DEPARTMENT OF THE AIR FORCE
AIR FORCE CIVIL ENGINEER CENTER

August 22, 2013

MEMORANDUM FOR: USEPA, REGION 2
ATTN: MR. DANIEL EATON
Bureau of Eastern Remedial Action
625 Broadway, 12th Floor
Albany, NY 12233-7015

FROM: AFCEC/CIBE Plattsburgh
8 Colorado Street, Suite 121
Plattsburgh, NY 12903

SUBJECT: Installation Restoration Program Site FT-002/Industrial Area (IA) Groundwater Operable Unit (OU) Supplement to the January 2002 Proposed Plan, Former Plattsburgh Air Force Base, Plattsburgh, New York

Attached for your concurrence is the FT002/IA Groundwater OU Final Supplement to the January 2002 Proposed Plan. As indicated in the document, a public comment period has been scheduled for August 29, 2013 through September 27, 2013; and a public meeting has been scheduled for September 18, 2013. Request your concurrence, as soon as possible but not later than noon on August 26, 2013 so that we may proceed with the public comment period and public meeting.

If you have any questions, please contact me at 518-563-2871 or david.farnsworth@us.af.mil.

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Date: 2013.08.22 16:43:30 -04'00'

DAVID S. FARNSWORTH
Program Manager/BRAC Environmental Coordinator
BRAC Program Execution Branch

Attachment:
Supplement to the Proposed Plan (via e-mail)

cc:
USEPA Reg. 2 (Mr. Robert Morse)(Atch under sep cover)
NYSDOH (Ms. Wendy S. Kuehner,P.E.)(via e-mail)
AFCEC/CIBE (Mr. Brad Juneau)(via e-mail)
BRAC/AR (Administrative Record)(via e-mail)

United States Air Force
Installation Restoration Program

Fire Training Area (FT-002)/Industrial Area Groundwater Operable Unit

Supplement to the January 2002 Proposed Plan

Former Plattsburgh Air Force Base
Clinton County, New York

Final
August 2013

G4676A

FIRE TRAINING AREA (FT-002)/INDUSTRIAL AREA GROUNDWATER OPERABLE UNIT

SUPPLEMENT TO THE JANUARY 2002 PROPOSED PLAN

FORMER PLATTSBURGH AIR FORCE BASE
PLATTSBURGH, NEW YORK

UNITED STATES DEPARTMENT OF THE AIR FORCE
INSTALLATION RESTORATION PROGRAM

Prepared by:
URS GROUP, INC.

FINAL
AUGUST 2013

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ACRONYMS AND ABBREVIATIONS

AFB	Air Force Base
Air Force	United States Air Force
ARARs	applicable and/or relevant and appropriate requirements
BRAC	Base Realignment and Closure
BTEX	benzene, toluene, ethylbenzene, xylene
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DCE	1,2-dichloroethene
FS	feasibility study
FT-002	Fire Training Area
IC	institutional control
IA	Industrial Area
IRM	interim remedial measure
IRP	Installation Restoration Program
µg/L	micrograms per liter
$\mu g/m^3$	micrograms per cubic meter
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NYSDEC	New York State Department of Environmental Conservation
NYDOH	New York State Department of Health
OU	operable unit
PCE	perchloroethene (tetrachloroethene)
PID	photoionization detector
PRAP	Proposed Remedial Action Plan
RI	remedial investigation
ROD	Record of Decision
SVE	soil vapor extraction
SVI	soil vapor intrusion
TCE	trichloroethene
USEPA	United States Environmental Protection Agency
VC	vinyl chloride
VOC	volatile organic compounds

1.0 INTRODUCTION

The *Proposed Plan for the Fire Training Area/Industrial Area (FT-002/IA) Groundwater Operable Unit (OU) at the Former Plattsburgh Air Force Base (AFB)* was issued in January 2002 (URS 2002a). That Proposed Plan is hereinafter referred to as the January 2002 Proposed Remedial Action Plan or PRAP. The *FT-002 / IA Groundwater OU Record of Decision* (URS 2003a), hereinafter referred to as the June 2003 ROD, was signed in June 2003 to allow for implementation of the engineered portions of the preferred alternative proposed in the January 2002 PRAP while negotiations were ongoing between the United States Environmental Protection Agency (USEPA) and the Department of Defense (DOD) on a national level concerning the development and implementation of Institutional Controls (ICs).

The components of the preferred alternative, including several contingencies, called for in the January 2002 PRAP were also specified in the June 2003 ROD. Several of the contingencies were ultimately implemented during design of the remedy. The implementation of these contingencies, as well as other modifications and additions to the remedy proposed in the January 2002 PRAP and selected as the remedy in the June 2003 ROD, are the subject of this Supplement to the January 2002 PRAP, hereinafter referred to as the Supplemental PRAP

The *National Oil and Hazardous Substances Pollution Contingency Plan* (USEPA 1990), or NCP, establishes the regulatory requirements for decision documents, such as proposed plans and RODs, that are associated with Superfund sites. After publication of the proposed plan, and prior to adopting the final selected remedy in the ROD, if new information becomes available that significantly changes the preferred alternative, and the changes could not have been reasonably anticipated by the public based on information in the proposed plan and the administrative record, a revised proposed plan must be issued for public comment (NCP §300.430(f)(3)(ii)(B)).

The purpose of this Supplemental PRAP is to document modifications and additions that have been made to the preferred alternative for the FT-002/IA Groundwater OU since it was originally proposed in the January 2002 PRAP, presented to the public in February 2002, and selected in the June 2003 ROD. This includes modifications that came about during design of the remedy called for in the June 2003 ROD and that were later implemented. The remedy called for in the June 2003 ROD, hereinafter referred to as the 2003 Remedy, became fully operational in 2005.

In addition, this Supplemental PRAP includes a remedial action objective to address potential soil vapor intrusion (SVI) pathways in response to SVI studies conducted for the FT-002/IA Groundwater OU since 2006. This Supplemental PRAP documents the results of the SVI investigations as well as measures added to the 2003 Remedy to address potential health risks related to SVI. These measures include ICs that specifically address SVI, and soil vapor extraction (SVE) systems that were installed at three buildings in the base's Industrial Area.

This document will become part of the Plattsburgh AFB Administrative Record that is available to the public on-line at https://afrpaar.lackland.af.mil/ar/docsearch.aspx. The official hard copy file is available at the Former Plattsburgh AFB BRAC Environmental Coordinator's office located at 8 Colorado Street, Suite 121, Plattsburgh, NY 12903. The telephone number is 518-563-2871.

2.0 SITE BACKGROUND

2.1 Site Description and History

The former Plattsburgh AFB is located in Clinton County along the western shore of Lake Champlain in northeastern New York (Figure 1). The base was closed on September 30, 1995 in the third round of base closures mandated by the Defense Base Closure and Realignment Act of 1993. As part of its Installation Restoration Program (IRP) and the Base Realignment and Closure (BRAC) program, the United States Air Force (Air Force) initiated activities to identify, evaluate and remediate identified hazardous material disposal and spill sites. The IRP at the former Plattsburgh AFB was implemented according to a Federal Facilities Agreement, Docket No.: II-CERCLA-FFA-10201, signed on July 10, 1991, by the Air Force, USEPA and the New York State Department of Environmental Conservation (NYSDEC). Plattsburgh AFB was placed on the National Priorities List in 1989. Cleanup of the former Plattsburgh AFB is being funded by the Air Force.

The FT-002 site is located approximately 500 feet west of the runway and 500 feet from the base's western boundary (Figure 2). From the mid- to late-1950s through 1989, the site was used to meet the training requirements of the base fire department. During training exercises, fires were ignited in fire training pits on site. As a result of releases of combustible liquids (e.g., off-specification fuel and waste solvents) from the pits, the soil and groundwater became contaminated with a variety of organic chemicals. Groundwater contamination consists primarily

of fuel-related compounds and chlorinated hydrocarbons. The fuel-related compounds are naturally biodegradable in groundwater and, at the time of the remedial investigation (URS 2001b), concentrations had attenuated to below detection limits within 4,000 feet downgradient of the source. The chlorinated hydrocarbons, which are considerably less biodegradable, have been detected more than 6,750 feet downgradient of the source.

The primary contaminants of concern in the groundwater are the fuel-related volatile organic compounds (VOCs) benzene, toluene, ethylbenzene, and xylene (BTEX), and three chlorinated hydrocarbon compounds, trichloroethene (TCE), 1,2-dichloroethene (DCE) and vinyl chloride (VC). Only these two groups of compounds have been detected downgradient of the FT-002 Source OU at concentrations greater than their respective groundwater quality standards (URS 2002a).

The FT-002 site has been divided into two OUs to facilitate remedial activities. The first OU, the FT-002 Source OU, focuses on free product (chemicals in pure form not dissolved in water) and the contaminated soils at the FT-002 site. A record of decision for the FT-002 Source OU was signed in March 2001 (URS 2001a). The second OU is the FT-002/IA Groundwater OU that is the subject of this Supplemental PRAP. The boundary of the FT-002/IA Groundwater OU is shown on Figure 2.

The FT-002/IA Groundwater OU addresses cleanup and control of groundwater contamination resulting from Air Force activities at the FT-002 Source OU. It also includes groundwater at several other IRP sites in the Industrial Area of the base that are located downgradient of the FT-002 site (Figure 2).

The additional sites included in the FT-002/IA Groundwater OU are:

- SS-004 Flightline Ramp
- SS-005 Non-Destructive Inspection Facility
- SS-006 Aerospace Ground Equipment Facility
- SS-011 Defense Reutilization and Marketing Office
- SS-017 Jet Engine Inspection and Maintenance Shop
- SS-041 Building 2612

Descriptions of these sites are provided in the January 2002 PRAP. Because groundwater contamination from the FT-002 site impacts or potentially impacts groundwater beneath each of these sites, groundwater at these six sites is included within the FT-002/IA Groundwater OU. The sources and/or soil contamination at each of these sites are being addressed separately.

Figure 2 shows the former extent of the chlorinated hydrocarbon plume based on analytical data presented in the 2001 FT-002/IA Groundwater OU Remedial Investigation/Feasibility Study (RI/FS) (URS 2001b). Also shown is a smaller plume located near the southeast corner of the Industrial Area, as well as the current limits of the FT-002/IA Groundwater OU. The boundary of the FT-002/IA Groundwater OU was extended beyond the limits of the groundwater plume depicted in the RI/FS to account for uncertainties with future contaminant migration and so that remedial measures would remain protective of human health and the environment in the future.

2.2 Preferred Alternative in the January 2002 Proposed Plan

The preferred alternative (Alternative 13) selected in the January 2002 PRAP included the following components:

- A groundwater collection trench, 3,800 feet long, located between the runway and the flightline ramp;
- Five groundwater extraction wells located downgradient of the FT-002 Source OU;
- An aeration basin to treat contaminated water from the runway/flightline collection trench and the extraction wells to levels less than effluent discharge criteria;
- A 4,400-foot long groundwater collection trench located on the east side of the flightline ramp;
- A 2,900-foot long permeable treatment wall containing reactive media (iron filings) located along Idaho Avenue;
- An 800-foot long permeable treatment wall containing reactive media (iron filings) located on the west side of the runway, upgradient of the former Weapons Storage Area;
- Groundwater and surface water monitoring;

- Five-Year Site Reviews; and
- ICs to prohibit withdrawal of groundwater for potable use, to control discharge of groundwater withdrawn during construction activities, and to prohibit land use that interferes with remedial operations.

A description of each component is provided in Section 8.1 of the January 2002 PRAP, and the physical components of the preferred alternative are shown on Figure 3.

