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USATHAMA

U.S. Army Toxic and Hazardous Materials Agency

Enhanced Preliminary Assessment Report:

Dry Hill Army Housing Units Watertown, New York

November 1989

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prepared for

Commander
U.S. Army Toxic and Hazardous Materials Agency
Aberdeen Proving Ground, Maryland 21010-5401

prepared by

Environmental Research Division
Argonne National Laboratory
Argonne, Illinois 60439

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CONTENTS

SUMMARY	1
1 INTRODUCTION	3
1.1 Authority for the PA	3
1.2 Objectives	4
1.3 Procedures	5
2 PROPERTY CHARACTERIZATION	6
2.1 General Property Information	6
2.2 Description of Facility	6
2.3 Property History	10
2.4 Environmental Setting and Surrounding Land Use	10
2.5 Geologic and Hydrologic Settings	12
3 ENVIRONMENTALLY SIGNIFICANT OPERATIONS	13
3.1 Asbestos	13
3.2 Radon	13
3.3 Underground Storage Tanks	14
3.4 PCB Transformers	14
3.5 Wastewater Disposal	14
4 KNOWN AND SUSPECTED RELEASES	16
5 PRELIMINARY ASSESSMENT CONCLUSIONS	17
6 RECOMMENDATIONS	18
REFERENCES	19
APPENDIX: Photographs of Dry Hill Housing Facility and Surrounding Land	21

FIGURES

1 Location Map of Dry Hill Army Housing Facilities	7
2 Vicinity Map of Dry Hill Army Housing Units	8
3 Site Plan Map of Dry Hill Army Housing Units	9
4 Site Plan of the Watertown Air Force Station	11

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SUMMARY

The Dry Hill Army housing facility represents no imminent or substantial threat to human health or the environment. There is no evidence to suggest that hazardous or toxic materials have ever been released from the property. Although the housing property was originally developed as part of the Watertown Air Force Station, it is unlikely that waste materials generated at that facility would have been delivered to or managed at the adjacent housing area.

Appropriate actions are already underway by Fort Drum housing officials to address potential problems with asbestos, polychlorinated biphenyls (PCBs), minor fuel oil spills from filling of underground storage tanks, and radon. These actions should continue to completion.

In addition, the following actions are recommended prior to release of this property:

- As the underground fuel storage tanks are removed, sample soils in the area for petroleum contamination.
- Sample soils surrounding the sanitary sewer line which connects this housing property with the adjacent former Air Force Station for contaminants related to activities once conducted at the Air Force Station property.

These recommendations assume that this property will continue to be used for residential housing.



1 INTRODUCTION

In October 1988, Congress passed the Defense Authorization Amendments and Base Closure and Realignment Act, Public Law 100-526. This legislation provided the framework for making decisions about military base closures and realignments. The overall objective of the legislation is to close and realign bases so as to maximize savings without impairing the Army's overall military mission. In December 1988, the Defense Secretary's ad hoc Commission on Base Realignment and Closure issued its final report nominating candidate installations. The Commission's recommendations, subsequently approved by Congress, affect 111 Army installations, of which 81 are to be closed. Among the affected installations are 53 military housing areas, including the Dry Hill housing area addressed in this preliminary assessment.¹

Legislative directives require that all base closures and realignments be performed in accordance with applicable provisions of the National Environmental Policy Act (NEPA). As a result, NEPA documentation is being prepared for all properties scheduled to be closed or realigned. The newly formed Base Closure Division of the U.S. Army Toxic and Hazardous Materials Agency is responsible for supervising the preliminary assessment effort for all affected properties. These USATHAMA assessments will subsequently be incorporated into the NEPA documentation being prepared for the properties.

This document is a report of the enhanced preliminary assessment (PA) conducted by Argonne National Laboratory (ANL) at the Army stand-alone housing area near Watertown, New York.

1.1 AUTHORITY FOR THE PA

The USATHAMA has engaged ANL to support the Base Closure Program by assessing the environmental quality of the installations proposed for closure or realignment. Preliminary assessments are being conducted under the authority of the Defense Department's Installation Restoration Program (IRP); the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Public Law 91-510, also known as Superfund; the Superfund Amendments and Reauthorization Act of 1986, Public Law 99-499; and the Defense Authorization Amendments and Base Closure and Realignment Act of 1988, Public Law 100-526.

In conducting preliminary assessments, ANL has followed the methodologies and procedures outlined in Phase I of the IRP. Consequently, this PA addresses all documented or suspected incidents of actual or potential release of hazardous or toxic constituents to the environment.

In addition, this PA is "enhanced" to cover topics not normally addressed in a Phase I preliminary assessment. Specifically, this assessment considers and evaluates the following topical areas and issues:

- Status with respect to regulatory compliance,
- Asbestos,
- Polychlorinated biphenyls (PCBs),
- Radon hazards (to be assessed and reported on independently),
- Underground storage tanks,
- Current or potential restraints on facility utilization,
- Environmental issues requiring resolution,
- Health-risk perspectives associated with residential land use, and
- Other environmental concerns that might present impediments to the expeditious "excessing," or transfer and/or release, of federally owned property.

1.2 OBJECTIVES

This enhanced PA is based on existing information from Army housing records of initial property acquisition, initial construction, and major renovations and remodeling performed by local contractors or by the Army Corps of Engineers. The PA effort does not include the generation of new data. The objectives of the PA include:

- Identifying and characterizing all environmentally significant operations (ESOs),
- Identifying property areas or ESOs that may require a site investigation,
- Identifying ESOs or areas of environmental contamination that may require immediate remedial action,
- Identifying other actions that may be necessary to address and resolve all identified environmental problems, and
- Identifying other environmental concerns that may present impediments to the expeditious transfer of this property.

1.3 PROCEDURES

The PA began with a review of Army housing records at Fort Drum, N.Y., on August 10, 1989.² A site visit was conducted at the Dry Hill housing area near Watertown, N.Y., on August 11, 1989, at which time additional information was obtained through personal observations of ANL investigators.³ Photographs were taken of the housing units and surrounding properties as a means of documenting the condition of the housing units and immediate land uses. Site photographs are appended.

ANL investigators revisited the property on September 14, 1989, at which time the interiors of all but four (237, 245, 247, and 257; Dry Hill Road) of the units were inspected. Additional information was obtained from the Engineering Department of the Watertown Municipal Office and from the Watertown office of the Department of Health of the State of New York.³

All available information was evaluated with respect to actual or potential releases to air, soil, and surface and ground waters.

Access to individual housing units was obtained through the military housing inspector stationed at Fort Drum.

2 PROPERTY CHARACTERIZATION

2.1 GENERAL PROPERTY INFORMATION

The Dry Hill housing area is located on Swan Road in Jefferson County in northwestern New York, approximately four miles south of Watertown and 10 miles south of Fort Drum. The entire property consists of 14.65 acres. The housing area was originally constructed as part of the much larger Watertown Air Force Station complex. The land to the north and northwest of the Dry Hill housing area, formerly the site of the Air Force Station, is now occupied by a New York Department of Corrections facility.

Figures 1 and 2 show the general location of the housing area.

