



Chandler Air Force Base

Historical Photographic Analysis

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GEOG 480 – GISc and Environmental Hazards

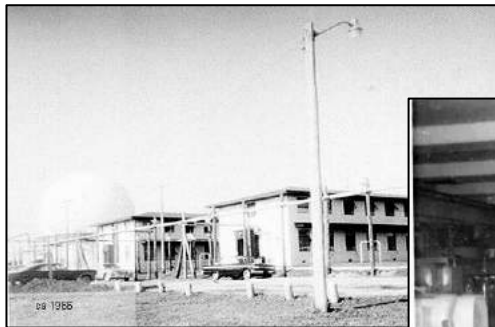
Introduction



- The Chandler Air Force Base was a part of the Semi-Automatic Ground Environment (SAGE) system. This was a system put in place by the US Air Force during the Cold War era for national defense from any foreign attacks by air.
- The base was initiated and built in 1951, and has seen expansions throughout its years of service. The sites uses with SAGE ended in 1969. Since it's decommission the site has been bought by locals, and demolished in 1993. The location is currently used for a radio transmission tower.
- The AF Base had many different functions and facilities ranging from the radio towers, headquarters, to dormitories for the airmen. Some of these functions, and the time period they were done in, bring up concerns of environmental hazards that still may be present. With substances like fossil fuels, asbestos, diesel fuel, electronics, chemicals and other components there is a definite concern that arises.
- Looking into the past aerial photography, personal stories, and other imagery, we can take a look into the past and spot some of these possible hazards that may be impossible to see just by looking at the site today; but can still be a large impact on the surrounding areas even today.

Introduction

- The demolition process of the base was a bulldoze and bury method. Because it was destroyed and removed with staying on site, everything is much more possible to still be present and an active hazard. This is confirmed through a newspaper article published on 6/9/1993.



Demolition of Chandler Air Force Base takes place

The day was wet and cool when the big machinery went to work at the site of the former Chandler Air Force Base and proceeded to bury the empty remains of what once was a well cared for radar installation. Captain Boswell was the first commander of the base. He arrived in 1951; the base was still under construction at that time. It didn't become fully "operational" until the summer of 1952.

There wasn't any fanfare with the burial on Monday. Just big heavy machines, their noise making it impossible to hear. The noise, if one let their imagination wander, could have called to mind the noise of other machines, planes flying over in perfect formation on Memorial Day observances.

Last summer members of the 787th squadron came back to the base site to re-ignite memories that had long been stirred away. The weeds had overtaken the buildings, the sign that once proclaimed with pride: All persons and vehicles entering this station are subject to search and seizure upon departure, by order of the Base Commander, are subject to search and seizure upon departure, by order of the Base Commander, was weathered, the words barely legible. The gate house, windows long since removed, still stood alone, a silent sentry to the past. The grandeur was gone; memories are all that remain of the Chandler Air Force Base, Chandler, Minnesota.



This sign once greeted visitors to the Chandler Air Force Base. In the fifties and early sixties it was a sign of security for many.



No one passed through the gates of the base without stopping at the Security Sentry House to state their business and gain permission to enter or leave.



The demolition was complete. The burial was taking place. Deep holes were dug and the remains of the buildings pushed in and covered up. 6-9-93

Methodology



ArcGIS was used to georectify aerial photography. Using a basemap from ArcGIS online, or a DOQ, georectification could put the aerial imagery into coordinate space. With the aerial photographs georectified, we could georectify maps made by personnel during the operation of the base.

Stereo Analyst was used to view in stereo. This allows for easier identification of physical features or objects in the imagery. Based off the interpretation of the aerial photography, as well as photos of the base during operation, vector work could be done in ArcGIS to mark locations of interest/possible hazards.

Data

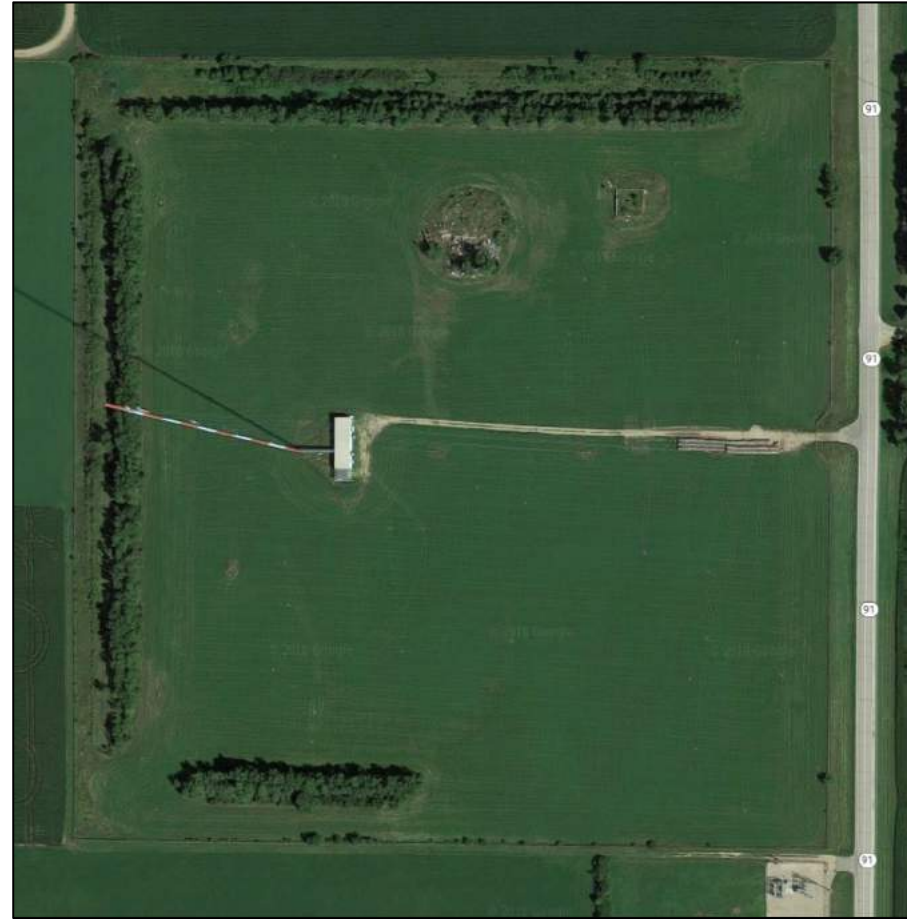
Aerial photography was retrieved through USGS's Earth Explorer. The maps made by personnel, along with further information and evidence (photos, articles, invitations, etc.), were provided by the instructor.