The proposed remedy included a contingency to select a groundwater collection trench along Idaho Avenue instead of a permeable reactive barrier. The decision to use a permeable reactive barrier or a collection trench was to be made jointly by the Air Force, USEPA, and NYSDEC during the design process. The proposed remedy also included a contingency to treat the effluent discharge from the groundwater collection trench on the east side of the flightline ramp, as well as the Idaho Avenue groundwater collection trench. If effluent sampling, conducted after construction, showed discharge criteria exceedances, then the contingency to treat the water would be implemented.

The length of the groundwater collection trench between the runway and the flightline was reported to be 5,300 feet long in the January 2002 PRAP, but this length included the existing solid discharge pipe, a storm sewer, running under the runway to the treatment system. The actual length of the trench that collected groundwater was about 3,800 feet as noted above (Figure 3).

The Air Force hosted a public meeting on February 4, 2002 to discuss the preferred alternative and the decision making process with the public. The meeting was held at the Old Court House located at 133 Margaret Street in Plattsburgh. Public comments were recorded, transcribed, and a copy of the transcript was added to the former Plattsburgh AFB Administrative Record.

3.0 JUNE 2003 RECORD OF DECISION

The June 2003 ROD allowed for implementation of the engineered portions of the preferred remedial alternative proposed in the January 2002 PRAP while negotiations were ongoing between USEPA and DOD on a national level concerning the development and implementation of ICs. The engineered remedial components called for in the June 2003 ROD

were identical to those proposed in the January 2002 PRAP, which included several contingencies that are described in Section 2.0. Two of the contingencies were ultimately implemented during design of the 2003 Remedy. Changes made to the 2003 Remedy during design and later are discussed in Section 6.0.

4.0 SOIL VAPOR INTRUSION STUDY

Between November 2006 and April 2007, an SVI study, that included sub-slab soil gas and indoor air sampling, was conducted at 14 buildings in the Industrial Area east of the flightline ramp (URS 2008). There was a concern that volatile organic compounds (VOCs) could be present in the soil vapor under, or in close proximity to, the building slabs as a result of volatilization of chemical contaminants from the groundwater beneath the buildings. The buildings included in the study are shown on Figure 4. As a result of this study, SVE systems were installed at three of the buildings (2753, 2766, and New Building C) and use restrictions related to SVI have been added to the 2003 Remedy (see Section 6.0).

Health risks posed by groundwater contamination in this area were evaluated as part of the FT-002/IA Groundwater RI/FS (URS 2001b). Using observed groundwater contaminant concentrations, modeling was used to evaluate potential health risks resulting from contaminants migrating from the groundwater to the air inside Industrial Area buildings. Significant health risks were not identified; however, indoor air samples were not collected as part of the RI/FS evaluation.

In cooperation with NYSDEC, USEPA and the New York State Department of Health (NYSDOH), the Air Force performed additional studies in 2006 and 2007 to confirm the results of the RI modeling, and to evaluate whether remedial action would be needed at each building to protect human health.

Sub-slab soil gas samples were collected at all 14 buildings in December 2006 and and one building was re-sampled in March 2007 (Building 1810 only). Based on the concentrations in the sub-slab soil gas samples, the Air Force, NYSDEC, NYSDOH and USEPA decided whether or not to proceed with indoor air sampling. For six of the buildings (1807, 1812, 2616, 2786, 2796, and 2797), VOC concentrations in the sub-slab soil gas samples were low enough that there appeared to be a limited potential for SVI; however, these six buildings are included

within the areas of the FT-002/IA Groundwater OU that are subject to use restrictions related to SVI and groundwater use/non-residential use restrictions (see section 6.0).

For the remaining eight buildings (1810, 2612, 2622, 2753, 2763, 2766, 2793, and New Building C), the VOC concentrations in the sub-slab soil gas samples were high enough that indoor air samples were also collected in March and April 2007. The Air Force concluded that there appeared to be a limited potential for SVI at these eight buildings based on either the sub-slab soil gas sample results, the indoor air sample results compared to Air Force-derived indoor air risk-based screening levels, the estimated total risk from indoor air exposure, the present condition and/or use of the building, evidence of possible industrial use and exposure, or a combination thereof (URS 2008). These eight buildings are, however, also included within the SVI and the groundwater use/non-residential use restriction areas described in Section 6.0.

On December 13, 2007, representatives of the Air Force, NYSDEC, NYSDOH, and USEPA met in Albany, NY to discuss the soil vapor intrusion study. USEPA and NYSDEC expressed concerns that further investigation of the eight buildings noted above was needed, and, subsequently, the Air Force agreed to perform additional sampling to determine if its conclusions remained supportable and to allay the expressed USEPA and NYSDEC concerns. The recommendations from the meeting and the actions that were taken are summarized below for each of the eight buildings.

Building 1810. The concentration of acetone was 26,000 micrograms per cubic meter ($\mu g/m^3$) in the sub-slab soil gas samples collected in December 2006. Acetone was not detected in the indoor air samples and it has not been a contaminant of concern for the FT-002/IA Groundwater OU. However, because of this apparently anomalous high concentration, another sub-slab soil gas sample was collected in March 2007. Acetone was still detected, but at a much lower concentration (1,800 $\mu g/m^3$).

Although it could have been a laboratory contaminant, all parties at the December 2007 meeting agreed that another round of sub-slab sampling would be advisable to determine the source of the acetone, if there was one. In March 2008, two additional sub-slab soil gas samples were collected at Building 1810. The acetone concentrations in these two samples, 21 $\mu g/m^3$ and 74 $\mu g/m^3$, confirmed that the earlier sample results were anomalous (URS 2009).

Building 2612. This building is an unheated, sheet metal-sided storage building that is in very poor condition. There are numerous cracks in the building's concrete slab that could create a pathway for soil vapor intrusion. The building is, however, highly ventilated. There are visible gaps at wall-to-wall and wall-to-ceiling joints, and the roof vents are not sealed. These factors create an environment where the indoor air and outside air are essentially the same. Consequently, VOC concentrations in the 2007 indoor air samples were well below indoor air screening levels, resulting in a low risk from soil vapor intrusion (URS 2008).

At the December 2007 meeting, all parties agreed that, considering the current condition of the building, there appeared to be a limited potential for SVI at Building 2612, provided that it remained unoccupied (URS 2008). Building 2612 is part of IRP Site SS-041, but restrictions related to SVI and an occupancy restriction for the building are specifically included for Building 2612 in the FT-002/IA Groundwater OU (see section 6.0).

Building 2622. In December 2006**,** TCE was found in two of six sub-slab soil gas samples at concentrations high enough (i.e., 170 µg/m^3 and 320 µg/m^3) that indoor air samples also were collected at these two locations, plus two others, in March 2007. Both TCE and tetrachloroethene, also known as perchloroethene (PCE), were detected in the Building 2622 indoor air samples. The presence of PCE in the indoor air, but not in the soil gas indicated a probable source for PCE inside the building. There were no exceedances of health risk-based screening criteria for the indoor air samples, so it was therefore concluded that there appeared to be a limited potential for SVI at this building (URS 2008).

Although the indoor air samples collected in this building did not represent a risk from soil vapor intrusion, there was still a concern regarding elevated concentrations of site-related contaminants in the sub-slab environment. Consequently, at the December 2007 meeting, it was agreed that additional sub-slab soil gas and indoor air samples would be collected in 2009, prior to the next five-year review (URS 2008). The objective of the sampling was to evaluate if the decreasing FT-002/IA groundwater plume size and concentrations were causing a corresponding decrease in the concentrations found in sub-slab soil gas samples collected at this building.

At Building 2622, six sub-slab soil gas samples were collected in March 2009 at approximately the same locations as the 2006 samples. Indoor air samples were also collected at the same six locations. In 2006, TCE was detected in four of the six sub-slab soil gas samples collected, but in 2009, TCE was only detected in two samples. At these two sub-slab soil gas

sample locations, the TCE concentration dropped from 320 µg/m^3 and 170 µg/m^3 in 2006 to 130 µg/m^3 and 16 µg/m^3, respectively, in 2009. TCE was only detected in one indoor air sample collected during the March 2009 event. The concentration of TCE was 150 µg/m^3, and the sample was collected at the same location as the sub-slab soil gas sample in which TCE was detected at 130 µg/m^3. PCE was not detected in any of the sub-slab soil gas or indoor air samples.

The high concentration of TCE in one of the March 2009 indoor air samples is most likely the result of industrial activities within the building and not soil vapor intrusion, since the indoor air sample concentration was higher than the sub-slab soil gas concentration at the same location. Significant industrial activity and chemical usage were observed during the sampling event. Also, the similar concentration of TCE in the sub-slab soil gas sample at this same location could have been caused by leakage of indoor air containing TCE into the sample. Consequently, the Air Force concluded that there was there appeared to be a limited potential for SVI at Building 2622 (Farnsworth 2009a); however, based on discussions among the Air Force, NYSDEC, and USEPA, the Air Force agreed to re-sample this one location to determine if the TCE results were anomalous.

In January 2010, a sub-slab soil gas sample and an indoor air sample were collected at the same location as the March 2009 samples with 130 µg/m^3 of TCE in the sub-slab soil gas and 150 µg/m^3 in the indoor air. TCE was detected in the January 2010 sub-slab soil gas and indoor air samples, but at very low concentrations of 9.1 µg/m^3 and 0.53 µg/m^3, respectively, much less than the March 2009 concentrations. PCE was also detected, but at very low concentrations (less than 1.5 µg/m^3).

In summary, sub-slab soil gas concentrations have decreased relative to the initial sampling results in 2006 and, based on the 2010 sampling results, there appears to be a limited potential for SVI at Building 2622 (Farnsworth 2010a).

Building 2753. In a sub-slab soil gas sample collected in the northeast corner of this building, TCE was detected at 18,000 µg/m^3, which is higher than would normally be expected from a groundwater source alone. Chloroform and PCE also were detected in the same sample, but at lower concentrations, 259 and 200 µg/m^3, respectively. TCE and PCE were also detected in the indoor air sample collected in the same area of the building, but the concentrations were only 1.1 µg/m^3 and 0.5 µg/m^3, respectively. Chloroform was not detected. Although the study

concluded that soil vapor intrusion was not an issue for this building, the high levels of TCE in the soil gas were a concern to NYSDEC.

From 1997 to 2002, an interim remedial measure (IRM) for Site SS-017 was in progress on the north and east side of Building 2753 (URS 2002b). The IRM included soil vapor extraction, bioventing and biosparging. The high levels of TCE in the sub-slab soil gas may be due to residual contamination under the building remaining after the IRM systems were shut down.

An SVE system was designed to remove the potential source of the soil gas in the northeast portion of Building 2753 (Shaw 2009). It has been installed and initial start-up of the system occurred in December 2009. In November 2010, after about 12 months of operating the SVE system, a sub-slab soil gas sample was collected from the same location that had exhibited 18,000 $\mu g/m^3$ of TCE in 2006. In 2010, the TCE concentration had reduced to 620 $\mu g/m^3$ (Shaw 2011). The SVE system continues to operate.

Building 2763. In the 2006 sub-slab soil gas samples, PCE was detected in four of five samples and at a maximum concentration of 150 $\mu g/m^3$ in one of the samples. TCE was also detected in two of the sub-slab soil gas samples at 120 $\mu g/m^3$ and 130 $\mu g/m^3$. PCE was detected in only one of six indoor air samples, and at a very low concentration of 0.75 $\mu g/m^3$. TCE was not detected in the indoor air samples. There were no exceedances of health risk-based screening criteria for the indoor air samples, so it was therefore concluded that there was a limited potential for SVI at the building (URS 2008).

