
LAKE CITY ARMY AMMUNITION PLANT

SUPPLEMENTAL PHOTOGRAPHIC DOCUMENTATION OF ARCHETYPAL BUILDINGS, STRUCTURES, AND EQUIPMENT FOR U.S. ARMY MATERIEL COMMAND NATIONAL HISTORIC CONTEXT FOR WORLD WAR II ORDNANCE FACILITIES

by
Wm. David White, Jr.
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U.S. ARMY MATERIEL COMMAND HISTORIC CONTEXT SERIES
REPORT OF INVESTIGATIONS
NUMBER 10B



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Prepared for

U.S. ARMY CORPS OF ENGINEERS
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I.

INTRODUCTION

This report presents a photographic recordation of archetypal buildings, structures, and equipment of the Lake City Army Ammunition Plant (LCAAP), Independence, Missouri, originally constructed by the World War II-era Ordnance Department as a government-owned, contractor-operated (GOCO) industrial facility. The report is a continuation of a larger project that entailed completion of a national context for the World War II Ordnance Department's GOCO industrial facilities of 1939-1945 (Kane 1995), as well as detailed investigations into the history of several former World War II-era Ordnance Department GOCO industrial facilities (including present-day Badger, Holston, Indiana, Joliet, Kansas, Lake City, Radford, Ravenna, and Twin Cities army ammunition plants) along with photographic documentation of the same sample installations. The two primary goals of the larger project were: to investigate and document World War II and pre-World War II buildings, structures, and equipment now under the jurisdiction of Army Materiel Command (AMC) as part of a Legacy Resource demonstration program of assistance to small installations; and to complete the mitigation efforts stipulated in a 1993 Programmatic Agreement among the AMC, the Advisory Council on Historic Preservation, and multiple State Historic Preservation Officers concerning a program to cease maintenance, excess, and dispose of particular properties.

This documentation therefore represents partial fulfillment of the mitigation requirements of the 1993 Programmatic Agreement among the AMC, the Advisory Council on Historic Preservation, and multiple State Historic Preservation Officers concerning the program to discontinue maintenance, or dispose, of particular government-owned properties. Accordingly, this work was conducted in compliance with the National Environmental Policy Act of 1969 (PL 90-190); the National Historic Preservation Act of 1966 (PL 96-515), as amended; the Archaeological and Historic Preservation Act of 1974 (PL 93-291, as amended); and Executive Order No. 11593, "Protection and Enhancement of the Cultural Environment."

This photographic documentation was completed under Delivery Order No. 89, Contract No. DACA63-93 D-0014, Task C.2. Geo-Marine, Inc. was contracted by the U.S. Army Corps of Engineers, Fort Worth District, to undertake this project in September of 1994. Mr. Duane E. Peter, Director of the Cultural Resources Division of Geo-Marine, Inc., acted as Principal Investigator for the project. Mr. Wm. David White, Jr. compiled and produced the report. Ms. Kellie Krapf completed the photographic field work for the project. The historical overview section was drawn from the detailed historical investigation of LCAAP prepared by Bear Creek Archaeology, Inc.

In completion of this task, a brief history of the LCAAP; photographs of various buildings, structures, and equipment; a photographic log; and a plan map of the facility with building numbers have been included.

II.

PHOTOGRAPHIC RECORDATION LOGISTICS AND METHODOLOGY

The objective of Task C.2 was to photographically record World War II-vintage buildings, structures, and equipment at the Lake City Army Ammunition Plant (LCAAP) and thereby provide visual evidence of the integrity of the historic fabric of the facility. Numerous buildings, housing either the same or different stages of the ammunition manufacturing process, were of identical or similar architectural design. Similarly, within these buildings there were often several identical machines and pieces of equipment. Accordingly, photographs were not taken of each individual building, structure, and piece of equipment with identical or similar design; rather, an attempt was made to photograph *archetypal* buildings, structures, and pieces of equipment present at the plant. Also, modern buildings and necessary equipment in ammunition processing are absent from this photographic account due to their vintage (i.e., replacement equipment, though similar in function and/or design, was not photographed).

Ammunition manufacturing is divided into lines according to the type of ammunition being manufactured and by process stages. Additionally, there may be more than one line for the same ammunition type at the same stage. Accordingly, the architectural design of these buildings in different lines is similar, as is their equipment. Photographs of specific building types were not taken from a single line; rather, the photographs were taken from any number of lines as directed by the sun angle and physical restrictions. In short, though efforts were made to arrange the photographs in order of ammunition and facility processes, the photographic presentation that follows should not be perceived as a complete and chronological order of ammunition manufacturing.

The photographs are presented in six sections corresponding to the six categories of buildings present at the facility. Within each section the photographs are arranged by the building number of the subject depicted. Building categories and numbers were determined and assigned by the facility. Photographs of ammunition buildings and equipment in this account are largely classified as under either "stand-by" or "lay-away" status. Depicted active buildings are of an insensitive and/or "safe" nature. Such buildings include administration, shop, and manufacturing buildings.

Photographic angles were largely dependent upon the angle of the sun and spatial restrictions. Time constraints and work schedules of the escorts did not allow for return visits to buildings that may have been better depicted with a different sun angle. In many cases a preferred angle for photography was impossible due to overhead pipelines, power line poles, and other structures.

Indoor lighting was also a determining factor in photographic results of plant equipment. Electrical power had been shut off to the buildings on lay-away status. Unbarred windows and doors were opened and a camera flash was employed to compensate for poor lighting conditions. Indoor photography of equipment was also controlled by spatial restrictions. It was virtually impossible to photograph tanks spanning two or more stories. In some instances, walls and other equipment obstructed photographic angles; therefore, photographs of some equipment were not possible.

The age of equipment was questionable. Each piece of equipment has a plant inventory number. An inventory list of the equipment details each piece by its inventory number. However, not every piece of equipment on this list has a manufacture or acquisition date. Increasing the uncertainty of the equipment's vintage was the illegibility, or absence, of the inventory tag. In addition, the equipment inventory list was not exhaustive. The list did not include "installed equipment;" furthermore, the installed equipment was not easily discernible. Equipment installed at the time of the building's construction in many cases has been replaced in recent times. The installed equipment does not have a certain "look" to it, and purchased equipment without an inventory tag may be mistaken as installed equipment. Photographs were taken of all equipment where the age was in question. Thus, the equipment that is found within this account is not definitely World War II equipment, unless a date is listed for that piece. However, the equipment included in this account is representative of the World War II era.

Motors, tanks, and pumps are necessary in numerous plant processes. Due to the common function and design of such equipment, a single photograph was taken to represent any number of similar pieces of equipment. A representative unit was selected for its physical integrity and photographic accessibility.

III.

HISTORICAL OVERVIEW

The Lake City Army Ammunition Plant (LCAAP) is a complex of industrial buildings, structures, sites, and landscapes that has historical significance in its World War II-era production history as well as its subsequent and present-day missions. It is located in Jackson County, Missouri, approximately 17 miles east of downtown Kansas City, Missouri, seven miles east of Independence, and six miles north of Blue Springs (Figure 1). The facility is situated between the east-west running U.S. Highway 24 to the north and Interstate 70 to the south. State Highway 7 runs along the plant's western border. An unnamed lake, which inspired the name Lake City, once existed within the present site boundaries. The lake was drained in the 1880s (Brown et al. 1979), leaving lowland swamps until more recent drainage improvements and ground leveling.

The property's original boundaries encompassed 3,908.22 acres, which included 236 buildings exclusive of 104 minor structures such as water tanks, pump houses, control towers, sentry boxes, and gate houses. Original production and support buildings covered 1,507,000 square feet of manufacturing area. As of 1995 the LCAAP federal land totals 3,935 acres and includes over 400 buildings and structures, 34 acres of parking areas, 11 miles of paved six-foot wide walkway, 51 miles of paved roads, and 2,000,000 square feet of space devoted to production facilities. The installation is owned by the federal government and is presently part of the U.S. Army Armament, Munitions, and Chemical Command.

Historically, the LCAAP is a product of the Government-Owned, Contractor-Operated (GOCO) war materiel production program established by the War Department just prior to World War II. The facility was originally under the War Department's Ordnance Ammunition Command and was not made a permanent Department of the Army installation until July 1, 1954. The facility was initially referred to as the Lake City Ordnance Plant (LCOP), a designation which continued throughout World War II. LCOP was a permanent Class II industrial installation originally designed and constructed, immediately prior to and during World War II, to produce .30 caliber, .30 caliber carbine, and .50 caliber ammunition. Additionally, primer manufacturing and mixing, along with tracer, igniter, and special composition manufacturing, also took place at LCOP during World War II. The history of the LCOP is of special interest. Much that was accomplished on this initial GOCO small arms ammunition plant undertaking proved to be the foundation for more extensive achievements later.

The first two waves of GOCO defense plant construction were launched by the Ordnance Department in 1940-1941. Of the 77 GOCO industrial facilities in the initial wave, LCOP was the first of the small arms ammunition plants to have a signed contract and to have construction begin. Remington Arms Company (Remington) of Bridgeport, Connecticut, was the original contractor-operator of the LCOP. It was

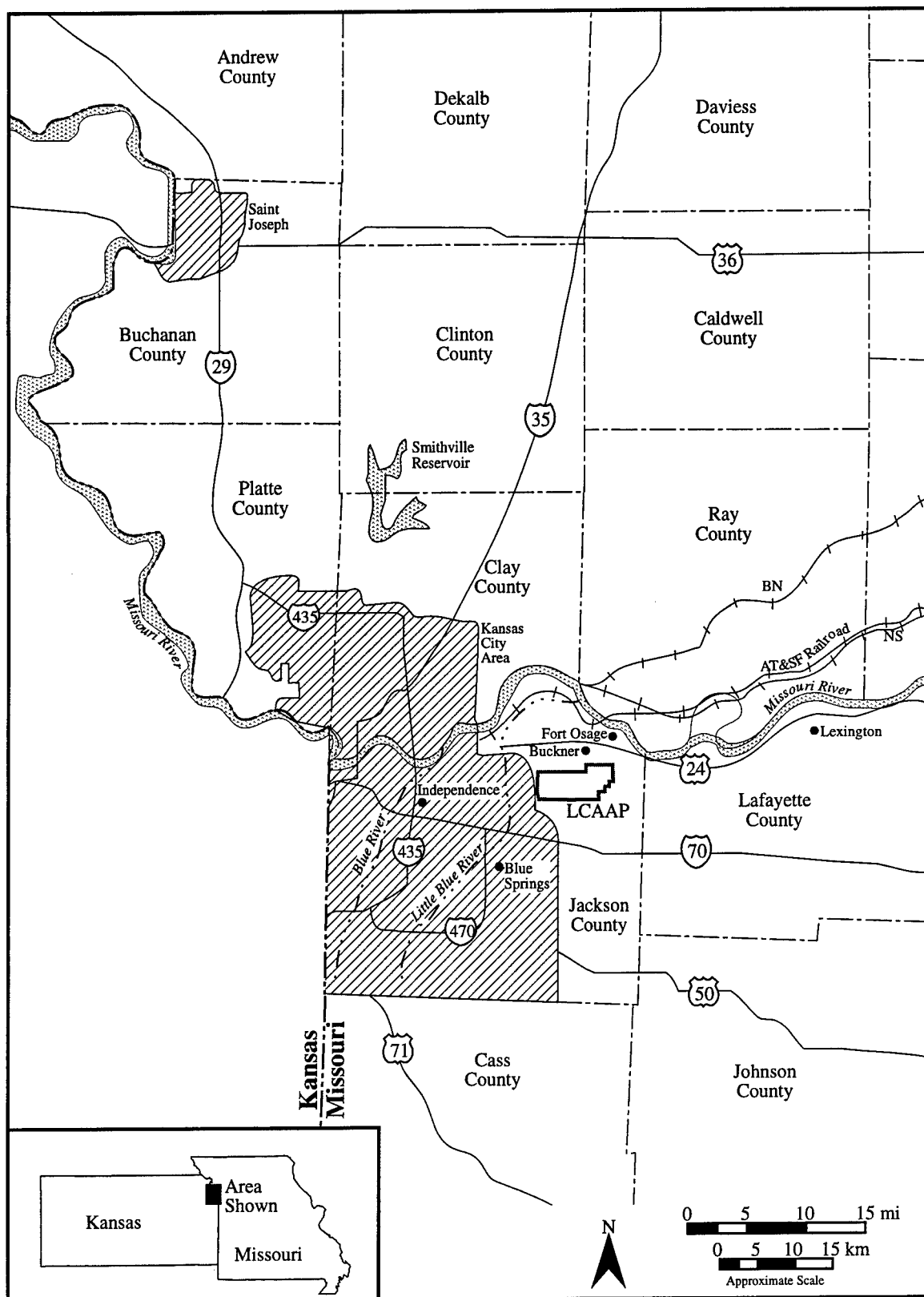


Figure 1. Regional location of the Lake City Army Ammunition Plant (LCAAP).

on September 3, 1940, that Remington was first informed that the government desired its services in connection with the construction, equipment, and operation of a facility having a daily capacity of 1,000,000 .30 caliber and 600,000 .50 caliber cartridges. A letter of intent, dated September 10, 1940, authorized Remington to proceed with the project. This letter was superseded by the formal contract, W-ORD-484, on November 25, 1940. This contract doubled the previously specified .30 caliber capacity, calling for daily production per 24 hours of 2,000,000 .30 caliber cartridges (LCOP 1943a:5-6).

The construction of the facility demanded a close working relationship between the Ordnance Department, the Quartermaster Corps of the War Department, Remington, the Architect-Engineer, and the construction contractor. The Ordnance Department was the owner of the facility. The Quartermaster Corps (later the Corps of Engineers) was the Ordnance Department's representative with respect to construction. Remington was responsible for adequacy of construction for the manufacture of ammunition as specified in its contract. The Architect-Engineer (Smith, Hinchman, and Grylls of Detroit, Michigan) provided plans and specifications. Two construction contractors were selected by the government with Remington's approval, both Foley Brothers of St. Paul, Minnesota, and Walbridge-Aldinger Company of Detroit, Michigan; both were engaged for the construction work under separate contracts. Acquisition of the original 3,908.22 acres of land from 24 different landowners cost approximately \$680,000, with the original 236 buildings and support facilities costing an additional \$51,000,000.

While the technical planning of the facility began in October of 1940, actual construction commenced on December 16, 1940. This early construction included temporary buildings only. The ground breaking ceremony took place on December 26, and excavation started for the plant proper on December 30, 1940. Approximately eight and one-half months later, on September 12, 1941, the first loaded .30 caliber cartridges were produced. These were followed, on November 27, 1941, by the first .50 caliber cartridges. Interestingly, two days before the Japanese launched their air attack on the United States' Pacific fleet at Pearl Harbor, the Ordnance Department announced its Third Wave expansion of the small arms ammunition program (LCOP 1943b:6); this included increasing the capacity at LCOP. While construction was completed on August 31, 1943, sporadic additions and improvement construction continued until V-J Day.

Complete termination of Remington's prime contract took place on August 28, 1945. On December 1, 1945, the function of the LCOP changed from active production to stand-by storage of machinery, equipment, and buildings. During this period the facility was under government supervision, with only a commanding officer and civil service employees. In the interim period, from August 28 to December 1, the plant was contractor-operated, but no production activity occurred (LCOP 1945:314). During the World War II-era, the LCOP had delivered to the government over 5,500,000,000 rounds of small arms ammunition, including 2,700,000,000 rounds of .30 caliber, 1,500,000,000 rounds of .30 caliber carbine, and 1,300,000,000 rounds of .50 caliber. In addition, the LCOP World War II production included 61,522,365 rounds of .30 caliber ball frangible, 8,334,533 rounds of .30 caliber rifle grenade, and 24,482,052 rounds of training and gun functioning ammunition. The facility also loaded 24,960,256 rounds of 20 mm incendiary shells (LCOP 1943a:Appendix I:3). In addition, millions of rounds manufactured at other plants were unpacked, re-inspected, and repacked at LCOP. Also, numerous experimental projects facilitating the production of small arms rounds were carried out at the facility. LCOP, like many GOCO facilities, was constructed in record time and produced quality munitions at a rate that far surpassed expectations. After World War II, the facility's tremendous contribution to the United States' World War II war effort was recognized and it was renamed the Lake City Arsenal (LCA).

In August of 1950, personnel from the Office of the Chief of Ordnance advised Remington that a partial reactivation of LCA was anticipated (LCA 1951:1). This originally involved 25,000,000 .50 caliber ball and 75,000,000 .30 caliber armor-piercing rounds. Production schedules, which included the manufacture of ordnance never before produced, were soon increased. New ordnance production included manufacture and assembly of 30 mm rounds and M505 fuze load and assembly (LCA 1956:7). By June of 1952, all

manufacturing buildings were running three shifts, six days a week, and 5,621 people were employed in the production section (Remington Arms Company 1967:22). After the Korean War armistice in July of 1953 schedules were reduced, and by 1960, only 383 people were employed in the production section (Remington Arms Company 1967:22).

Due to an escalation of the conflict in Southeast Asia, production schedules were once again increased in 1966. It was during the Vietnam War that the third and present name designation, LCAAP, was assigned. All manufacturing buildings were put in operation, and many former employees and new employees were hired. During the Vietnam War, production employment peaked at 5,047 employees (Remington Arms Company 1967:22).

Since 1951, LCAAP's production capacity has increased with the construction of several new buildings housing various 20 mm units. A total of 114 types of ammunition or components thereof, totaling more than 11,000,000,000 rounds, has been produced at LCAAP since 1951. In addition to the regularly scheduled production, LCAAP has produced 260 special or miscellaneous lots of ammunition or components totaling over 5,000,000 rounds since 1951 (Remington Arms Company 1967:22). Interesting miscellaneous munitions include the 20 mm spotting M101 round, fabricated from depleted uranium, and the .30 caliber and 7.62 mm National Match rounds.

Today, due to the reactivation of other army ammunition plants and the lack of participation in a major conflict on the part of the United States, the demands on LCAAP have eased, and production requirements are presently below peak levels.

At present, the LCAAP retains much of its World War II character. This is especially true of the .50 caliber production lines which are almost completely unaltered and should be considered historically significant. The existence of apparently complete .30 and .50 caliber steel case test lines is also significant. This machinery is associated with a new method of production in the history of small arms technology and may be the only surviving examples of its kind. While some of the production machinery has been slightly modified, much of the hardware is of World War II vintage and may be important to engineering history because of the facility's role in the development and implementation of production technologies.

Architecturally, portions of the property are significant as products of mid-twentieth-century industrial and military design, and many areas of the plant retain much of their 1940s character. Being a First Wave facility, the LCOP was designed and built as a permanent Class II industrial installation. The major production and support buildings constructed during World War II were two-story, brick-faced, permanent structures, with reinforced concrete and structural steel framework. Many exhibit architectural distinction, and collectively they represent a specific historical environment.

Several of the structures at LCAAP have been designated as Category III Historic Properties (MacDonald and Mack Partnership 1984:53-54) and are eligible for inclusion in the National Register of Historic Places (NRHP). These include: Building 1, currently used for Small Caliber Ammunition Modernization Program (SCAMP) 5.56 mm ammunition production; Building 2, currently used for 7.62 mm ammunition production; Building 3, currently used for .50 caliber ammunition production; Building 5, the Administration Building; Building 10, the Tool and Gauge Building; Building 11, the Lead Shop; Building 15, the Boiler House; and Building 35, the Primer Manufacturing Building. Constructed in 1941, these eight buildings were designed by Smith, Hinchman, and Grylls, Inc., of Detroit, Michigan, and served as prototypes for the major administrative and manufacturing facilities built at the small arms ammunition manufacturing plants at Denver, Colorado; Des Moines, Iowa; New Brighton, Minnesota; and Salt Lake City, Utah. The Administrative Building and the Tool and Gauge Shop survive in virtually their original form, while the six other buildings have been altered by post-World War II additions (MacDonald and Mack 1984:53). However, all retain their characteristic safety and defense features and the clean-lined

detailing of their original design. While several of these buildings are held in stand-by and several are actively used for production, all are in good condition and receive routine maintenance.

The LCAAP as a whole is historically significant due to its historical, physical, and social association with U.S. industrial mobilization during World War II and the development of the military industrial complex during the post-war and Cold War periods. This historical significance is exemplified by the innovations in small arms manufacturing that occurred at the LCAAP. Many of these innovations were in the manufacturing process, engineering, ballistics engineering, and quality control and inspection. Additionally, World War II industrial mobilization and its long-term effects on American culture and society represent a significant broad pattern of events, and the LCAAP reflects the impact of the war on the home front (Shaffer et al. 1995). As a cornerstone of the Ordnance Department's GOCO industrial facility program, the LCAAP, both in its World War II production and its continued operation in the subsequent Cold War era, has been described as being a significant catalyst for change in American society (Kane 1995:307).

IV.
PHOTOGRAPHIC DOCUMENTATION

ADMINISTRATIVE FACILITIES

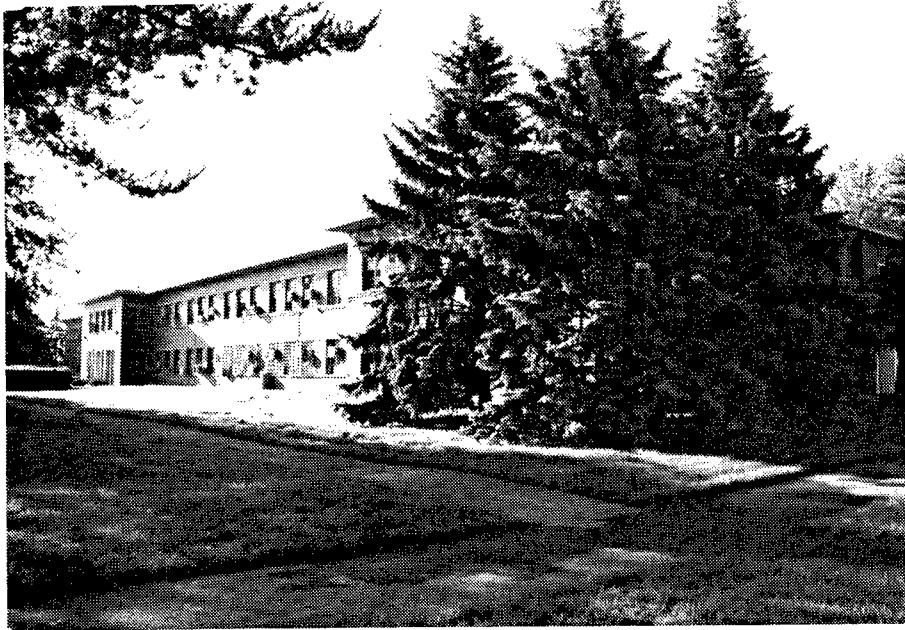


Figure 1. Building 5: Administration Headquarters and Hospital.



Figure 2. Building 5: Rear Wing of Administration Headquarters and Hospital.

MANUFACTURING AND SUPPORT FACILITIES

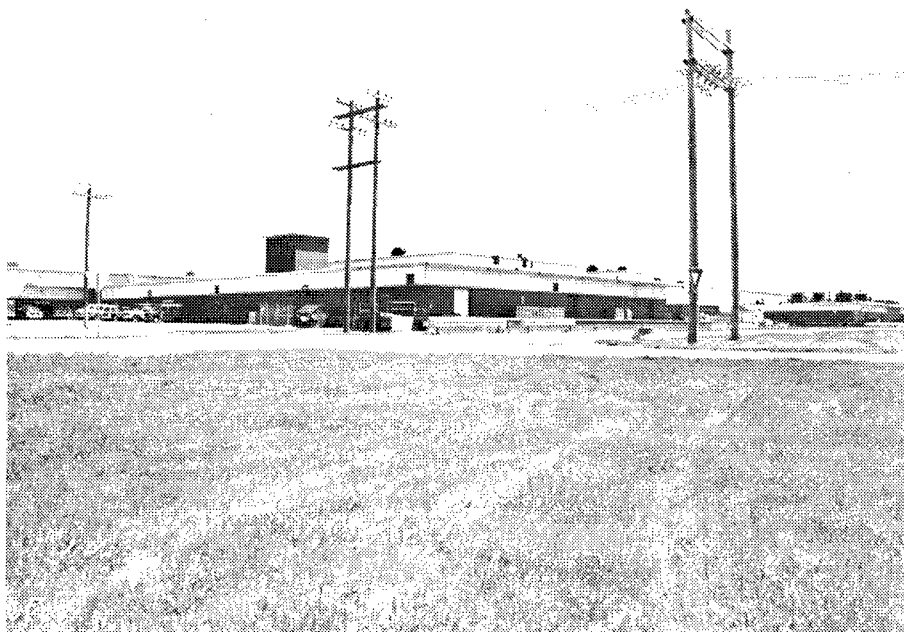


Figure 3. Building 1: 5.56 mm Ammunition Manufacturing Facility.

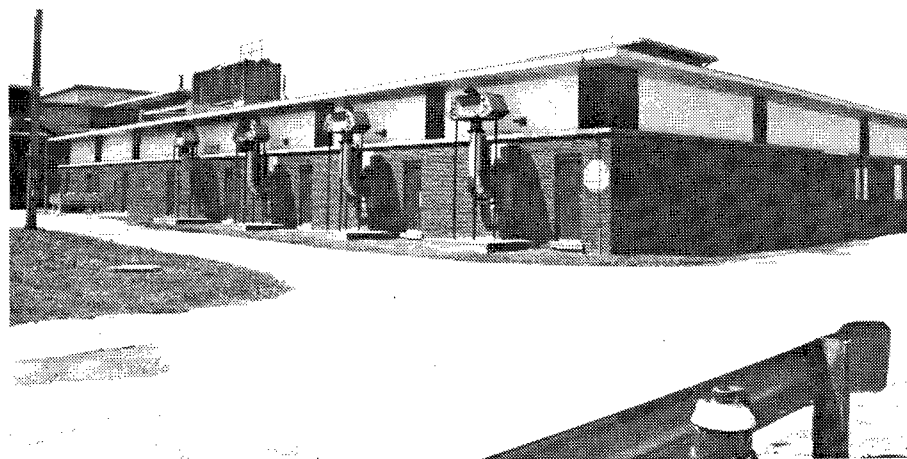


Figure 4. Building 1: 5.56 mm Ammunition Manufacturing Facility, Explosive Wing No. 1.

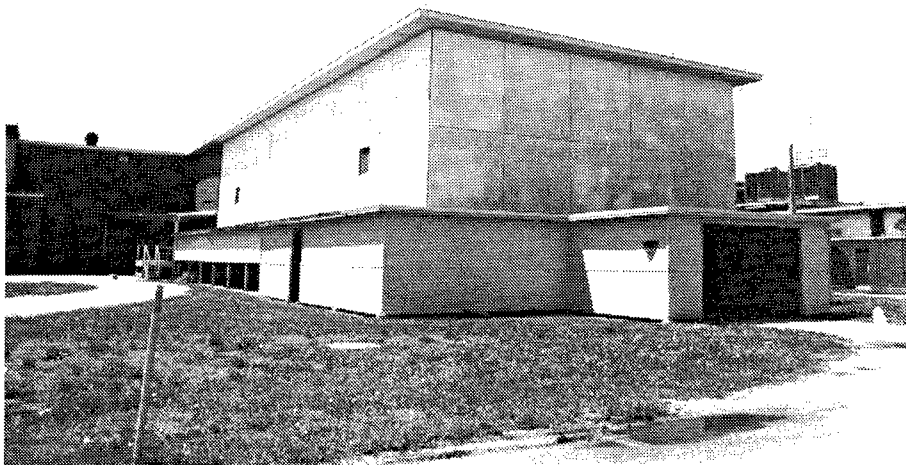


Figure 5. Building 1: 5.56 mm Ammunition Manufacturing Facility, Explosive Wing No. 2.

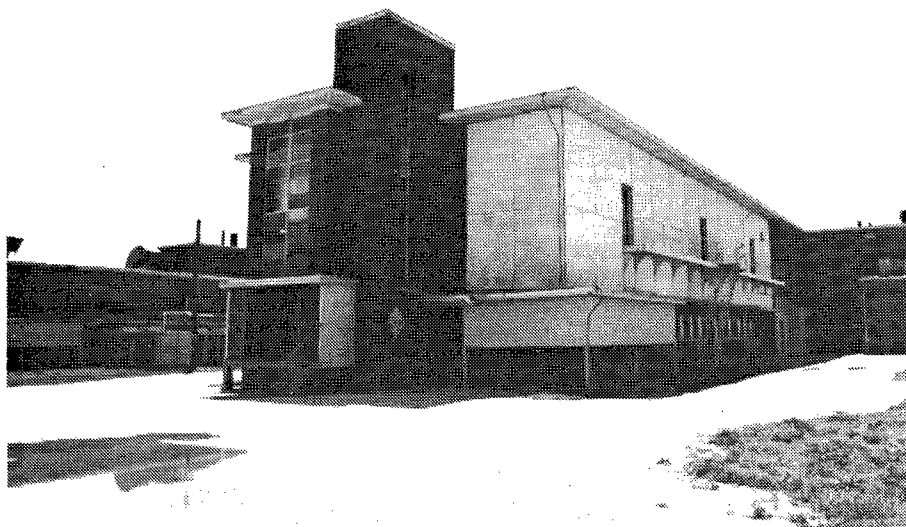


Figure 6. Building 1: 5.56 mm Ammunition Manufacturing Facility, Explosive Wing No. 3.

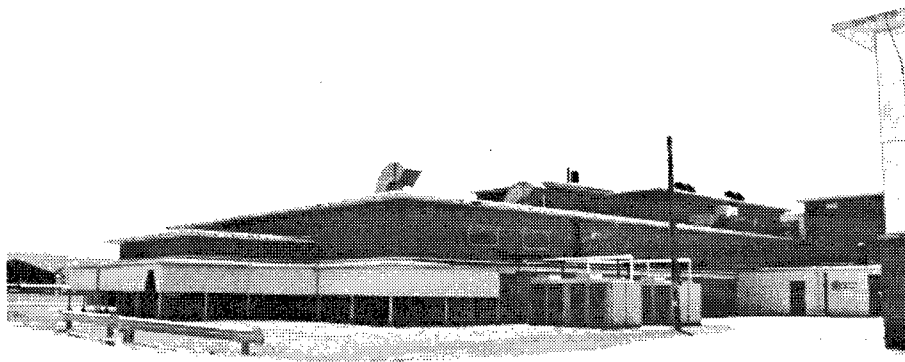


Figure 7. Building 1: 5.56 mm Ammunition Manufacturing Facility, Explosive Wing No. 4.

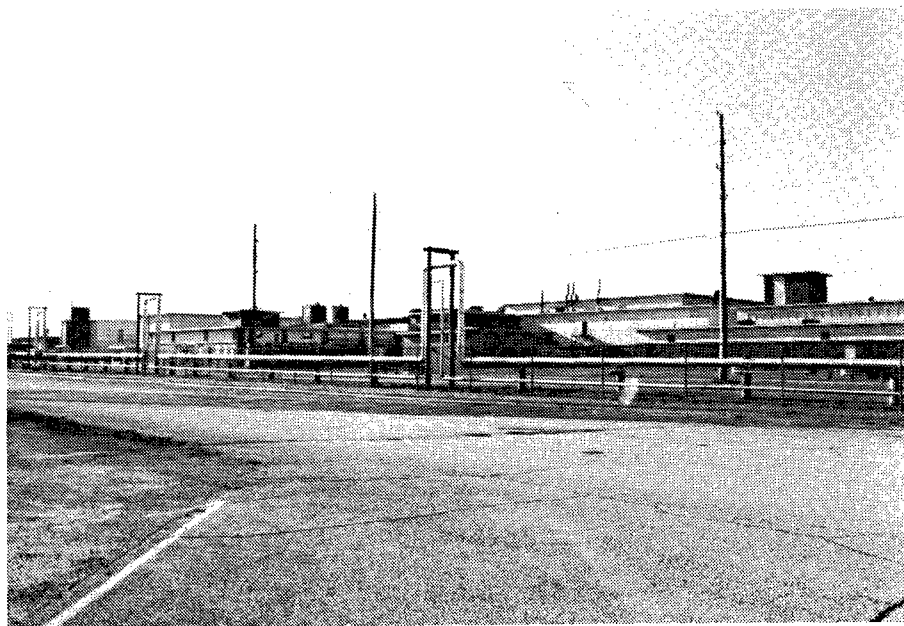


Figure 8. Building 1: Wing side of building.

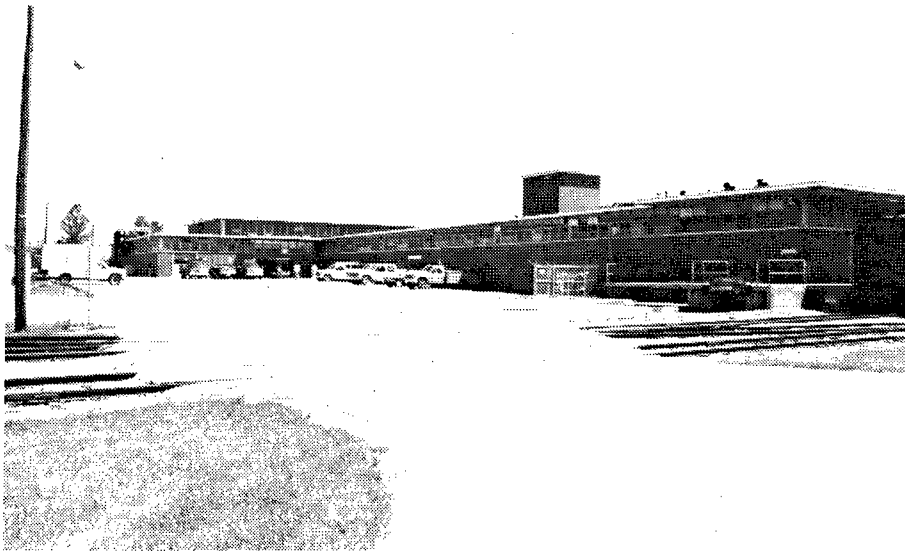


Figure 9. Building 2: 7.62 mm Ammunition Manufacturing Facility.



Figure 10. Building 2: 7.62 mm Ammunition Manufacturing Facility, Explosive Wing No. 1.

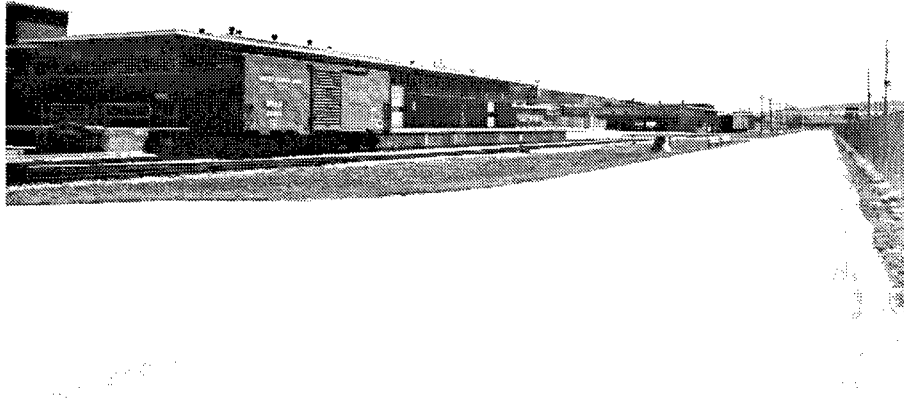


Figure 11. Building 2: 7.62 mm Ammunition Manufacturing Facility, Railroad Loading Docks.

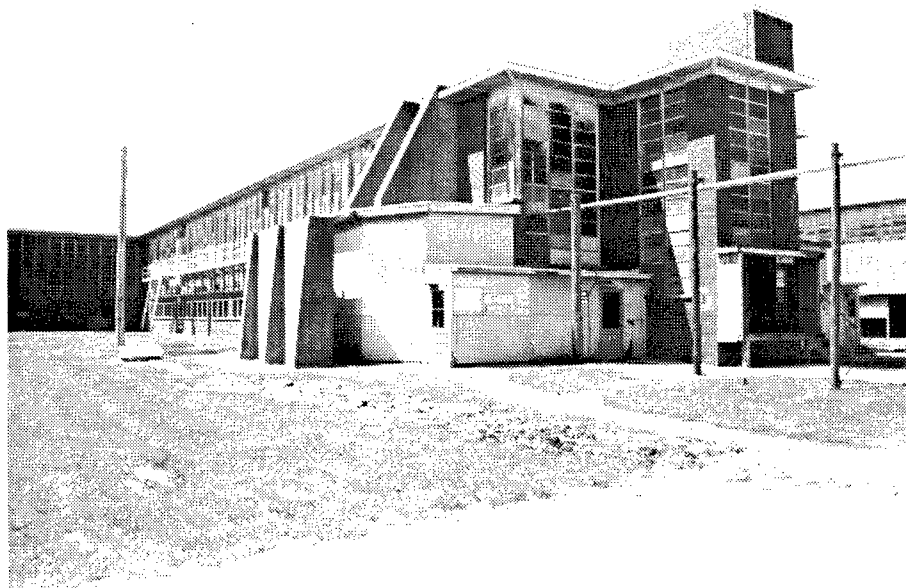


Figure 12. Building 2: 7.62 mm Ammunition Manufacturing Facility, Explosive Wing No. 2.

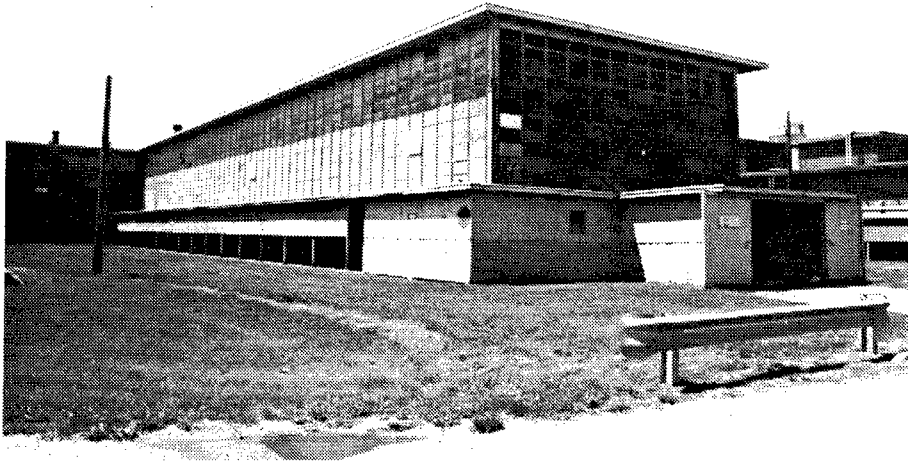


Figure 13. Building 2: 7.62 mm Ammunition Manufacturing Facility, Explosive Wing No. 3.

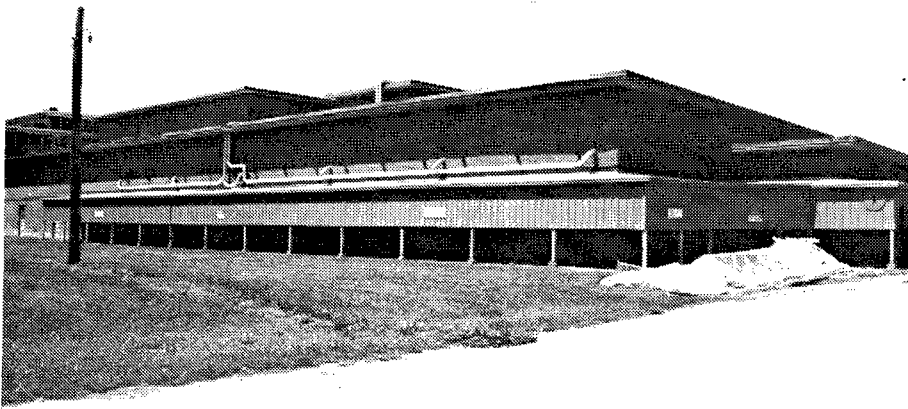


Figure 14. Building 2: 7.62 mm Ammunition Manufacturing Facility, Explosive Wing No. 4.

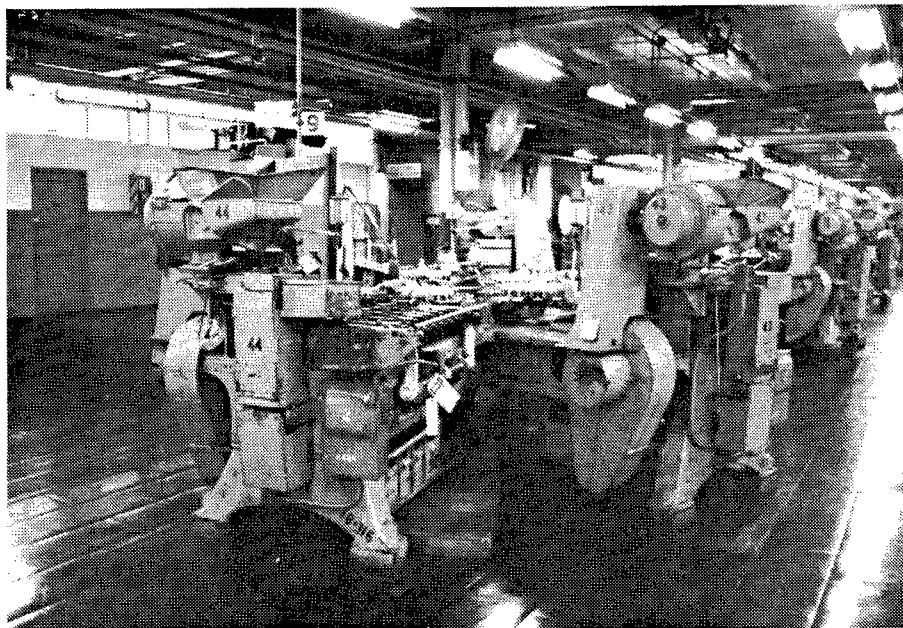


Figure 15. Building 2: Overview of Gage and Weigh Machines.

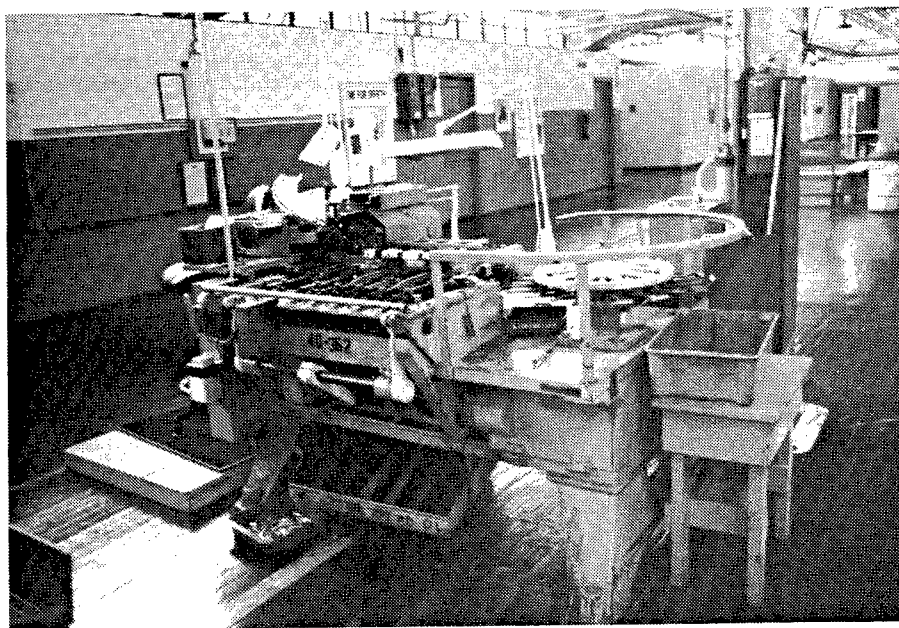


Figure 16. Building 2: Gage and Weigh Machine.

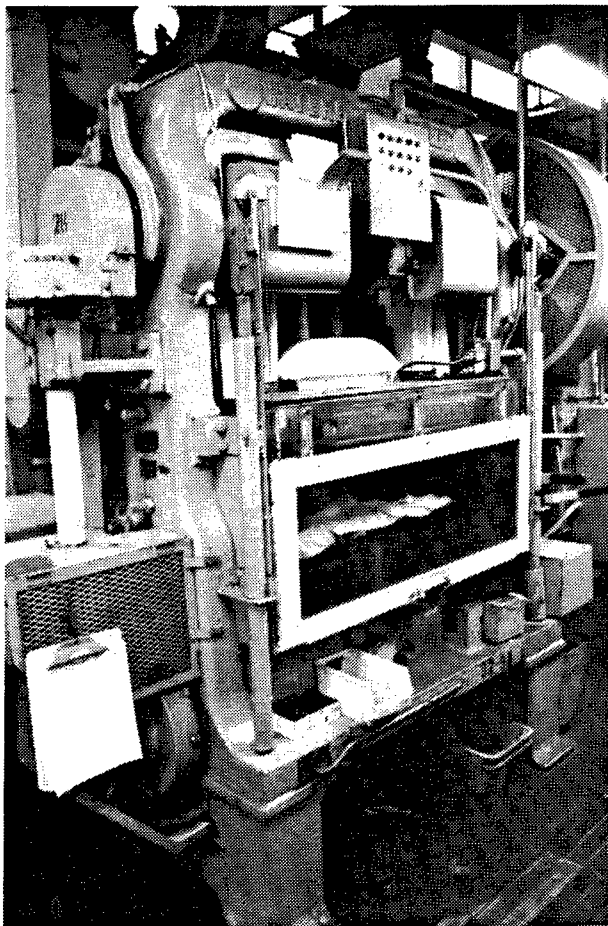


Figure 17. Building 2: Bullet Assembly Machine manufactured by Waterbury-Farrel.

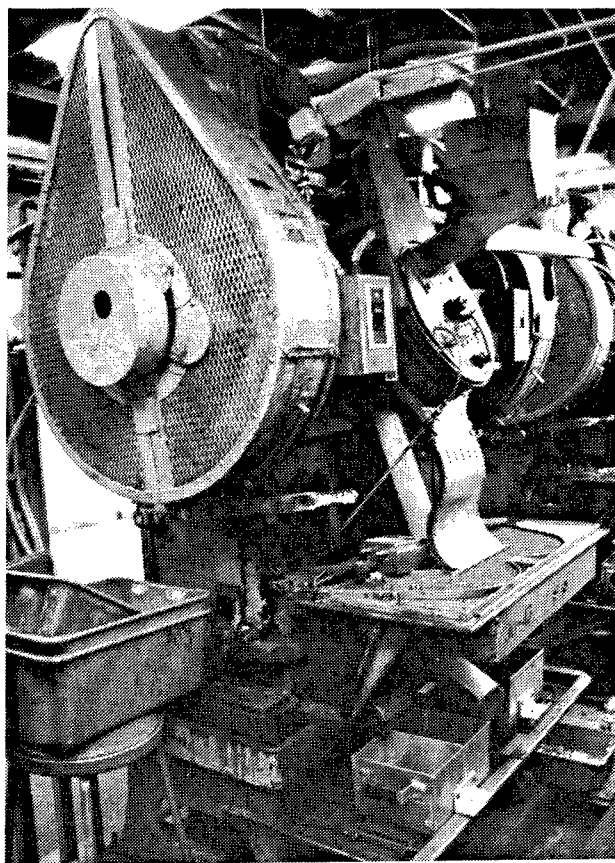


Figure 18. Building 2: 7.62 mm Bullet First Draw Machine.

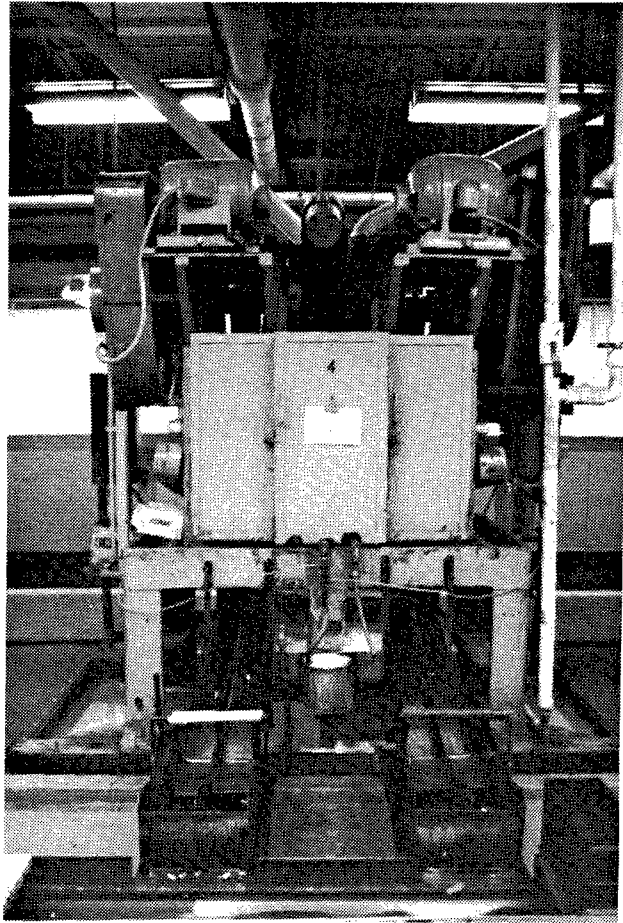


Figure 19. Building 2: First Case Draw Machine.

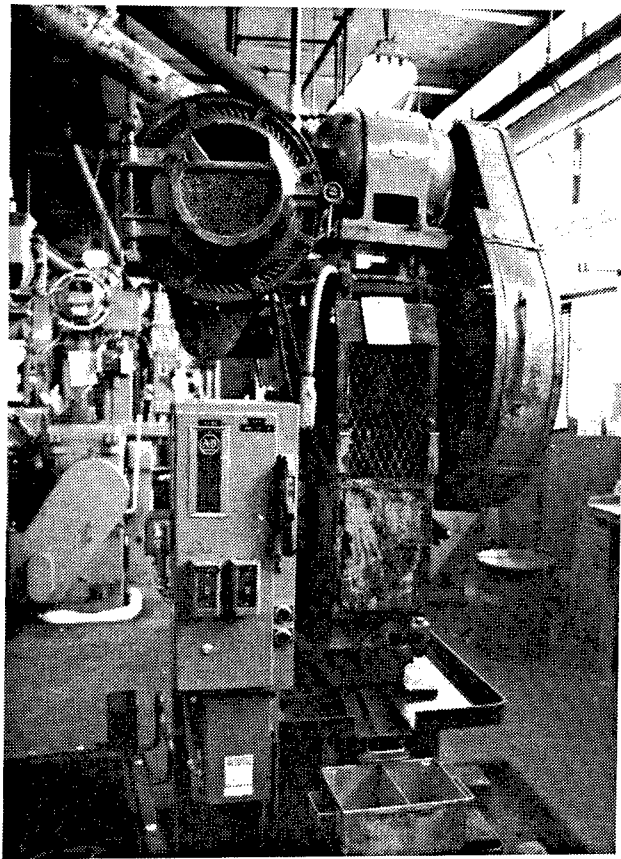


Figure 20. Building 2: Third Draw Machine.

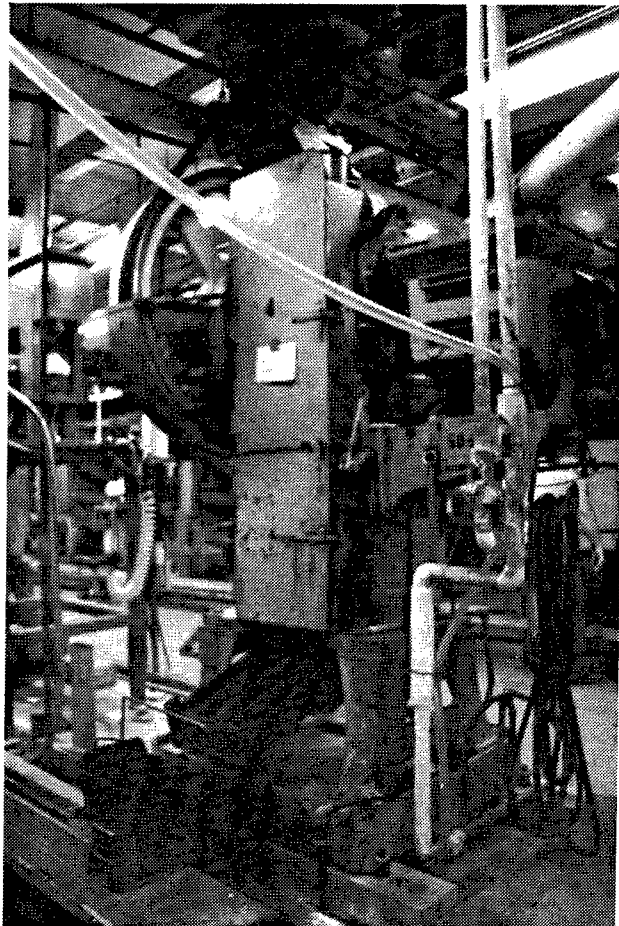


Figure 21. Building 2: End Draw Machine.



Figure 22. Building 2: Overview of the interior of building.

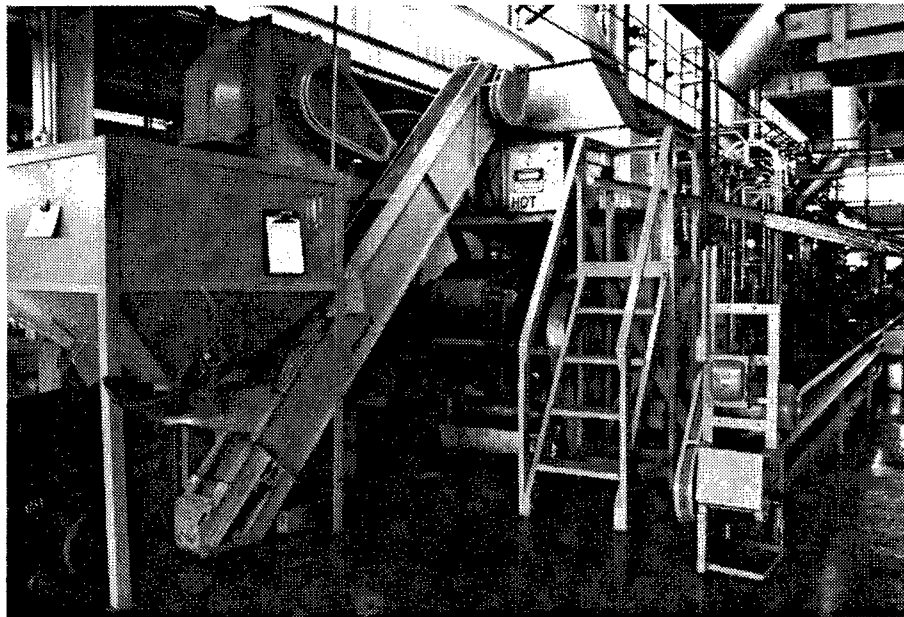


Figure 23. Building 2: Second floor Furnace.

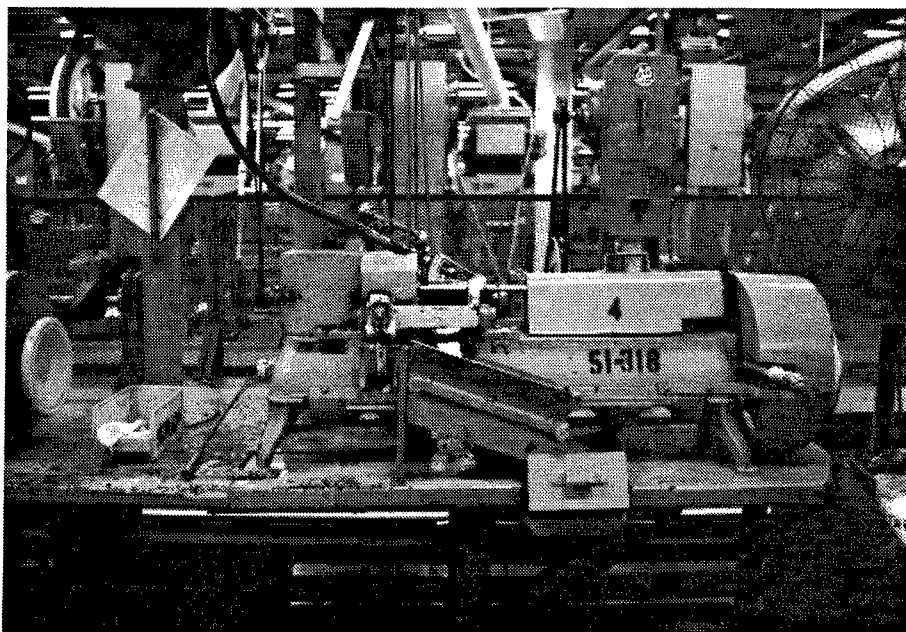


Figure 24. Building 2: First Case and Second Case Trim Machine.

