

PART A

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INTRODUCTION

# NOTES

# PURPOSE OF STUDY

1.0

The purpose of this study is to produce a useful maintenance and repair manual for the historic buildings at Fort Lewis, Washington.

Care for these buildings is a responsibility shared by skilled maintenance shop personnel, their temporary assistants, facilities engineers, outside consultants, contractors and building users. Therefore, this manual has been written with a wide audience in mind.

This manual recognizes that some readers may have more familiarity with building components than others. Likewise, familiarity with historic elements, craftsmanship and historic design will also vary from reader to reader.

For these reasons, this manual is very broad in scope yet provides sufficient detail to enable the user to successfully repair and maintain many building elements.

Each building has also been studied to determine its original historic appearance. Altered elements have been noted.

Additionally, a preliminary condition survey was performed for each building to document the presence of, and general condition of its building elements; known structural or maintenance problems; and recommendations for maintenance and repair of these elements. This condition survey data provides justification for the future funding of maintenance and repair work.

On a larger scale, the purpose of this study could be stated as providing a means for ensuring the continued preservation of these unique buildings constructed at a time when military structures represented quality, stability, endurance and protection to the community and to the nation.

# METHODOLOGY

1.1

Since the objectives of this study were to identify and document existing building elements, windows and doors; document building conditions; and to prepare a maintenance and repair manual, we planned three sets of visits to Fort Lewis.

The first set of visits was to survey our assigned buildings in order to fill out condition survey forms and note all conditions requiring maintenance and repair. We also recorded each of our windows and doors.

During our second visit set we noted the presence of or lack of the building elements assigned to us, their unique characteristics and their condition. This was concurrent with the structural engineer's condition survey.

Our third visits were to verify questions and gather additional information.

Following our first set of visits we wrote our condition surveys, our maintenance and repair notes and formalized our matrix forms.

We then proceeded with the production of articles and illustrations for the maintenance and repair segment, editing and modifying material from our Vancouver Barracks report as much as possible.

Throughout the course of this project, lists were kept of sources of hard to find materials, and of books and articles used. These are included in the manual as well. We also spoke to several skilled craftsmen employed at Fort Lewis. Their insight, comments and concerns were very helpful and their concern for these buildings is evident.

# EXECUTIVE SUMMARY

1.2

The historic buildings at Fort Lewis represent an era when military architecture set an example of strength and endurance to the community and to the members of the armed forces.

These buildings were constructed of substantial materials and were detailed to resist the effects of detrimental weather conditions. They have remained in good condition and are still close to original design. Exteriors have not been seriously altered, and interior alterations are mostly reversible.

The most prevalent problems noted are caused by vehicle impact and by moisture which has been allowed to penetrate poorly painted surfaces.

The following are several specific concerns noted during our survey:

Many masonry corners of the shop buildings have been damaged by impact. Deferring their repair will increase the degree of damage.

Metal handrails and window sashes are experiencing decay from rust. All rust needs to be removed and elements need to be properly painted as soon as possible to avoid extensive replacement cost.

Wood trim, windows and sills also need proper preparation and painting to avoid decay from moisture penetration.

Glazing putty also needs special attention.

Spalled concrete at window sills and porch steps is allowing moisture to corrode reinforcement. This will soon create safety hazards and expensive repairs if not corrected.

Attic cross-ventilation of many buildings needs to be verified to avoid condensation damage to rafters.

Both the Hostess House and the Museum are experiencing roofing failures which need immediate repair to avoid costly damage to these buildings.

Site drainage needs correcting in many areas before basements and foundations become weakened.

Weakened chimney mortar is a safety hazard.

Costs for repair of older structures are difficult to anticipate. Costs will vary according to the degree of preparatory work, the quantity of work, the accessibility of the work, the amount of clean-up and finish required, the season and labor market, availability of materials and the quality of the contract documents and specifications. Approximate ranges of costs in 1987 are as follows:

Window Repair	\$100.00	-	\$190.00
New Windows	\$470.00	-	\$520.00
Composition Roofing	\$ 90.00/sq.	-	\$210.00/sq.
Masonry Cleaning	\$ .62/s.f.	-	\$ 1.30/s.f.
Masonry Repair	\$ 1.00/s.f.	-	\$ 2.50/s.f.
Plaster Repair	\$ 24.00/s.y.	-	\$ 28.00/s.y.
Paint Trim	\$ .70/l.f.	-	\$ 1.53/l.f.
Concrete Repair	\$ 3.57/s.f.	-	\$ 5.90/s.f.

Deferred maintenance causes increased repair costs. For example, many window sashes have been weakened due to neglect. The future expense of replacing deteriorated sashes can only be eliminated by halting the deterioration. This requires funding for the replacement of loose, cracked or missing glazing putty which is allowing water infiltration; for the removal of all paint from the inside sash runs which is causing binding and stressing joints; and for the stripping and repainting of sashes to provide a uniform protection of paint. Inside sash runs should be waxed regularly to operate smoothly. Hardware may need adjusting.