Similar to Building 2622, however, a concern remained regarding elevated concentrations of PCE and TCE in the sub-slab environment, so, at the December 2007 meeting, it was agreed that additional sub-slab soil gas and indoor air samples would be collected in 2009, prior to the next five-year review (URS 2008). Again, the objective of the sampling was to evaluate if the decreasing FT-002/IA groundwater plume size has had a beneficial effect on the concentrations found in sub-slab soil gas samples collected at this building.

At Building 2763, five sub-slab soil gas samples were collected in March 2009 at approximately the same locations as the 2006 samples. One indoor air sample was collected. In 2006, TCE was detected in three of the five sub-slab soil gas samples; the highest concentration was 130 $\mu g/m^3$. In 2009, TCE was detected in the samples collected at the same three locations,

but the highest concentration was only 12 µg/m^3. In 2006, the highest concentration of PCE in the sub-slab samples was 150 µg/m^3. PCE was not detected in the 2009 sub-slab soil gas sample at this location. PCE was detected in only two of the remaining four 2009 samples at 1.8 µg/m^3 and 5.3 µg/m^3. There were no detections of either TCE or PCE in the indoor air samples. Based on these results, the Air Force concluded that there was limited potential for SVI at Building 2763 (Farnsworth 2009c).

Building 2766. In one of three 2006 sub-slab soil gas samples, TCE was detected at 4,400 µg/m^3, so it was decided to also collect indoor air samples. TCE was not detected in any of the indoor air samples.

During the initial sampling for this study, Building 2766 was unoccupied and used for storage. Subsequent to the sampling, the building use changed to aircraft storage and it appeared to be occupied, so at the December 2007 meeting, the parties agreed that there should be additional sub-slab and indoor air sampling. Also, the highest concentration of TCE in one of the sub-slab soil gas samples (4,400 µg/m^3) was significantly higher than the other sample results for this building and higher than would be expected from a groundwater source alone.

In March 2008, the original three locations were sampled again, as well as four new locations. Indoor air samples were also collected at the same locations. The sub-slab soil gas samples collected from these seven locations were analyzed for TCE, as well as PCE. Only one sub-slab soil gas sample contained PCE at 4.6 µg/m^3 (URS 2009). TCE was found in all seven samples; the highest concentration was 510 µg/m^3, much less than the highest concentration found in the first round of sampling. The highest concentration of TCE in the sub-slab soil gas samples from the 2006 sampling event, 4,400 µg/m^3, had decreased to 180 µg/m^3 at the same location in 2008. PCE and TCE were not detected in any of the indoor air samples.

A third round of sub-slab soil gas sampling occurred at Building 2766 in March 2009 (Shaw 2010). The samples were collected at the same seven locations as in 2008; indoor air samples were not collected. TCE was detected in all seven samples at higher concentrations than were found in 2008. The highest TCE concentration in 2008 was 510 µg/m^3; at the same location in 2009, the concentration increased to 1,200 µg/m^3. All of the TCE concentrations were higher than those found in adjacent Building 2763; the highest concentration of TCE in the March 2009 sub-slab soil gas samples at Building 2763 was only 12 µg/m^3.

The results from the three sampling events taken together suggest a probable source of contamination beneath the floor slab at Building 2766 and, consequently, the Air Force recommended that an SVE system be installed under the building (Farnsworth 2009c). The system was completed and began operating in mid-December 2010. In February 2012, after about 14 months of operating the SVE system, seven sub-slab soil gas samples were collected at the same locations that had been sampled in 2009 before the SVE system was installed. For the 2012 samples, the TCE concentrations decreased at all of the sample locations compared to the 2009 data. The highest TCE concentration in 2009 was 1,200 $\mu g/m^3$; in 2012 at the same location the TCE concentration was only 68 $\mu g/m^3$. TCE concentrations at the other six locations in 2012 ranged from non-detect to 57 $\mu g/m^3$. The highest historical TCE concentration is 4,400 $\mu g/m^3$ from the 2006 sample data. The TCE concentration at this same location was only 13 $\mu g/m^3$ in 2012 (URS 2012a). The building 2766 SVE system continues to operate.

Building 2793. Sub-slab soil gas samples collected in December 2006 yielded unexpected results; fuel-related compounds were detected. Benzene, toluene, ethylbenzene, m,p-xylene, and o-xylene, the fuel-related BTEX compounds, were detected in all three samples collected. The compound m,p-xylene had the highest concentrations, ranging from 1,500 $\mu g/m^3$ to 9,100 $\mu g/m^3$. Indoor air samples were then collected in March 2007. Benzene, ethylbenzene, m,p-xylene, and o-xylene were detected in all of the samples, but at levels well below the health risk-based indoor air screening criteria. It was therefore concluded that there was a limited potential for SVI at this building (URS 2008).

The December 2006 sub-slab soil gas sample results were unexpected because no subsurface petroleum contamination or sources for that contamination have been reported for Building 2793 (URS 2008). Historically, the only reported spills in the vicinity of Building 2793 were a 10-gallon and a 3-gallon jet fuel spill from aircraft parked on the north side of the building in 1989 and 1992 respectively (Tetra Tech 1997).

At the December 2007 meeting, it was agreed to conduct an investigation at Building 2793 to determine the source of the fuel-related compounds in the sub-slab soil gas samples. In October 2008, soil and groundwater samples were collected from inside and around the perimeter of the building. The samples were analyzed for VOCs and SVOCs.

The results of the sampling did not indicate a source of contamination underneath or in the immediate vicinity of Building 2793 that could have contributed to the unexpected detections

of BTEX compounds in the sub-slab soil gas and indoor air samples. Compounds identified in the soil and groundwater samples were detected at concentrations less than established site-wide cleanup standards (Coulter 2008a). One additional round of sub-slab soil gas sampling was recommended to verify the results of the 2006 event.

In March 2009, three sub-slab soil gas samples were collected at approximately the same locations as the samples collected in 2006. At two of the three sample locations, there were significant reductions in the total concentration of BTEX compounds; however, at the third location on the east side of the building, the total BTEX concentration increased from about 5,700 $\mu g/m^3$ to more than 48,000 $\mu g/m^3$. The Air Force, therefore, recommended re-sampling this one location to confirm the possibly anomalous March 2009 results (Farnsworth 2009c).

In March 2010, a sub-slab soil gas sample was collected at the location of the potentially anomalous result from March 2009. Four additional samples were also collected at the cardinal compass points (north, east, south, and west) around the initial location. The total concentration of BTEX compounds in each sample was less than 100 $\mu g/m^3$, which confirms that the March 2009 results were likely anomalous (Farnsworth 2010b). Two sub-slab soil gas samples also were collected at the center and the west end of the building; concentrations of BTEX compounds were consistent with or less than those observed in March 2009. In addition, two indoor air samples were collected, one at the west end of the building, and one at the east end. BTEX compounds were detected in each sample, but their presence is most likely the result of the building's continued use for aircraft parking and maintenance. The concentrations detected were similar to those found in the December 2006 samples, and, at that time, the Air Force concluded that there was a limited potential for SVI (URS 2008).

In summary, no source of contamination has been found in the soil or groundwater beneath the building and the BTEX concentrations in sub-slab soil gas and indoor air samples appear minor. Consequently, based on the sampling results, there appears to be a limited potential for SVI at Building 2793 (Farnsworth 2010b).

New Building C. In December 2006, four soil gas samples were collected from beneath the floor slab of New Building C. PCE was detected in one of the samples at 3,900 $\mu g/m^3$, which is higher than would be expected from a groundwater source alone. Two other samples also contained PCE, but at much lower concentrations of 12 $\mu g/m^3$ and 160 $\mu g/m^3$, respectively.

Groundwater samples also were collected from two monitoring wells located about 250 feet east and west of the building, but PCE was not detected in either of the samples.

Because of the high concentrations of PCE in the sub-slab soil gas samples, six indoor air samples were collected in March 2007. PCE was detected in all of the samples, but at less than 1 $\mu g/m^3$, which is well below its risk-based Air Force indoor air screening criterion. Therefore, based on the sample data, it was concluded that there appeared to be a limited potential for SVI at New Building C (URS 2008).

The high levels of PCE in the soil gas were still a concern, however. Pursuant to the December 2007 meeting, all parties agreed that two additional rounds of sub-slab soil gas and indoor air sampling would be performed during the 2007/2008 heating season. It also was agreed that soil gas samples would be collected from around the outside perimeter of the building.

One week apart, at the end of March and the beginning of April 2008, additional sub-slab soil gas and indoor air samples were collected. PCE concentrations were much lower in the sub-slab soil gas samples that were collected from the same locations as those having the elevated concentrations in December 2006. However, at a new sub-slab soil gas sample location within the building footprint, the PCE concentrations were still elevated at 4,300 $\mu g/m^3$ and 4,500 $\mu g/m^3$. PCE was detected in only one of the indoor air samples at 0.29 $\mu g/m^3$, which is only barely above the analytical method detection limit of 0.27 $\mu g/m^3$ (Coulter 2008b).

The soil gas sampling around the perimeter of the New Building C occurred in October 2008. The objective of this investigation was to determine if there is a source of contamination outside and/or upgradient of the building that could be contributing to the high concentrations of PCE found in the sub-slab soil gas samples. PCE was detected in all of the samples at concentrations ranging from 11 $\mu g/m^3$ to 310 $\mu g/m^3$.

Concentrations of PCE in the perimeter soil gas samples were much less than the concentrations in the sub-slab soil gas samples, so it is unlikely that there is a source for PCE outside the building. It is more likely that the hot spots under the building are artifacts from previous site activities and/or spills (Coulter 2008b).

At the December 2007 meeting, all parties agreed that the Air Force would install a remediation system under the building if the PCE concentrations in the additional sub-slab soil

gas samples collected in 2008 were the same as those in the samples collected in December 2006. The levels of PCE were still elevated, but the distribution of the concentrations had changed, as noted above. Consequently, in March 2009, additional sub-slab samples were collected to define the extent of the problem. Sub-slab soil gas samples were collected at the same locations as the 2008 samples plus two new locations in the south half of the building. Access had been previously limited in this area of the building by the tenant. Indoor air samples also were collected. The 2009 sub-slab soil gas concentrations were similar to the 2008 results. PCE was detected in all of the samples. The highest concentration of PCE was found at the same location as in 2008, and at the same concentration, 4,500 $\mu g/m^3$. PCE was not detected in any of the March 2009 indoor air samples.

Because of the continued high concentrations of PCE in the sub-slab soil gas samples, the Air Force recommended installing an SVE system under New Building C (Farnsworth 2009b). The system was completed and began operating in mid-December 2010. In February 2012, after about 14 months of operating the SVE system, sub-slab soil gas samples were collected at New Building C at approximately the same locations as all of the previous events. At the location at which PCE had previously been detected at 4,500 $\mu g/m^3$, the concentration had reduced to 150 $\mu g/m^3$ (URS 2012a). The SVE system continues to operate.

It is the Air Force's judgment that the supplemental remedial actions taken or proposed in this plan are necessary to protect the public health or environment from actual or threatened releases of hazardous substances into the environment.

5.0 REMEDIAL ACTION OBJECTIVES

Four remedial action objectives were cited in the January 2002 PRAP (URS 2002a) for the FT-002/IA Groundwater OU:

1. To prevent ingestion of groundwater containing contaminant concentrations above applicable, and/or relevant and appropriate requirements (ARARs);
2. To restore impacted groundwater to ARARs;
3. To prevent migration of groundwater with contaminant concentrations above ARARs beyond base boundaries; and,
4. To restore surface water that has been impacted by contaminated groundwater to ARARs.