The first housing units were constructed in 1957. Construction was not completed until 1962.² The housing complex consists of 27 units, a playground, tennis court, and a basketball/volleyball court. No additional major construction has taken place on the property since that time. The Dry Hill housing area has been utilized by the Army since 1979 (originally under a lease arrangement) to supplement the shortage of military family housing at nearby Fort Drum. Occupancy is near full capacity at all times.^{3,4}

2.2 DESCRIPTION OF FACILITY

Figure 3 presents the site plan of the housing property.

Housing Units

The Dry Hill housing area consists of 27 "Capehart"-style homes, varying in size from two to four bedrooms, built on concrete slab foundations. Capehart is the model name given to these homes by the builder, National Homes. Each has a living/dining room, kitchen, and utility or storage room. All units have one bathroom, except for the single four-bedroom unit which has two. The first nine homes, constructed in 1957, do not include a garage. Later units, not constructed until 1962, include an attached garage. Homes without garages have been provided a metal utility shed.

Four two-bedroom houses have 816 square feet each. Of the 22 three-bedroom houses, 5 have 1,022 square feet, 12 have 1,235 square feet, and 5 have 1,300 square feet. The single four-bedroom house has 1,500 square feet.

Utilities

Since development of the property, the housing units have been supplied with city water, now piped in from a pump station on Washington Street about 1.5 miles from the site. No drinking water wells exist on the property.³ The housing facility also receives electricity from the city, and all telephone poles and transformers on site are the responsibility of the Niagara Mohawk Power Corporation.⁵ Some of the transformers are