Past v. Present Site of AFB

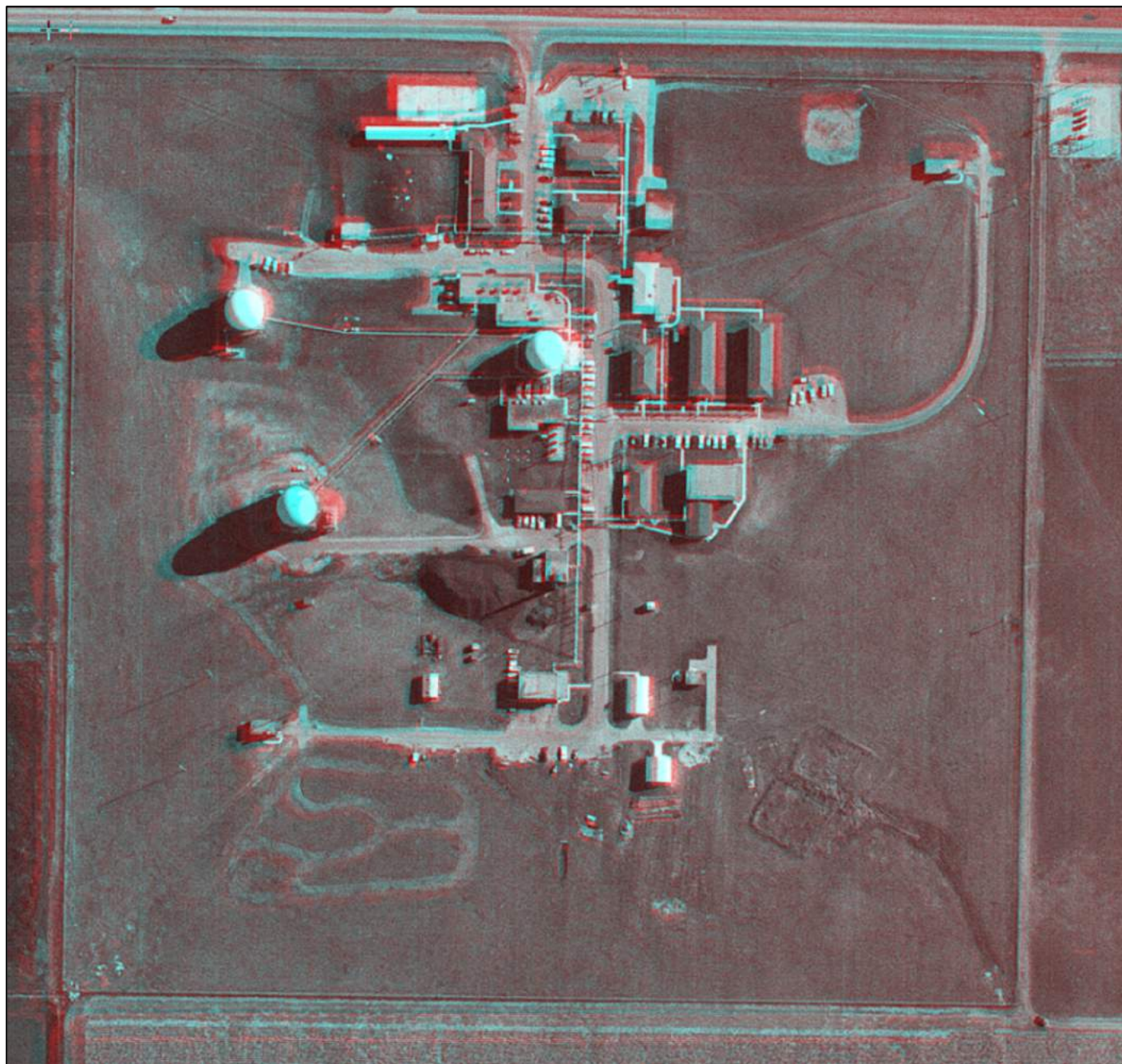


1965



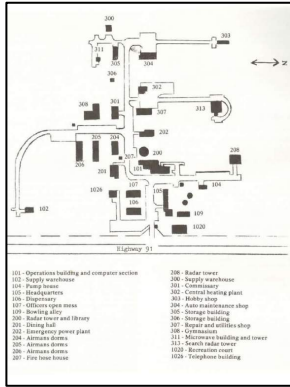
2018

Complete Site Stereograph, 1965

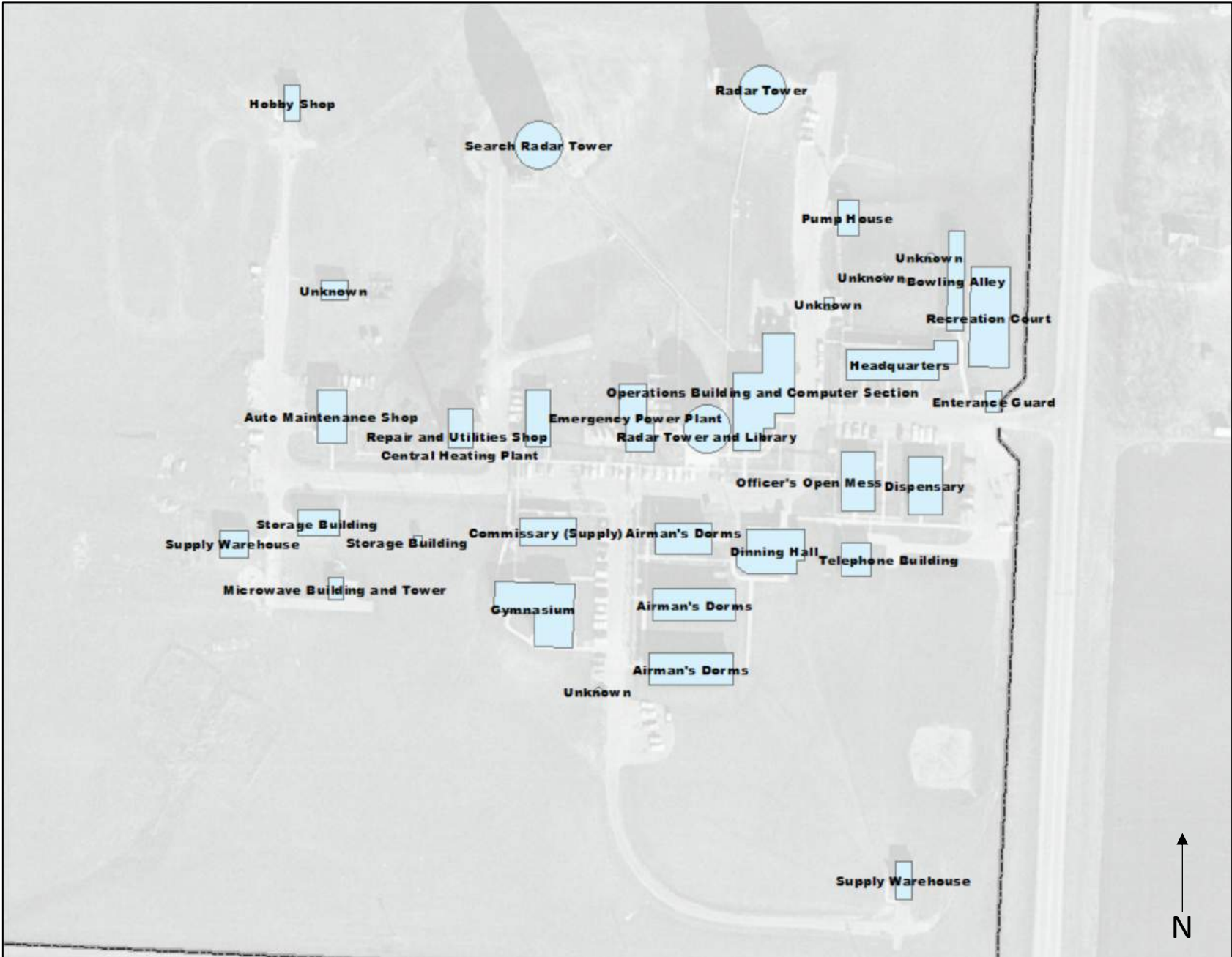
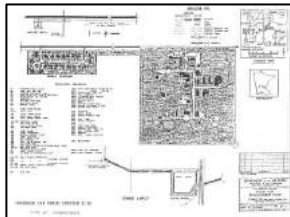


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Building Usage Overhead, 1965



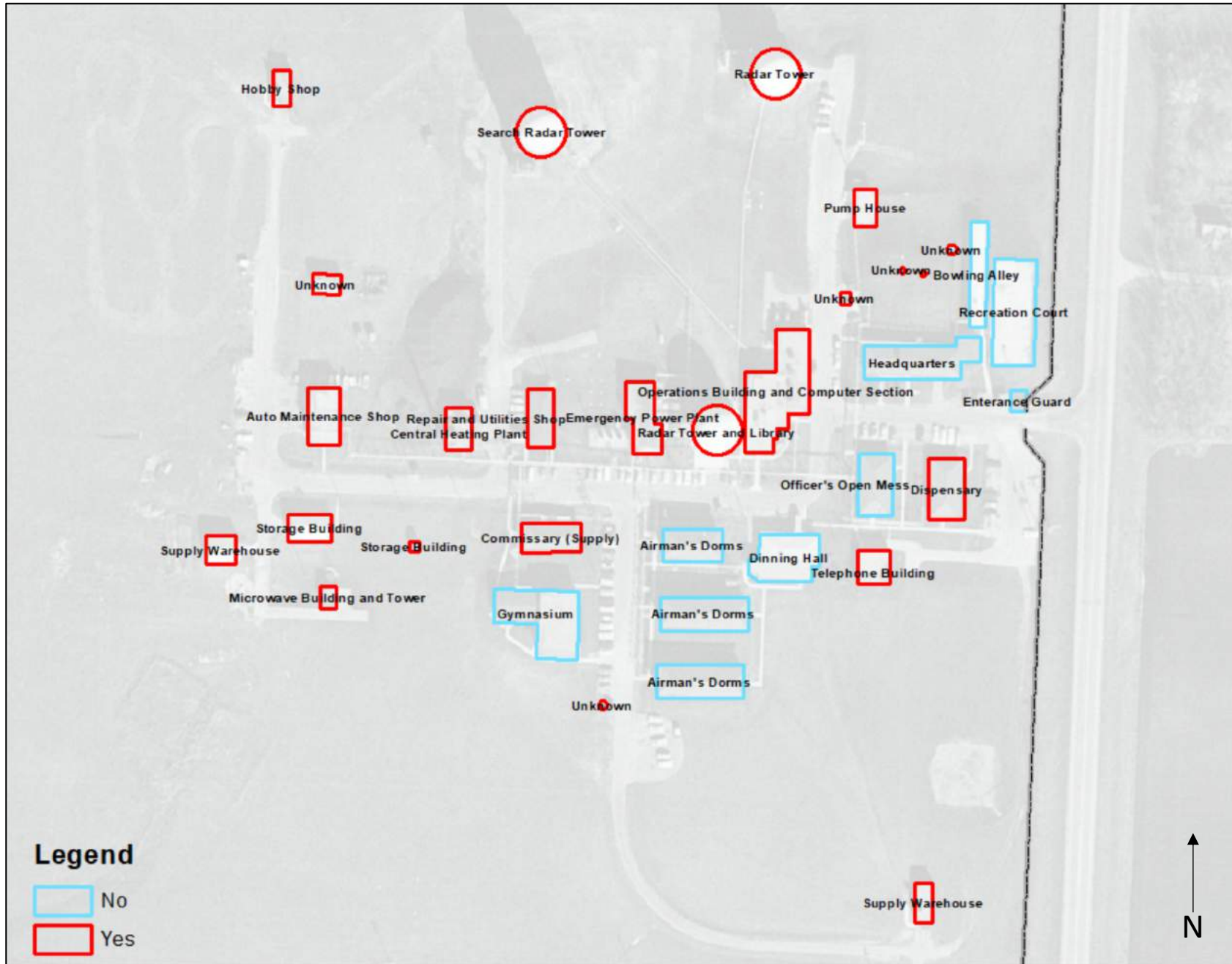
This graphic depicts building usage. Based off of maps with labels of the base during operation. With a combination of multiple different maps, a comprehensive map of the facility was created.



North of the base itself, a small neighborhood of 21 houses housed the officers. At the peak of operations, there were a total of 220 personnel at Chandler AFB.

Hazardous Buildings Overhead, 1965

Based off of usage, and contents of the buildings, areas with a risk were analyzed. Buildings with a chance of hazards were marked 'Yes', and with no chance were marked 'No'.