To address the potential for SVI at unacceptable risk levels, a fifth remedial action objective has been added to the original four as follows:

5. To prevent individual human exposure to soil gas vapor levels within buildings at unacceptable levels represented by an excess cancer risk greater than 1×10^{-6} and also represented by a potential non-cancer risk for a hazard index greater than one.

6.0 DESCRIPTION OF THE PREFERRED ALTERNATIVE

The Air Force has selected the 2003 Remedy, including the design modifications added later that are described in this Section, as the preferred alternative for the FT-002/IA Groundwater OU. The following changes were made to the 2003 Remedy during its design and implementation:

- The aeration basin proposed to treat contaminated water from the extraction wells and the collection trench between the runway and flightline was replaced by a groundwater treatment plant;
- The permeable treatment wall along Idaho Avenue was replaced with a groundwater collection trench;
- The permeable treatment wall at the Weapons Storage Area was eliminated;
- An aeration system was added to treat the discharge water from the collection trench along the east side of the flightline;
- SVE systems were installed at Building 2753, 2766, and New Building C;
- Updated ICs; and,
- The Five-Year Review was eliminated as a remedy component.

Regarding the five-year review, it was eliminated as a remedy component, but it will still be completed. Performing the five-year review is required by Section 121(c) of CERCLA and, therefore, it does not need to be specifically included as part of the remedy. At least once within five years of the implementation of the remedy, and every five years thereafter as long as

contamination remains at the FT-002/IA Groundwater OU above levels that allow for unlimited use and unrestricted exposure, the Air Force shall, in coordination with USEPA and NYSDEC, review the selected remedy to determine whether the remedy remains protective of human health and the environment. Remedial progress and the need to continue ICs to protect human health and the environment will also be evaluated as part of the review.

In summary, the preferred alternative for the FT-002/IA Groundwater OU now includes the following components:

- A groundwater collection trench between the runway and flightline;
- Five groundwater extraction wells located downgradient of the FT-002 Source OU;
- A groundwater treatment system to treat contaminated groundwater from the extraction wells and the groundwater collection trench between the runway and flightline;
- A groundwater collection trench located just east of the flightline whose discharge is treated by an aeration system;
- A groundwater collection trench located along Idaho Avenue;
- SVE systems installed in Building 2753, Building 2766, and New Building C;
- Groundwater and surface water monitoring; and,
- Institutional controls to prohibit the use of groundwater, restrict the discharge of groundwater, prohibit development that would interfere with remedial operations or penetrate the subsurface clay confining layer, limit current use and future property development to non-residential uses, use restrictions related to soil vapor intrusion, and an occupancy restriction for Building 2612.

The components of the as-constructed 2003 Remedy are shown on Figure 5. Operation of the groundwater treatment system for the Runway/Flightline Collection Trench and the extraction wells began in January 2004. The southern half of the East Flightline Collection Trench became operational in September 2003; it was fully operational in January 2005. The Idaho Avenue Collection Trench was completed and became fully operational in February 2005. The aeration system to treat the discharge from the East Flightline collection trench began operating in August 2010 and the three SVE systems began operating in December 2009 (Building 2753), and December 2010 (Building 2766 and New Building C). SVI use restrictions,

as well as the three SVE systems, were added to the remedy to meet the remedial action objective for SVI noted in Section 5.0.

It is expected that the 2003 Remedy, along with the modifications and additions described in this Supplemental PRAP, will become the final remedy for the FT-002/IA Groundwater OU. The components of the current preferred alternative are described in more detail below.

Groundwater Collection Trench Between the Runway and Flightline. A groundwater collection trench was installed to collect contaminated groundwater from the FT-002 site and part of the flightline area. The approximately 4,000-foot long trench consists of a perforated drain pipe, geotextile filter fabric, and permeable collection stone installed below the groundwater table. Groundwater intercepted by this trench is discharged via a gravity main installed under the runway to a pump station and then to the water treatment system. In the remedy presented in the June 2003 ROD, this collection trench discharged to an existing storm sewer located under the runway rather than to a gravity main. The length of the collection trench was also extended about 350 feet farther south compared to the trench shown in Figure 3 so that it would be closer to the southwestern arm of the groundwater plume that extended towards the former Weapons Storage Area (Figure 2). The as-built alignment of the trench also shifted about 200 feet to the east and the northern end of the trench was shortened to avoid the airfield's instrument landing system exclusion zone at the north end of the runway. The as-built length of the collection trench (slotted pipe) is about 4,000 feet. The total as-built length of the collection trench and the discharge piping to the groundwater treatment building is about 5,900 feet.

Water Treatment System. Rather than an aeration basin, a 600 gallons per minute treatment system was constructed to treat groundwater from the Runway/Flightline Collection Trench and the extraction wells. The aeration basin envisioned in the January 2002 PRAP was proposed to treat VOCs and primarily TCE. The concept was formulated during the RI/FS prior to NYSDEC providing discharge criteria. The conceptual design did not consider treatment and removal of significant quantities of iron that became necessary to meet the discharge criteria. Consequently, the aeration basin was changed to a formal groundwater treatment system (URS 2002b).

The treatment system includes an aerator, a five-stage air stripper, clarifier, and four sand filters (currently not being used). The air stripper was initially installed with a closed-loop air circulation system that used two carbon adsorption units to remove VOCs from the process air stream. The system was modified in the fall of 2005 to allow operation in single-pass mode instead of the closed-loop circulation system. In April 2007, due to decreasing VOC concentrations, NYSDEC approved discharging the process air stream directly to the atmosphere without any carbon treatment. Treated water is discharged to the Weapons Storage Area drainage system on the west side of the base. At the present time, samples of the treatment plant effluent water are collected every two weeks (bi-weekly) and the analytical results are compared to NYSDEC effluent discharge criteria established in May 2011 (NYSDEC 2011).

Extraction Wells. Five vertical groundwater extraction wells were installed between the FT-002 Source OU site and the runway, as shown on Figure 5, to extract contaminated groundwater from the westernmost portion of the plume. The extracted groundwater is transported via a constructed drain line and discharged to the treatment system.

Groundwater Collection Trench Along the Eastern Edge of Flightline. An approximately 4,400-foot-long trench was constructed along the flightline ramp in a manner similar to the Runway/Flightline Collection Trench. The collection pipe was placed at the deepest possible elevation that would allow gravity flow to the Golf Course drainage system.

The January 2002 PRAP and the June 2003 ROD stated that, based on evaluations using groundwater modeling and the results of sampling at the Golf Course, Golf Course streams were not expected to be impacted negatively by discharge from this collection trench. However, because of uncertainties associated with the model, groundwater treatment at the Golf Course was included in the January 2002 PRAP and the June 2003 ROD as a contingency. Groundwater from the collection trench is discharged to a pond near the south end of the flightline. The pond had a simple floating aeration system that helped treat the groundwater from the collection trench before it was discharged to the Golf Course drainage system. However, 2009 discharge sample results showed frequent exceedances of the discharge criteria in effect at that time for TCE. As a result, an upgraded pond aeration system, consisting of three submerged air diffusers perpendicular to the water flow, was designed to meet the discharge criteria set by NYSDEC. Construction of the new aeration system was completed in August 2010.

Groundwater Collection Trench Along Idaho Avenue. The approximately 1,900-foot-long trench, constructed in a manner similar to the Runway/Flightline trench, consists of two sections, a north branch that is 1,400 feet long and a south branch that is 475 feet long. The collection pipe was placed at the deepest possible elevation above the clay-confining unit that would allow gravity flow to the Golf Course drainage system. The two branches are joined in a concrete drainage structure, located about 850 feet from the intersection of Idaho Avenue and Arizona Avenue. From this point, the collected groundwater flows to a surface outfall on the Golf Course drainage system. The same groundwater treatment contingency measure applies to the Golf Course streams in this area as was discussed previously for the collection trench along the east side of the flightline. Based on analytical results from discharge water samples, treatment of the discharge from the Idaho Avenue collection trench is currently not required.

The preferred alternative (Alternative 13) in the January 2002 PRAP and the 2003 Remedy identified a permeable treatment wall as the remedial technology to use along Idaho Avenue. A collection trench was identified as a contingency, pending the design of the permeable treatment wall. Both technological options were considered equally effective in preventing further migration of groundwater contamination.

Subsequently, the Air Force conducted a treatability study of the permeable treatment wall using site-specific groundwater samples. The results of the testing indicated that the amount of reactive material needed to treat groundwater in the vicinity of Idaho Avenue would be atypically great and the cost of the reactive material (which is the major cost component of the wall) would be at least three times greater than conceptually envisioned. Therefore, a decision was made among the Air Force, USEPA, and NYSDEC to apply collection trench technology at this location.

The Idaho Avenue permeable treatment wall, now a groundwater collection trench, originally extended from Connecticut Road on the north end to about 300 feet beyond Arizona Avenue at the south end, a length of about 2,900 feet. The intent of this alignment was to intercept the future extent of the FT-002 plume and the smaller plume on the east side of the Industrial Area (Figure 2). The groundwater collection trench was constructed with a length of only 1,900 ft. The length of the collection trench at this location was re-examined during design by modeling future migration of the plumes with all of the remedial components in place (URS 2002b). It was determined that the FT-002 plume, approximated as 10 µg/L total chlorinated hydrocarbons, would not reach Idaho Avenue. Consequently, the portion of the collection trench

at the south end, which was intended only for the FT-002 plume, was shortened by about 700 feet.

Figure 6 shows the extent of the two chlorinated hydrocarbon plumes from data presented in the 2001 FT-002/IA Groundwater RI/FS (URS 2001b) compared to the estimated extent of the plumes based on the 2011 annual groundwater sampling event (URS 2012b). There has been a significant reduction in the size of the two plumes since the start-up of the remedy in 2004. The sampling results support the modeling prediction that the FT-002 plume would not reach Idaho Avenue.

The north end of the collection trench was also shortened by approximately 300 feet during design when the alignment was more accurately drawn to the limits of the second, eastern plume.

Weapons Storage Area Permeable Treatment Wall. The remedy selected in the June 2003 ROD included a permeable treatment wall upgradient of the former Weapons Storage Area on the west side of the runway (Figure 3). The permeable treatment wall was included to treat the portion of the groundwater plume extending southwest across the runway and flightline ramp in the direction of the Weapons Storage Area. During design of the remedy, this treatment wall was eliminated and replaced with groundwater monitoring of wells upgradient of the Weapons Storage Area. Groundwater samples collected from monitoring wells in the area of this southwestern portion of the plume in 2002 and 2003 indicated that TCE and DCE concentrations in groundwater had decreased to levels that were at or below the New York State groundwater quality standard of 5 µg/L for these compounds (URS 2003b).

The plume originating at the FT-002 Source OU has not migrated any farther to the southeast than its 2001 boundary, and the southwestern arm of the plume that was migrating towards the WSA no longer exists (see Figure 6).

SVE at Buildings 2753, 2766, and New Building C. As discussed in Section 4, during the 2006 SVI investigation, elevated concentrations of chlorinated hydrocarbon compounds (variously TCE and PCE) were found in sub-slab soil gas samples at Buildings 2753, 2766, and New Building C. The SVE system at Building 2753 was installed

and it became operational in November 2009. The SVE systems at Building 2766 and New Building C began operating in December 2010.