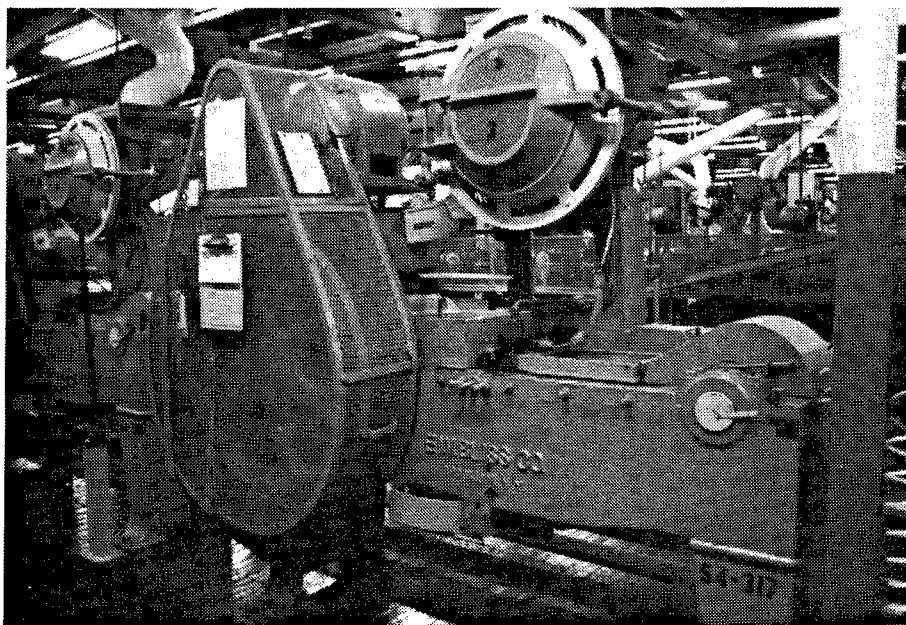


Figure 25. Building 2: Heading Press manufactured by the E. W. Bliss Co.

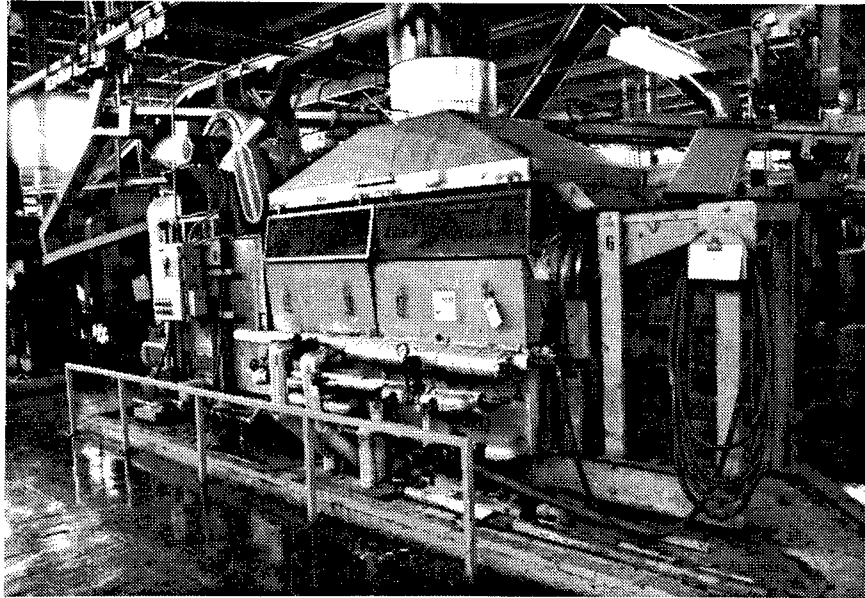


Figure 26. Building 2: Wash and Rinse Machine.

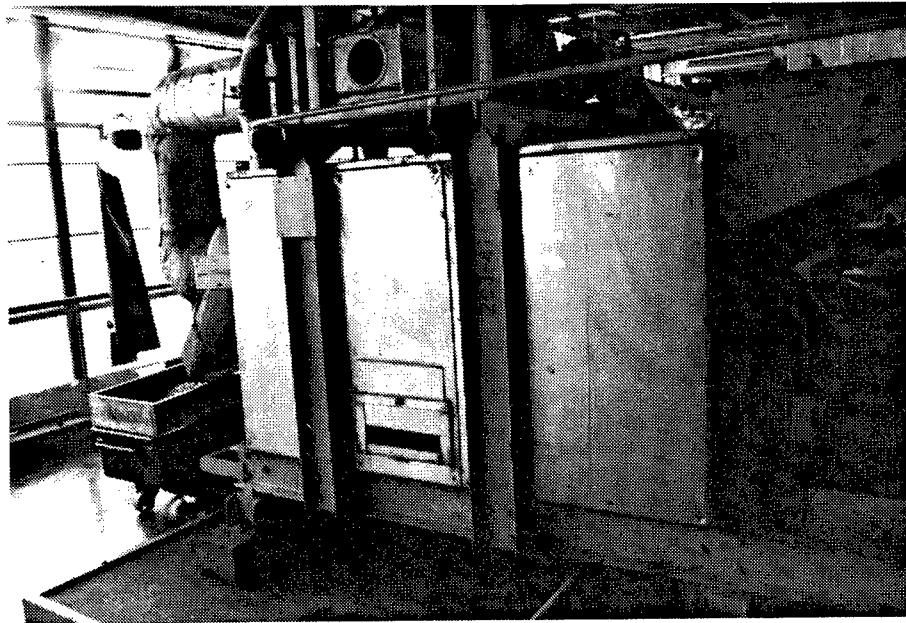


Figure 27. Building 2: Drying Machine.

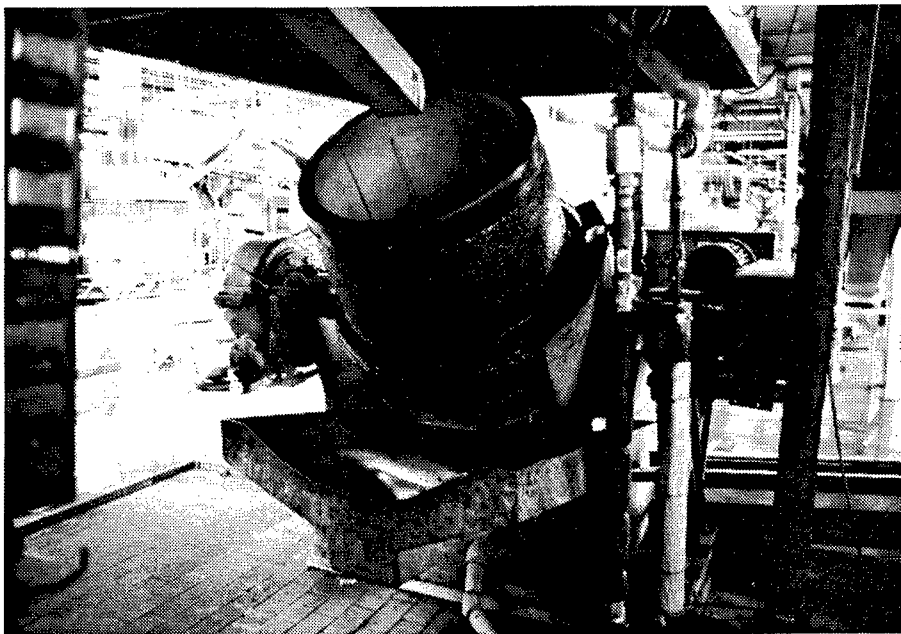


Figure 28. Building 2: Tumble Barrel.

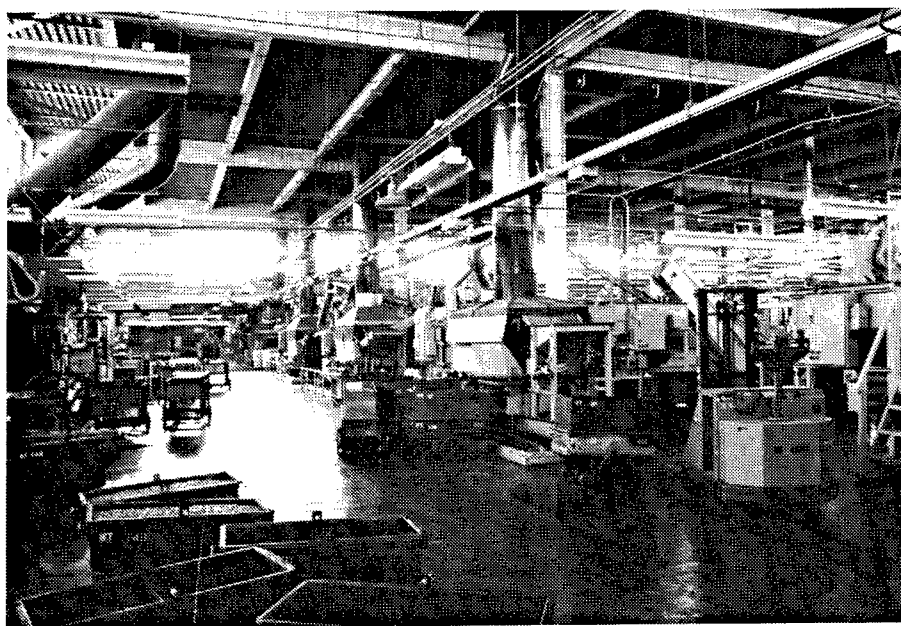


Figure 29. Building 2: Overview of Wash, Rinse, and Dry Area.

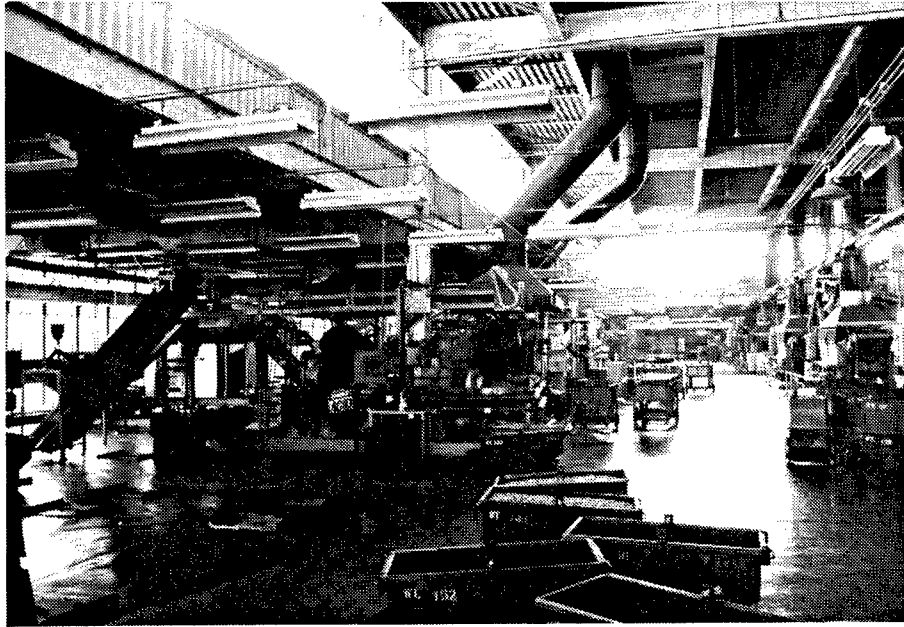


Figure 30. Building 2: Overview of Tumble Barrel Area.



Figure 31. Building 2: Brass Storage Area.

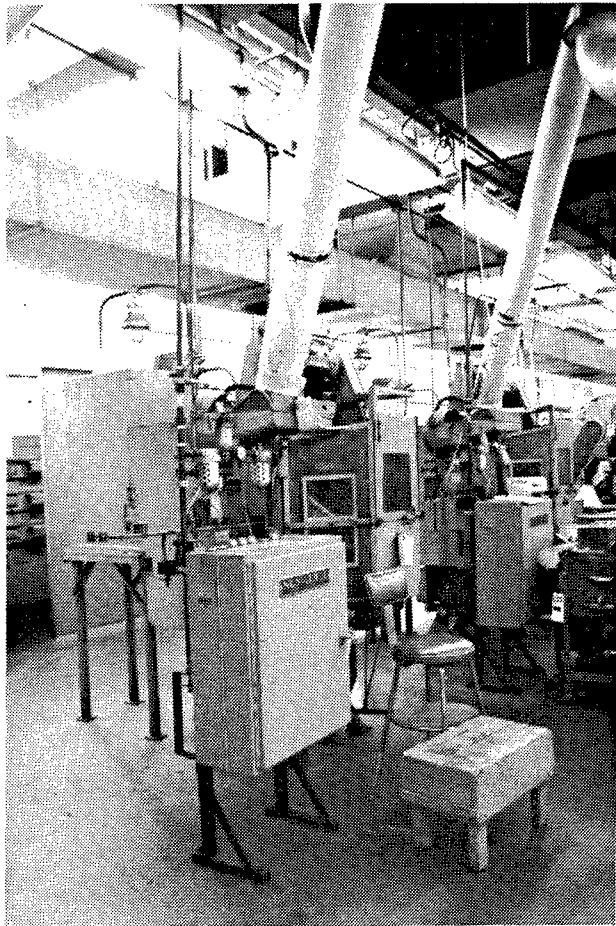


Figure 32. Building 2: Primer Insert Press.

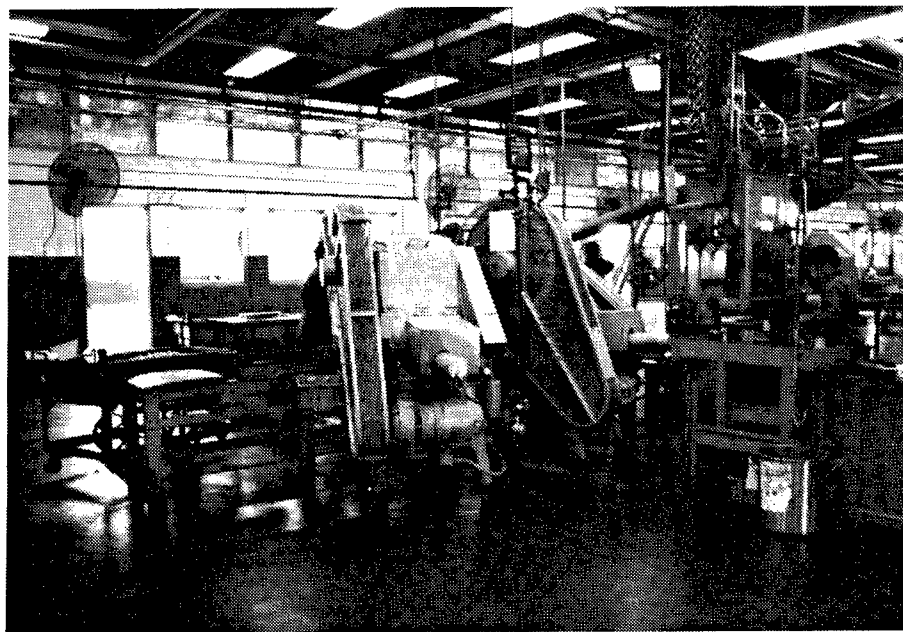


Figure 33. Building 2: Loading Plate Area.

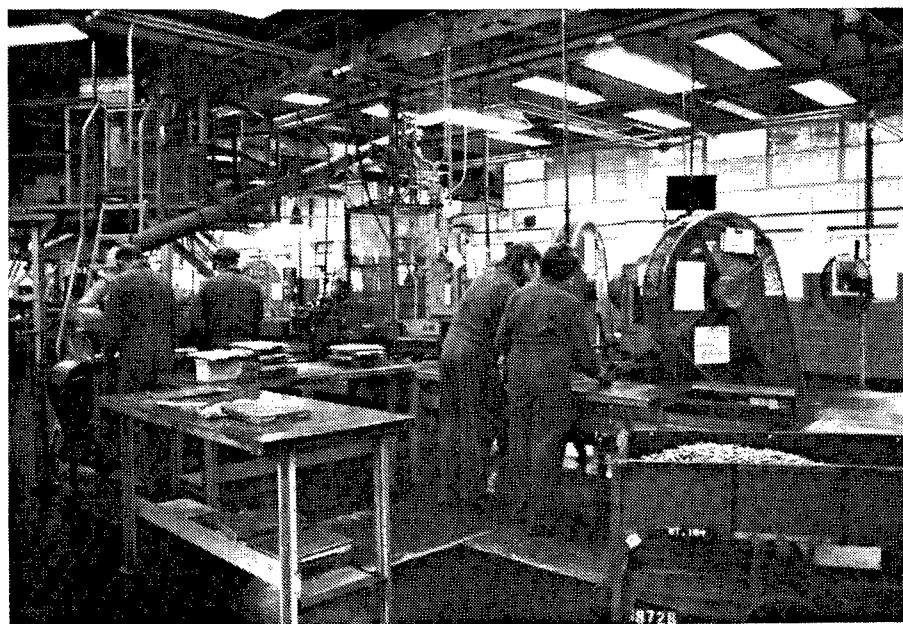


Figure 34. Building 2: Another view of the Loading Plate Area.

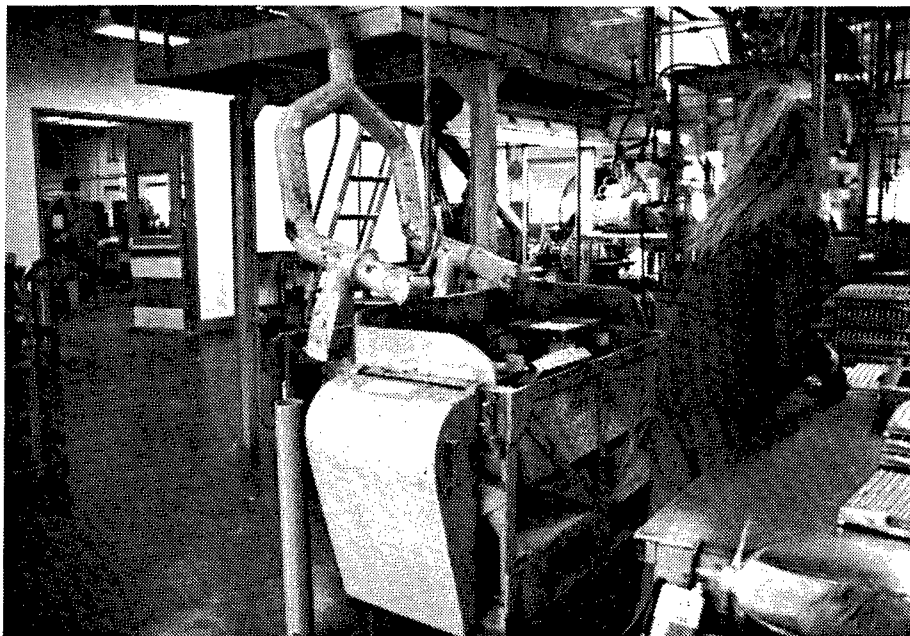


Figure 35. Building 2: Shaker Machine.



Figure 36. Building 3: .50 caliber Ammunition Manufacturing Facility.

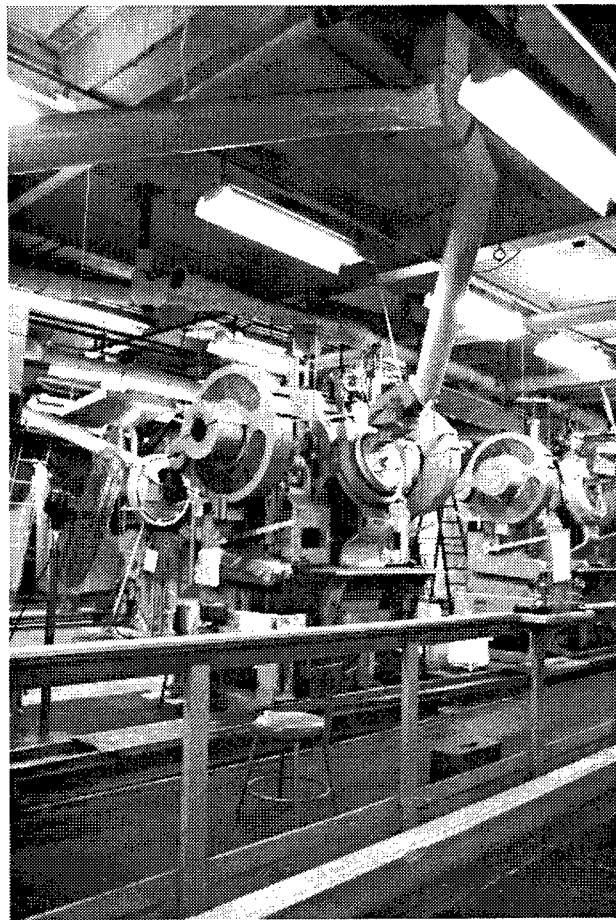


Figure 37. Building 3: First Case Draw Press manufactured by E. W. Bliss Co.

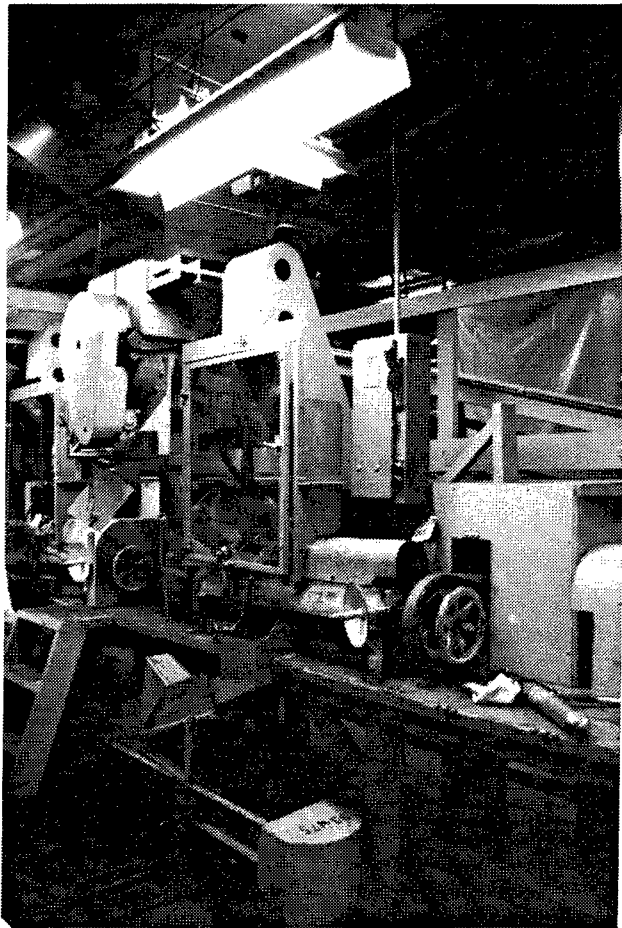


Figure 38. Building 3: Case Trim Machine manufactured by Peter's Engineering.

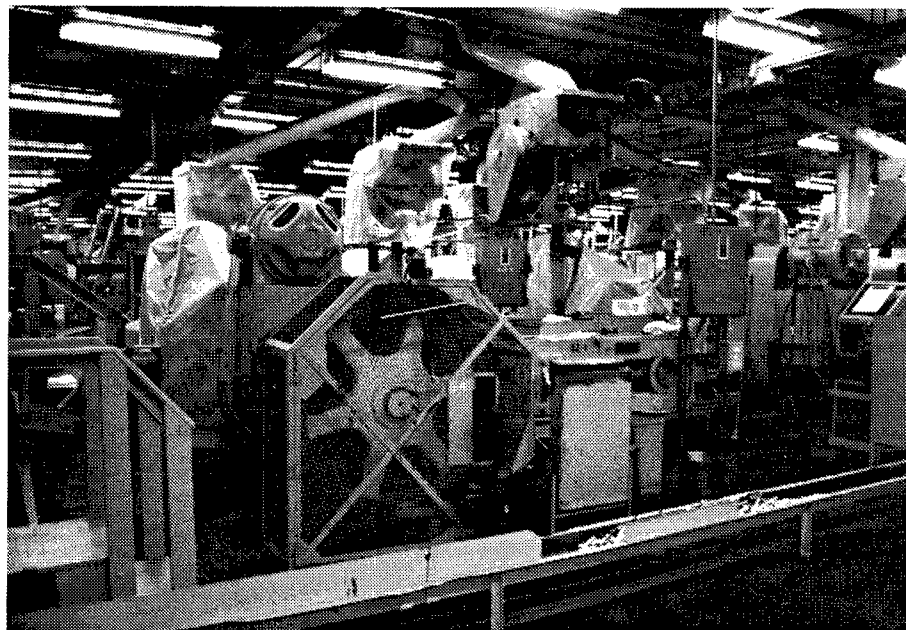


Figure 39. Building 3: Case Pocket and Head Machine manufactured by Ferracute Machine.

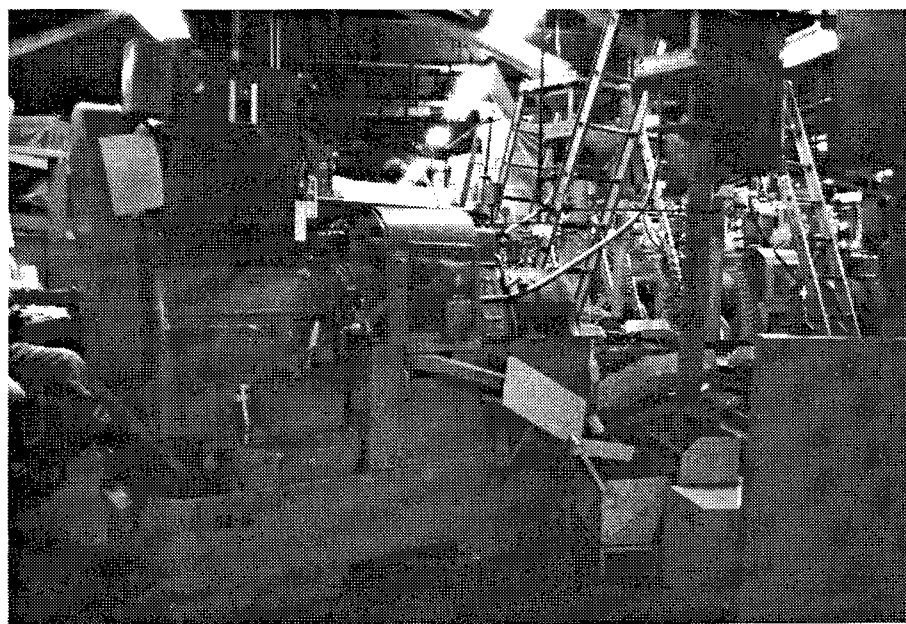


Figure 40. Building 3: "Head Turn" or Screw Machine.

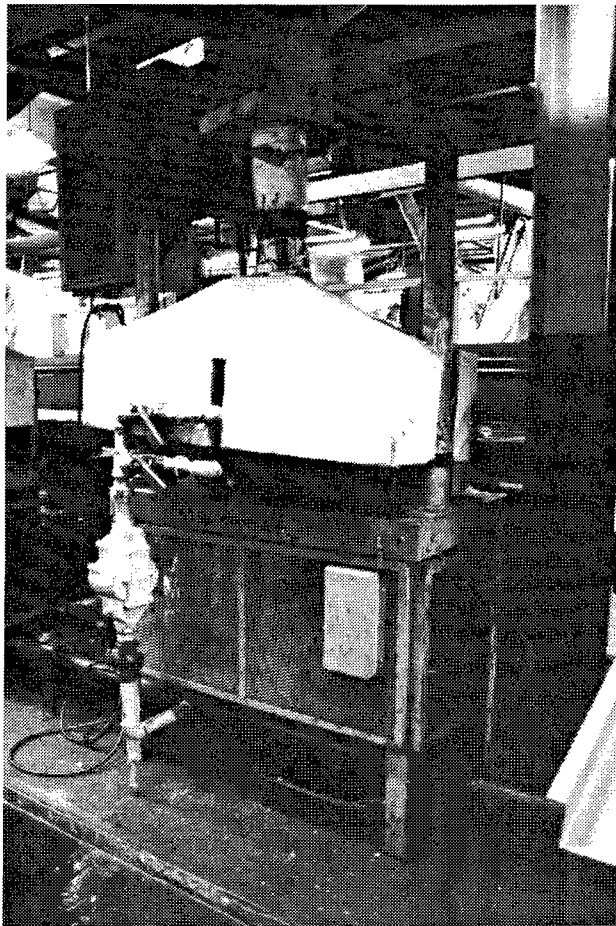


Figure 41. Building 3: Case Body Anneal Machine manufactured by Jennings Machine.

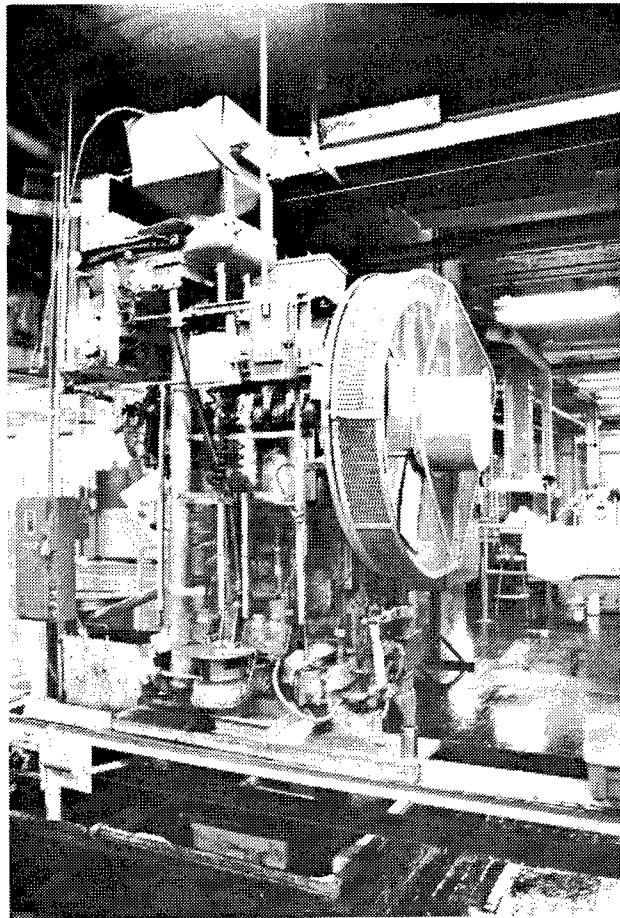


Figure 42. Building 3: Case Taper Machine manufactured by E. W. Bliss Co.

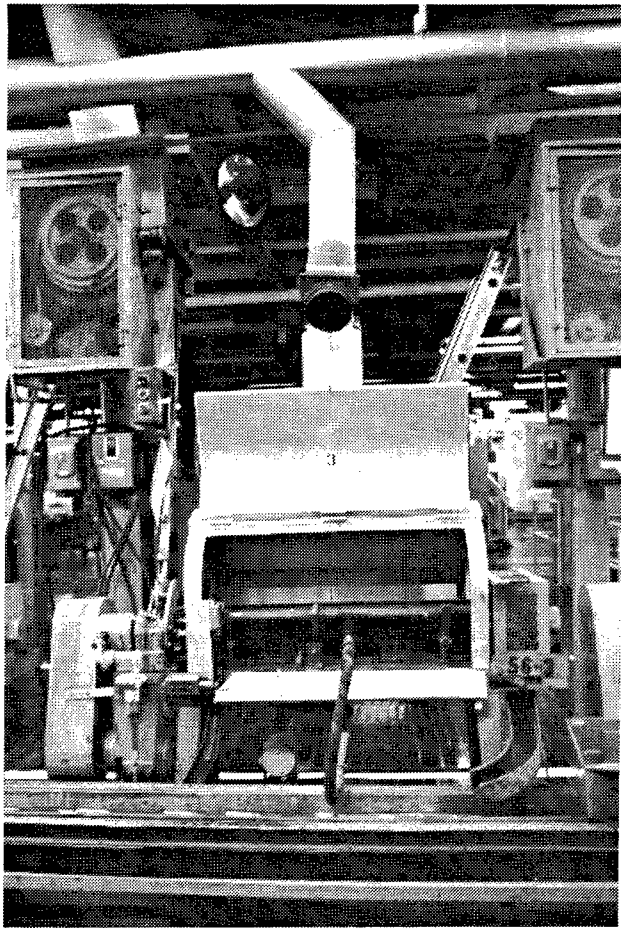


Figure 43. Building 3: Mouth and Neck Anneal Machine manufactured by Cannister Co.

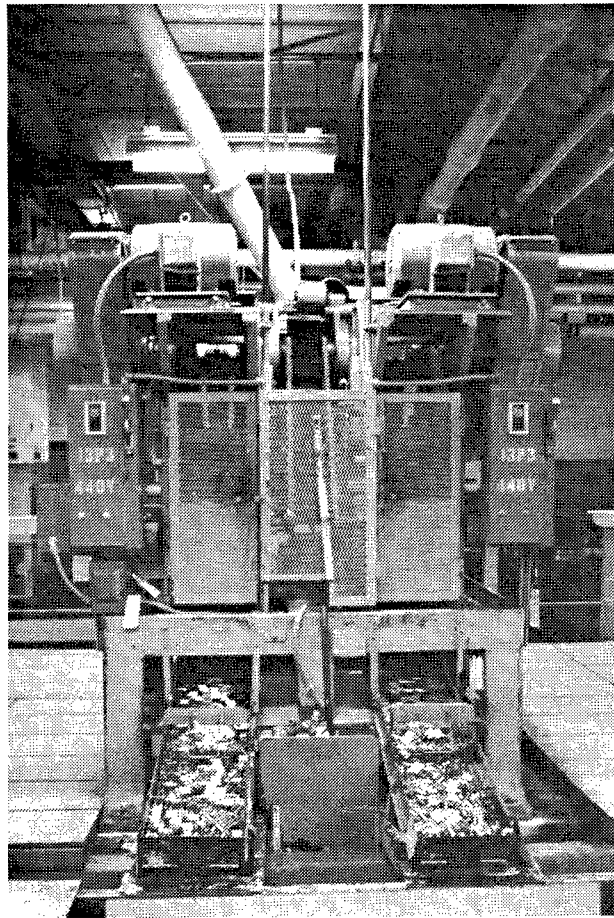


Figure 44. Building 3: First Bullet Jacket Draw Machine manufactured by E. W. Bliss Co.

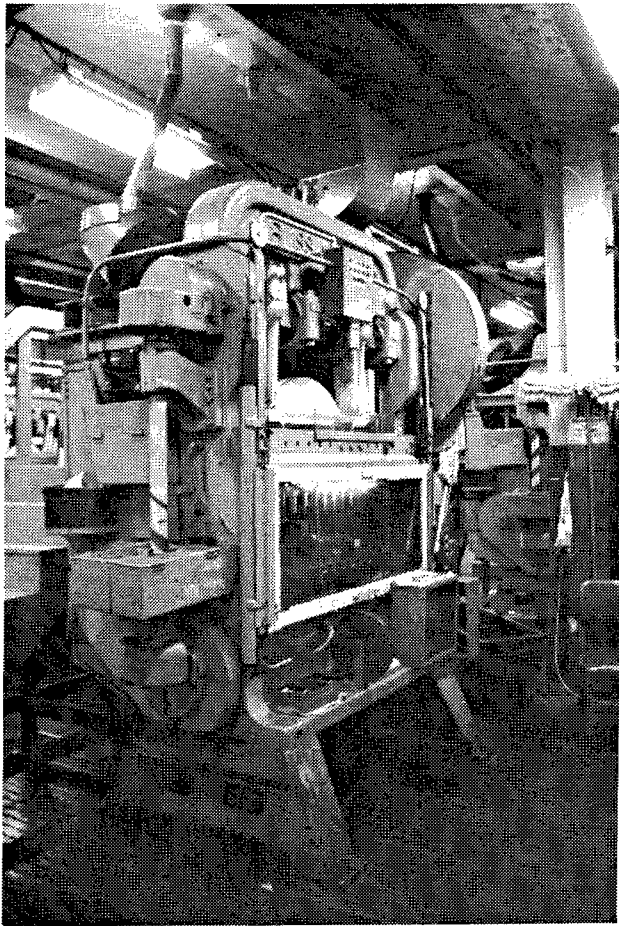


Figure 45. Building 3: Bullet Assembly Press manufactured by E. W. Bliss Co.

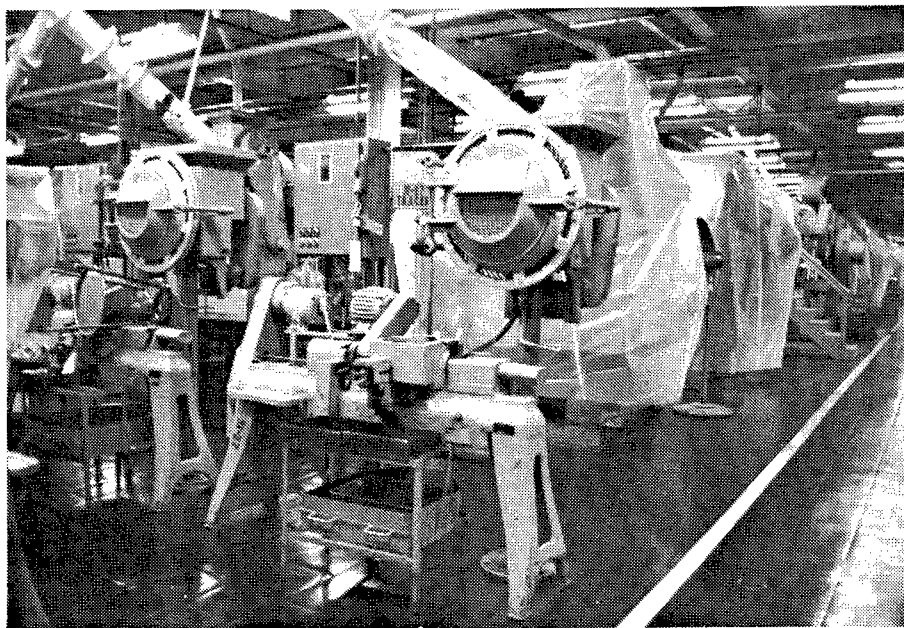


Figure 46. Building 3: Bullet Jacket Trim Machine manufactured by V & O Press.

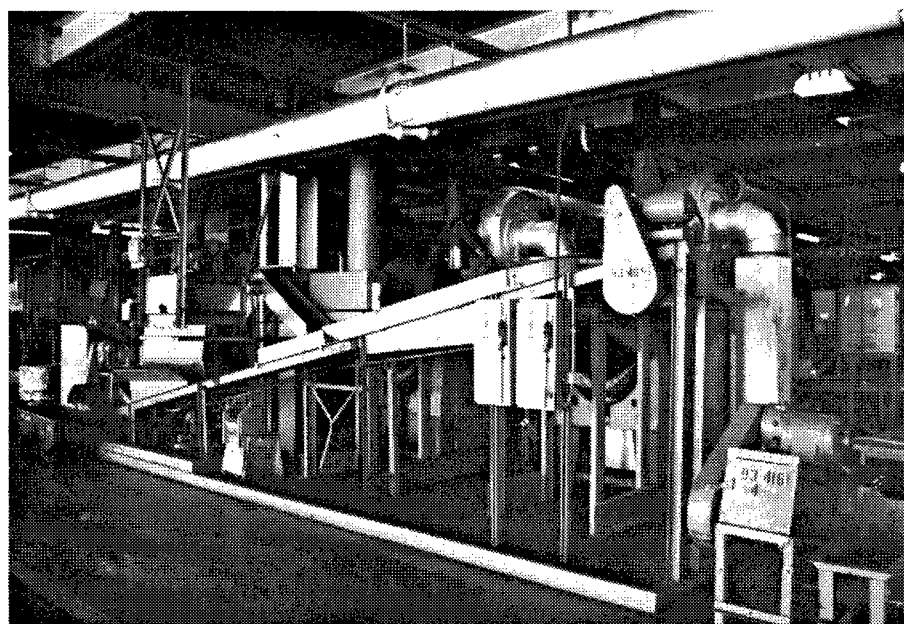


Figure 47. Building 3: Wash, Rinse, and Dry Machine manufactured by Colt's Manufacturing.

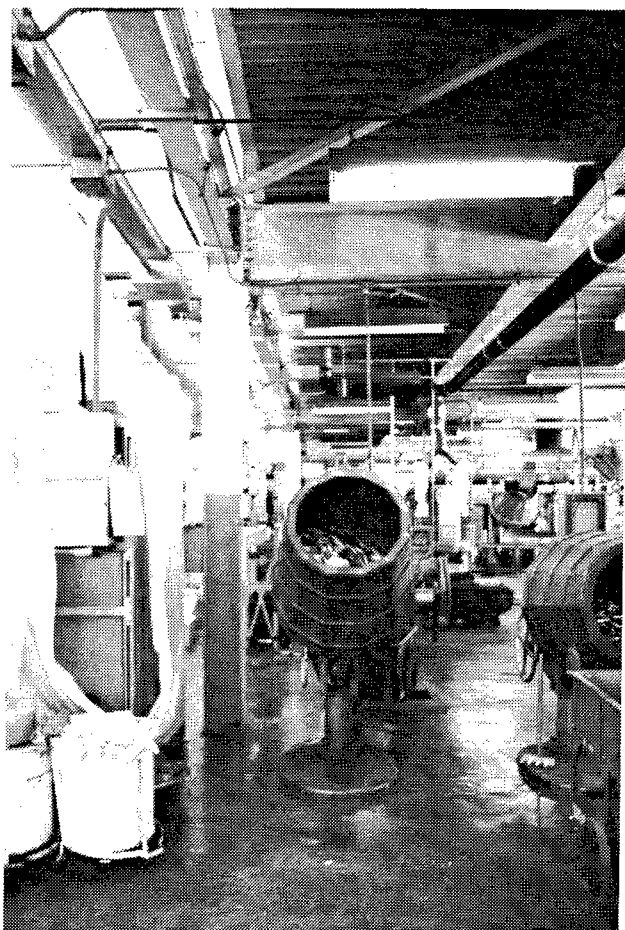


Figure 48. Building 3: Tilt and Tumble Barrel.

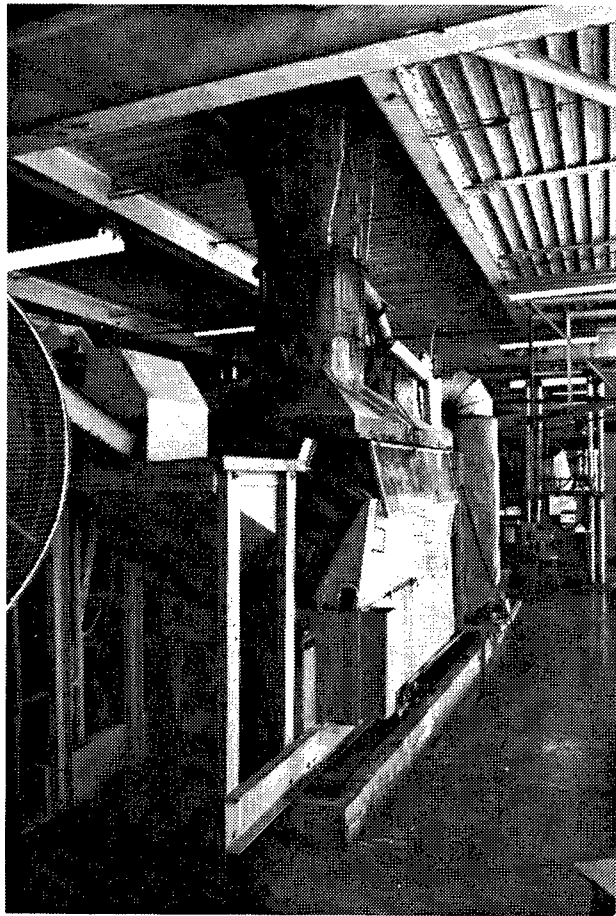


Figure 49. Building 3: Washer.

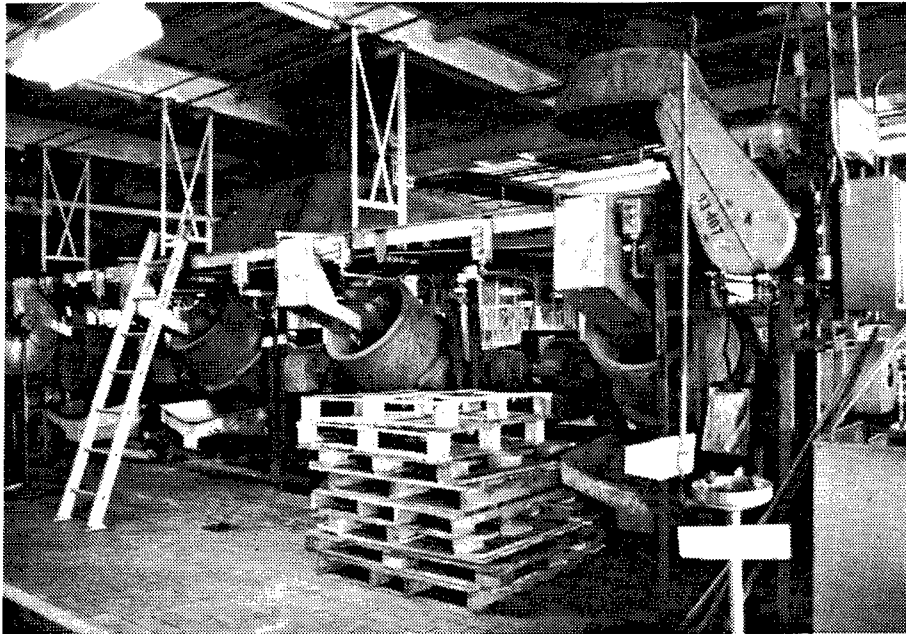


Figure 50. Building 3: Wash Barrel.

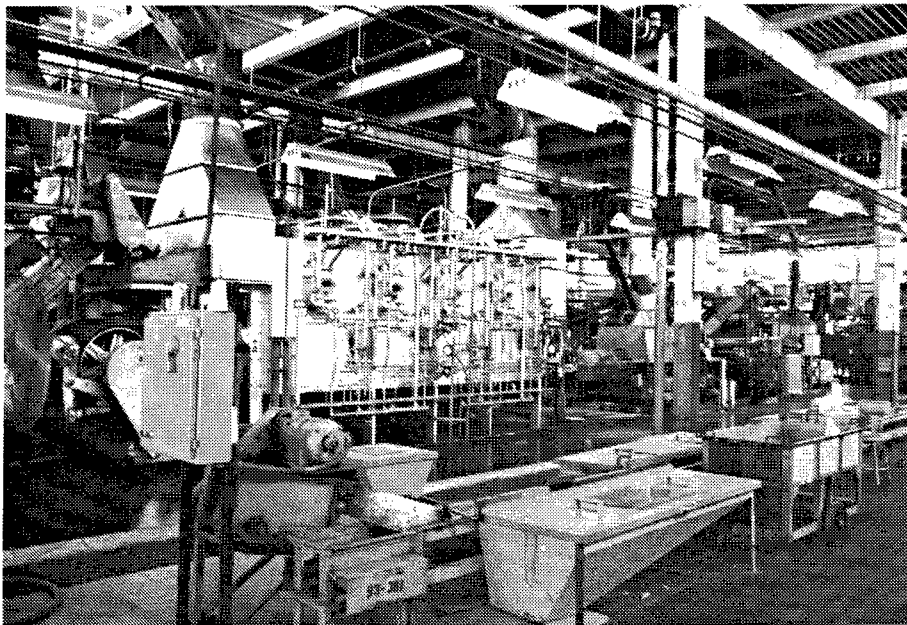


Figure 51. Building 3: Another view of a Salem Furnace.

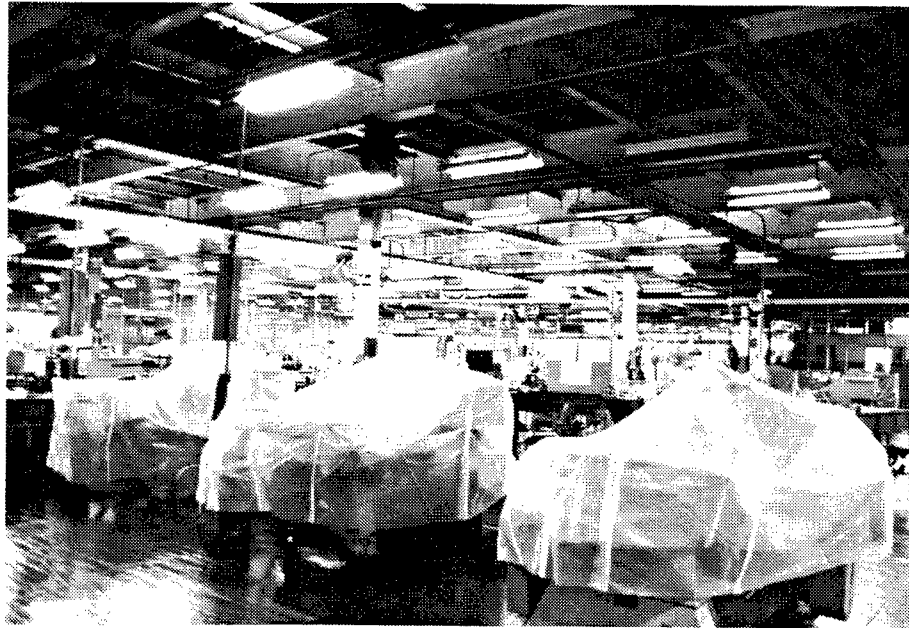


Figure 52. Building 3: Overview of the Ammunition Final Inspection Area with covered Gage and Weigh Machines.

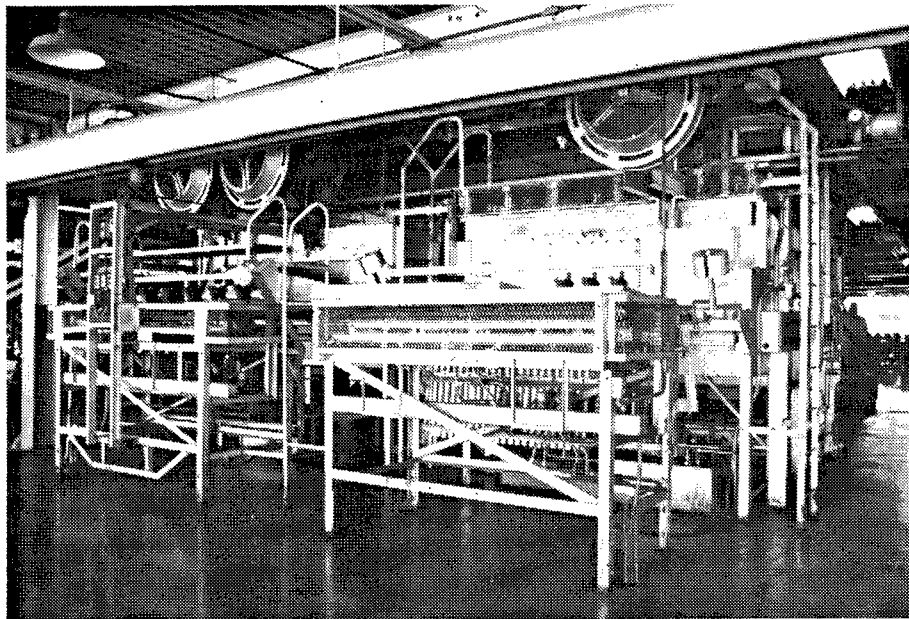


Figure 53. Building 3: Salem Furnace manufactured by Salem Engineering.

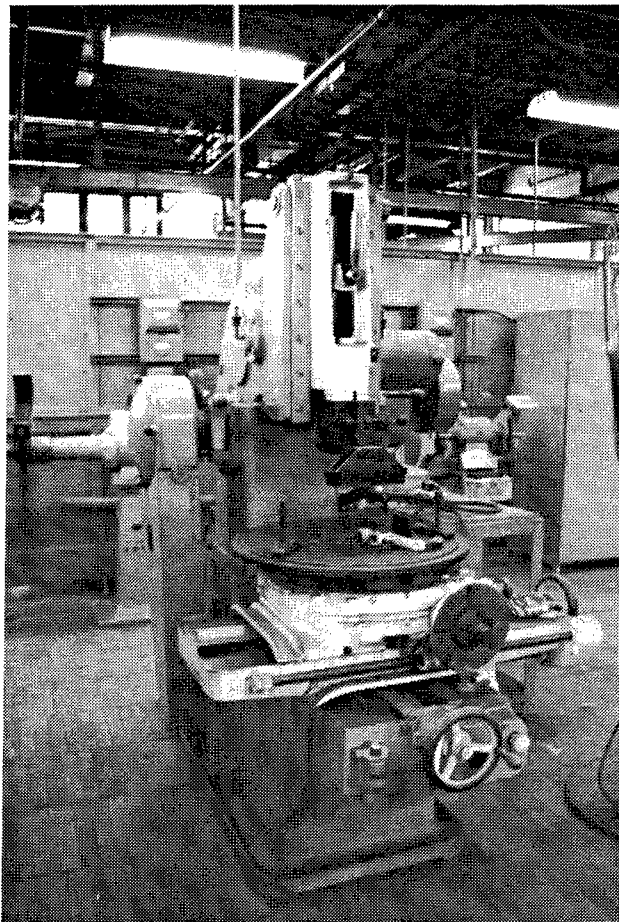


Figure 54. Building 3: Wad Cutter.

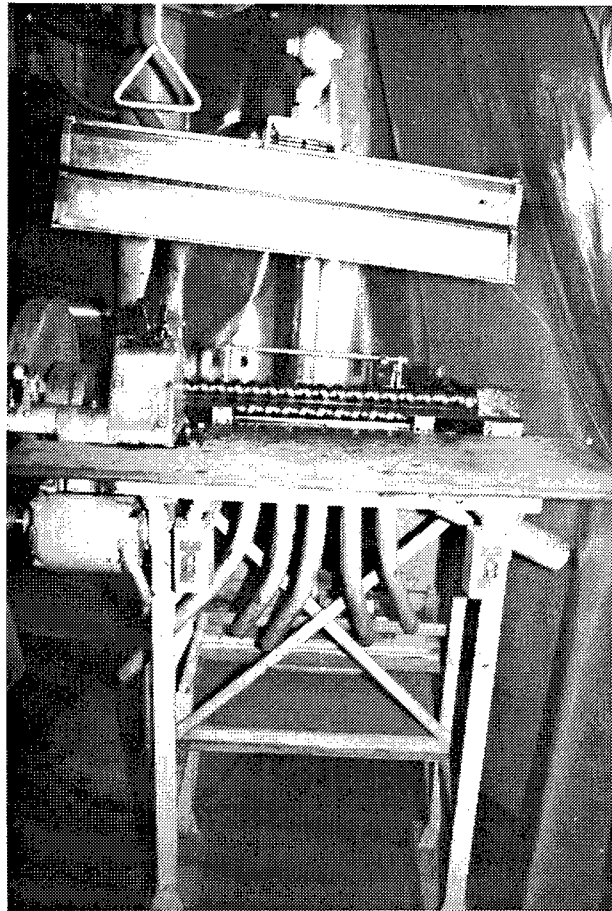


Figure 55. Building 3: Visual Inspection Machine manufactured by Peter's Engineering Co.

