

**EPA Superfund
Record of Decision:**

**GRIFFISS AIR FORCE BASE (11 AREAS)
EPA ID: NY4571924451
OU 19
ROME, NY
09/27/2001**

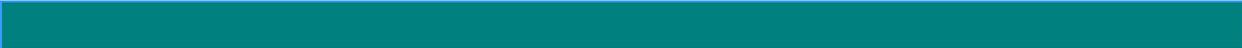
**Final Record of Decision for the
Building 20 Area of Concern (SS-23)
at the
Former Griffiss Air Force Base
Rome, New York**

June 2001

AIR FORCE BASE CONVERSION AGENCY

Table of Contents

Section	Page
List of Abbreviations and Acronyms.....	v
1 Declaration.....	1-1
1.1 Site Name and Location	1-1
1.2 Statement of Basis and Purpose	1-1
1.3 Description of Selected Remedy	1-1
1.4 Declaration Statement	1-2
1.5 Signature of Adoption of the Remedy.....	1-2
2 Decision Summary.....	2-1
2.1 Site Name, Location, and Brief Description	2-1
2.2 Site History and Investigation Activities	2-1
2.3 Highlights of Community Participation	2-5
2.4 Scope and Role of Site Response Action	2-6
2.5 Site Characteristics.....	2-6
2.6 Current and Potential Future Site Use.....	2-7
2.7 Summary of Site Risks.....	2-7
2.8 Interim Remedial Action.....	2-12
2.9 Principal Threat Wastes	2-13
2.10 Description of the Preferred Alternative	2-13
2.11 Statutory Determinations.....	2-14
2.12 Documentation of Significant Changes.....	2-15
3 Responsiveness Summary.....	3-1
4 References.....	4-1



List of Tables



Table		Page
1	Compounds Exceeding Standards and Guidance Values, Building 20 AOC, Ground-water Samples.....	2-16
2	Compounds Exceeding Guidance Values, Building 20 AOC, Soil Samples	2-16
3	Building 20 AOC Risk Assessment Exposure Scenarios	2-17



List of Figures



Figure		Page
1	Building 20 AOC Location Map	2-18
2	Building 20 AOC Site Map	2-19
3	Building 20 AOC Interim Remedial Action	2-20

List of Abbreviations and Acronyms

AFB	Air Force Base
AFBCA	Air Force Base Conversion Agency
AOC	Area of Concern
ARAR	Applicable or Relevant and Appropriate Requirement
ATSDR	Agency for Toxic Substances and Disease Registry
BGS	below ground surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COPC	chemicals of potential concern
DFAS	Defense Finance and Accounting Services
DoD	Department of Defense
EPA	United States Environmental Protection Agency
FFA	Federal Facility Agreement
HI	Hazard Index
HQ	Hazard Quotient
IRP	Installation Restoration Program
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NEADS	Northeast Air Defense Sector
NPL	National Priorities List
NYANG	New York Air National Guard
NYSDEC	New York State Department of Environmental Conservation
PCB	polychlorinated biphenyl
ppm	parts per million
RAB	Restoration Advisory Board
RI	remedial investigation
ROD	Record of Decision
SAC	Strategic Air Command
SARA	Superfund Amendment and Reauthorization Act
SVOC	semivolatile organic compound
TAGM	Technical and Administrative Guidance Memorandum
TBC	To-Be-Considered
VOC	volatile organic compound

1.1 Site Name and Location

The Building 20 Area of Concern (AOC) (site identification designation SS-23) is located at the former Griffiss Air Force Base (AFB) in Rome, Oneida County, New York.

1.2 Statement of Basis and Purpose

This Record of Decision (ROD) presents the institutional controls alternative, in the form of land use and groundwater restrictions, as the selected remedial action for Building 20 AOC at the former Griffiss AFB. This alternative has been chosen in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (USEPA 1980), as amended by the Superfund Amendment and Reauthorization Act (SARA) (USEPA 1986) and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) (USEPA 1968). The Air Force Base Conversion Agency (AFBCA), the United States Environmental Protection Agency (EPA), and the New York State Department of Environmental Conservation (NYSDEC) have adopted this ROD through joint agreement. The decision is based on the administrative record file for this site.

1.3 Description of Selected Remedy

The selected remedy for the Building 20 AOC is institutional controls in the form of land use restrictions for industrial/commercial use and groundwater use restrictions. The agencies will perform joint 5-year reviews to ensure that future land use and re-

stricted groundwater use are in compliance with the transfer documents (deed) and consistent with the risk assessment for industrial/commercial use with groundwater use restrictions.

1.4 Declaration Statement

The AFBCA, EPA, and NYSDEC have determined that institutional controls in the form of land use restrictions, which include groundwater use restrictions, are warranted for the Building 20 AOC. An interim remedial action was performed at this site in which the majority of soil contamination found during the remedial investigation was removed. The remaining chemicals detected in the soil do not exceed standards and guidance values and the known source of groundwater contamination has been removed. Although the baseline risk assessment indicated a slight noncarcinogenic risk to the industrial worker from ingestion of groundwater, the transfer documents (deed) for industrial/commercial use will restrict the use of site groundwater. The concentrations of the contaminants remaining in the site soil following the remedial action do not pose a current or potential threat to public health or the environment provided the property is used for industrial/commercial use. Future landowners will be bound, through transfer documents, to the industrial/commercial reuse of the property.

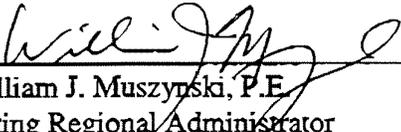
1.5 Signature of Adoption of the Remedy

On the basis of the remedial investigations and a successfully completed Interim Remedial Action performed at the Building 20 AOC, there is no evidence that residual contamination at this site poses a current or future potential threat to human health or the environment when used for industrial/commercial purposes with groundwater use restrictions. Future landowners will be bound, through transfer documents (deed), to the industrial/commercial reuse of the property. The New York State Department of Environmental Conservation has concurred with the selected remedial action presented in this ROD.



Albert F. Lowas, Jr.
Director
Air Force Base Conversion Agency

August 30, 2001
Date



William J. Muszynski, P.E.
Acting Regional Administrator
United States Environmental Protection Agency, Region 2

9/27/01
Date

2.1 Site Name, Location, and Brief Description

The Building 20 Area of Concern (AOC) (site identification designation SS-23) is located at the former Griffiss Air Force Base (AFB) in Rome, Oneida County, New York.

