into the Hudson River. Potential PFAS releases at the western edge of the former pit may have flowed to the eastern portion of Dickiebusch Lake. PFAS are water soluble and can migrate readily from soil to groundwater or surface water via leaching and run-off. Because potential AFFF releases to surface soil and localized runoff systems may have occurred at AOI 1, it is possible that potential PFAS contamination has migrated from the soil at AOI 1 to these surface water bodies. Ground-disturbing activities to surface soil could result in site worker and construction worker exposure to potential PFAS contamination via inhalation of dust particles or ingestion of surface soil. Ground-disturbing activities to subsurface soil could also result in site worker and construction worker exposure via ingestion of subsurface soil. Therefore, the exposure pathways for these receptors are potentially complete.

A previous investigation (NYARNG, 2015) indicates that there may be a clay confining layer separating surface water from the deep water aquifer. The deep water aquifer is used at Camp Smith as a drinking water source (Well A and B). This confining unit, which acts as a natural aquitard, may prevent the migration of potential PFAS contamination to the confined deep aquifer; however, the extent of the confining layer is unknown. Due to the groundwater detections of PFAS in Wells A and B, the close proximity of the drinking water wells to the AOI, and that Camp Smith obtains drinking water and wash water from these contaminated wells, the pathway for PFAS contamination in groundwater is potentially complete to site workers and construction workers on-facility, along with residents, trespassers and recreational users potentially ingesting drinking water that may have migrated downgradient off-facility. Annsville Creek is southeast, Putnam Brook is west, and the Hudson River is south of all AOIs. It is possible that PFAS contamination has migrated to these surface water bodies. PFAS are water

soluble and can migrate readily from soil to groundwater or surface water via leaching and run-off. As such, potential AFFF releases may migrate to nearby surface water bodies.

Because drinking water wells are located downgradient of the AOI and recreational use of the surrounding surface water bodies is likely, the ingestion exposure pathway for groundwater, surface water, and sediment is considered potentially complete for off-post residents, trespassers and recreational users at AOI 1. The CSM for AOI 1 is shown in **Figure 6-2**.

6.2 AOI 2 Former Fire Station

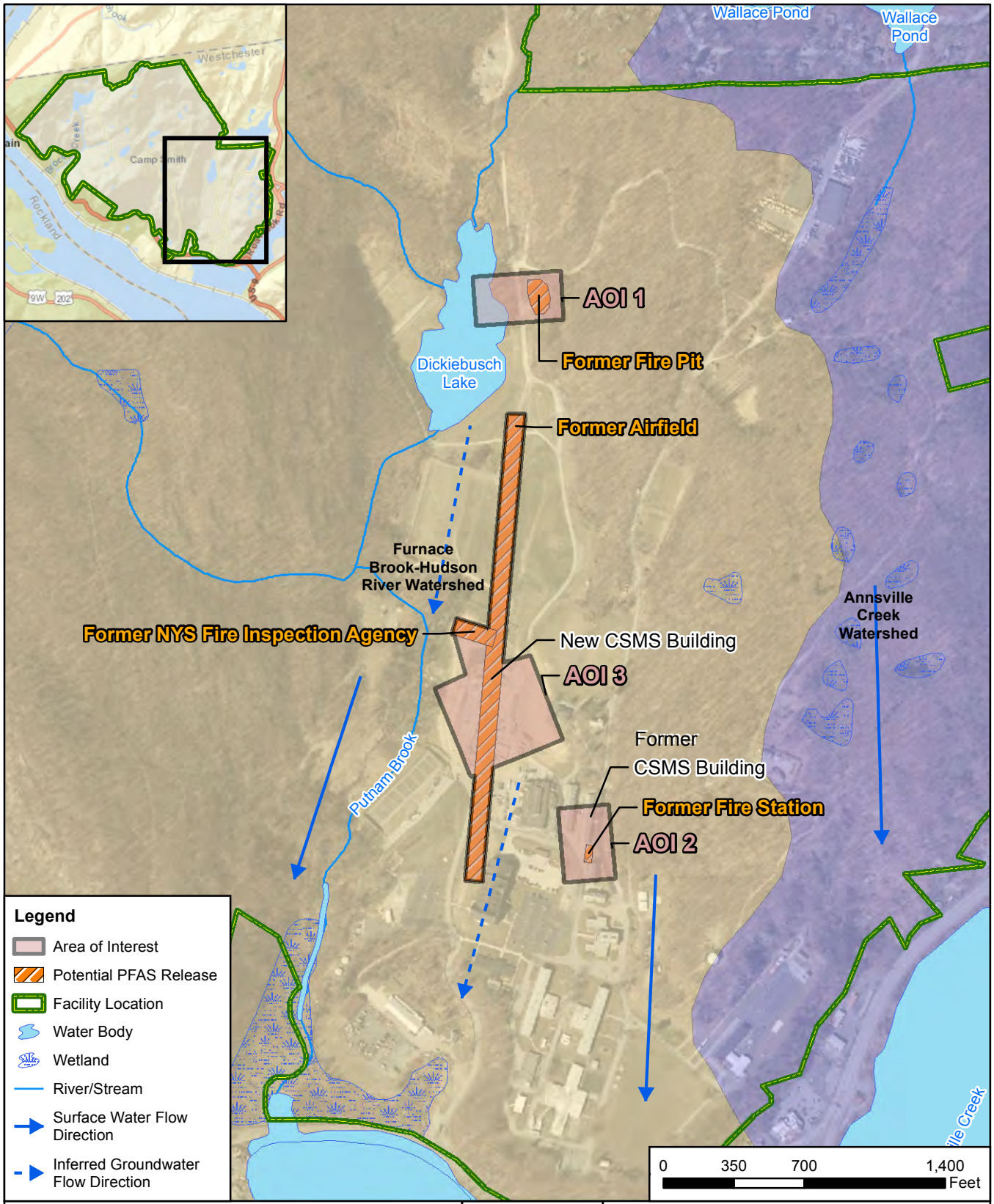
AOI 2 includes the former Fire Station building and the former CSMS building. Potential AFFF releases to soil may have occurred during the storage of materials and the washing of firefighting equipment, although, it is unknown exactly what type of firefighting equipment was stored or if any AFFF was spilled.

