McCHORD AIR FORCE BASE, BUILDING 724
(VEHICLE MAINTENANCE SHOP)
(McChord Field Building T-1 520:
Quartermaster Motor Repair Shop)
Tacoma Vicinity
Pierce County
Washington

HABS No. WA-~~223~~-A
230

HABS
WASH
27-TACO.V,
1A-

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN BUILDINGS SURVEY
Columbia Cascades Support Office
National Park Service
909 1st Avenue
Seattle, Washington 98104

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HISTORIC AMERICAN BUILDINGS SURVEY
McCHORD AIR FORCE BASE, BUILDING 724 (VEHICLE MAINTENANCE SHOP)
[McChord Field, Building T- 1 520 (Quartermaster Motor Repair Shop)]
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230

Location: Building 724 is located 60' east of Building 779, 55' west of the centerline of B Street and 75' north of the centerline of 6th Street at McChord Air Force Base (Tacoma vicinity), Pierce County, Washington.[1] See **Figure 1**.

USGS Quadrangle Tacoma South, Washington; 7.5 minute series 1951 (edited in 1994) UTM Coordinates: Zone 10 N E

Present Owner: U.S. Department of the Air Force

Original Use: Quartermaster Motor Repair Shop, Type MRS-1 (Type 59-14 Modified)

Present Use: Vacant. This structure is scheduled for demolition.

Significance: Building 724 is significant as a relatively unmodified representative of a maintenance shop. It represents the only 800 series MRS-1 structure constructed at McChord Field.

PART I. HISTORICAL INFORMATION:

A. Physical History:

I. Date of erection: Construction of Building 724 was completed in 1942.[2]

2. Architect: George E. Bergstrom, Chief of the Architectural Unit in the Engineering Branch of the Construction Division, Quartermaster Corps, supervised the 1941 revision of the 700 series maintenance shop plans that produced the 800-959 series drawings in April 1941.[3]

3. Original and subsequent owners: The site accommodated British and American sheep farming dating back to the 1830s and military maneuvers and market agricultural activity since the 1890s. A county airport, Tacoma Field, was established on the site in 1929-1930 with a hanger and a 1,000' runway (the runway was later incorporated into the taxiways of McChord Field). Between 1937 and 1939, land acquisitions were made for the War Department from private holdings and northern portions of the Fort Lewis military reservation for the new Air Corps field. Included was Tacoma Field which was transferred to the War Department by warranty deed from Pierce County in 1938. Since then, the U.S. Department of the Air Force, the successor to the War Department, has held title.

4. Builder, contractor, suppliers: No information was found.

5. Original plans and construction: Original Plans and Construction: Building 724 was built from plans prepared by the U.S. Engineer Office in Seattle Washington, dated November 18, 1941,[4] and modified by the U.S. Engineer Office, McChord Field on June 9, 1942.[5] Both sets of plans were produced by the staff of the U.S. Army Corps of Engineers, Seattle District. The newer drawings included changes to strengthen the foundations and improved bracing on the trusses. Although the trusses in MRS-1 type buildings in other parts of the nation have a history of failure and repair, the trusses in Building 724 are intact.[6] The plans from 1941 and 1942 were derived from the 800 series plan (numbers 800-959 through 800-968, these did not include steel reinforcement in the footings and piers).[7]

The original cost of the building was $41,410.00.[8] Alterations to the original plan at the time of construction include construction of a brick chimney with a 3'-0"x3'-0" plan instead of a cylindrical metal stack 2'-0" in diameter. The 1941 drawings specify fixed and horizontal pivoted steel sash windows but similar,

wood windows were specified in the drawings. Metal windows were actually used. Also, gypsum board was used to cover the walls and ceiling in the boiler room. The 60-foot long metal ventilator specified for the ridge was replaced with a wood one and cast iron wheel guards at either side of the overhead doors were replaced with concrete.

6. Alterations and additions: Alterations to the original plans are as noted above. On the exterior, 1"x6" wood drop siding was replaced with gray-white cement asbestos siding at an unknown date. Four steel overhead doors with electrically operated motors were installed in March, 1959. A toilet and wash basin was removed in February 1956. A sprinkler system was added in 1968, a hoist was installed in 1976 and the building was insulated in 1976.

B. Historical Context:

Improvements at Army posts and the Army Air Corps fields follow similar patterns as both were funded by Congress and the Air Corps was part of the Army. In 1918, the Air Corps was housed in temporary buildings and used gravel or sod runways. By the mid-1940s, the Air Corps infrastructure had developed to include permanent buildings and paved runways.[9]

The construction of Building 724 was part of a massive, nation-wide mobilization program by the Army's Quartermaster Corps that was designed to build cantonments to house and train the expanded World War II Army. The 800 series plans, and the 700 series that preceded it, was a comprehensive set of drawings which could be used to create various building types. Through the construction of wood-frame buildings, such as 724, the 1939 housing capacity of 200,000 soldiers as increased to 6,000,000 by the close of the mobilization program in the fall of 1944. In addition, war mobilization buildings are significant for their construction and technological innovation. Techniques such as the standardization of plans, prefabrication of units and assembly-line approach to construction were largely developed in the construction of these mobilization buildings.