Building 20 is located in the south-central portion of the base along the southern margin of the industrial complex (see Figure 1). It is bounded by Perimeter Road to the west and Ellsworth Road to the south (see Figure 2). Building 20 is the locomotive roundhouse, which was used to store and service diesel locomotives at the former base. Operations at Building 20 began in 1943. During operations, lubricants and diesel locomotive parts were used and stored in the roundhouse. PCB-containing hydraulic fluids were used in the locomotives.

2.2 Site History and Investigation Activities

The Former Griffiss AFB Operational History

The mission of the former Griffiss AFB varied over the years. The base was activated on February 1, 1942, as Rome Air Depot, with the mission of storage, maintenance, and shipment of material for the U.S. Army Air Corps. Upon creation of the U.S. Air Force in 1947, the depot was renamed Griffiss Air Force Base. The base became an electronics center in 1950, with the transfer of Watson Laboratory Complex (later Rome Laboratory). The 49th Fighter Interceptor Squadron was also added in that year. In June 1951, the Rome Air Development Center was established with the mission of accomplishing applied research, development, and testing of electronic air-ground systems.

The Headquarters of the Ground Electronics Engineering Installations Agency was added in June 1958 to engineer and install ground communications equipment throughout the world. On July 1, 1970, the 416th Bombardment Wing of the Strategic Air Command (SAC) was activated with the mission of maintenance and implementation of both effective air refueling operations and long-range bombardment capability. Griffiss AFB was designated for realignment under the Base Realignment and Closure Act in 1993 resulting in deactivation of the 416th Bombardment Wing in September 1995. Rome Laboratory and the Northeast Air Defense Sector (NEADS) will continue to operate at their current locations; the New York Air National Guard (NYANG) operated the runway for the 10th Mountain Division deployments until October 1998 when they were relocated to Fort Drum; and the Defense Finance and Accounting Services (DFAS) has established an operating location at the former Griffiss AFB.

Environmental Background

As a result of the various national defense missions carried out at the former Griffiss AFB since 1942, hazardous and toxic substances were used and hazardous wastes were generated, stored, or disposed at various sites on the installation. The defense missions involved, among others, procurement, storage, maintenance, and shipping of war materiel; research and development; and aircraft operations and maintenance.

Numerous studies and investigations under the U.S. Department of Defense (DoD) Installation Restoration Program (IRP) have been carried out to locate, assess, and quantify the past toxic and hazardous waste storage, disposal, and spill sites. These investigations included a records search in 1981 (Engineering Science 1981), interviews with base personnel, a field inspection, compilation of an inventory of wastes, evaluation of disposal practices, and an assessment to determine the nature and extent of site contamination; Problem Confirmation and Quantification studies (similar to what is now designated a Site Investigation) in 1982 (Weston 1982) and 1985 (Weston 1985); soil and groundwater analyses in 1986; a base-wide health assessment in 1988 by the U.S. Public Health Service, Agency for Toxic Substances and Disease Registry (ATSDR) (ATSDR 1988); base-specific hydrology investigations in 1989 and 1990 (Geotech 1991); a groundwater investigation in 1991; and site-specific investigations between 1989 and

1993. ATSDR issued a Public Health Assessment for Griffiss AFB, dated October 23, 1995 (ATSDR 1995), and an addendum, dated September 9, 1996.

Pursuant to Section 105 of CERCLA, Griffiss AFB was included on the National Priorities List (NPL) on July 15, 1987. On August 21, 1990, the agencies entered into a Federal Facility Agreement under Section 120 of CERCLA. Under the terms of the agreement, the Air Force was required to prepare and submit numerous reports to NYSDEC and EPA for review and comment. These reports address remedial activities that the Air Force is required to undertake under CERCLA and include identification of AOCs on base; a scope of work for a remedial investigation (RI); a work plan for the RI, including a sampling and analysis plan and a quality assurance project plan; a baseline risk assessment; a community relations plan; and an RI report. The Air Force delivered the draft-final RI report covering 31 AOCs to EPA and NYSDEC on December 20, 1996 (Law 1996). The draft Closure Certification Report for Interim Remedial Action was delivered on May 24, 2000 (Ocuto 2000).

This ROD for institutional controls is based on an evaluation of potential threats to human health and the environment due to contamination in the soil and groundwater and the performance of interim remedial actions at the Building 20 AOC. During the RI, a site-specific baseline risk assessment (using appropriate toxicological and exposure assumptions to evaluate cancer risks and non-cancer health hazards) was conducted in order to evaluate the risks posed by detected site contaminants to the reasonably maximally exposed individual under current and future land use assumptions. The risk assessment for this site evaluated an industrial use scenario. In the RI report, the concentrations of the contaminants were compared to available standards and guidance values using federal and state environmental and public health laws that were identified as potentially applicable or relevant and appropriate requirements at the site. Chemical-specific ARARs are usually health- or risk-based numerical values or methodologies that result in a numerical value when applied to site-specific conditions. Currently, there are no chemical-specific ARARs for soil (other than for PCBs), therefore, other non-promulgated federal and state advisories and guidance values, referred to as To-Be-Considereds (TBCs), and background levels of the contaminants in the absence of TBCs, were considered.

Initial Site Investigations

In 1985, soil was removed as part of steam tunnel entrance work at the northwest corner of Building 20. The construction contractor encountered a concrete conduit that housed a previously abandoned steam line. Upon penetration of the foundation, approximately 150 to 200 gallons of a free flowing oily liquid entered the excavation. It was determined that a floor drain system within the building (connected to the sanitary sewer system) had developed a break which allowed waste fluids to leak into a cavity beneath the floor.

All recoverable liquid, contaminated soil, concrete, and debris encountered were containerized into 55-gallon drums (16 drums of liquids and 141 drums of solids). Subsequent analysis of the excavated material reported 109 parts per million (ppm) PCBs, 700 ppm lead, and 446,000 ppm oil and grease. This material was properly disposed of by the Air Force in 1987.

In 1986, subsurface investigations at the northwest corner of Building 20 were performed (HET 1986). Five soil borings were advanced through the concrete floor inside the building, soil samples were collected at 2-foot intervals to groundwater (encountered at 8 feet BGS), and one grab groundwater sample was collected from each soil boring. One monitoring well B20MW-1 was also installed. The sampling results revealed residual hydrocarbon contamination in all borings and residual metals near the surface in the northwest and southwest corners of the building.

In 1992, as part of the 1992/1993 quarterly sampling program, B20MW-1 was sampled for four consecutive quarters. Three volatile organic compounds, one semivolatile organic compound, and ten metals were detected. Glycols were detected in two of the four quarters of sampling.