SVE System Exit Strategy. The SVE systems can be shut down when it has been determined that the SVI remedial action objective has been achieved or that continued operation of the system is not effective or needed; i.e., contamination is no longer being removed, sub-slab soil gas concentrations have been reduced to a level that would not impact indoor air at unacceptable levels, and/or there is no remaining groundwater contamination in the vicinity of the buildings at concentrations greater than groundwater ARARs that could impact the SVI pathway into the buildings.

The following are exit strategy guidelines for permanently shutting down the three SVE systems:

- **Groundwater Samples:** The concentrations of VOCs in groundwater in the vicinity of the SVE systems will be evaluated to assess the SVI pathway into the buildings. VOC groundwater concentrations should generally be less than groundwater ARARs (i.e., established groundwater quality standards) before evaluating whether or not to shut down the SVE systems.

- **SVE Influent:** As an indicator of remediation progress in the sub-slab environment, VOCs in the influent to the SVE system prior to any carbon treatment will be monitored periodically with a photo-ionization detector (PID) that measures in parts-per-billion. Samples also will be collected of the influent soil gas for laboratory analysis to verify the PID readings. The SVE systems may also be shut down and re-started periodically (i.e., pulsed) to determine if concentration rebound occurs. When the PID readings and/or the laboratory data reach a stable trend (i.e., they are no longer decreasing) or the laboratory results for the SVE system influent indicate that the sub-slab soil gas concentrations may be below the NYSDOH no further action screening criteria (NYSDOH 2006) and the USEPA risk-based screening levels (USEPA 2013) for contaminants of concern, the SVE systems will be shut down temporarily.

- **Sub-Slab Soil Gas Samples:** Following the temporary shutdown of the SVE systems, the locations and the number of samples will be agreed upon among the Air Force,

NYSDEC, NYSDOH, and USEPA. Indoor air samples may also be collected. Three sampling events will occur across three consecutive heating seasons after the temporary SVE system shutdown. If the sampling results for each of the three heating seasons do not exceed the NYSDOH no further action screening criteria (NYSDOH 2006) and the USEPA risk-based screening levels (USEPA 2013) for the contaminants of concern, then the SVE systems can be permanently shut down. If, however, the sub-slab soil gas concentrations are higher than the screening criteria cited, the systems may be re-started. Alternatively, if the laboratory results are approaching but are still higher than the screening criteria cited, a risk assessment will be performed to determine if the remedial action objective for SVI has been achieved. If the remedial action objective has been achieved, the SVE system can be shut down permanently.

Institutional Controls. ICs are a component of the selected remedy for the FT-002/IA Groundwater OU. ICs are the non-technical, non-engineering actions that support the collection and treatment elements of the remedy, such as prohibiting use of contaminated groundwater as a potable water source or prohibiting residential use. ICs will be used to minimize the exposure of any future users of the Areas Subject to Institutional Controls encompassed by the FT-002/IA Groundwater OU (see Figures 7 and 8), including Air Force personnel, transferees, lessees/sub-lessees, construction workers, and the environment to hazardous substances.

The Air Force, USEPA and NYSDEC recognize that the geographic area where the ICs are required to restrict certain activities may be modified over time as the remedy is implemented, new data is collected, and conditions change. These changes will be appropriately documented.

Per the 2002 PRAP, ICs related to groundwater use and discharge were applied to the entire area of designated as the FT-002/IA Groundwater OU (see Figure 2). In January 2012, the Air Force, NYSDEC, and USEPA agreed to reduce the size of the groundwater use restriction area within the overall OU. The revised groundwater boundary is shown on Figure 7. An added non-residential use restriction also applies to this same area. Similarly, it was also agreed to establish a separate boundary for SVI restrictions. The SVI boundary is shown on Figure 8.

Both the groundwater use/non-residential use boundary and the SVI boundary are based on a reduction in the size of the groundwater plumes subsequent to implementing the 2003 Remedy (see Figure 6).

In addition to incorporating the ICs listed in the June 2003 ROD, ICs to limit property development and function of the site to non-residential uses and prohibiting penetration of the clay confining layer underlying the sand aquifer on site have also been added to the remedy.

ICs to address the SVI pathway were not originally part of the preferred alternative (Alternative 13) that was proposed in the January 2002 PRAP or the remedy selected in the June 2003 ROD. They were added at the request of NYSDEC and USEPA following the SVI study described in Section 4.0. ICs related to SVI have been added to the preferred alternative, including an IC requiring evaluation or mitigation of SVI impacts if there are changes in the use of or modifications to existing Industrial Area buildings within the SVI restriction area, or new construction within the SVI restriction area. There is also an IC restricting the occupancy of Building 2612. These ICs were added to achieve the new remedial action objective regarding the potential for human exposure to soil gas vapors.

Further detail relative to the implementation, monitoring, and enforcement of the ICs will be provided in a revised FT-002/IA Groundwater OU ROD. It is anticipated that successful implementation of the preferred alternative, along with implementation of the following ICs will achieve protection of human health and the environment and compliance with all legal requirements:

- Prohibit the installation of any wells for drinking water or any other purposes that could result in the use of the underlying groundwater within the area shown on Figure 7.

- Except for environmental response actions conducted by the Air Force pursuant to CERCLA, prohibit discharge of groundwater that is withdrawn within the area shown on Figure 7 during construction dewatering to the ground or surface water without prior approval of NYSDEC through the State Pollution Discharge Elimination System permitting process.

- Prohibit property development or land use that would interfere with the proper operation of the remedy. Except for utility improvements, surface paving, and modification of the grade established during construction of the physical remedy with Air Force pre-approval, prohibit any development within 20 feet of any aboveground structure or underground structure constructed as part of the active physical remedy

(these structures include but are not limited to pumping wells, underground and overhead electrical wiring, collection drains, piping, groundwater treatment facilities, aeration basins, manholes, and pump stations). Except for utility improvements, surface paving, and modification of the grade established during construction of the physical remedy with Air Force pre-approval, prohibit any development within 5 feet of any monitoring point that will be used in the monitoring of the physical remedy. "Air Force pre-approval" means that any utility improvements, surface paving removal or construction, or modification of the grade established during construction of the physical remedy within 20 feet of any aboveground structure or underground structure constructed as part of the active physical remedy (as itemized above) shall be approved by the Air Force prior to the initiation of such activities. "Air Force pre-approval" also means that any utility improvements, surface paving removal or construction, or modification of the grade established during construction of the physical remedy within 5 feet of any monitoring point that will be used in the monitoring of the physical remedy shall be approved by the Air Force prior to the initiation of such activities. The locations of the structures and monitoring points of the physical remedy will be established by survey following construction. A map showing the structures and monitoring points referenced to horizontal coordinates will be included in all property transfer and lease agreements.

- Any excavation within the Area Subject to Institutional Controls (Figure 7) shall be conducted in a manner that prevents migration of groundwater contamination into the deep groundwater aquifer. Penetration of the subsurface clay confining layer, without the prior written approval of the Air Force, NYSDEC, and USEPA, is prohibited.

- Prohibit residential property development or residential land use within the Area Subject to Institutional Controls (Figure 7).

The above restrictions shall be maintained until the concentrations of hazardous substances in the groundwater have been reduced to levels that allow for unlimited use and unrestricted exposure and the groundwater collection, extraction, and treatment systems and other related components of the remedy are no longer operational.

The following restrictions related to SVI have been placed in the deed(s) and will remain and run with the properties within the Area Subject to Institutional Controls (Figure 8) until USEPA and NYSDEC approve a change:

- With respect to the potential for risks posed via indoor air contaminated by chemicals volatilizing from below the building slab (vapor intrusion), a grantee covenant will be included in the deed of any property within the SVI restriction area (Figure 8) that will require either of the following (a) mitigation of any unacceptable risk as that risk is determined under CERCLA and the NCP in a circumstance with (1) any construction of new buildings (which includes any expansion of the footprint of an existing building) or (2) any change in the current use of existing buildings to a use that would increase the potential exposure of its users to vapor intrusion (i.e., up zoning"); or (b) an evaluation of the potential for unacceptable risk associated with vapor intrusion that must occur prior to any construction of new buildings or any up zoning in the current use of existing buildings, and if an unacceptable risk under CERCLA and the NCP associated with vapor intrusion is posed, mitigation of the vapor intrusion shall be included in the design/construction of the structure prior to occupancy or implemented prior to the change in use. Any such mitigation or evaluations will be coordinated with the USEPA and NYSDEC. This covenant will remain on the property until the property meets applicable criteria for acceptable risk for specified property use as such criteria and use are established in an applicable ROD, or until such time as it is agreed to by the Air Force, USEPA, and NYSDEC.

- Also with respect to the potential for risks posed via indoor air contaminated by chemicals volatilizing from beneath existing Building 2612 (i.e., vapor intrusion), a deed covenant (occupancy restriction) will be imposed which requires that the existing Building 2612 on the property remain unoccupied (i.e., it may not be used for occupied purposes). "Occupied" means that the building is used and there is human occupation of it regularly (e.g., persons present the same day of the week for approximately the same number of hours). Incidental use of the building such as for storage of materials, that necessitates intermittent visits by individuals who would not remain in the building after delivery or retrieval of such material, would not meet this definition of occupation. The grantee may demolish the building.

The Air Force will not modify or terminate the above use restrictions without approval by USEPA and without concurrence from NYSDEC. The Air Force will seek prior concurrence before any anticipated action that may disrupt the effectiveness of the restrictions, or any action that may alter or negate the need for restrictions.

It is expected that the preferred alternative will achieve the remedial action objectives for the FT-002/IA Groundwater OU. The preferred alternative was selected by the Air Force in conjunction with the USEPA and with the concurrence of NYSDEC. The preferred alternative is protective of human health and the environment, complies with federal and state requirements that are applicable or relevant and appropriate to the remedial action, is cost effective, and utilizes permanent solutions and resource recovery technologies to the extent practicable. Treatment of contaminated groundwater from the groundwater collection trench between the runway and the flightline as well as the collection trench on the east side of the flightline are elements of the remedy that will be used to reduce the toxicity, mobility or volume of contaminants, thereby satisfying the statutory preference for treatment as a principle element of the remedy.

7.0 COMMUNITY PARTICIPATION

The following paragraphs explain how the public can become involved in the selection process after reviewing the FT-002/IA Groundwater OU Supplement to the January 2002 Proposed Plan. Note that the preferred alternative can change in response to public comment or as a result of new information.

Public Comment Period

The Air Force will hold a 30-day public comment period from August 29, 2013 to September 27, 2013 to solicit public input. During this period, the public is invited to review the FT-002/IA Groundwater OU Supplement to the January 2002 Proposed Plan, and other project documents, and to comment on the proposed action. The Administrative Record for this site is available to the public on-line at https://afrpaar.lackland.af.mil/ar/docsearch.aspx. The official hard copy file is available at the Former Plattsburgh AFB BRAC Environmental Coordinator's office located at 8 Colorado Street, Suite 121, Plattsburgh, NY 12903.

Public Informational Meeting

Plattsburgh AFB will hold a public meeting on September 18, 2013 at the Clinton County Government Center, First Floor Conference Room, 137 Margaret Street. The actual date and

time of the meeting will be published in the Plattsburgh *Press Republican*. The meeting will be divided into two segments. In the first segment, data gathered at the site, the preferred alternative, and the decision-making process will be discussed. The public is encouraged to attend this presentation and to ask questions. Immediately after the informational presentation, the Air Force will accept comments about the remedial action being considered for the FT-002/IA Groundwater OU. The meeting will provide the opportunity for people to comment officially on the plan. Public comments will be recorded and transcribed, and a copy of the transcript will be added to the Administrative Record.