Similarly to AOI 1, the pathways for PFAS contamination are shown on **Figure 6-2**. The CSM for AOI 2 is shown on the **Figure 6-2**.

6.3 AOI 3 Former Airfield / Former NYS Fire Inspection Agency

AOI 3 includes the former Airfield and the former NYS Fire Inspection Agency. Potential AFFF releases to soil may have occurred during active use of the Former Airfield or during training activities at the Former NYS Fire Inspection Agency, although it is unknown if AFFF were released at either location.

Similarly to AOI 1 and AOI 2, the pathways for PFAS contamination are shown on **Figure 6-2**.



CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Camp Smith, NY			
REVISED	5/6/2019	GIS BY	MS	5/6/2019
SCALE	1:8,400	CHK BY	AG	5/6/2019
Base Map: NYS Digital Ortho-imagery Program (NYSDOP), 2016		PM	RG	5/6/2019

N

Areas of Interest

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 6-1

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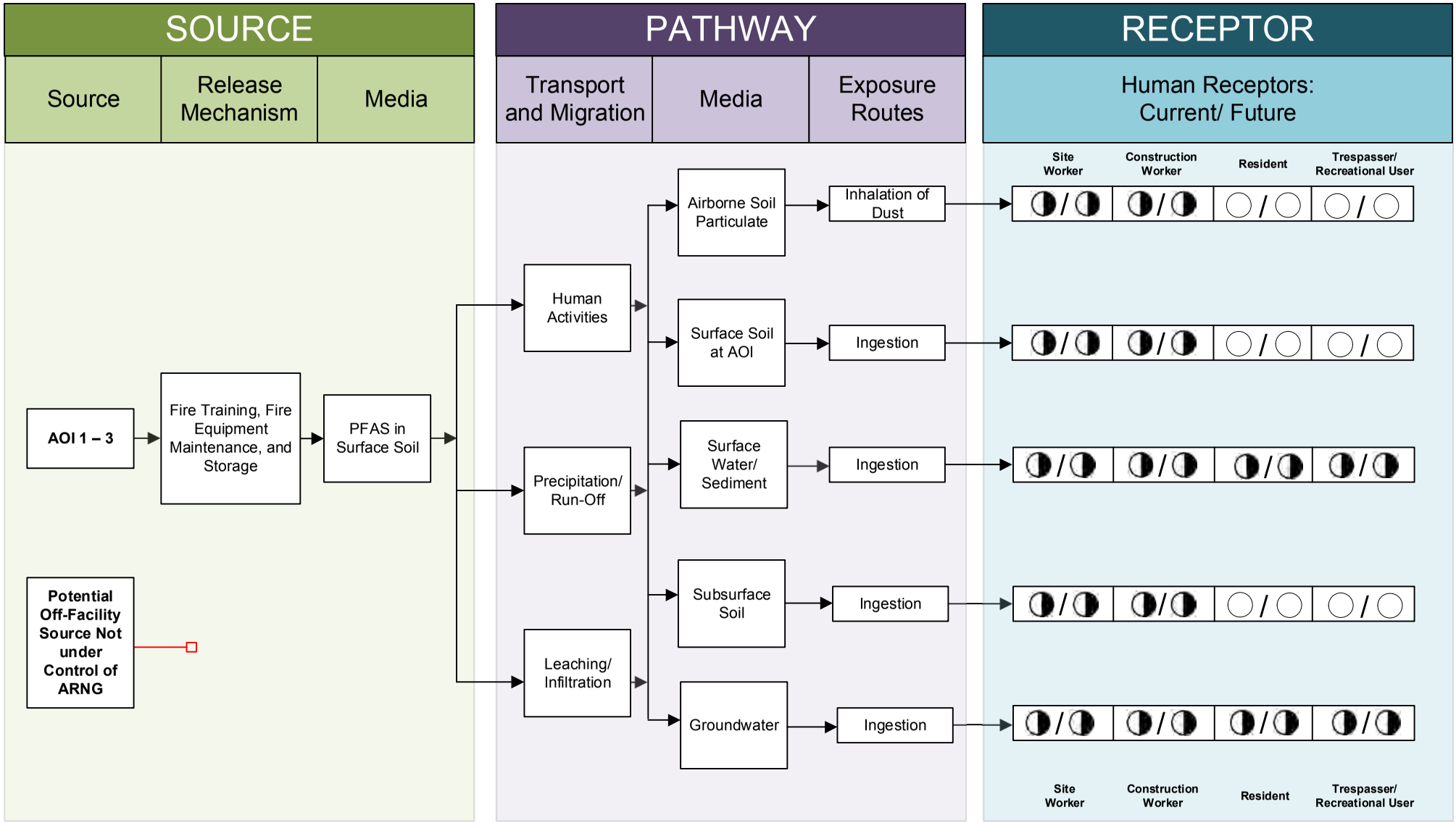

LEGEND

- Flow-Chart Stops
- Flow-Chart Continues
- Partial / Possible Flow
- Incomplete Pathway
- Potentially Complete Pathway
- Complete Pathway

Figure 6-2
Conceptual Site Model
Camp Smith Training Facility

7. Conclusions

This report presents a summary of available information gathered during PA efforts on the use and storage of AFFF at Camp Smith. The PA findings are based on the information presented in **Appendix A** and **Appendix B**.