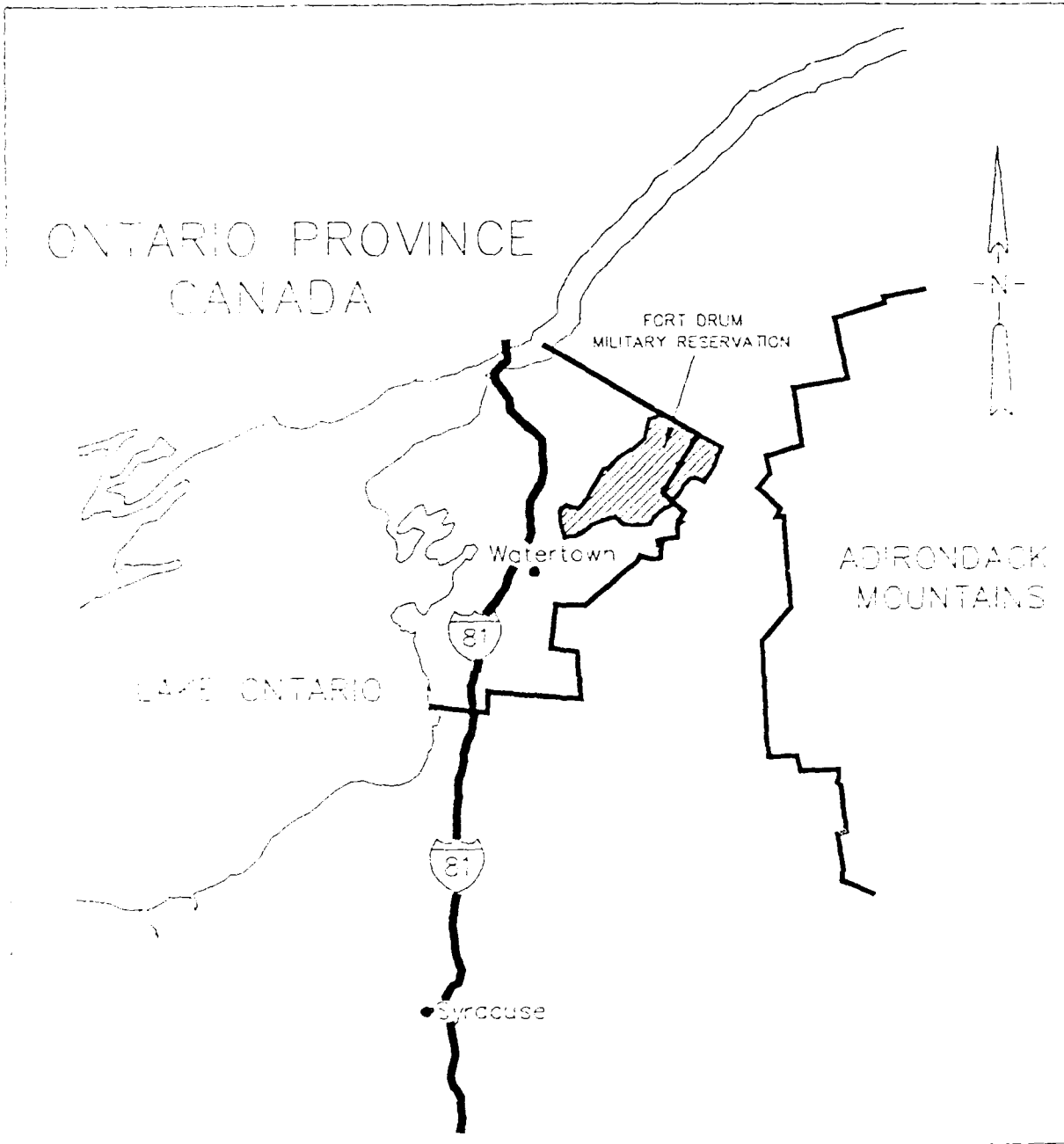


FIGURE 1 Location Map of Dry Hill Army Housing Facilities

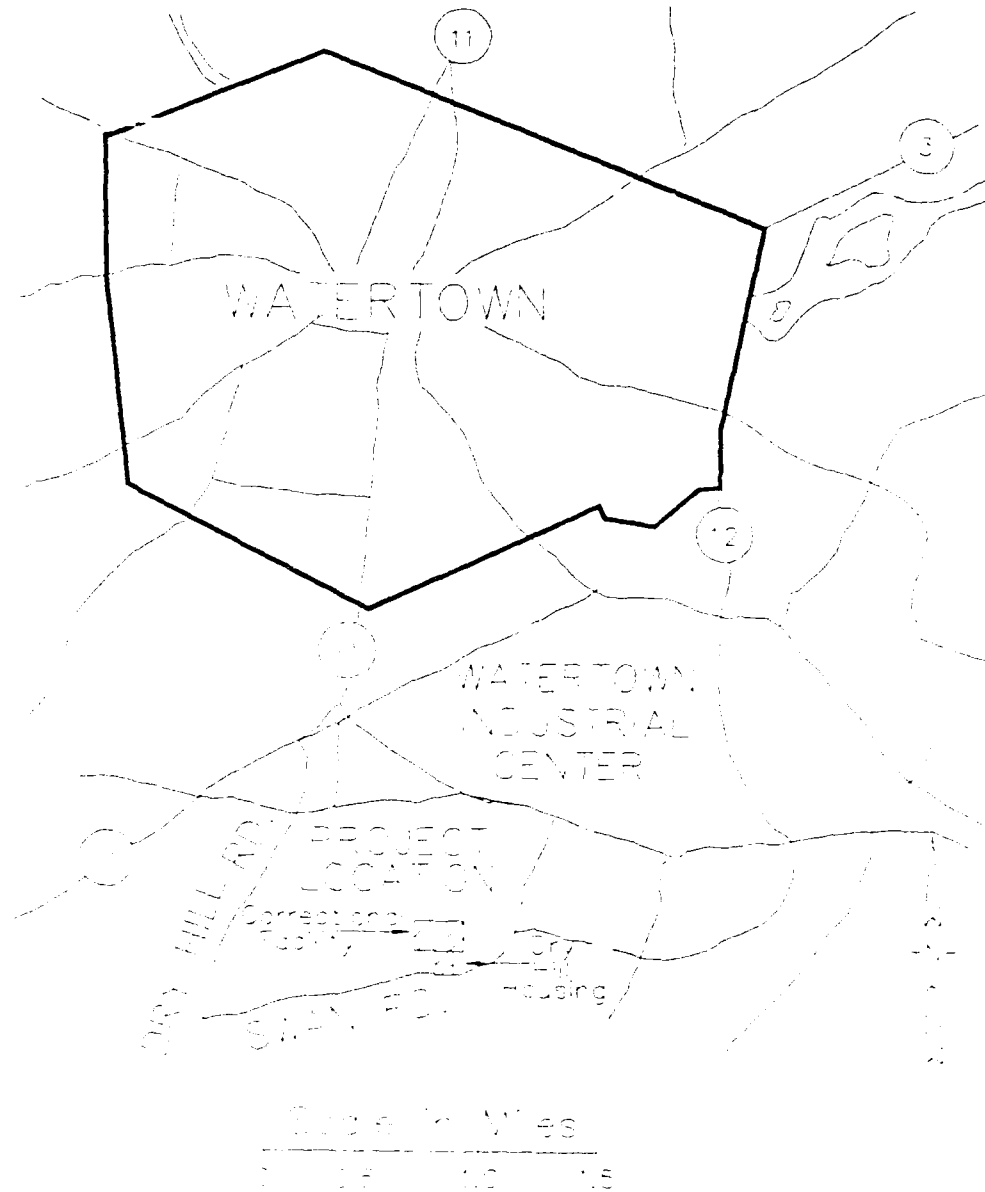


FIGURE 2 Vicinity Map of Dry Hill Army Housing Units

known to contain PCBs. Upon transfer of the property to Fort Drum, provision for separate metering of the services was made.^{6,7}

Sewage

The housing area was constructed as part of the Watertown Air Force Station, which included its own sewage treatment facility. Sewage from the Dry Hill housing area continues to be processed through that plant, located on land now occupied by a New York Department of Corrections prison. Solid waste is removed by the local disposal contractor.



FIGURE 3 Site Plan Map of Dry Hill Army Housing Units

Fuel Storage

Each housing unit has an underground storage tank that holds 275 gallons of heating oil.^{3,8} The underground storage tanks are located in the back of each home. All tanks are constructed of steel, installed during initial housing construction between 1957 and 1962.

A natural-gas distribution network was installed in the fall of 1988. At the time of the ANL site visit, the oil-fired furnaces in each home were being replaced by new, more efficient, gas-fired furnaces in preparation for the coming heating season. Hot water is provided by an electric water heater.³

Storm Drainage System

There is no record of storm drainage problems at the facility. Grading performed at the time of house construction⁹ and the road network direct much of the rainfall off-site.

Other Permanent Structures or Property Improvements

Two bus shelters are provided. Recreational facilities include a playground, tennis court, and basketball/volleyball court.⁴

2.3 PROPERTY HISTORY

The Dry Hill housing area was constructed, beginning in 1957, as a subdivision of the Watertown Air Force Station. Construction of the housing continued until 1962. The Air Force Station, immediately north and northwest of the housing area, occupied about 75 acres and included over 30 buildings.¹⁰ Operations at the Air Force Station centered on vehicle maintenance and storage, as well as providing housing for enlisted personnel in several dormitory-type barracks.¹¹ The complex included an oil-fired heating plant, which served the Air Force Station, and a sewage-treatment plant, which served both the Air Force Station and the housing area.

Beginning in 1979, under a lease agreement with the Air Force, the Army began utilizing the family housing units to supplement its shortage of military family housing at nearby Fort Drum. In July 1982, the Dry Hill housing area was transferred to the U.S. Department of the Army without reimbursement.¹²

Around 1980, the State of New York, Department of Correctional Services, began development of the Watertown Air Force Station site for use as a medium-security correctional facility. The prison became fully operational on April 1, 1982.¹³

2.4 ENVIRONMENTAL SETTING AND SURROUNDING LAND USE

Adjacent to the Dry Hill housing area to the north and northwest is a New York Department of Corrections prison. Scattered private homes and farms are located on largely undeveloped land in the remaining area. Watertown, approximately 4 miles north, and the surrounding area have a population in excess of 30,000. Fort Drum, a U.S. Army installation occupying more than 100,000 acres, is approximately 10 miles north.

There are no known endangered or threatened animal or plant species in the area affected by the proposed closure action. No structures on site are considered to be of historical significance. No cemetery (private or military) is situated on the housing property.⁴

Operations at the Watertown Air Force Station, located adjacent to the housing area, were terminated some years ago. The primary activity was vehicle maintenance and storage, as well as providing housing for enlisted personnel in several dormitory style barracks. Waste disposal procedures for the hazardous and toxic materials associated with vehicle maintenance activities at the Air Force Station are unknown. Figure 4 is a site plan of the once-active military facility.

Operations at the New York State Correctional Facility, current owners of the property, are not expected to produce any unusual environmental impact.