Building Hazards

POINTS OF INTEREST

1. DISPENSARY
USAF Ambulance
Dental Clinic
Dental Laboratory
Medication and Treatment Rooms
Drugs and Equipment Displays
2. NORTHWEST HELL TELEPHONE BUILDING
Test Board
Relay and Data Transmission Equipment
48 Volt Battery Power Supply
3. DINING HALL
Sample Food Items Display
Food Preparation Equipment
Store Room
4. DORMITORY
Typical Airman's Quarters
Lounge
Laundry Facility
5. RECREATION BUILDING
Library
Weight Lifting Equipment Display
Air Force Recruiting Service Display
Miscellaneous Equipment Displays
6. SUPPLY
Electronic Tube and Parts Display
7. MICROWAVE TOWER

8. MILITARY AFFILIATE RADIO SYSTEM STATION
Radio Teletype
Typical "Ham" Station
"Send a MARSGRAM"
9. MOTOR POOL AND AUTO HOBBY SHOP
Vehicle Display
Hobby Shop Tool Display
10. CENTRAL HEATING PLANT
11. STATION REPAIRS AND UTILITIES SECTION
Power Tools Display
12. DIESEL ELECTRIC GENERATING PLANT
Two 500 Kilowatt Generator Units
Control Console
Automatic Switching Equipment
13. SEARCH RADAR
Operating Radar Set
Test Equipment Display
Klystron and Magnetron Display
14. RADAR OPERATIONS
Continuous Movies in Theater.
Telephone Display
Switchboard and Teletype Display
Data Transmitter Equipment
Radar Operations Center
15. HEIGHT RADAR
Operating Radar Set
Test Equipment Display
Klystron Tube Display
16. WATER TREATMENT PLANT
Chlorinator
12,000 Gallon Capacity Water Softener Plant

17. STATION HEADQUARTERS
Trophy Display
Squadron Mail Room
Administrative Offices

18. REFRESHMENT STAND
Hot Dogs
Cold Soft Drinks
Hot Coffee

At the REFRESHMENT STAND, your hostesses are the members of the Officers' and NCO Wives' Clubs. Profits from this operation are used for the purchase of Christmas food baskets for needy families in the immediate area.

ACKNOWLEDGEMENTS

Our sincere thanks are extended to the following for their generosity in offering their time, effort, and assistance in presenting this Armed Forces Day Program:

USAF Recruiting Service, Sioux Falls, S. D.

U. S. Army Reserve Unit, Pipestone, Minnesota

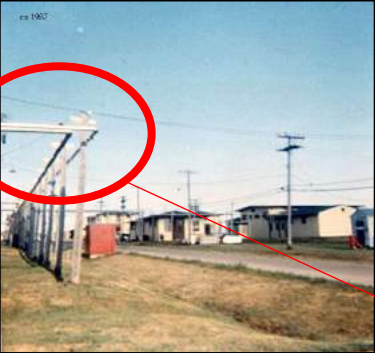
Members, Officers' and NCO Wives' Clubs

Area Radio, Television, and News media.

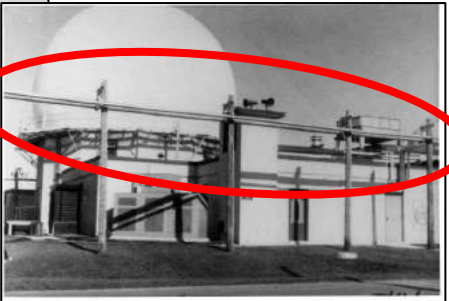
Building usage based of this information, and the related maps to them.

101 - Operations building and computer section	208 - Radar tower
102 - Supply warehouse	300 - Supply warehouse
104 - Pump house	301 - Commissary
105 - Headquarters	302 - Central heating plant
106 - Dispensary	303 - Hobby shop
107 - Officers open mess	304 - Auto maintenance shop
109 - Bowling alley	305 - Storage building
200 - Radar tower and library	306 - Storage building
201 - Dining hall	307 - Repair and utilities shop
202 - Emergency power plant	308 - Gymnasium
204 - Airmans dorms	311 - Microwave building and tower
205 - Airmans dorms	313 - Search radar tower
206 - Airmans dorms	1020 - Recreation court
207 - Fire hose house	1026 - Telephone building

Heating Pipes Overhead, 1965



Pipes have risk of being lined with asbestos for insulation. Possible health hazard is unearthed and exposed due to deterioration of pipes.



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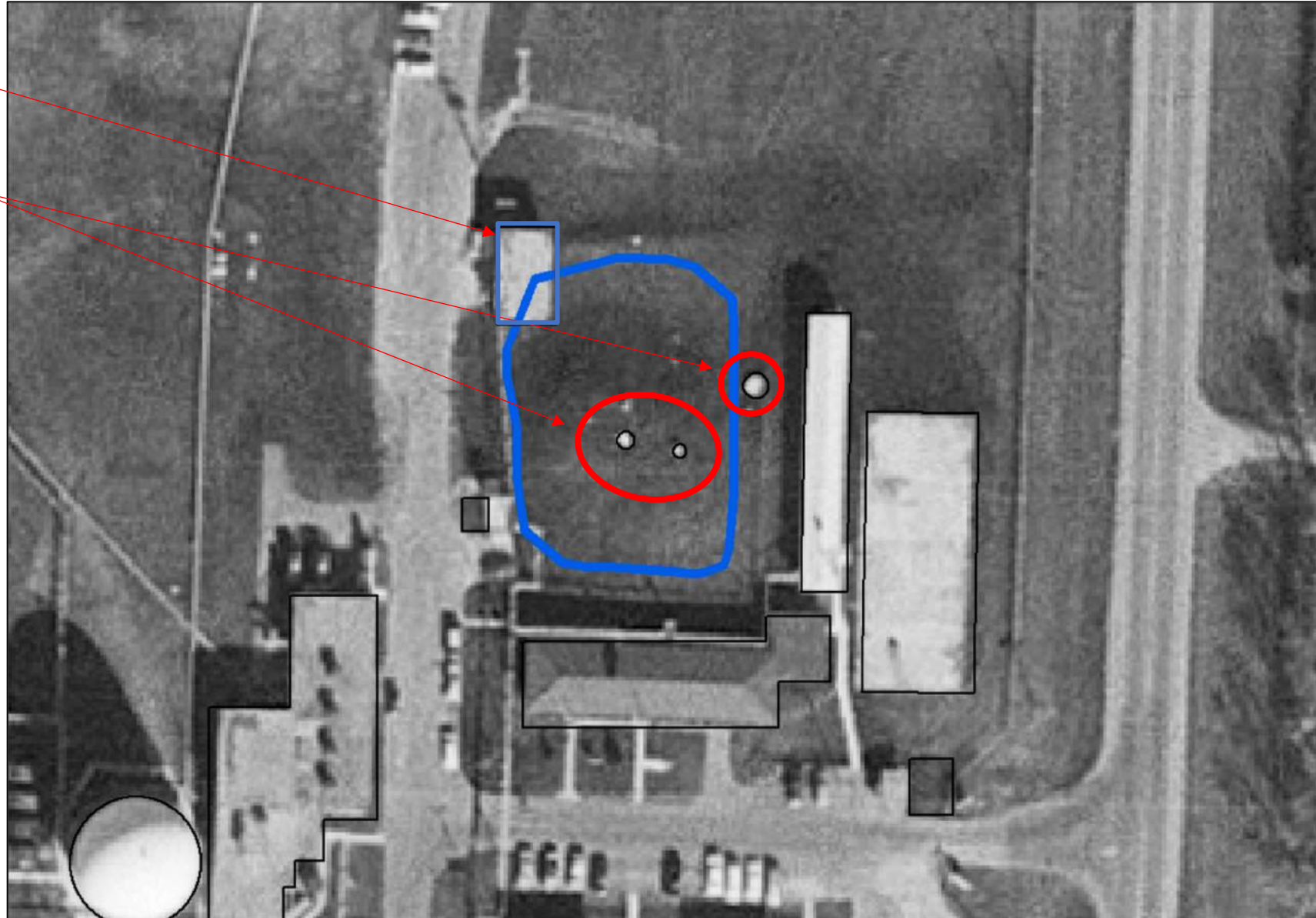
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— Pipes