Written Comments

Written comments about the preferred alternative or other issues relevant to the site remediation be provided to the Former Plattsburgh AFB's IRP Coordinator at the Public Meeting or mailed, to be received no later than September 27, 2013) to:

Mr. David Farnsworth
BRAC Environmental Coordinator
Air Force Civil Engineer Center
8 Colorado Street, Suite 121
Plattsburgh, NY 12903
(518) 563-2871

Plattsburgh AFB's Review of Public Comment

Public comments are part of the process of reaching a final decision on an appropriate remedial alternative for the FT-002/IA Groundwater OU. The final choice of a remedial alternative will be issued in a ROD for the site and will be submitted to the USEPA for review, approval, and signature and to the NYSDEC for review and concurrence. A Responsiveness Summary of public comments and responses to them will accompany the ROD. Once the ROD is signed, it becomes part of the Administrative Record.

Additional Public Information

Because the Supplemental Proposed Plan only summarizes the remedial investigation and remedial alternative for the FT-002/IA Groundwater OU, the public is encouraged to consult the Administrative Record that contains the complete RI/FS, and other supporting reports.

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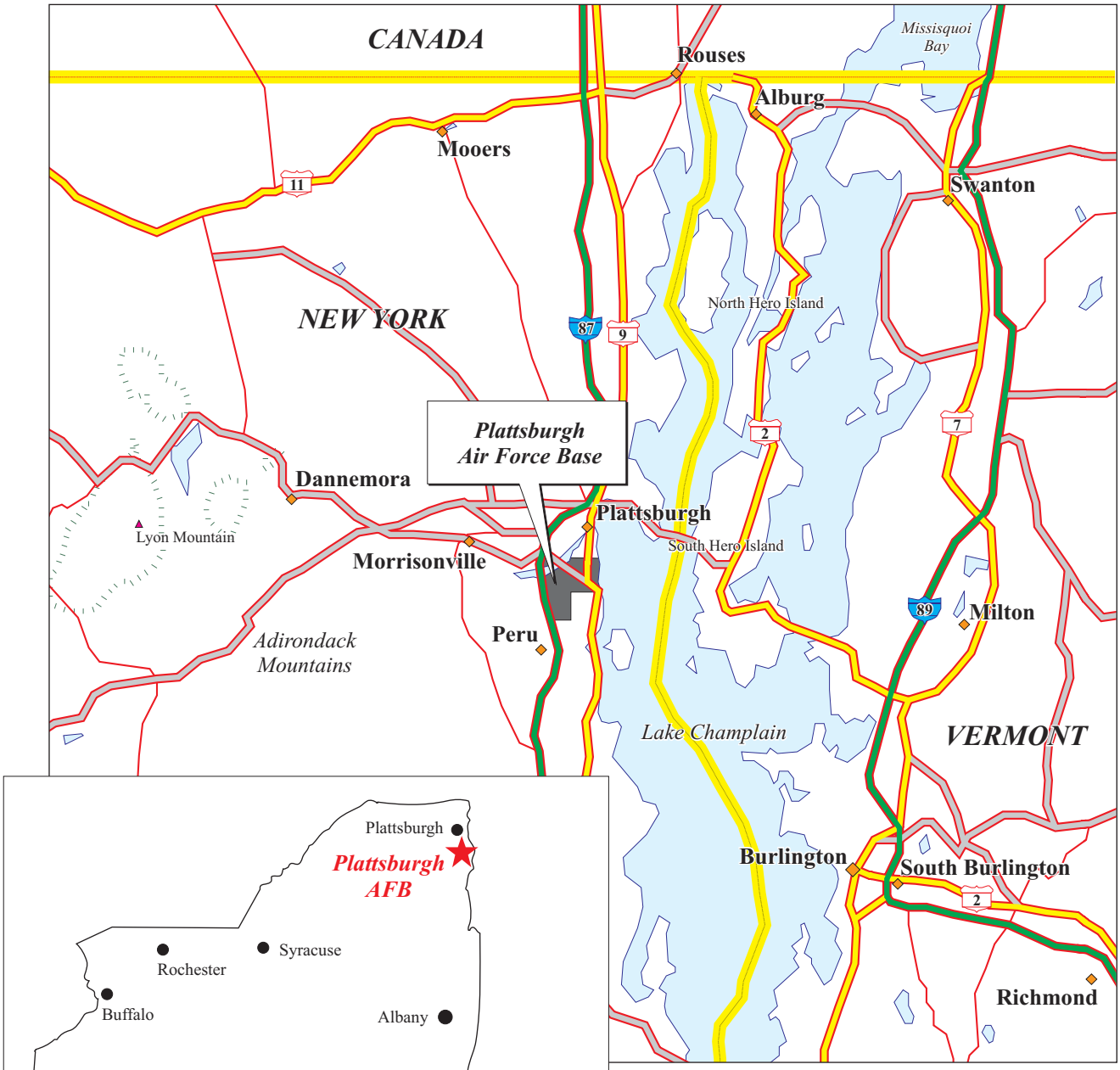
FIGURES



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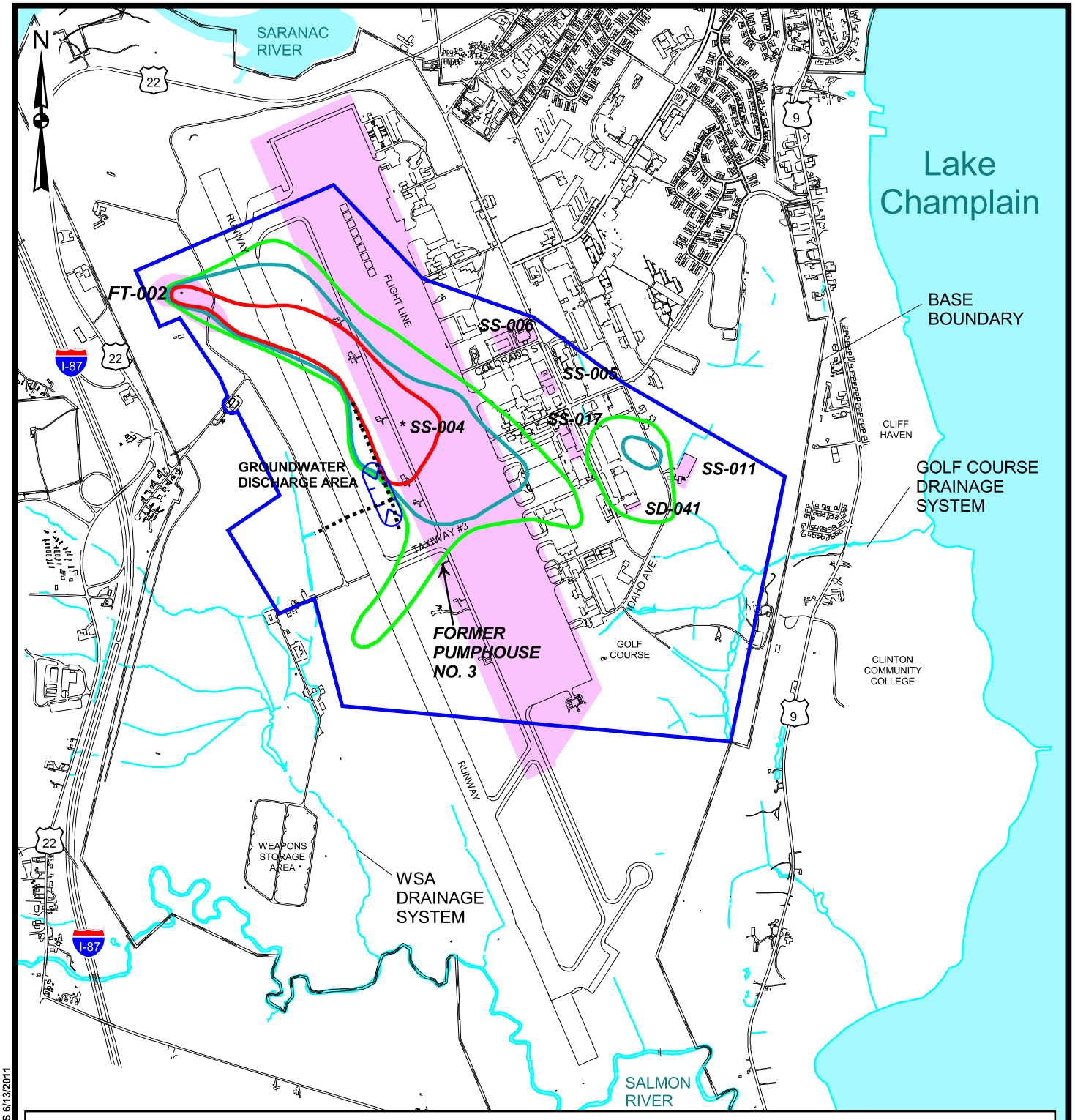
PLATTSBURGH AIR FORCE BASE
VICINITY LOCATION MAP

FIGURE 1



Legend

- FT-002/IA Groundwater Operable Unit
- Sites Included in FT-002/IA Groundwater OU
- Major Storm Drain

* - Boundary of site SS-004 is outside of the boundary of the FT-002/IA Groundwater OU. However the sources of groundwater contamination associated with SS-004 are within the boundary of the FT-002/IA Groundwater OU.

Approximate Extent of Chlorinated Hydrocarbons in Groundwater Per 2001 FT-002/IA Groundwater OU RI/FS:

- 10 ug/L isopleth
- 100 ug/L isopleth
- 1000 ug/L isopleth

2000 0 2000 Feet

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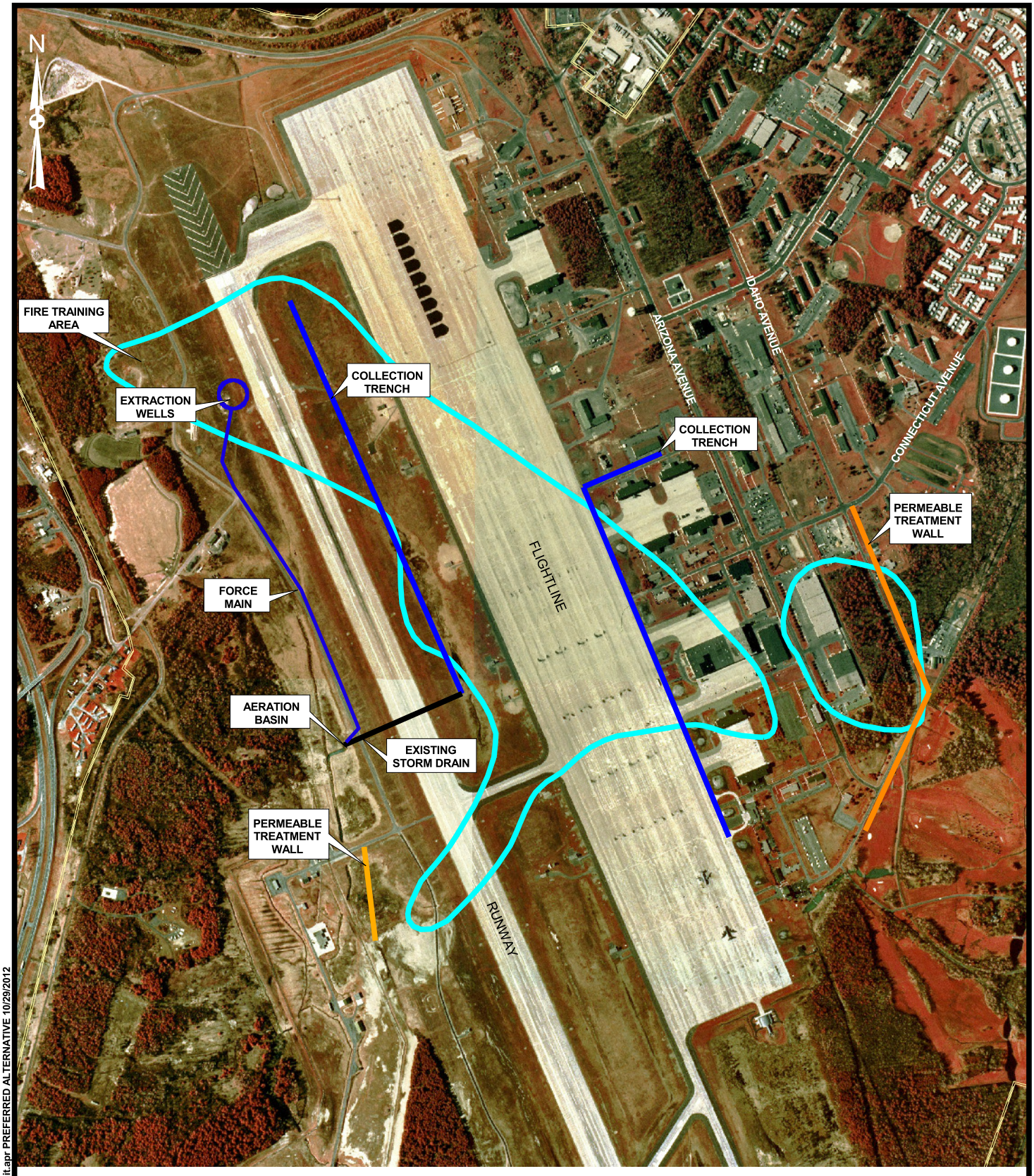
PLATTSBURGH AIR FORCE BASE
SITE FEATURES