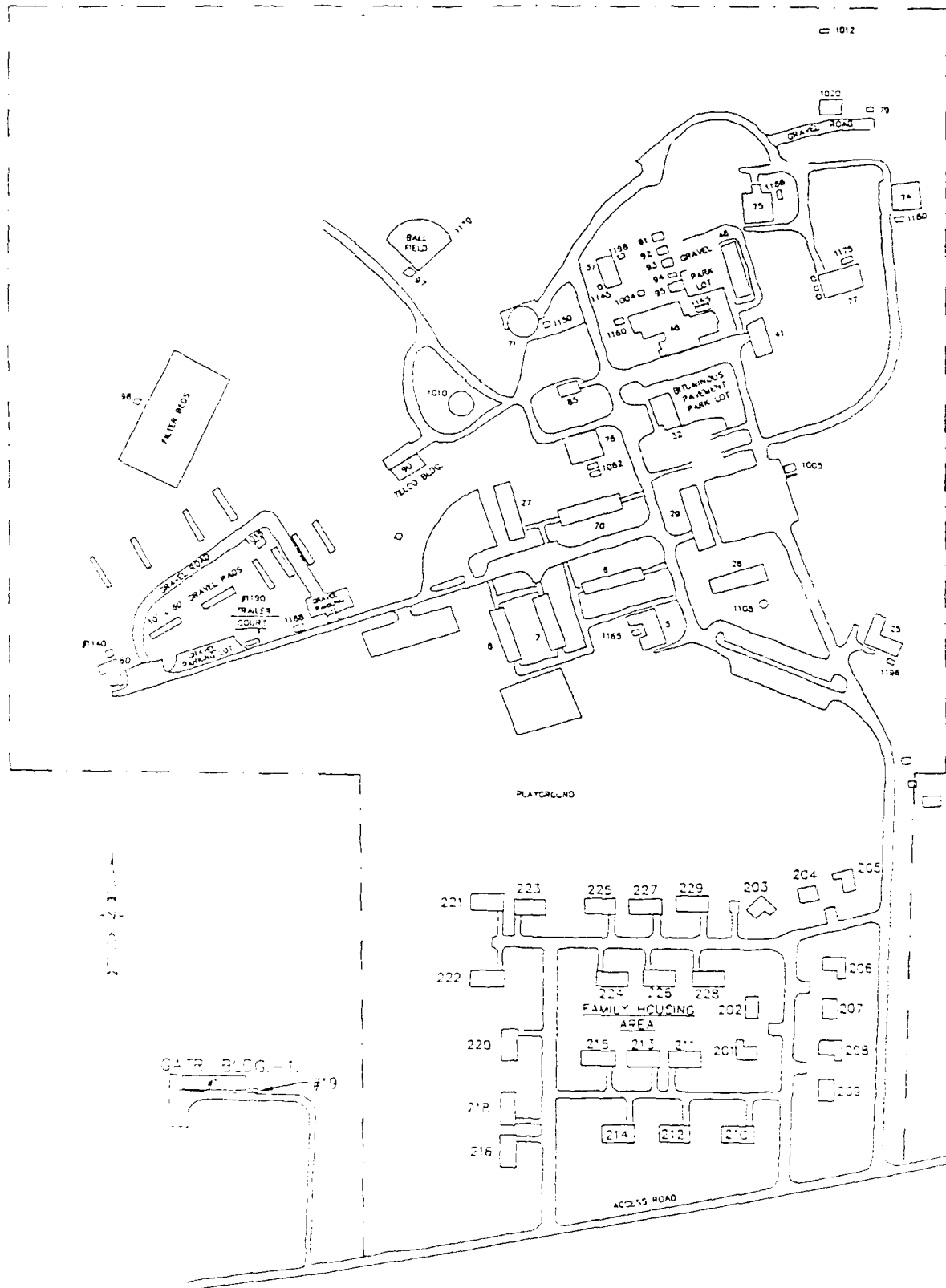


FIGURE 4 Site Plan of the Watertown Air Force Station

2.5 GEOLOGIC AND HYDROLOGIC SETTINGS

The geology and topography of Jefferson County and all of that region near Lake Ontario were greatly modified by glaciation.¹⁴ Ice moved south covering the area, depositing poorly sorted clay, silt, sand, and boulders. As the ice receded northward, a proglacial lake formed at its front. Wave action filtered the fine material out of some of the till hills creating permeable beach zones. A mantle of lake silt and clay then formed over the glacial deposits and filled in many of the depressions. As the lake level receded, becoming what is now Lake Ontario, streams dug shallow channels, which would become the extensive river and stream system around Watertown.

The Lake Ontario lowland is covered by glacial and lake deposits and is underlain by a series of sandstone-shale formations that slope gently southward at about 50 feet per mile. Glacial deposits cover the bedrock with as much as 150 feet of silt, clay, sand, and gravel. In addition, till may be more than 100 feet thick beneath the northwest to southwest inclined hills or drumlins (such as Dry Hill) formed by the invading glaciers, although 30 feet is the average. The landscape today is considered to be much as it was soon after the glacial lake receded.¹⁴

The proximity of Lake Ontario is strongly evident in the area by increased snowfall. Prevailing winds from the west and northwest across upper Lake Ontario blowing at an average speed of 10 to 15 miles per hour make annual snowfall near 100 inches common.¹⁵

3 ENVIRONMENTALLY SIGNIFICANT OPERATIONS

3.1 ASBESTOS

Fort Drum is currently investigating the military housing under its administration, including those units at the Dry Hill housing area, for the presence of asbestos. The objective is to identify those buildings with friable and nonfriable asbestos. The materials to be surveyed include suspended ceiling tile, floor tile, asbestos siding, plaster-gypsum wallboard, and dust accumulated inside ductwork.

Unit #256, representative of the Dry Hill housing units, was visited by the ANL team. There was no insulation on the heating pipes extending from the furnace. The electric water heater was covered by a fiberglass blanket. Aluminum siding covers the original wood and asbestos shingles. Fourteen units were reportedly constructed with asbestos shingles² (units #235, 237-239, 242-244, and 246-252). These units all now have vinyl siding. There is no documentation indicating deterioration or removal of the original asbestos shingles. It is presumed that the siding was not deteriorated and the vinyl siding was added for cosmetic reasons.

Of special concern, however, are the materials used in construction of the heating ductwork imbedded within the concrete slab floor/foundations of these "Capehart"-style houses. Typically, a cement-asbestos mixture called transite, with an asbestos content ranging from 5 to 75%, was used to form the heating pipe ductwork.¹⁶ Although the material is very strong, it is possible that the freezing, thawing, and expansion of the concrete slab and heating pipes during the heating seasons would cause the transite pipe to deteriorate.

It has been reported that the heating ducts were emitting large amounts of dust during the heating season.³ During the time of the ANL site visit, Fort Drum personnel were in the process of filling all of the floor duct openings in each house with cement. New high-efficiency, gas-fired furnaces with flexible ceiling ducts are currently being installed.

At the time the heating duct openings were being filled, floor tile samples from one of the housing units, removed by Fort Drum personnel, were tested for asbestos content by an independent contractor laboratory and found to contain 5% asbestos.¹⁷ All floor tiles in all of the housing units are scheduled to be replaced.³

3.2 RADON

The Fort Drum Directorate of Engineering and Housing instituted a radon surveillance program in February 1989.¹⁸ The radon monitoring program is to consist of two parts: (1) radon measurement and (2) radon mitigation, if necessary. Radon detector kits have been ordered by Fort Drum and will be placed in the housing units in the upcoming heating season (1989-1990) by Directorate of Engineering and Housing (DEH) personnel. Initial plans call for a year long radon sampling period.

In September 1989, ANL investigators installed radon monitors in the housing units in a separate monitoring effort under the Base Closure Program. Monitoring will last for a period of 90 days.