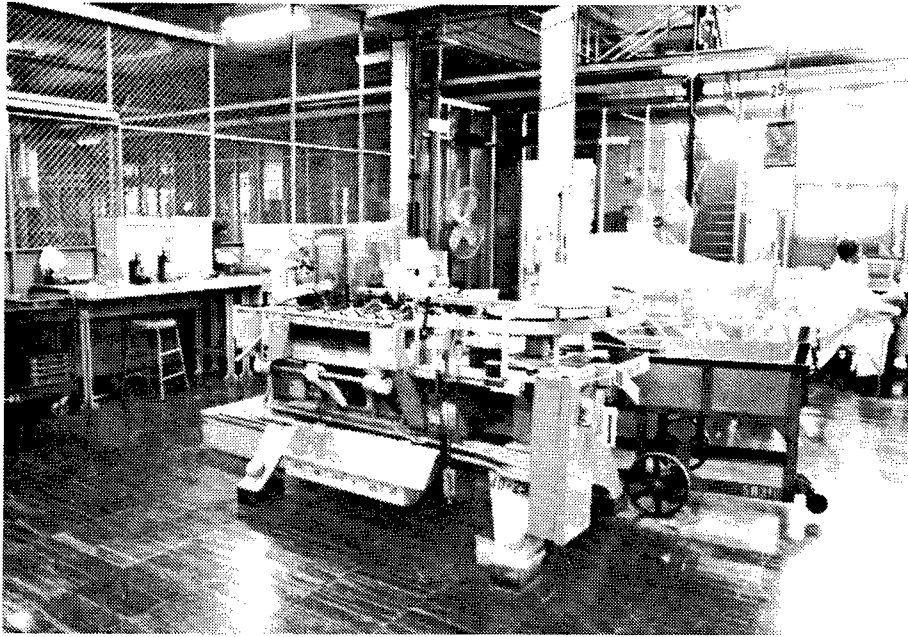


Figure 56. Building 3: Gage and Weigh Machine manufactured by Waterbury-Farrel located in the Ammunition Final Inspection Area.

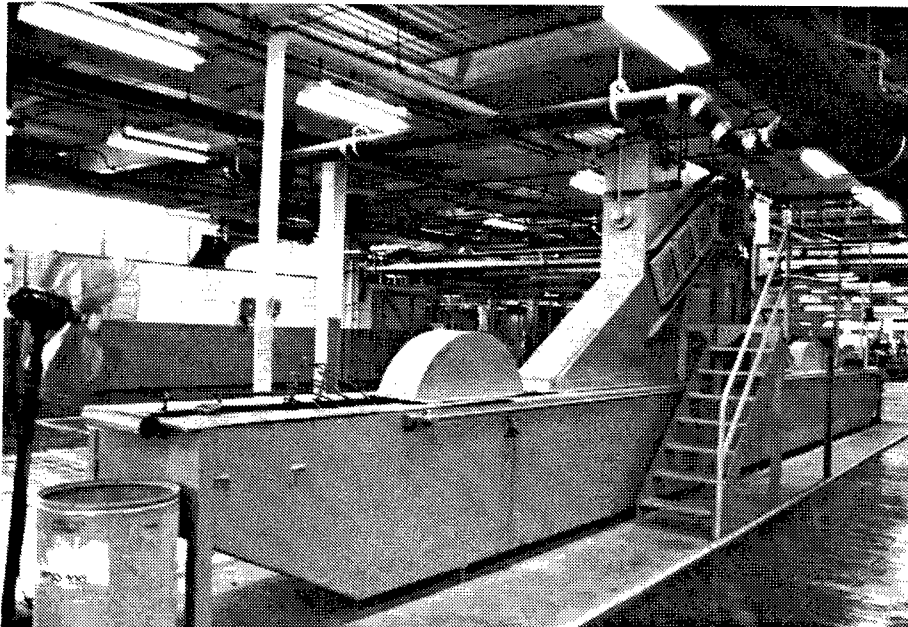


Figure 57. Building 3: This Wetproof Testing Machine, or "Submarine," manufactured by George Koch & Sons, is used to test the wetproof seal on ammunition cans.

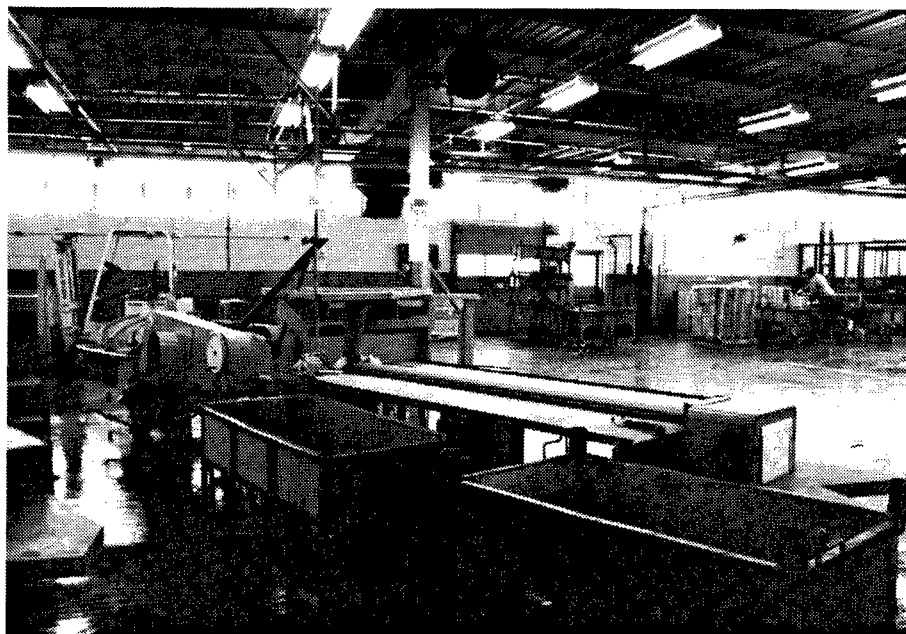


Figure 58. Building 3: Packing Machine manufactured by Standard Knapp.

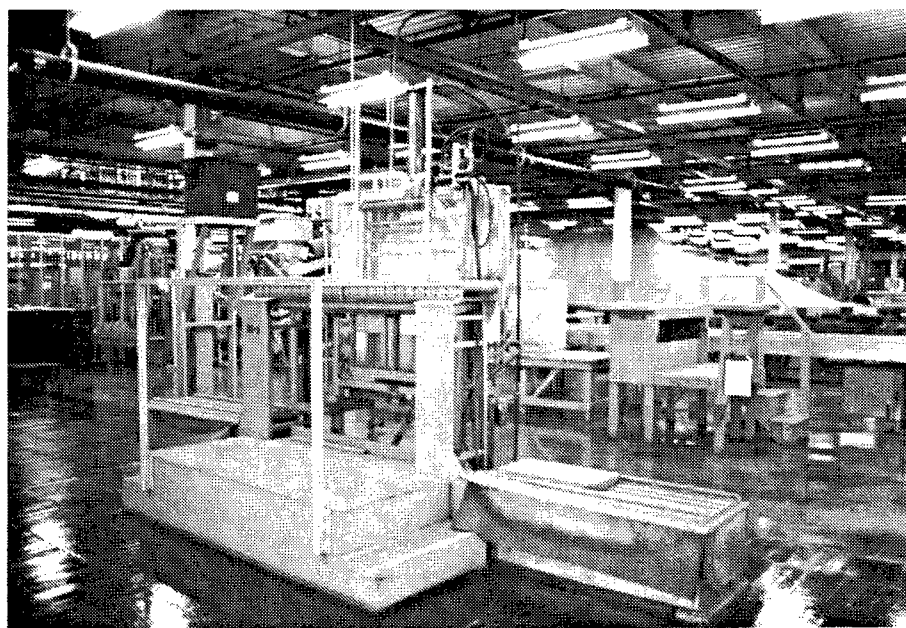


Figure 59. Building 3: A smaller, single "submarine" Wetproof Testing Machine manufactured by Triomachine Works, Andalusia, PA.

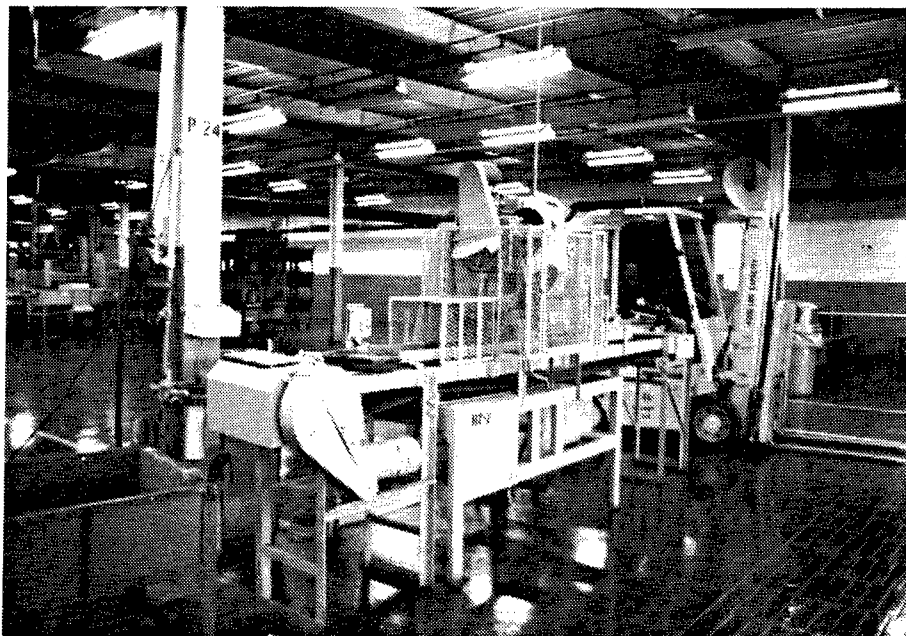


Figure 60. Building 3: Can Marker Machine.



Figure 61. Building 3: Crate Making Machine.

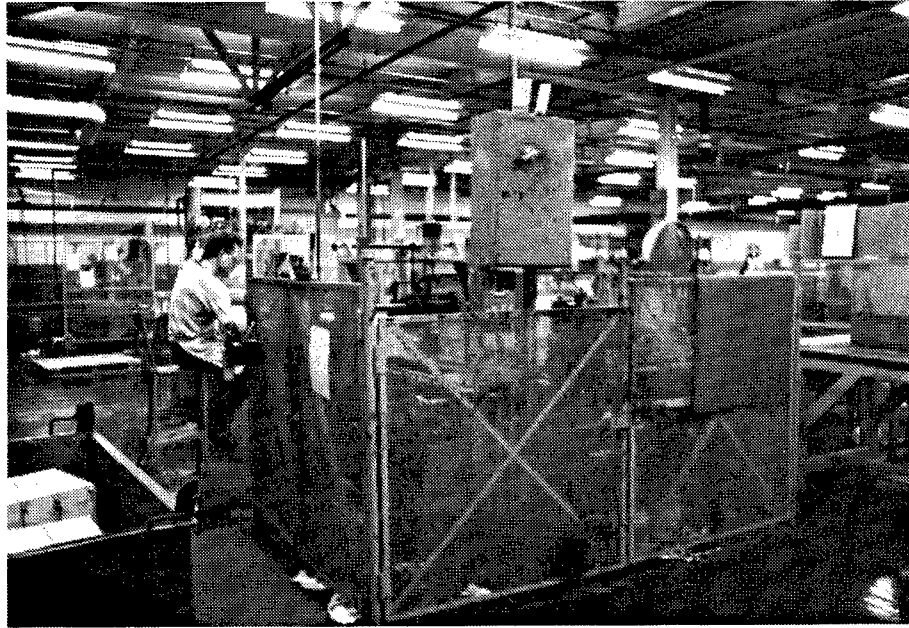


Figure 62. Building 3: Crate Marker Machine.



Figure 63. Building 3: Overview of Crate Marking Area.



Figure 64. Building 3: Overview of the Machine Shop Area of Building 3.

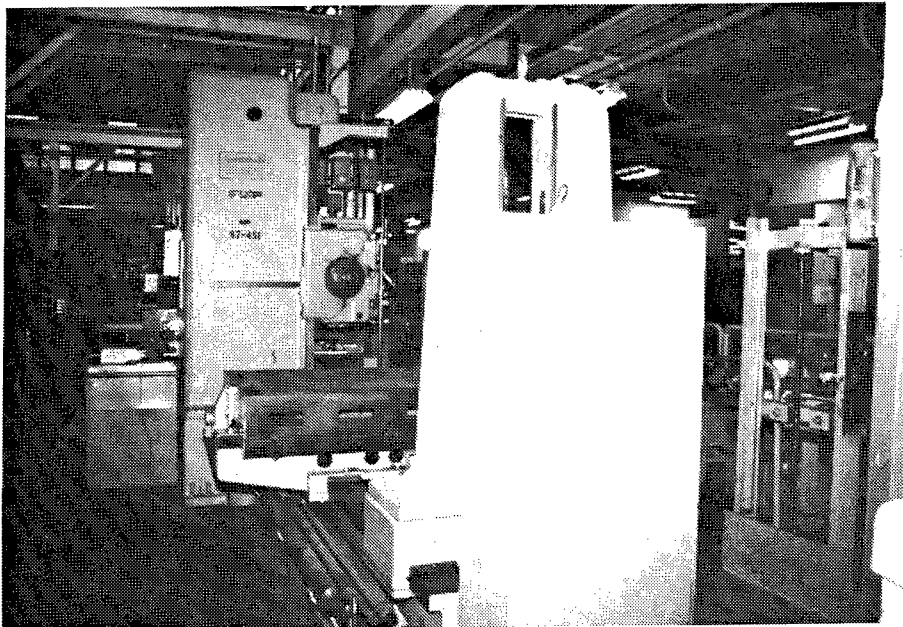


Figure 65. Building 3: Boring Mill located in the Machine Shop Area of Building 3. This machine was manufactured by the Gilbert Machine & Tool Co.

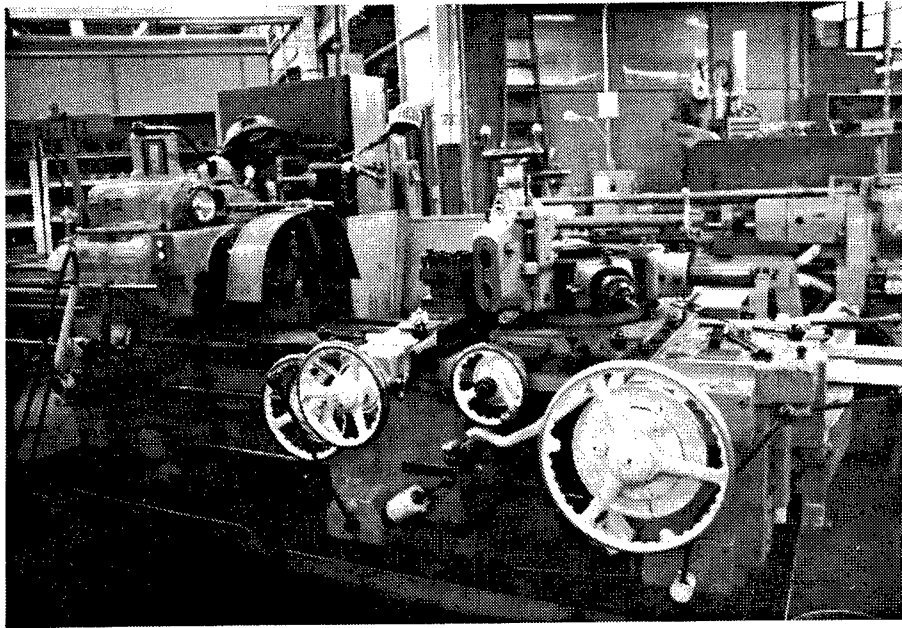


Figure 66. Building 3: Turret Lathe located in the Machine Shop Area of Building 3. This machine was manufactured by Warner-Swasey.

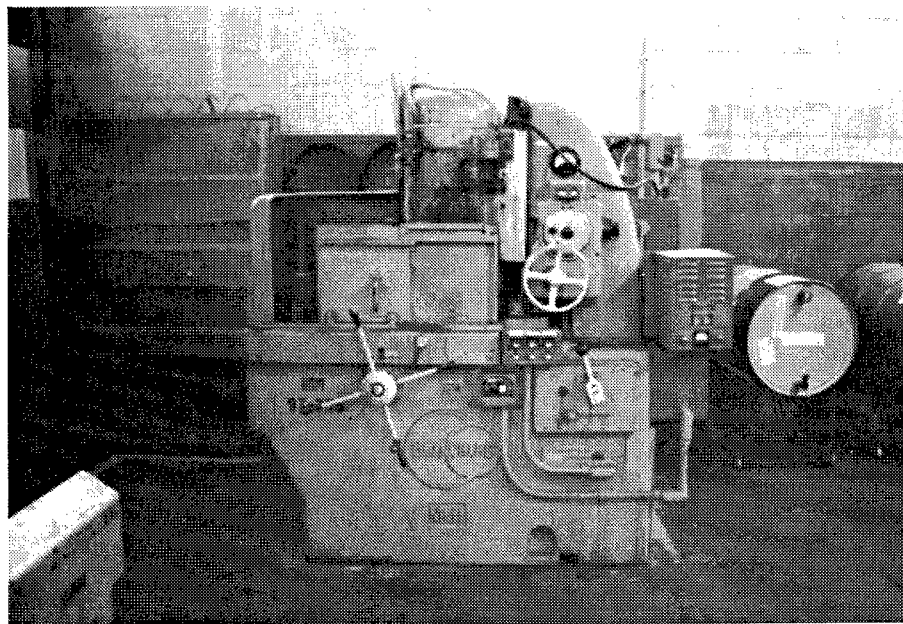


Figure 67. Building 3: Grinder with magnetic wheel located in the Machine Shop Area of Building 3. This machine was manufactured by the Blanchard Machine Co., Cambridge, MA.

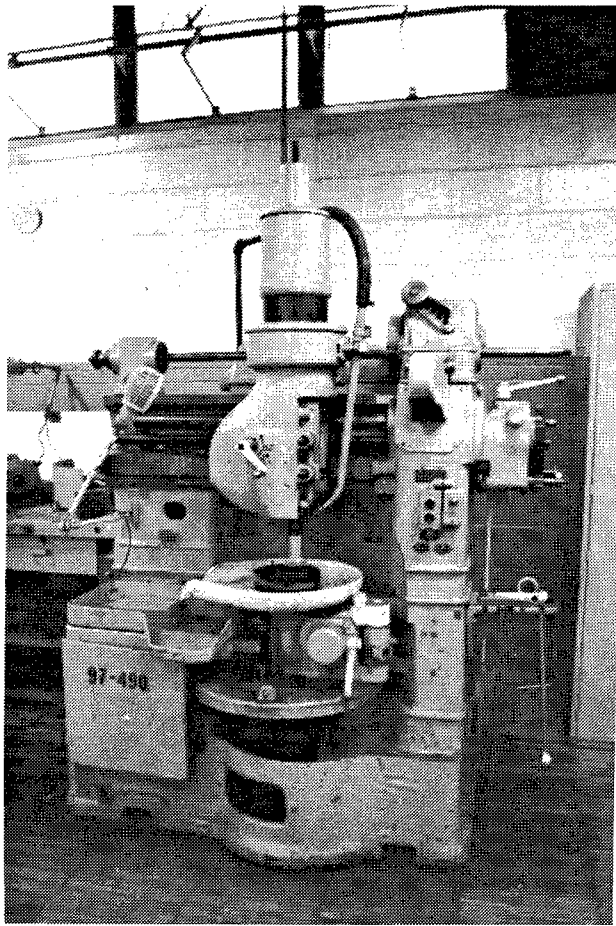


Figure 68. Building 3: Gear Shaper Machine located in the Machine Shop Area of Building 3. This machine was manufactured by Fellows Gear.

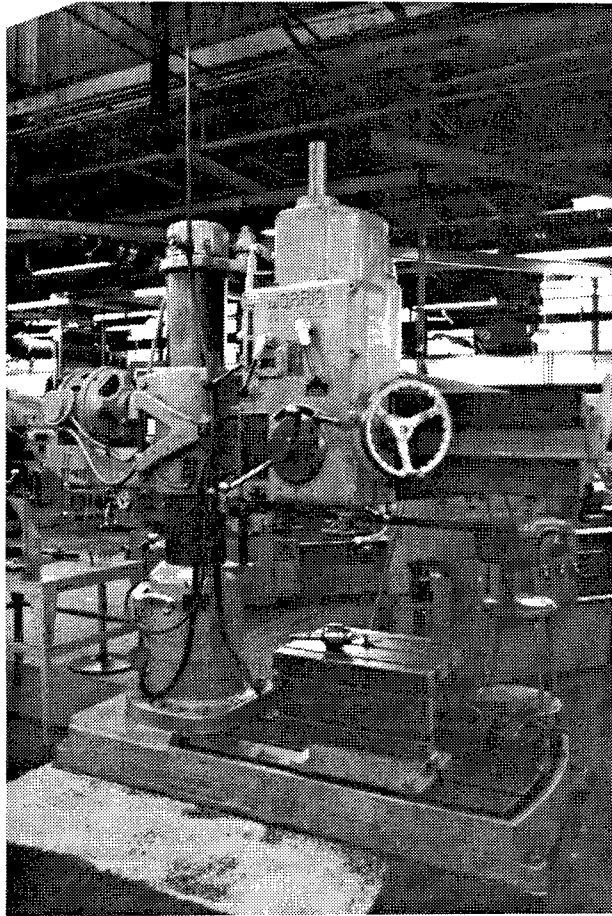


Figure 69. Building 3: Drill Press located in the Machine Shop Area of Building 3.

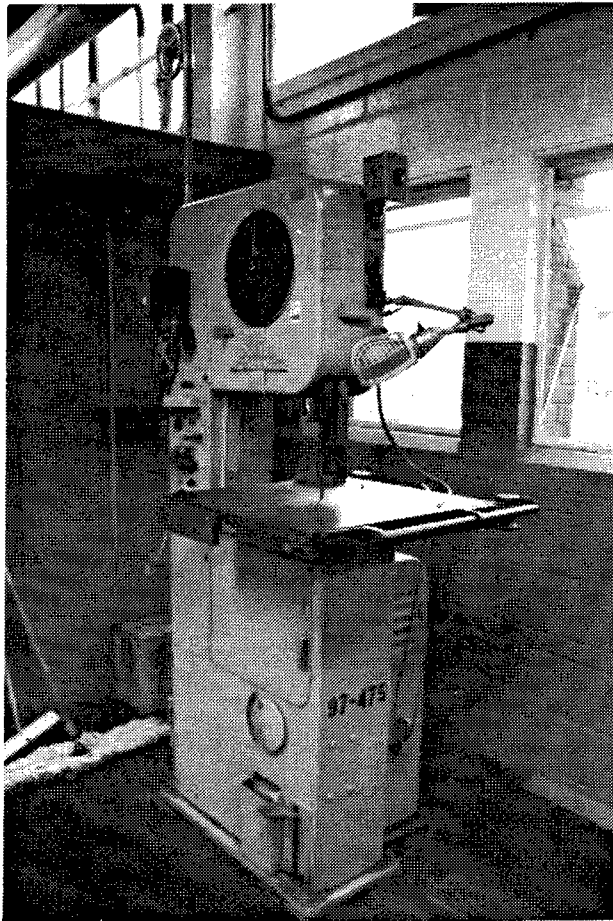


Figure 70. Building 3: Band Saw located in the Machine Shop Area of Building 3. This machine was manufactured by Do-All.

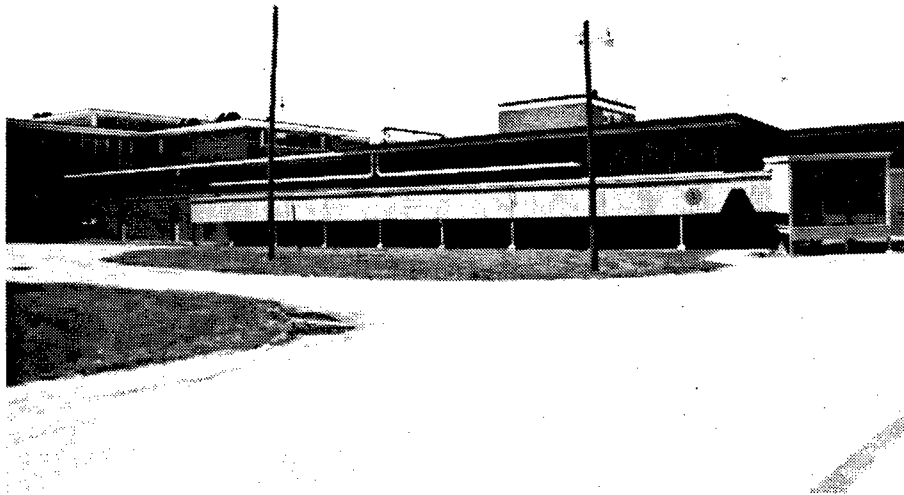


Figure 71. Building 3: .50 caliber Ammunition Manufacturing Facility, Explosive Wing No. 1.

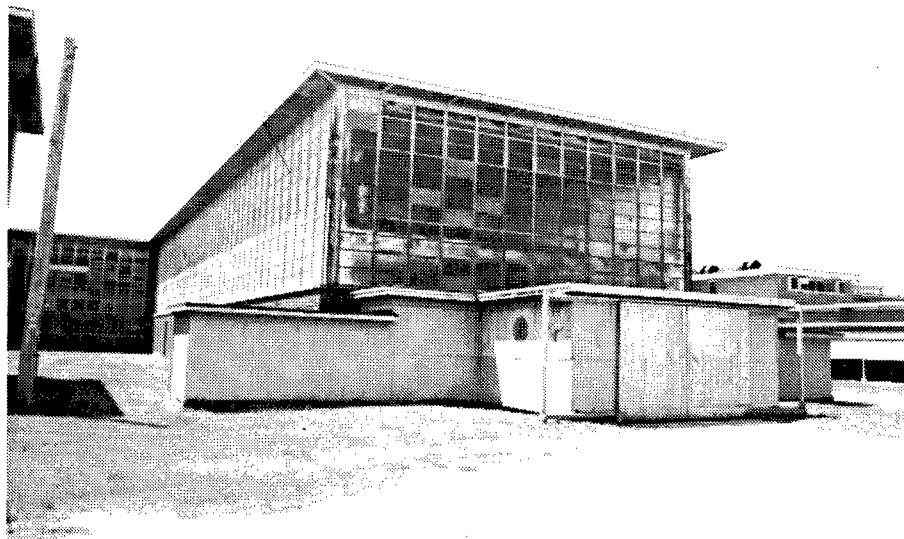


Figure 72. Building 3: .50 caliber Ammunition Manufacturing Facility, Explosive Wing No. 2.



Figure 73. Building 3: .50 caliber Ammunition Manufacturing Facility, Explosive Wing No. 3.

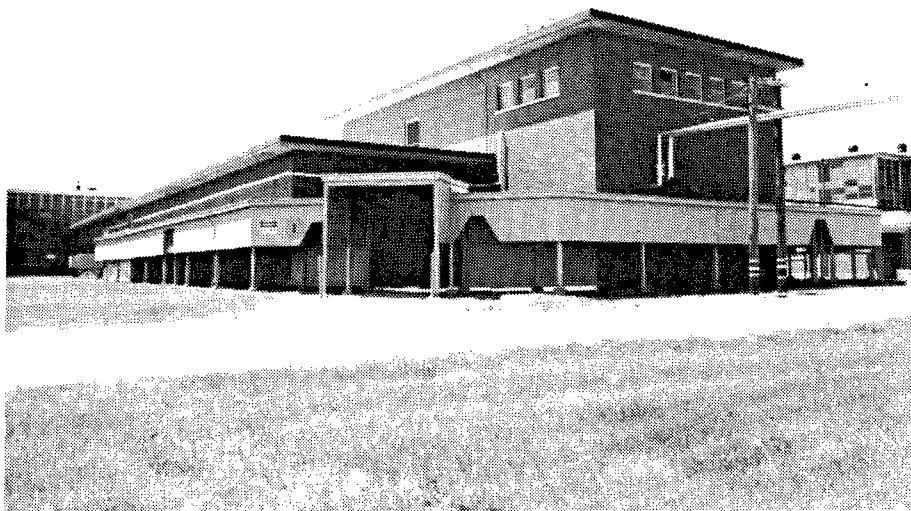


Figure 74. Building 3: .50 caliber Ammunition Manufacturing Facility, Explosive Wing No. 4.

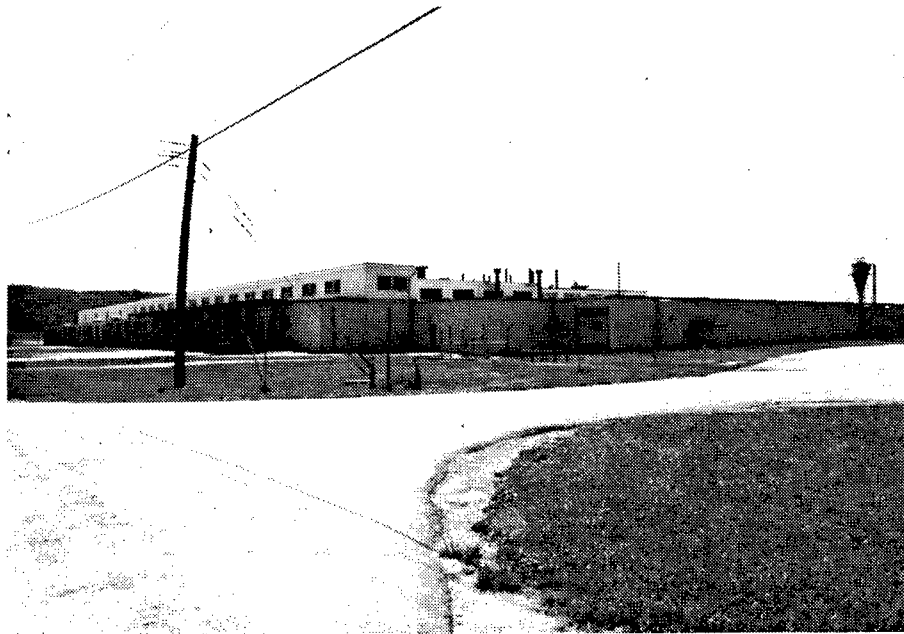


Figure 75. Building 3A: 20 mm Ammunition Manufacturing Facility.

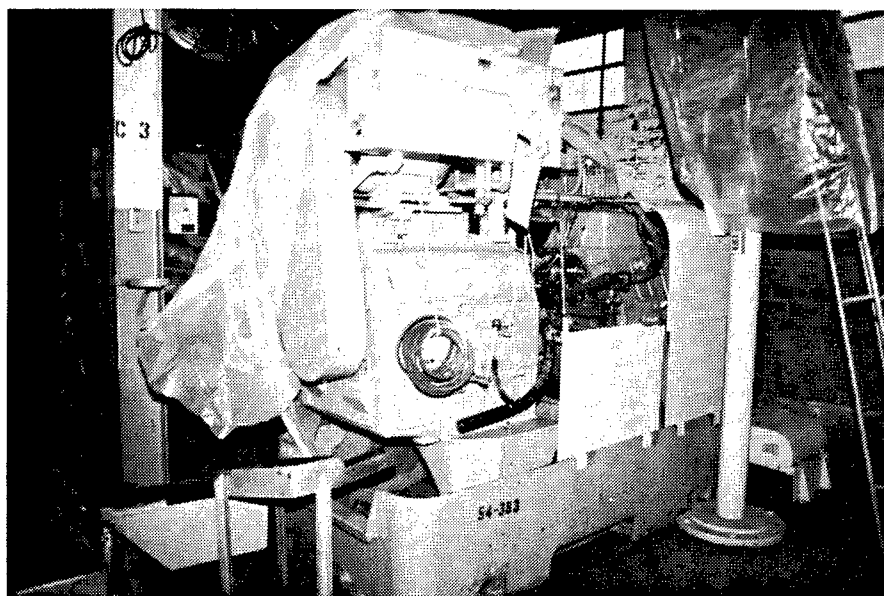


Figure 76. Building 3A: Case Head Turn Machine manufactured by National Acme.

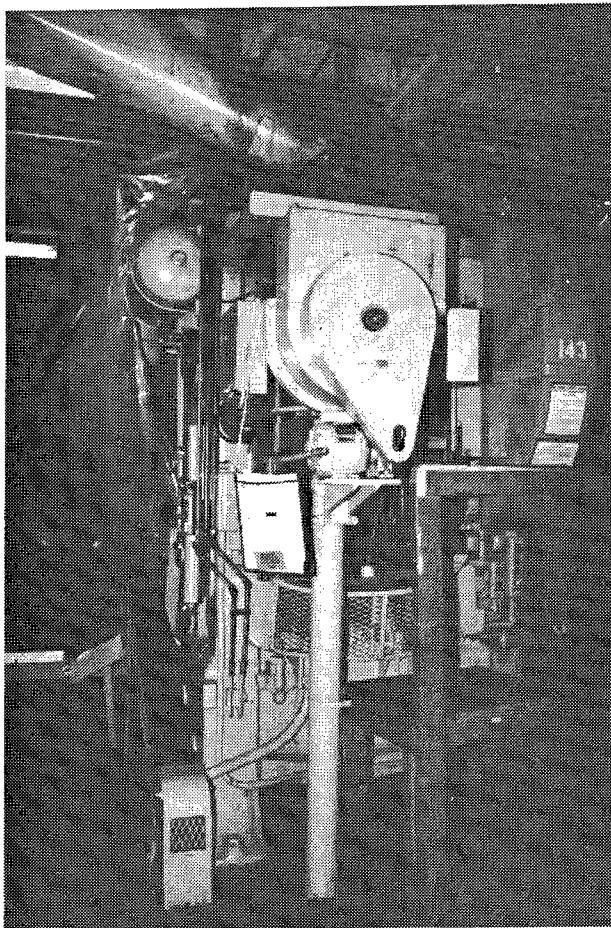


Figure 77. Building 3A: Case Taper Machine manufactured by E. W. Bliss Co.

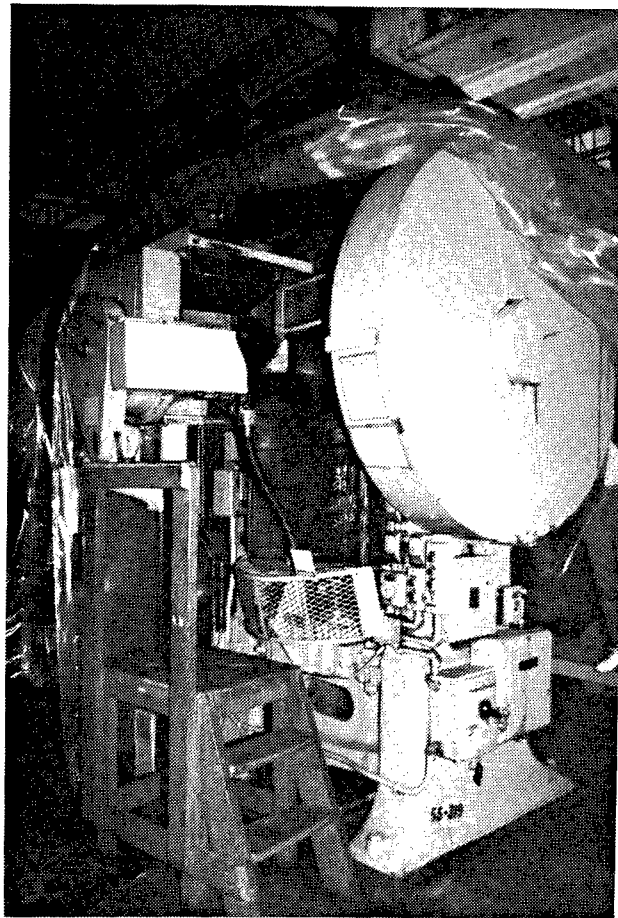


Figure 78. Building 3A: Case Taper Machine manufactured by E. W. Bliss Co.

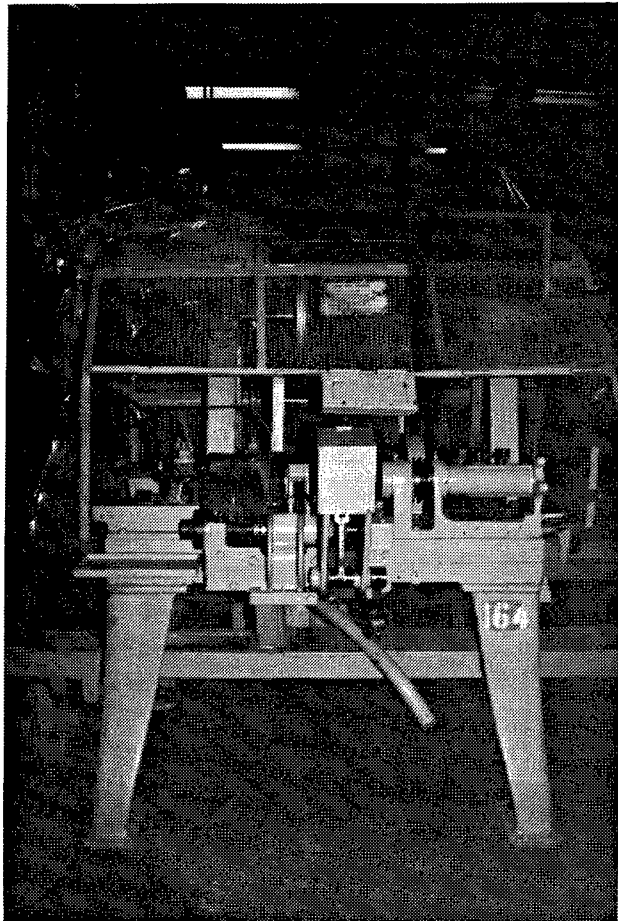


Figure 79. Building 3A: Final Trim Machine manufactured by Fales.

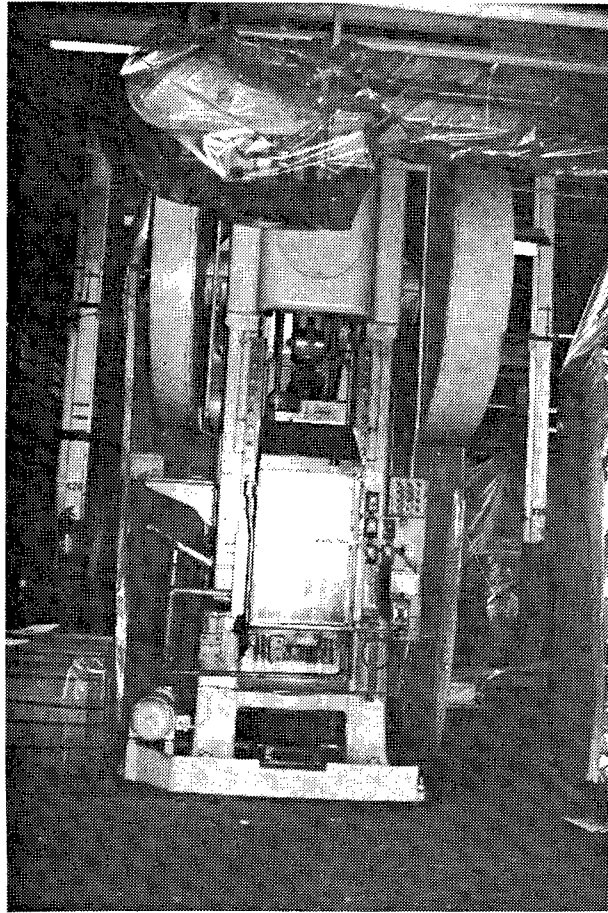


Figure 80. Building 3A: First and Second Case Draw Machine manufactured by E. W. Bliss Co.

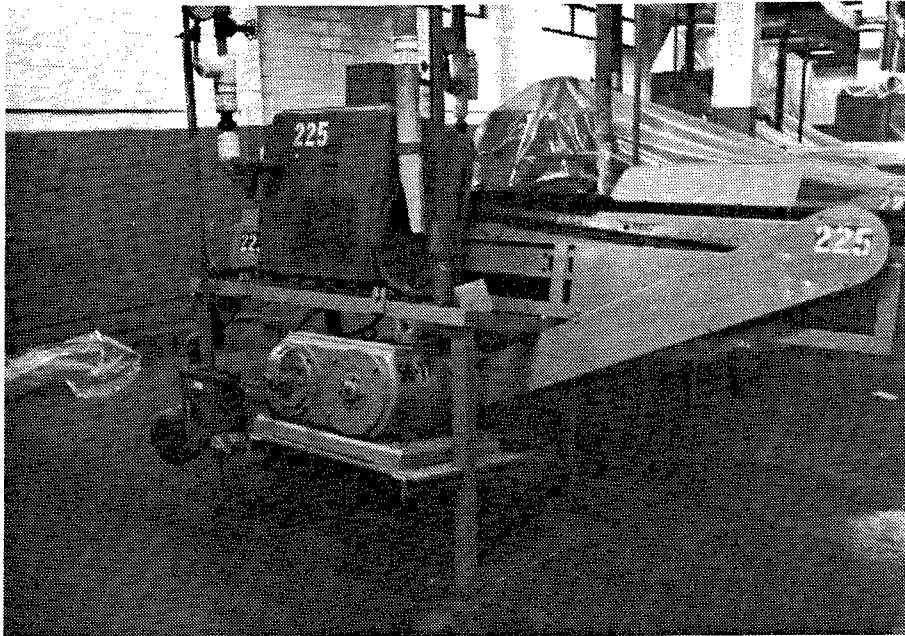


Figure 81. Building 3A: Mouth and Neck Anneal Machine.



Figure 82. Building 3A: Gage and Weigh Machine manufactured by Waterbury-Farrel.

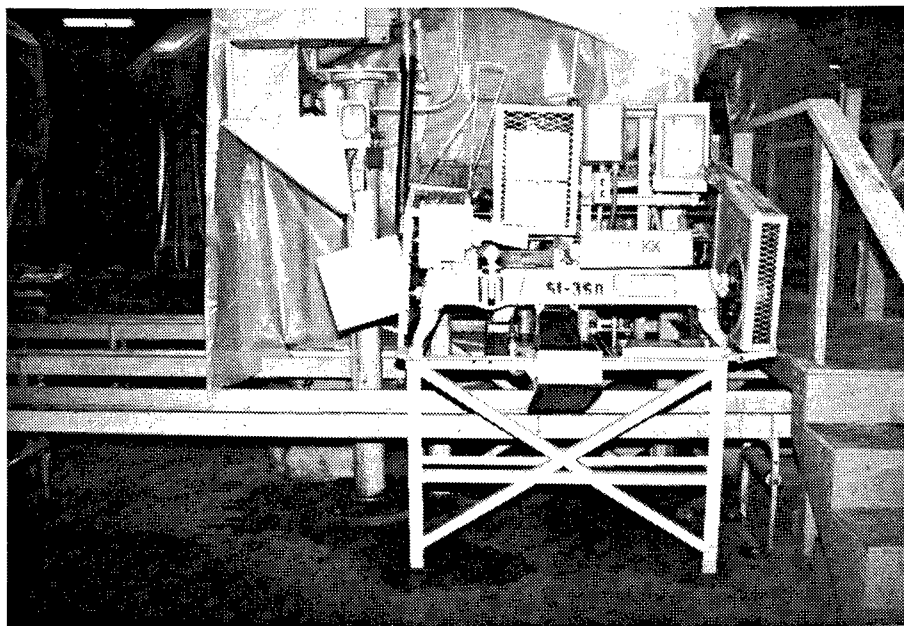


Figure 83. Building 3A: Case Trim Machine manufactured by Jennings Machine Co.

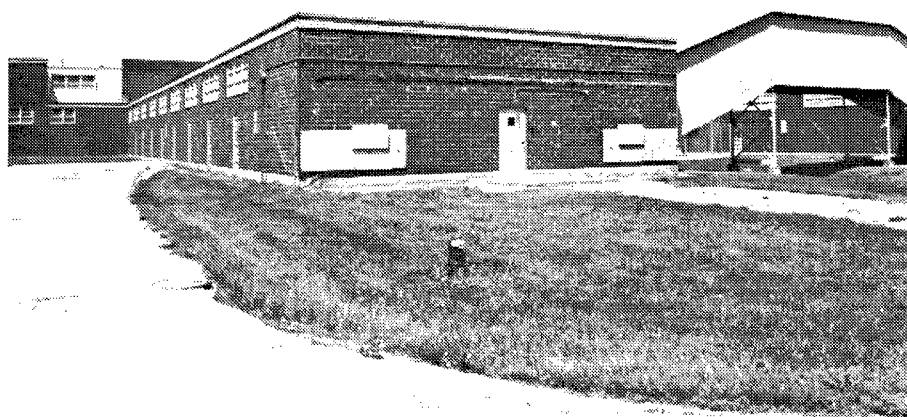


Figure 84. Building 3A: 20 mm Ammunition Manufacturing Facility, Explosive Wing No. 1.

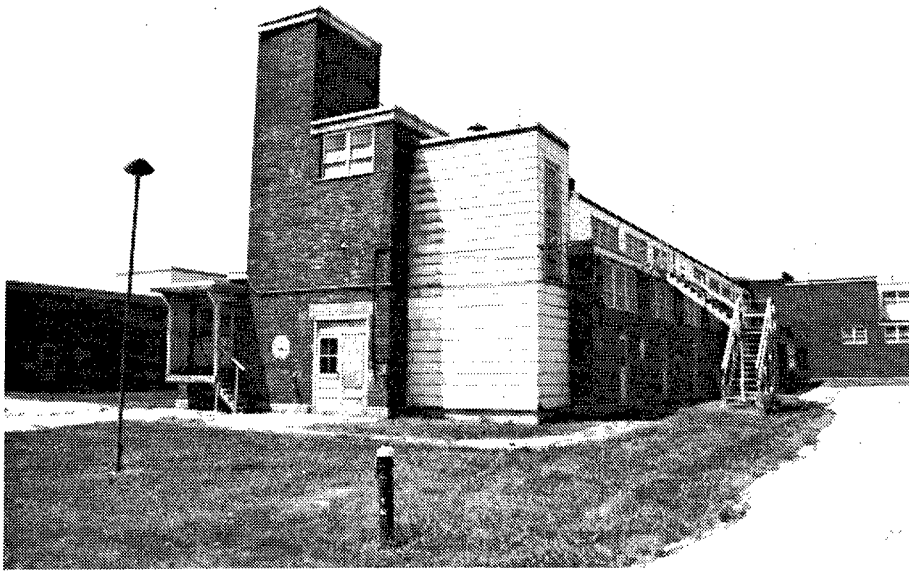


Figure 85. Building 3A: 20 mm Ammunition Manufacturing Facility, Explosive Wing No. 2.



Figure 86. Building 3A: 20 mm Ammunition Manufacturing Facility, Explosive Wing No. 3.

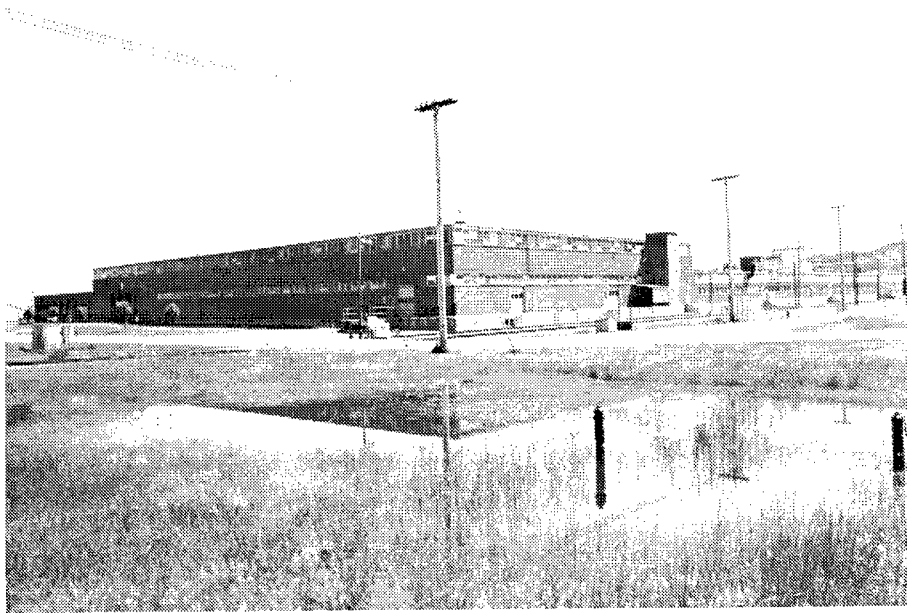


Figure 87. Building 4: 5.56 mm Ammunition Manufacturing Facility.

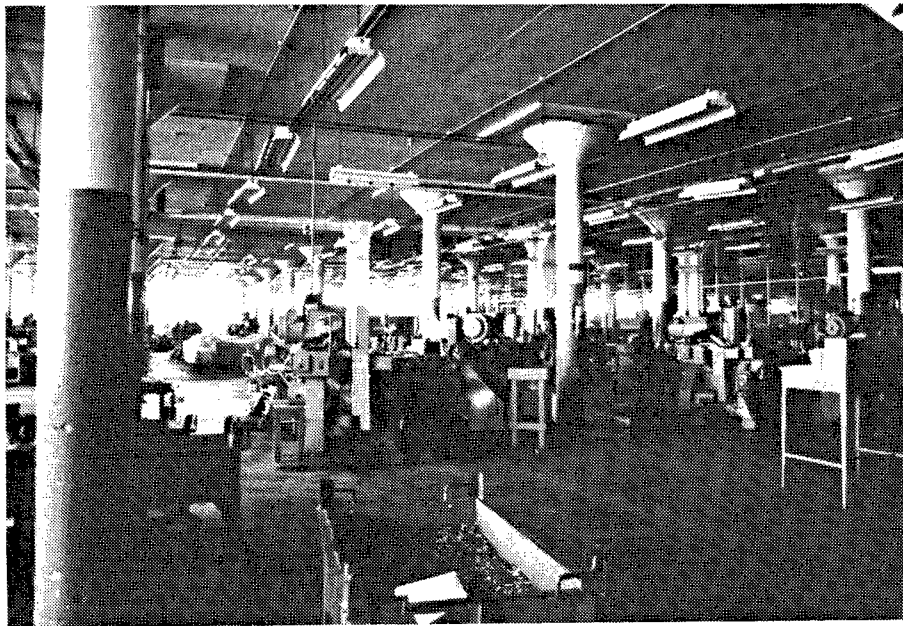


Figure 88. Building 4: Overview of Gage and Weigh Room.

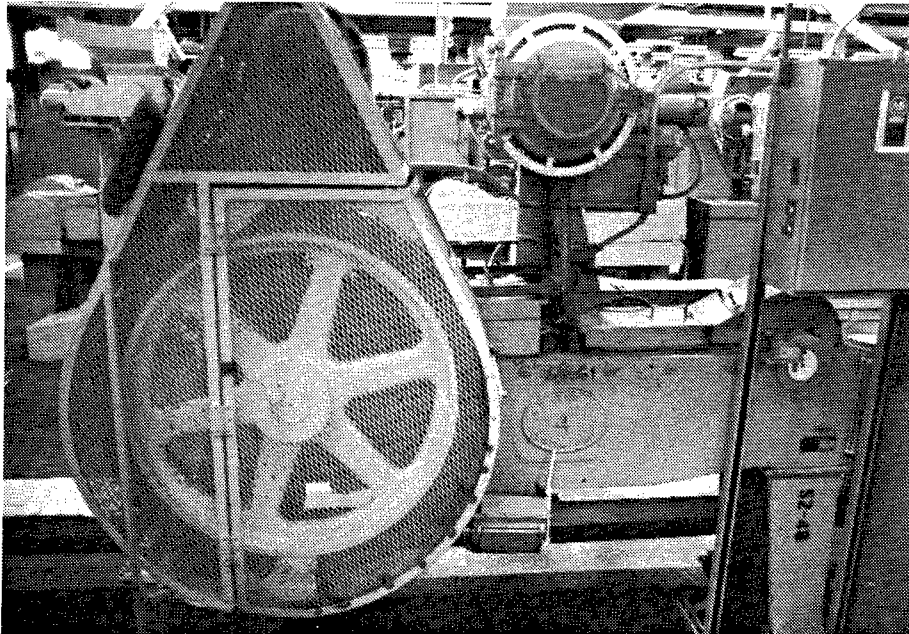


Figure 89. Building 4: Pocket Header Machine manufactured by E. W. Bliss Co.

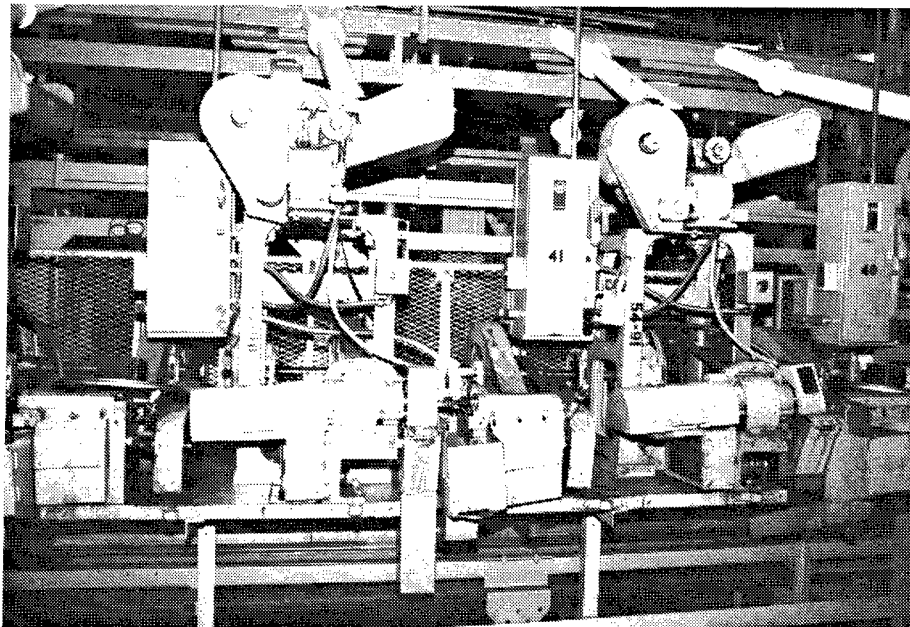


Figure 90. Building 4: Case Head Turn Machine manufactured by Standard Knapp.

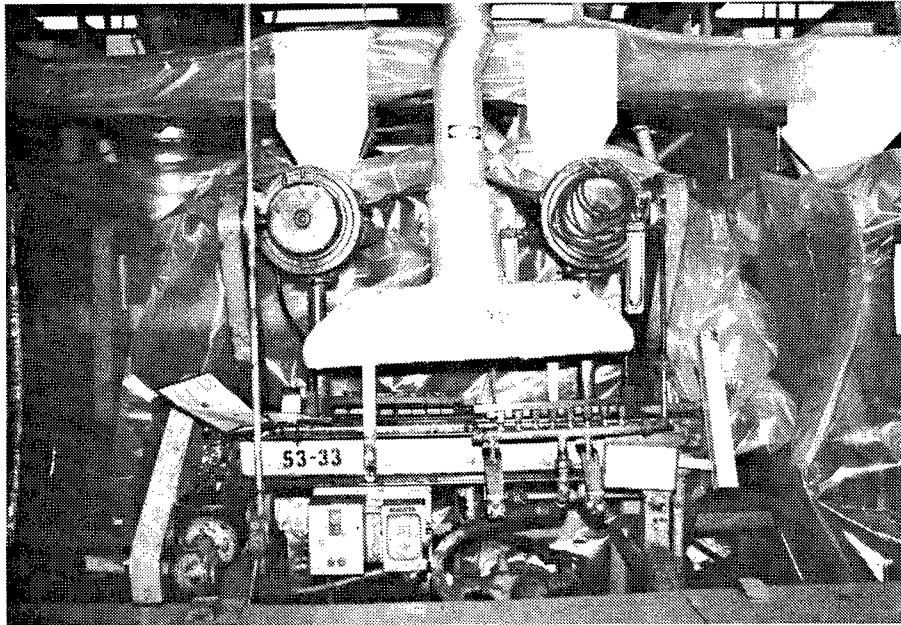


Figure 91. Building 4: Case Body Anneal Machine manufactured by Jennings Machine Co.