7.1 Conclusions

Three AOIs related to PFAS releases were identified at Camp Smith during the PA (**Figure 7-1)** and are summarized in **Table 7-1** below:

Table 7- 1: AOIs at Camp Smith

Area of Interest	Name	Used by	Potential Release Dates
AOI 1	Former Fire Pit	NYARNG/Camp Smith Fire Department	Approximately 1980 to 1996
AOI 2	Former Fire Station	Camp Smith Fire Department	Approximately 1970 to 1996
AOI 3	Former Airfield/Former NYS Fire Inspection Agency	NYS/NYARNG	Unknown to approximately 1976/ Unknown to approximately 2014

Although there is uncertainty with the data gathered at Camp Smith during the PA efforts, PFAS detected in the groundwater suggests there is a potential for exposure to PFAS contamination in surface soils to site workers, construction workers, recreational users, and trespassers via ingestion and inhalation of dust; groundwater, surface water and sediment to site workers, construction workers, recreational users, trespassers, and residents via ingestion; and in subsurface soil to site workers and construction workers via ingestion.

7.2 Uncertainty

A number of information sources were investigated during this PA to determine the potential for PFAS-containing materials to have been present, used, or released at the facility. Historically, documentation of PFAS use was not required because PFAS were considered benign. Therefore, records were not typically kept by the facility or available during the PA on the use of PFAS in training, other non-traditional activities, or on its disposition.

The conclusions of this PA are predominantly based on the information provided during interviews with personnel who had direct knowledge of PFAS use at the facility. Gathered information at Camp Smith has a high degree of uncertainty due to the absence of written documentation, the limited number of personnel with direct knowledge due to staffing changes, the time passed since PFAS was first used (early 1970s), and a reliance on personal recollection. Inaccuracies may arise in potential PFAS release/storage locations, dates of release, volume of releases, and the concentration of AFFF used. There is also a possibility the PA has missed a source of PFAS, as the science of how PFAS may enter the environment continually evolves.

In order to minimize the level of uncertainty, readily available data regarding the use and storage of PFAS were reviewed, current facility personnel were interviewed, multiple persons were interviewed for the same potential source area, and potential source areas were visually

inspected. The Camp Smith PA interviews resulted in information that was often vague or conflicted with other sources; however, PFAS contamination was in fact detected in the groundwater.

Table 7- 2: Uncertainties within the PA

Area of Interest	Source of Uncertainty
AOI 1: Former Fire Pit	No or limited information was available on type/quantity of AFFF used; dates of operation; frequency of training exercises; whether AFFF was used or just water; and only one person was available for interview during the VSI.
AOI 2: Former Fire Station	No or limited information was available on the dates of operation; type of firefighting equipment used; or if AFFF was ever stored, discharged, or used.
AOI 3: Former Airfield/Former NYS Fire Inspection Agency	Former Airfield: No or limited information was available during the PA. There are no documented emergency response incidents, crashes/accidents, flight-line fire training, or use of AFFF. Former NYS Fire Inspection Agency: No or limited information was available on dates of operation, frequency of training activities, type/quantity of AFFF use; only one person had any knowledge that this facility ever existed.
General	A previous investigation (NYARNG, 2015) indicates that there may be a clay confining layer separating surface water from the deep water aquifer. The deep water aquifer is used at Camp Smith as a drinking water source. This confining unit, acting as a natural aquitard may prevent the migration of potential PFAS contamination to the confined deep aquifer. However, the extent of the confining layer is unknown. Furthermore, PFAS detections in the groundwater may be from an upgradient source (on-site or off-site).

7.3 Potential Future Actions

Interviews and records (covering 1970's to present) indicate that current or former NYARNG activities may have resulted in potential PFAS releases at the three AOIs identified during the PA. Based on the CSMs developed for the AOIs, there is potential for receptors to be exposed to PFAS contamination in soil, groundwater, surface water, and sediment at these AOIs. Because of the potential PFAS use and due to the fact that PFAS contamination was detected in the groundwater through several consecutive sampling events, the NYARNG Camp Smith facility will proceed with further investigation under the CERCLA process and undergo an SI. **Table 7-3** summarizes the rationale used to determine which AOIs should be evaluated in the SI, coupled with the potential receptors, the potential migration of PFAS contamination off-facility and the availability of resources at each AOI.