Remedial Investigation

In 1994, an RI was performed (Law 1996). The main objective of the RI was to investigate the nature and extent of environmental contamination from historical releases at the AOC in order to determine whether any further remedial action was necessary to prevent potential threats to human health and the environment that might arise from exposure to site conditions. The RI included the drilling of six soil borings; the collection of 19 soil samples for on-site field screening analysis (four of which were confirmed off-

site); the collection of one grab groundwater sample from one of the soil borings; and the installation and sampling of two groundwater wells (B20MW-2 and B20MW-3) and sampling of the one existing well (B20MW-1).

Soil Investigation. Analysis of the soil samples collected during the RI field screening indicated the presence of two SVOCs, and eight metals. Three metals were detected at concentrations above the potential TBCs and background screening levels. Off-site analysis of the confirmatory soil samples analyzed off site revealed the presence of five VOCs, 18 SVOCs, five pesticides, one PCB, 23 metals and petroleum hydrocarbons. The concentrations of five SVOCs and four metals exceeded potential TBCs or background screening concentrations for soil (see Table 1).

Groundwater Investigation. No analytes were detected in the field screening of the one grab groundwater sample collected for the RI. Analysis of the groundwater samples from monitoring wells indicated the presence of four VOCs, 17 SVOCs, eight pesticides, 21 metals, and petroleum hydrocarbons. The concentrations of six SVOCs, one pesticide, seven metals, and petroleum hydrocarbons exceeded the most stringent criterion for groundwater (see Table 2).

2.3 Highlights of Community Participation

The final proposed plan for the Building 20 AOC (AFBCA 2001), indicating institutional controls in the form of land use restrictions for industrial/commercial use with groundwater use restrictions, was released to the public on Friday, February 9, 2001. The document was made available to the public in both the administrative record file located at Building 301 in the Griffiss Business and Technology Park and in the Information Repository maintained at the Jervis Public Library. The notice announcing the availability of this document was published in the *Rome Sentinel* on February 9, 2001. A public comment period lasting from February 9, 2001, to March 11, 2001, was set up to encourage public participation in the remedial action selection process. In addition, a public meeting was held on March 1, 2001. The AFBCA and the Department of Health were present at the meeting and the AFBCA answered questions about issues at the AOC and the institutional controls proposal under consideration. A response to the comments re-

ceived during this period is included in the Responsiveness Summary, which is part of this ROD (see Section 3).

2.4 Scope and Role of Site Response Action

The scope of the institutional controls in the form of land use restrictions and groundwater use restrictions for the Building 20 AOC addresses the soil and groundwater at the site. The land use restrictions for industrial/commercial use are consistent with the risk assessment performed for occupational workers.

2.5 Site Characteristics

Building 20 is located in the south-central portion of the base along the southern margin of the industrial complex (see Figure 1). It is bounded by Perimeter Road to the west and Ellsworth Road to the south (see Figure 2). Building 20 is the locomotive roundhouse, which was used to store and service diesel locomotives at the former base. Operations at Building 20 began in 1943. During operations, lubricants and diesel locomotive parts were used and stored in the roundhouse. PCB-containing hydraulic fluids were used in the locomotives.

In the northwest corner of Building 20, a sump collects runoff from floor drains located in Building 20. Liquid collected in the sump is pumped to the sanitary sewer, which ultimately discharges to the Rome publicly owned treatment works. A concrete conduit for steam lines is connected to the sump. The conduit runs north from the sump to the north wall of Building 20 where steam service enters the building. Sometime in the past, the steam service was rerouted overhead and the concrete conduit was abandoned. It is not known whether the conduit was subsequently plugged.

The former Griffiss AFB covered approximately 3,552 contiguous acres in the lowlands of the Mohawk River Valley in Rome, Oneida County, New York. Topography within the valley is relatively flat, with elevations on the former Griffiss AFB ranging from 435 to 595 feet above mean sea level. Three Mile Creek, Six Mile Creek (both of which drain into the New York State Barge Canal, located to the south of the base), and several state-designated wetlands are located on the former Griffiss AFB, which is bordered by the Mohawk River on the west. Due to its high average precipitation and pre-

dominantly silty sands, the former Griffiss AFB is considered a groundwater recharge zone.

Building 20 is located on an area of the base that is topographically level, with about 3 feet of relief occurring in the surrounding area. The area around Building 20 is grassy to the south and predominantly paved to the north. The building is not located near any major surface water drainage features. Surface water runoff from the site is collected by the former base's storm drainage system. Storm drains run south to north on both the east and west sides of Building 20, carrying runoff to Six Mile Creek, which ultimately drains to the New York State Barge Canal. Building 20 AOC is located on a groundwater divide; groundwater on the west side of the AOC flows to the west toward Three Mile Creek and on the east side groundwater flows east to Rainbow Creek.

The upper 2 feet of soil consists of fine-to-medium sand with silt and/or gravel. Subsurface soil and soil below the concrete inside the building and below the asphalt outside the building consisted primarily of fine-to-medium sand with variable silt and gravel ranging from 2 to 20 feet below ground surface (BGS).

2.6 Current and Potential Future Site Use

The current land use designation for the Building 20 AOC is industrial. In accordance with the Griffiss Redevelopment Planning Council redevelopment scenario, the future land use designation is industrial/commercial.

2.7 Summary of Site Risks

Site risks were analyzed based on the extent of contamination at the Building 20 AOC. As part of the RI, a baseline risk assessment was conducted to evaluate current and future potential risks to human health and the environment associated with contaminants found in the soil and groundwater at the site. The results of this assessment and the interim remedial action were considered when formulating this ROD for institutional controls.

Human Health Risk Assessment

A baseline human health risk assessment was conducted during the RI to determine whether chemicals detected at the Building 20 AOC could pose health risks to indi-

viduals under current and proposed future land use. As part of the baseline risk assessment, the following four-step process was used to assess site-related human health risks for a reasonable maximum exposure scenario:

- # Hazard Identification—identifies the contaminants of concern at the site based on several factors such as toxicity, frequency of occurrence, and concentration;
- # Exposure Assessment—estimates the magnitude of actual and/or potential human exposures, the frequency and duration of these exposures, and the pathway (e.g., ingestion of contaminated soil) by which humans are potentially exposed;
- # Toxicity Assessment—determines the types of adverse health effects associated with chemical exposures and the relationship between magnitude of exposure (dose) and severity of adverse effects (response); and
- # Risk Characterization—summarizes and combines outputs of the exposure and toxicity assessments to provide a quantitative (e.g., one-in-a-million excess cancer risk and non-cancer Hazard Index value) assessment of site-related risks and a discussion of uncertainties associated with the evaluation of the risks and hazards for the site.