Water Tank Location, 1965

Pump House

Pipes

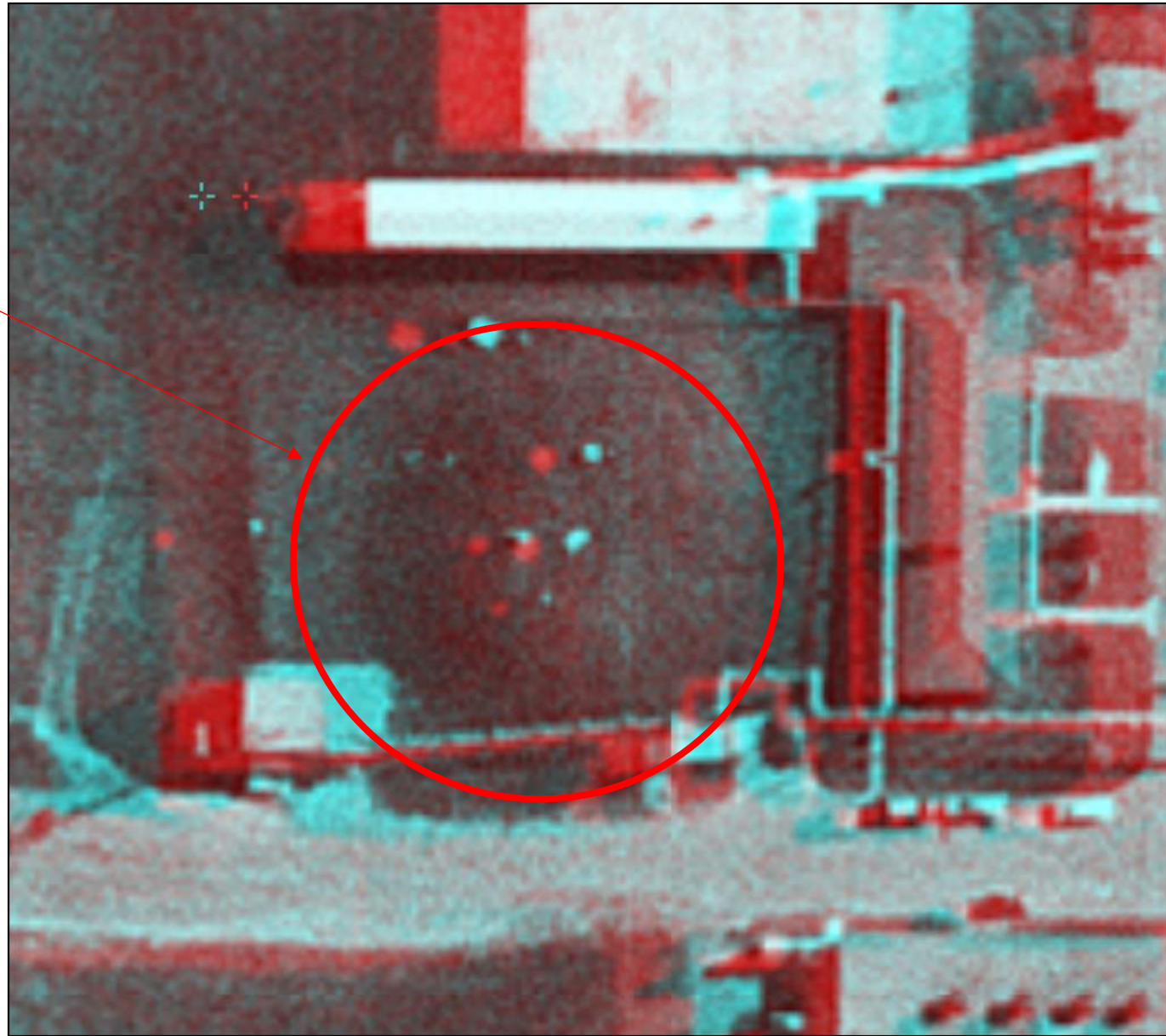


Based off of information relating to the pump house, it states a 12,000 gallon water tank located at the pump house. Looking in stereo at the site, there is a slight mound and pipes erected from the ground. This seems to be the most likely location for the underground tank.

Water Tank Stereograph, 1965

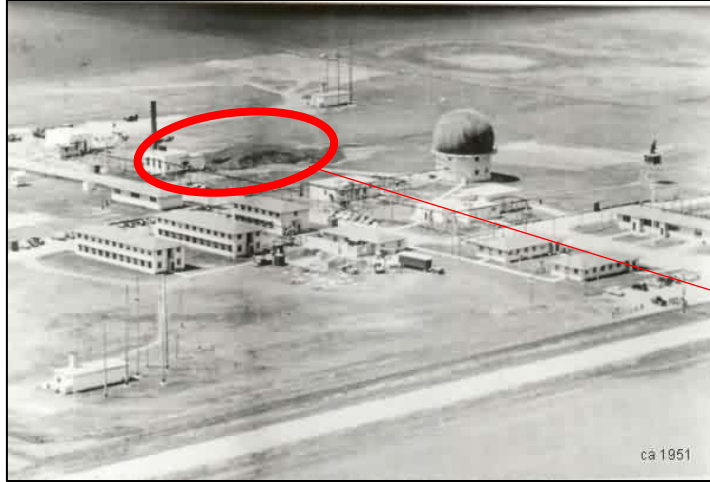
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Thought site of tank

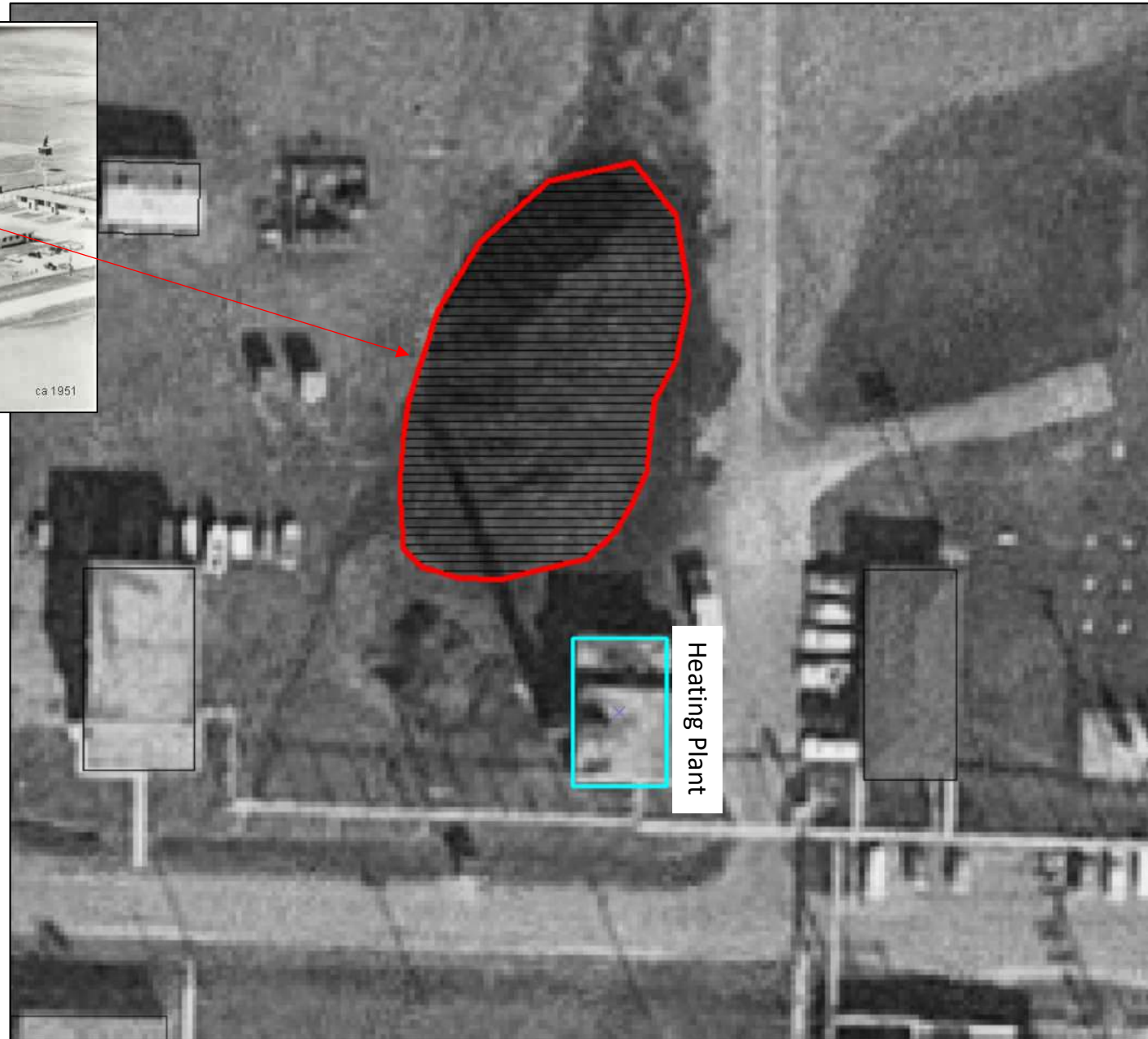


Due to the nature of demolition, there would be a low chance the tank was removed.

Coal/Heating Plant, 1965



Coal pile seen from oblique photo (1951)



The base itself was heated by a central heating plant, fed by coal. There is a fairly large pile of coal on site, right next to the heating plant itself. Easily seen in stereo, and on aerial and oblique imagery.

Coal/Heating Plant Stereograph, 1965



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Heating Plant

Smoke Funnel

Relief of the coal mound can easily be seen in stereo imagery. Also ground disturbance to the north of the pile is noticeable.

Ground Disturbances, 1965



Radar Tower

Auto Shops

Heating Plant

Supply Storage

Many spots on base can be seen to have ground disturbance, with soil being unearth, mounded, etc. These locations have been vectorized; and do seem to be found on the west side of base.

Spots of most disturbance seem to include auto shops/hobby shop, heating plant, and one of the radar towers.