430 **Table 7-3 Summary of PA Findings**

Area of Interest	Rationale	Potential Future Action
AOI 1: Former Fire Pit	Location of former live fire training exercise area that occurred with some frequency. Presence or use of AFFF for these exercises could not be confirmed during the PA. Due to the potential for PFAS containing materials at this AOI along with the uncertainty, further investigation is required.	Proceed to an SI; focus on soil, groundwater, surface water, and sediment
AOI 2: Former Fire Station	A 2009 NYARNG Camp Smith SOP mandated that firefighting equipment be stored on-site and ready for use during refueling activities, but no firefighting equipment was observed during the PA. The SOP was unclear as to what type of firefighting equipment was required. Due to the potential for PFAS containing materials at this AOI along with the uncertainty, further investigation is required.	Proceed to an SI; focus on soil, groundwater, surface water, and sediment
AOI 3: Former Airfield/Former NYS Fire Inspection Agency	It is unknown if any of the training activities that occurred at the former airfield or former NYS Fire Inspection Agency included fire training with AFFF or other firefighting foams. Due to the potential for PFAS containing materials at this AOI along with the uncertainty, further investigation is required.	Proceed to an SI; focus on soil, groundwater, surface water, and sediment

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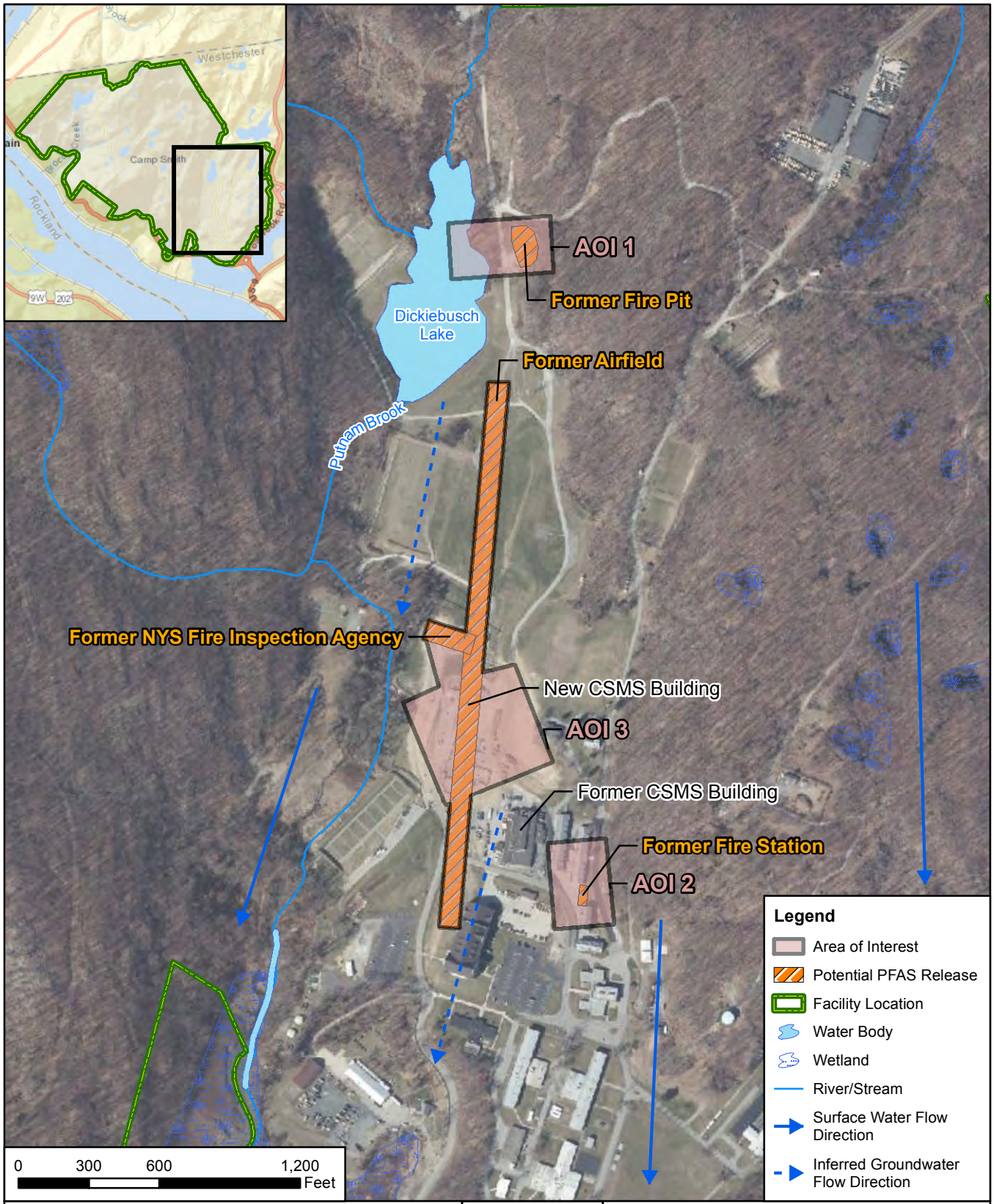

CLIENT	ARNG			
NOTES	Preliminary Assessment for PFAS at Camp Smith, NY			
REVISED	5/6/2019	GIS BY	MS	5/6/2019
SCALE	1:7,200	CHK BY	AG	5/6/2019
Base Map: NYS Digital Ortho-imagery Program (NYSDOP), 2016		PM	RG	5/6/2019

N

Summary of Findings

AECOM
12420 Milestone Center Drive
Germantown, MD 20876

Figure 7-1

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Appendix A
Data Resources

Data Resources will be provided separately on CD. Data Resources for Camp Smith:

Camp Smith Environmental Data Resources Report

- 2018 Camp Smith EDR Report

Old Aerials and Installation Maps

- Old Aerial photographs from 1960 to 1995

Appendix B
Preliminary Assessment Documentation

Appendix B.1
Interview Records

Preliminary Assessment – Camp Smith Training Facility
100 Camp Smith Drive
Cortlandt, NY 10567
June 12th, 2018

06/12/18 - Interview conducted with [redacted] Officer (contact through [redacted], on a separate visit to the NYARNG Headquarters in Latham, New York regarding the construction at the Camp Smith Site. He had no knowledge of AFFF use.