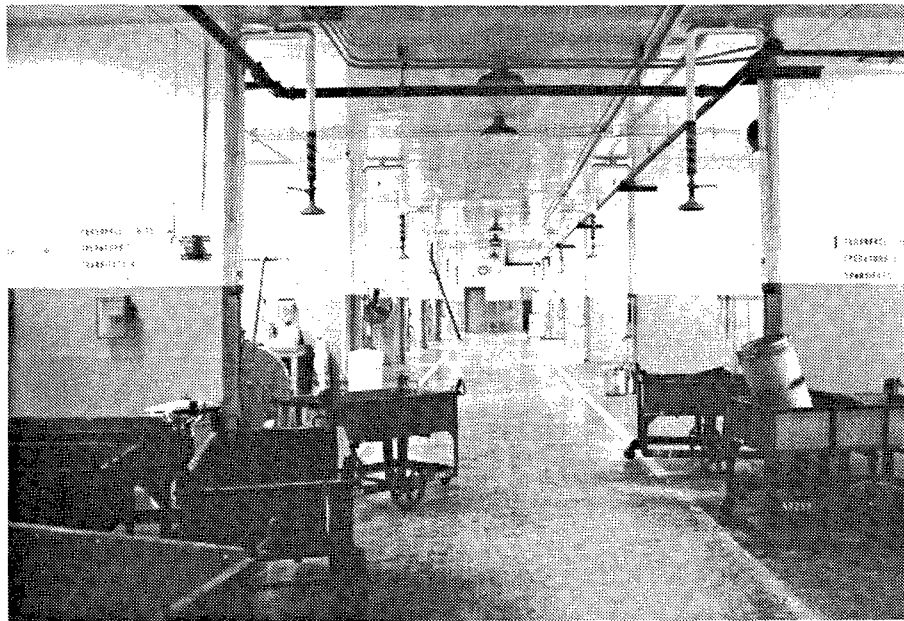


Figure 92. Building 4: Overview of Explosive Wing.

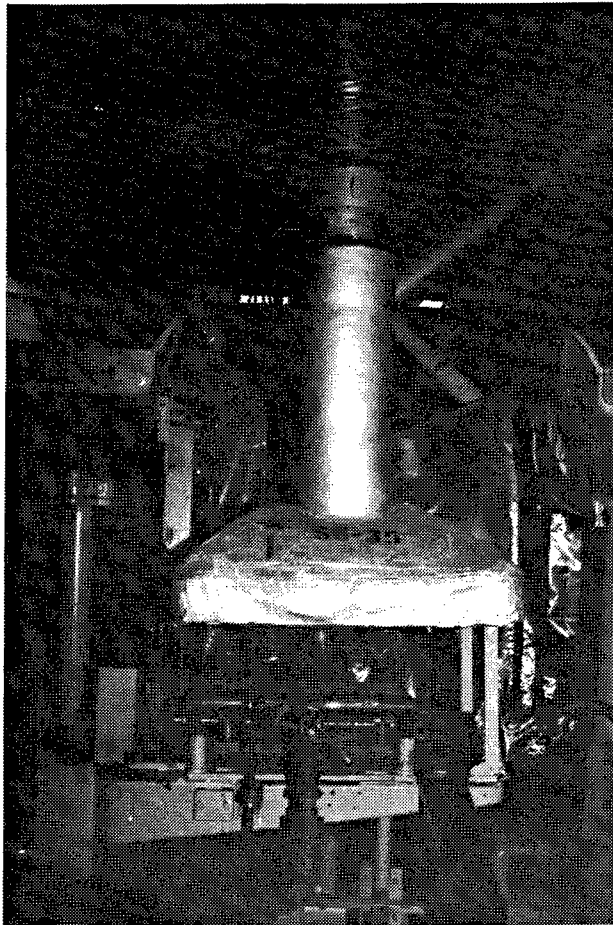


Figure 93. Building 4: Case Mouth and Neck Anneal Machine manufactured by Jennings Machine Co.

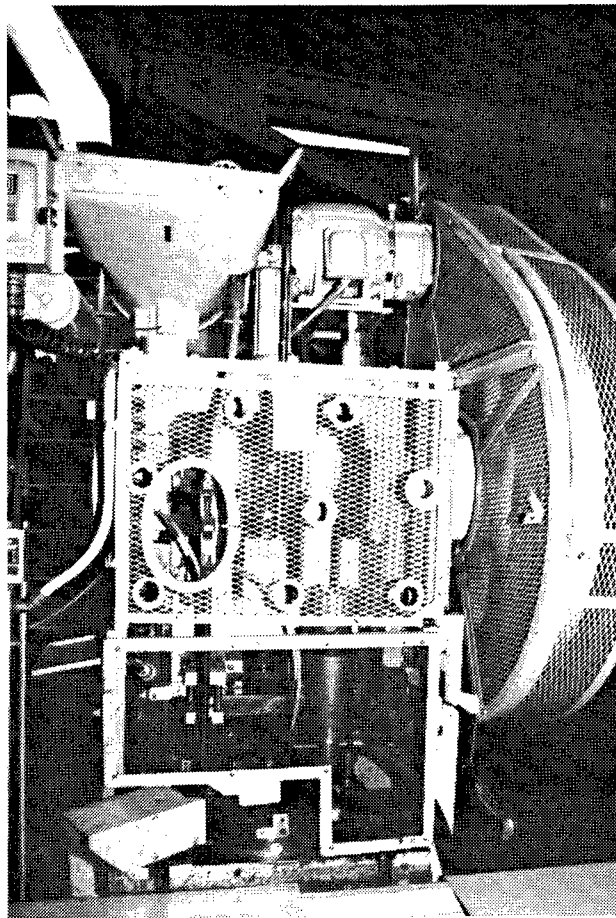


Figure 94. Building 4: Case Taper Machine manufactured by E. W. Bliss Co.

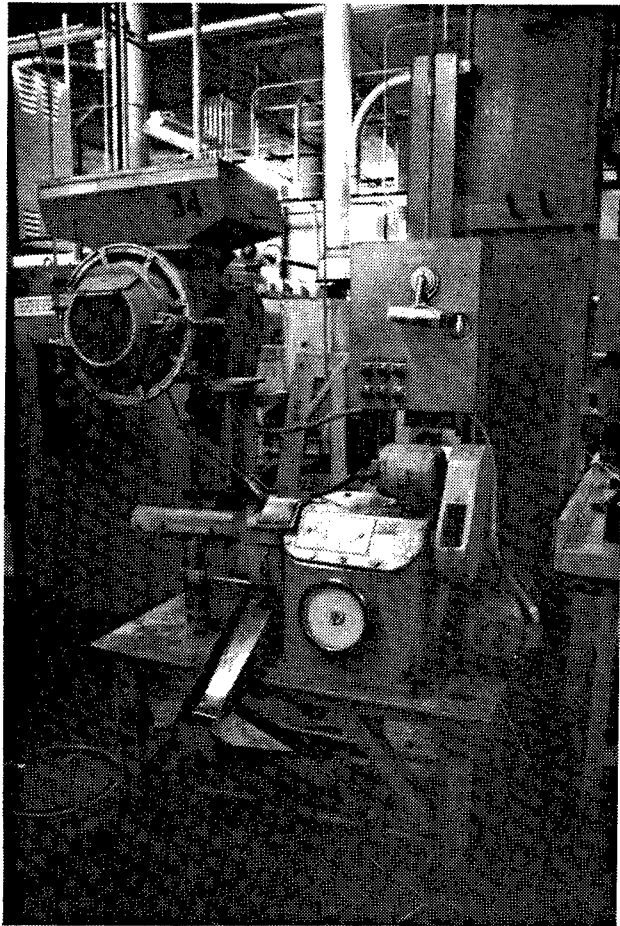


Figure 95. Building 4: Bullet Trim Machine.

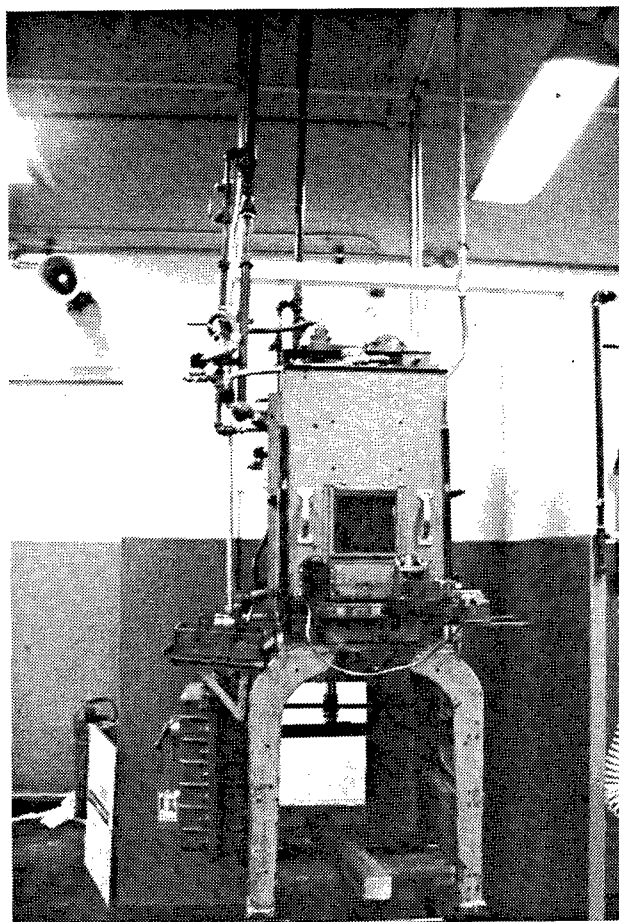


Figure 96. Building 4: Wing Pull Down Machine.

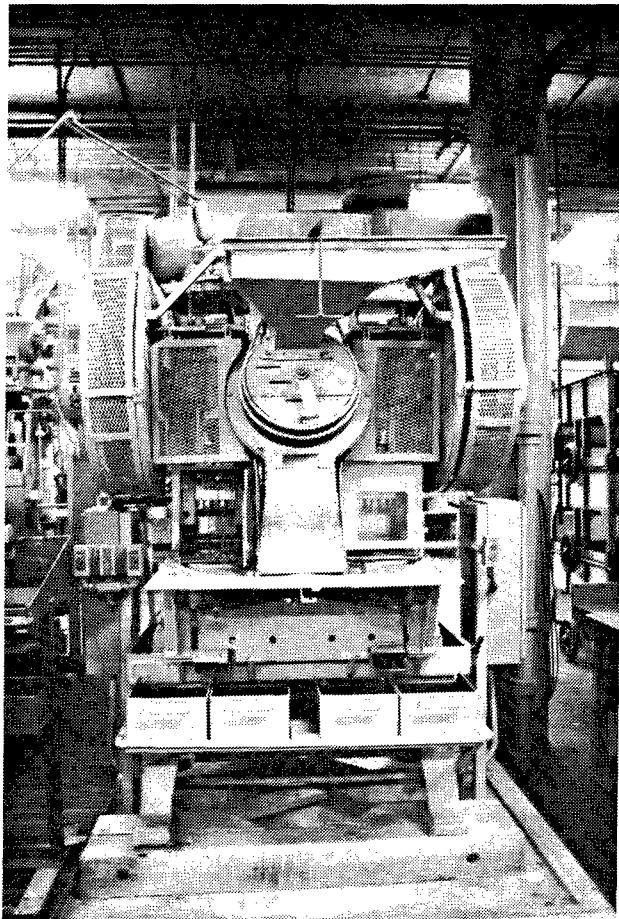


Figure 97. Building 4: First Case Draw Machine manufactured by E. W. Bliss Co.

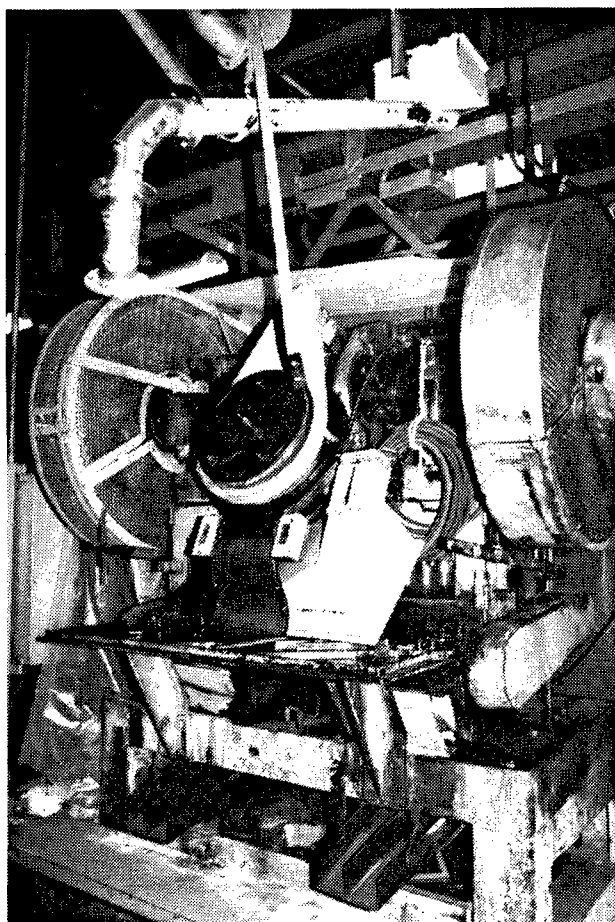


Figure 98. Building 4: Another view of a First Case Draw Machine.

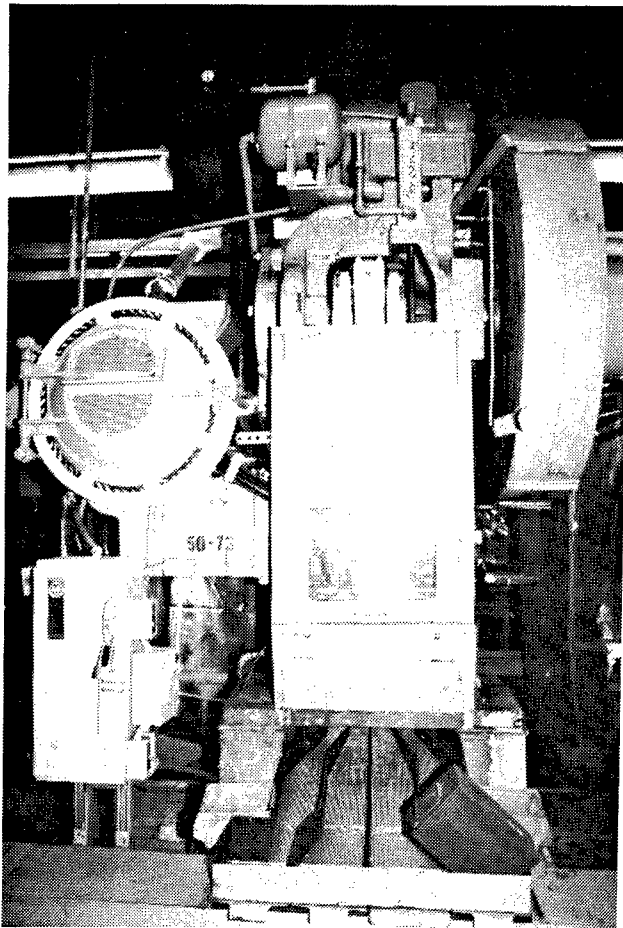


Figure 99. Building 4: Final Case Draw Machine manufactured by E. W. Bliss Co.

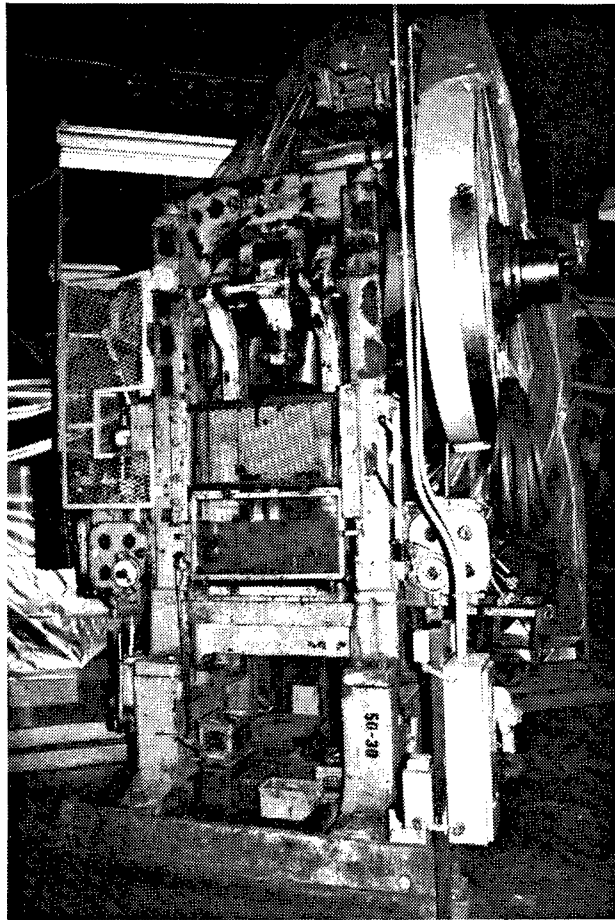


Figure 100. Building 4: Cup Press manufactured by E. W. Bliss Co.

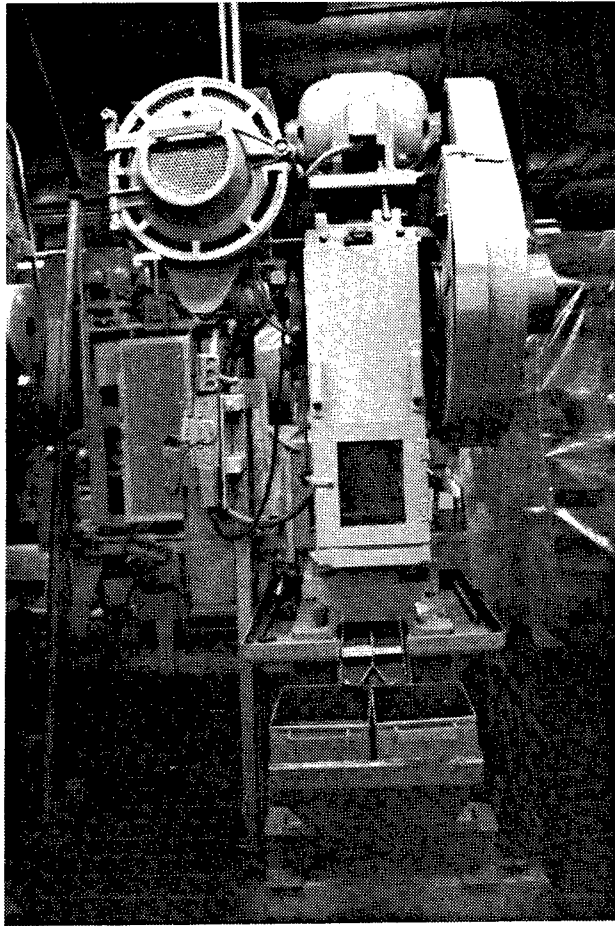


Figure 101. Building 4: Final Bullet Draw Machine.

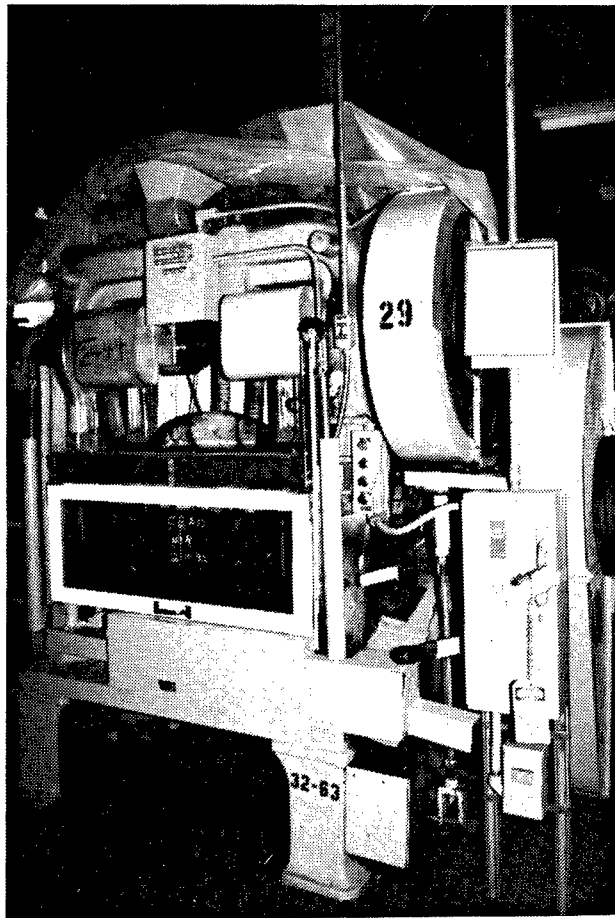


Figure 102. Building 4: Bullet Assembly Machine manufactured by Waterbury-Farrel.

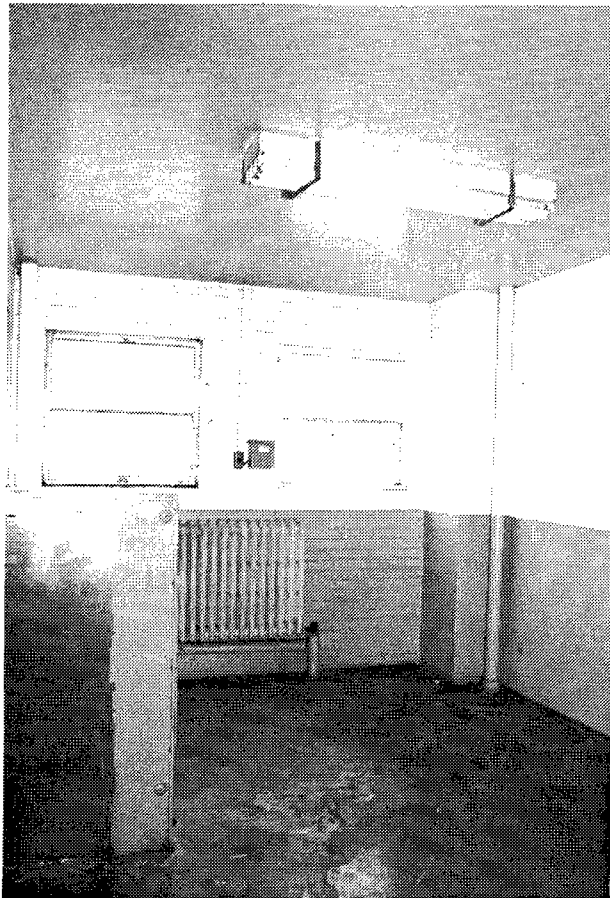


Figure 103. Building 4: Office interior.

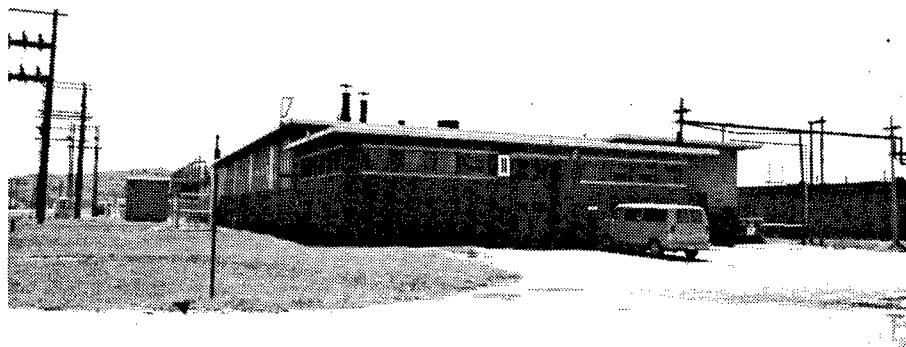


Figure 104. Building 11: Lead Shop.



Figure 105. Building 11: Interior of Lead Extrusion and Swaging Building.

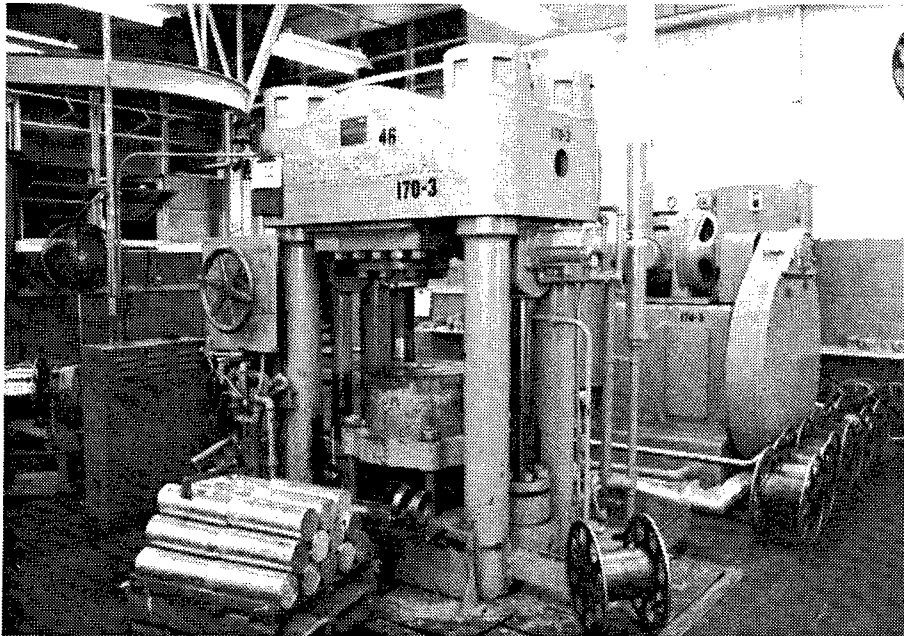


Figure 106. Building 11: Lead-forming Extrusion Press manufactured by Watson Stillman.

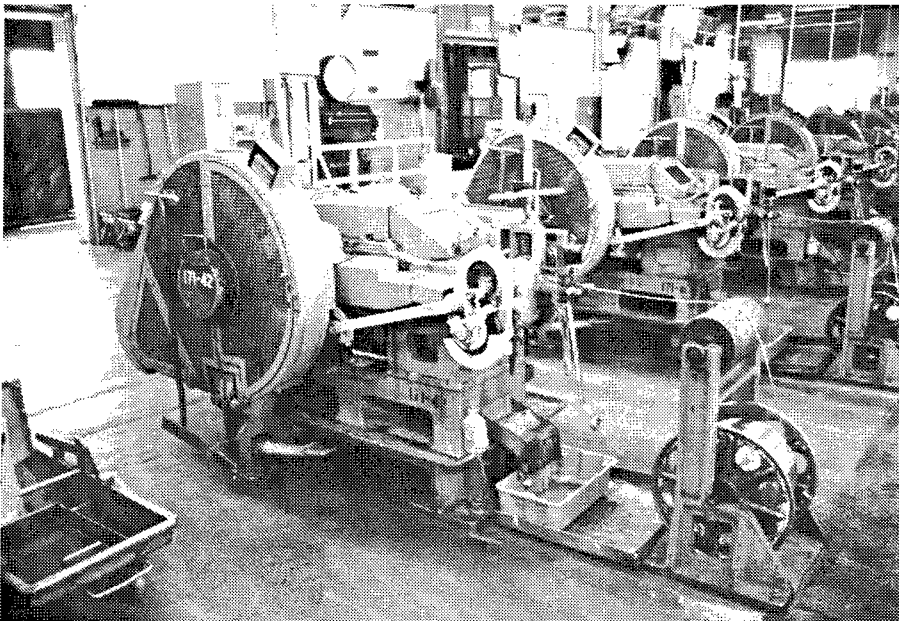


Figure 107. Building 11: Lead Swaging Press manufactured by National Machine.



Figure 108. Building 12A: Fuze and Metal Parts Manufacturing Building.



Figure 109. Building 12A: Interior of empty Fuze and Metal Parts Manufacturing Building.



Figure 110. Building 22A: High Explosive Pellet Mix Blend Building.

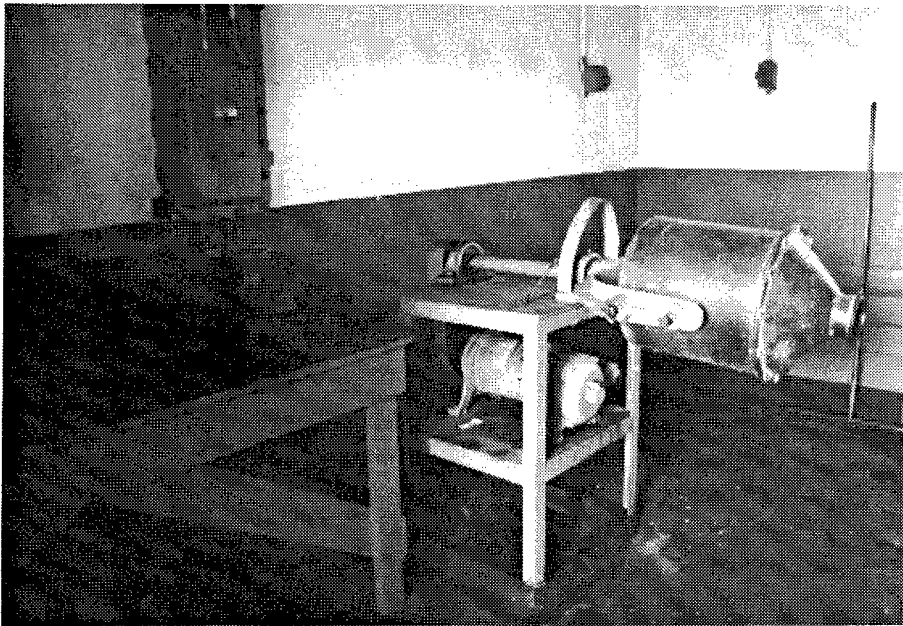


Figure 111. Building 22B: Jar Blender Machine.



Figure 112. Building 23A: Blank Powder Pouring Building.



Figure 113. Building 28A: Tracer Chemical Distribution Building.

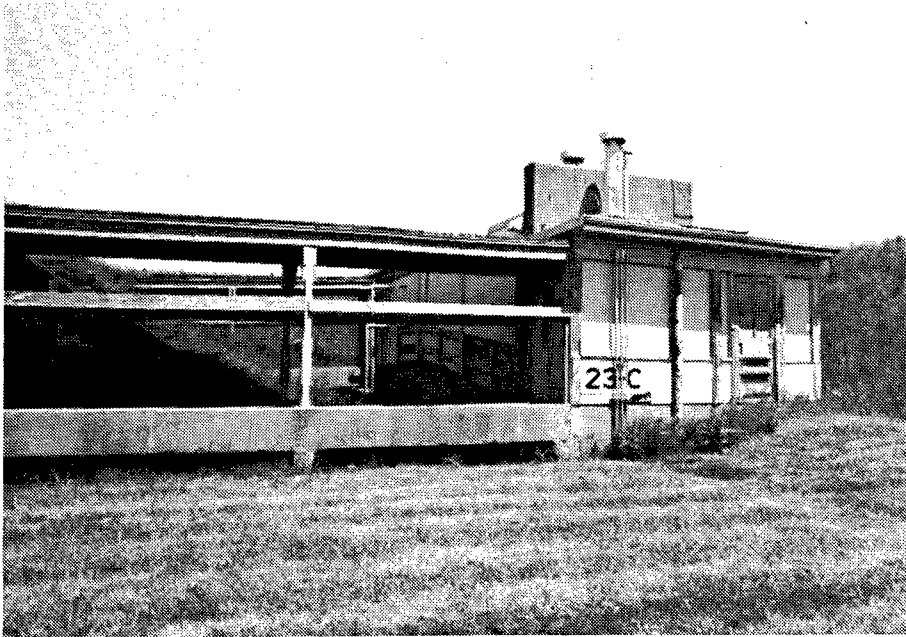


Figure 114. Building 23C: High Explosive Pellet Manufacturing Building.

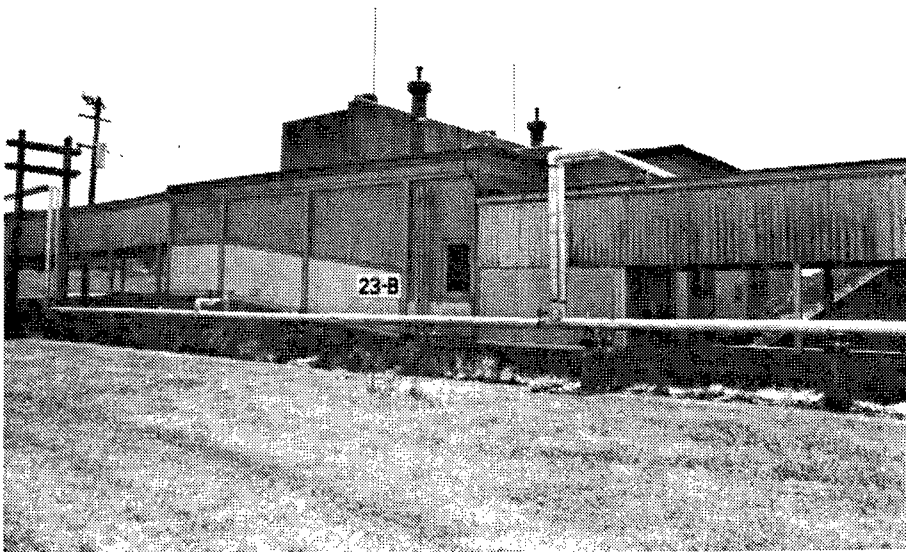


Figure 115. Building 23B: High Explosive Pellet Manufacturing Building.

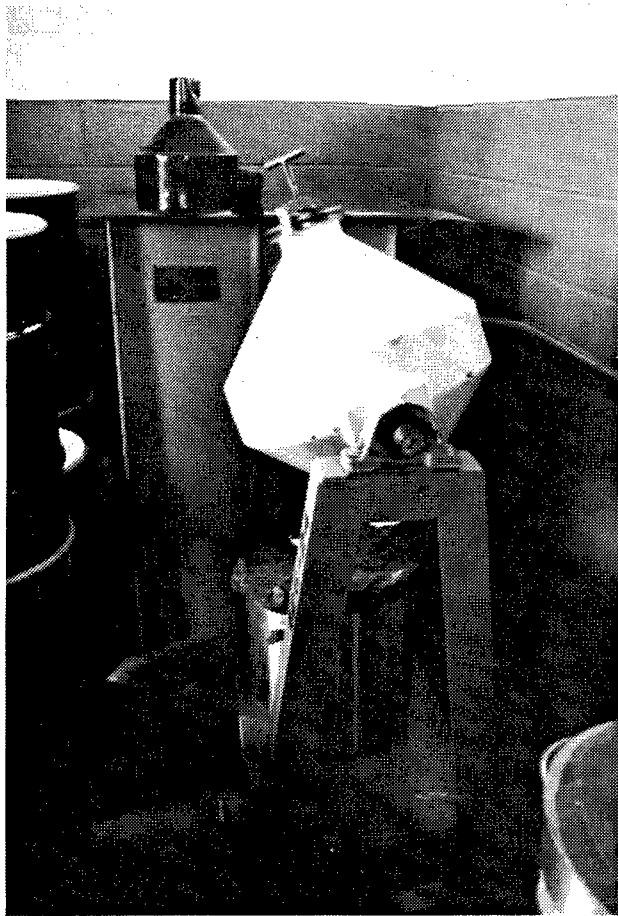


Figure 116. Building 28B: Cone Blender.

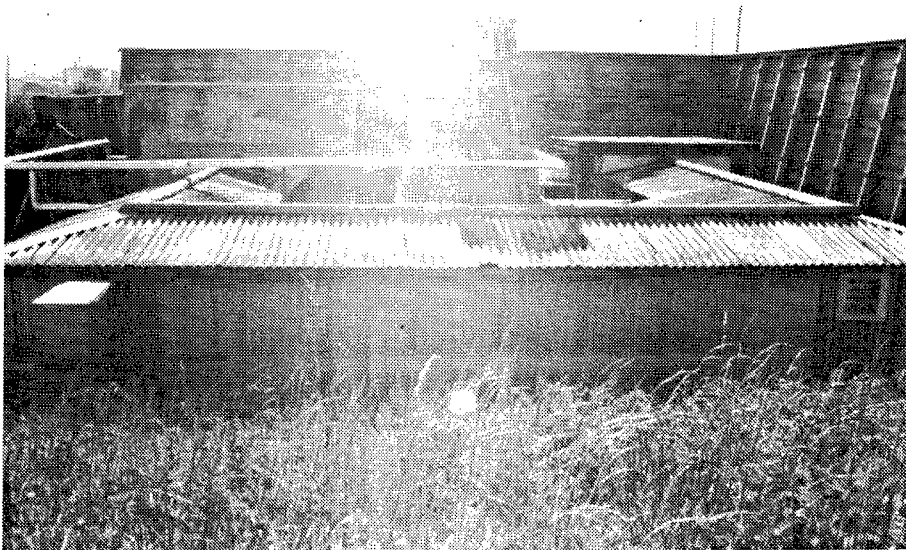


Figure 117. Buildings 33E and 34E: Overview of Primer Mix Area with barricades.

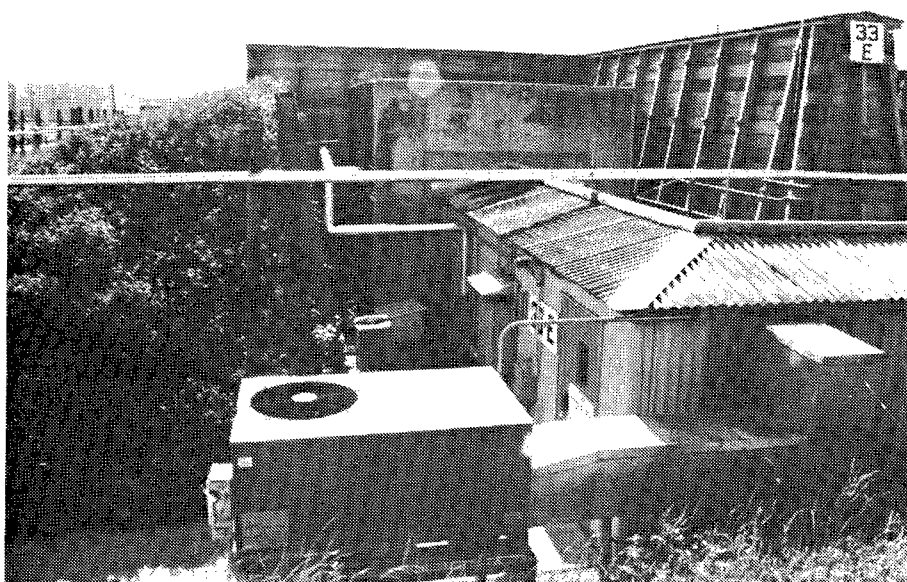


Figure 118. Building 33E: Primer Mix Building.

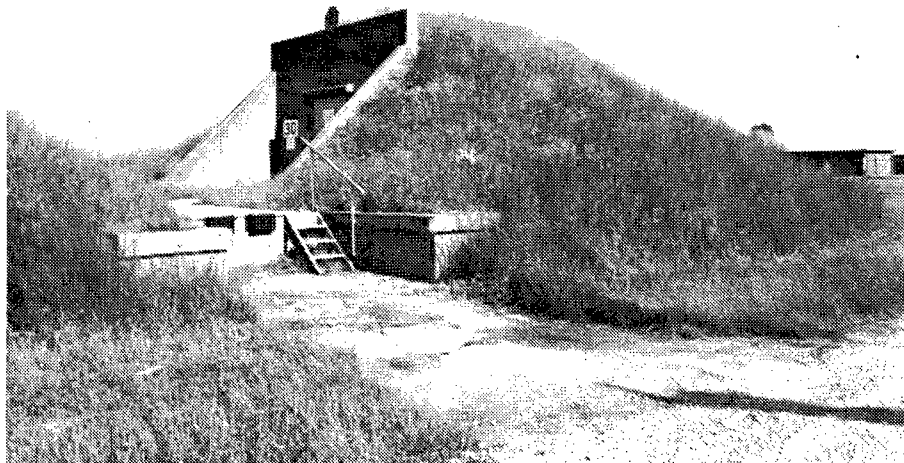


Figure 119. Building 30: High Explosive Igloo for Lead Styphnate and PETN Storage.

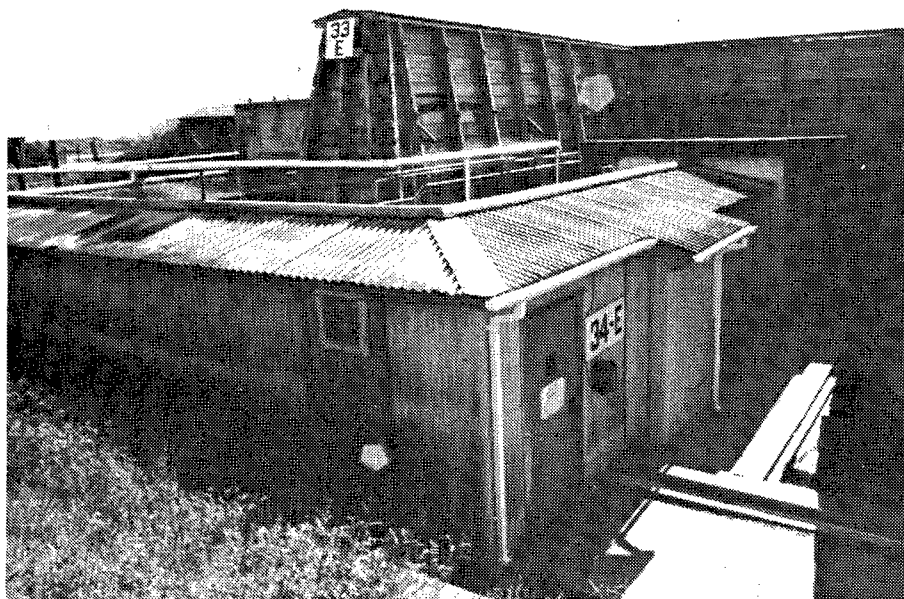


Figure 120. Building 34E: Primer Mix Control Building.



Figure 121. Building 35: Primer Manufacturing Building.



Figure 122. Building 35: Shaker.

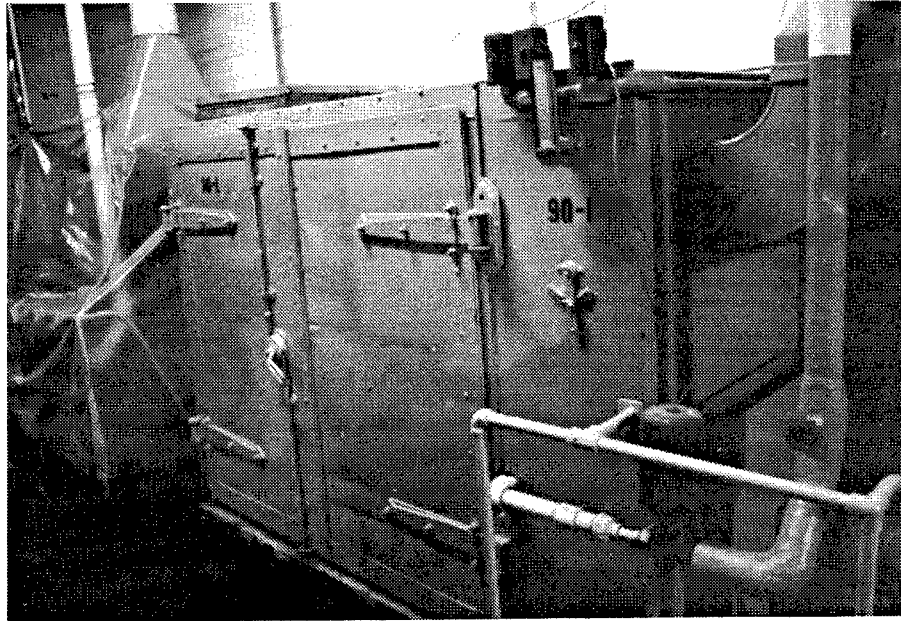


Figure 123. Building 35: Oven.

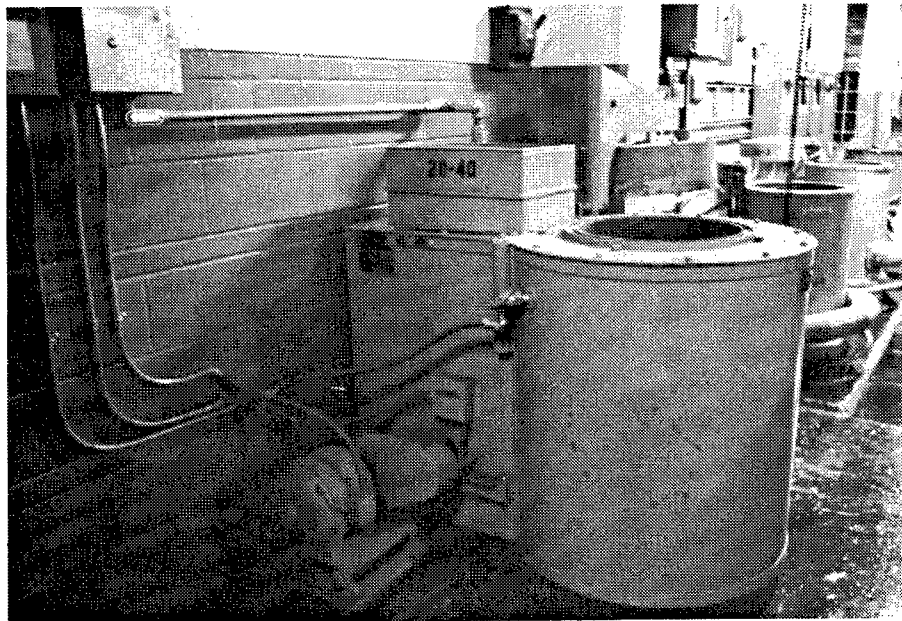


Figure 124. Building 35: Electric Tempering Furnace manufactured by Linberg Engineering Co., Chicago, IL.

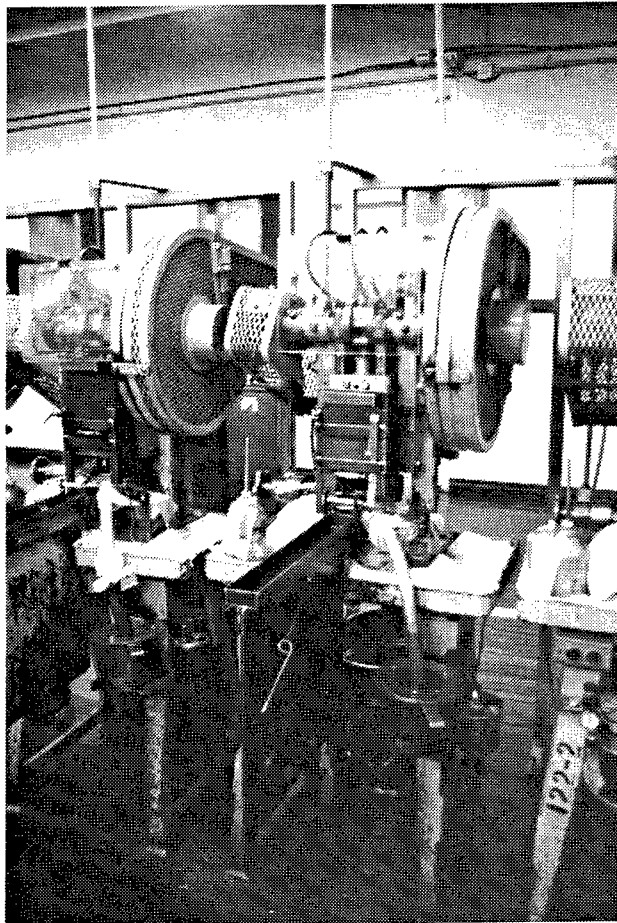


Figure 125. Building 35: Fabrication Primers.

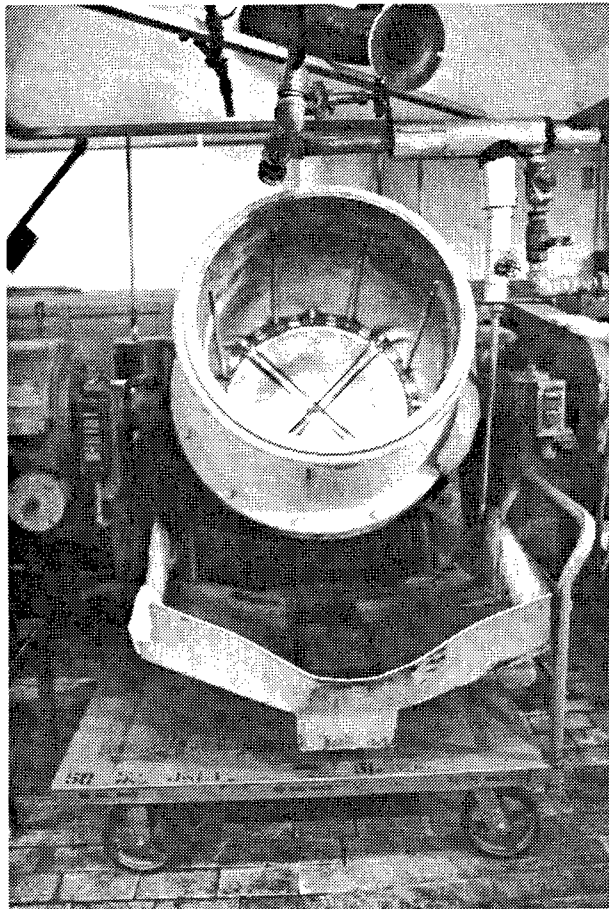


Figure 126. Building 35: Wash Barrel.

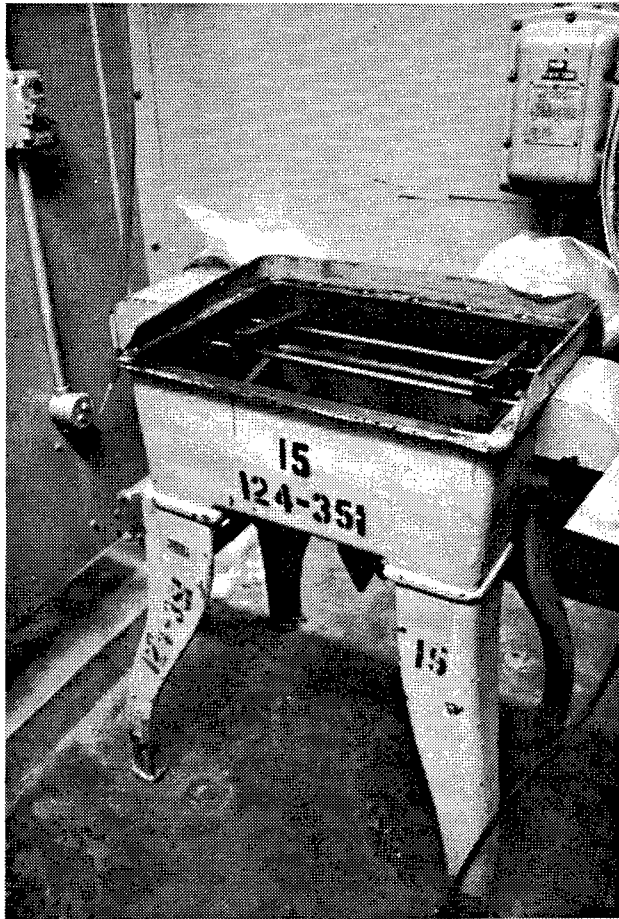


Figure 127. Building 35: Cup Shaker manufactured by Hires, Castner, and Harris.

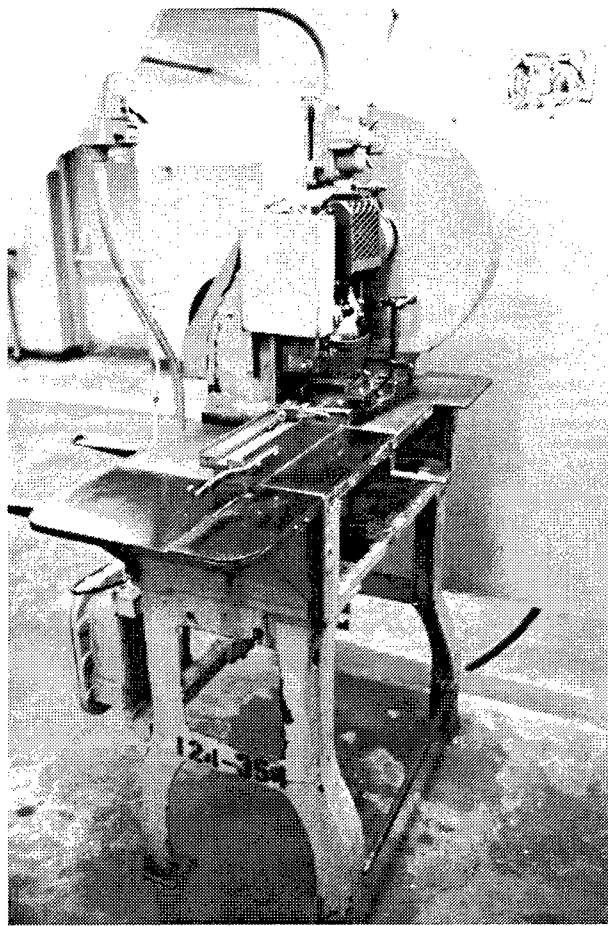


Figure 128. Building 35: Foiling Press manufactured by Hires, Castner, and Harris.

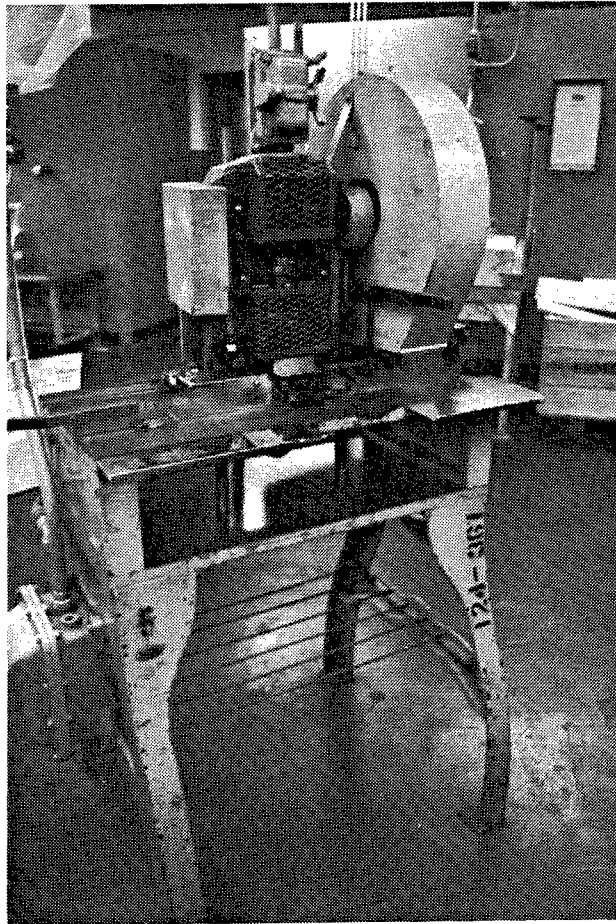


Figure 129. Building 35: Anvil Seating Press manufactured by Hires, Castner, and Harris.