Building 724 was the only type MRS-1 Motor Repair Shop constructed at McChord Field where construction was authorized by the Wilcox Act of August 12, 1935. Building activities at McChord started in 1938 and, by 1940, the base was ready to house a combat group.[10] In 1941 the Army received Congressional appropriations to complete construction authorized in 1939, expanding the Army Air Corps to "about 55,000 men, increase the number of aircraft authorized, and to raise pilot training to 7,000 per annum."[11]

Permanent Air Corps fields built by the Office of the Quartermaster General during the early 1930s usually followed a plan with bilateral symmetry. The Quartermaster

developed a plan in 1926 for March Field, California that was a one-mile square with the runways laid out on the square's diagonal axis. The same design was used at Barksdale AFB, Louisiana. At Randolph AFB, Texas, Air Corps officer Harold Clark laid out a complex design that separated operational areas into formal geometric patterns. Square in plan, the flight lines defined two sides, a central axis contained "the administration building, commander's quarters, officers club, and cadet school."[12]

In the later part of the 1930s, as aircraft evolved to higher performance levels, new airplane were capable of faster speeds and carried greater loads. Airfield design was forced to evolve to accommodate these changes. Runways were lengthened and improved runway surfaces were developed to bear the weight of the newer, heavier aircraft. Intersecting runways were developed in an "4" or "A" shaped pattern to take advantage of prevailing winds and accommodate both fighters and bombers that had different take off and landing requirements. The site of barracks and administration buildings was also shifted to bring work and living spaces as close as possible to the flight line. McChord and Chanute Air Force Bases with their "4" shaped pattern of runways are reminiscent of this design.

McChord Field displays bilateral symmetry in its layout. A central axis is formed by Central Avenue East and Central Avenue West. These avenues diverge, forming F and G Streets, and end at the intersection with 1st Street, in front of Hangars 3 and 4 (a single building). Bilateral symmetry is maintained throughout. Curvilinear roads branch off on either side of the Central avenues and contain, to the west, NCO and enlisted housing. To the east was planned officer housing.

In 1931, Quartermaster planners examined existing posts and proposed $34 million worth of new construction in the continental United States, Panama, and Hawaii. Included were "barracks quarters, shops and warehouses, storage for gasoline and oil, runways, aprons, hard stands, hangars, laboratories, hospitals and schools"[13] By 1933, the Army's appropriation had grown to $80 million with additional funding made available under the National Industrial Recovery Act (NIRA) of 1933 and, in 1938, funds were made available from Work Relief and Public Works Appropriations.

Working with the Air Corps was difficult for the Quartermaster, in part because of the technical and aeronautical requirements of specialized buildings and runways. The Air Corps staff also presented challenges. Air Corps General Henry "Hap" Arnold would not approve Quartermaster layouts containing standardized designs for barracks. Instead, he proposed placing new, prefabricated buildings among permanent buildings and tapping into existing utilities. This raised a concern among Quartermaster designers about creating fire hazards. In July 1939, both sides

compromised. The Air Corps agreed to accept mobilization type buildings and the Quartermaster offered to let the prefab industry compete for housing contracts.

Work started, but only a few months later several projects were in trouble. Air Corps changes to some of its requirements caused delays. The Quartermaster Corps dependency upon centralized control also contributed to delays, and the prefab companies were often underbid by general contractors for new construction. In November 1940, the Air Corps construction program was transferred to the Army Corps of Engineers.[14]

The Quartermaster Corps continued to carry the burden of designing Air Corps structures from January to April of 1941, until the Engineers took up the task. In practice, the Air Corps often gave the Quartermaster Corps completed designs. Technically difficult because of their specialized nature,[15] the Air Corps needed structures "for testing and repairing engines, radios, armament, and equipment for storing bombsights, chemicals and explosives."[16] Buildings of these types were built at San Antonio, Texas; Middletown, Pennsylvania; Patterson Field, Ohio; and Sacramento, California.

The plans received from the Air Corps often included low safety factors. By May 1941, the Engineers had evaluated the 700 series Quartermaster Corps plans and made several hundred changes to strengthen sagging floors, leaking roofs and fix other problems. Meanwhile, the War Department was trying to decide whether the Corps of Engineers or the Quartermaster Corps would be responsible for the Army's construction. Contractors stepped up the pressure with complaints to the War Department about having to deal with "two Army construction agencies, two sets of regulations, and two systems of bookkeeping."[17] Several organizational plans were considered, including establishing a separate corps headed by a major general and staffed with civilians. The debate over who was to be the Army's builder included discussion over whether maintenance and repair tasks were to be classed as a "housekeeping" (a Quartermaster Corps activity) or associated with civil engineering. Deliberations over the qualifications of the Corps of Engineers included a concern that the Engineers had wide experience with civil projects rather than day-to-day Army jobs.[18] The debate even drew in engineering societies who favored the Quartermaster Corps tradition of contracting for professional services and feared that the Engineer's policy of in-house design would result in less work for their members.

Lt. General Edmund B. Gregory, Quartermaster General, testifying at the House committee hearings in September and October of 1941, refused to be drawn over which branch should be responsible for construction. Only one branch, he said, should be responsible for construction but it was up to Congress to decide which. On October 16, at the conclusion of the hearings, the Senate voted to move all Air Corps construction to the Corps of Engineers. The House voted for the transfer bill on

November 21, and President Roosevelt signed the measure into law on December 1, 1941.[19]

PART II. ARCHITECTURAL INFORMATION:

A. General Statement:

1. Architectural Character: Building 724 is a well-preserved, relatively unmodified example of an Army Air Corps motor repair shop. The massing of this building is low and flat, it has the exterior height of a two-story structure but the interior contains a single-story workspace with high ceilings. Building 724 has a gable roof with a 60' long by 1' wide ventilator mounted at the mid-point on the ridge line. The west and east sides are devoid of ornamentation and are divided into eight bays, each 15' wide, containing banks of windows. The south, principal elevation faces Sixth Street, it is divided into three bays containing (from left to right) a window, an overhead door and window, and a window and a ventilator hood. The east elevation contains a double door with transom windows in the first bay and identical windows in the next seven bays. The three bays in the north elevation contain a window, an overhead door with adjacent personnel door with a window above, and an overhead door. The west elevation contains a bank of windows in each of 8 bays with two large overhead roll-up doors in the third and sixth bays

2. Condition of fabric: The overall condition of Building 724 is sound. Areas of exterior deterioration include a small plywood patch to the cement-asbestos siding on the north end of the west wall.