FIGURE 2

N:\11168476.00000\GIS\Applications\wgoperunit.apr SITE FEATURES 6/13/2011



Legend

Approximate Extent of Chlorinated Hydrocarbons in Groundwater per 2001 FT-002/IA Groundwater OU RI/FS (10 ug/L isopleth)

1200 0 1200 Feet

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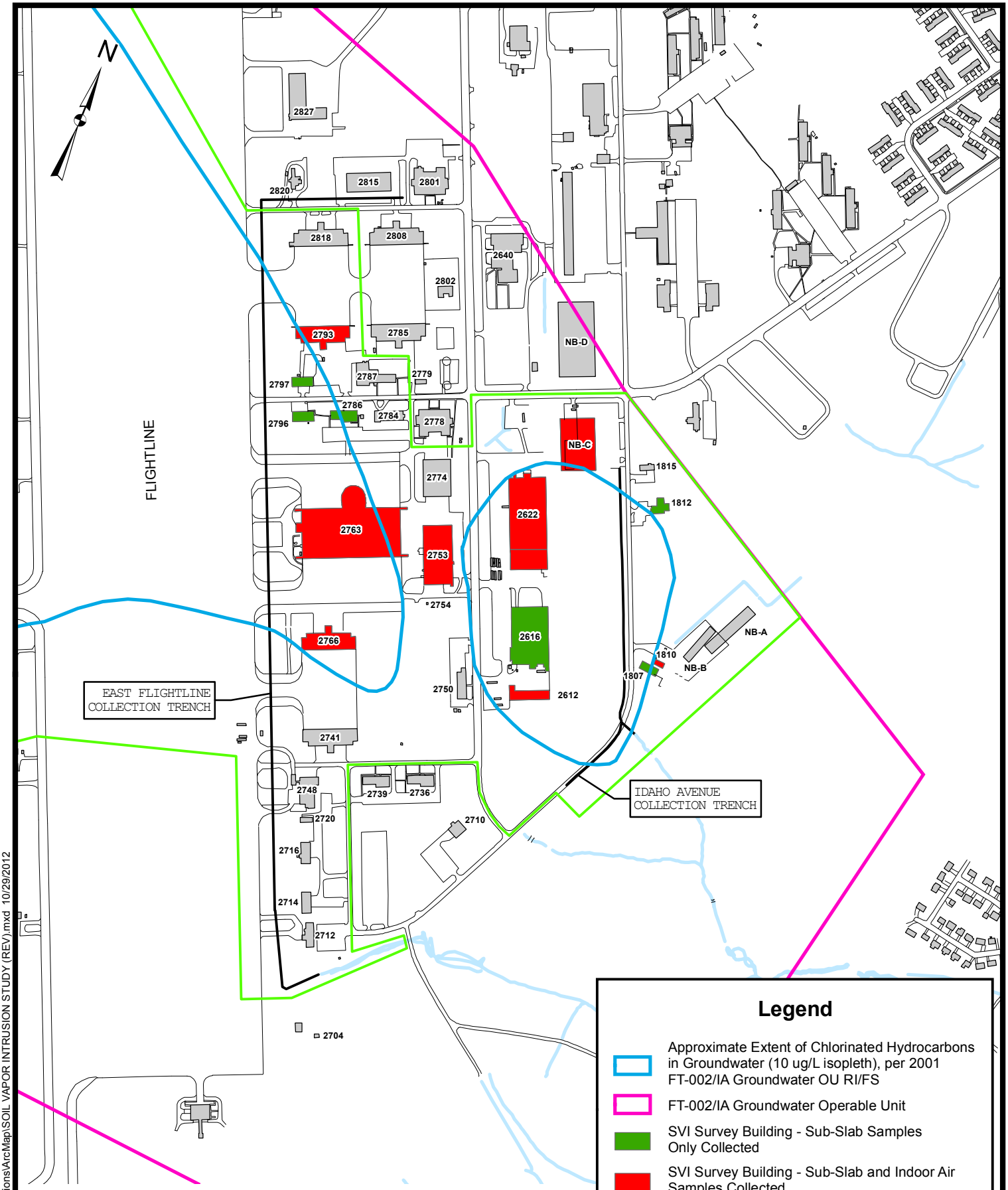
PREFERRED ALTERNATIVE COMPONENTS
PER JANUARY 2002 PROPOSED PLAN

FIGURE 3

N:\11168476.00000\GIS\Applications\wgoperunit.apr PREFERRED ALTERNATIVE 10/29/2012



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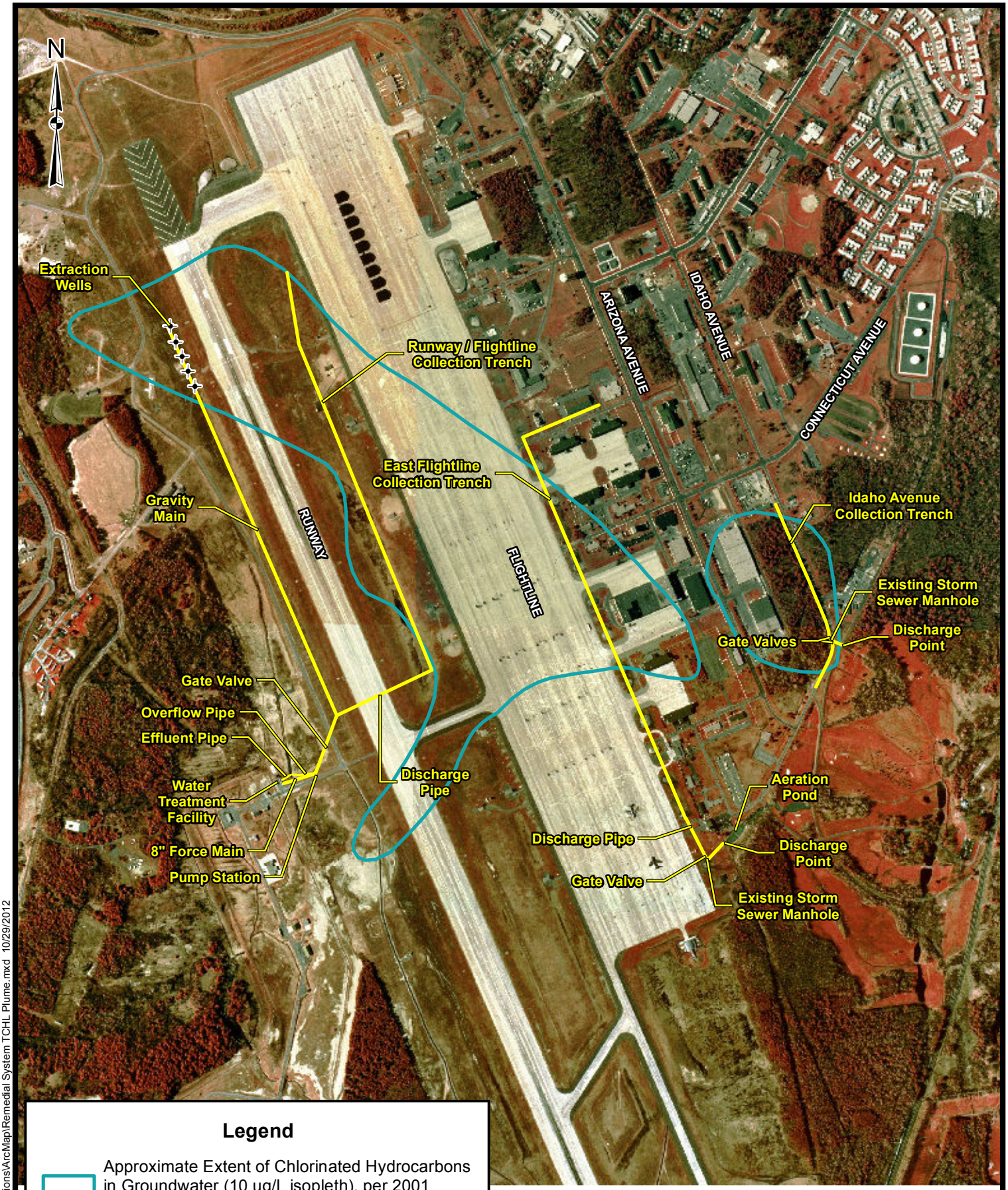
FORMER PLATTSBURGH AIR FORCE BASE
INDUSTRIAL AREA SOIL VAPOR INTRUSION STUDY
BUILDING LOCATIONS