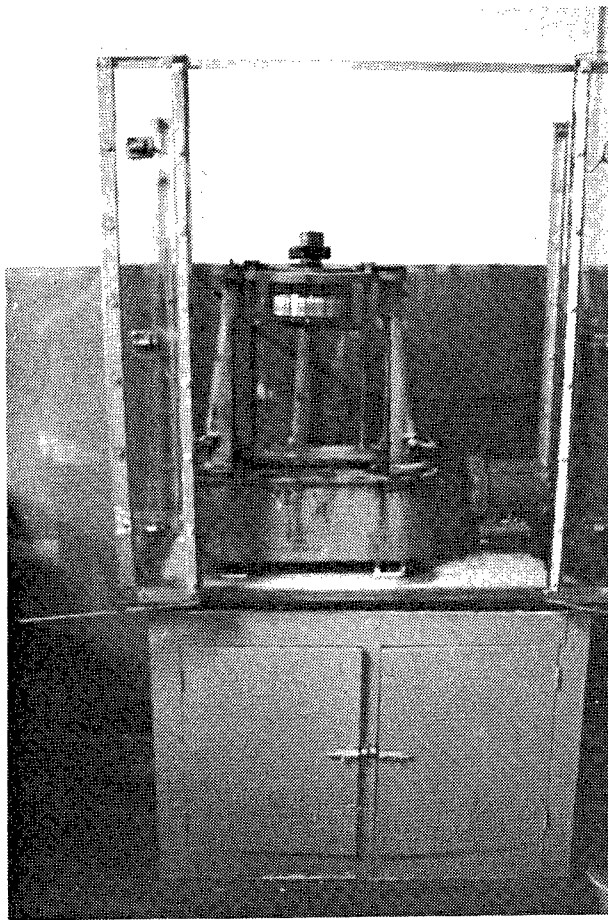


Figure 130. Building 35: RoTap Testing Sieve Shaker manufactured by the W. S. Tyler Co., Cleveland, OH.



Figure 131. Building 36B: Igniter Chemical Distribution Building.

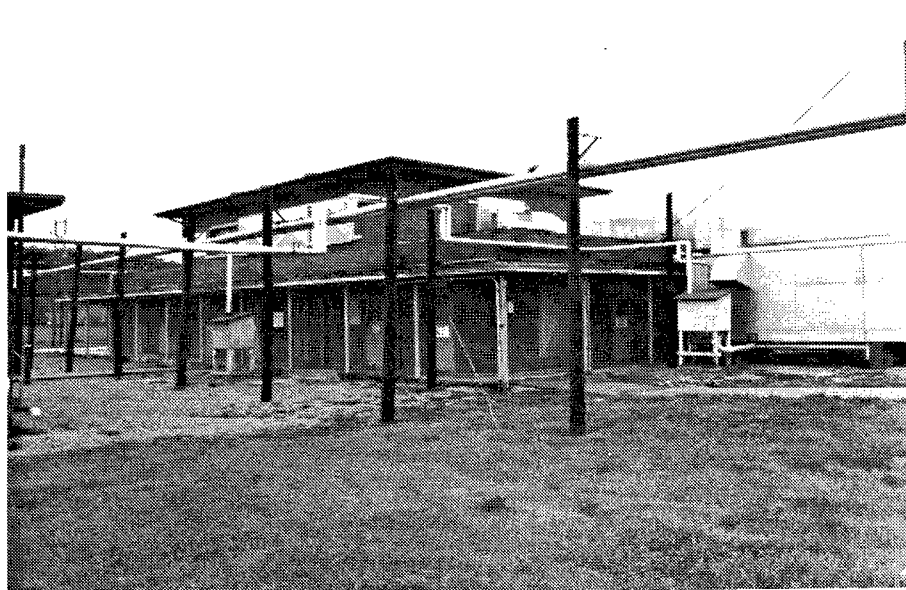


Figure 132. Building 38A: Tracer Composition Manufacturing Building.



Figure 133. Building 38B: Igniter Composition Manufacturing Building.



Figure 134. Building 38B: Cone Blender Machine.

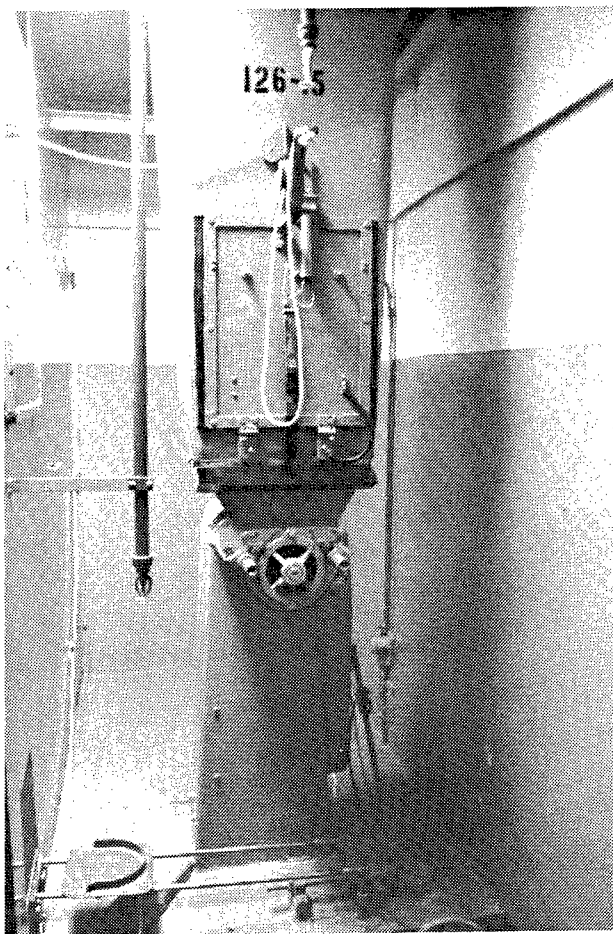


Figure 135. Building 38B: Granulator in the Pyrotechnic Area.

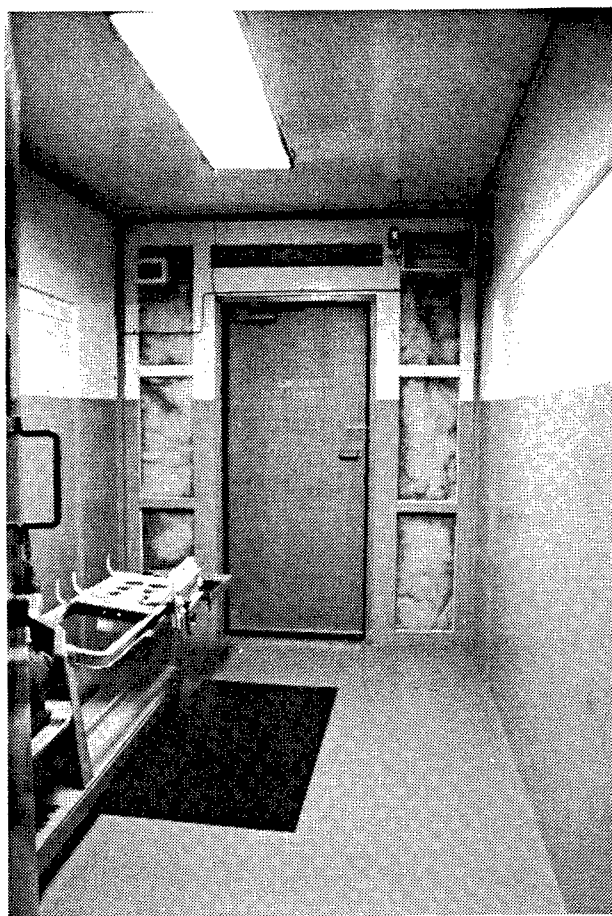


Figure 136. Building 38B: Blending Room.

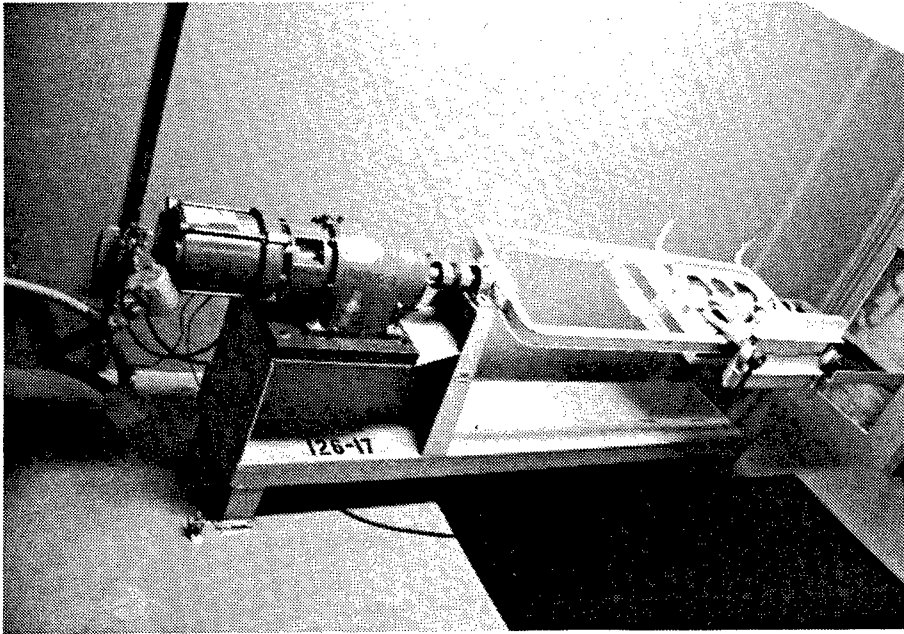


Figure 137. Building 38B: Tube Blender Machine.



Figure 138. Building 38C: Incendiary Composition Manufacturing Building.



Figure 139. Building 40B: Primer Drying and Storage Building.

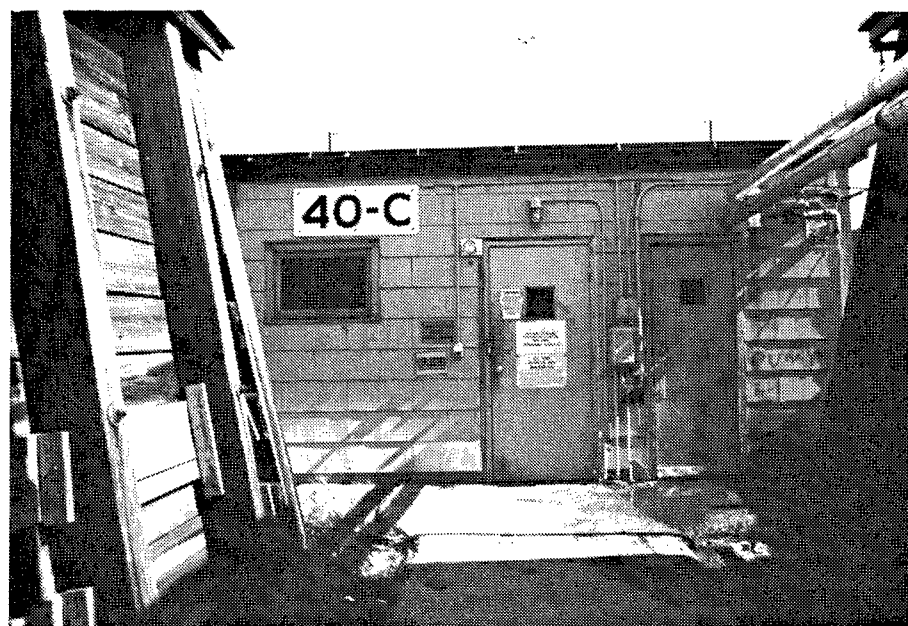


Figure 140. Building 40C: Primer Drying and Storage Building.



Figure 141. Building 41A: Primer Drying and Storage Building.



Figure 142. Building 41B: View of a Primer Drying and Storage Building.



Figure 143. Building 41C: Primer Drying and Storage Building.

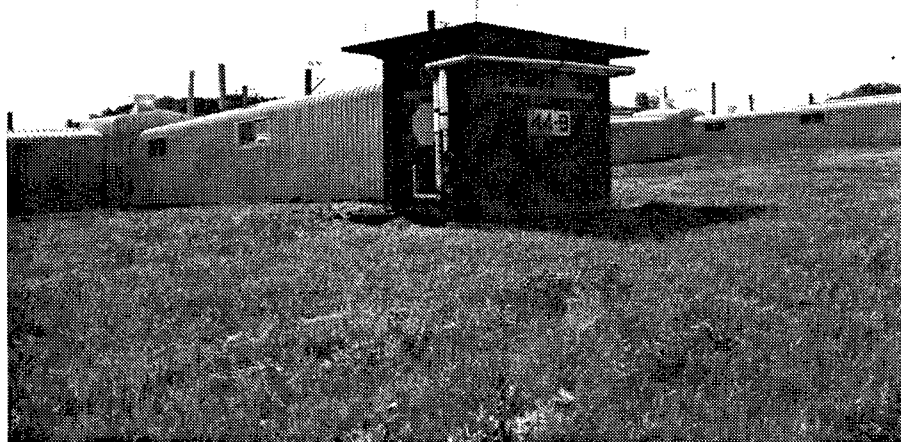


Figure 144. Building 44B: High Explosive Magazine for Pyrotechnic Composition Storage.



Figure 145. Building 49R: Primer Drying and Storage Building.



Figure 146. Building 49A: Primer Drying and Storage Building.



Figure 147. Building 49AA: Another view of a Primer Drying and Storage Building.



Figure 148. Building 49W: Primer Drying and Storage Building.

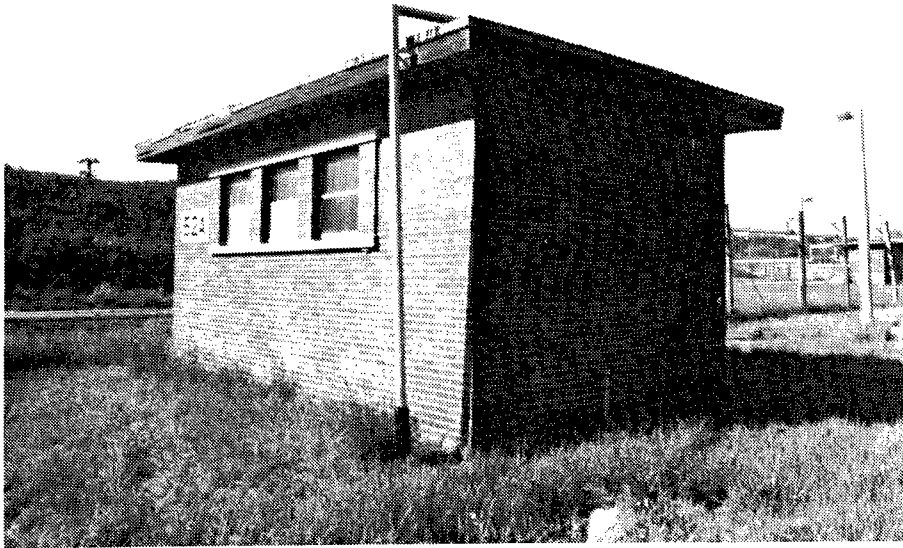


Figure 149. Building 52A: Vacuum Pump House.

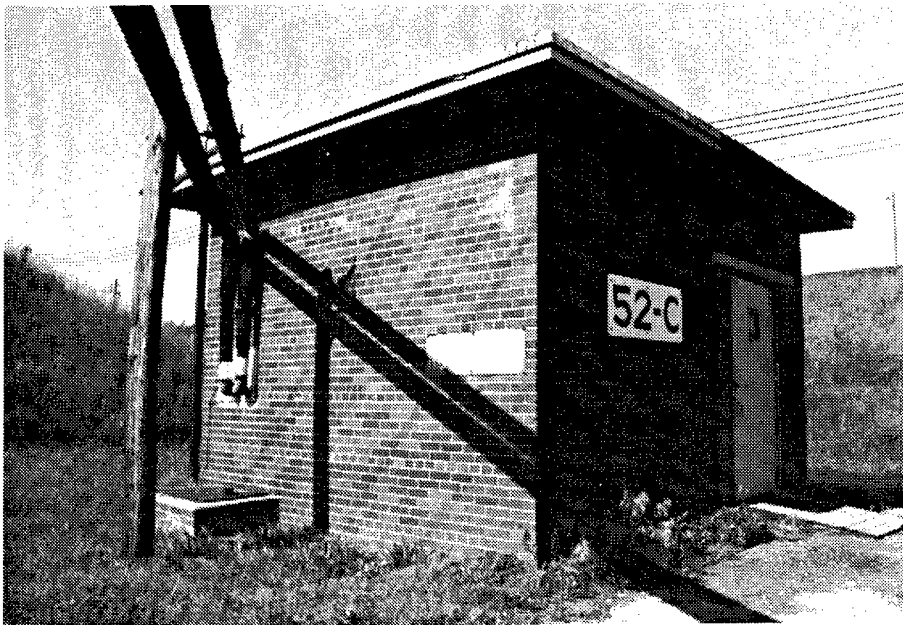


Figure 150. Building 52C: Another view of a Vacuum Pump House.

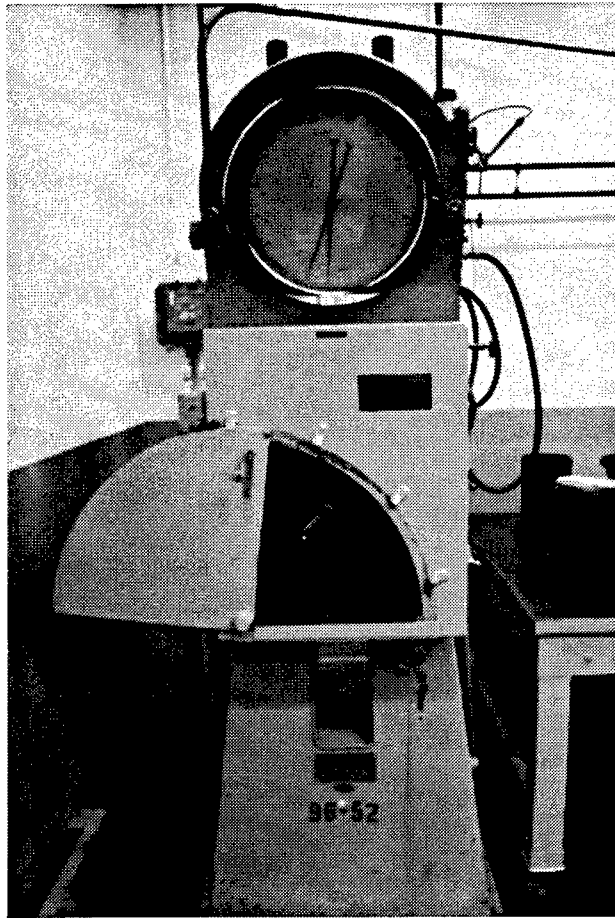


Figure 151. Building 65: Pulldown Test Machine located in Bay 15.

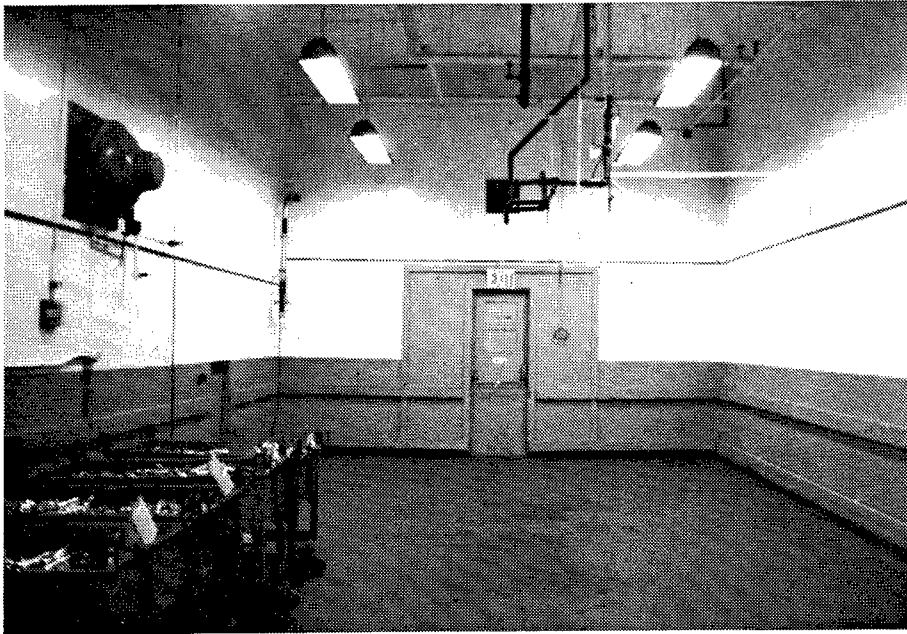


Figure 152. Building 65: Interior of Bay 17.

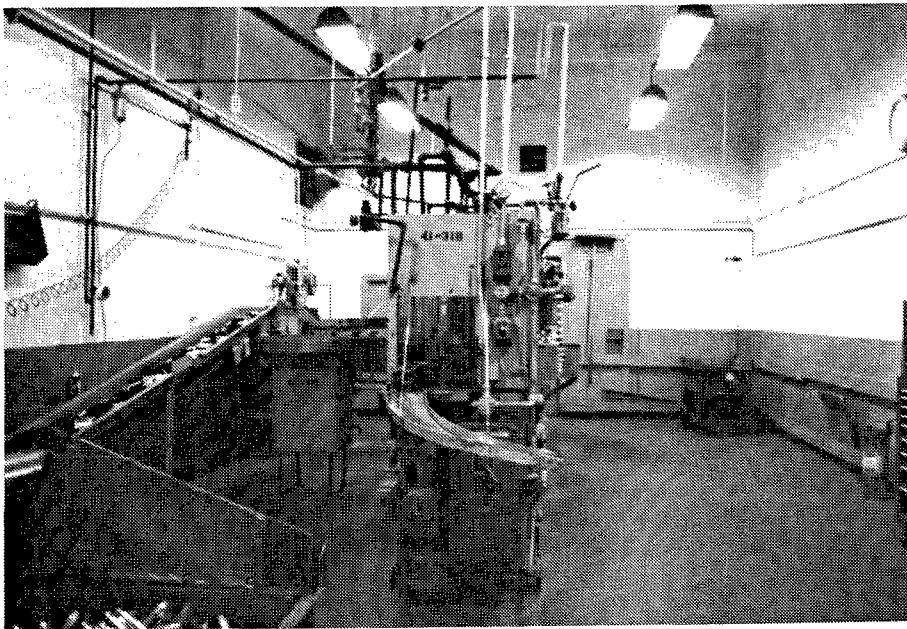


Figure 153. Building 65: Loader Machine located in Bay 20.

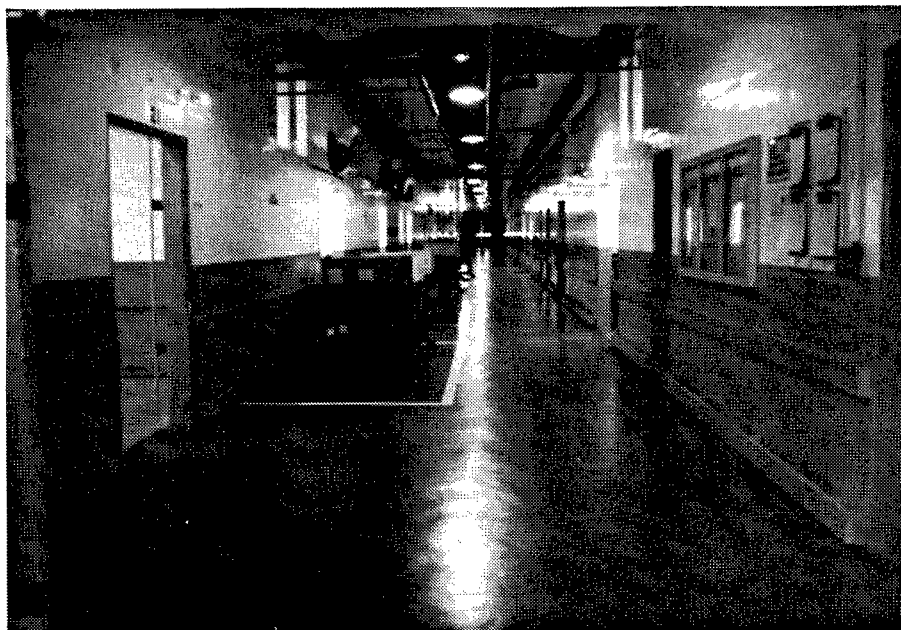


Figure 154. Building 65: Corridor dividing Bays.



Figure 155. Building 65: View of Packing Area.

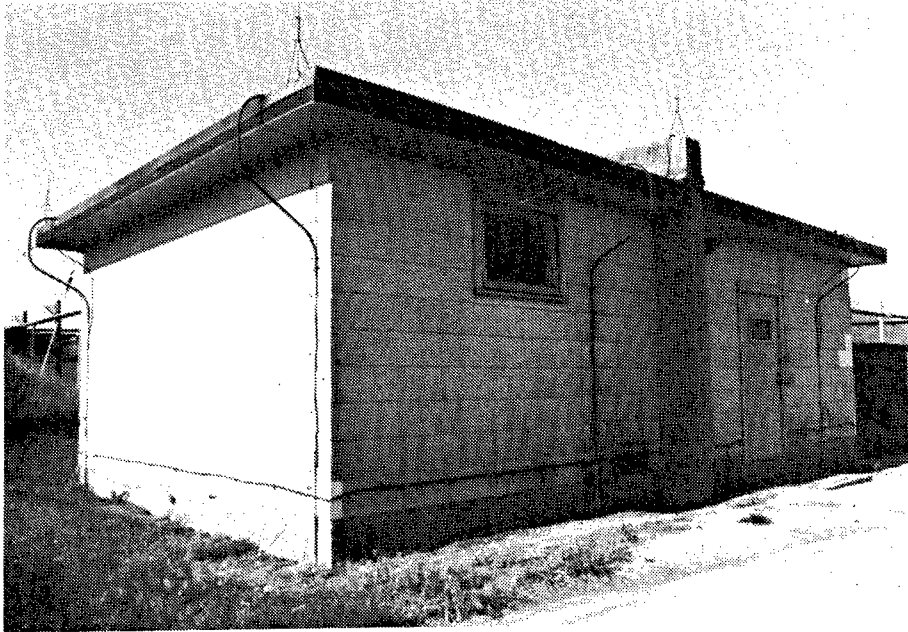


Figure 156. Building 71A: Primer Packing Building.

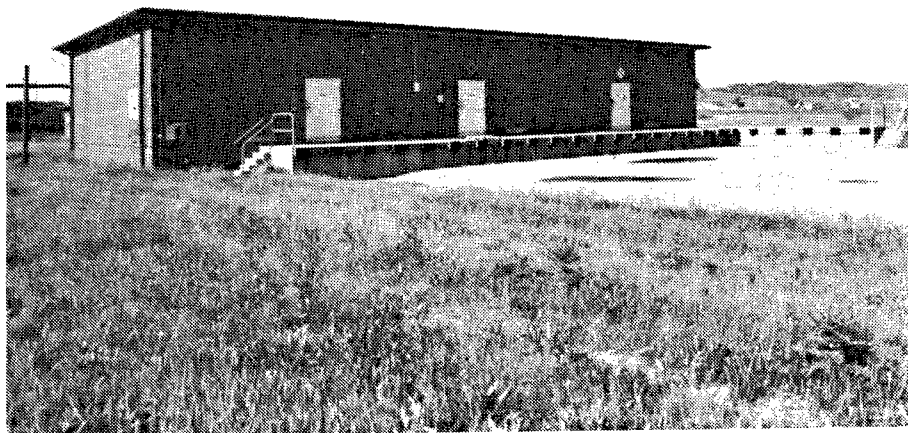


Figure 157. Building 74: High Explosive Magazine for Chemical Storage.



Figure 158. Building 83: Nitrator Building.

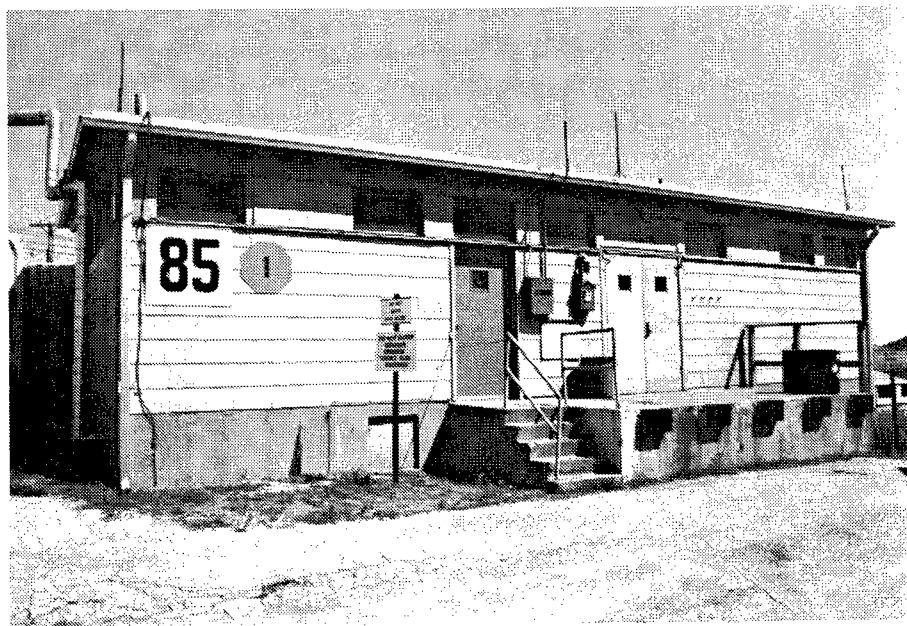


Figure 159. Building 85: Precipitator and Solution Building.



Figure 160. Building 89: Tetrazene Service Storage Building with barricades.

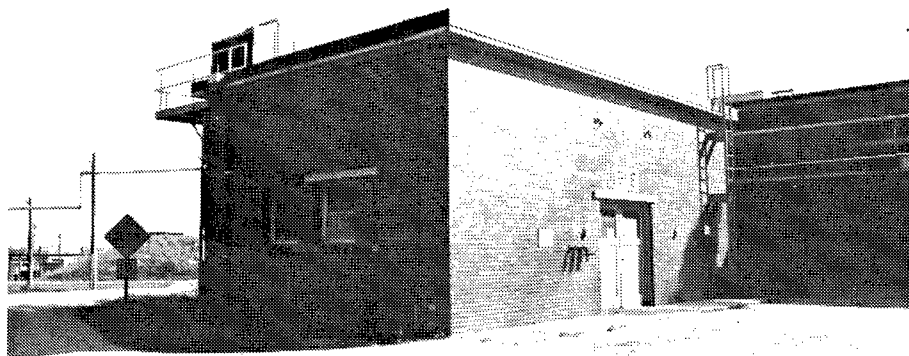


Figure 161. Building 91E: Air Compressor Building.

SUPPORT FACILITIES FOR MANUFACTURING



Figure 162. Building 8: Ballistic Testing and Ammunition Quality Control Building.



Figure 163. Building 10: Machine Tool and Gage Shop.



Figure 164. Building 10: Overview of Machine Shop.



Figure 165. Building 10: Another view of Machine Shop.



Figure 166. Building 10: Lathe.

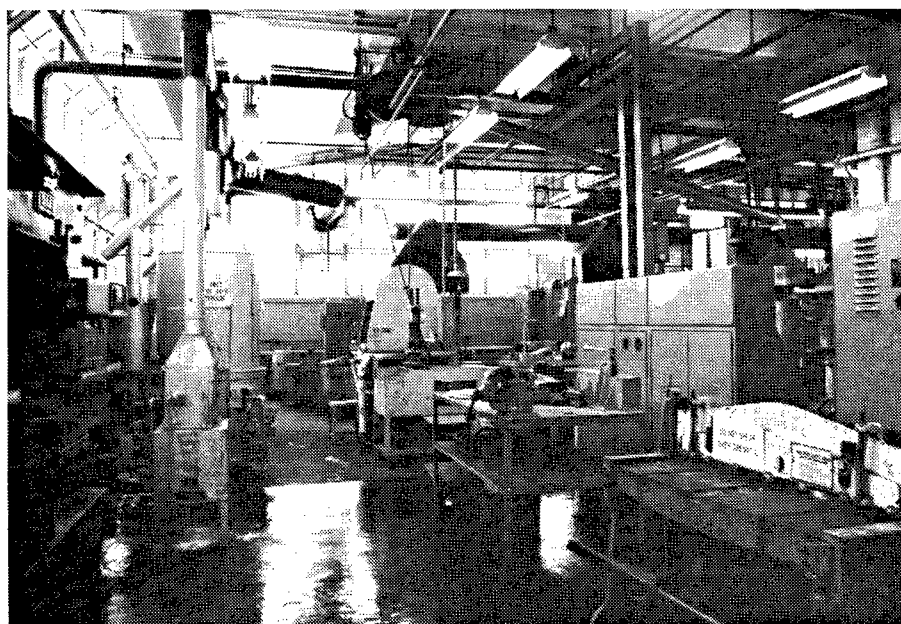


Figure 167. Building 10: Overview of Heat Treatment Room.



Figure 168. Building 10: Surface Combustion Furnace.

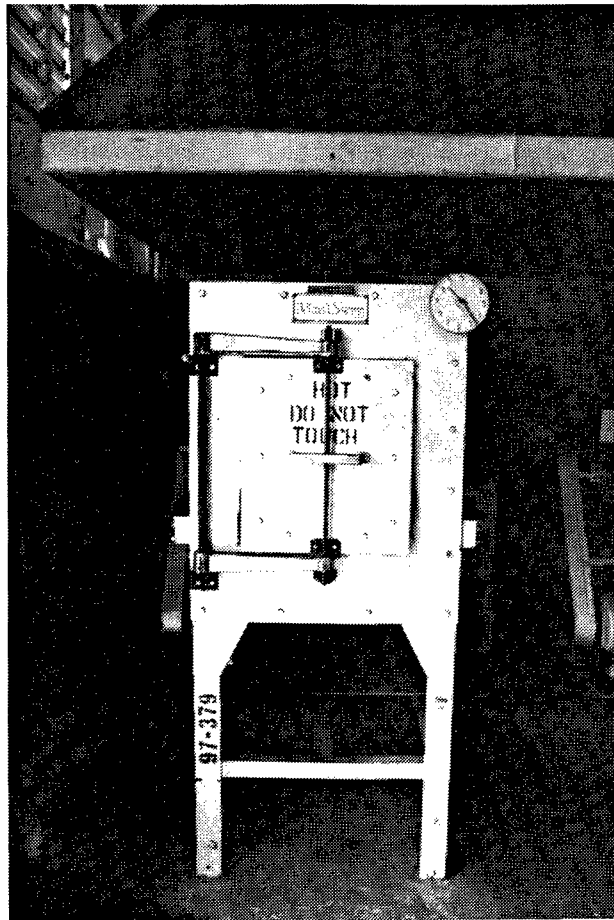


Figure 169. Building 10: Lindberg Oven manufactured by Lindberg Engineering Co., Chicago, IL.

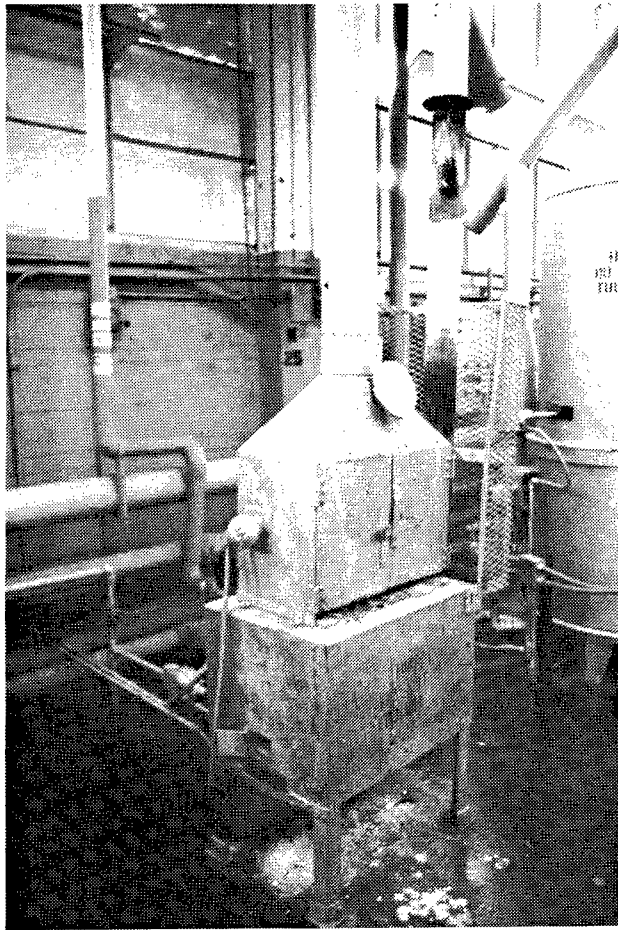


Figure 170. Building 10: Molten Salt Bath Machine.

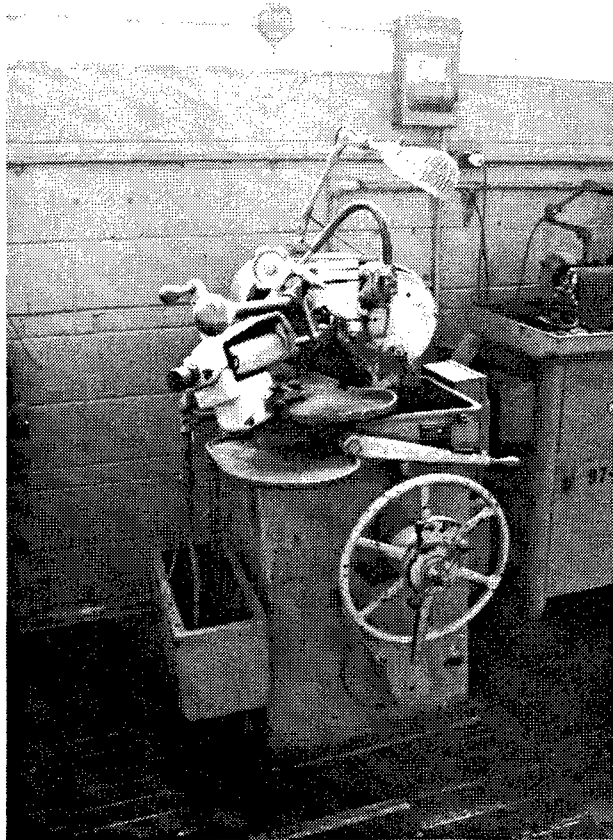


Figure 171. Building 10: Grinder manufactured by William Sellers Co., Philadelphia, PA.

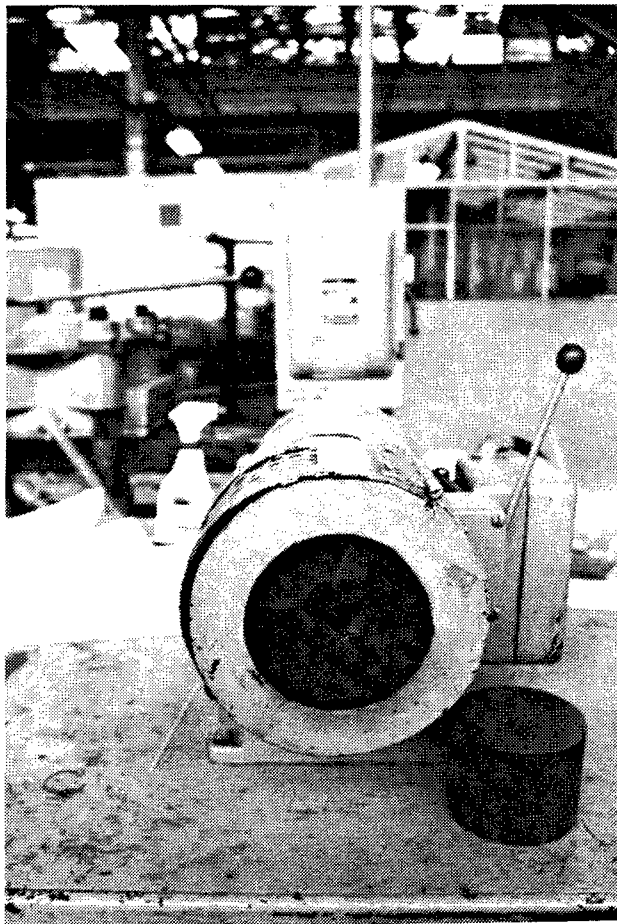


Figure 172. Building 10: Close-up of Polish Head Machine.



Figure 173. Building 10: Grinder manufactured by Hacer Precision Machinery & Tools, New York, NY.

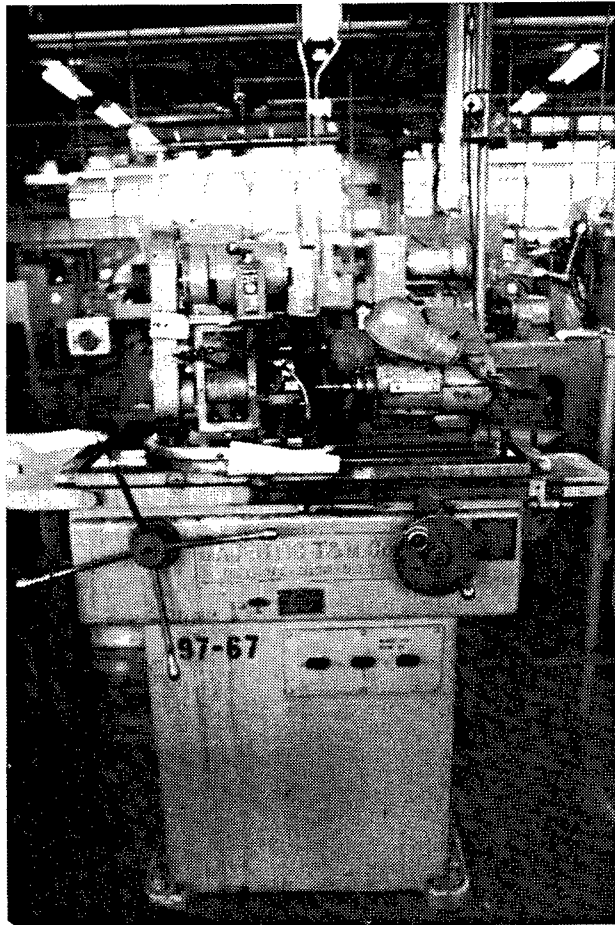


Figure 174. Building 10: Grinder manufactured by Majestic T & M Co., Detroit.

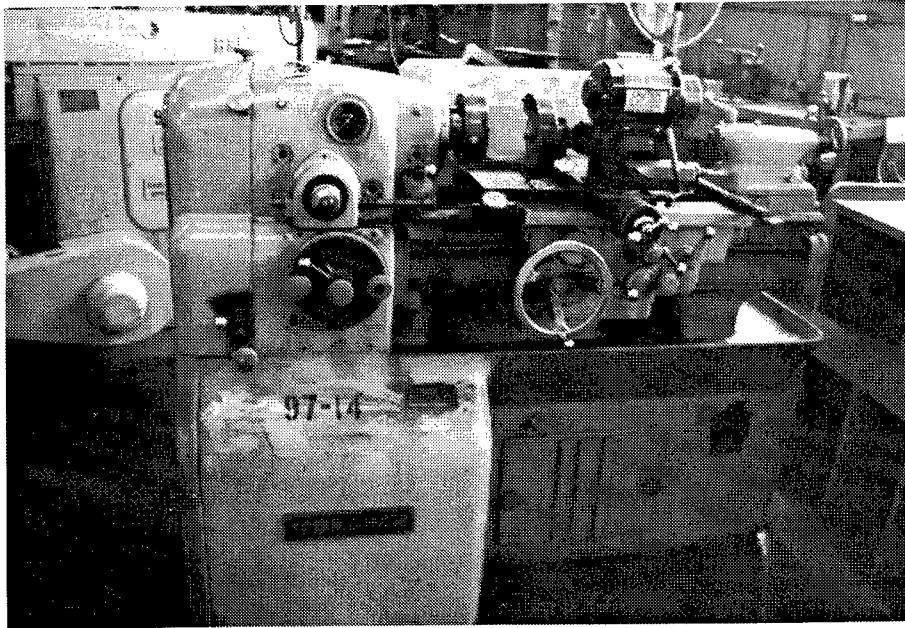


Figure 175. Building 10: Lathe manufactured by Monarch.

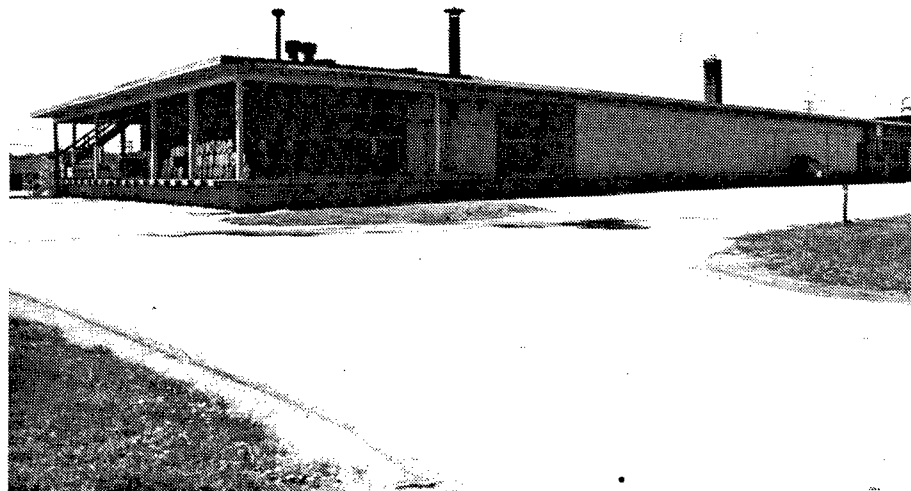


Figure 176. Building 13: Salvage and Surplus Property Warehouse.

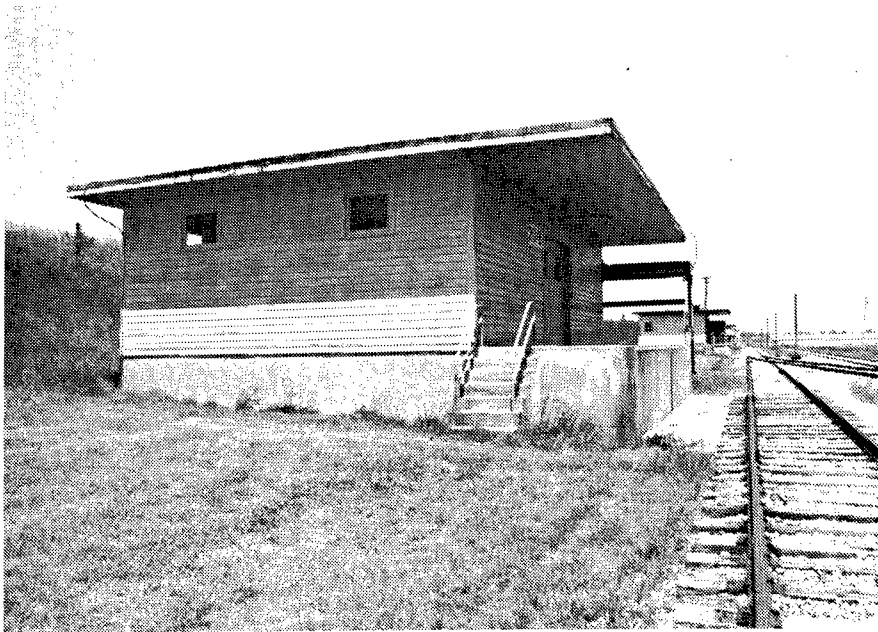


Figure 177. Building 20B: General Purpose Magazine for Empty Powder Case Storage.



Figure 178. Building 29A: High Explosive Pellet Inspection Building.

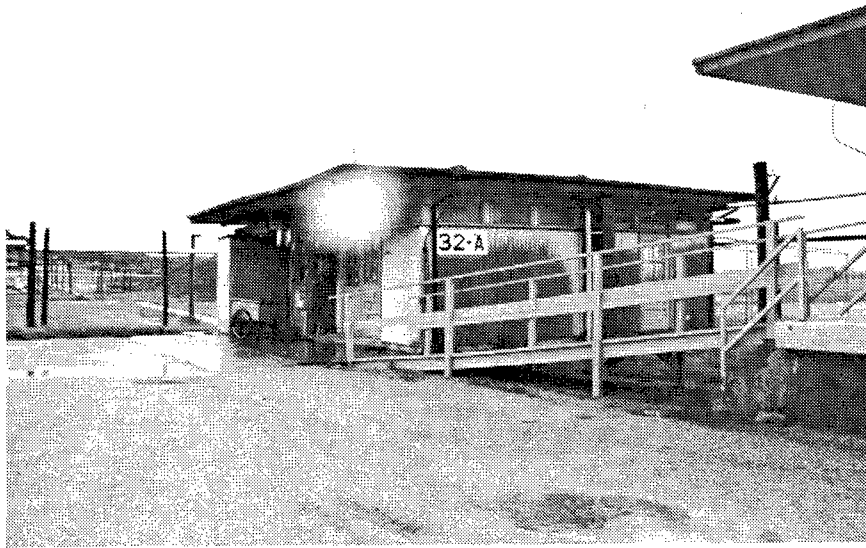


Figure 179. Building 32A: High Explosive Pellet Inspection Building.



Figure 180. Building 47: Firing Range Target Storage Building.

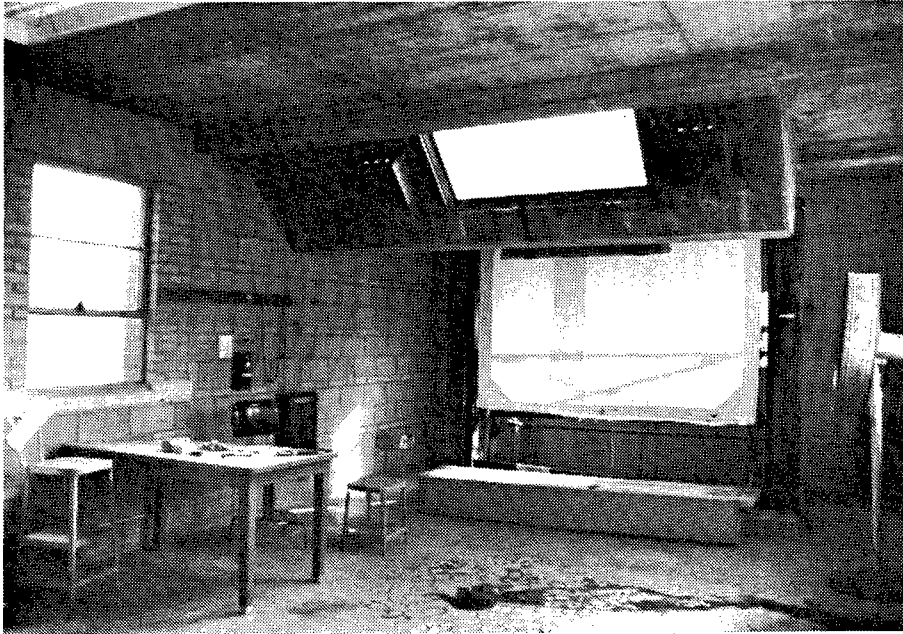


Figure 181. Building 47: Interior of Firing Range Target Storage Building.



Figure 182. Buildings 48A and 56U: Firing Range Target Storage and Observation Buildings, respectively.

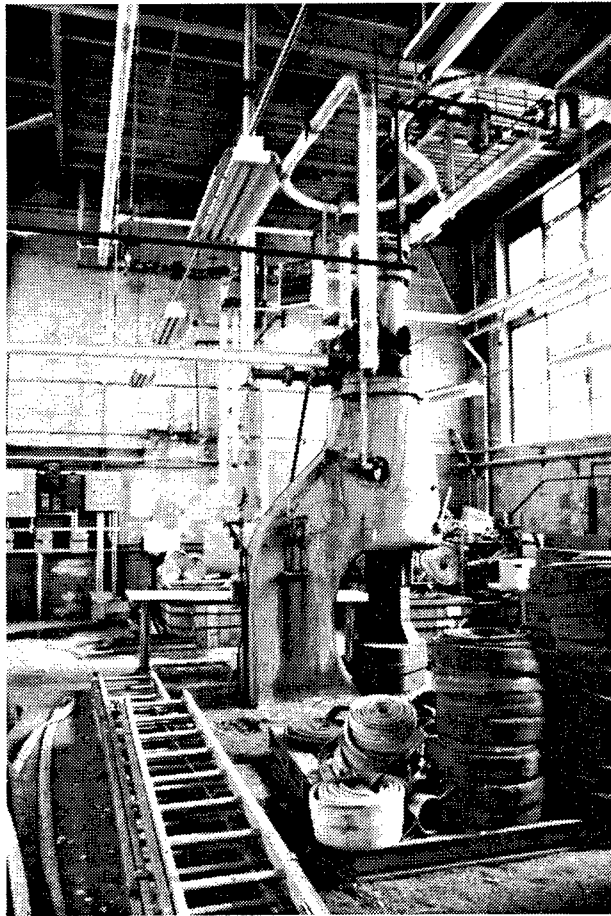


Figure 183. Building 51: Chambersburg High Frame Hammer.



Figure 184. Building 51: Forge Shop Building.

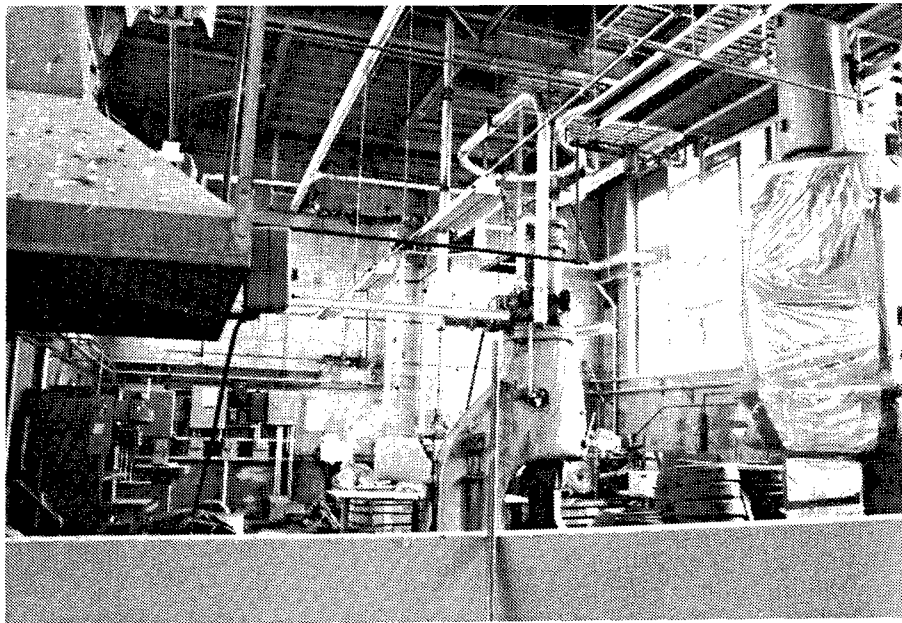


Figure 185. Building 51: Interior of the Old Blacksmith Shop.



Figure 186. Building 56B: Firing Range Observation Building.



Figure 187. Building 56E: Firing Range Observation Building.



Figure 188. Building 56E: Interior of Firing Range Observation Building.