B. Description of Exterior:

1. Overall Dimensions: Building 724 is rectangular in shape and measures 76'-1.5" wide by 120'-0" long. The building rises 26'-6" to the ridge line and 23'-6" to the top of the side walls.

2. Foundations: Building 724 has a reinforced-concrete footings for the exterior walls with 2'-0"x2'-0" piers every 15'-0" and a 10'-0" x 10'-0" concrete footing for a stack in the furnace room. Inside, the perimeter of the building is a 6" concrete slab.

3. Walls: The exterior of Building 724 was sheathed with gray-white asbestos cement panels 1'-0" wide and 6'-0" long.

4. Structural System: The exterior walls of Building 724 are wood framed posts over the piers and 2"x6" studs on 16" centers. The interior surface either covered with gypsum board over 1"x6" T&G sheathing, or painted 1" x 6" T&G sheathing. There are no interior bearing walls. The roof is supported by 9 flat timber trusses extending the full width of the building with 2"x8" purlins on 18" centers on the top chord (which has a very slight 1:12 slope). The truss members are paired 3"x 12" Douglas fir; loads are transmitted from one member to another through split rings and shear plates. Interior walls are partition walls, framed with 2"x4"s and covered with 1" T&G siding.

5. Chimneys: Building 724 has a brick chimney rising 45'-0" from the rear of the boiler room in the building's southeast corner.

6. Openings:

   a. Doorways and doors: On the south end there is a central overhead door with a personnel door to its left. The east side has a pair of flush doors with a ten-light overhead window leading to the furnace room. The north end has a central overhead door with a personnel door directly to its left and a second overhead door to the right. The west side has two overhead doors in the (reading from the left) third and sixth bays.

   b. Windows: On the south end, there are two sets of three, fifteen-light windows with a six-light pivoted sash in the central window. Above the central overhead door there is a sat of three, fixed six-light windows This pattern is repeated on the north end, however, an overhead door replaced the large fifteen-light window on the west end at an unknown date. On the east and west, the fifteen-light window with three, fixed eight light widows directly overhead is repeated every 18'-0". On the east, the pattern is unbroken. Two fifteen-light windows have been replaced with overhead doors on the west side and the southernmost window has been removed and the opening closed at an unknown date.

C. Description of the Interior:

1. Floor Plans:

   a. Basement: None

   b. First floor: Building 724, as constructed, has a total of 9,134 square feet. The floor plan contains a wide central corridor that extends the length of the building and is served at each end by an overhead door. On the west side, there are 4 work areas separated by partition walls: repair shop,

wash rack, machine shop, and paint shop (reading from south to north). All partition walls on this side of the building were removed at an unknown date. On the east side there were 6 spaces: the enclosed heater room which is accessed by an exterior door on the east side, a locker room and toilet, sheet metal/radiator welding/blacksmithing are, supply department, ignition repair, and motor repair (from south to north). These spaces were also divided by partition walls. The partition walls on this side of the building were modified as follows:

Heater room: no change
Locker and toilet room: connecting door removed and opening closed.
Sheet metal, Etc.: the space was divided into two rooms with a corridor on the south end and stairs to the loft on the east side.
Supply department: no change.
Ignition repair: no change

c. Second floor: There is no second floor, however, there is a small, unfinished storage loft on the east side above the sheet metal/Etc. and locker room.

d. Attic: None.

2. Stairways: There is one 3'-0" wide open tread stairway leading to a loft used for storage.

3. Flooring: The flooring throughout the first floor is concrete. In work bays the floor is sloped toward floor drains. On the small second floor the floor is unfinished 1" x 6" T&G boards.

4. Wall and ceiling finishes: The partition walls (which extend to the bottom chord of the truss) and ceilings are either 1" x 6" T&G or gypsum board covered with paint.

5. Openings: Five-panel wood doors are found in the interior, these date from the original construction.

6. Decorative trim: None.

7. Hardware: Original door and window hardware survive; it is very plain, builder's hardware. The original hardware listed for the building includes the following equipment: Eighty-one incandescent fixtures, and a 7.5 hp air compressor, 2,000 pound overhead hoist.

8. Mechanical Equipment: Power was furnished to two panels, "A" and "P". Panel "A" was a 100 amp, 4-wire, 250 volt service with main breaker and thirty-six 15 amp breakers reserved for outlets and lighting throughout the building. Panel "P" was a 225 amp, 4 wire, 250 volt service with main breaker and the following schedule of circuits:

Circuit No.	Application	Breaker
P-1	Welder	70a
P-2	Ignition Test Panel	50a
P-3	Booster pump	35a
P-4	Air Compressor	15a
P-5	Lathe	15a
P-6	Vent fan	15a
P-7	Electric Water heater	15a
P-8	Condensate pump	15a
P-9	Oil Burner	15a
P-10	Unit heater	20a
P-11	" "	20a
P-12	" "	15a
P-13	" "	15a
P-14	" "	15a
P-15	Misc. Equip	15a
P-16	" "	15a
P17-18	Spares	15a
P19-20	Spares	20a
P-21	Spare	25a

a. Heating: The building was originally heated with an oil-fired steam furnace. In 1966 the building had an exterior fuel oil tank, a Pacific 25 hp boiler, condensate tank and pump, and a Ray burner.