FIGURE 4



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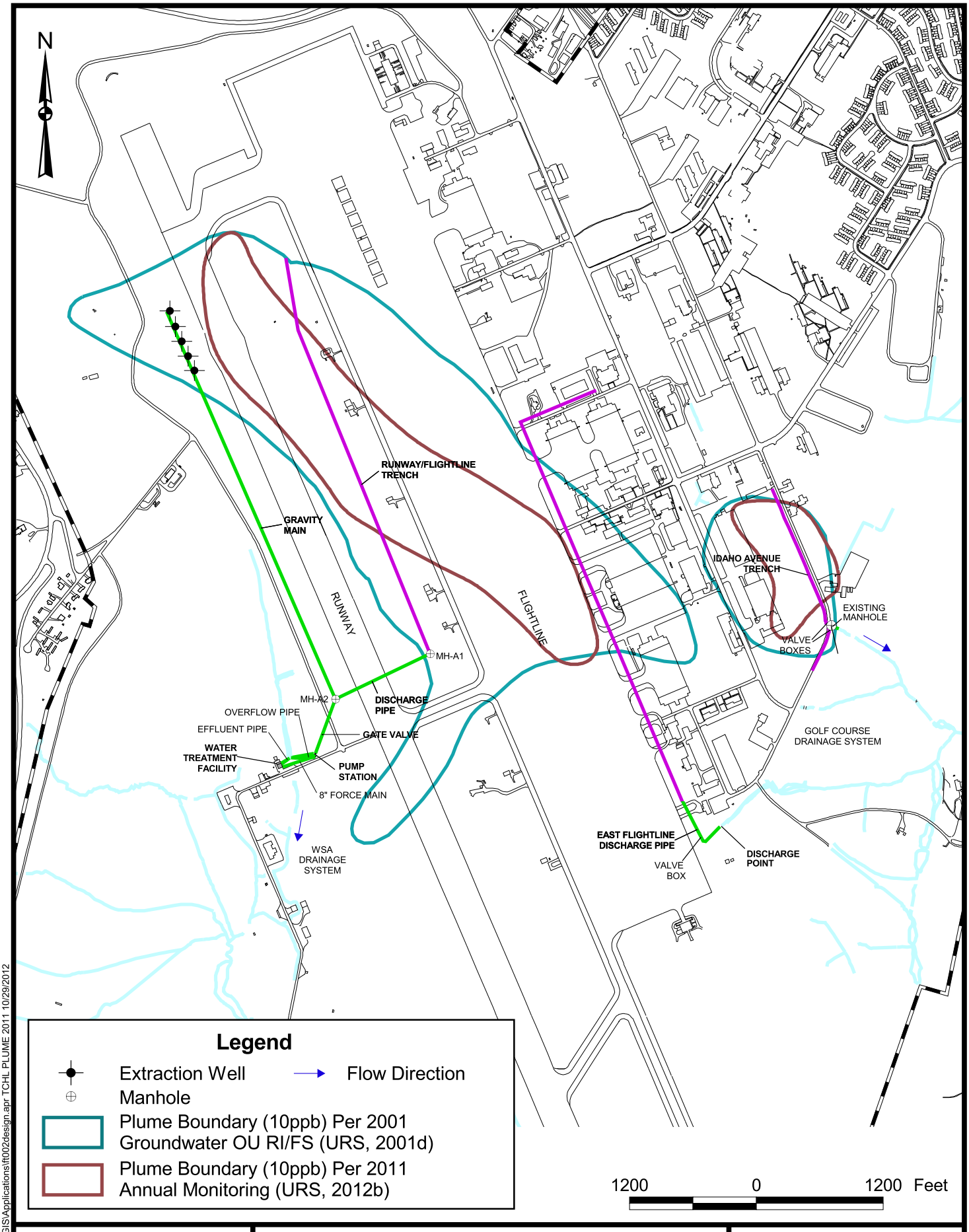
FORMER PLATTSBURGH AIR FORCE BASE
2003 REMEDY AS IMPLEMENTED

FIGURE 5



N:\11168476.00000\GIS\Applications\ft002design.apr TCHL PLUME 2011 10/29/2012

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FT-002/IA GROUNDWATER OU
CHLORINATED HYDROCARBON PLUME

FIGURE 6

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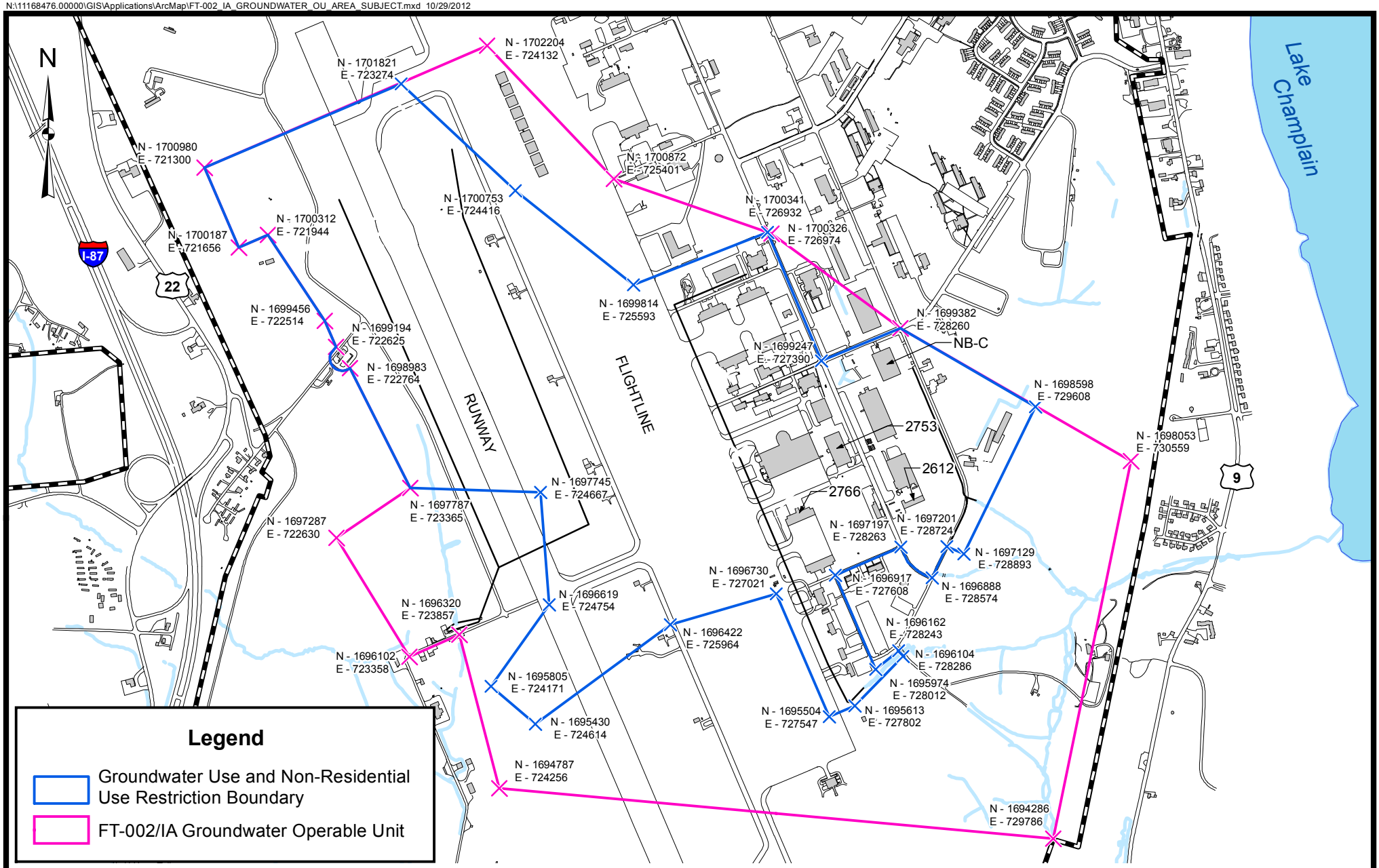

Notes:
(1) Coordinates are New York State Plane Grid Coordinates North American Datum 1927. The coordinates defining the area shown were scaled from a computer map file. Some variance between the location of the limits shown on this map and the actual ground location may occur. This variation should not exceed the distance greater than one-fortieth (1/40th) of the map file scale used to determine the coordinates. The map file scale used was 1"=100' with a possible variance of 2.5 feet.
(2) N – Northing, E – Easting

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FT-002/IA GROUNDWATER OU
AREA SUBJECT TO INSTITUTIONAL CONTROLS
GROUNDWATER USE AND NON-RESIDENTIAL USE BOUNDARY

FIGURE 7

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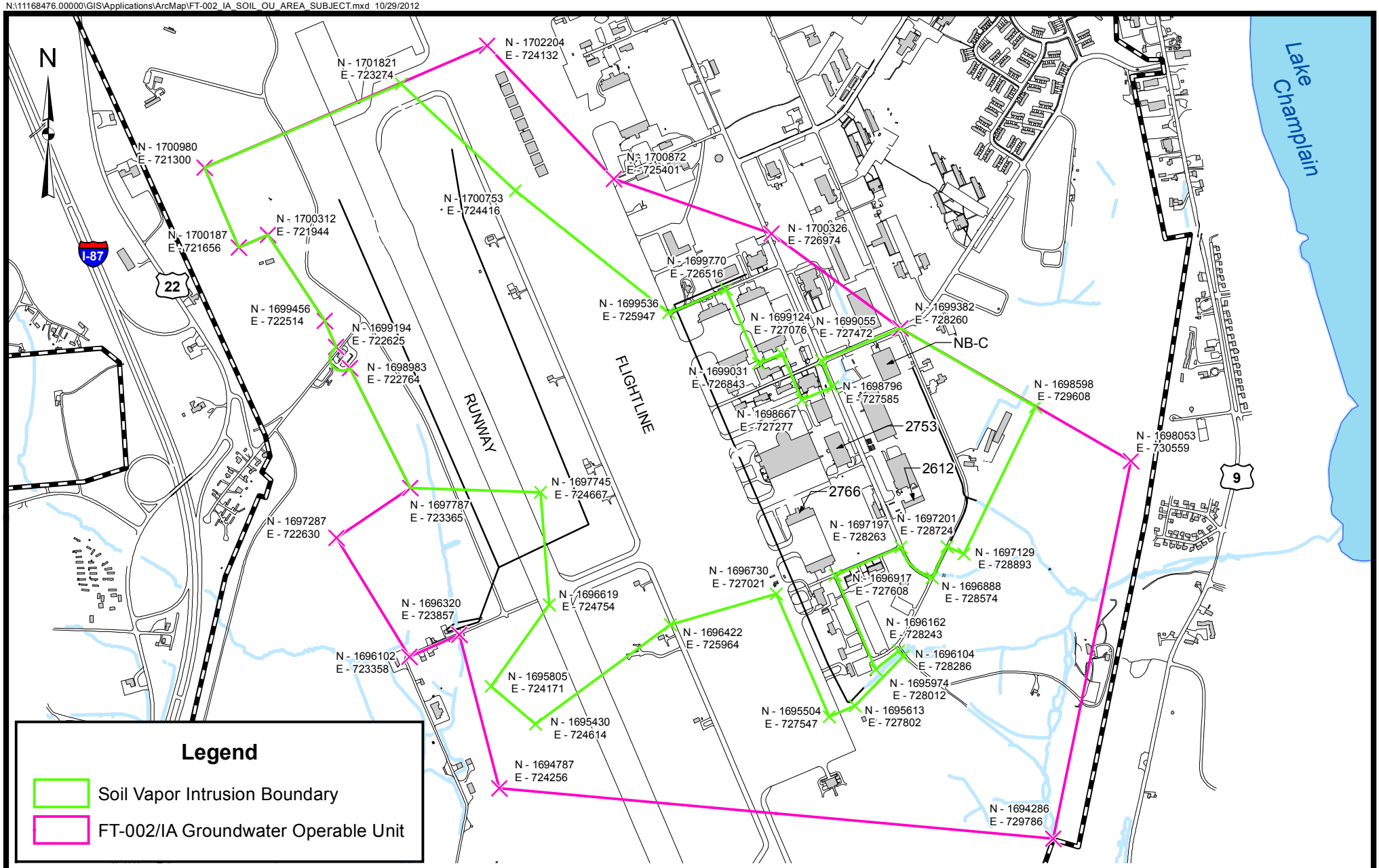

Notes:
(1) Coordinates are New York State Plane Grid Coordinates North American Datum 1927. The coordinates defining the area shown were scaled from a computer map file. Some variance between the location of the limits shown on this map and the actual ground location may occur. This variation should not exceed the distance greater than one-fortieth (1/40th) of the map file scale used to determine the coordinates. The map file scale used was 1"=100' with a possible variance of 2.5 feet.
(2) N – Northing, E – Easting

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FT-002/IA GROUNDWATER OU
AREA SUBJECT TO INSTITUTIONAL CONTROLS
SOIL VAPOR INTRUSION BOUNDARY

FIGURE 8