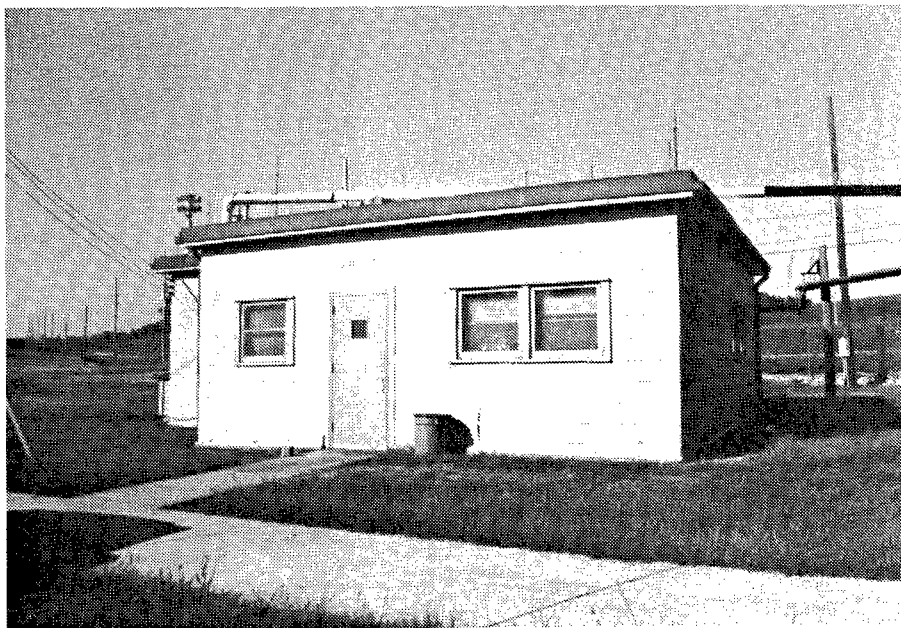


Figure 189. Building 75: Ammunition Quality Control Facility, Explosives Laboratory.

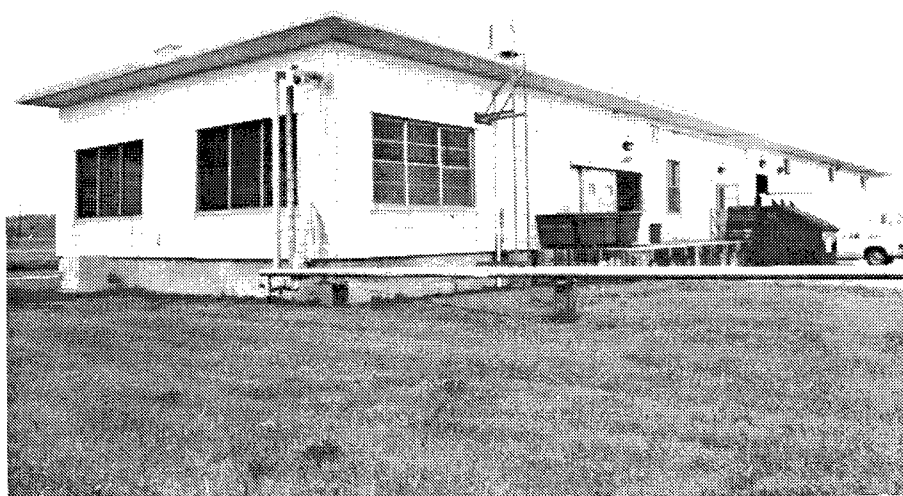


Figure 190. Building 77: Laundry and Machine Shop Building.



Figure 191. Building 81: Disposal Tanks Building.

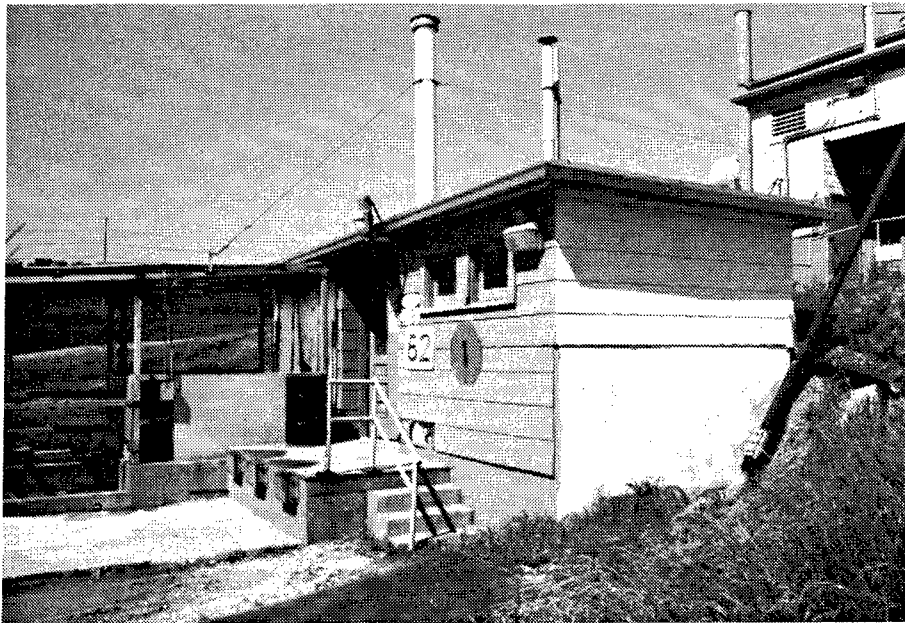


Figure 192. Building 82: Neutralizing and Disposal Tanks Building.

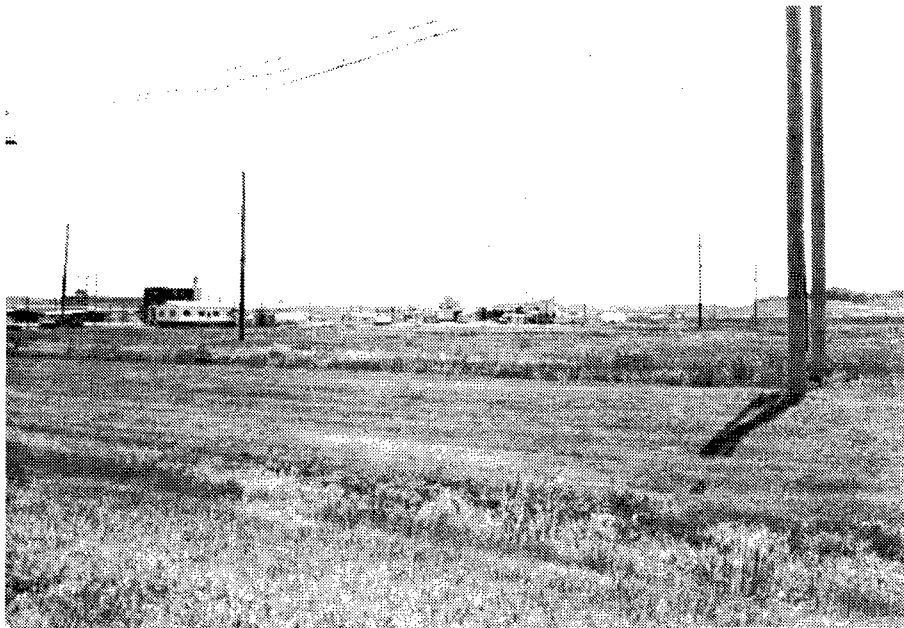


Figure 193. Overview of Area 97. Explosive Decontamination, Scrap Burning, and Storage of Demilitarization Scrap occurs in this area.

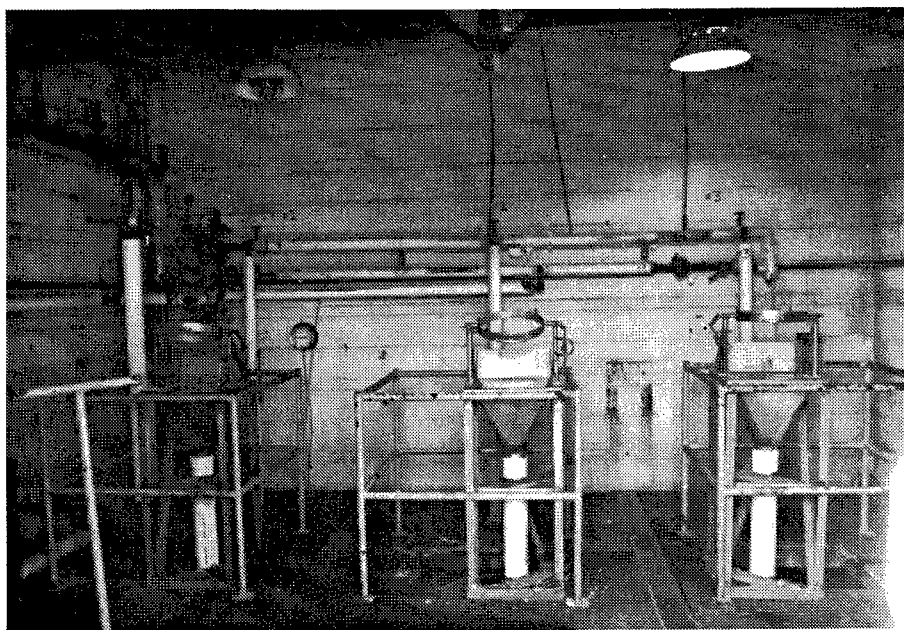


Figure 194. Building 90B: Interior of Chemical Neutralizing and Disposal Tank Building.

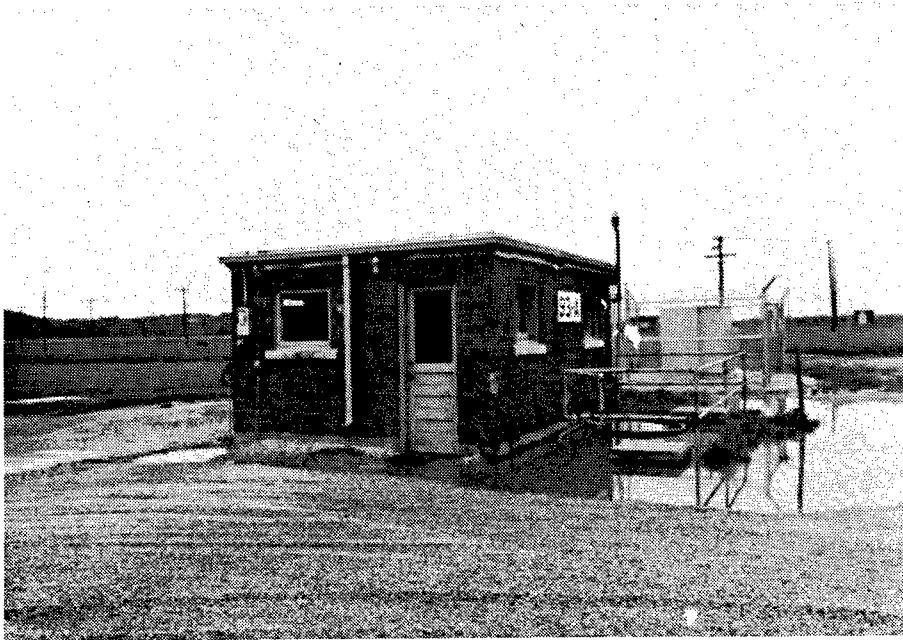


Figure 195. Building 93A: Industrial Waste Pump House.



Figure 196. Building 93B: Industrial Waste Pump House.

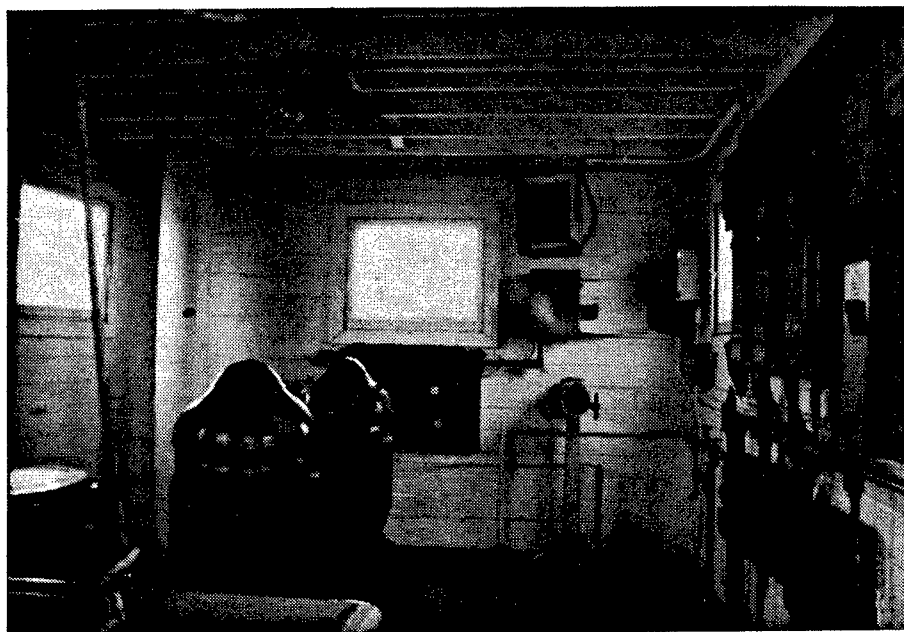


Figure 197. Building 93B: Interior of Industrial Waste Pump House showing Vertical Turbine Pumps.



Figure 198. Buildings T247 and 90B: Respectively, a Chemical Storage Building and a Chemical Neutralizing and Disposal Tank Building.



Figure 199. Building 93C: Industrial Waste Control Building.

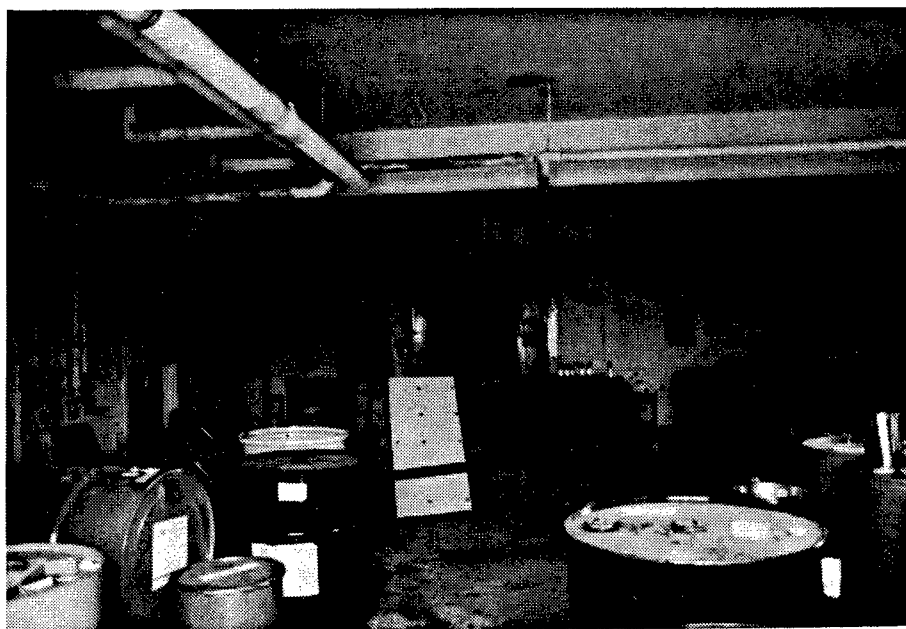


Figure 200. Building 93C: First floor of Industrial Waste Control Building.

SHIPPING AND STORAGE FACILITIES



Figure 201. Building 7: General Storehouse.



Figure 202. Building 7: Interior of empty General Storehouse.

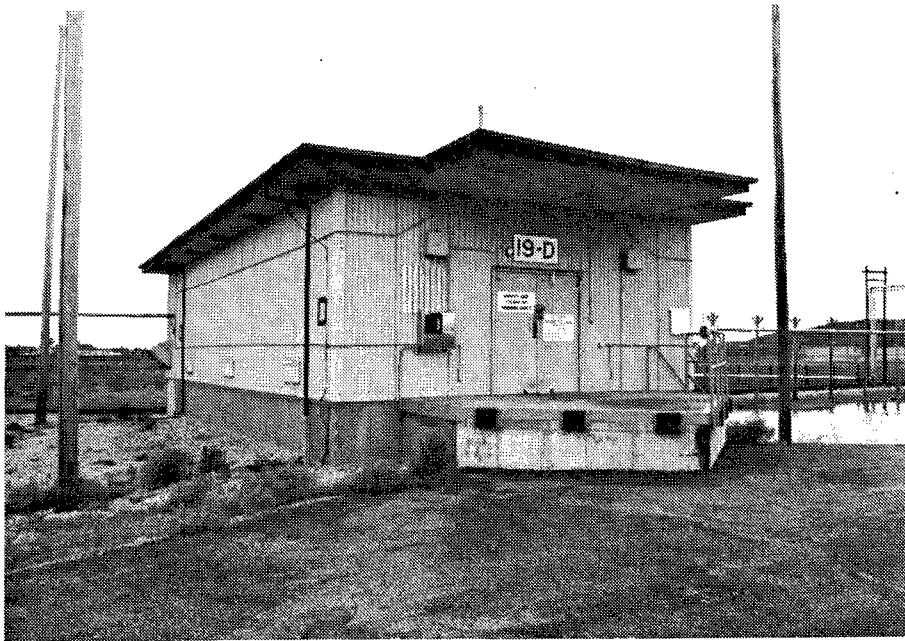


Figure 203. Building 19D: High Explosive Magazine for Powder Storage.



Figure 204. Building 19F: High Explosive Magazine for Powder Storage.



Figure 205. Building 19T: High Explosive Magazine for Powder Storage.



Figure 206. Building 19W: High Explosive Magazine for Powder Storage.

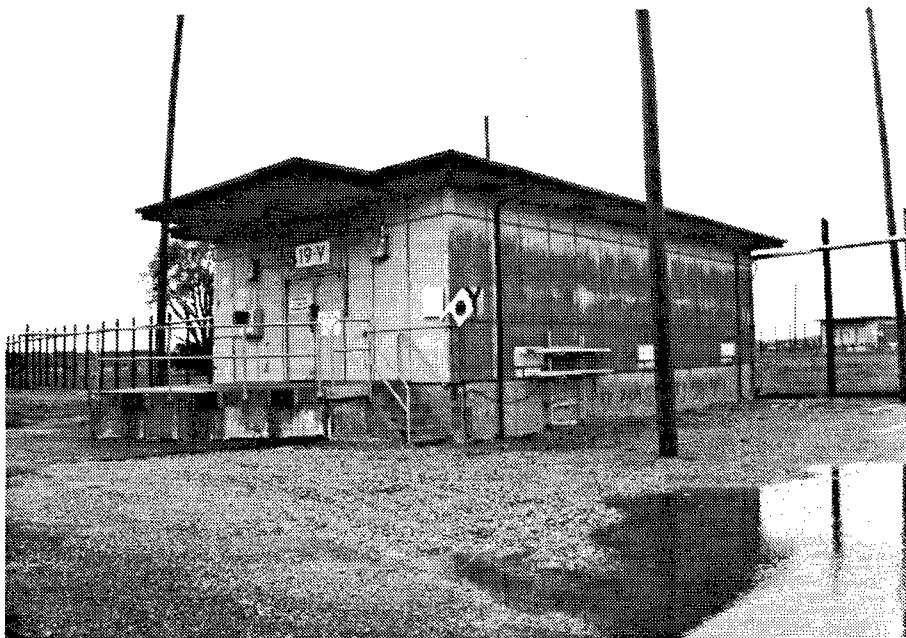


Figure 207. Building 19Y: Powder Storage Magazine.



Figure 208. Building 19Z: High Explosive Magazine for Powder Storage.



Figure 209. Building 20A: Empty Powder Case Storage Magazine.



Figure 210. Building 21: High Explosive Magazine for Sampling Storage.

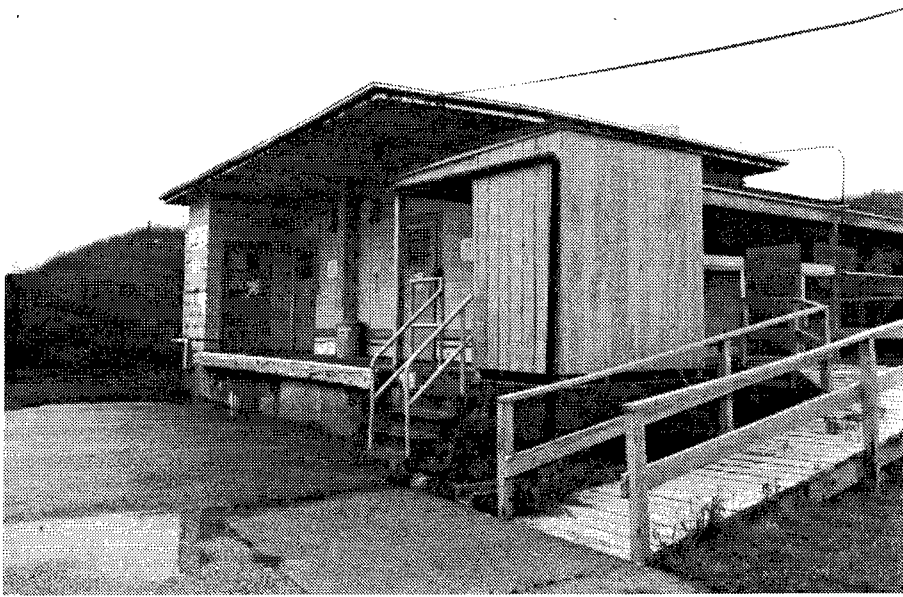


Figure 211. Building 22C: High Explosive Pellet Storage Magazine.

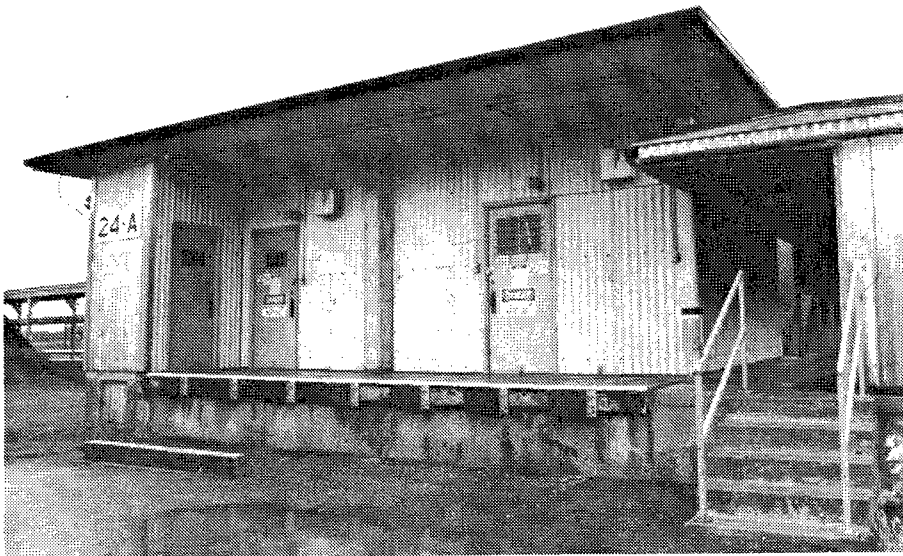


Figure 212. Building 24A: Blank Powder Storage Magazine.



Figure 213. Building 25: High Explosive Magazine for Magnesium Storage.



Figure 214. Building 26: High Explosive Magazine for Nitrate, Chlorate, and Peroxide Storage.

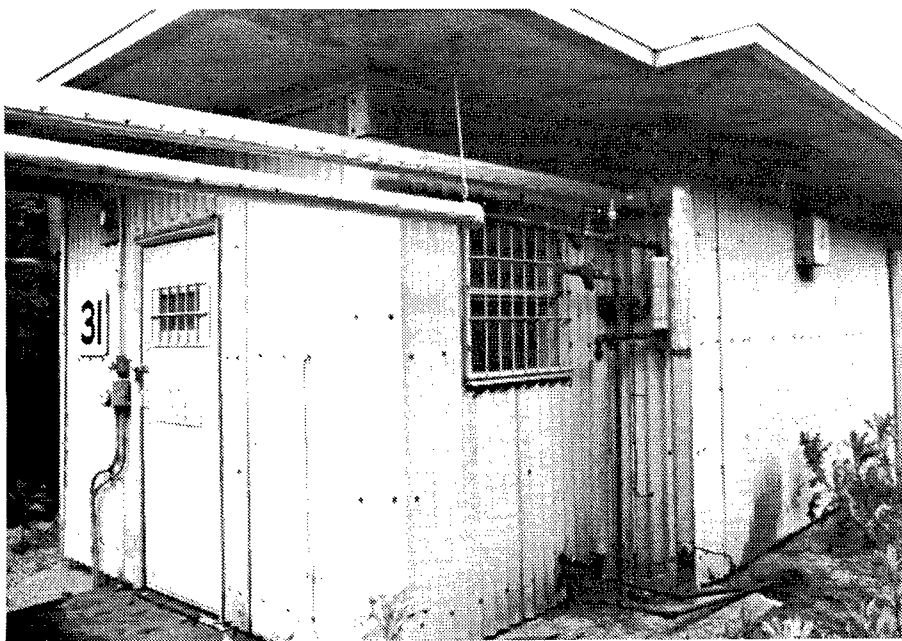


Figure 215. Building 31: High Explosive Pellet Storage Magazine.



Figure 216. Building 31: Front view of High Explosive Pellet Storage Magazine.

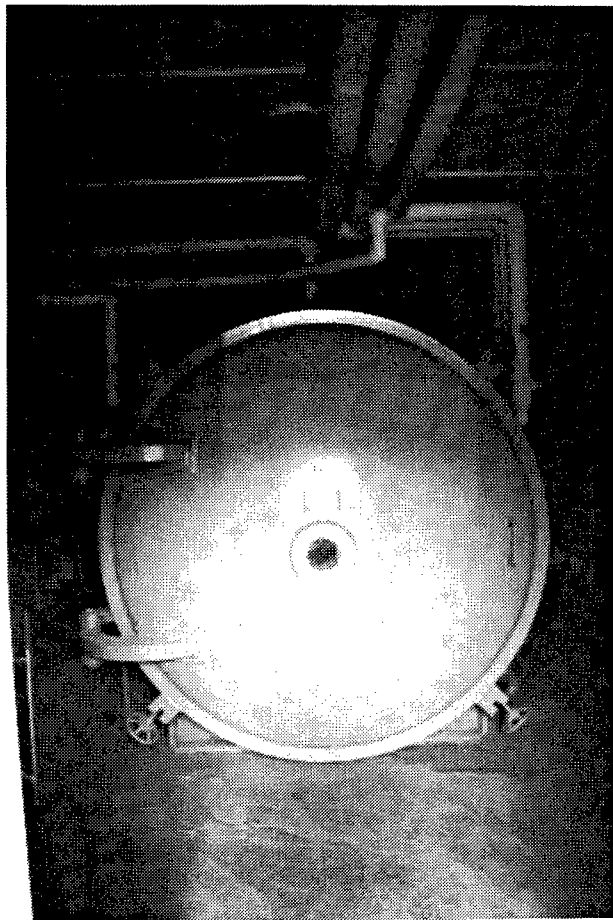


Figure 217. Building 31: Pellet Dryer.

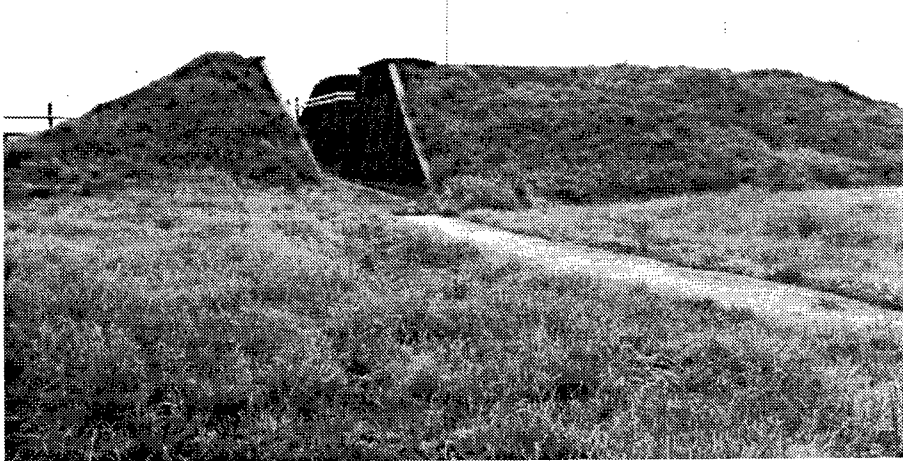


Figure 218. Building 31: View of barricades surrounding High Explosive Pellet Storage Magazine.

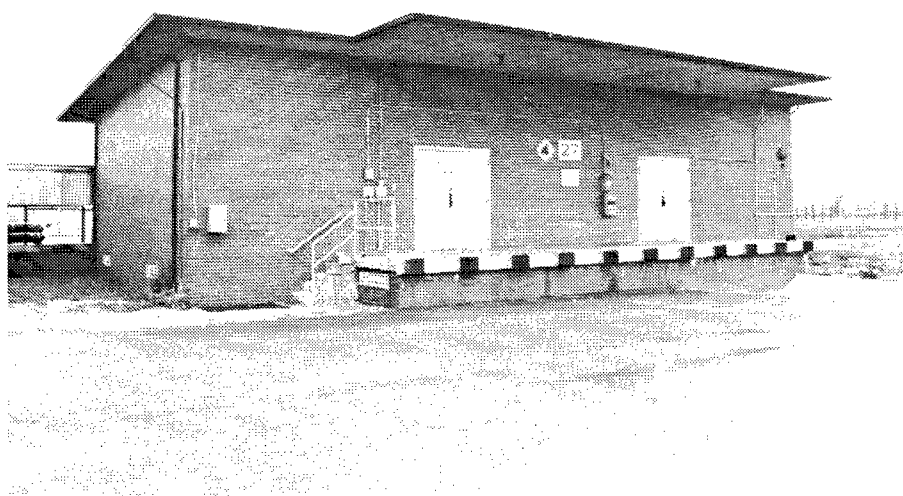


Figure 219. Building 27: High Explosive Magazine for Chemical Storage.



Figure 220. Building 37B: General Purpose Ammunition Storage Magazine.

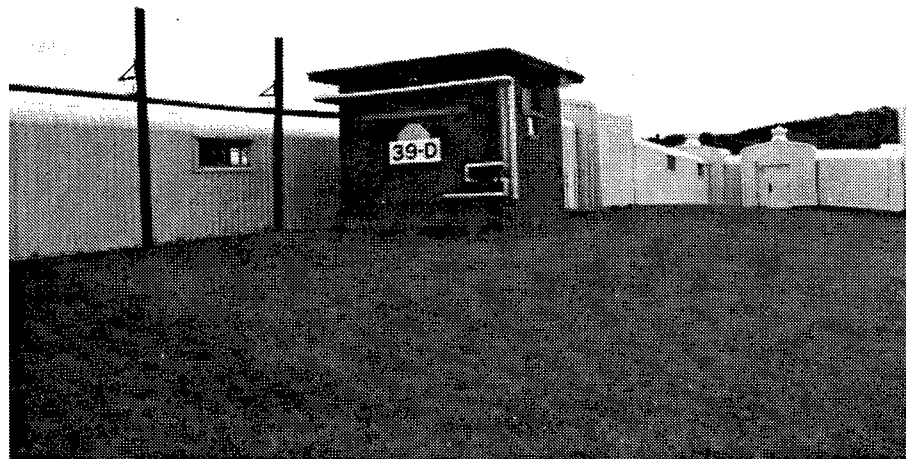


Figure 221. Building 39D: Original Tracer Composition Storage Building in foreground. Visible in the background are similar storage buildings and their connecting walkways, recently fully enclosed by a metal construction.

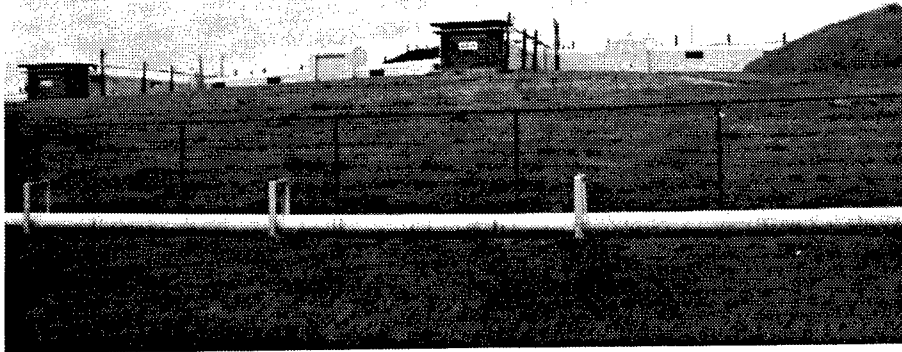


Figure 222. Building 44A: Overview of High Explosive Storage Area with Pyrotechnic Composition Storage Magazine in the center background.

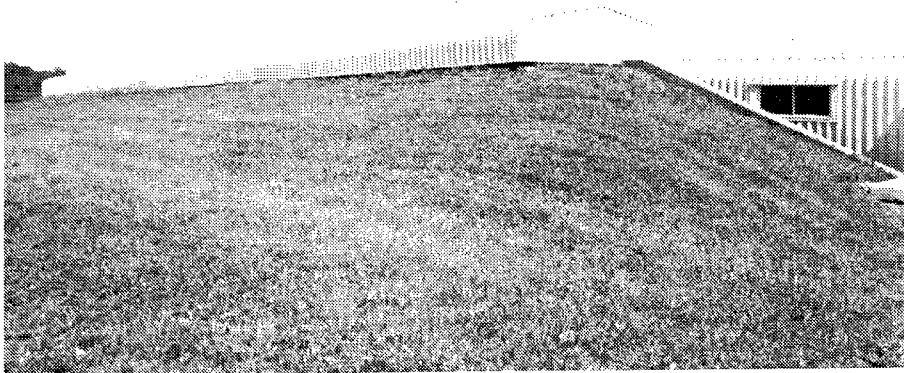


Figure 223. Building 73: Berm partially surrounding General Purpose Magazines for Tracer, Incendiary, and Igniter Storage. These magazines and their connecting walkways have recently been fully enclosed with a corrugated metal construction.



Figure 224. Building 80B: Pyrotechnic Storage Magazine.

SUPPORT FACILITIES FOR EMPLOYEES



Figure 225. Building 32C: Primer Mix Area Change House.



Figure 226. Building 53: High Explosive Pellet Area Locker and Change House.

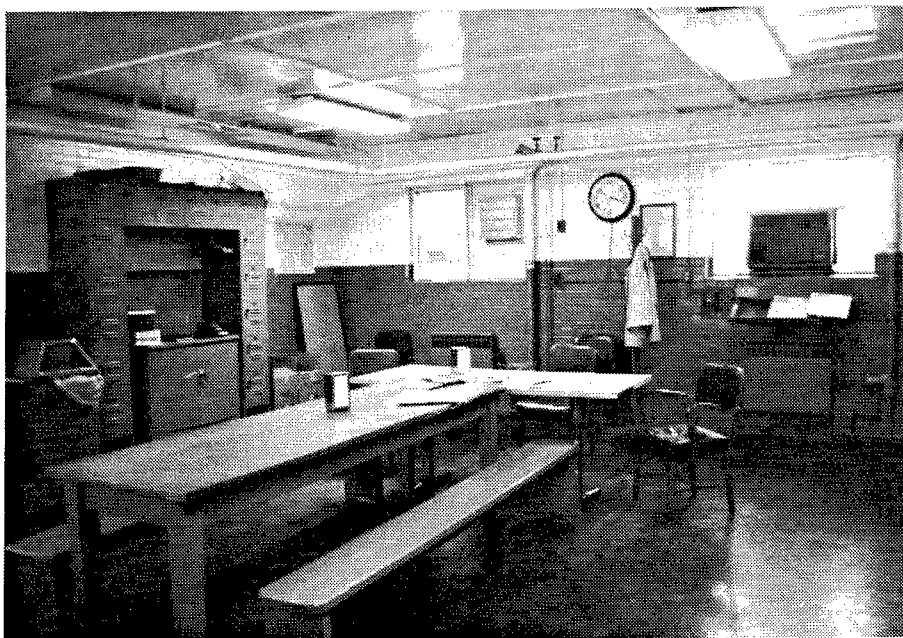


Figure 227. Building 53: Interior of High Explosive Pellet Area Locker and Change House.



Figure 228. Building 54A: Change House and Attendant's Station.

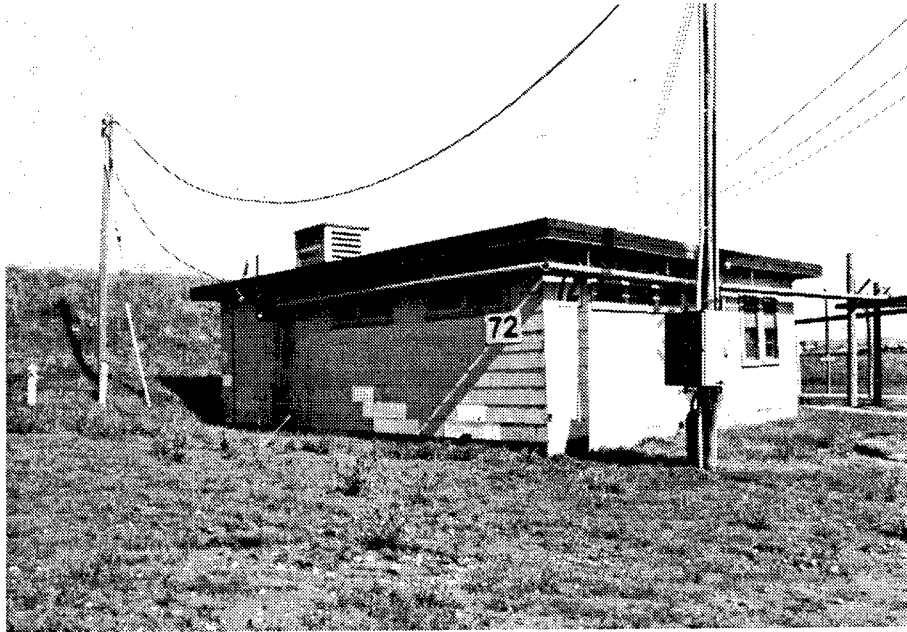


Figure 229. Building 72: Primer Storage Area Office and Change House.



Figure 230. Building 114-2: Staff Residence.



Figure 231. Building 114-4: Staff Residence.

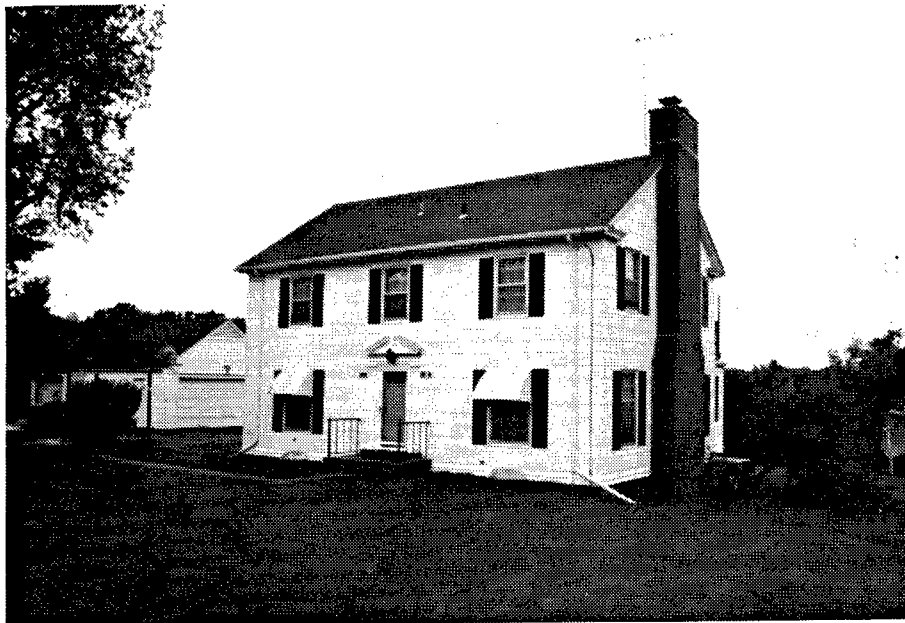


Figure 232. Building 114-10: Staff Residence.



Figure 233. Building 114-11: Staff Residence.

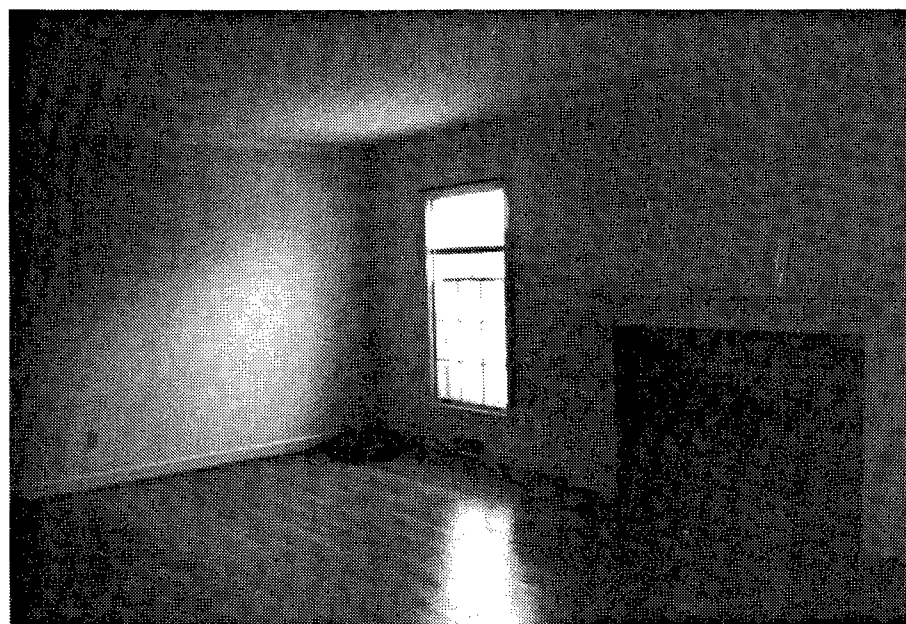


Figure 234. Building 114-11: Living Room.



Figure 235. Building 114-11: Staircase.



Figure 236. Building 114-11: Master Bedroom.

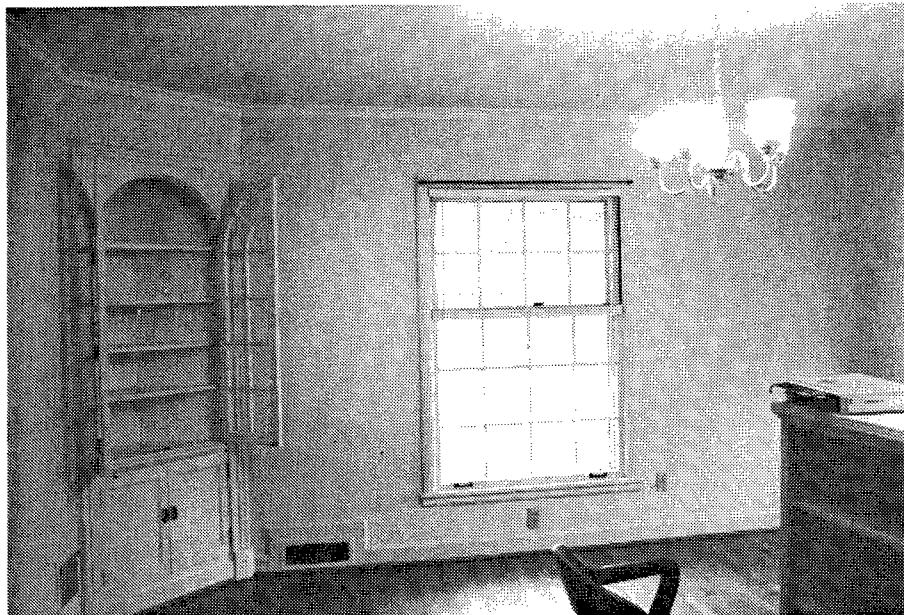


Figure 237. Building 114-11: Dining Room.



Figure 238. Building 114-11: Interior of Maid's Quarters.

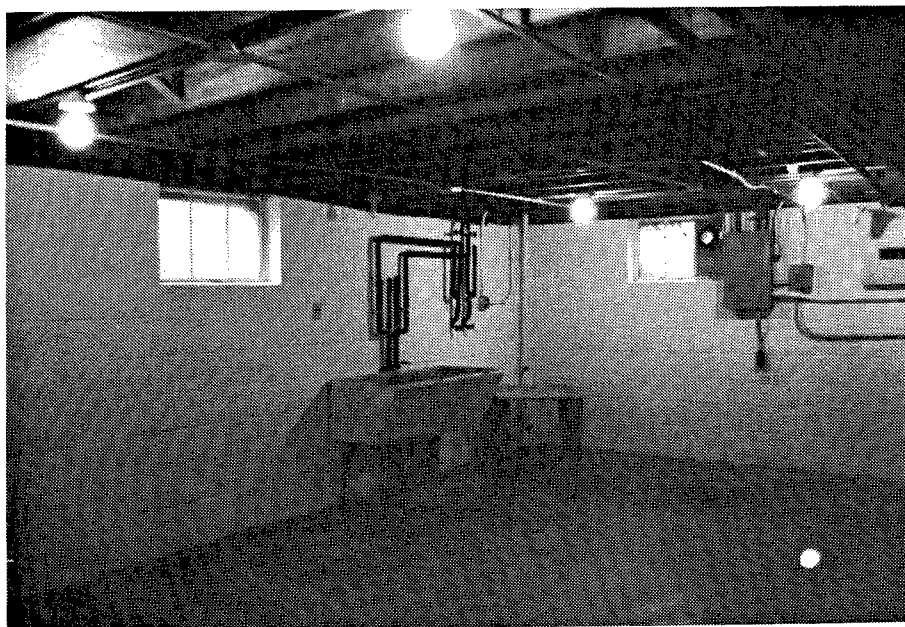


Figure 239. Building 114-11: Laundry Room.

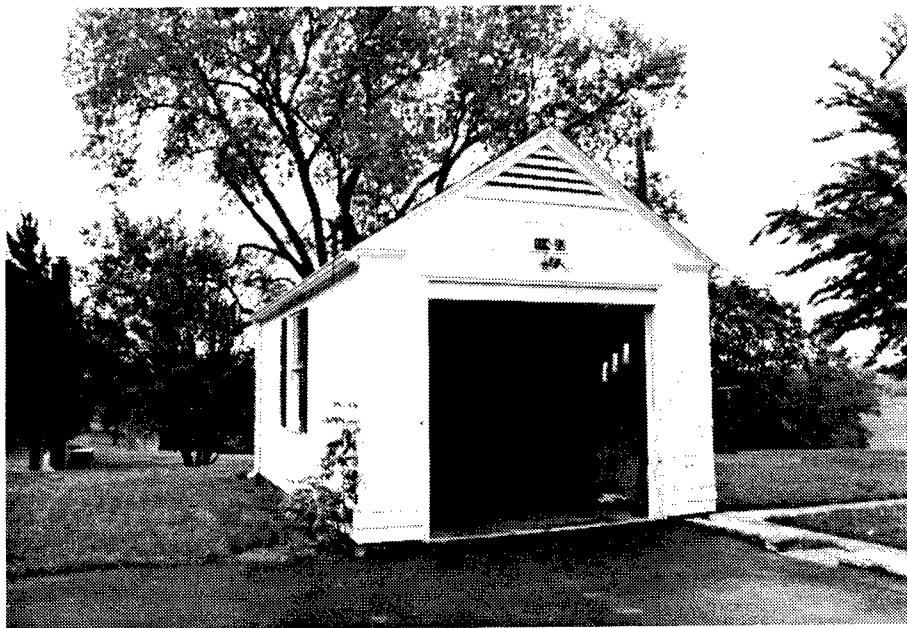


Figure 240. Building 114-22: Single Detached Garage at Staff Residence.

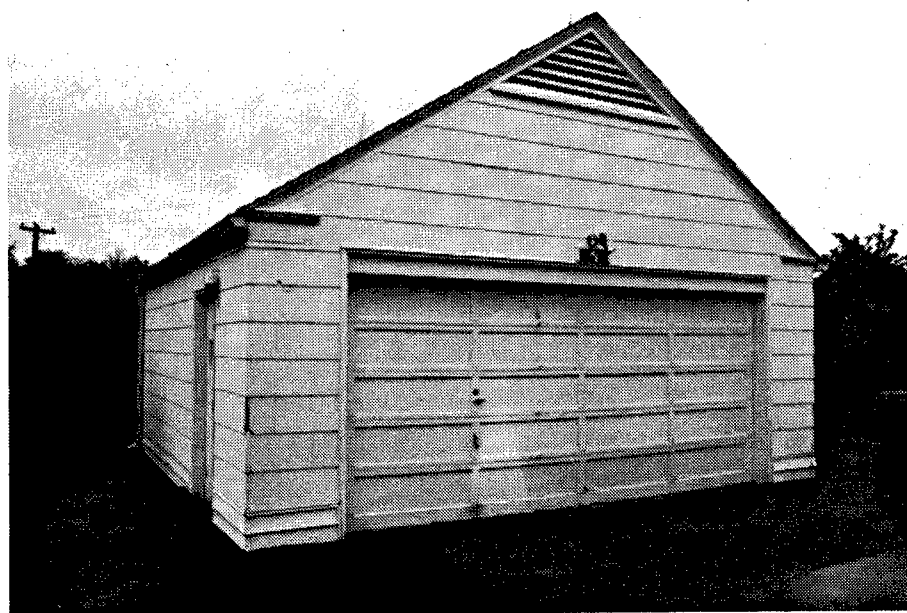


Figure 241. Building 114-31: Double Detached Garage at Staff Residence.

UTILITIES AND INFRASTRUCTURE



Figure 242. Building 14: Automotive Garage and Locomotive Building.

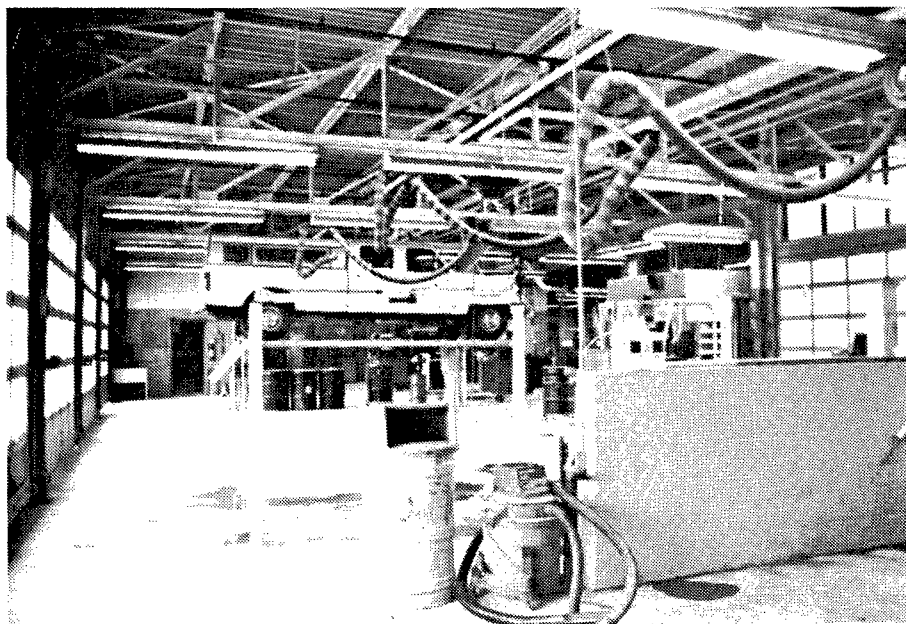


Figure 243. Building 14: Automotive Garage Bays.

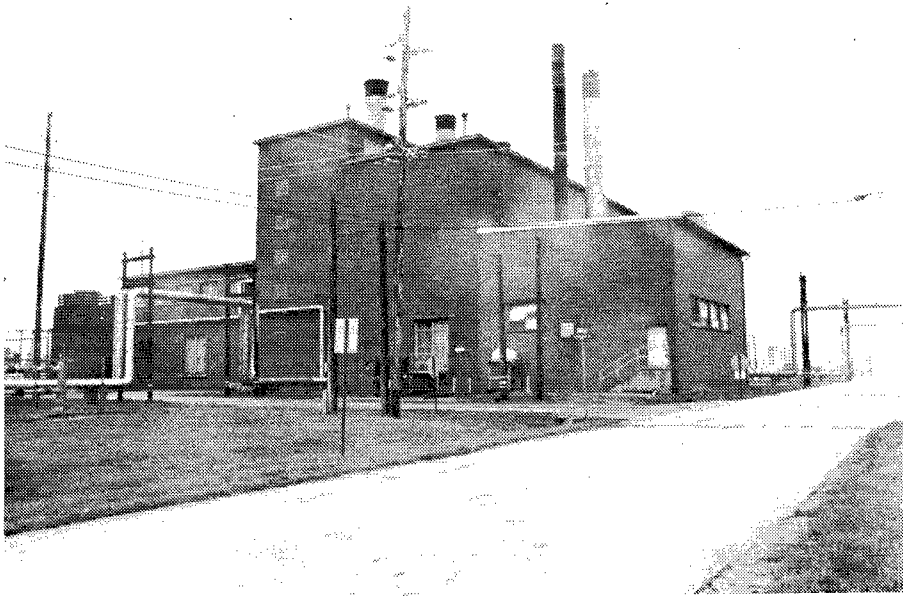


Figure 244. Building 15: Boiler Plant.

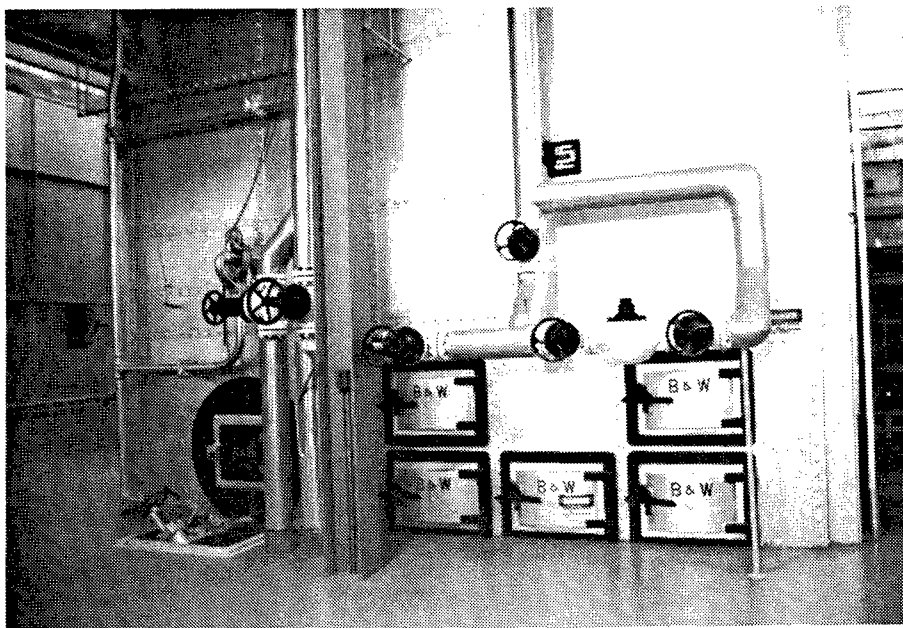


Figure 245. Building 15: Back side of Boiler.

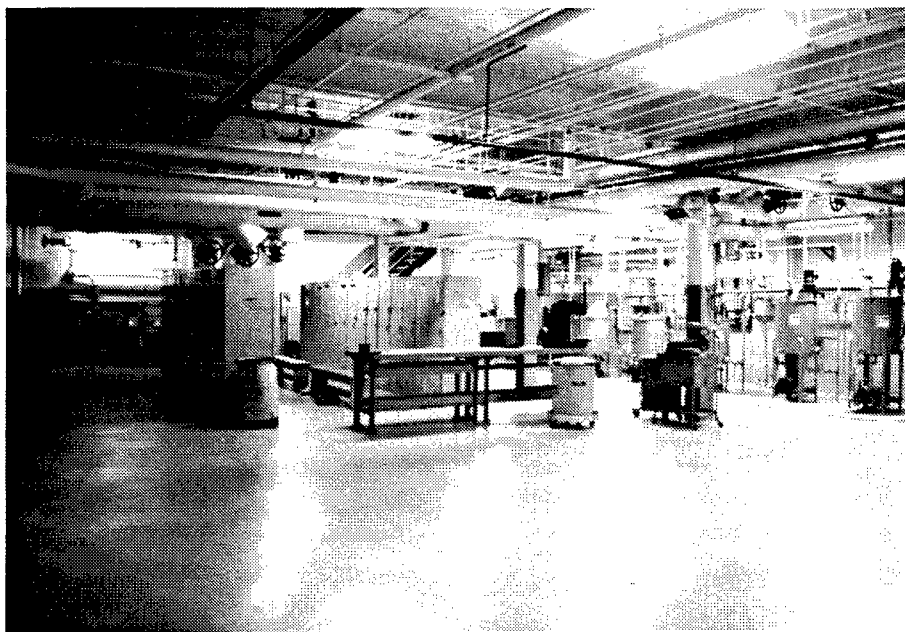


Figure 246. Building 15: Overview of Basement.