Chemicals of potential concern (COPCs) were selected for use in the risk assessment based on the analytical results and data quality evaluation. All contaminants detected in the soil and groundwater at the site were considered chemicals of potential concern with the exception of inorganics detected at concentrations less than twice the mean background concentrations; iron, magnesium, calcium, potassium, and sodium, which are essential human nutrients; and compounds detected in less than 5% of the total samples (unless they were known human carcinogens). As a class, petroleum hydrocarbons were not included as a chemical of concern; however, the individual toxic constituents (e.g., benzene, toluene, ethylbenzene) were evaluated.

The human health risk assessment evaluated potential exposure of utility and construction workers to chemicals detected in the soil and industrial workers to chemicals detected in groundwater. The various exposure scenarios for each population are described in Table 3. Intake assumptions, which are based on EPA guidance, are more fully described in the RI.

Quantitative estimates of carcinogenic and noncarcinogenic risks were calculated for the Building 20 AOC as part of a risk characterization. The risk characterization evaluates potential health risks based on estimated exposure intakes and toxicity values. For carcinogens, risks are estimated as the incremental probability of an individual developing cancer over a lifetime as a result of exposure to the potential carcinogen. The risks of the individual chemicals are summed for each pathway to develop a total risk estimate. The range of acceptable risk is generally considered to be 1 in 10,000 (1×10^{-4}) to 1 in 1,000,000 (1×10^{-6}) of an individual developing cancer over a 70-year lifetime from exposure to the contaminant(s) under specific exposure assumptions. Therefore, sites with carcinogenic risk below the risk range for a reasonable maximum exposure do not generally require cleanup based upon carcinogenic risk under the NCP.

To assess the overall noncarcinogenic effects posed by more than one contaminant, EPA has developed the Hazard Quotient (HQ) and Hazard Index (HI). The HQ is the ratio of the chronic daily intake of a chemical to the reference dose for the chemical. The reference dose is an estimate (with uncertainty spanning perhaps an order of magnitude or greater) of a daily exposure level for the human population, including sensitive sub-populations, that is likely to be without an appreciable risk of deleterious effects during a portion of a lifetime. The HQs are summed for all contaminants within an exposure pathway (e.g., ingestion of soil) and across pathways to determine the HI. When the HI exceeds 1, there may be concern for potential noncarcinogenic health effects if the contaminants in question are believed to cause similar toxic effects.

EPA bases its decision to conduct site remediation on the risk to human health and the environment. Cleanup actions may be taken when EPA determines that the risk at a site exceeds the cancer risk level of 1 in 10,000 (1×10^{-4}) or if the noncarcinogenic HI exceeds a level of 1. Once either of these thresholds has been exceeded, the 1 in 1,000,000 (1×10^{-6}) risk level and an HI of 1 or less may be used as the point of departure for determining remediation goals for alternatives.

Results of Site-Specific Health Risk Assessment

Potential risks from exposure to COPCs at the Building 20 AOC were evaluated for utility, construction, and industrial workers during the RI, prior to the interim reme-

dial action. The potential carcinogenic and noncarcinogenic risks from exposure to soil and groundwater are summarized below.

Carcinogenic Risks

The total carcinogenic risk associated with exposure of utility workers to subsurface soil was 1×10^{-6} , which is at the low end of the EPA's target risk range. The pathway-specific risks for utility workers from ingestion of soil, inhalation of fugitive dust, and dermal contact were 1×10^{-6} , 3×10^{-10} , and 5×10^{-9} , respectively. The total carcinogenic risk associated with exposure of construction workers to subsurface soil was 2×10^{-6} , which is within the EPA's target risk range. The pathway-specific risks for construction workers from incidental ingestion of soil, inhalation of fugitive dust, and dermal contact were 2×10^{-6} , 8×10^{-11} , and 1×10^{-9} , respectively. The total carcinogenic risk associated with exposure of industrial workers to contaminants in groundwater was 1×10^{-4} , which is equal to the upper end of the EPA's target risk range. The pathway-specific risks for industrial workers from incidental ingestion of groundwater, inhalation of VOCs released from groundwater, and dermal contact with groundwater were 5×10^{-5} , 4×10^{-9} , and 6×10^{-5} , respectively. The risks from ingestion of groundwater contaminated with arsenic and dermal contact with groundwater contaminated with benzo(a)pyrene were the greatest contributors to the risk. Although arsenic did not exceed standards, it was included in the risk assessment and did contribute to the potential risk at this site.

Noncarcinogenic Risk

The total HI for potential utility workers exposed to subsurface soil was 0.001. This total HI is below the acceptable level of 1.

The total HI calculated for potential construction workers exposed to subsurface soil was 0.05. This total HI is below the acceptable level of 1.

The total HI for potential industrial workers exposed to groundwater was 2. This HI is above the acceptable level of 1. The calculated hazard indices for industrial workers from incidental ingestion of groundwater, inhalation of VOCs released from groundwater, and dermal contact with groundwater were 2.0, 2×10^{-6} , and 0.01 respectively. The exposure pathway presenting the greatest potential noncarcinogenic hazard was from

the incidental ingestion of groundwater contaminated with thallium, manganese, antimony, and arsenic. Although arsenic did not exceed standards, it was included in the risk assessment and did contribute to the potential risk at this site.

Toxicity values were not available for 2-methylnaphthalene, acenaphthylene, benzo(g,h,i)perylene, phenanthrene, coumaphos, and chloroneb and, therefore, the risk arising from exposure to these compounds was assessed qualitatively. Possible exposures to the site concentrations of these compounds are unlikely to pose a health hazard for occupational receptors potentially performing intrusive activities at this site.

The results of the human health baseline risk assessment indicate that chemicals in soil should not present a risk to current and future utility, construction, and industrial workers. The only potentially unacceptable risk was to industrial receptors from ingestion of groundwater (HI equal to 2), which is an unlikely scenario. Quantitative evaluation of risk is subject to several conservative assumptions and should not be considered an absolute measure of risk.

Uncertainties

Uncertainties exist in many areas of the human health risk assessment process. However, use of conservative variables in intake calculations and health-protective assumptions throughout the entire risk assessment process results in an assessment that is protective of human health and the environment. Examples of uncertainties associated with the risk assessment for this AOC include (1) Chemical samples were collected from the suspected source of contamination rather than through random sampling, which may result in a potential overestimation of risk; (2) The HIs associated with dermal contact with soil were not quantified for the majority of COPCs, which may lead to underestimation of the overall risk due to dermal contact; (3) The models used in the RI are likely to overestimate exposure point concentrations in air, which would cause a potential overestimation of risk for the inhalation pathway; (4) Toxicological criteria were not available for all chemicals found at the site, which may result in a potential underestimation of risk; (5) Construction at the site was assumed to occur over a one year period. Since construction may take less time to complete, this would result in a potential overestimation of risk; (6) It was assumed that groundwater would be used as a potable water source under the industrial use scenario (i.e., showering, ingestion, industrial processes) in the fu-

ture, which is unlikely since the site has ready access to the existing water supplies at the former base and in the City of Rome. This assumption would result in a potential overestimation of risk.