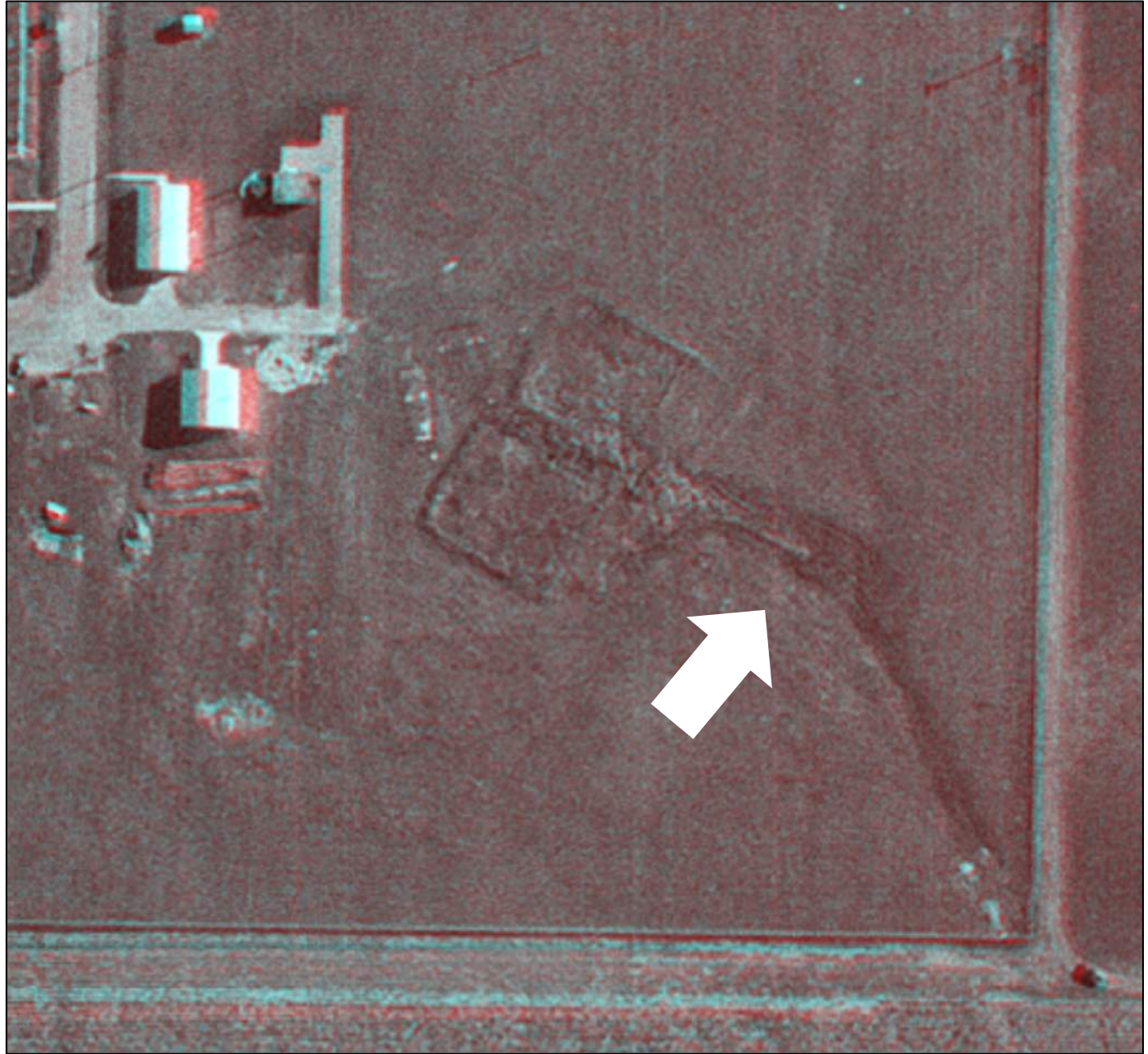
Baseball Field



Ground Disturbance (SW corner) Stereograph, 1965

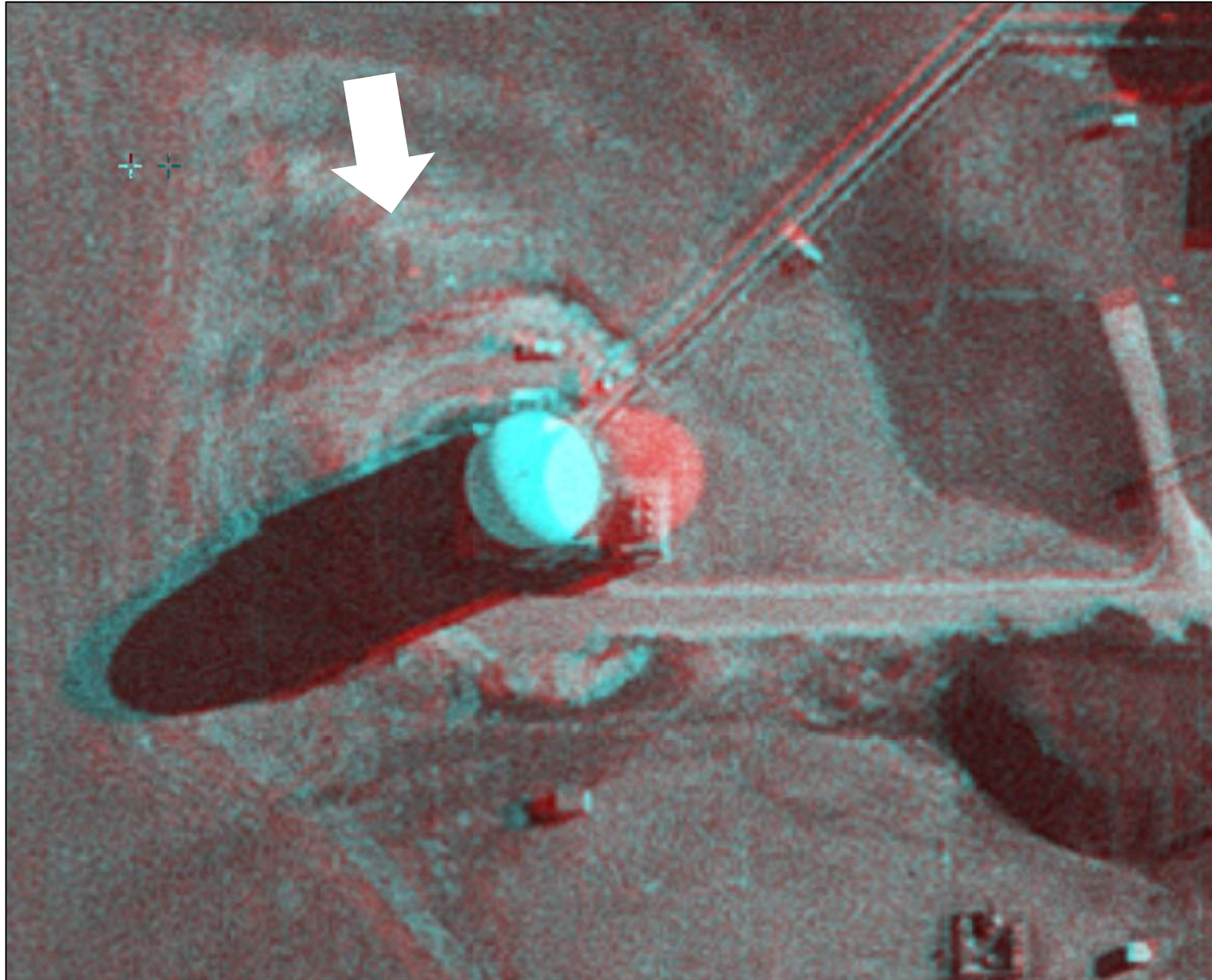
There is some sort of drainage in the SW cover of the base, leading to the corner fencing. There is some obvious disturbance of gouging and mounding.

Possibly could have a connection with sewage pond. (See Next Section)



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Ground Disturbance (Radar Tower) Stereograph, 1965



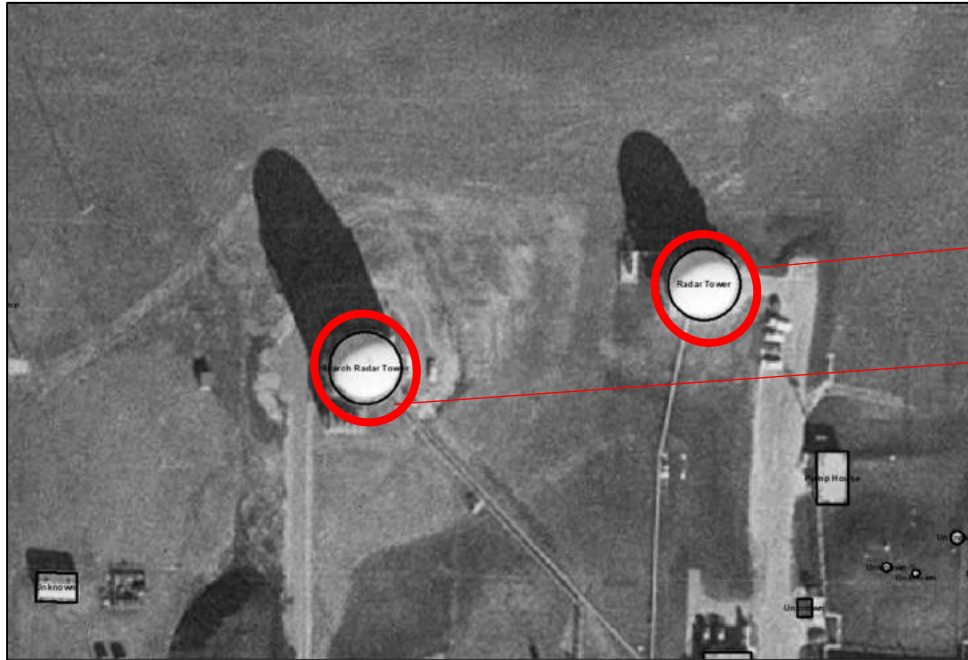
There is obvious ground disturbance surrounding one of the radar towers. Could be due to being driven on; but much of the soil seems to be exposed.

Does still seem to have an effect on the landscape today. (See Next Slide)