3.3 UNDERGROUND STORAGE TANKS

A 275-gallon underground storage tank for heating oil, installed at the time of each home's construction, is located in the rear of each residence.^{2,3,8} Inspection of the area surrounding the nearby fill pipe at a few of the residences showed minor soil stains resulting from inadvertent spills during tank refilling.^{3,19}

With natural gas being recently provided to the housing area, new high-efficiency, gas-fired furnaces are being installed in all units prior to the upcoming (1989-90) heating season.²⁰ Negotiations are underway with a local private contractor to remove all underground storage tanks.³

3.4 PCB TRANSFORMERS

Ten electric transformers, owned by the Niagara Mohawk Power Corporation, are located within the Dry Hill housing area.^{3,5} Six transformers, three each on two poles, are presumed to date from the time of housing area construction.²¹ Both poles have been labeled with PCB identification/warning tags. Four poles each support a single transformer. These are reported by Fort Drum personnel to have been manufactured after 1978 so that dielectric fluid would not contain PCBs. No evidence of spillage or soil contamination by transformer fluid was observed.^{3,19}

3.5 WASTEWATER DISPOSAL

The Dry Hill housing area was built in conjunction with the Watertown Air Force Station, which operated a sewage treatment plant for the site. The system, with a capacity of 34,000 gallons per day, consists of a lift station, chlorination chamber, two settling tanks, two aeration tanks, and required connecting piping. The housing area does not have an independent sewage system.^{22,23}

After the Army began leasing the Dry Hill housing area in 1979, and before the former Air Force Station was redeveloped into the State Correctional Facility, arrangements were made by the Director of Facilities Engineering at Fort Drum to have the sewage treatment plant and sewer lines from the housing area thoroughly cleaned. Arrangements were also made to provide a qualified operator of the sewage treatment plant.²⁴

In 1982, the development of the adjacent property into a New York State Correctional Facility was completed. Upgrading of the sewage treatment system was required. Infiltration of groundwater into the sanitary sewer was traced to the laterals extending from the housing area. These were replaced.¹³

To meet current standards for processing of sanitary waste disposal, the Dry Hill housing area/prison sewage system is only the first stage in the processing of the waste flow. Outflow sludge from the treatment plant is taken by the City of Watertown Sanitation Department to a final processing stage at the city plant.³

4 KNOWN AND SUSPECTED RELEASES

No major spills or impacts to the environment are known to have occurred at the Dry Hill housing area. No hazardous materials or hazardous wastes are stored on site.

Airborne asbestos releases are suspected because of deteriorated heating ducts which were constructed of asbestos-containing cement.

Some minor fuel spillage to the ground surface was observed in the vicinities of some of the underground fuel storage tank filler pipes.

5 PRELIMINARY ASSESSMENT CONCLUSIONS

The Dry Hill housing area was originally developed as part of the Watertown Air Force Station. There is no evidence that waste materials generated at that facility would have been delivered to or managed at the adjacent housing area, although specific procedures for handling those hazardous materials is unknown. It is unknown whether abandoned underground storage tanks used for oil, solvents, or fuel, located on the Air Force Station property, were removed or properly decommissioned. There is no documentation that contaminants associated with operations at the former Air Force Station have migrated along sewer lines which connect that property with the housing area. Details regarding waste generation and management at the Air Force Station are unknown.

Fort Drum housing officials have begun action to correct or investigate potential environmental problems which have been identified for the property.

1. Vent openings of floor heating ducts which contain an accumulation of dust possibly contaminated with asbestos have been sealed with cement.
2. The original underground storage tanks (over 30 years old) containing fuel oil are scheduled for removal in the near future.
3. Analysis of dielectric fluid of electric transformers on site has been performed. Six transformers (on two poles) have been identified and labeled as containing PCBs.
4. A year-long radon survey is planned to begin in the upcoming fall/winter heating season of 1989-90.

6 RECOMMENDATIONS

The Dry Hill housing facility presents no imminent or substantial threat to human health or the environment. There is no evidence to suggest that hazardous or toxic materials have ever been released from the property. The Fort Drum military housing section has already taken proper action to address potential problems from asbestos, PCBs, minor fuel oil spills from underground storage tanks, and radon.

The following actions are recommended prior to release of this property:

- As underground fuel tanks are removed, sample soils in the tank excavations for petroleum contamination.
- Sample soils surrounding sewer lines connecting this property with the adjacent former Air Force Station for contaminants related to past activities at the Air Force Station.

These recommendations assume that this property will continue to be used for residential housing.

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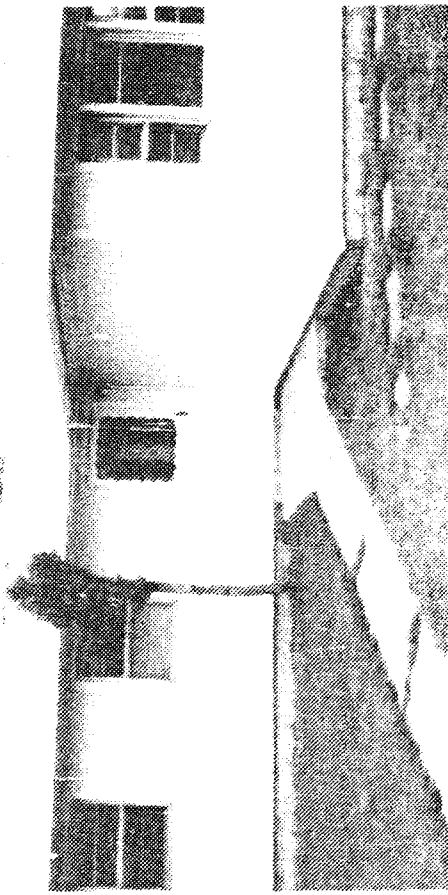
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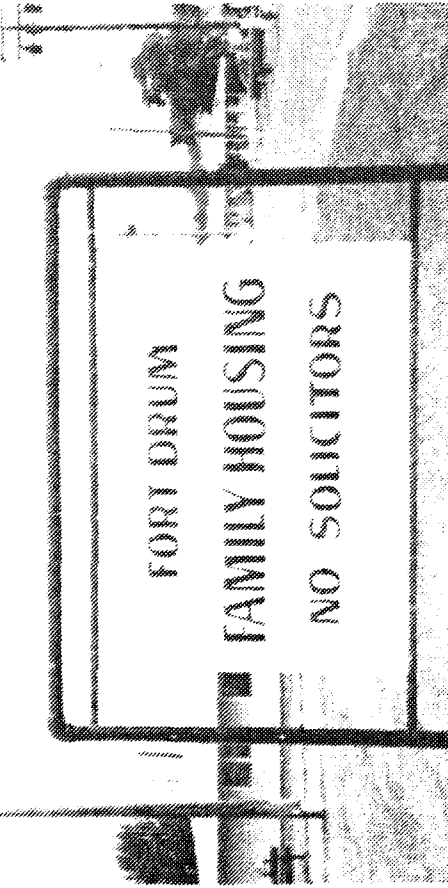
APPENDIX:
PHOTOGRAPHS OF DRY HILL HOUSING FACILITY
AND SURROUNDING LAND