Ecological Risk Assessment

A baseline risk assessment for ecological receptors at the Building 20 AOC was conducted during the RI. Since Building 20 is located in a highly developed portion of the base, no complete exposure pathways for ecological receptors were identified. Contamination that may be associated with the site is expected to be well below ground surface and ecological receptors are not expected to be found at these depths. In addition, the future land use designation is expected to remain industrial. Therefore, potential exposures related to this AOC are not expected to exist.

Although certain state-listed endangered plants and animals have been on or in the vicinity of the base, no threatened and/or endangered species have been identified at this site (Corey 1994). There are no federally listed (U.S. Department of the Interior) threatened or endangered plant or animal species at the former base.

2.8 Interim Remedial Action

In 1998, based upon the results of the RI and baseline risk assessment, an interim remedial action was performed to remove contaminated soil beneath the floor near the northwest corner of the building (see Figure 3) (Ocuto 2000). It was determined that the removal of contaminated soil from this location would mitigate the majority of contamination and resulting risk associated with this site. The work consisted primarily of saw cutting and removal of concrete, soil excavation, confirmation sampling, transportation and off-site disposal of excavated materials, grouting of abandoned pipelines, plugging and capping of existing floor drains and sumps, backfilling, and concrete restoration. A brief summary of this remedial action is provided below.

Remedial action work activities began on August 12, 1998. Equipment was mobilized, work zones were established, and the floor was saw cut in the area of the large excavation in the northwest corner of the building. The concrete was removed and stockpiled on a bermed liner. On the following day, the concrete floor was saw cut around the floor drains and the concrete removed. All pipes leading to the northwest and south bay

sumps were removed, plugged, and grouted and the sumps were plugged and capped. Contaminated soil was excavated from the northwest corner and added to the concrete stockpile on the bermed liner. The estimated volume of soil removed from the excavation was 2.1 cubic yards.

Confirmatory samples were taken after the removal action was completed to verify the effectiveness of this interim remedial action. The Air Force, EPA, and NYSDEC compared the results of the confirmatory soil samples to the risk-based cleanup goals and NYSDEC Technical and Administrative Guidance Memorandum (TAGM) 4046: Determination of Soil Cleanup Objectives and Soil Cleanup Levels (NYSDEC 1994). After agreement was reached that the project goals were met, the excavated area was backfilled with clean material and the concrete floor slab replaced.

On October 16, 1998, the stockpiled material was loaded for transport to Seneca Meadows for disposal.

2.9 Principal Threat Wastes

There are no principal threat wastes at the Building 20 AOC.

2.10 Description of the Preferred Alternative

Institutional controls in the form of land use restrictions for industrial/commercial use and groundwater use restrictions is proposed for the Building 20 AOC. Five-year reviews will be performed by the Air Force, in conjunction with the EPA and NYSDEC, to ensure that future land use is in compliance with the transfer documents (deed) for industrial/commercial use. The transfer documents will contain the following restrictions to ensure that the reuse of the site is consistent with the risk assessment:

- # The property will be designated for industrial/commercial use unless permission is obtained from the EPA, NYSDEC, and the New York State Department of Health; and
- # The owner or occupant of the property shall not extract, utilize, consume, or permit to be extracted any water from the subsurface aquifer within the boundary of the property unless such owner or occupant obtains prior written approval from the New York State Department of Health.

As a result of the interim remedial action, the majority of soil contamination found during the RI investigations at this AOC was removed and the remaining chemicals detected in the soil do not exceed standards and guidance values and the known source of the groundwater contamination has been removed. In addition, the baseline risk assessment for industrial/commercial use indicated that the levels of contamination present in the soil and groundwater prior to remediation fell within or below EPA's acceptable carcinogenic risk range and posed no noncarcinogenic risk to utility and construction workers, and just a slight noncarcinogenic risk to the industrial worker from ingestion of groundwater, which is a very unlikely pathway. Therefore, the concentrations of the chemicals remaining in the soil after the completion of the remedial action and the results of the baseline risk assessment for the chemicals found in the groundwater demonstrate that the remaining site contaminants, in conjunction with the institutional controls mentioned earlier, pose no current or potential threat to public health or the environment.

2.11 Statutory Determinations

The selected remedy must meet the statutory requirements of CERCLA, Section 121, which are itemized in Section 1.5 of this ROD and described below.

Protection of Human Health and the Environment

The plan for institutional controls in the form of land use restrictions for industrial/commercial use with groundwater use restrictions will provide adequate protection from exposure to contaminants by limiting the use of the site in accordance with the risk assessment.

Compliance with ARARs

Contaminant concentrations in the soil following the interim remedial action comply with the applicable ARARs. Furthermore, land use restrictions for industrial/commercial use will be consistent with the risk assessment, which was performed for occupational workers.

Cost-Effectiveness

No costs are associated with the selected alternative.

Utilization of Permanent Solutions and Alternative Treatment Technologies to the Maximum Extent Practicable

Treatment technologies are not included in the selected alternative.

Preference for Treatment as a Principal Element

Treatment technologies are not included in the selected alternative.

2.12 Documentation of Significant Changes

No significant changes have been made to the selected remedy from the time the proposed plan was released for public comment.

**Table 1
COMPOUNDS EXCEEDING STANDARDS AND GUIDANCE VALUES
BUILDING 20 AOC
GROUNDWATER SAMPLES**

Compound	Range of Detected Concentrations	Frequency of Detection Above Most Stringent Criterion	Most Stringent Criterion		
SVOCs (µg/L)					
a NYSDEC Class GA groundwater standard; June 1998	Benzo(a)anthracene	0.2 J - 0.3 J	2/4	0.002 ^a	
	Benzo(a)pyrene	0.2 J	2/4	ND	
b NYSDEC Class GA groundwater guidance values; June 1998	Benzo(b)fluoranthene	0.2 J - 0.4 J	2/4	0.002 ^b	
	Benzo(k)fluoranthene	0.08 J - 0.09 J	2/4	0.002 ^b	
	Chrysene	0.3 J - 0.4 J	2/4	0.002 ^b	
c Federal secondary maximum contaminant level	Indeno(1,2,3-cd)pyrene	0.04 J - 0.09 J	2/4	0.002 ^b	
	Pesticides/PCBs (µg/L)				
	Dieldrin	0.005 J	1/4	0.004 ^a	
Metals (mg/L)					
* Estimated concentrations are typically due to measuring very low levels below the quantitation limit but above the detection limit or due to a quality control concern identified by a data reviewer.	Aluminum	0.66 - 1.02	2/3	0.05 ^c	
	Antimony	0.0142 J	1/3	0.003 ^a	
	Chromium	0.0142 J - 0.114 J	1/3	0.05 ^a	
	Iron	0.088 J - 2.65	2/3	0.3 ^a	
	Manganese	0.088 - 0.816	3/3	0.05 ^c	
	Sodium	36.8 - 384	3/3	20 ^a	
	Thallium	0.00045 J - 0.005 J	1/3	0.0005 ^b	
	Wet Chemistry (mg/L)				
		Petroleum Hydrocarbons	0.09 J - 0.13 J	3/3	0.1 ^a