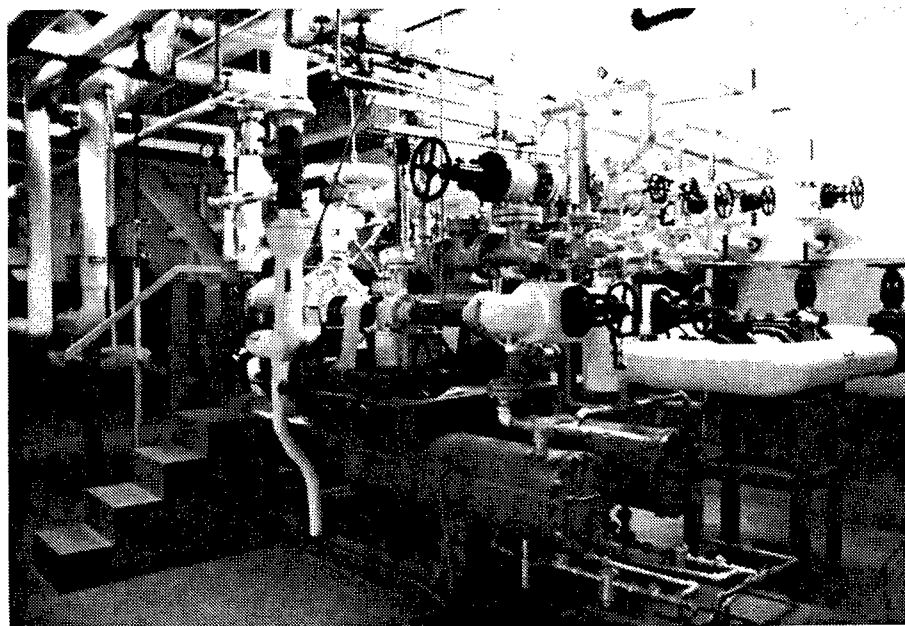


Figure 247. Building 15: Fuel Oil Pumps for Boiler.

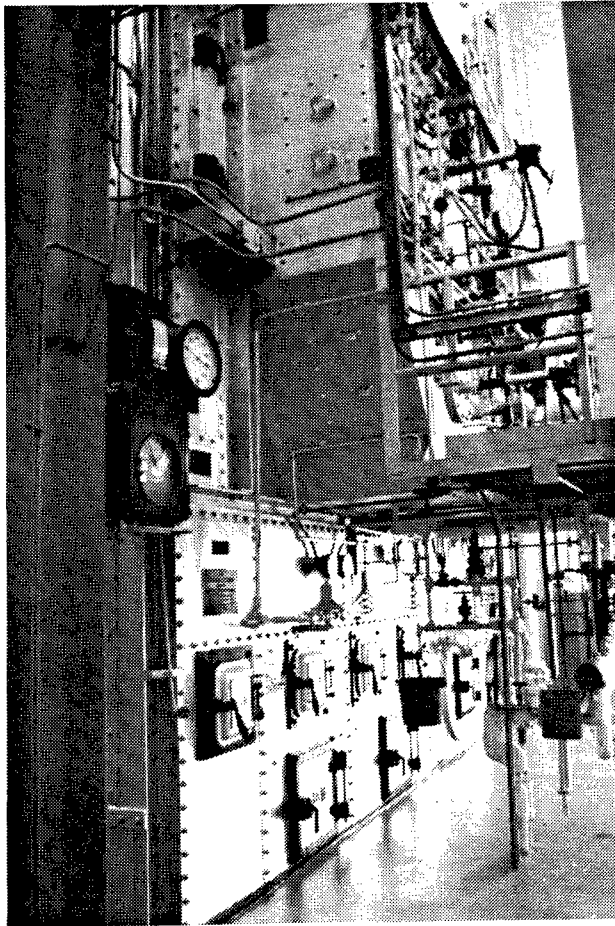


Figure 248. Building 15: Boiler manufactured by Babcock & Wilcox Co.

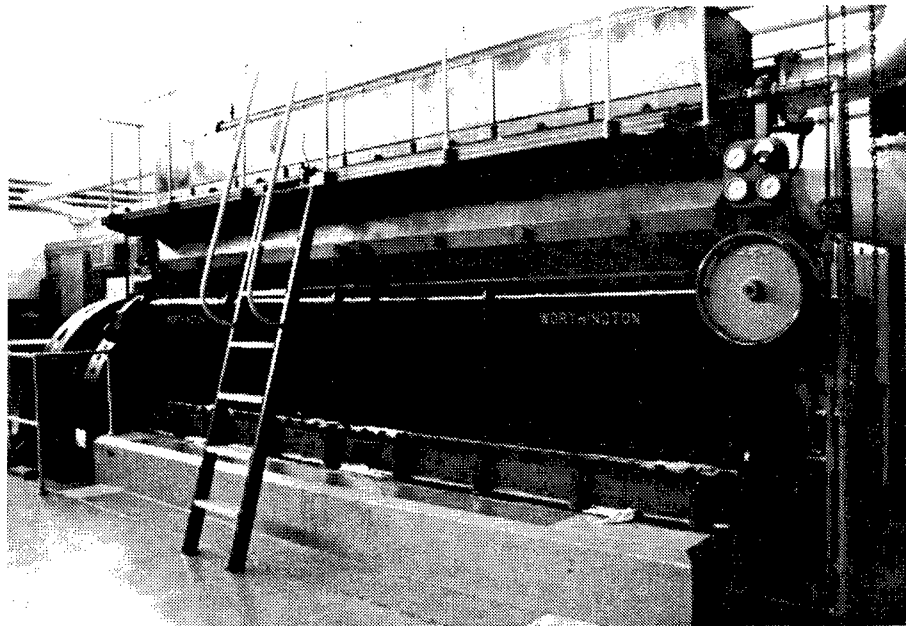


Figure 249. Building 15: Worthington Diesel Generator for emergency power.

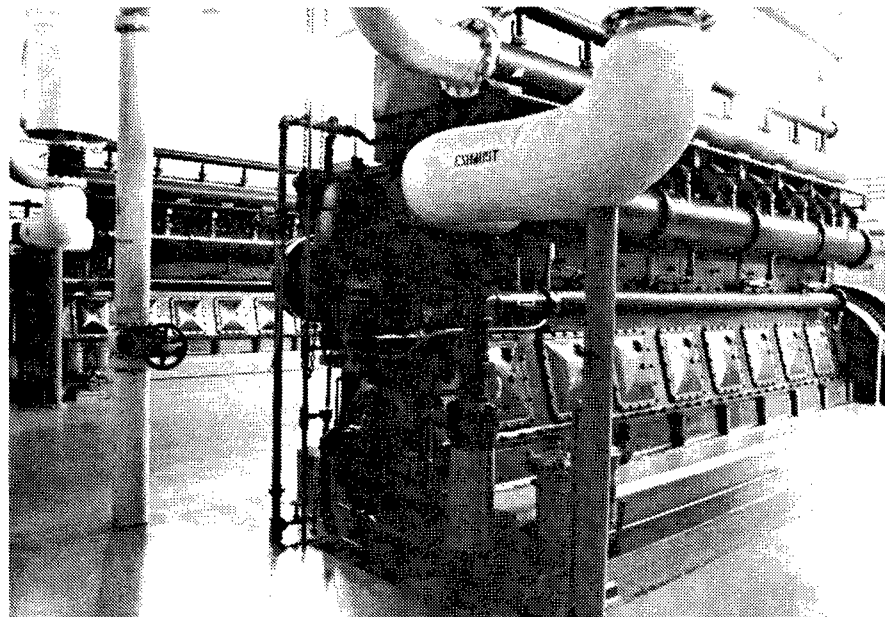


Figure 250. Building 15: Another view of Worthington Diesel Generator for emergency power.

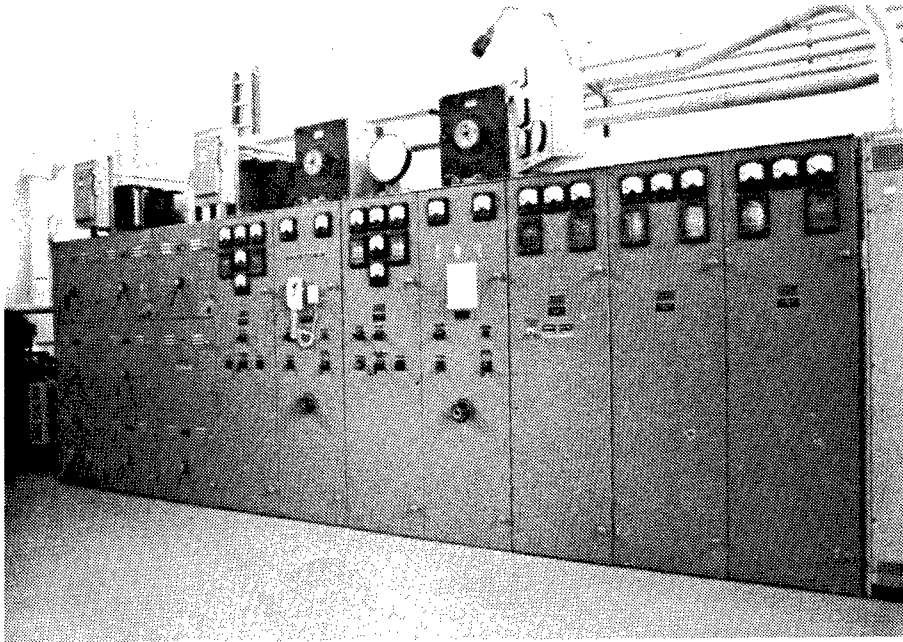


Figure 251. Building 15: Control Panel for the Worthington Diesel Generator.

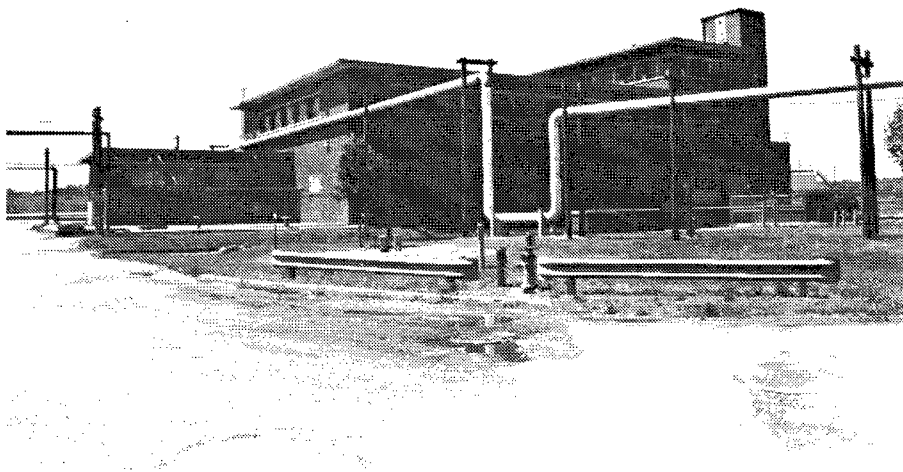


Figure 252. Building 16: Water Treatment Plant.



Figure 253. Building 17B: Well Pump Station.

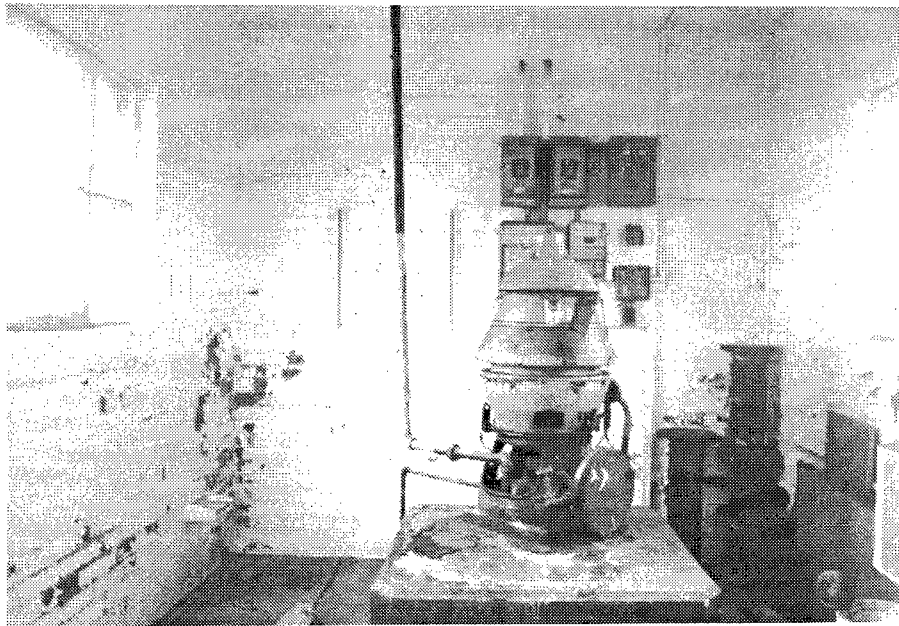


Figure 254. Building 17B: Vertical Water Pump inside Well Pump Station.



Figure 255. Building 17H: Water Booster Pump House.

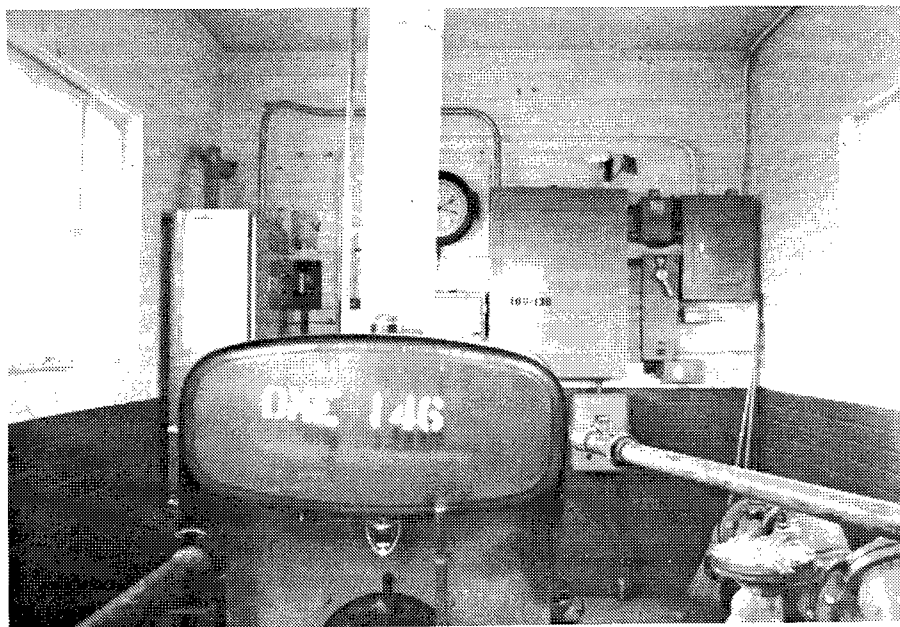


Figure 256. Building 17H: View of the interior of the Water Booster Pump House.

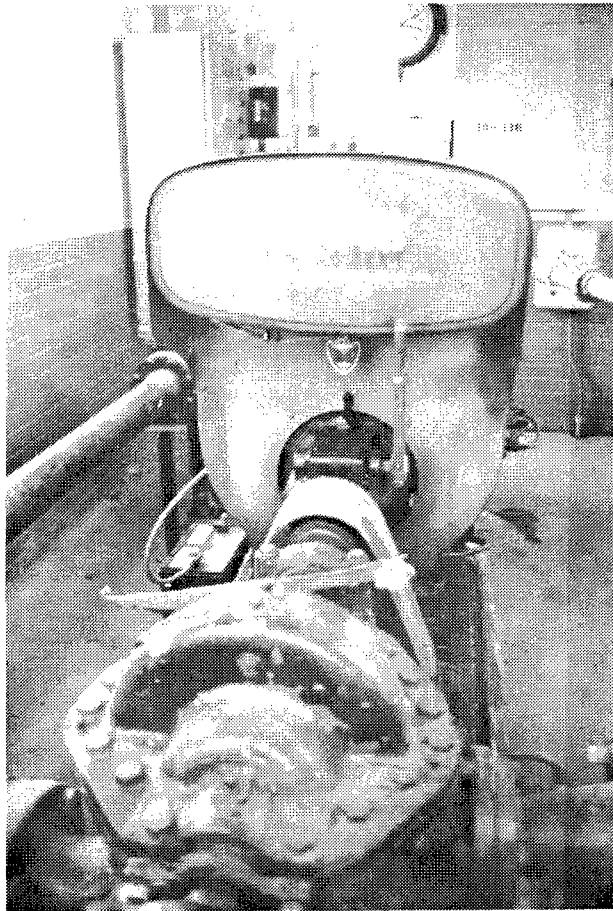


Figure 257. Building 17H: Close-up of Water Booster Pump.



Figure 258. Building 17L: Booster Pump Station.



Figure 259. Building 17N: Well Pump Station.

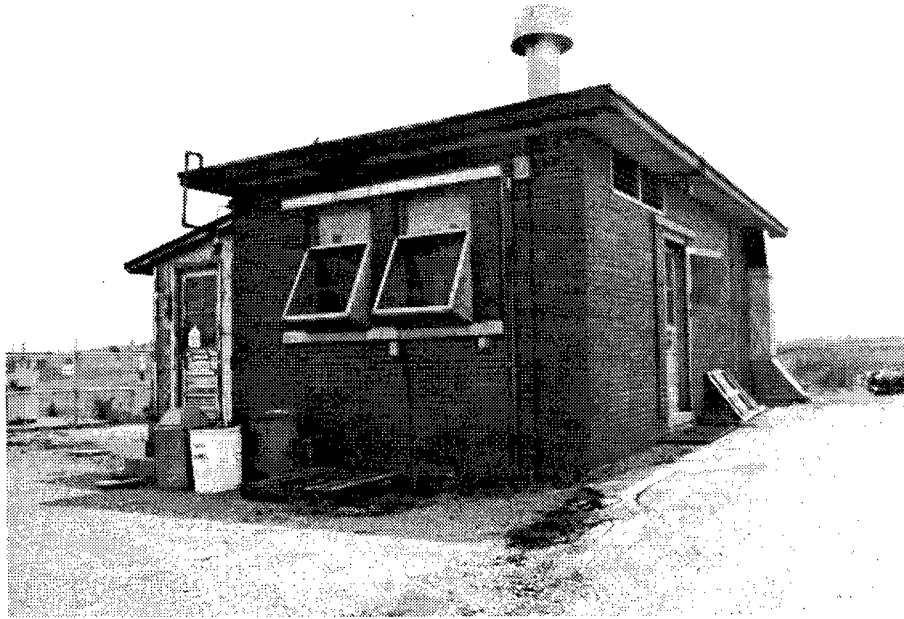


Figure 260. Building 18: Sewage Treatment Building.



Figure 261. Building 55: Oil Unloading Pump House.

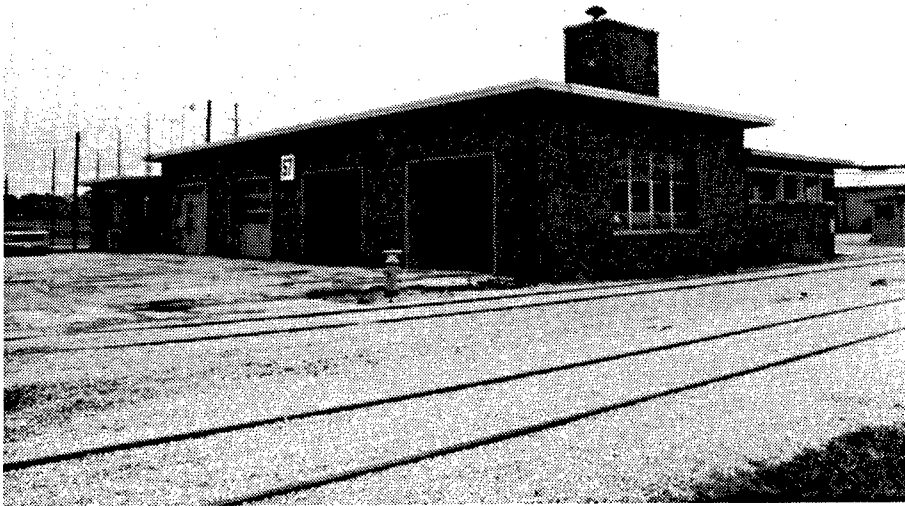


Figure 262. Building 57: Fire Station.



Figure 263. Building 57: Interior of Fire Station.



Figure 264. Building 58: Main Natural Gas Distribution and Master Meter House.



Figure 265. Building 59: Condensate Pump House for the Heating Plant.

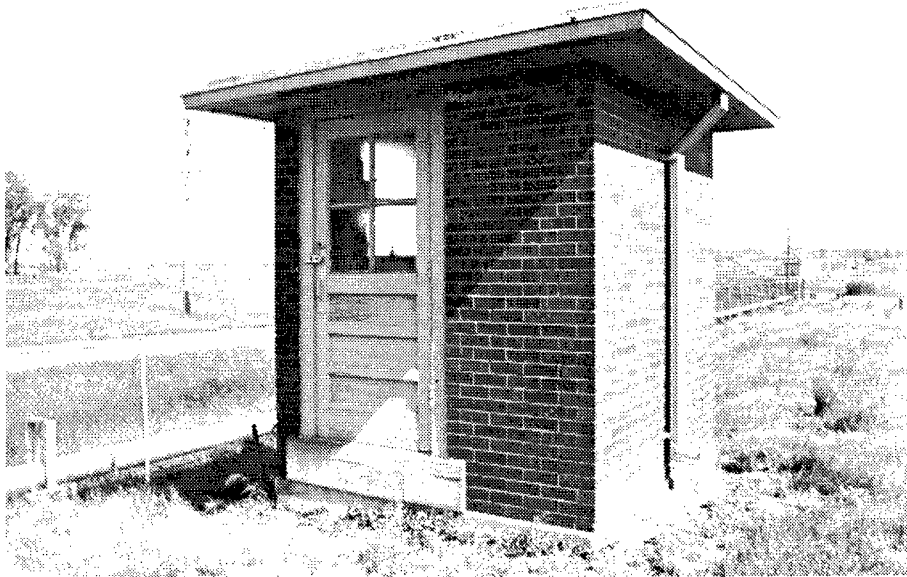


Figure 266. Building 59: Another view of Condensate Pump House.



Figure 267. Building 78: Oil Unloading Pump House for the Heating Plant.



Figure 268. Building 41B: Barricade surrounding Primer Drying and Storage Building.

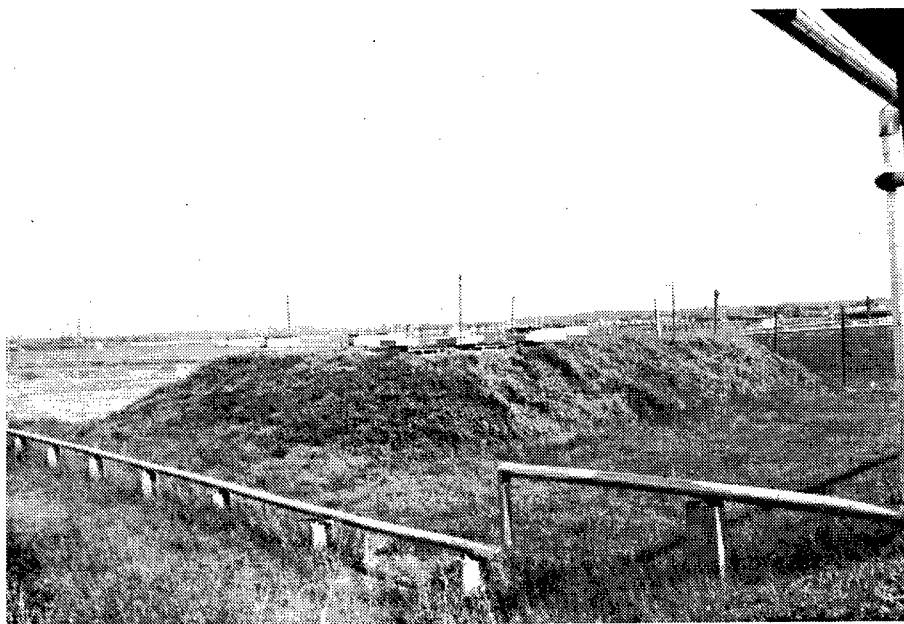


Figure 269. Earthen berm on backside of barricade surrounding Primer Drying and Storage Building.



Figure 270. View of the berm surrounding Building 87, a High Explosive Magazine for Lead Styphnate and Tetrazene Storage, and a fully enclosed connecting walkway.



Figure 271. Culvert constructed in 1941.



Figure 272. Another culvert constructed in 1941.



Figure 273. Culvert constructed in 1941.



Figure 274. Perimeter Fence at stream crossing.

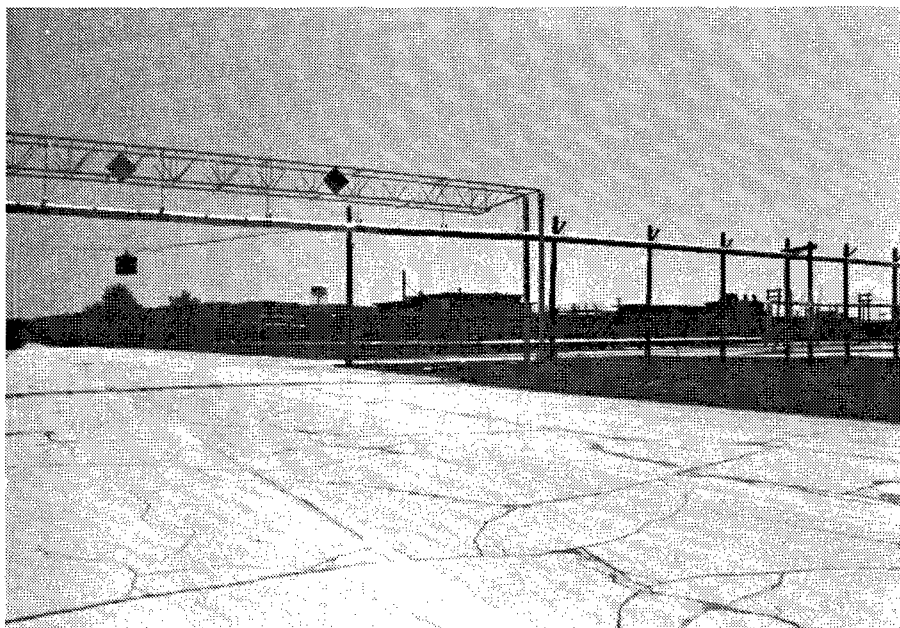


Figure 275. Overhead Pipes. Building 8, a Ballistic Testing and Ammunition Quality Control Building, is in the background.

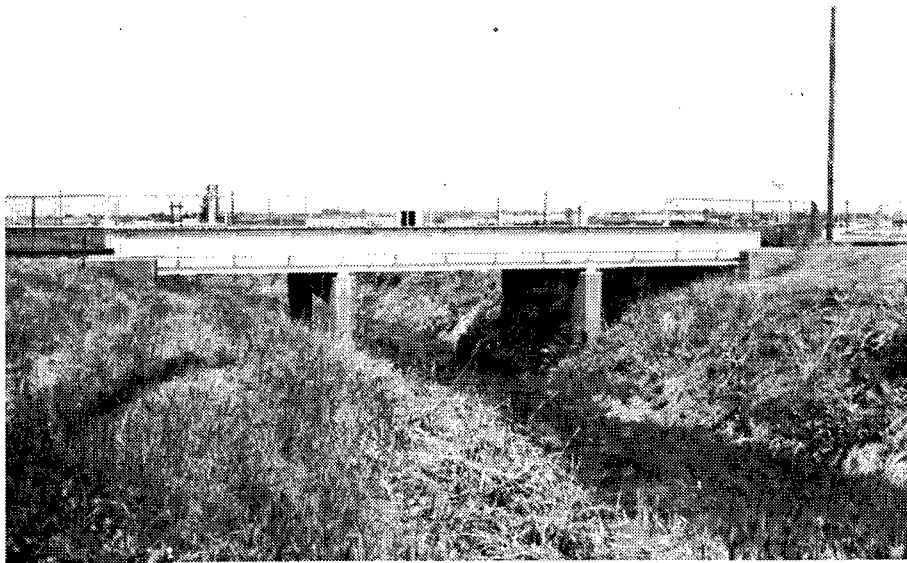


Figure 276. Railroad Bridge.

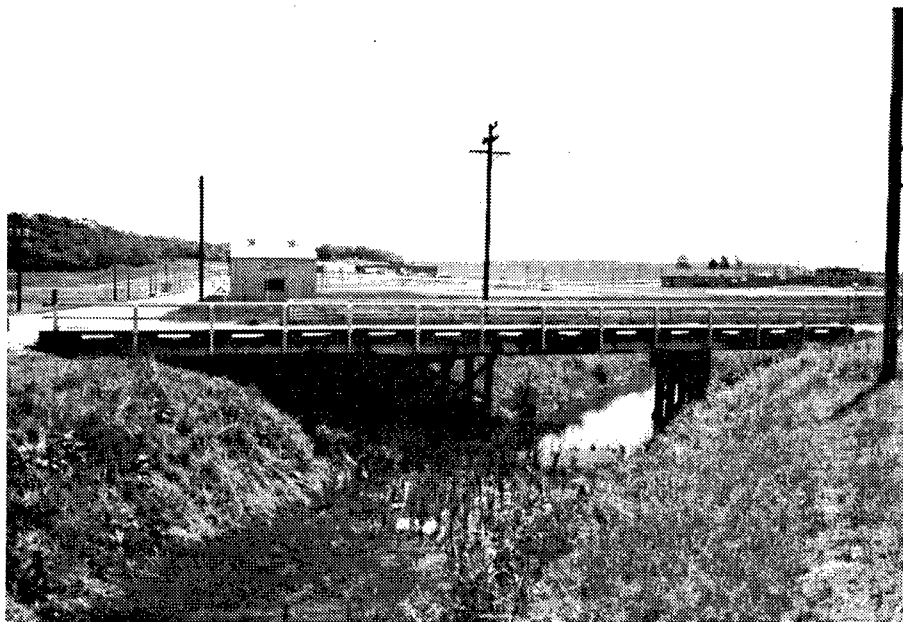


Figure 277. Owens Schoolhouse Road Automotive Vehicle Bridge.



Figure 278. Railroad Tracks and Overhead Steam pipes.

REFERENCES CITED

Brown, K.L., B. Dixon, and S. Richards

- 1979 *Prehistoric, Historic and Architectural Resources Along the Proposed Channel of West Fire Prairie Creek, Jackson County, Missouri.* Ms. on file, U.S. Army Corps of Engineers, Kansas City District.

Kane, K. L.

- 1995 *Historic Context for the World War II Ordnance Department's Government-Owned Contractor-Operated (GOCO) Industrial Facilities, 1939-1945.* Geo-Marine, Inc., Plano, Texas. Report submitted to the U.S. Army Corps of Engineers, Fort Worth District.

Lake City Arsenal (LCA)

- 1951 *History of Lake City Arsenal, Independence, Missouri, 1 July 1951 - 31 December 1951.* Ms. on file in archives vault, Lake City Army Ammunition Plant, Independence, Missouri.
- 1956 *Lake City Arsenal, Independence, Missouri, 4 September 1956.* Ms. on file in archives vault, Lake City Army Ammunition Plant, Independence, Missouri.

Lake City Ordnance Plant (LCOP)

- 1943a *Lake City Ordnance Plant, Volume 103.* National Archives Record Group 156, Entry 646, Box A201, Suitland, Maryland.
- 1943b *Lake City Ordnance Plant History, Book I, 7 August 1940 through 31 March 1943.* Ms. on file in archives vault, Lake City Army Ammunition Plant, Independence, Missouri.
- 1945 *History of the Lake City Ordnance Plant, Chapter XV, Eleventh Quarterly Supplement, 1 July 1945 to 1 December 1945.* National Archives Record Group 156, Entry 646, Box A201, Suitland, Maryland.

MacDonald and Mack Partnership

- 1984 *Historic Properties Report: Lake City Army Ammunition Plant, Independence, Missouri.* Submitted to Building Technology Incorporated, Silver Spring, Maryland, and the Historic American Building Survey/Historic American Engineering Record, National Park Service, U.S. Department of the Interior.

Remington Arms Company

- 1967 *16 Years of Progress.* Ms. on file in archives vault, Lake City Army Ammunition Plant, Independence, Missouri.

Shaffer, S.C., D.L. Crown, and W.J. Eliason

- 1995 *The World War II Ordnance Department's Government-Owned Contractor-Operated (GOCO) Industrial Facilities: Lake City Army Ammunition Plant, Historic Investigation.* U.S. Army Materiel Command Historic Context Series, Report of Investigations Number 10A. Bear Creek Archeology for Geo-Marine, Inc. Draft report submitted to U.S. Army Corps of Engineers, Fort Worth District.

APPENDIX A

PHOTOGRAPHIC DATA SHEETS

GEO-MARINE INC.
PHOTOGRAPHIC DATA SHEET

Project #: 1114-089

Film: Kodak TMAX 400 Black and White

Installation: Lake City, Army Ammunition Plant

Roll Number: 1

Exp. No.	Building No(s).	Description	Dir.	Date	Recorder
1	3	Mouth and Neck Anneal Machine, manufactured by Cannister Co.		05/15/95	Krapf
2	3	First Bullet Jacket Draw Machine, manufactured by E.W. Bliss Co.		05/15/95	Krapf
3	3	Bullet Jacket Trim Machine, manufactured by V&O Press		05/15/95	Krapf
4	3	Bullet Assembly Press manufactured by E.W. Bliss Co.		05/15/95	Krapf
5	3	Wash, Rinse, and Dry Machine manufactured by Colt's Manufacturing		05/15/95	Krapf
6	3	Wash Barrel on second floor		05/15/95	Krapf
7	3	Salem Furnace on second floor, manufactured by Salem Engineering		05/15/95	Krapf
8	3	Another view of the Salem Furnace on the second floor		05/15/95	Krapf
9	3	Rumble Barrel on the second floor		05/15/95	Krapf
10	3	Tilt and Tumble Barrel		05/15/95	Krapf
11	3	Washer		05/15/95	Krapf
12	3	Wad Cutter		05/15/95	Krapf
13	11	Lead Forming Extrusion Press manufactured by Watson Stillman		05/15/95	Krapf
14	11	Lead Swaging Machine		05/15/95	Krapf
15	11	Interior of Lead Extrusion and Swagng Building		05/15/95	Krapf
16	35	Fabrication Primers on the first floor		05/15/95	Krapf
17	35	Wash Barrel on the first floor		05/15/95	Krapf
18	35	Oven on the first floor		05/15/95	Krapf
19	35	Electric Tempering Furnace manufactured by Lindberg Engineering Co., Chicago IL.		05/15/95	Krapf

GEO-MARINE INC.
PHOTOGRAPHIC DATA SHEET

Project #: 1114-089

Film: Kodak TMAX 400 Black and White

Installation: Lake City, Army Ammunition Plant

Roll Number: 1

Exp. No.	Building No(s).	Description	Dir. Date	Recorder
20	35	Cup Shaker manufactured by Hires, Castner and Harris	05/15/95	Krapf
21	35	Foiling Press manufactured by Hires, Castner and Harris	05/15/95	Krapf
22	35	Foiling Press manufactured by Hires, Castner and Harris	05/15/95	Krapf
23	35	Anvil Seating Press manufactured by Hires, Castner and Harris	05/15/95	Krapf
24	35	RoTap Testing Sieve Shaker, The W.S. Tyler Co., Cleveland, OH	05/15/95	Krapf
25	35	Shaker	05/15/95	Krapf
26	35	Shaker	05/15/95	Krapf
27	388	Granulator in the Pyrotechnic Area	05/15/95	Krapf
28	388	Tube Blender Machine	05/15/95	Krapf
29	388	Blending Room	05/15/95	Krapf
30	388	Cone Blender Machine	05/15/95	Krapf
31	2	Gage and Weigh Machine	05/15/95	Krapf
32	2	Overview of Gage and Weigh Machines on the first floor	05/15/95	Krapf
33	2	7.62 Calibre Bullet Assembly Press, manufactured by Waterbury-Farrel	05/15/95	Krapf
34	2	Bullet First Draw Machine on the first floor	05/15/95	Krapf
35	2	Bullet Third Draw Machine on the first floor	05/15/95	Krapf
36	2	First Case Draw Machine on the first floor	05/15/95	Krapf

GEO-MARINE INC.
PHOTOGRAPHIC DATA SHEET

Project #: 1114-089

Film: Kodak TMAX 400 Black and White

Installation: Lake City, Army Ammunition Plant

Roll Number: 2

Exp. No.	Building No(s).	Description	Dir.	Date	Recorder
0	2	End Draw Machine		05/15/95	Krapf
1	2	First Case and Second Case Trim Machine		05/15/95	Krapf
2	2	Heading Press manufactured by the E.W. Bliss Co., Brooklyn NY		05/15/95	Krapf
3	2	Interior Overview		05/15/95	Krapf
4	2	Interior Overview		05/15/95	Krapf
5	2	Furnace on the second floor		05/15/95	Krapf
6	2	Wash and Rinse Machine on the second floor		05/15/95	Krapf
7	2	Wash and Rinse Machine on the second floor		05/15/95	Krapf
8	2	Drying Machine on the second floor		05/15/95	Krapf
9	2	Tumble Barrel on the second floor		05/15/95	Krapf
10	2	Overview of Wash, Rinse, and Dry Area on the second floor		05/15/95	Krapf
11	2	Overview of Tumble Barrel Area on the second floor		05/15/95	Krapf
12	2	Brass Storage Area on the first floor		05/15/95	Krapf
13	51	Chambersburg High Frame Hammer on the first floor		05/15/95	Krapf
14	51	First floor interior of the Old Blacksmith Shop		05/15/95	Krapf
15	2	Primer Insert Press on the first floor		05/15/95	Krapf
16	2	Primer Insert Press on the first floor		05/15/95	Krapf
17	2	Loading Plate Area on the first floor		05/15/95	Krapf
18	2	Loading Plate Area on the first floor		05/15/95	Krapf
19	2	Another view of the first floor Loading Plate Area		05/15/95	Krapf
20	2	Another view of the first floor Loading Plate Area		05/15/95	Krapf

GEO-MARINE INC.
PHOTOGRAPHIC DATA SHEET

Project #: 1114-089

Film: Kodak TMAX 400 Black and White

Installation: Lake City, Army Ammunition Plant

Roll Number: 2

Exp. No.	Building No(s).	Description	Dir.	Date	Recorder
21	2	Shaker Machine on the first floor		05/15/95	Krapf
22	4	First Case Draw Machine manufactured by E.W. Bliss Co.		05/15/95	Krapf
23	4	First Case Draw Machine manufactured by E.W. Bliss Co.		05/15/95	Krapf
24	4	Final Bullet Draw Machine on the first floor		05/15/95	Krapf
25	4	Bullet Trim Machine		05/15/95	Krapf
26	4	Bullet Assembly Machine manufactured by Waterbury-Ferrell		05/15/95	Krapf
27	4	Bullet Assembly Machine manufactured by Waterbury-Ferrell		05/15/95	Krapf
28	4	Another view of a First Case Draw Machine		05/15/95	Krapf
29	4	Another view of a First Case Draw Machine		05/15/95	Krapf
30	4	Cup Press manufactured by E.W. Bliss Co.		05/15/95	Krapf
31	4	Cup Press manufactured by E.W. Bliss Co.		05/15/95	Krapf
32	4	Cup Press manufactured by E.W. Bliss Co.		05/15/95	Krapf
33	4	Second Case Draw Machine manufactured by E.W. Bliss Co.		05/15/95	Krapf
34	4	Final Case Draw Machine manufactured by E.W. Bliss Co.		05/15/95	Krapf
35	4	Pocket Header Machine manufactured by E.W. Bliss Co.		05/15/95	Krapf
36	4	Pocket Header Machine manufactured by E.W. Bliss Co.		05/15/95	Krapf

GEO-MARINE INC.
PHOTOGRAPHIC DATA SHEET

Project #: 1114-089

Film: Kodak TMAX 400 Black and White

Installation: Lake City, Army Ammunition Plant

Roll Number: 3

Exp. No.	Building No(s).	Description	Dir.	Date	Recorder
1	4	Case Head Turner Machine manufactured by Standard Knapp		05/15/95	Krapf
2	4	Case Body Anneal Machine manufactured by Jennings Machine Co.		05/15/95	Krapf
3	4	Case Body Anneal Machine manufactured by Jennings Machine Co.		05/15/95	Krapf
4	4	Case Body Anneal Machine manufactured by Jennings Machine Co.		05/15/95	Krapf
5	4	Mouth and Neck Anneal Machine manufactured by Jennings Machine Co.		05/15/95	Krapf
6	4	Mouth and Neck Anneal Machine manufactured by Jennings Machine Co.		05/15/95	Krapf
7	4	Mouth and Neck Anneal Machine manufactured by Jennings Machine Co.		05/15/95	Krapf
8	4	Mouth and Neck Anneal Machine manufactured by Jennings Machine Co.		05/15/95	Krapf
9	4	Case Taper Machine manufactured by E.W. Bliss Co.		05/15/95	Krapf
10	4	Case Taper Machine manufactured by E.W. Bliss Co.		05/15/95	Krapf
11	4	VOID		05/15/95	Krapf
12	4	Office Interior		05/15/95	Krapf
13	4	Overview of Gage and Weigh Room		05/15/95	Krapf
14	4	Wing Pull Down Machine		05/15/95	Krapf
15	4	Wing Pull Down Machine		05/15/95	Krapf
16	4	Interior overview of Explosive Wing		05/15/95	Krapf
17	4	Interior overview of Explosive Wing		05/15/95	Krapf
18	15	Boiler manufactured by Babcock and Wilcox Co. in 1942		05/15/95	Krapf

GEO-MARINE INC.
PHOTOGRAPHIC DATA SHEET

Project #: 1114-089

Film: Kodak TMAX 400 Black and White

Installation: Lake City, Army Ammunition Plant

Roll Number: 3

Exp. No.	Building No(s).	Description	Dir.	Date	Recorder
19	15	Worthington Diesel Generator for emergency power		05/15/95	Krapf
20	15	Worthington Diesel Generator for emergency power		05/15/95	Krapf
21	15	Back side of Boiler		05/15/95	Krapf
22	15	Control Panel for the Worthington Diesel Generator		05/15/95	Krapf
23	15	Control Panel for the Worthington Diesel Generator		05/15/95	Krapf
24	15	Fuel Oil Pumps in the Basement for the Boiler		05/15/95	Krapf
25	15	Fuel Oil Pumps in the Basement for the Boiler		05/15/95	Krapf
26	15	Interior overview of the Basement		05/15/95	Krapf
27	15	Interior overview of the Basement		05/15/95	Krapf
28	10	Surface Combustion Furnace, manufactured in Toledo, OH		05/15/95	Krapf
29	10	Lindberg Oven, manufactured by Lindberg Engineering Co., Chicago IL		05/15/95	Krapf
30	10	Lindberg Oven, manufactured by Lindberg Engineering Co., Chicago IL		05/15/95	Krapf
31	10	Molten Salt Bath Machine		05/15/95	Krapf
32	10	Interior overview of Heat Treatment Room		05/15/95	Krapf
33	10	Lathe		05/15/95	Krapf
34	10	Grinder manufactured by the William Sellers Co., Philadelphia, PA		05/15/95	Krapf
35	10	Close-up of Polish Head Machine		05/15/95	Krapf
36	10	Grinder manufactured by Hacer Precision Machinery and Tools, New York, NY		05/15/95	Krapf
37	10	Grinder manufactured by Majestic T&M Co., Detroit		05/15/95	Krapf

GEO-MARINE INC.
PHOTOGRAPHIC DATA SHEET

Project #: 1114-089

Film: Kodak TMAX 400 Black and White

Installation: Lake City, Army Ammunition Plant

Roll Number: 4

Exp. No.	Building No(s).	Description	Dir.	Date	Recorder
0	10	Lathe manufactured by Monarch		05/15/95	Krapf
1	10	Lathe manufactured by Monarch		05/15/95	Krapf
2	10	Interior overview of the Machine Area		05/15/95	Krapf
3	10	Interior overview of the Machine Area		05/15/95	Krapf
4	3A	Case Head Turn Machine manufactured by National Acme		05/15/95	Krapf
5	3A	Case Head Turn Machine manufactured by National Acme		05/15/95	Krapf
6	3A	Case Head Turn Machine manufactured by National Acme		05/15/95	Krapf
7	3A	Final Trim Machine manufactured by Fales		05/15/95	Krapf
8	3A	Final Trim Machine manufactured by Fales		05/15/95	Krapf
9	3A	Final Trim Machine manufactured by Fales		05/15/95	Krapf
10	3A	Case Taper Machine manufactured by E.W. Bliss Co.		05/15/95	Krapf
11	3A	Case Taper Machine manufactured by E.W. Bliss Co.		05/15/95	Krapf
12	3A	Mouth and Neck Anneal Machine		05/15/95	Krapf
13	3A	Mouth and Neck Anneal Machine		05/15/95	Krapf
14	3A	Mouth and Neck Anneal Machine		05/15/95	Krapf
15	3A	Mouth and Neck Anneal Machine		05/15/95	Krapf
16	3A	Gage and Weigh Machine manufactured by Waterbury-Farrell		05/15/95	Krapf
17	3A	Gage and Weigh Machine manufactured by Waterbury-Farrell		05/15/95	Krapf
18	3A	Gage and Weigh Machine manufactured by Waterbury-Farrell		05/15/95	Krapf
19	3A	Gage and Weigh Machine manufactured by Waterbury-Farrell		05/15/95	Krapf
20	3A	Case Trim Machine manufactured by Jennings Machine Co.		05/15/95	Krapf
21	3A	Case Trim Machine manufactured by Jennings Machine Co.		05/15/95	Krapf

GEO-MARINE INC.
PHOTOGRAPHIC DATA SHEET

Project #: 1114-089

Film: Kodak TMAX 400 Black and White

Installation: Lake City, Army Ammunition Plant

Roll Number: 4

Exp. No.	Building No(s).	Description	Dir.	Date	Recorder
22	3A	Case Trim Machine manufactured by Jennings Machine Co.		05/15/95	Krapf
23	3A	Case Taper Machine manufactured by E.W. Bliss Co.		05/15/95	Krapf
24	3A	Case Taper Machine manufactured by E.W. Bliss Co.		05/15/95	Krapf
25	3A	First and Second Case Draw Machine manufactured by E.W. Bliss Co.		05/15/95	Krapf
26	3A	First and Second Case Draw Machine manufactured by E.W. Bliss Co.		05/15/95	Krapf
27	3A	First and Second Case Draw Machine manufactured by E.W. Bliss Co.		05/15/95	Krapf
28	3A	First and Second Case Draw Machine manufactured by E.W. Bliss Co.		05/15/95	Krapf
29	3	Visual Inspection Machine Manufactured by Peter's Engineering Co.		05/15/95	Krapf
30	3	Visual Inspection Machine Manufactured by Peter's Engineering Co.		05/15/95	Krapf
31	3	Visual Inspection Machine Manufactured by Peter's Engineering Co.		05/15/95	Krapf
32	3	Boring Mill manufactured by Gilbert Machine and Tool Co. and located in the Machine Shop Area of the building		05/15/95	Krapf
33	3	Turret Lathe manufactured by Warner-Swasey and located in the Machine Shop Area of the building		05/15/95	Krapf
34	3	Turret Lathe manufactured by Warner-Swasey and located in the Machine Shop Area of the building		05/15/95	Krapf
35	3	Gear Shaper Machine manufactured by Fellows Gear and located in the Machine Shop Area of the building		05/15/95	Krapf
36	3	Drill Press located in the Machine Shop Area of the building		05/15/95	Krapf

GEO-MARINE INC.
PHOTOGRAPHIC DATA SHEET

Project #: 1114-089

Film: Kodak TMAX 400 Black and White

Installation: Lake City, Army Ammunition Plant

Roll Number: 5

Exp. No.	Building No(s).	Description	Dir.	Date	Recorder
0	3	Grinder with magnetic wheel located in the Machine Shop Area of the building, and manufactured by the Blanchard Machine Co., Cambridge, MA		05/15/95	Krapf
1	3	Grinder with magnetic wheel located in the Machine Shop Area of the building, and manufactured by the Blanchard Machine Co., Cambridge, MA		05/15/95	Krapf
2	3	Interior overview of the Machine Shop Area of the building		05/15/95	Krapf
3	3	Band Saw manufactured by Do-All and located in the Machine Shop Area		05/15/95	Krapf
4	3	Band Saw manufactured by Do-All and located in the Machine Shop Area		05/15/95	Krapf
5	18	Sewage Treatment Building	E	05/15/95	Krapf
6	17H	Water Booster Pump House	SE	05/15/95	Krapf
7	17H	Close-up of Water Booster Pump		05/15/95	Krapf
8	17H	Close-up of Water Booster Pump		05/15/95	Krapf
9	17H	Interior overview of the Water Booster Pump House		05/15/95	Krapf
10	77	Laundry and Machine Shop	SW	05/15/95	Krapf
11	51	Forge Shop	NE	05/15/95	Krapf
12	7	General Storehouse	NE	05/15/95	Krapf
13	14	Automotive Garage and Locomotive Building	SW	05/15/95	Krapf
14	14	Automotive Garage Bays		05/15/95	Krapf
15	57	Fire Station	SW	05/15/95	Krapf
16	57	Interior of Fire Station		05/15/95	Krapf
17	93A	Industrial Waste Pump House	W	05/15/95	Krapf

GEO-MARINE INC.
PHOTOGRAPHIC DATA SHEET

Project #: 1114-089

Film: Kodak TMAX 400 Black and White

Installation: Lake City, Army Ammunition Plant

Roll Number: 5

Exp. No.	Building No(s).	Description	Dir.	Date	Recorder
18	93C	Industrial Waste Control Building	SE	05/15/95	Krapf
19	93C	Interior overview of the first floor of the Industrial Waste Control Building		05/15/95	Krapf
20	93B	Industrial Waste Pump House	SW	05/15/95	Krapf
21	93B	Interior of Industrial Waste Pump House showing Vertical Turbine Pumps.		05/15/95	Krapf
22	65	Pulldown Test Machine located in Bay 15		05/15/95	Krapf
23	65	Pulldown Test Machine located in Bay 15		05/15/95	Krapf
24	65	Interior of the first floor of Bay 17		05/15/95	Krapf
25	65	Loader Machine located on the first floor of Bay 20		05/15/95	Krapf
26	65	Loader Machine located on the first floor of Bay 20		05/15/95	Krapf
27	65	Corridor dividing the Bays on the first floor		05/15/95	Krapf
28	65	Corridor dividing the Bays on the first floor		05/15/95	Krapf
29	65	Interior overview of the Packing Area		05/15/95	Krapf
30	31	Pellet Dryer		05/15/95	Krapf
31	31	Pellet Dryer		05/15/95	Krapf
32	31	High Explosive Pellet Storage Magazine		05/15/95	Krapf
33	31	High Explosive Pellet Storage Magazine		05/15/95	Krapf
34	31	Front view of High Explosive Pellet Storage Magazine		05/15/95	Krapf
35	31	View of Barricades surrounding High Explosive Pellet Storage Magazine		05/15/95	Krapf
36	31	View of Barricades surrounding High Explosive Pellet Storage Magazine		05/15/95	Krapf

GEO-MARINE INC.
PHOTOGRAPHIC DATA SHEET

Project #: 1114-089

Film: Kodak TMAX 400 Black and White

Installation: Lake City, Army Ammunition Plant

Roll Number: 6

Exp. No.	Building No(s).	Description	Dir.	Date	Recorder
1	29A	High Explosive Pellet Inspection Building	NW	05/15/95	Krapf
2	32A	High Explosive Pellet Inspection Building	NW	05/15/95	Krapf
3	32C	Change House for the Primer Mix Area	NW	05/15/95	Krapf
4	32C	Change House for the Primer Mix Area	NW	05/15/95	Krapf
5	20A	Empty Powder Case Storage Magazine	SE	05/15/95	Krapf
6	24A	Blank Powder Storage Magazine	NE	05/15/95	Krapf
7	22A	High Explosive Pellet Mix and Blend Building	SE	05/15/95	Krapf
8	23A	Blank Powder Pouring Building	SE	05/15/95	Krapf
9	22B	Jar Blender Machine		05/15/95	Krapf
10	22B	Jar Blender Machine		05/15/95	Krapf
11	22C	High Explosive Pellet Storage Magazine	NE	05/15/95	Krapf
12	53	Locker and Change House for the High Explosive Pellet Area	NW	05/15/95	Krapf
13	53	Locker Room in the Change House for the High Explosive Pellet Area		05/15/95	Krapf
14	53	Locker Room in the Change House for the High Explosive Pellet Area		05/15/95	Krapf
15	19Y	Powder Storage Magazine	NW	05/15/95	Krapf
16	39D	Tracer Composition Storage Building	SW	05/15/95	Krapf
17	28B	Cone Blender		05/15/95	Krapf
18	36B	Igniter Chemical Distribution Building	NW	05/15/95	Krapf
19	28A	Tracer Chemical Distribution Building	NE	05/15/95	Krapf
20	38A	Tracer Composition Manufacturing Building	NE	05/15/95	Krapf

GEO-MARINE INC.
PHOTOGRAPHIC DATA SHEET

Project #: 1114-089

Film: Kodak TMAX 400 Black and White

Installation: Lake City, Army Ammunition Plant

Roll Number: 6

Exp. No.	Building No(s).	Description	Dir.	Date	Recorder
21	38B	Igniter Composition Manufacturing Building	NE	05/15/95	Krapf
22	38C	Incendiary Composition Manufacturing Building	NW	05/15/95	Krapf
23	114-11	Interior view of former Maids Quarters		05/15/95	Krapf
24	114-11	Overview of Dining Room		05/15/95	Krapf
25	114-11	Overview of Living Room		05/15/95	Krapf
26	114-11	Overview of Living Room		05/15/95	Krapf
27	114-11	Overview of Living Room		05/15/95	Krapf
28	114-11	View of Staircase		05/15/95	Krapf
29	114-11	View of Staircase		05/15/95	Krapf
30	114-11	Overview of Laundry Room		05/15/95	Krapf
31	114-11	Overview of Master Bedroom		05/15/95	Krapf
32	7	Interior overview of empty General Storehouse		05/15/95	Krapf
33	7	Interior overview of empty General Storehouse		05/15/95	Krapf
34	12A	Interior of empty Manufacturing Building		05/15/95	Krapf
35	12A	Interior of empty Manufacturing Building		05/15/95	Krapf
36	12A	Fuze and Metal Parts Building	NW	05/15/95	Krapf
37	55	Oil Unloading Pump House	SW	05/15/95	Krapf