b. Ventilation: The building was designed to be vented through a 60' long ridge vent over the central four bays and a 2'-0" high, 10" diameter asbestos cement smoke "jack" over the third bay from the left on the west elevation. In 1952 a ventilating system was installed for "motor maintenance" consisting of flexible exhaust tubing that could be connected to vehicle exhaust systems and vented out of the building through a 22" x 24" central vent and fan through the roof.

c. Lighting: All original electrical equipment and fixtures have been removed. The building was lighted with ceiling fixtures hung from conduit or ceiling-mounted. The fixtures were circular pressed stet with porcelain enamel finish, white inside and green outside, with incandescent bulbs rated from 75 to 500 watts. In the paint shop, northwest comer, six explosion-proof ceiling fixtures with reflector were specified with 200-watt bulbs.

d. Plumbing: No original fixtures remain. The building is served by a 2" water line and a 4" sewer line. Hot water was provided, 1966, by a 66 gallon Hotpoint heater.[20]

D. Site:

1. General setting and orientation: Both a 1938 planning grid and a 1939 layout plan (see **Figure 2** and **3**) for McChord Field show a network of curvilinear roads east of the central axis formed by East and West Central Avenue, and bounded on the east by a loop road called Outer Drive.[21] The east loop of Outer Drive was to contain officer housing and a long, central green space called "The Parkway". At the north end of this loop, East Entrance Road formed a tangent with the loop and extended to the east border of McChord Field, where it connected to present-day Military Road. Many of the buildings that were to be built within Outer Drive (east of the Central Avenues) were not built, nor was the green space. In 1938, construction of the Air Corps Barracks (Building 100) required abandonment of "portions of the pre-1870 Old Military Road which passed through the building site."[22] Later, the eastern edge of Outer Drive and about 3,000' of East Entrance Road (an extension of Military Road) were abandoned when the taxiway and main north-south runway was extended to the south in 1951.

   The 1942 plot plan for Building 724 indicates that it was originally to be located 400' west of "the east gate" (see **Figure 4**).[23] This would have placed Building 724 on the east side of the runways and outside of the area set aside for repair and maintenance functions beside the flight line and hangars. This location, on the opposite side of the air field, would have placed the building 1.6 miles SE of the designated Quartermaster area and created an inefficient operation.

   McChord AFB histories revealed that "none of the early historical data was retained at this base" making it very difficult to determine the instigator and chronology of changing the location of Building 724.[24] However, in 1941 and 1942, other Quartermaster activities were gradually moved from scattered locations into a new Quartermaster area.[25] While none of the buildings assigned to this area were located by number (1010, 1020, 1024, and 1027), the motor pool area was identified and located immediately north of Quartermaster Shop.[26]

The location of Building 724 was, therefore, within the new Quartermaster area, where it was intentionally placed near the flight line and other shops.

2. Historical landscape design: Building 724 was included in a designed landscape to improve the operating efficiency of McChord Field by concentrating work spaces near the flight line with support facilities in close proximity. The 1938 grid layout plan approved "by direction of Capt. E.P Antonovich, Quartermaster General Office, is the earliest design for McChord Field found during research and was generally followed during construction (see **Figure 2**).[27] This plan established a central construction axis along what would become Central Avenues East and West. Major streets were laid out in sweeping curves forming mirror images on either side of Central Avenues, producing the designed effect of bilateral symmetry.

   Within the layout of McChord Field the following design features are reminiscent of the city beautiful movement: curvilinear streets, open green spaces, and the intentional concentration and clear separation of residential, work, and recreation areas. Also, primary and secondary roads define these areas. The post was designed to exist as an independent, military community: it was a product of the newly-emerging field of city planning. Building 724, while not a major feature, is a contributing element to this designed landscape.

PART III. SOURCES OF INFORMATION:

A. Copies of the original plans used to construct Building 724 are currently filed in Building 308 at McChord AFB.

B. Bibliography:

1. Primary and unpublished sources:

   a. Standard Mobilization Drawings 800 Series Plan numbers 800-443, 00-444, 800-445, 800-446, 800-447 and 800-447. 1.

   b. Real property record AF Form 1430 and AF Form 1438 at McChord Air Force Base, Washington

2. Secondary and published sources:

Anon., *Condensed History of McChord Air Force Base*, Unpublished MS, Base Library, McChord Air Force Base, N.D.

Anon., *History, Quartermaster Section, McChord Field, Wash.*, "15 March 1940 to 6 December 1941", and "7 December 1941 to 31 December 1942", Unpublished MS, Base Library, McChord Air Force Base, N.D.
"As Built" drawings, file drawer labeled "Building 724", Building 308, McChord AFB, Washington

Craven, Wesley Frank and James Lee Cate, *The Army Air Forces in World War II*, Volume 6, Men and Planes, University of Chicago Press, Chicago, 1935.

Evans, David and Associates, *Historic Resources Inventory and Evaluation*, McChord Air Force Base, Pierce County Washington, Bellevue, Washington, 1997

Fine, Lenore and Jesse A. Remington, The Corps of Engineers: Construction in the United States (volume in the series, United States Army in World War 11: The Technical Services). Washington, DC: Office of the Chief Military History, United States Army

Glass, James A, Keith Landreth & Richard Hayes, *FORT McCOY, BUILDING T-463 MAINTENANCE SHOP).* Historic American Buildings Survey, WI-308-E, 1988

Goodwin, R. Christopher and Associates, *National Historic Context for Department of Defense Installations, 1790-1940, Volume 1,* US Army Corps of Engineers, Baltimore District, August 1995

Legacy Resources Management Program, U.S. Department of Defense and United States Department of the Interior, National Park Service, *World War II and the US Army Mobilization Program: A History of 700 and 800 Series Cantonment Construction*, Washington, DC, U.S. Government Printing Office, 1993.