**Table 2
COMPOUNDS EXCEEDING GUIDANCE VALUES
BUILDING 20 AOC
SOIL SAMPLES**

Compound	Range of Detected Concentrations	Frequency of Detection Above Most Stringent Criterion	Most Stringent Criterion	
SVOCs (µg/kg)				
a NYS-recommended soil cleanup objective	Benzo(a)anthracene	31,000 J	1/4	224 ^a
b Background screening concentration	Chrysene	38,000 J	1/4	400 ^a
	Fluoranthene	130 J - 55,000	1/4	50,000 ^a
Key: J = Estimated concentration* U = Analyte not detected	Phenanthrene	130 J - 75,000	1/4	50,000 ^a
	Pyrene	100 J - 73,000 J	1/4	50,000 ^a
Metals (mg/kg)				
* Estimated concentrations are typically due to measuring very low levels below the quantitation limit but above the detection limit or due to a quality control concern identified by a data reviewer.	Calcium	1,950 - 74,800	2/4	23,821 ^b
	Chromium	9.8 - 27.7 J	1/4	22.6 ^b
	Silver	0.61 J - 6.4 J	1/4	1.1 U ^b
	Sodium	196 - 598	1/4	259 ^b

**Table 3
BUILDING 20 AOC
RISK ASSESSMENT
EXPOSURE SCENARIOS**

UTILITY AND CONSTRUCTION WORKERS	INDUSTRIAL WORKER
<ul style="list-style-type: none">• Incidental ingestion of soils• Inhalation of fugitive dust• Dermal contact with soils	<ul style="list-style-type: none">• Ingestion of groundwater• Dermal contact with groundwater• Inhalation of VOCs from groundwater