AFFF Usage
According to [redacted] to his knowledge he is unaware of any fire training exercises at all, not just exclusively with AFFF. He did indicate he believes there was a building on-site that the NYS Fire used to provide training services. The training conducted was more for forensic and arson investigative purposes. This was on-site property at least until 1996.

Facility Ownership Information
[redacted] indicated the property is on a non-military use agreement. The Camp Smith property is state owned and not federally owned.

Construction Activities
During construction on-post a pool was discovered near buildings 1309 and 1312. Part of the soil found here was moved to raise the grade of the CSMS building during its construction. [redacted] indicated that the soil near Annsville Creek was untouched during construction.

Emergency Response Services
The emergency response services on-post are contracted out to Continental Village Fire Department. [redacted] could not provide any instances where they responded.

Paint Shop
[redacted] indicated there is a paint shop located in Building 124 (Old CSMS Building).

Preliminary Assessment – Camp Smith Training Facility
100 Camp Smith Drive
Cortlandt, NY 10567
June 28th, 2018

06/28/18 - Interview conducted with [redacted] in the New CSMS Building on the Camp Smith Site. [redacted] could not provide any knowledge or information on AFFF usage at the facility since his employment in 1984.

Camp Smith Fire Response Services
According to [redacted] the Chevy Half Deuce truck that was used by the Camp Smith Fire Department was donated to Continental Village Fire Department after operations on post ceased. He indicated that the Fire Department was only staffed on the weekends.

The Old Airfield
When asked about the old airfield [redacted] could not recall any fixed wing landings, but rotary wind aircrafts using the parade field.

New Construction
The new CSMS Building officially opened for operations in 2018.

Preliminary Assessment – Camp Smith Training Facility
100 Camp Smith Drive
Cortlandt, NY 10567
June 28th, 2018

06/28/18 - Interview conducted with [redacted] Camp Smith employee 1996 to the present. [redacted] could not provide any knowledge or information on AFFF usage at the facility since the start of his employment.

Preliminary Assessment – Camp Smith Training Facility
100 Camp Smith Drive
Cortlandt, NY 10567
June 28th, 2018

06/28/18 - Interview conducted with civilian employee [redacted] in the Old CSMS Building on the Camp Smith Site. He has been employed at the facility from 1988 to the present. He had no knowledge of any historical fire incidents or any AFFF use.

Camp Smith Fire Response Services
According to [redacted] Camp Smith previously had its own on-post fire department. He indicated on the map where this building was located. This building is no longer standing and is now a parking lot. The fire department was staffed by part-time hourly or weekend employees at minimum. The fire department was already on-post at the start of his employment in 1988 and ceased operations around 1995-96. [redacted] suggests that they might have had live-brush fire training exercises once a month at maximum (he indicated on the map the location of this training event, near Dickiebusch Lake). He believes that any training would have been conducted with water. The Fire Department's Fire truck was a half deuce Chevy truck that held water and perhaps an old Ford. He could not recall if the Ford was operational.

AFFF Usage
[redacted] could not recall if the Camp Smith Fire Service retained or discharged any AFFF.

Emergency Response Services
[redacted] indicated that if any spills in the CSMS shop had occurred maintenance would respond not emergency or fire services.

The Old Airfield
[redacted] indicated on the map where he recalls the area being labeled as "The Old Airfield". No airfield resided in this area during the duration of his employment.

Preliminary Assessment – Camp Smith Training Facility
100 Camp Smith Drive
Cortlandt, NY 10567
June 28th, 2018

06/28/18 - Interview conducted with civilian employee [redacted] Camp Smith Sanitation Superintendent. [redacted] has held the position since February 2008. [redacted] could not provide any knowledge on AFFF use or discharge.

Water Treatment Facility
Inside the facility there are no AFFF dispersion systems inside the building. Fire suppression would be provided by fire extinguishers. Building contains bags of softener salt (solar natural salt crystals). [redacted] escorted AECOM and USACE employees to perform VSI on nearby groundwater wells A and B.

Appendix B.2
Visual Site Inspection Checklists

Visual Survey Inspection Log

Recorded by: *AG*
ARNG Contact: *Sean Martin*
Date: *6/28/2018*

Source/Release Information

Site Name / Area Name / Unique ID: Camp Smith Training Facility
Site / Area Acreage: New Combined Support Maintenance Shop (CSMS)
Historic Site Use (Brief Description): Old buildings were torn down in 2013/2014, located where old airfield was previously located

Current Site Use (Brief Description):
New CSMS shop since constructed

1. Was AFFF used (or spilled) at the site/area? **Y / N**
   1a. If yes, document how AFFF was used and usage time (e.g., fire fighting training 2001 to 2014):
2. Has usage been documented? **Y / N**
   2a. If yes, keep a record (place electronic files on a disk):
3. What types of businesses are located near the site? **Industrial / Commercial / Plating / Waterproofing / Residential**
   3a. Indicate what businesses are located near the site
4. Is this site located at an airport/flightline? **Y / N**
   4a. If yes, provide a description of the airport/flightline tenants:

Other Significant Site Features:

1. Does the facility have a fire suppression system? **Y / N**
   1a. If yes, indicate which type of AFFF has been used:
   1b. If yes, describe maintenance schedule/leaks:
   1c. If yes, how often is the AFFF replaced:
   1d. If yes, does the facility have floor drains and where do they lead? Can we obtain an as built drawing?