Mueller, Robert, *Air Force Bases, Volume I.- Active Air Force Bases Within the United States of America on 17 September 1982*, Office of Air Force History, U.S. Air Force Historical Research Center, U.S. Air Force, Washington, DC, 1989.

U.S. Engineer Office, McChord Field, Tacoma, Washington. "Motor Repair Shop, Type MRS-1 (Type SP-1 modified)—file No. N-6F-1781, June 9, 1942." Original brownline in Building 308.

U.S. Engineer Office, Seattle, Washington. "Shop for quartermaster Light Maintenance—file No. N-6-87, November 18, 1941." Original brownline in Building 308.

C. Likely sources not yet investigated:

1. Documentary: Information on the firm charged with the construction Building 724 may be available. Information may be available in the National Archives on the engineers and architects of either the Army Quartermaster Corps or the Army Corps of Engineers who produced and revised the 800 Series plans for the Army Air Force.

2. Oral history: Interviews could be conducted with personnel involved with the construction of Building 724 at McChord Air Force Base and military records could be searched for personnel who may have worked in the building.

D. Supplemental Materials:

1. Standard Army Air Corps plans for the 800 series may be available from the National Archives.

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Seattle District
U.S. Army Corps of Engineers August, 1997

PART IV. PROJECT INFORMATION

The documentation of Building 724 at McChord Air Force Base was undertaken by the Technical Center of Expertise for Historic Preservation of the U.S. Army Corps of Engineers, Seattle District, Paul W. Chattey, project manager, in 1997. The project funded by the 11 CES/CEV, McChord Air Force Base. The documentation was undertaken by Paul W. Chattey, USACE Seattle District. Large format photography was completed by Rod Slemmons, Crux Photography, Seattle, Washington.

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[1] File Number McD-J-1364, *Motor Pool Development* drawing, McChord Air Force Base, Washington, February 3, 1956, Sheet 1 of 1.

[2] Real Property Accountable Record - Buildings (AF Form 1430) April 1, 1957, McChord Air Force Base, Washington.

[3] Fine, Lenore and Jesse A. Remington, The Corps of Engineers: Construction in the United States (volume in the series, United States Army in World War 11: The Technical Services). Washington, DC: Office of the Chief Military History, United States Army, page 349.

[44] File Number N-6-87, Shop For Quartermaster Light Maintenance. "As Built" drawing, McChord Air For Base, Washington, 1941, sheets 1-9.

[5] File Number N-6F-178. Motor Repair Shop, Type MRS-1, Type S9-14 Modified "As Constructed" drawing, McChord Air Force Base, Washington,, sheets 1-9.

[6] Glass, James A, Keith Landreth & Richard Hayes, *FORT McCOY, BUILDING T-463 MAINTENANCE SHOP).* Historic American Buildings Survey, WI-308-E, 1988, page 1.

[7] Glass, page 2.

[8] Real Property Records, McChord AFB.

[9] Goodwin, R. Christopher and Associates, *National Historic Context for Department of Defense Installations, 1790-1940, Volume 1,* US Army Corps of Engineers, Baltimore District, August 1995, 81.

[10] Public Law 263, 74 Congress, I Session, 49 Stat. 594, August 12, 1935.

[11] Craven, Wesley Frank and James Lea Cate, *The Army Air Forces in World War II* (Volume 6: *Men and Planes*) University of Chicago Press, Chicago, 1955, 131.

[12] Manning, Thomas A., "Origins of Randolph AFB" MSS, Air Training Command. History Office, Randolph AFB, Texas, 1987), as quoted in Goodwin, R. Christopher and Associates, National Historic Context for Department of Defense Installations, 1790-1940; Volume I Baltimore, MD: United States Army Corps of Engineers, 1995, 50.

[13] Fine and Remington, page 95. Craven, Wesley Frank and James Lea Cate, *The Army Air Forces in World War II* (Volume 6: *Men and Planes*) University of Chicago Press, Chicago, 1955,

[14] Craven, Wesley Frank and James Lea Cate, *The Army Air Forces in World War II* (Volume 6: *Men and Planes*) University of Chicago Press, Chicago, 1955, 131.

[15] The Engineers found that design standards for runway and taxiway pavements were based on methods of calculating loads for highways. This was acceptable when prewar commercial aircraft had loads of 12,500 pounds per wheel. However, bombers with 37,000-pound wheel loads were already in use and heavier aircraft were coming. Eventually the Engineers and the Air Corps agreed that runways would be built capable of withstanding wheel loads up to 60,000 pounds until 1944 when newer, heavier bombers were expected.

[16] Fine and Remington, 452.

[17] Ibid., 462.

[18] The issue of maintenance and repair was resolved in November 1941, when the chiefs of each division agreed that the Engineers would assume all duties that, in a city, would be done by a city manager. The Quartermaster General elected to be in charge of "branch depots and to run bakeries, laundries, shoe repair shops, and the like."

[19] 55 *Stat.* 787 and 87th *Congressional Record*, 9005, 9400.

[20] Real Property Records, McChord AFB.

[21] Plan No. 100 (October 13, 1938) and Plan No. 6888-141 (June 9, 1939).

[22] David Evans and Associates, *Historic Resources Inventory and Evaluation*, McChord Air Force Base, Pierce County Washington, Bellevue, Washington, 1997, page 19.

[23] File No. N-6F-178.1, McChord Air Force Base, sheet 1.

[24] Anon., *Condensed History of McChord Air Force Base*, Unpublished MS, Base Library, McChord Air Force Base, N.D., 1.