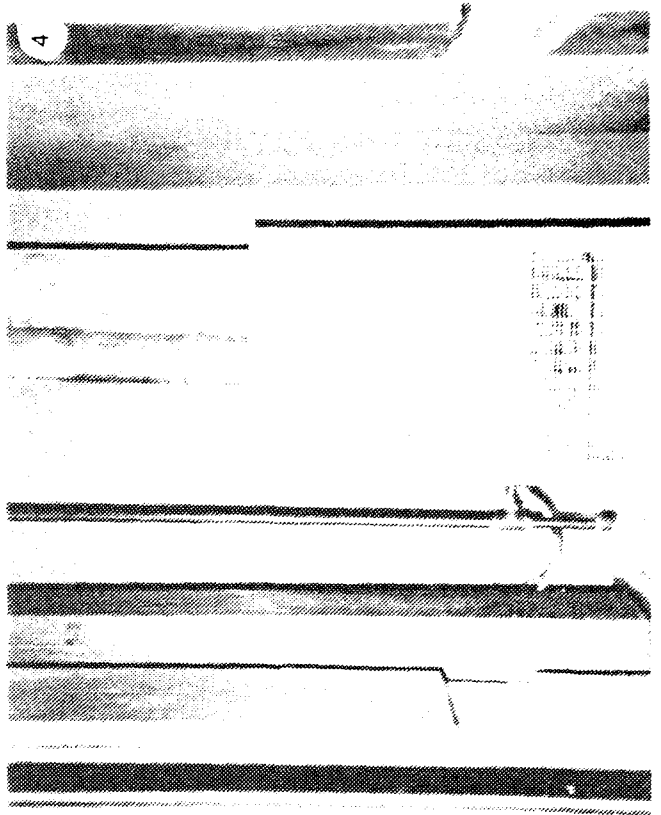
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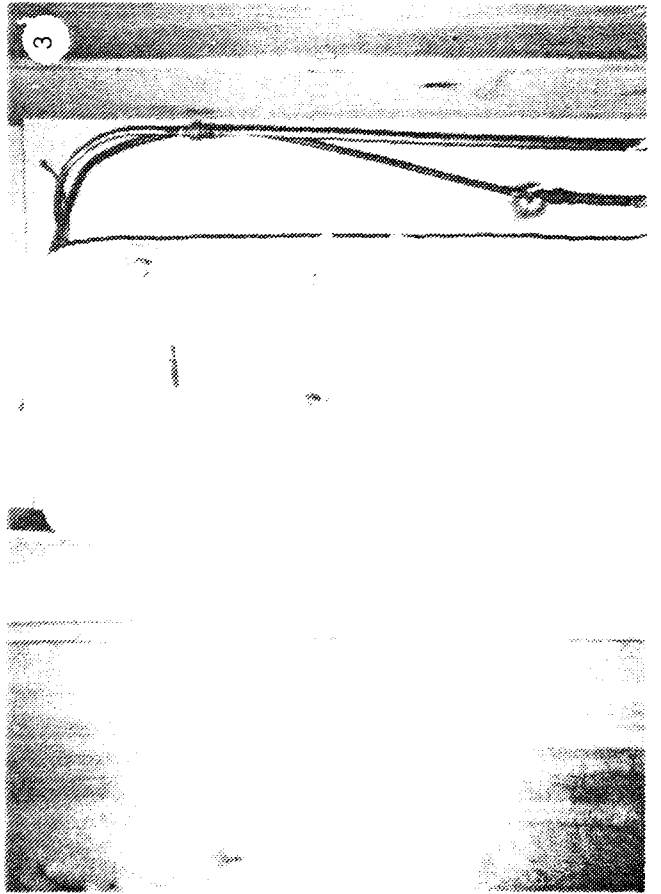
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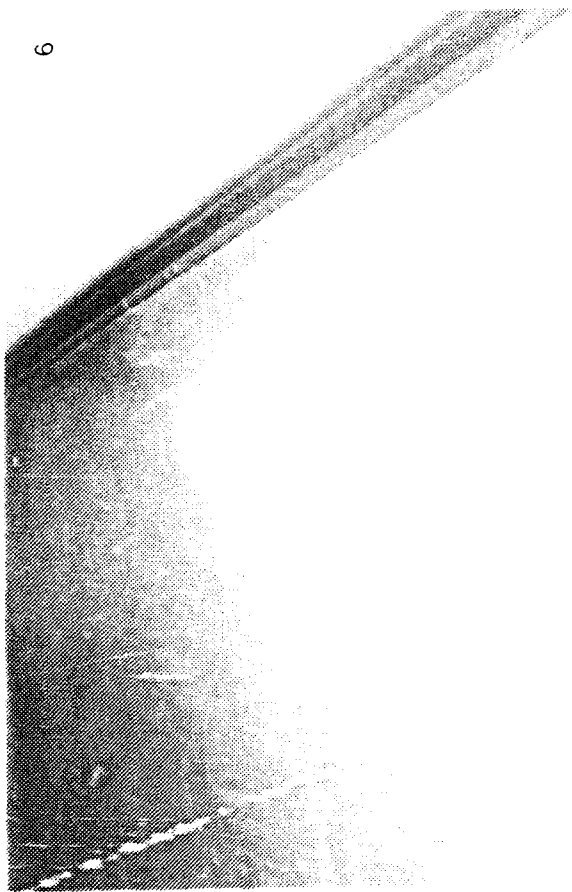


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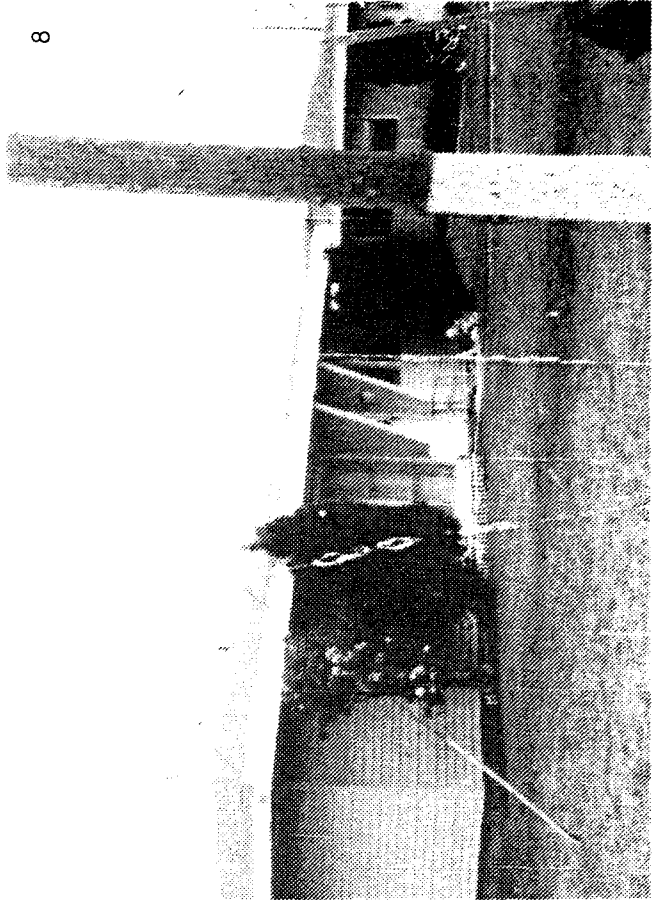