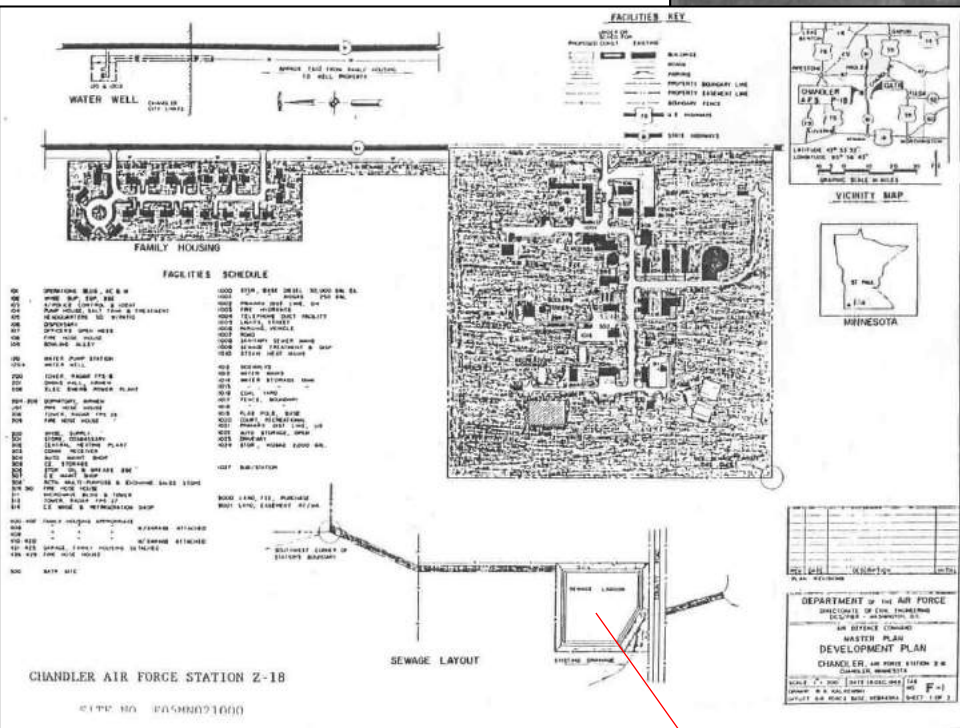


1965 v. 2018; Radar Tower Locations

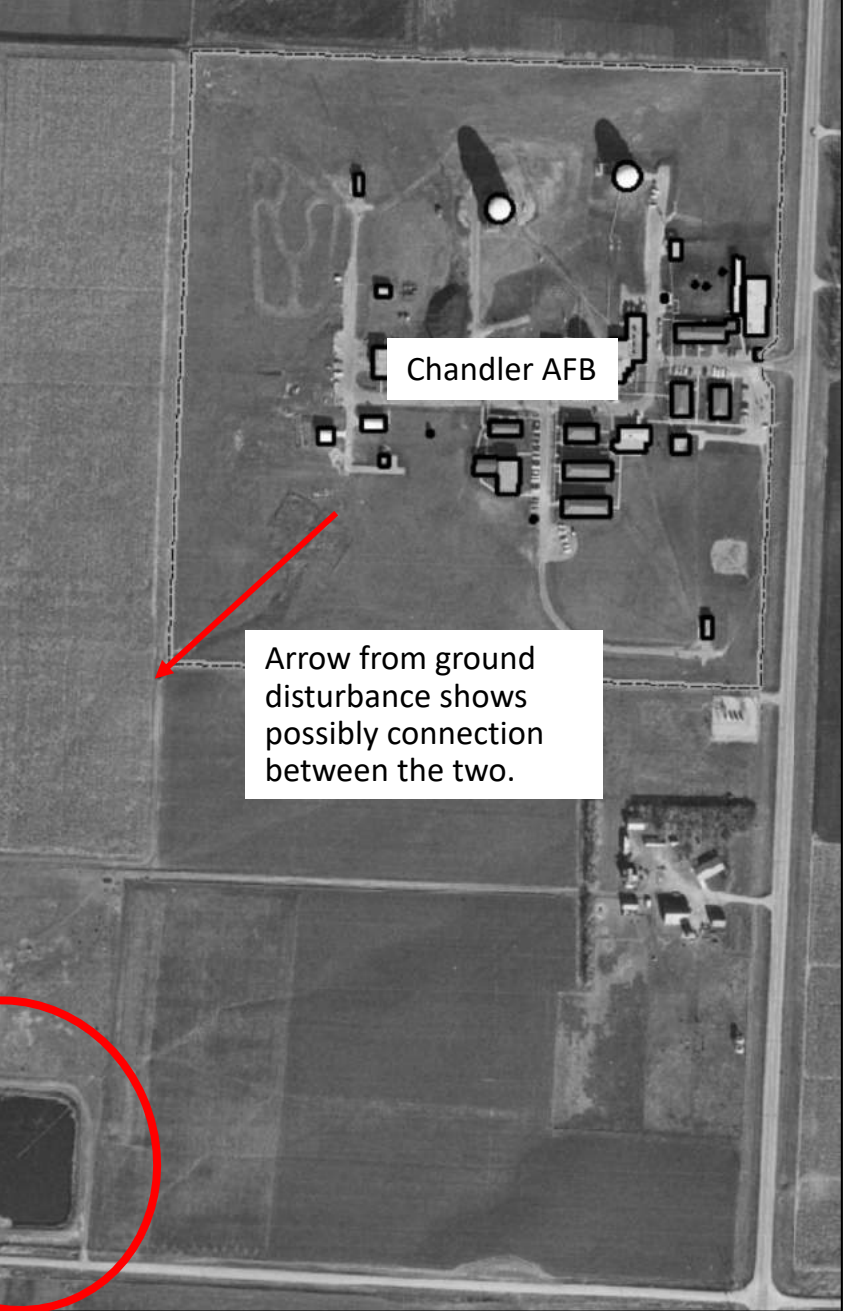
Locations of the Radar towers can be spotted today by ruins of concrete and debris.



Sewage Pond, 1965



Description of Base, including Sewage Layout/Pond



In one of the map documents, it states the usage of a sewage pond, which is south west of the camp. This definitely poses an environmental hazard if it has been untreated since use.



1965 v. 2018; Sewage Pond



There is still a stain on the ground from the sewage pond.



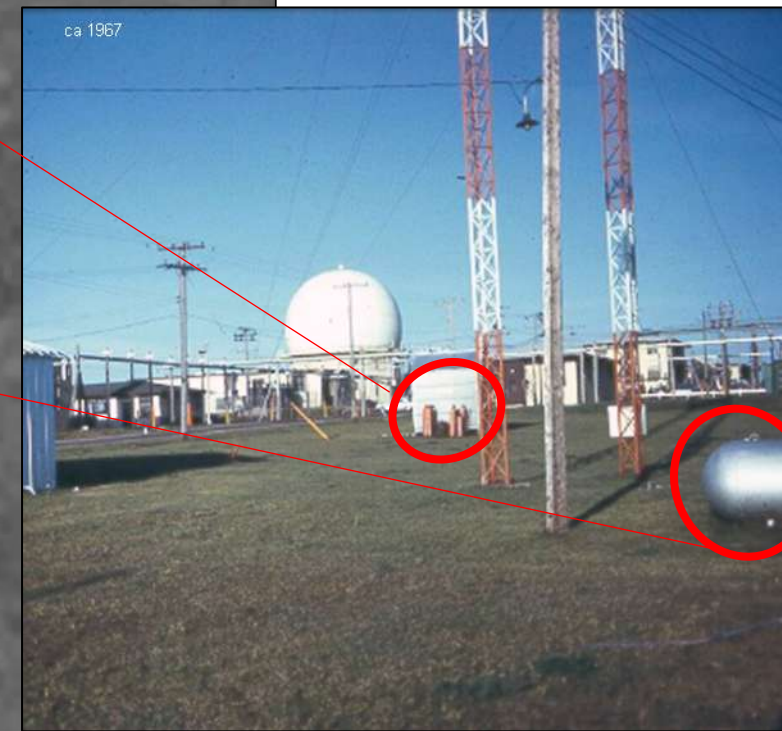
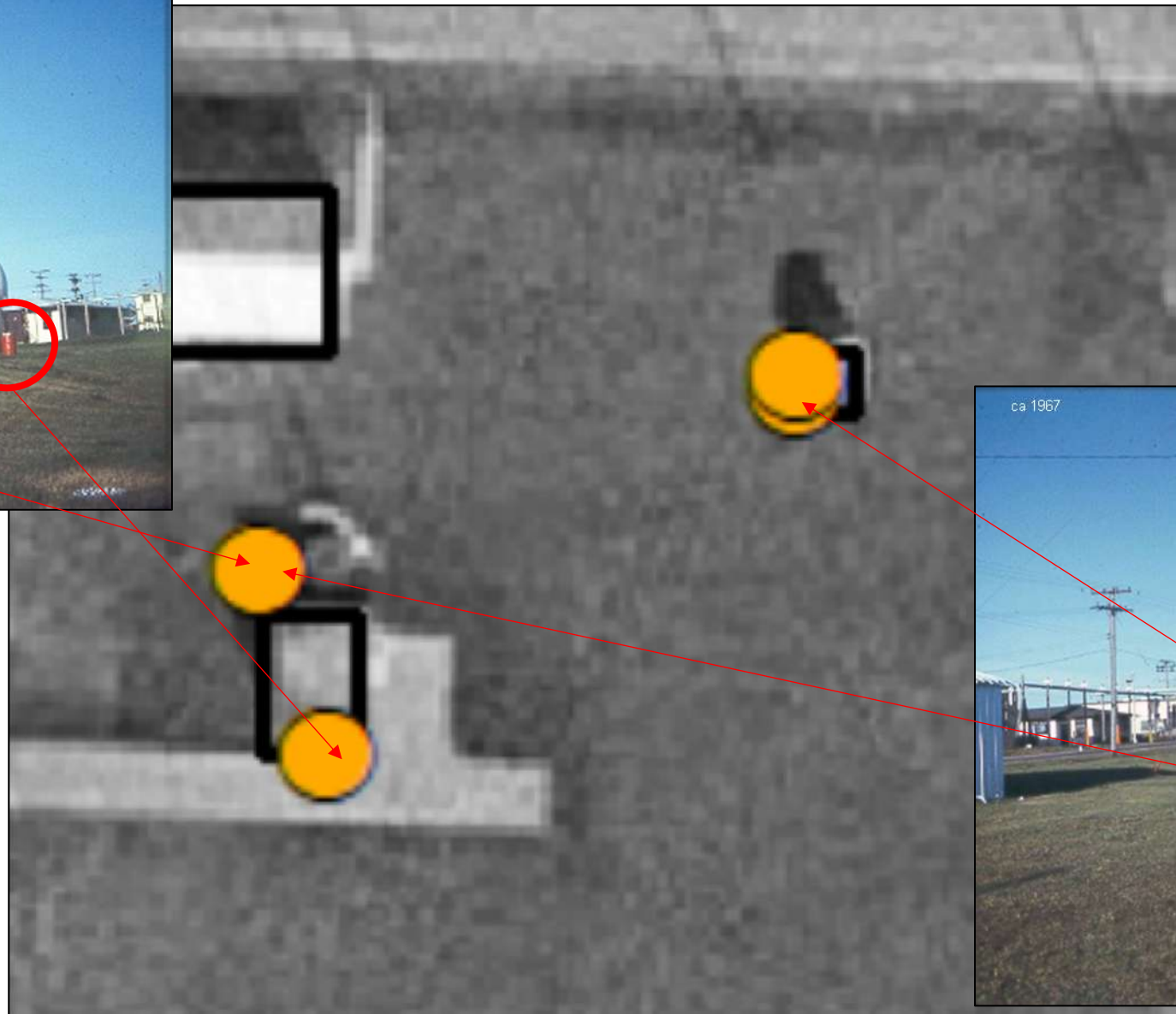
Photographic Evidence Plotted, 1965



Available photos of the site during use were observed for any hazards. Three photos were found to have hazards. Points are plotted.