[25] Anon., *History, Quartermaster Section, McChord Field, Wash.*, "15 March 1940 to 6 December 1941", and "7 December 1941 to 31 December 1942", Unpublished MS, Base Library, McChord Air Force Base, N.D.. Other Quartermaster activities included warehousing clothing, general supplies, perishable and non-perishable subsistence (food), clothing and equipment repair, sales and commissary, QMC offices and the motor pool.
The "new Quartermaster area" was referred to several times

[26] File Number McD-J-1364, McChord Air Force Base, Washington, Motor Pool Development, February 3, 1956, Sheet 1 of 1. This drawing indicates sewers, water lines, electric power and steam lines, fences and communications lines within the existing Motor Pool area.

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[27] File Number 100, McChord Field Washington, Grid Layout October 13, 1938, revised Jan 27, 1939, sheet 1 of 1. This plan was drawn from the boundary survey with the "street layout, building layout and other topographic features added."

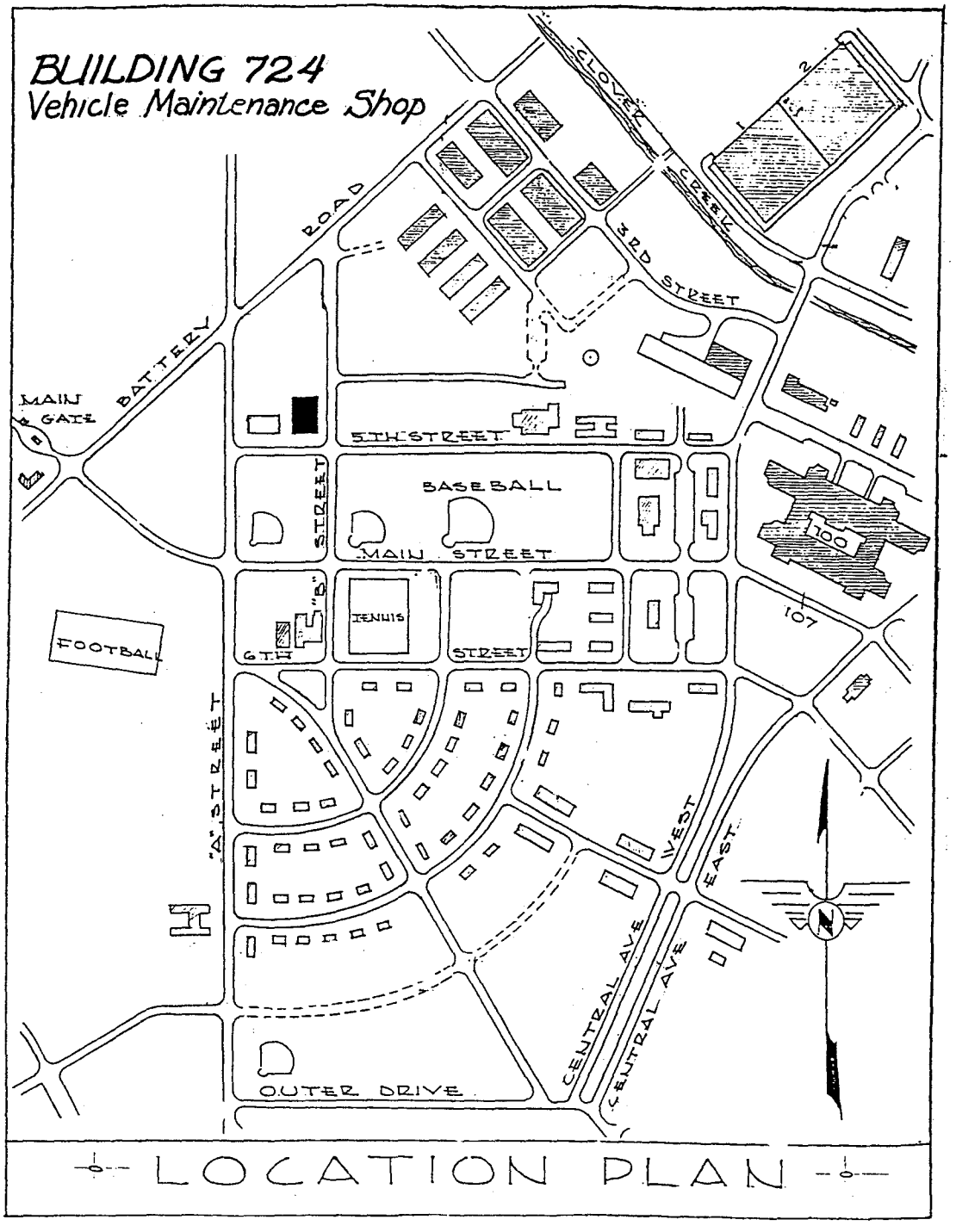

Figure 1. Location of Building 724 is shown as a black rectangle. (File McD-J-1364, *Motor Pool Development*, McChord AFB, Washington February 3, 1956, sheet 1 of 1.)