Transport / Pathway Information

Migration Potential:

1. Does site/area drainage flow off installation? **Y / N**
   1a. If so, note observation and location:
2. Is there channelized flow within the site/area? **Y / N**
   2a. If so, please note observation and location:
3. Are monitoring or drinking water wells located near the site? **Y / N**
   3a. If so, please note the location:
   Groundwater well located inside the post office
4. Are surface water intakes located near the site? **Y / N**
   4a. If so, please note the location:
   located adjacent to annsville creek

Significant Topographical Features:

1. Has the infrastructure changed at the site/area? **Y / N**
   1a. If so, please describe change (ex. Structures no longer exist):
   3 different building were torn down in 2013/2014, soil from adjacent range pushed during excavation
2. Is the site/area vegetated? **Y / N**
   2a. If not vegetated, briefly describe the site/area composition:

Visual Survey Inspection Log

3. Does the site or area exhibit evidence of erosion? **Y / N**

3a. If yes, describe the location and extent of the erosion:

4. Does the site/area exhibit any areas of ponding or standing water? **Y / N**

4a. If yes, describe the location and extent of the ponding:

Receptor Information

1. Is access to the site restricted? **Y / N**

1a. If so, please note to what extent:

2. Who can access the site? **Site Workers / Construction Workers / Trespassers / Residential / Recreational Users / Ecological**

2a. Circle all that apply, note any not covered above:

3. Are residential areas located near the site? **Y / N**

3a. If so, please note the location/distance:

4. Are any schools/day care centers located near the site? **Y / N**

4a. If so, please note the location/distance/type:

5. Are any wetlands located near the site? **Y / N**

5a. If so, please note the location/distance/type:

Additional Notes

toured around and inside this building

Photographic Log

Photo ID/Name	Date & Location	Photograph Description
Photograph 2	6/28/18; Range 1	Soil excavated prior to construction of New CSMS Building pushed to buil Range 1 barrier
Photograph 5	6/28/18; New CSMS and Range 1	Proximity of new construction to Range 1
Photograph 6	6/28/18; New CSMS Building	New CSMS Building
Photograph 14	6/28/18; Range 1	Range 1

Visual Survey Inspection Log

Recorded by: *AG*
ARNG Contact: *[redacted]*
Date: *6/28/2018*

Source/Release Information

Site Name / Area Name / Unique ID: Camp Smith Training Facility
Site / Area Acreage:
Historic Site Use (Brief Description): Combined Support Maintenance Shop (CSMS)

Current Site Use (Brief Description):
Used as a maintenance repair shop, new CSMS Building recently constructed where operations are now executed

1. Was AFFF used (or spilled) at the site/area? **Y / N**
   1a. If yes, document how AFFF was used and usage time (e.g., fire fighting training 2001 to 2014):
2. Has usage been documented? **Y / N**
   2a. If yes, keep a record (place electronic files on a disk):
3. What types of businesses are located near the site? **Industrial / Commercial / Plating / Waterproofing / Residential**
   3a. Indicate what businesses are located near the site
   Vehicle repair shop, paint shop
4. Is this site located at an airport/flightline? **Y / N**
   4a. If yes, provide a description of the airport/flightline tenants:

Other Significant Site Features:

1. Does the facility have a fire suppression system? **Y / N**
   1a. If yes, indicate which type of AFFF has been used:
   1b. If yes, describe maintenance schedule/leaks:
   1c. If yes, how often is the AFFF replaced:
   1d. If yes, does the facility have floor drains and where do they lead? Can we obtain an as built drawing?

Transport / Pathway Information

Migration Potential:

1. Does site/area drainage flow off installation? **Y / N**
   1a. If so, note observation and location:
2. Is there channelized flow within the site/area? **Y / N**
   2a. If so, please note observation and location:
3. Are monitoring or drinking water wells located near the site? **Y / N**
   3a. If so, please note the location:
4. Are surface water intakes located near the site? **Y / N**
   4a. If so, please note the location:
   Dickiebusch Lake is approximately 2,000 ft north

Significant Topographical Features:

1. Has the infrastructure changed at the site/area? **Y / N**
   1a. If so, please describe change (ex. Structures no longer exist):
2. Is the site/area vegetated? **Y / N**
   2a. If not vegetated, briefly describe the site/area composition:

Visual Survey Inspection Log

3. Does the site or area exhibit evidence of erosion? **Y / N**

3a. If yes, describe the location and extent of the erosion:

4. Does the site/area exhibit any areas of ponding or standing water? **Y / N**

4a. If yes, describe the location and extent of the ponding:

Receptor Information

1. Is access to the site restricted? **Y / N**

1a. If so, please note to what extent:

2. Who can access the site? **Site Workers / Construction Workers / Trespassers / Residential / Recreational Users / Ecological**

2a. Circle all that apply, note any not covered above:

3. Are residential areas located near the site? **Y / N**

3a. If so, please note the location/distance:

4. Are any schools/day care centers located near the site? **Y / N**

4a. If so, please note the location/distance/type:

5. Are any wetlands located near the site? **Y / N**

5a. If so, please note the location/distance/type:

Additional Notes

Photographic Log

Photo ID/Name	Date & Location	Photograph Description
Photograph No 9	Unknown; Camp Smith	View of Old CSMS Building from historical photograph, building is still in same location on site property
Photograph No 12	Unknown; Camp Smith	View of Old CSMS Building from historical photograph, building is still in same location on site property
Photograph No 13	Unknown; Camp Smith	View of Old CSMS Building from historical photograph, building is still in same location on site property

Visual Survey Inspection Log

Recorded by: *AG*
ARNG Contact: *Sean Martin*
Date: *6/28/2018*

Source/Release Information

Site Name / Area Name / Unique ID: Old Firehouse

Site / Area Acreage:

Historic Site Use (Brief Description): Previously was a fire station building containing a small fire truck

Current Site Use (Brief Description): Currently no structure is there and now the location is being used as a parking lot

1. Was AFFF used (or spilled) at the site/area? **Y / N**
   1a. If yes, document how AFFF was used and usage time (e.g., fire fighting training 2001 to 2014):
2. Has usage been documented? **Y / N**
   2a. If yes, keep a record (place electronic files on a disk):
3. What types of businesses are located near the site? **Industrial / Commercial / Plating / Waterproofing / Residential**
   3a. Indicate what businesses are located near the site
4. Is this site located at an airport/flightline? **Y / N**
   4a. If yes, provide a description of the airport/flightline tenants:

Other Significant Site Features:

1. Does the facility have a fire suppression system? **Y / N**
   1a. If yes, indicate which type of AFFF has been used:
   1b. If yes, describe maintenance schedule/leaks:
   1c. If yes, how often is the AFFF replaced:
   1d. If yes, does the facility have floor drains and where do they lead? Can we obtain an as built drawing?

Transport / Pathway Information

Migration Potential:

1. Does site/area drainage flow off installation? **Y / N**
   1a. If so, note observation and location:
2. Is there channelized flow within the site/area? **Y / N**
   2a. If so, please note observation and location:
3. Are monitoring or drinking water wells located near the site? **Y / N**
   3a. If so, please note the location:
4. Are surface water intakes located near the site? **Y / N**
   4a. If so, please note the location:

Significant Topographical Features:

1. Has the infrastructure changed at the site/area? **Y / N**
   1a. If so, please describe change (ex. Structures no longer exist):
2. Is the site/area vegetated? **Y / N**
   2a. If not vegetated, briefly describe the site/area composition:

Visual Survey Inspection Log

3. Does the site or area exhibit evidence of erosion? **Y / N**

3a. If yes, describe the location and extent of the erosion:

4. Does the site/area exhibit any areas of ponding or standing water? **Y / N**

4a. If yes, describe the location and extent of the ponding:

Receptor Information

1. Is access to the site restricted? **Y / N**

1a. If so, please note to what extent:

2. Who can access the site? **Site Workers / Construction Workers / Trespassers / Residential / Recreational Users / Ecological**

2a. Circle all that apply, note any not covered above:

3. Are residential areas located near the site? **Y / N**

3a. If so, please note the location/distance:

4. Are any schools/day care centers located near the site? **Y / N**

4a. If so, please note the location/distance/type:

5. Are any wetlands located near the site? **Y / N**

5a. If so, please note the location/distance/type:

Additional Notes

Photographic Log

Photo ID/Name	Date & Location	Photograph Description
Photograph 1	6/28/2018; current location	Parking lot where Old Firehouse used to be
Photograph 8	6/28/2018;	Historical photograph showing the Firehouse building
Photograph 12	6/28/2018;	Historical photograph showing the Firehouse building

Visual Survey Inspection Log

Recorded by: *AG*
ARNG Contact: [redacted]
Date: *6/28/2018*

Source/Release Information

Site Name / Area Name / Unique ID: Camp Smith Training Facility
Site / Area Acreage:
Historic Site Use (Brief Description): Water Treatment Building

Current Site Use (Brief Description):
Water Treatment Building and adjacent groundwater wells

1. Was AFFF used (or spilled) at the site/area? **Y / N**
   1a. If yes, document how AFFF was used and usage time (e.g., fire fighting training 2001 to 2014):
2. Has usage been documented? Y / **N**
   2a. If yes, keep a record (place electronic files on a disk):
3. What types of businesses are located near the site? **Industrial / Commercial / Plating / Waterproofing / Residential**
   3a. Indicate what businesses are located near the site
   Water sanitation building, also contains water softener and softener supplies
4. Is this site located at an airport/flightline? **Y / N**
   4a. If yes, provide a description of the airport/flightline tenants:

Other Significant Site Features:

1. Does the facility have a fire suppression system? **Y / N**
   1a. If yes, indicate which type of AFFF has been used:
   1b. If yes, describe maintenance schedule/leaks:
   1c. If yes, how often is the AFFF replaced:
   1d. If yes, does the facility have floor drains and where do they lead? Can we obtain an as built drawing?