Images will be referenced in the next slide.

Photographic Evidence, 1965



Barrels and tanks were found through the images; bringing up concern about hazards, as well as explaining possible usage of the corresponding building.



Debris from Aerial Photography, 1965



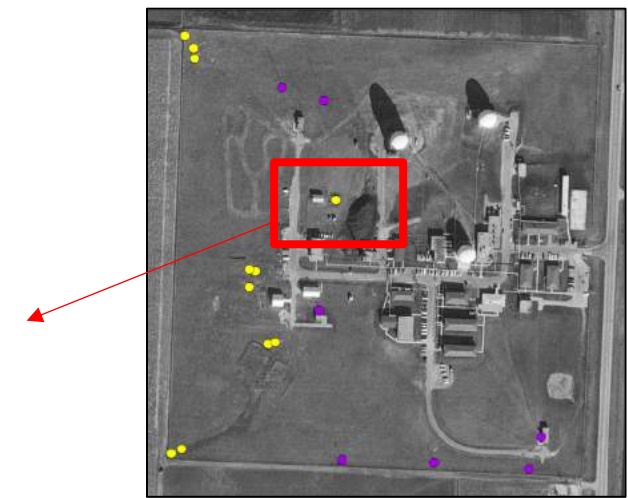
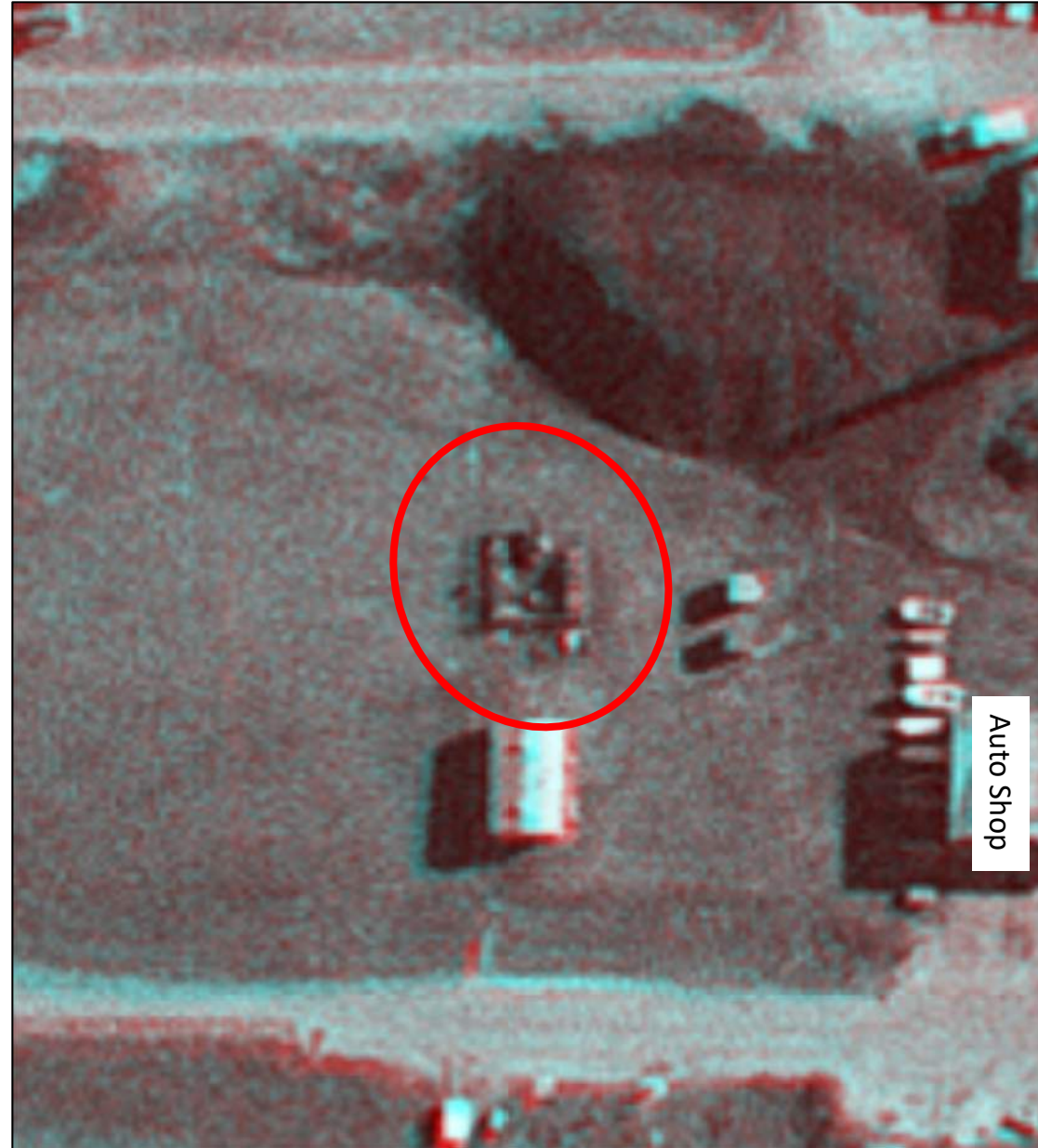
Legend

- Debris
- Antennas

There are many locations that have objects that are unknown. It is presumably some debris, trash; something protruding from the ground. Since it is an unnatural feature, they are marked and mapped here.

Antenna's are also mapped

Debris from Aerial Photography, 1965

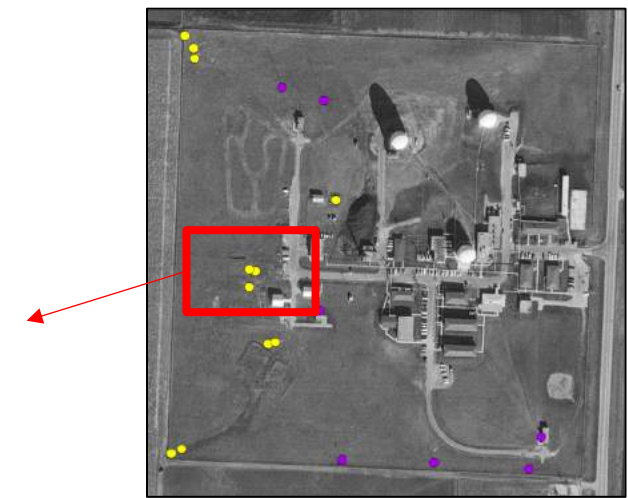
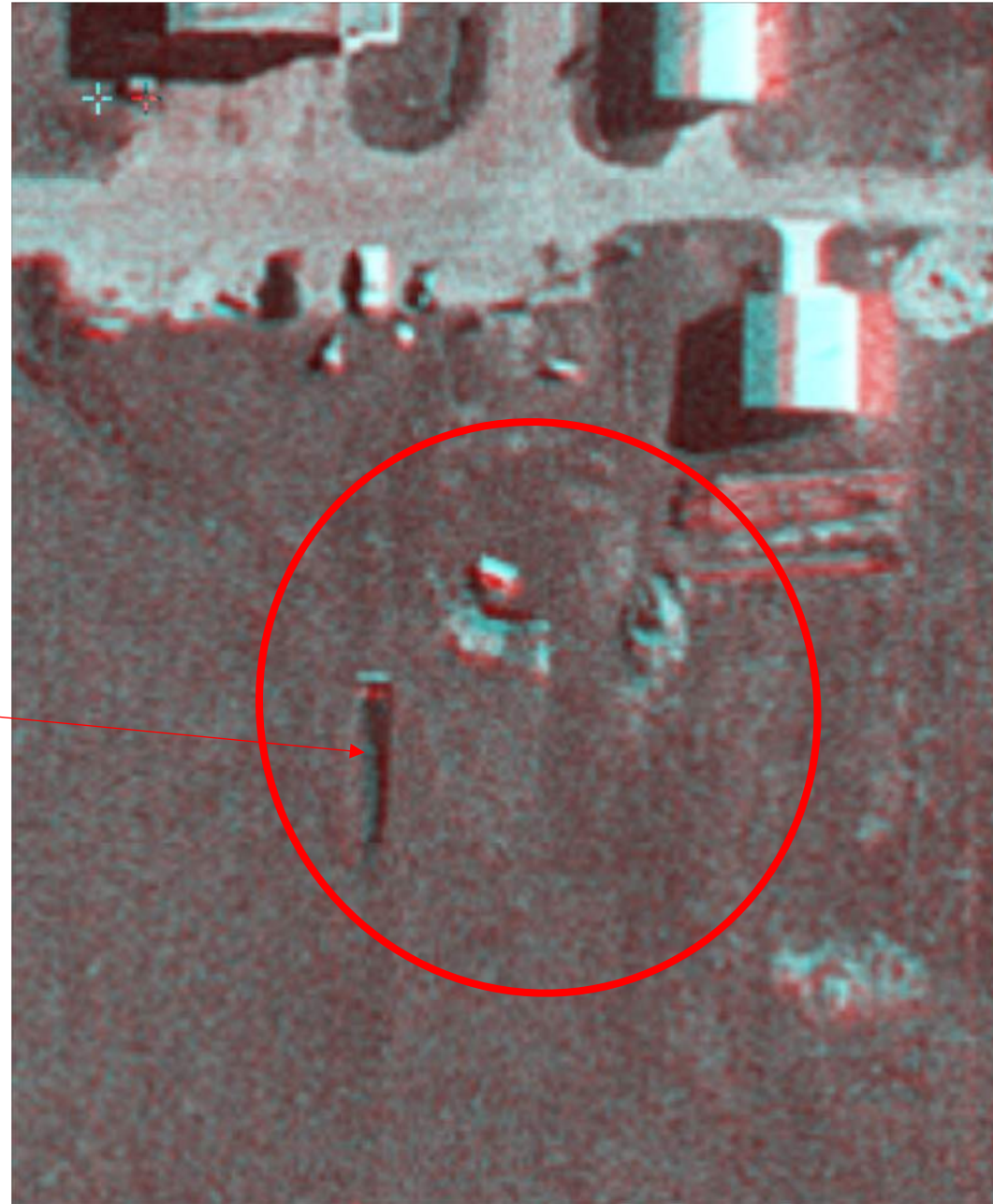


Above a building with an unknown function, but in the same proximity as the auto shop.