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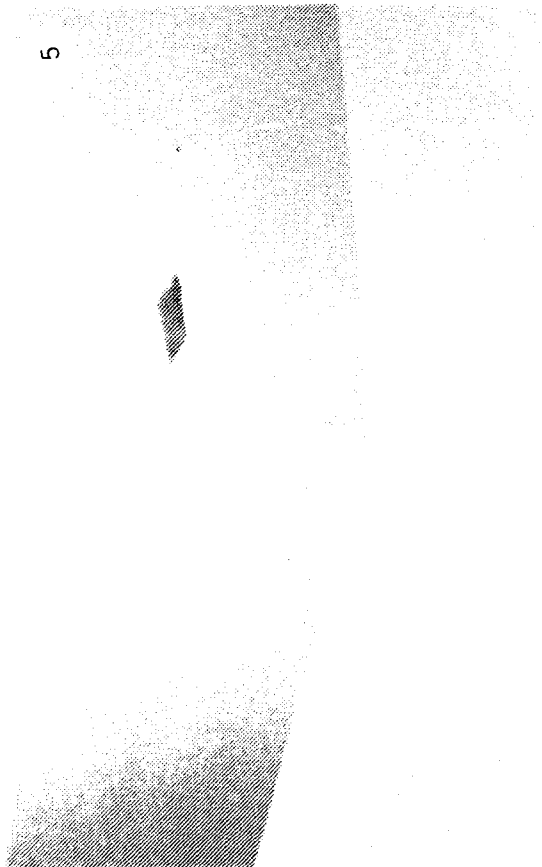




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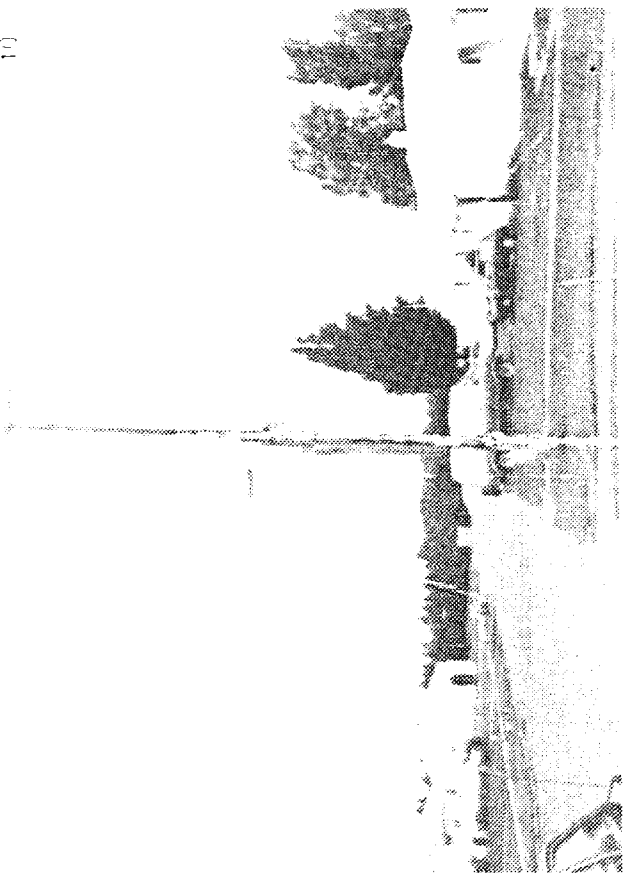


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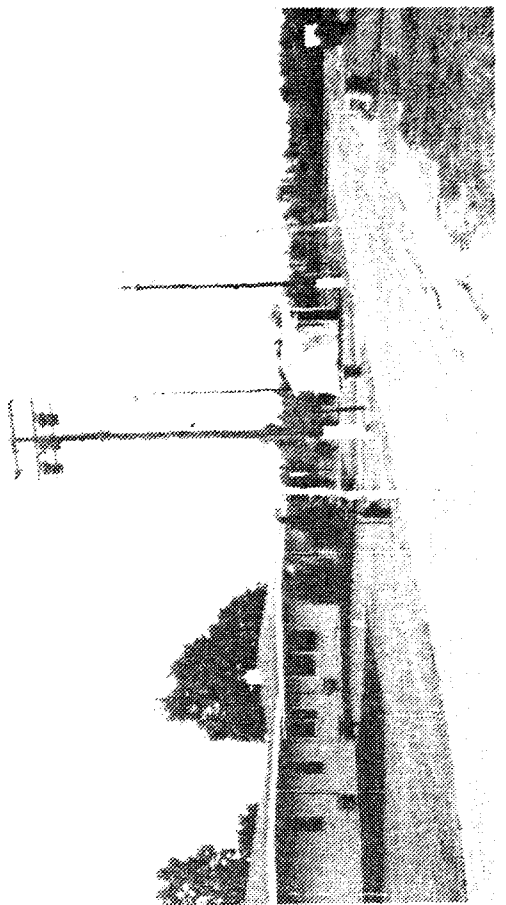