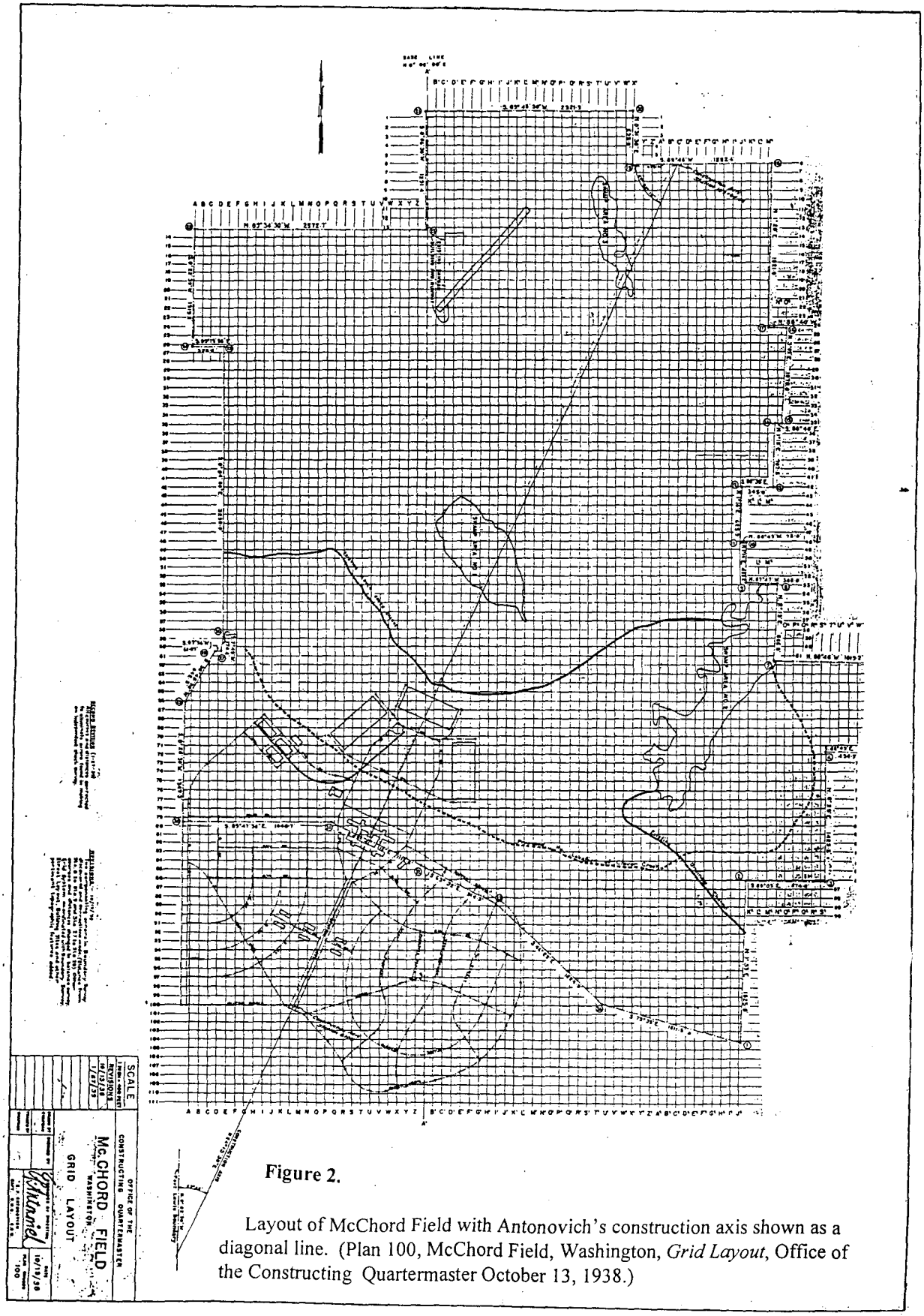

Figure 2.

Layout of McChord Field with Antonovich's construction axis shown as a diagonal line. (Plan 100, McChord Field, Washington, *Grid Layout*, Office of the Constructing Quartermaster October 13, 1938.)