GEO-MARINE INC.
PHOTOGRAPHIC DATA SHEET

Project #: 1114-089

Film: Kodak TMAX 400 Black and White

Installation: Lake City, Army Ammunition Plant

Roll Number: 7

Exp. No.	Building No(s).	Description	Dir.	Date	Recorder
0	55	Oil Unloading Pump House	SW	05/15/95	Krapf
0	15	Boiler Plant	NW	05/15/95	Krapf
1	37B	General Purpose Ammunition Storage Magazine	SW	05/15/95	Krapf
2	80B	Pyrotechnic Storage Magazine	SW	05/15/95	Krapf
3	80B	Pyrotechnic Storage Magazine	SW	05/15/95	Krapf
4	78	Oil Unloading Pump House for the Heating Plant	NE	05/15/95	Krapf
5	78	Oil Unloading Pump House for the Heating Plant	NE	05/15/95	Krapf
6	17N	Well Pump Station	NW	05/15/95	Krapf
7	17B	Well Pump Station	NW	05/15/95	Krapf
8	17B	Vertical Water Pump inside the Well Pump Station		05/15/95	Krapf
9	114-2	Staff Residence		05/15/95	Krapf
10	114-22	Single Detached Garage at the Staff Residence		05/15/95	Krapf
11	114-11	Staff Residence		05/15/95	Krapf
12	114-31	Double Detached Garage at the Staff Residence		05/15/95	Krapf
13	114-10	Staff Residence		05/15/95	Krapf
14	114-4	Staff Residence		05/15/95	Krapf
15	114-4	Staff Residence		05/15/95	Krapf
16	44A	Overview of High Explosive Storage Area with Pyrotechnic Composition Storage Magazine in the center background	S	05/15/95	Krapf
17	59	Condensate Pump House for the Heating Plant	NE	05/15/95	Krapf
18	17L	Booster Pump Station	SE	05/15/95	Krapf
19	27	High Explosive Chemical Storage Magazine	NW	05/15/95	Krapf

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PHOTOGRAPHIC DATA SHEET

Project #: 1114-089

Film: Kodak TMAX 400 Black and White

Installation: Lake City, Army Ammunition Plant

Roll Number: 71

Exp. No.	Building No(s).	Description	Dir.	Date	Recorder
20	26	High Explosive Magazine for Nitrate, Chlorate, and Peroxide Storage	SW	05/15/95	Krapf
21	25	High Explosive Magazine for Magnesium Storage	NW	05/15/95	Krapf
22	21	High Explosive Magazine for Sampling Storage	NW	05/15/95	Krapf
23	19T	High Explosive Magazine for Powder Storage	SE	05/15/95	Krapf
24	19Z	High Explosive Magazine for Powder Storage	SW	05/15/95	Krapf
25	19W	High Explosive Magazine for Powder Storage	SW	05/15/95	Krapf
26	19D	High Explosive Magazine for Powder Storage	SE	05/15/95	Krapf
27	19F	High Explosive Magazine for Powder Storage	S	05/15/95	Krapf
28	5	Administration Headquarters and Hospital	SE	05/15/95	Krapf
29	5	Rear Wing of Administration Headquarters and Hospital	NW	05/15/95	Krapf
30	1	Wing side of building	S	05/15/95	Krapf
31	56B	Firing Range Observation Building	N	05/15/95	Krapf
32	48A & 56U	Firing Range Target Storage and Firing Range Observation Buildings	N	05/15/95	Krapf
33	56E	Firing Range Observation Building	N	05/15/95	Krapf
34	56E	Interior of Firing Range Observation Building	N	05/15/95	Krapf
35	47	Firing Range Target Storage Building	N	05/15/95	Krapf

GEO-MARINE INC.
PHOTOGRAPHIC DATA SHEET

Project #: 1114-089

Film: Kodak TMAX 400 Black and White

Installation: Lake City, Army Ammunition Plant

Roll Number: 8

Exp. No.	Building No(s).	Description	Dir.	Date	Recorder
1	47	Interior of Firing Range Target Storage Building	N	05/15/95	Krapf
2	75	Ammunition Quality Control Facility; Explosives Laboratory	S	05/15/95	Krapf
3	34E	Primer Mix Control Building	NE	05/15/95	Krapf
4	33E	Primer Mix Building	SE	05/15/95	Krapf
5	34E & 33E	Overview of Primer Mix Area with barricades	E	05/15/95	Krapf
6	T247 & 90B	Chemical Storage Building and Chemical Neutralizing and Disposal Tank Building, respectively.	SE	05/15/95	Krapf
7	90B	Interior of Chemical Neutralizing and Disposal Tank Building		05/15/95	Krapf
8	30	High Explosive Igloo for Lead Styphnate and PETN Storage	NE	05/15/95	Krapf
9	74	High Explosive Magazine for Chemical Storage	SE	05/15/95	Krapf
10	52A	Vacuum Pump House	SW	05/15/95	Krapf
11	54A	Change House and Attendants Station	SW	05/15/95	Krapf
12	71A	Primer Packing Building	SW	05/15/95	Krapf
13	40B	Primer Drying and Storage Building	S	05/15/95	Krapf
14	41B	Primer Drying and Storage Building	NE	05/15/95	Krapf
15		Barricade surrounding a Primer Drying and Storage Building	NE	05/15/95	Krapf
16	52C	Vacuum Pump House	SW	05/15/95	Krapf
17	41A	Primer Drying and Storage Building	N	05/15/95	Krapf
18	40C	Primer Drying and Storage Building	N	05/15/95	Krapf
19	41C	Primer Drying and Storage Building	N	05/15/95	Krapf
20	91E	Air Compressor Building	NE	05/15/95	Krapf

GEO-MARINE INC.
PHOTOGRAPHIC DATA SHEET

Project #: 1114-089

Film: Kodak TMAX 400 Black and White

Installation: Lake City, Army Ammunition Plant

Roll Number: 1114-089

Exp. No.	Building No(s).	Description	Dir.	Date	Recorder
21	72	Primer Storage Area Office and Change House	NW	05/15/95	Krapf
22	35	Primer Manufacturing Building	SE	05/15/95	Krapf
23		Earthen Berm on the backside of a barricade surrounding a Primer Drying and Storage Building	NE	05/15/95	Krapf
24	49W	Primer Drying and Storage Building	SE	05/15/95	Krapf
25	49AA	Primer Drying and Storage Building	SW	05/15/95	Krapf
26	49A	Primer Drying and Storage Building	S	05/15/95	Krapf
27	49R	Primer Drying and Storage Building	S	05/15/95	Krapf
28	44B	High Explosive Magazine for Pyrotechnic Composition Storage	SE	05/15/95	Krapf
29	59B	Condensate Pump House	NE	05/15/95	Krapf
30	73	General Purpose Magazine for Tracer, Incendiary, and Igniter Storage	NE	05/15/95	Krapf
31	82	Neutralizing and Disposal Tanks Building	SE	05/15/95	Krapf
32	83	Nitrator Building	S	05/15/95	Krapf
33	85	Precipitator and Solution Building	NE	05/15/95	Krapf
34	81	Disposal Tanks Building	S	05/15/95	Krapf
35	89	Tetrazene Service Storage Building with barricades	NE	05/15/95	Krapf
36		Overview of the berm surrounding Building 87, a High Explosive Magazine for Lead Styphnate and Tetrazene Storage, and a fully enclosed connecting walkway	SE	05/15/95	Krapf
37	4	5.56 mm Ammunition Manufacturing Facility	NE	05/15/95	Krapf

GEO-MARINE INC.
PHOTOGRAPHIC DATA SHEET

Project #: 1114-089

Film: Kodak TMAX 400 Black and White

Installation: Lake City, Army Ammunition Plant

Roll Number: 9

Exp. No.	Building No(s).	Description	Dir.	Date	Recorder
0	4	5.56 mm Ammunition Manufacturing Facility	NE	05/15/95	Krapf
0	3A	20 mm Ammunition Manufacturing Facility	SE	05/15/95	Krapf
1	13	Salvage and Surplus Property Warehouse	SW	05/15/95	Krapf
2	3	50 Calibre Ammunition Manufacturing Facility	NE	05/15/95	Krapf
3	11	Lead Shop	SE	05/15/95	Krapf
4	16	Water Treatment Plant	SW	05/15/95	Krapf
5	16	Water Treatment Plant	SW	05/15/95	Krapf
6	1	5.56 mm Ammunition Manufacturing Facility	NE	05/15/95	Krapf
7	1	5.56 mm Ammunition Manufacturing Facility	NE	05/15/95	Krapf
8	2	Side elevation, 7.62 mm Ammunition Manufacturing Facility	NE	05/15/95	Krapf
9	2	Front elevaton, Loading Dock for the 7.62 mm Ammunition Manufacturing Facility	NE	05/15/95	Krapf
10	2	Front elevaton, Loading Dock for the 7.62 mm Ammunition Manufacturing Facility	NE	05/15/95	Krapf
11	2	Explosive Wing No. 1 for the 7.62 mm Ammunition Manufacturing Facility	SE	05/15/95	Krapf
12	2	Explosive Wing No. 2 for the 7.62 mm Ammunition Manufacturing Facility	SW	05/15/95	Krapf
13	2	Explosive Wing No. 3 for the 7.62 mm Ammunition Manufacturing Facility	SW	05/15/95	Krapf
14	2	Explosive Wing No. 4 for the 7.62 mm Ammunition Manufacturing Facility	SW	05/15/95	Krapf
15	1	Explosive Wing No. 1 for the 5.56 mm Ammunition Manufacturing Facility	SW	05/15/95	Krapf
16	1	Explosive Wing No. 2 for the 5.56 mm Ammunition Manufacturing Facility	SE	05/15/95	Krapf

GEO-MARINE INC.
PHOTOGRAPHIC DATA SHEET

Project #: 1114-089

Film: Kodak TMAX 400 Black and White

Installation: Lake City, Army Ammunition Plant

Roll Number: 009

Exp. No.	Building No(s).	Description	Dir.	Date	Recorder
17	1	Explosive Wing No. 3 for the 5.56 mm Ammunition Manufacturing Facility	SE	05/15/95	Krapf
18	1	Explosive Wing No. 4 for the 5.56 mm Ammunition Manufacturing Facility	SE	05/15/95	Krapf
19	3	50 Calibre Ammunition Manufacturing Facility, Explosive Wing No. 4	SW	05/15/95	Krapf
20	3	50 Calibre Ammunition Manufacturing Facility, Explosive Wing No. 3	SW	05/15/95	Krapf
21	3	50 Calibre Ammunition Manufacturing Facility, Explosive Wing No. 2	SW	05/15/95	Krapf
22	3	50 Calibre Ammunition Manufacturing Facility, Explosive Wing No. 1	SW	05/15/95	Krapf
23	3A	20 Calibre Ammunition Manufacturing Facility, Explosive Wing No. 1	NW	05/19/95	Krapf
24	3A	20 Calibre Ammunition Manufacturing Facility, Explosive Wing No. 2	SW	05/19/95	Krapf
25	3A	20 Calibre Ammunition Manufacturing Facility, Explosive Wing No. 3	SW	05/19/95	Krapf
26		Culvert constructed in 1941	E	05/19/95	Krapf
27		Culvert constructed in 1941	SW	05/19/95	Krapf
28		Railroad Bridge	W	05/19/95	Krapf
29		Vehicle Bridge on Owens Schoolhouse Road	E	05/19/95	Krapf
30		Railroad Tracks and overhead Steam Pipes leading to Area 17	SW	05/19/95	Krapf
31		Perimeter Fence at a stream crossing	E	05/19/95	Krapf
32		Culvert	NW	05/19/95	Krapf

GEO-MARINE INC.
PHOTOGRAPHIC DATA SHEET

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Film: Kodak TMAX 400 Black and White

Installation: Lake City, Army Ammunition Plant

Roll Number: 9

Exp. No.	Building No(s).	Description	Dir.	Date	Recorder
33	8	Ballistic Testing and Ammunition Quality Control Building	SE	05/19/95	Krapf
34	23C	High Explosive Pellet Manufacturing Building	NE	05/19/95	Krapf
35	20B	General Purpose Magazine for storage of empty Powder Cases.	N	05/19/95	Krapf

GEO-MARINE INC.
PHOTOGRAPHIC DATA SHEET

Project #: 1114-089

Film: Kodak TMAX 400 Black and White

Installation: Lake City, Army Ammunition Plant

Roll Number: 10

Exp. No.	Building No(s).	Description	Dir.	Date	Recorder
0	23B	High Explosive Pellet Manufacturing Building	SE	05/19/95	Krapf
1		Overhead Pipes with Building 8 in background	SE	05/19/95	Krapf
2		Overhead Pipes with Building 8 in background	SE	05/19/95	Krapf
3	10	Machine Tool and Gage Shop	SE	05/19/95	Krapf
4	10	Machine Tool and Gage Shop	SE	05/19/95	Krapf
5	97	Overview of Area 97, where Explosive Decontamination and Scrap Burning occurs along with Demilitarization Scrap Storage	S	05/19/95	Krapf
6	58	Main Natural Gas Distribution and Master Meter House	E	05/19/95	Krapf

GEO-MARINE INC.
PHOTOGRAPHIC DATA SHEET

Project # 1114-089

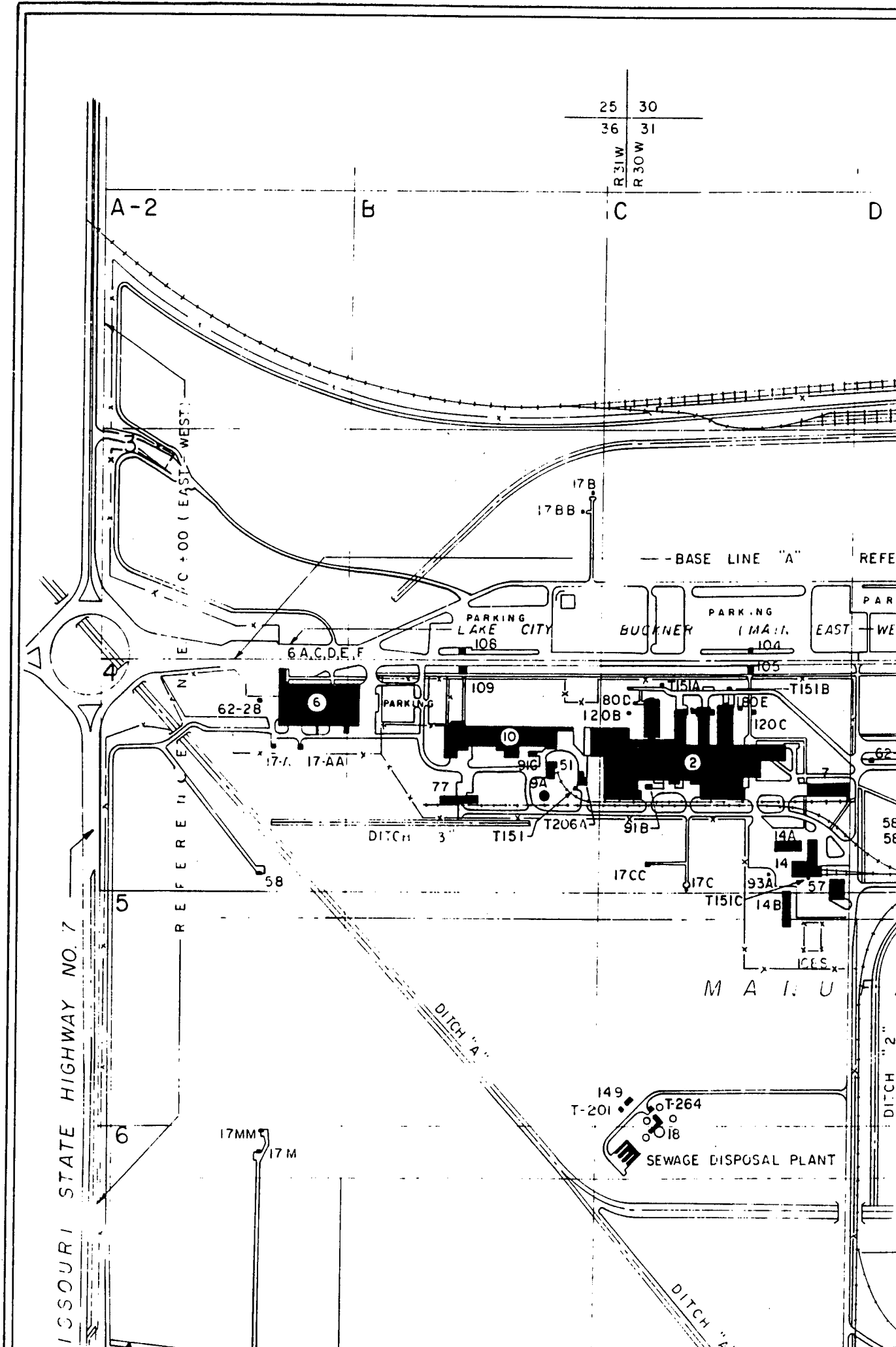
Film: Kodak TMAX 400 Black and White

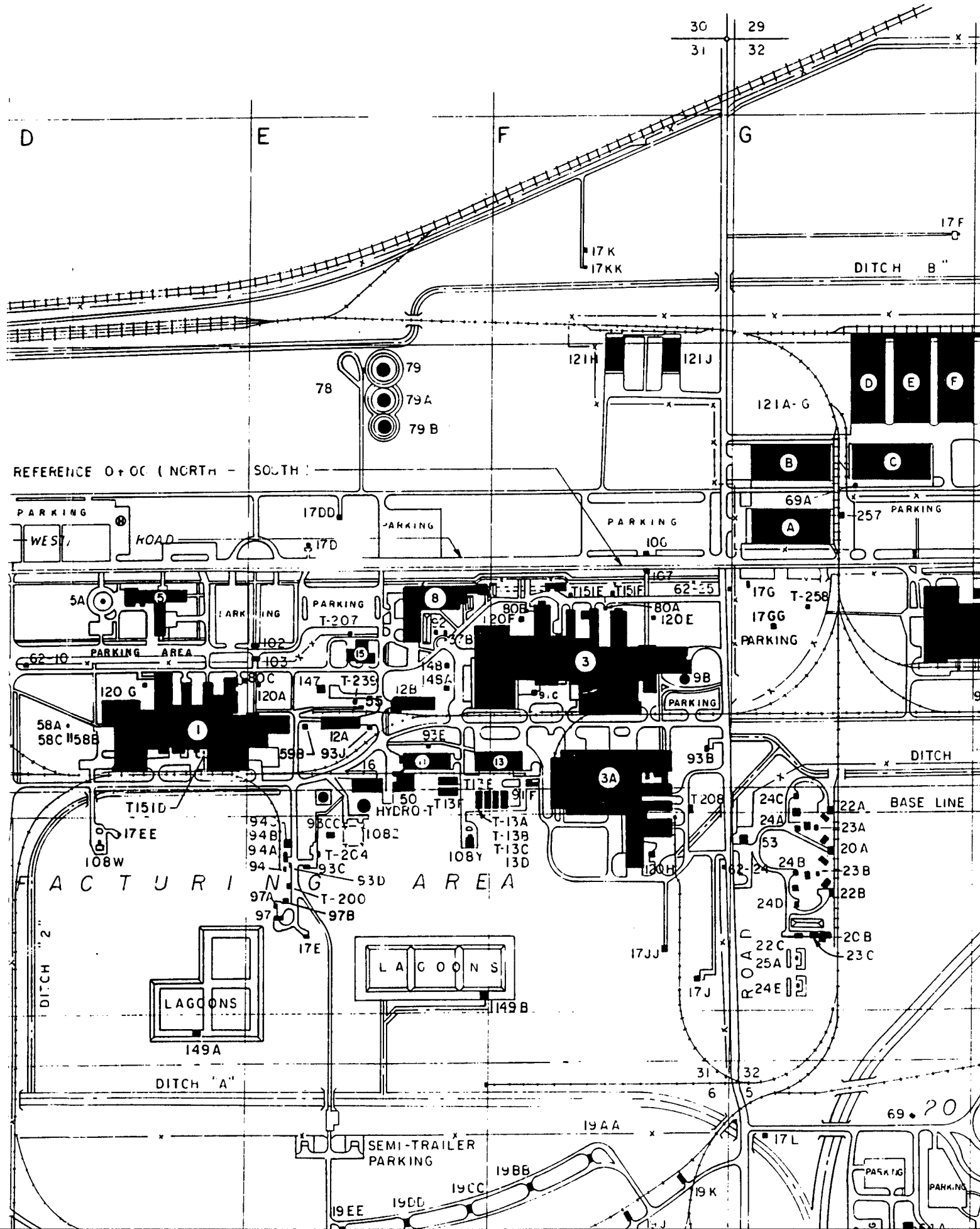
Installation: Lake City, Army Ammunition Plant

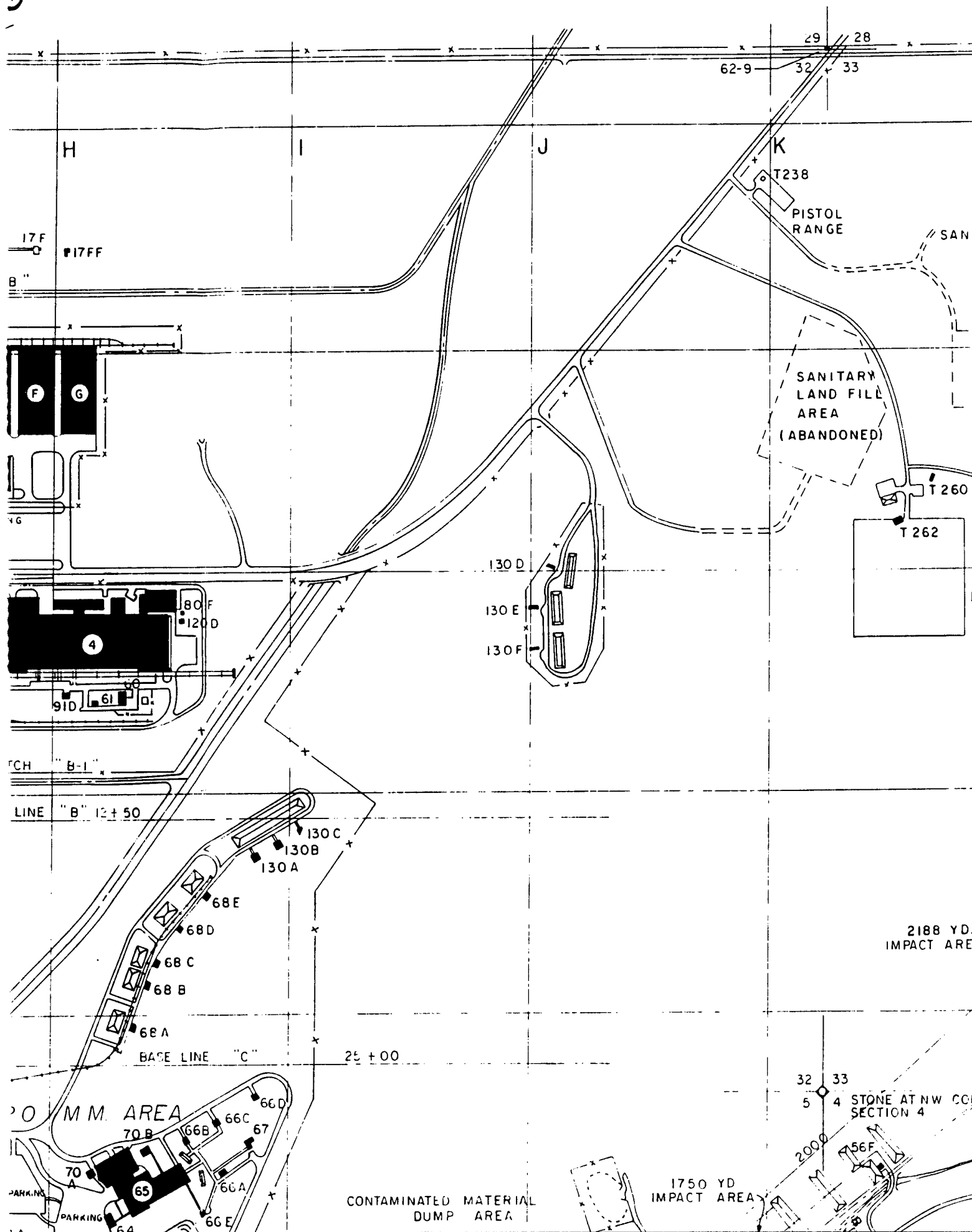
Roll Number: 11

Exp. No.	Building No(s)	Description	Dir.	Date	Recorder
22	3	Gage and Weigh Machine manufactured by Waterbury-Farrel and located in the Ammunition Final Inspection Area		05/15/95	Krapf
23	3	Overview of the Ammunition Final Inspection Area with covered Gage and Weigh Machines		05/15/95	Krapf
24	3	Wetproof Testing Machine, or "Submarine", was manufactured by George Koch & Sons and is used to test wet proof seals on ammunition cans		05/15/95	Krapf
25	3	A smaller, single "Submarine" Wetproof Testing Machine manufactured by Trio Machine Works, Andalusia PA		05/15/95	Krapf
26	3	Packing Machine manufactured by Standard Knapp		05/15/95	Krapf
27	3	Can Marking Machine		05/15/95	Krapf
28	3	Crate Making Machine		05/15/95	Krapf
29	3	Crate Painting Machine		05/15/95	Krapf
30	3	Overview of Crate Making Area		05/15/95	Krapf
31	3	First Case Draw Press manufactured by E.W. Bliss Co.		05/15/95	Krapf
32	3	Case Trim Machine, manufactured by Peter's Engineering		05/15/95	Krapf
33	3	Case Pocket and Head Machine, manufactured by Ferracute Machine		05/15/95	Krapf
34	3	"Head Turn" or Screw Machine		05/15/95	Krapf
35	3	Case Body Anneal Machine manufactured by Jennings Machine		05/15/95	Krapf
36	3	Case Taper Machine, manufactured by E.W. Bliss Co.		05/15/95	Krapf

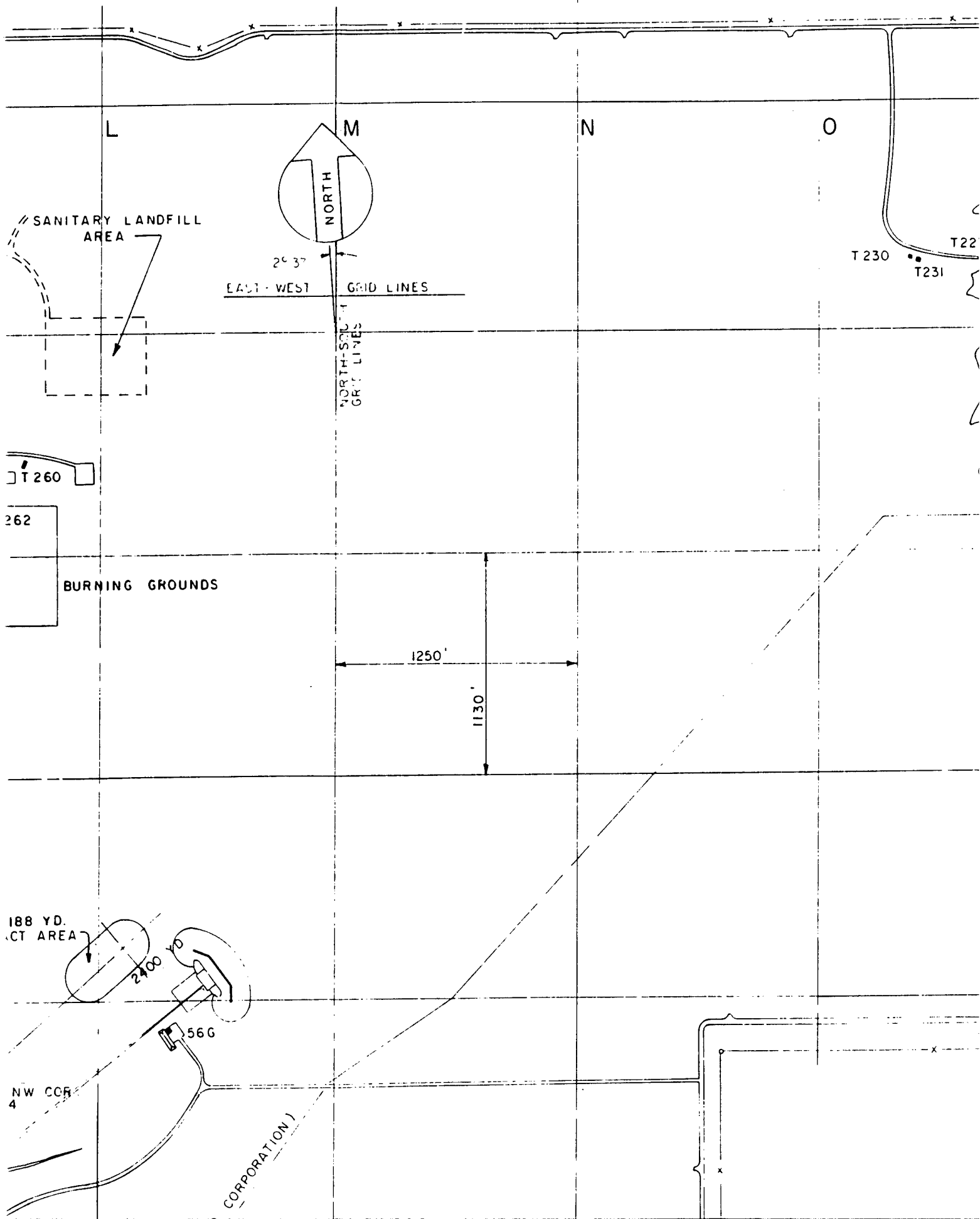
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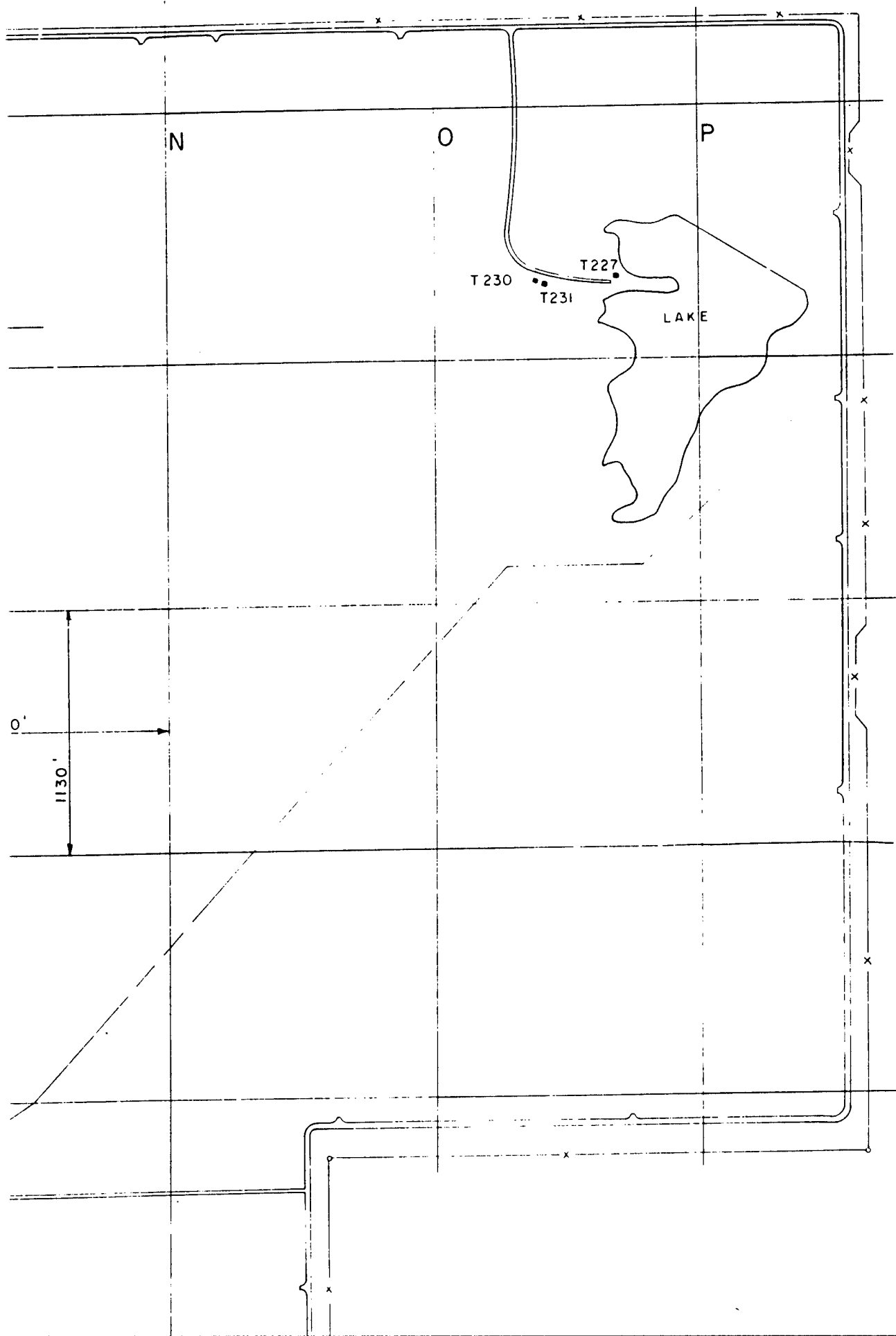




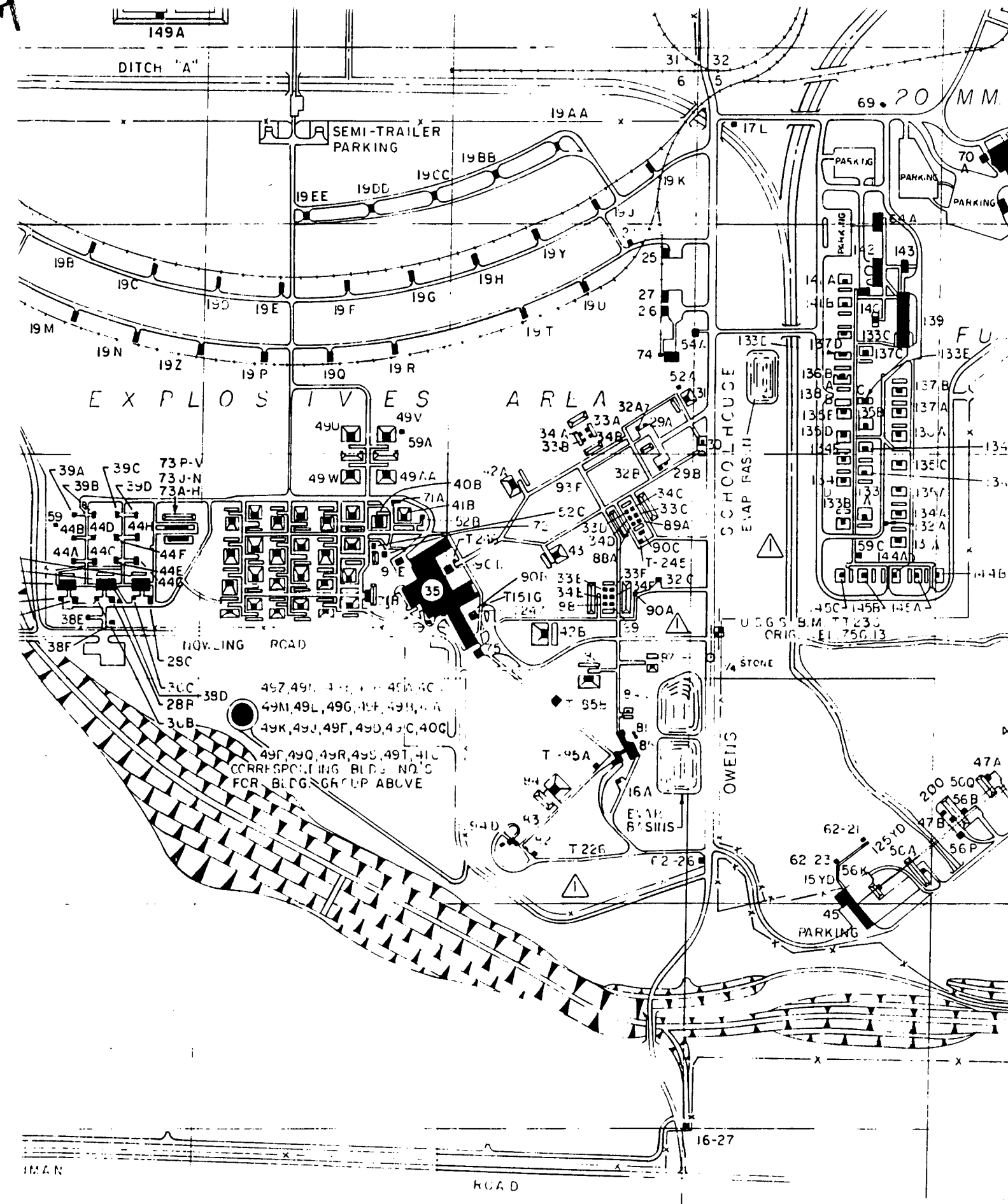
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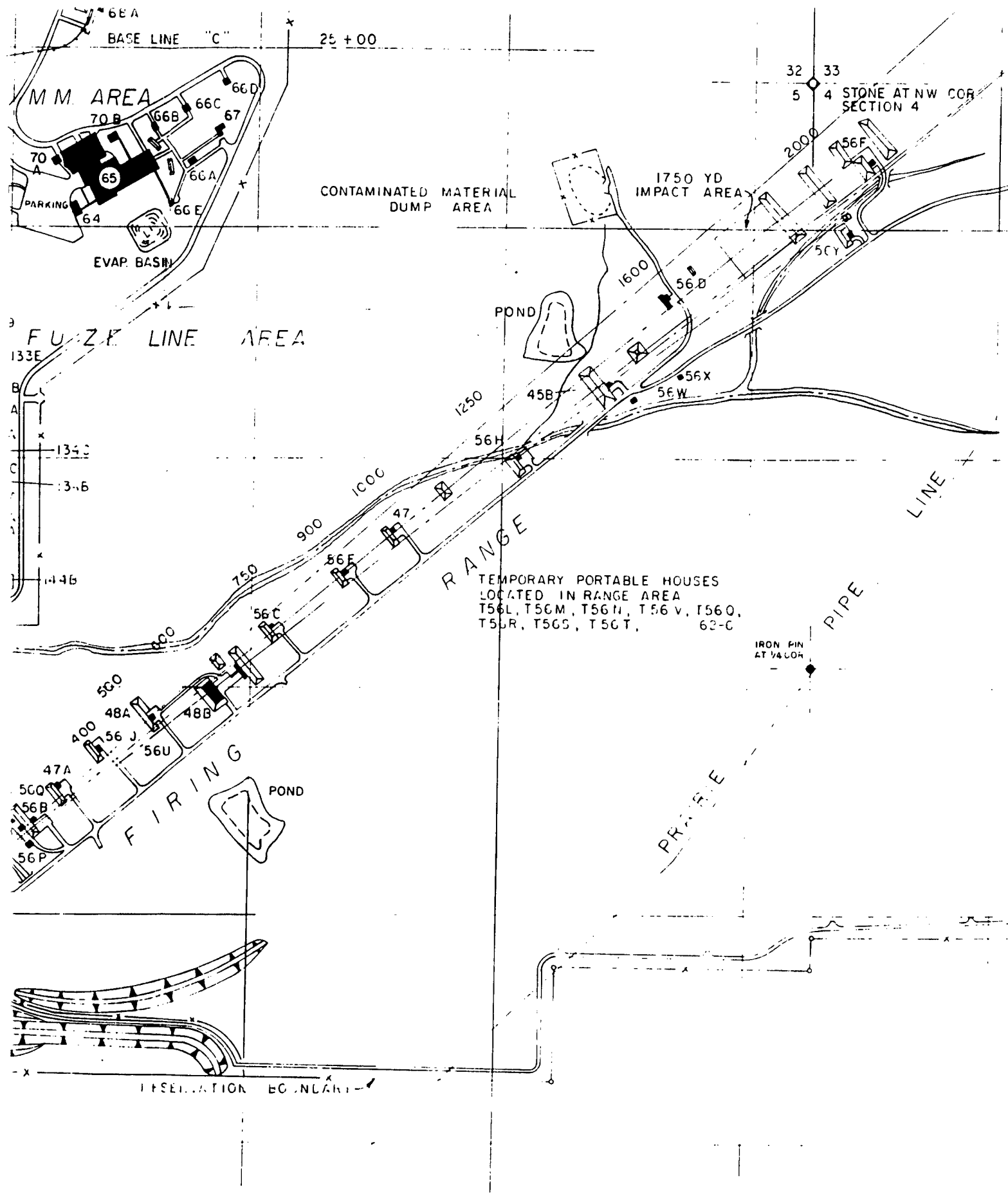


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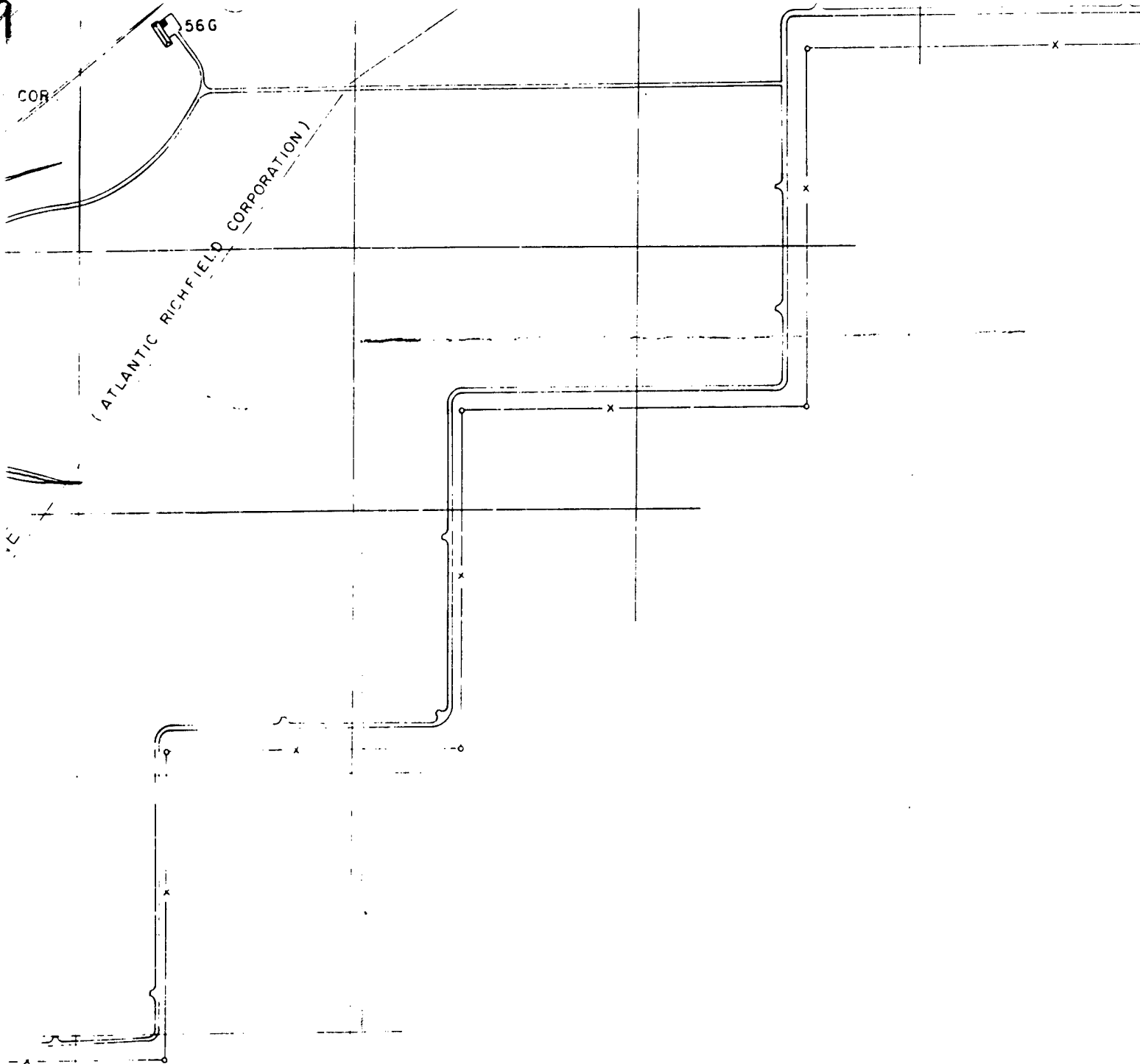


This is a technical site plan or map. At the top left, the text 'MISSOURI STATE' is written vertically. In the upper right corner, there is a symbol for a sewage disposal plant and the label 'SEWAGE DISPOSAL PLANT'. Below this, a diagonal line is labeled 'DITCH "A"'. On the far right, several land parcels are identified by codes: 38C, 38B, 38A, 36A, and 38A. A road runs horizontally across the middle-right section, with a point labeled '19W'. Another road runs vertically on the right side, with points labeled 'T-29' and 'T-26'. A large central area is designated 'RESIDENTIAL' and contains many numbered lots, including 11430A, 11431, 11432, 11433, 11434, 11435, 11436, 11437, 11438, 11439, 11440, 11441, 11442, 11443, 11444, 11445, 11446, 11447, 11448, 11449, 11450, 11451, 11452, 11453, 11454, 11455, 11456, 11457, 11458, 11459, 11460, 11461, 11462, 11463, 11464, 11465, 11466, 11467, 11468, 11469, 11470, 11471, 11472, 11473, 11474, 11475, 11476, 11477, 11478, 11479, 11480, 11481, 11482, 11483, 11484, 11485, 11486, 11487, 11488, 11489, 11490, 11491, 11492, 11493, 11494, 11495, 11496, 11497, 11498, 11499, 11500. To the left of the residential area, a road is labeled 'TO INDEPENDENCE' and another further down is labeled 'TO BLUE SPRINGS'. A vertical line on the left side is labeled 'RESERVATION BOUNDARY'. Various other points and features are marked, including '8', '9', '10', '17M', '9 C', '62-1', and '11'.

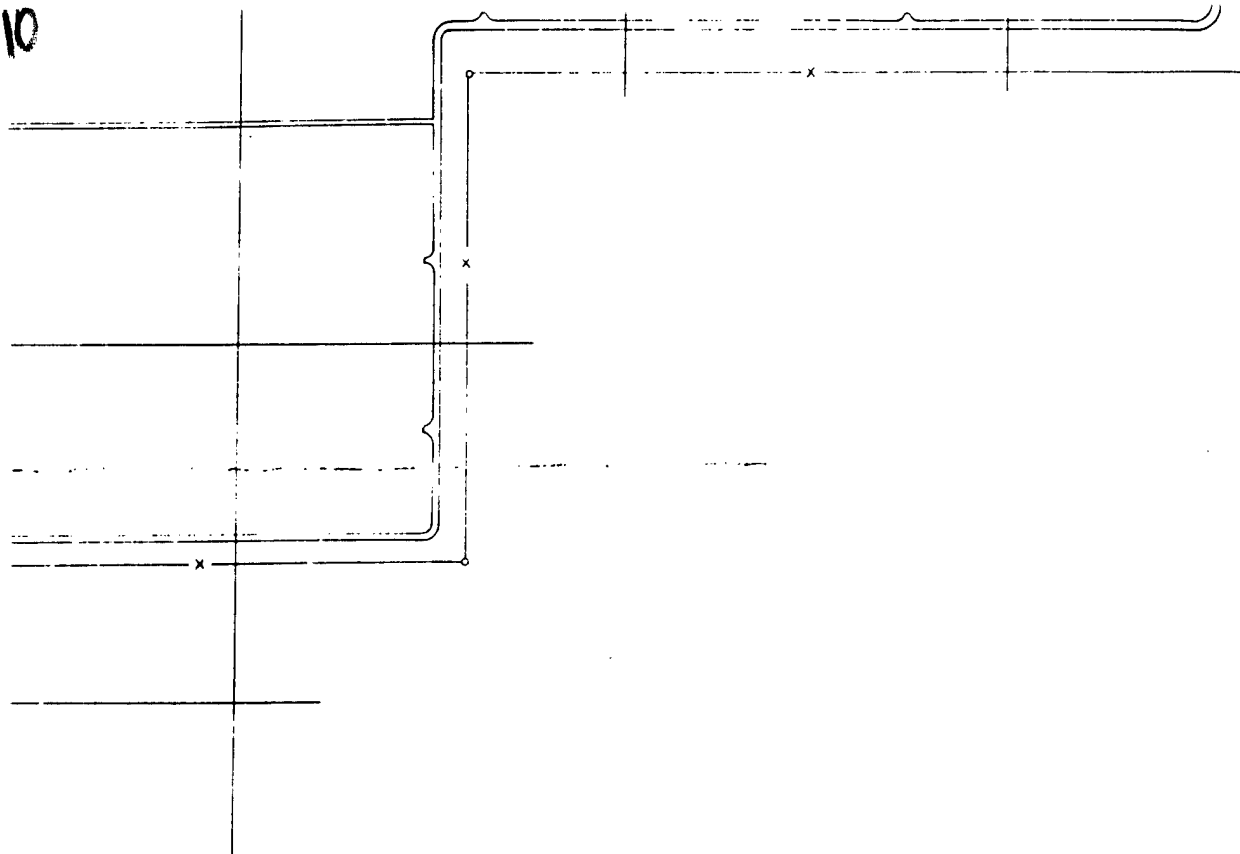




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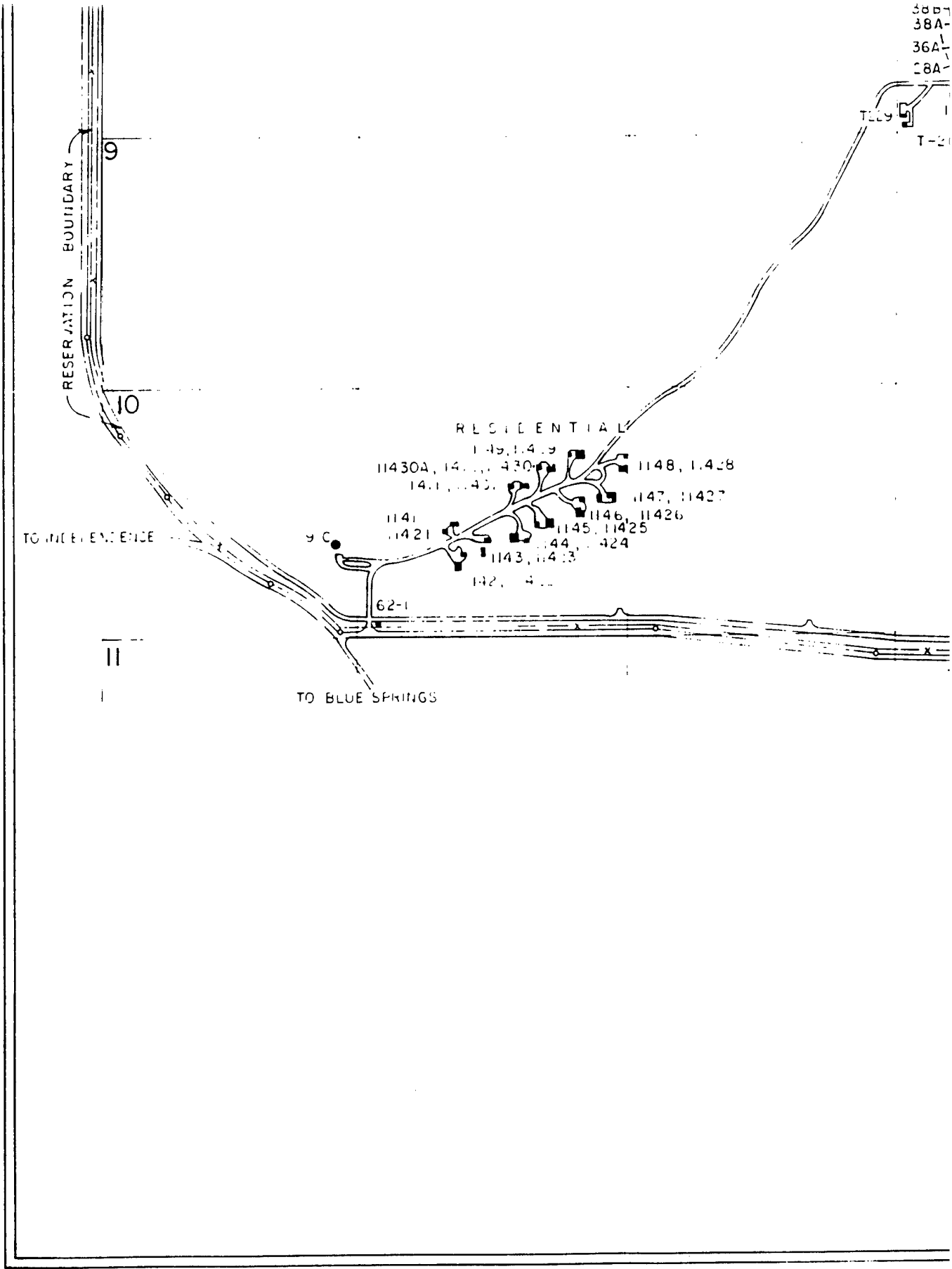
10



10

11

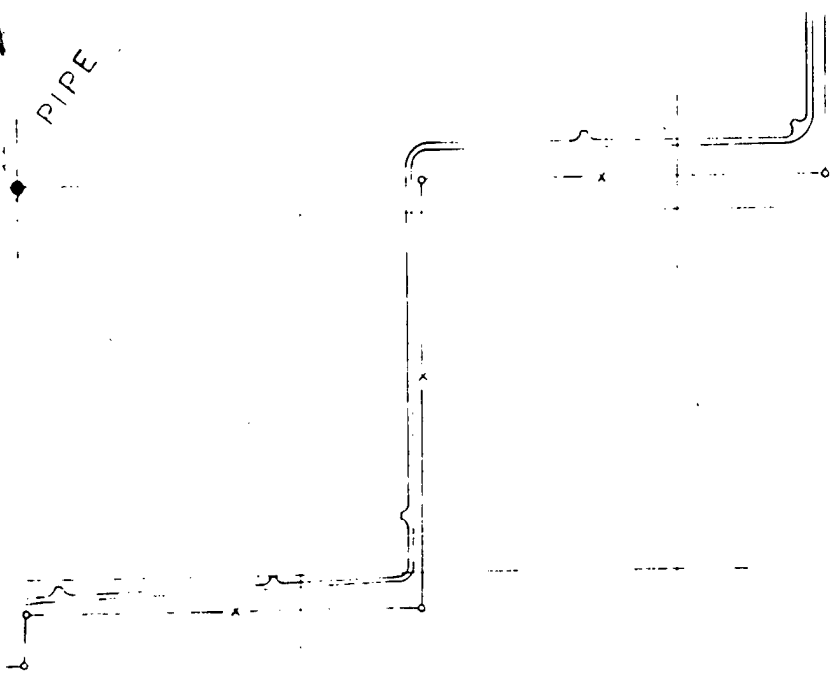
38B-1
38A-
36A-
38A-



11

H

PIPE



4-88	CB		RI
8-27-85	W. J. Smith	—	R
DATE	CA APPR'L.	SYM.	

R E V

DEPT. OF ARMY	
CHECKER <i>W. J. Smith</i>	APPROVED <i>W. J. Smith</i>
REMINGTON ARMS CO INC.	
DRAFTSMAN N. L. J.	TRACER N. L. J.
CHECKER <i>C. E. Shaw</i>	ENGR. <i>W. D. Nichols</i>
APPROVED <i>C. E. Shaw</i>	

BASIC INFORMATION
GENERAL SITE PLAN

SCALE 1" = 600'	DATE 8
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4-88	CB	△	REVISED NOC 118-38 2-12-88 EJP	4-26-88	CSHAW
8-27-85	102-118	—	REVISED & REDRAWN, NOC 118-35	8-26-85	CSHAW
DATE	CA APPRL.	SYM	DESCRIPTION	DATE	APPROVAL

R E V I S I O N S

DEPT. OF ARMY

MAN APPROVED
L.J. *[Signature]*
STON ARMS CO INC.

MAN TRACER
L.J. N.L.J.

R ENGR.
[Signature] *[Signature]*

ED *[Signature]*

BASIC INFORMATION MAP
GENERAL SITE PLAN

SCALE 1" = 600'

DATE 8-22-85

DEPT. OF THE
ARMY

LAKE CITY
ARMY AMMUNITION PLANT
INDEPENDENCE, MISSOURI

BLDG. NO. DRAWING NUMBER

B.I.M. C-1

COMM. OFFICER APPROVAL

[Signature]