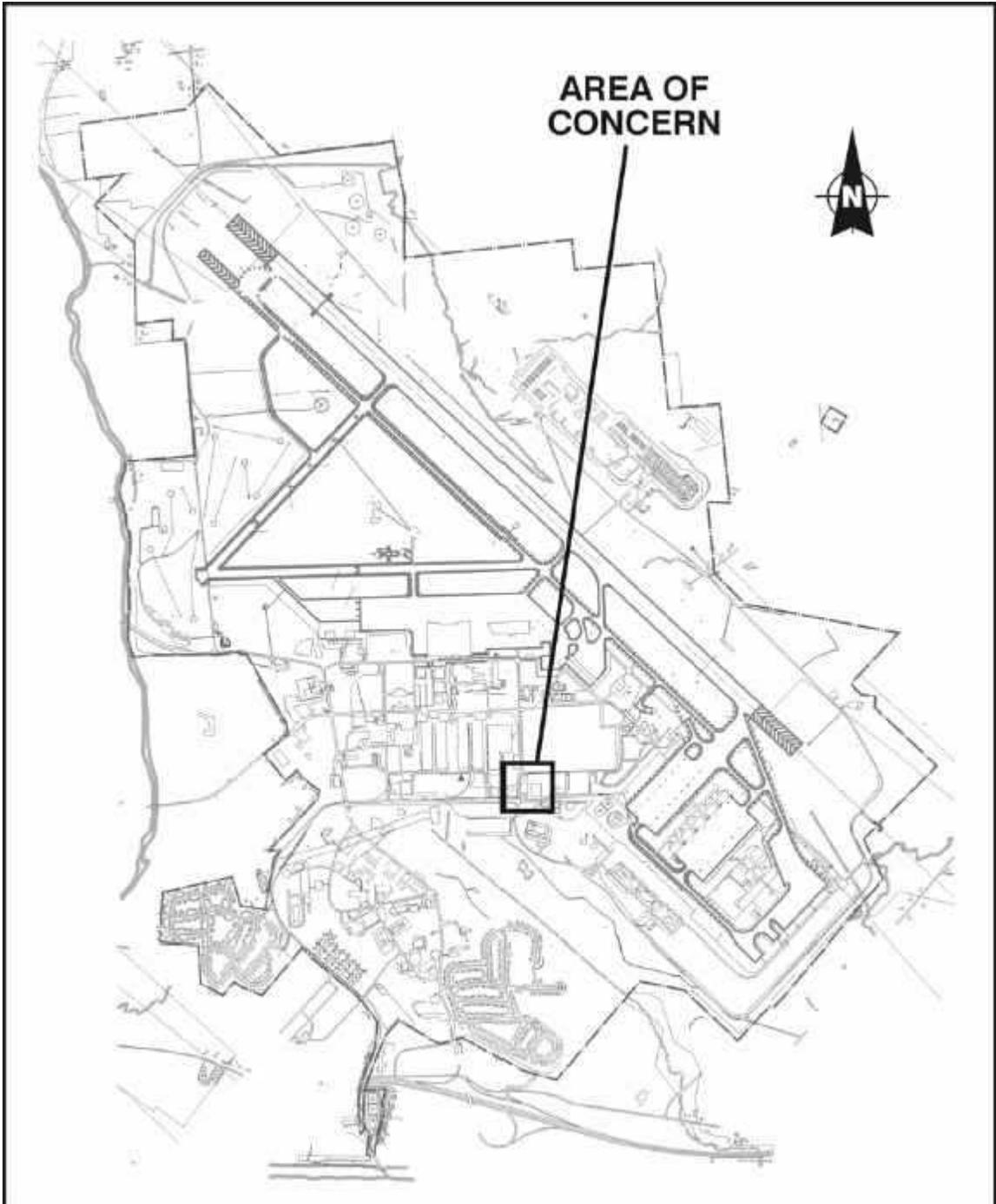


Figure 1 Building 20 AOC Location Map

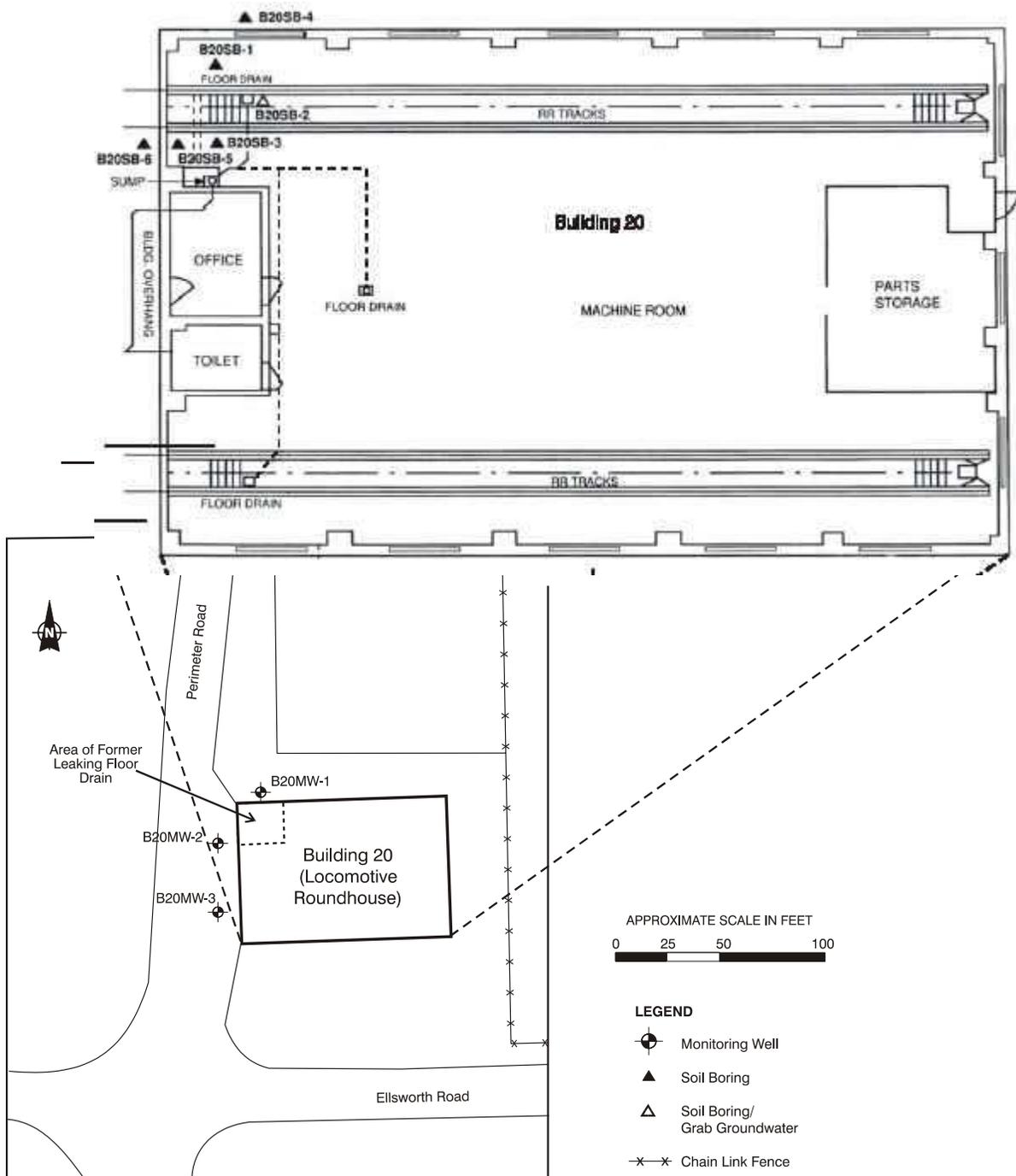


Figure 2 Building 20 AOC Site Map

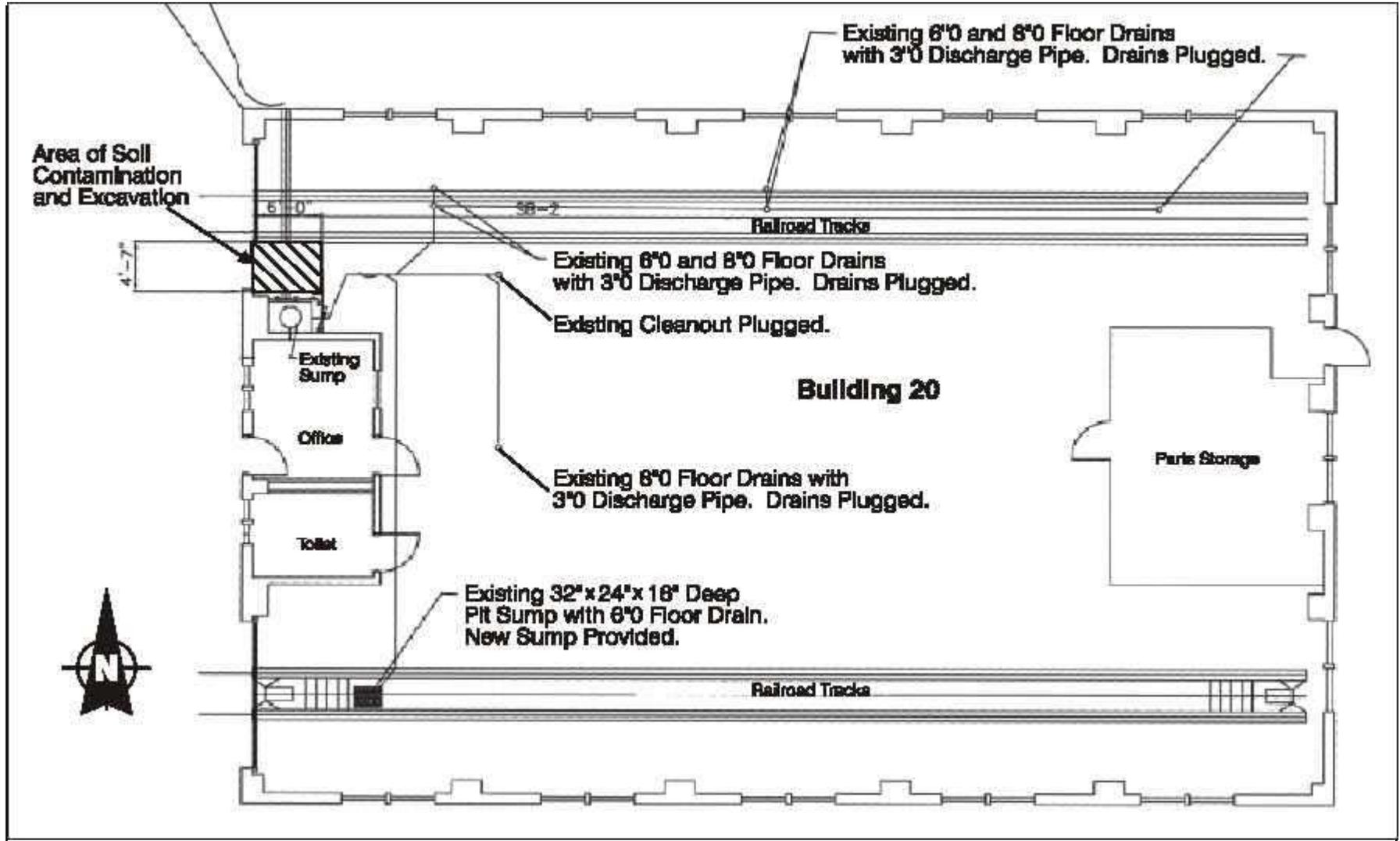


Figure 3 Building 20 AOC Interim Remedial Action

On Friday, February 9, 2001, AFBCA, following consultation with and concurrence of the EPA and NYSDEC, released for public comment the proposed plan for institutional controls at the Building 20 AOC at the former Griffiss Air Force Base. The release of the proposed plan initiated the public comment period, which concluded on March 11, 2001.

During the public comment period, a public meeting was held on Thursday, March 1, 2001, at 5:00 p.m. at the Floyd Town Hall located at 8299 Old Floyd Road, Rome, NY. A court reporter recorded the proceedings of the public meeting. A copy of the transcript and attendance list are included in the Administrative Record. The public comment period and the public meeting were intended to elicit public comment on the proposal for remedial action at the site.

This document summarizes and provides responses to the verbal comments received at the public meeting and the written comments received during the public comment period.

Comment #1 (oral - Carmen Malagisi)

Mr. Malagisi requested an explanation of the five-year review process and whether there was a termination criteria for the five-year review.

Response #1

The five-year review is conducted by the Air Force, in conjunction with the EPA and NYSDEC, to assure that human health and the environment are being protected by

the remedial actions being implemented. In this case, the review will ensure that the land use is in compliance with industrial/commercial use, institutional controls such as deed restrictions remain in place, and that the cleanup standards used in the ROD are still appropriate. During the first five-year review, and any subsequent review, if it is determined that conditions at a portion of the site have improved such that it meets unlimited and unrestricted use, then that portion of the site can be excluded from future review. However, it is the policy of the EPA that five-year reviews be conducted on a site-wide basis whenever any portion of a site requires a review.

Comment #2 (oral - John Fitzgerald)

Mr. Fitzgerald asked if it was possible to have only one five-year review.

Response #2

At a minimum, one five-year review will be conducted. During that five-year review, it could be decided that no additional reviews are necessary.

Comment #3 (oral - John Fitzgerald)

Mr. Fitzgerald asked if there would be a record of when the five-year reviews will occur.

Response #3

CERCLA regulations do not require that the public be an active participant in the five-year reviews, but they do require that the results of the five-year reviews be made available to the public in the Information Repository. EPA guidance, however, suggests that the public be consulted during the five-year review process. While the Air Force has an active presence at the former Griffiss AFB, the Restoration Advisory Board (RAB) will be informed of and invited to participate in the five-year reviews.