Deferred maintenance has severely affected the Hostess House, one of the most significant buildings at historic Fort Lewis, (Building 4274). Although the structure is still sound, this building needs at least immediate roofing and painting attention. This building should not be allowed to fall into disrepair as an excuse for demolition.

It also became evident that some engineers, consultants and contractors are being allowed to perform work without having an awareness of historic materials or regard for the Secretary of Interior's Standards for Rehabilitation. Not only does this need to be addressed in all specifications for work on historic buildings, but a method needs to be developed to assure that work is actually performed in accordance with these specifications. To monitor compliance on the owner's behalf is typically the role of the architect.

With the highly skilled craftsmen currently employed at Fort Lewis, and the availability of extensive metal and woodworking shop capabilities, much upcoming work could be handled by their talent and capabilities. We recommend that on-base personnel, with additional funding and staffing, should be preferred over outside contractors for maintenance and repair work. On-base personnel are sensitive to the historic character of their buildings, are accountable for their workmanship and are motivated to do things right the first time.

## ADDITIONAL RECOMMENDATIONS

1.3

The historic buildings at Fort Lewis, with proper care, will endure for the appreciation of many future generations.

To assure this, we recommend that funding be routinely provided for ongoing preventive maintenance measures. This will reduce the number of expensive "emergency" repairs which risk being done without appropriate architectural criteria or funding. Critical preventive maintenance items include the prevention of moisture damage to windows and wrought iron railings, the prevention of moss buildup on masonry and concrete, and the prevention of sod and mulch build up obstructing drainage patterns.

Quality of workmanship is also a concern. Contracted work is especially problematic and needs to be clearly specified and monitored due to the nature of the "lowest bid" process. Consultants and contractor's should be required to study historic construction documents prior to starting work. A list of available historic architectural drawings is included in the Appendix. We recommend that Fort Lewis personnel be utilized as much as possible to avoid this problem and to take advantage of existing expertise and loyalties. On site personnel should have access to periodicals addressing the care of older buildings, especially the "Old House Journal". Architects trained in historic renovation should be retained to act as design and construction consultants.

In addition, a complete landscape plan for the historic site should be designed by a licensed landscape architect. Overgrown shrubs will need to be removed and replaced with new low-maintenance material in compliance with the landscape plan. Suggested criteria for the landscape plan might include consideration of circulation and traffic patterns, shading of west windows, adequate planting distance from building faces, vistas and drainage.

Building code deficiencies, especially for fire safety, will also need to be addressed in the future. Most officials are given the authority to determine the degree of compliance necessary for a historic building.

In the early 1900s, the U.S. military underwent a number of organizational changes in response to a major increase in authorized troop levels, changes in technology and tactical strategies, and revision of long-term planning policies. The thrust of this reorganization was towards a concentration of troops in large, durable posts at strategic points affording readily available transportation, supply, and training areas. Based on the Reorganization Act of 1901, a number of posts were closed while others were expanded to brigade-level status. This resulted in a major construction phase between 1903 and 1916. Subsequent planning, based on recommendations developed in 1912 by the General Staff and influenced by European models, proposed establishment of even larger facilities organized on a division level.

Within this context, a group of Tacoma businessmen approached the Army in 1916 with an offer to provide free land for a major, permanent military post south of the city. This action resulted in the development of Camp Lewis in 1917. Camp Lewis was in fact, the first military installation in the history of the nation to be created as the direct result of an outright gift of land by local citizens. It was named in honor of Army Captain Meriwether Lewis of the historic, nation spanning, Lewis and Clark Expedition. The camp, under the command of Major General Henry A. Greene and consisting of wood frame structures, was constructed in only eight weeks to serve the needs associated with the U.S. entry into World War I. Although the largest military post in the country at the time, this initial construction was related to war time needs and did not have the durable facilities or planning associated with the concept of a permanent division-level post. Camp Lewis consisted of 1,757 buildings forming a U-shaped cantonment, with buildings built to standardized plans. In addition to the camp, a recreation area run by civilian organizations was authorized on the north side of the Pacific Highway, which included stores, restaurants, a library, a theater, and a hotel for relatives and friends of the troops. The hotel, known as the Red Shield Inn, was run by the Salvation Army. One other facility, run by the Red Cross, was located near the post hospital to provide accommodations for relatives of seriously ill soldiers.

The use of Camp Lewis declined after the war, and the buildings, built to meet the immediate war needs, deteriorated rapidly. The situation spurred protest by local groups, who threatened to invoke a reversionary clause in the deed if a permanent post could not be established. In 1924, Congress authorized development of a comprehensive plan implementing the 1912 recommendations for permanent division-level posts with a specific mention of Camp Lewis. Two years later, funds were appropriated for construction of barracks and the facility was renamed Fort Lewis.