Transport / Pathway Information

Migration Potential:

1. Does site/area drainage flow off installation? **Y / N**
   1a. If so, note observation and location:
2. Is there channelized flow within the site/area? **Y / N**
   2a. If so, please note observation and location:
3. Are monitoring or drinking water wells located near the site? **Y / N**
   3a. If so, please note the location:
   Directly south outside the building is groundwater Well A and Well B
4. Are surface water intakes located near the site? **Y / N**
   4a. If so, please note the location:

Significant Topographical Features:

1. Has the infrastructure changed at the site/area? **Y / N**
   1a. If so, please describe change (ex. Structures no longer exist):
2. Is the site/area vegetated? **Y / N**
   2a. If not vegetated, briefly describe the site/area composition:

Visual Survey Inspection Log

3. Does the site or area exhibit evidence of erosion? **Y / N**

3a. If yes, describe the location and extent of the erosion:

4. Does the site/area exhibit any areas of ponding or standing water? **Y / N**

4a. If yes, describe the location and extent of the ponding:

Receptor Information

1. Is access to the site restricted? **Y / N**

1a. If so, please note to what extent:

Sanitation building personnel only

2. Who can access the site? **Site Workers / Construction Workers / Trespassers / Residential / Recreational Users / Ecological**

2a. Circle all that apply, note any not covered above:

3. Are residential areas located near the site? **Y / N**

3a. If so, please note the location/distance:

4. Are any schools/day care centers located near the site? **Y / N**

4a. If so, please note the location/distance/type:

5. Are any wetlands located near the site? **Y / N**

5a. If so, please note the location/distance/type:

Additional Notes

The sanitation superintendent is Edward Stradford, which AECOM interviewed during the VSI

Water is treated here with solar naturals salt crystals

Drinking water wells A and B are located directly south

Sanitation Building does contain fire extinguishers as a source of fire suppression system

Photographic Log

Photo ID/Name	Date & Location	Photograph Description
Photograph 3	6/28/2018; Well A	Drinking water Well A
Photograph 4	6/28/2018; Well B	Drinking water Well B

Appendix B.3
Conceptual Site Model Information

Preliminary Assessment – Conceptual Site Model Information

Site Name: Camp Smith Training Facility

Why has this location been identified as a site?

No incidents of AFFF releases have been documented or recorded at this site.

Are there any other activities nearby that could also impact this location?

None known

Training Events

Have any training events with AFFF occurred at this site? No

If so, how often?

How much material was used? Is it documented?

Identify Potential Pathways: Do we have enough information to fully understand over land surface water flow, groundwater flow, and geological formations on and around the facility? Any direct pathways to larger water bodies?

Surface Water:

Surface water flow direction? Surface water flows into the Annsville Creek.

Average rainfall?

Any flooding during rainy season? No

Direct or indirect pathway to ditches? Yes

Direct or indirect pathway to larger bodies of water? Yes, Dickiebusch Lake, Annsville Creek, Hudson River

Does surface water pond any place on site? Yes

Any impoundment areas or retention ponds? No

Any NPDES location points near the site? None known

How does surface water drain on and around the flight line? No flight line present currently.

Preliminary Assessment – Conceptual Site Model Information

Groundwater:

Groundwater flow direction? Generally , with the flow of surface water

Depth to groundwater?

Uses (agricultural, drinking water, irrigation)? Yes

Any groundwater treatment systems? Yes, on-Post Water Treatment Building

Any groundwater monitoring well locations near the site?

Is groundwater used for drinking water? Yes

Are there drinking water supply wells on installation? Yes

Do they serve off-post populations? No

Are there off-post drinking water wells downgradient? No

Waste Water Treatment Plant:

Has the installation ever had a WWTP, past or present? Water treatment building

If so, do we understand the process and which water is/was treated at the plant? No

Do we understand the fate of sludge waste? No

Is surface water from potential contaminated sites treated? No

Equipment Rinse Water

1. Is firefighting equipment washed? Where does the rinse water go?

N/A

2. Are nozzles tested? How often are nozzles tested? Where are nozzles tested? Are nozzles cleaned after use? Where does the rinse water flow after cleaning nozzles?

N/S

3. Other?

N/A

Preliminary Assessment – Conceptual Site Model Information

Identify Potential Receptors:

Site Worker Yes

Construction Worker Yes

Recreational User Yes

Residential Yes

Child No

Ecological No

Note what is located near by the site (e.g. daycare, schools, hospitals, churches, agricultural, livestock)?
None noted

Documentation

Appendix C
Photographic Log

AECOM

Photographic Log

Client Name:	Site Location	Project:
NYARNG	Camp Smith	Preliminary Assessment for PFAS

Area:	Air Strip
Location:	Cortlandt, New York
Photo ID:	1

Description:

Looking West - View of former Airstrip, Vietnam era - 1960s

Area:	Air Strip
Location:	Cortlandt, New York
Photo ID:	2

Description:

Looking North - View of former Airstrip, Vietnam Era - 1960s

Client Name:	Site Location	Project:
NYARNG	Camp Smith	Preliminary Assessment for PFAS

Area:	Former fire house
Location:	Cortlandt, New York
Photo ID:	3

Description:

View of former CSMS building (far top left) and former firehouse (adjacent to CSMS on the right)

Area:	CSMS
Location:	Cortlandt, New York
Photo ID:	4

Description:

Side-view of new CSMS building

Client Name:	Site Location	Project:
NYARNG	Camp Smith	Preliminary Assessment for PFAS

Area:	Well A
Location:	Cortlandt, New York
Photo ID:	5

Description:

Well A location, southern portion of Camp Smith

Area:	Well B
Location:	Cortlandt, New York
Photo ID:	6

Description:

Well B location, southern portion of Camp Smith roughly 150ft northwest of Well A