Comment #4 (oral - John Fitzgerald)

For the record, Mr. Fitzgerald noted that he and other residents have concerns about the groundwater, but they understand that those issues will be addressed at a later time.

Agency for Toxic Substances and Diseases Registry (ATSDR), 1995, *Public Health Assessment for Griffiss Air Force Base, Rome, Oneida County, New York*, CERCLIS NY4571924451, prepared for U.S. Department of Health and Human Services, Public Health Service, Albany, New York.

_____, 1988, *Health Assessment for Griffiss Air Force Base, Rome, New York*, prepared for U.S. Department of Health and Human Services, Public Health Service, Albany, New York.

Air Force Base Conversion Agency (AFBCA), February 2001, Proposed Plan Building 20 AOC, Rome, New York.

Corey, Michael, January 1994, *1993 Inventory of Rare Plant Species and Significant Natural Communities at Griffiss Air Force Base in Rome, New York*, prepared for the New York Natural Heritage Program.

Engineering Science, July 1981, *Installation Restoration Program Phase I, Records Search, Hazardous Materials Disposal Site*, prepared for United States Air Force, AFESC/DEVP, Tyndall Air Force Base, Florida.

Geotech, February 1991, *Hydrogeology Study Report, Griffiss AFB, Rome, New York*, Grand Junction, Colorado.

Hydro-Environmental Technologies (HET), 1986, *Letter Report for Soil Borings, Sample Analysis and Monitoring Well Installation at Various Locations, Griffiss AFB, New York*, Contract No. F30635-86-C-0111, Clarksville, New York.

Law Engineering and Environmental Services, Inc., December 1996, *Draft-Final Primary Report, Volume 21, Remedial Investigation, Griffiss Air Force Base, New York*, Contract No. DACA41-92-D-8001, Kennesaw, Georgia.

New York State Department of Environmental Conservation (NYSDEC), 1994, *Technical and Administrative Guidance Memorandum (TAGM) 4046: Determination of Soil Cleanup Objectives and Soil Cleanup Levels*.

Ocuto Blacktop and Paving Environmental Services, February 2000, *Closure Certification Report for Interim Remedial Action at Buildings 20, 112, 222, and 255*, prepared for United States Army Corps of Engineers, Contract No. DACA41-97-C-8001, Rome, New York.

U.S. Environmental Protection Agency (USEPA), 1986, *Superfund Amendments and Reauthorization Act (SARA)*, 41 U.S.C. 9601 et seq., Washington D.C.

_____, 1980, *Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)*, 42 U.S.C. s/s 9601 et seq., Washington D.C.

_____, 1968, *National Oil and Hazardous Substances Pollution Contingency Plan (NCP)*, 40 CFR 300, Washington D.C.

Weston, November 1985, *Installation Restoration Program Phase II - Problem Confirmation and Quantification Study Stage 2, Griffiss Air Force Base, Rome, New York*, prepared for United States Air Force, Brooks AFB, Texas.

_____, December 1982, *Installation Restoration Program Phase II - Problem Confirmation and Quantification Study Stage 1, Griffiss Air Force Base, Rome, New York*, prepared for United States Air Force, Brooks AFB, Texas.