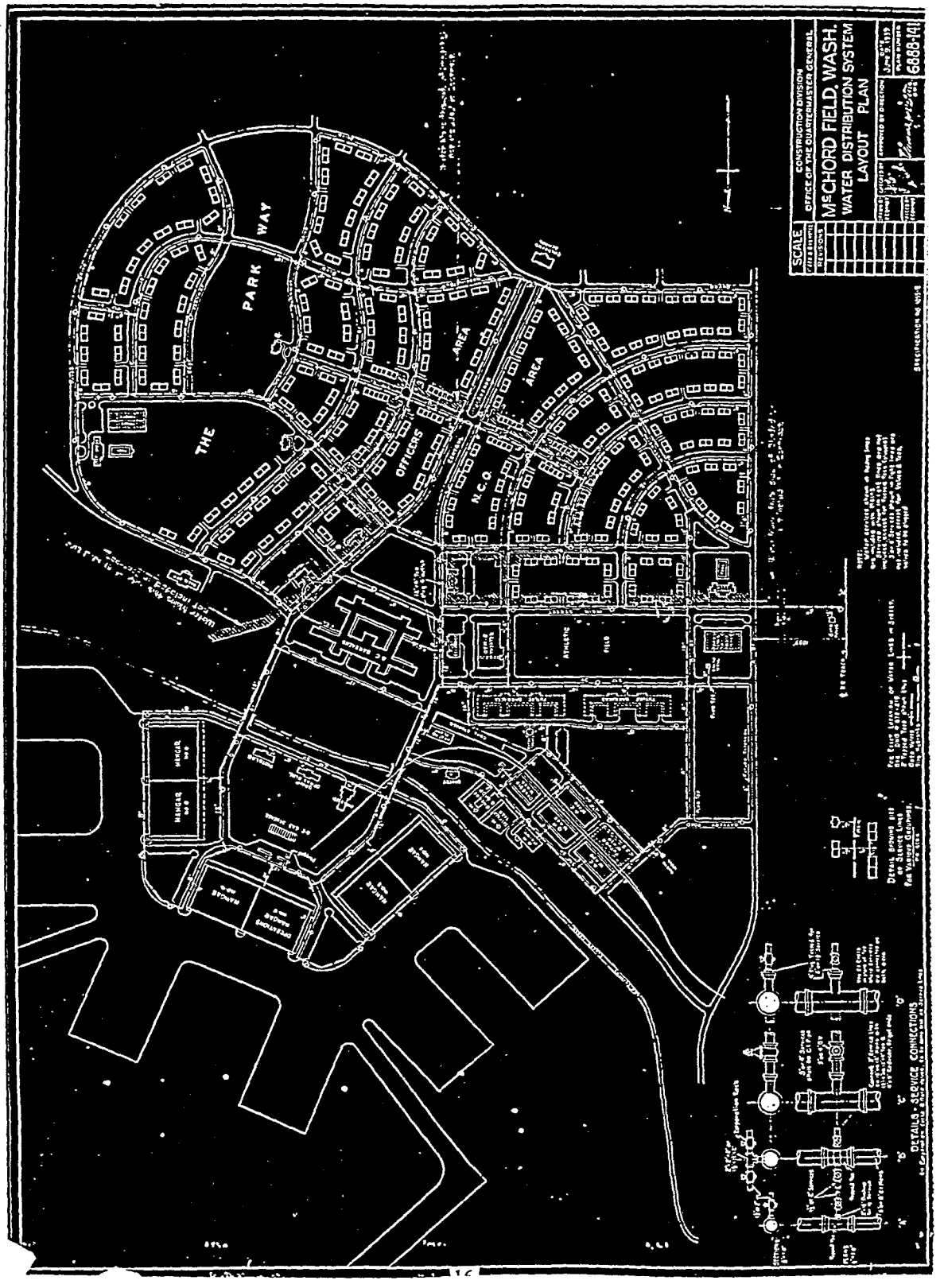

Figure 3. Bilateral symmetry of McChord Field shown with the axis being East and West Central Avenues. (Plan No. 6888-141, McChord Field, Washington, *Water Distribution System, Layout Plan*, Construction Division, Office of the Quartermaster General, June 9, 1939.)

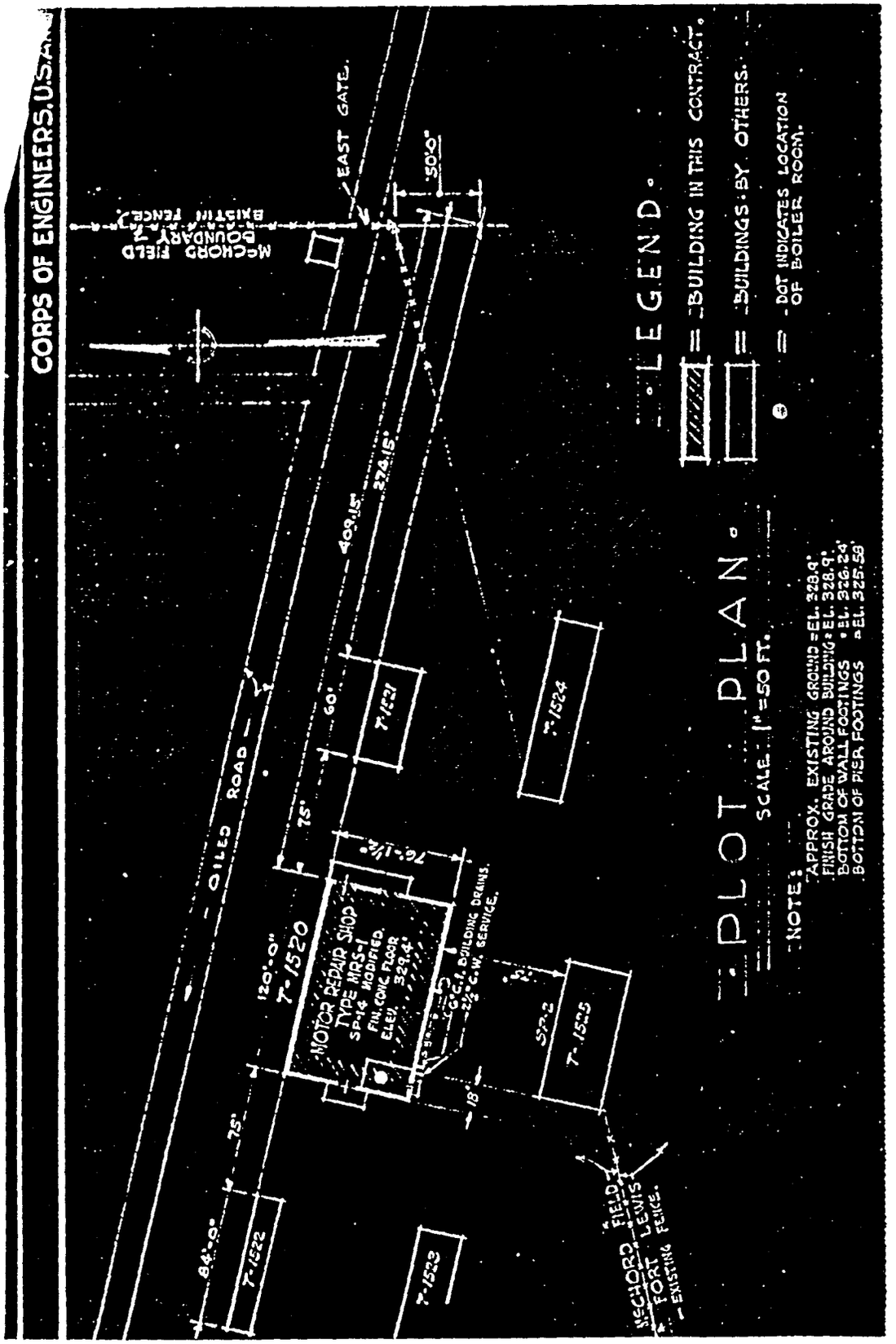

Figure 4. Detail from construction drawings shows proposed location of Building 724 on east side of McChord Field. (Plan N-6F-178.1 *Motor Repair Shop, Type MRS-1, Type S9-14 Modified,* McChord Field, Washington.)