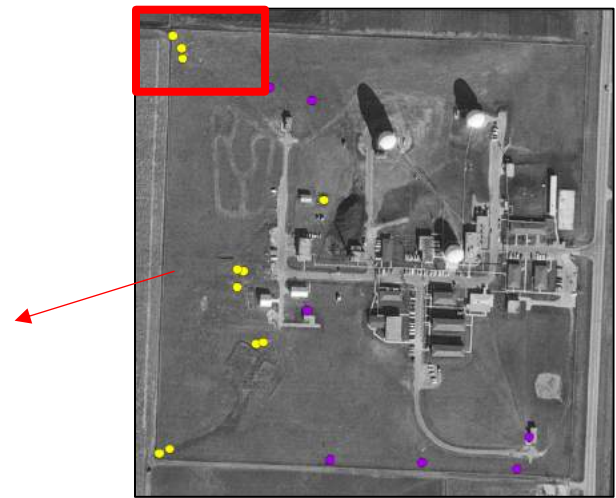
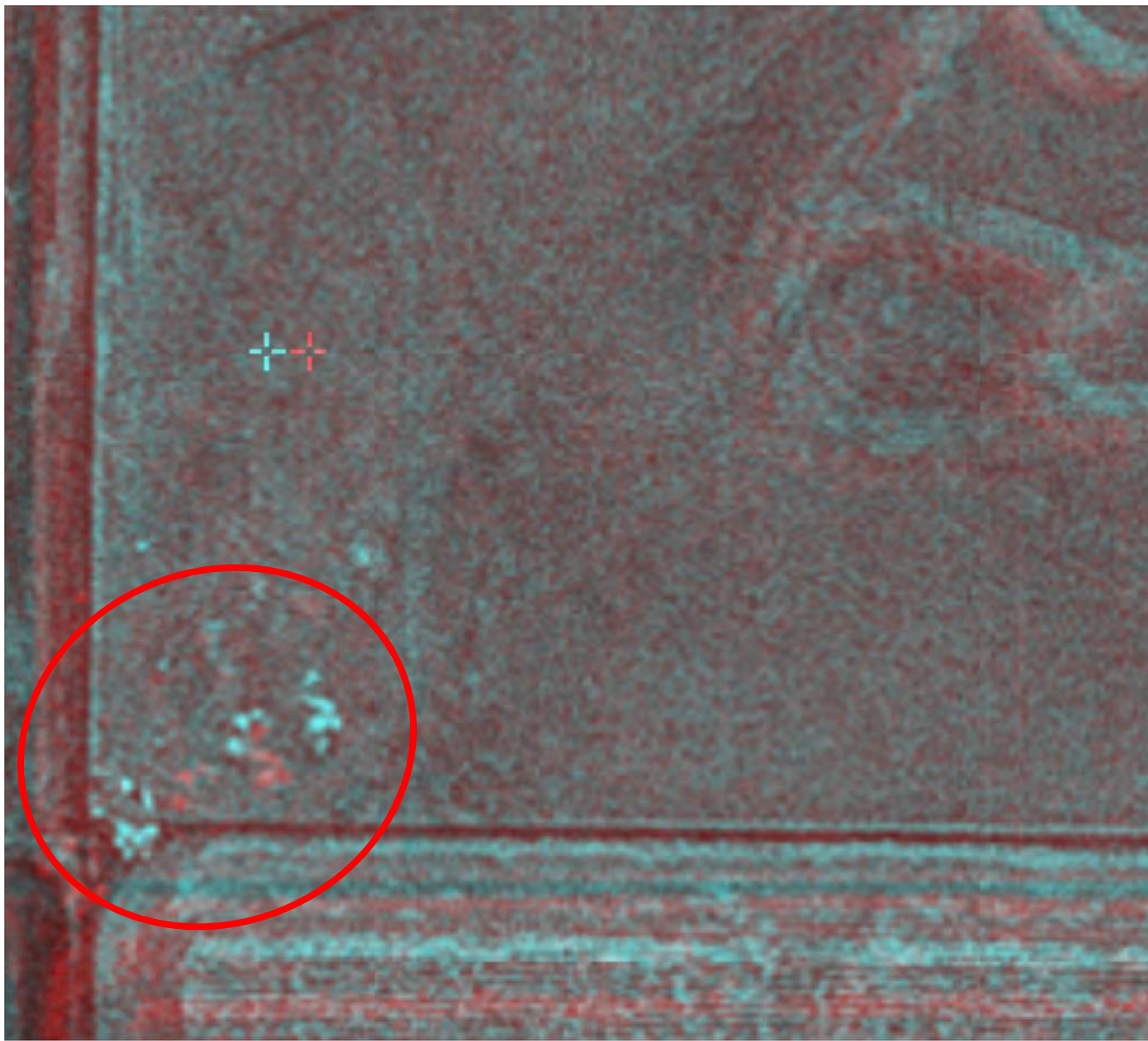
Debris from Aerial Photography, 1965

Debris seen by the nearby supply warehouse, as well as auto shop. Combination of disturbed ground and debris.



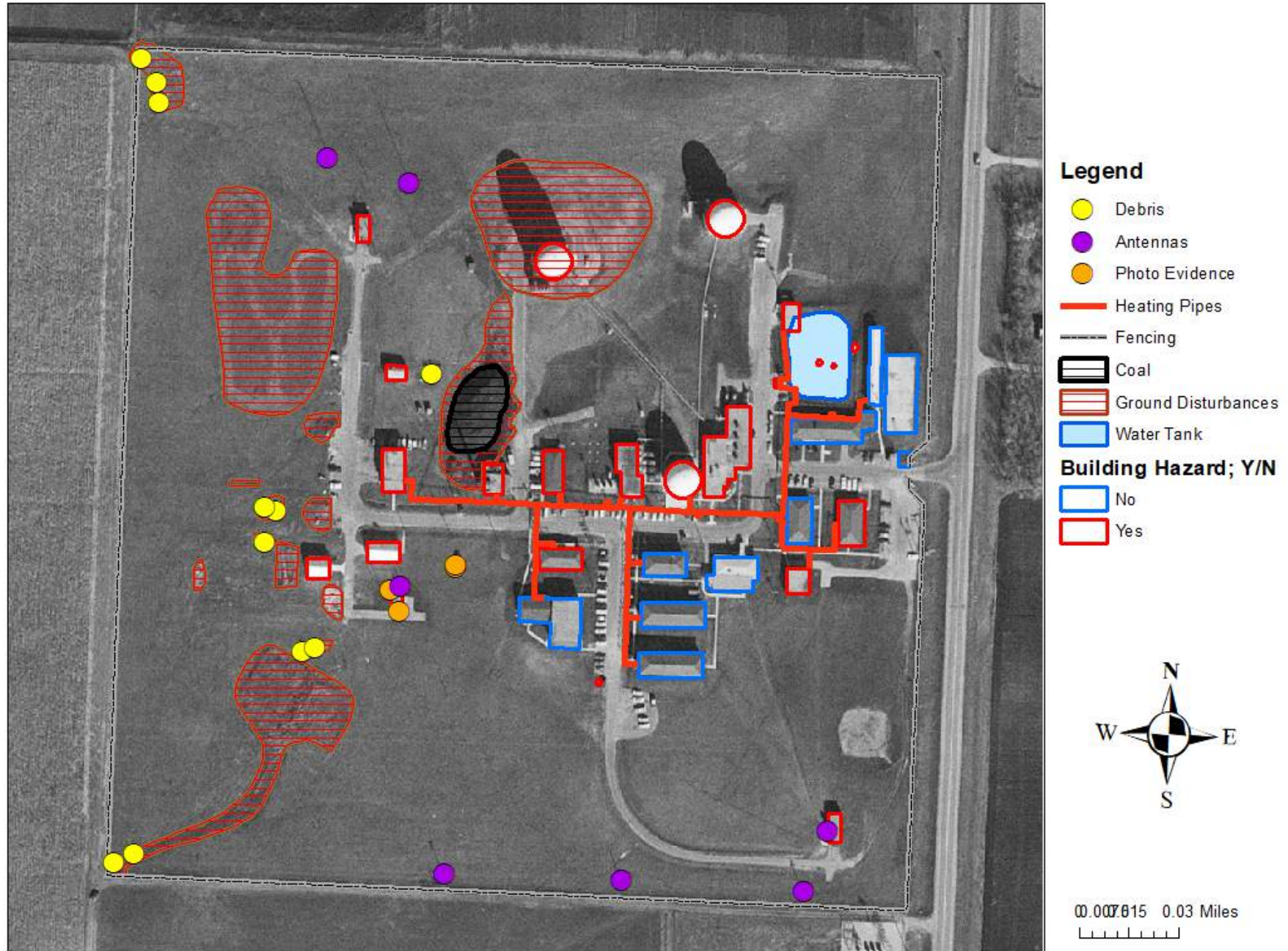
Debris from Aerial Photography, 1965

Unknown debris seen in the north west corner. Closest to hobby shop and possible race track.



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Complete Map of Hazards on Site, Chandler AFB; 1965



Citations

Professor Material – I:Drive

Google Maps. Date accessed: 9/24/18. <https://maps.google.com>

Wikipedia. Date accessed: 9/23/18. https://en.wikipedia.org/wiki/Chandler_Air_Force_Station