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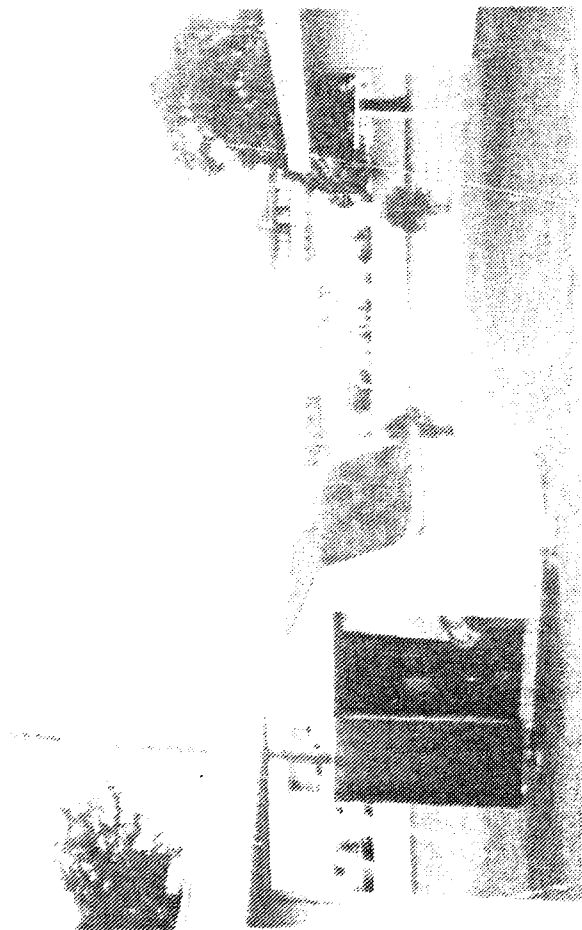
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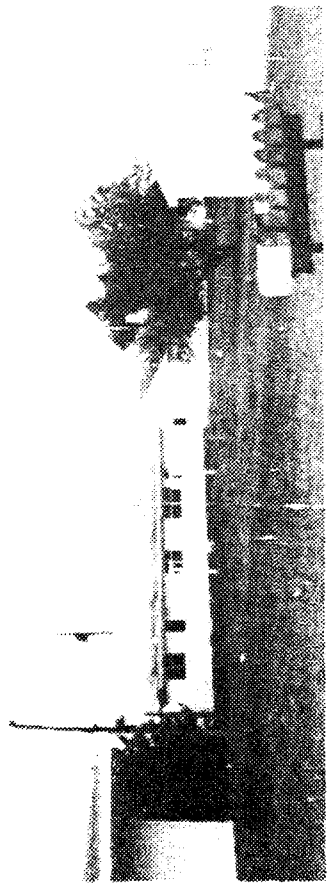
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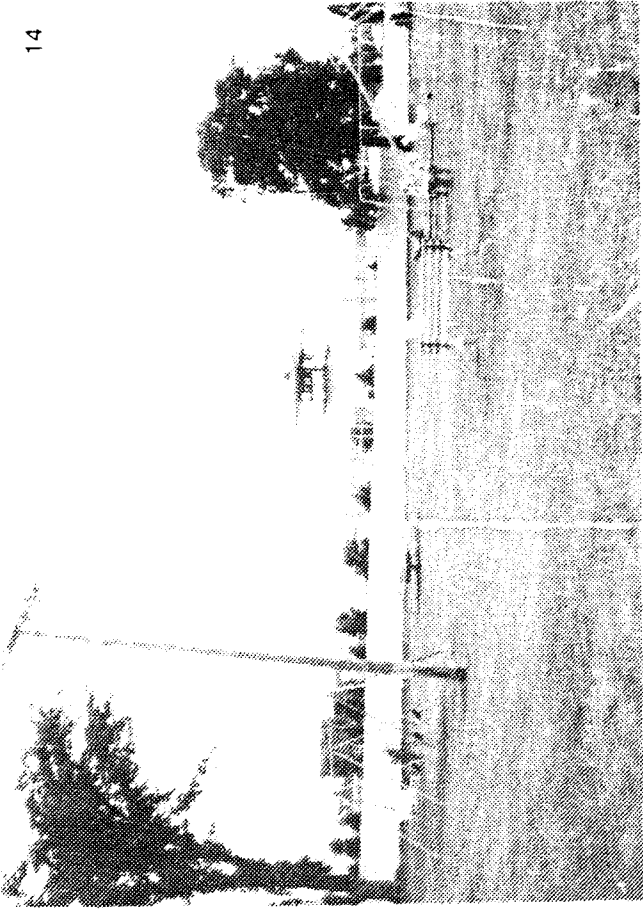
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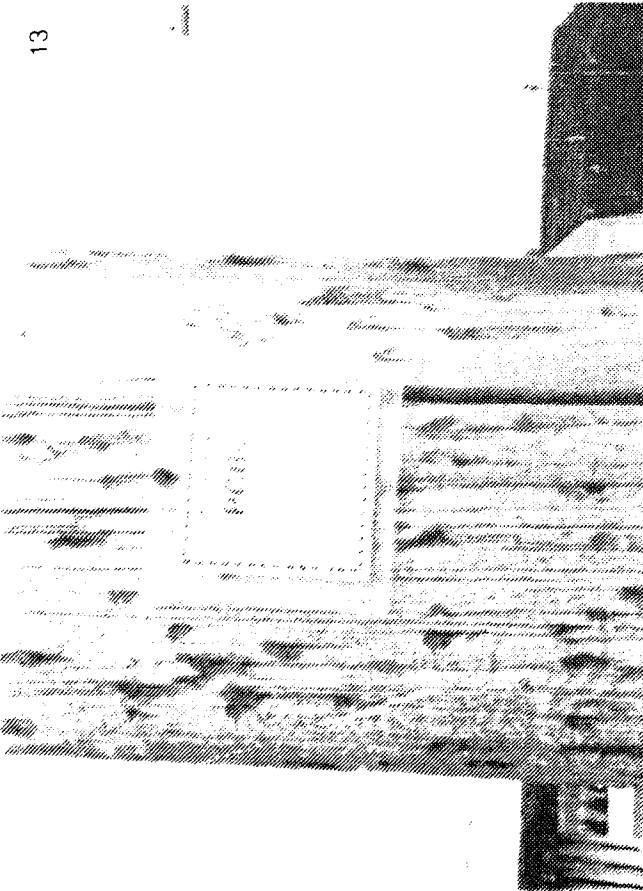
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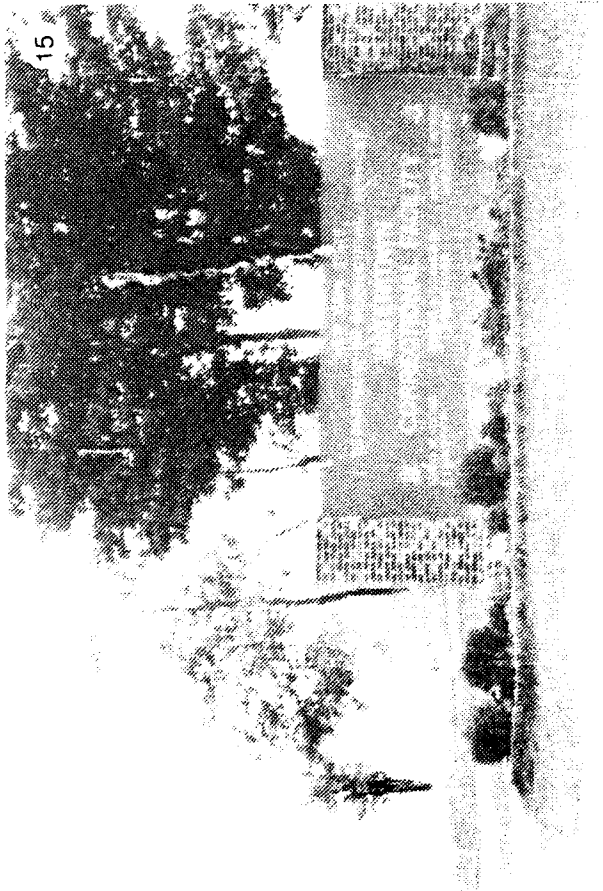
14



13



15



IDENTIFICATIONS OF PHOTOGRAPHS

1. Sign at entrance to housing area; the housing facility is administered by Fort Drum, located nearby.
2. Housing unit #256, a three-bedroom model.
3. Each unit has an electric water heater wrapped with fiberglass insulation.
4. All units were scheduled to have a new natural gas furnace, as shown here, installed for the 1989 heating season.
5. The new natural gas furnaces have flexible heating ducts in the ceilings.
6. The floor heating ducts for the old oil-fired furnaces contain asbestos-laden dust; they have been cemented closed; floor tiles, containing asbestos, are being removed in all units.
7. Fill pipe and vent for 275-gallon underground storage tank for fuel oil, installed when houses were constructed in the late 1950s; since conversion to natural gas furnaces, these tanks are no longer required and are scheduled to be removed soon.
8. The nine units in the western portion of the housing property were constructed first; they have no garage; their roofs are made of tar and gravel.
9. Units without garages have been provided a storage shed.
10. Dry Hill housing area.
11. Another view of the housing area.
12. The area has 10 electrical transformers on six poles; two poles have three transformers each, and four poles have one each.
13. The two electric system poles with three transformers each, both located along the western border of the housing area, have tested positively for the presence of polychlorinated biphenyls; these two poles have been labeled.
14. Immediately north of the housing area, separated by a playground for the children of residents, is the New York State Prison.

15. Sign at entrance to the Watertown Correctional Facility, adjacent to the Dry Hill housing area; the prison property was formerly the Watertown Air Force Station, which the housing area was developed to support.