Design principles were developed through the Office of the Quartermaster General with the assistance of civilian architects and planners. These principles included the use of a consistent architectural style, permanent brick construction, grouping of related buildings, officer housing patterned after civilian residential subdivisions, and a park-like setting. In the case of Fort Lewis, the resulting design developed four sub areas including the barracks, the officer and NCO housing, medical facilities, and the motorpool. The site plan reflects precedents established in earlier posts: the barracks, administrative services, and officer housing clustered around the main parade ground, while operational services were located to the rear of the barracks. The parade ground separated officer's housing from the barracks and was a conscious design decision indicating the military social hierarchy. Status was emphasized by the architectural complexity of units and even in the landscaping. For example, the location and types of trees bordering the parade ground provided privacy for officers quarters through use of conifers, while maintaining visual control of the enlisted area where deciduous trees were planted. In contrast to earlier posts, however, Fort Lewis was on a much larger scale, and there were major design differences within the subareas. The layout of the officer's housing takes inspiration from the housing clusters and curved streets typical of civilian subdivisions based on the Garden City planning concept, which was coming into vogue in the mid-1920s. The barracks at Fort Lewis were designed to accommodate close to 1000 where formerly they housed about 100 men. In addition, the barracks departed from the earlier complexes in that the concept was based on a collegiate quadrangle scheme.

The main portion of the historic district at Fort Lewis was constructed between 1927 and 1939. With a few exceptions, most notably the Romanesque post chapel (Building 2001), the buildings reflect a somewhat modified or simplified Georgian Revival architectural style, but with predominantly tile roofing materials. Larger structures such as the barracks, shop facilities, and multiplex officers units were designed through the Office of the Quartermaster General. Detached officer and NCO quarters were apparently adapted from civilian residential pattern-book designs, which were in keeping with the overall architectural character of the post. Some of the community buildings such as the chapel and the headquarters (Building 1010) were designed under contract to architectural firms. Structures built during the 1930s were influenced by the policies of the Public Works Administration (PWA), which provided not only funding but also encouraged the use of artisan-laborers in construction. Consequently, the architectural detail and ornamentation, particularly as seen in the chapel and headquarters, is atypical of traditional army design. Because of this available skilled labor, the headquarters building is the best example of a Georgian Revival style at the fort, and the chapel's brick, stone, and mosaic tile detail work make it one of the most impressive buildings on the post. One structure from the period, a gas station (Building 4176), stands out more from its deviation from the Georgian theme than from its purpose and architectural scale. The building, located near the former site of the main gate, was constructed in a northwest vernacular cobblestone style. It reflects architectural use of materials more in keeping with the period of the gate (Building 5903), which was designed by famous northwest architect Curtland Cutter. It also can be associated with the continuation of this rustic tradition as practiced by Works Progress Administration (WPA) designers in the Northwest's parks during the Depression. It was during this time of planned growth in the 1930's, that two officers who were later to become famous as generals in World War II were stationed at Fort Lewis. They were General Mark W. Clark later to become Chief of Army Field Forces and former President and General of the Army, Dwight D. Eisenhower.

This building phase at the post was never completed to the full scale originally envisioned. Part of this was due to problems in obtaining adequate appropriations, but probably the main underlying cause was the fluctuating levels of assigned personnel; planning and construction tended to be prioritized on an as-needed basis, and the post never achieved its planned compliment prior to World War II. Nevertheless, what was built strongly reflects the original vision, and Fort Lewis remains as one of only two active installations planned under the initial division-level concept.

Unlike the original Camp Lewis of 1917, W.W. II wartime needs at the post generated a totally different design agenda that halted planning and construction of permanent facilities. Subsequent to the war, design and construction responsibilities were reassigned to the U.S. Army Corps of Engineers, planning shifted more towards an industrial model, and the military was restructured under the Department of Defense. This resulted in the termination of the design practices which were developed under the Office of the Quartermaster General. The cohesiveness of architectural style and materials was abandoned, as was the idea of a park-like setting. Economy and efficiency became the primary goals of post-war construction, and the result was a clash with the earlier policies.

The qualities of the pre-1939 installation are reflected in both the architecture and planning that established a cohesive social and visual character at the post. The use of the Georgian Revival style promoted a homogeneity even though rank was signalled through different types and treatment of units. All this was integrated by the important landscaping and arrangement of open space. The clean lines of the architectural style, emphasized by symmetry, rhythmic patterns, and classical detailing, provide the visual unity for the historic district. Most exterior details as originally designed are important contributing elements. Particularly important are the symmetrically placed multipaned windows, tile and slate roofing materials, large ventilator caps, entry details and ornamentation, and pipe or wrought-iron railings. Subsequent renovation of many buildings and landscaped areas due to functional needs have violated the architectural qualities that help maintain the unity of the district.

These include infill of windows and porch areas, externally mounted mechanical and communications systems, and conversion of landscaped areas into parking lots particularly as seen in the barracks area. Nevertheless, the strength and quality of the original design is substantial enough to maintain the overall integrity of the district. Future modifications, however, should take into account the original architectural and landscape design principles so that further deterioration of the district does not occur.

## SIGNIFICANCE

Properties are eligible for listing in the National Register of Historic Places if they meet one or more of the following criteria:

they are associated with events that have made a significant contribution to the broad patterns of our history;

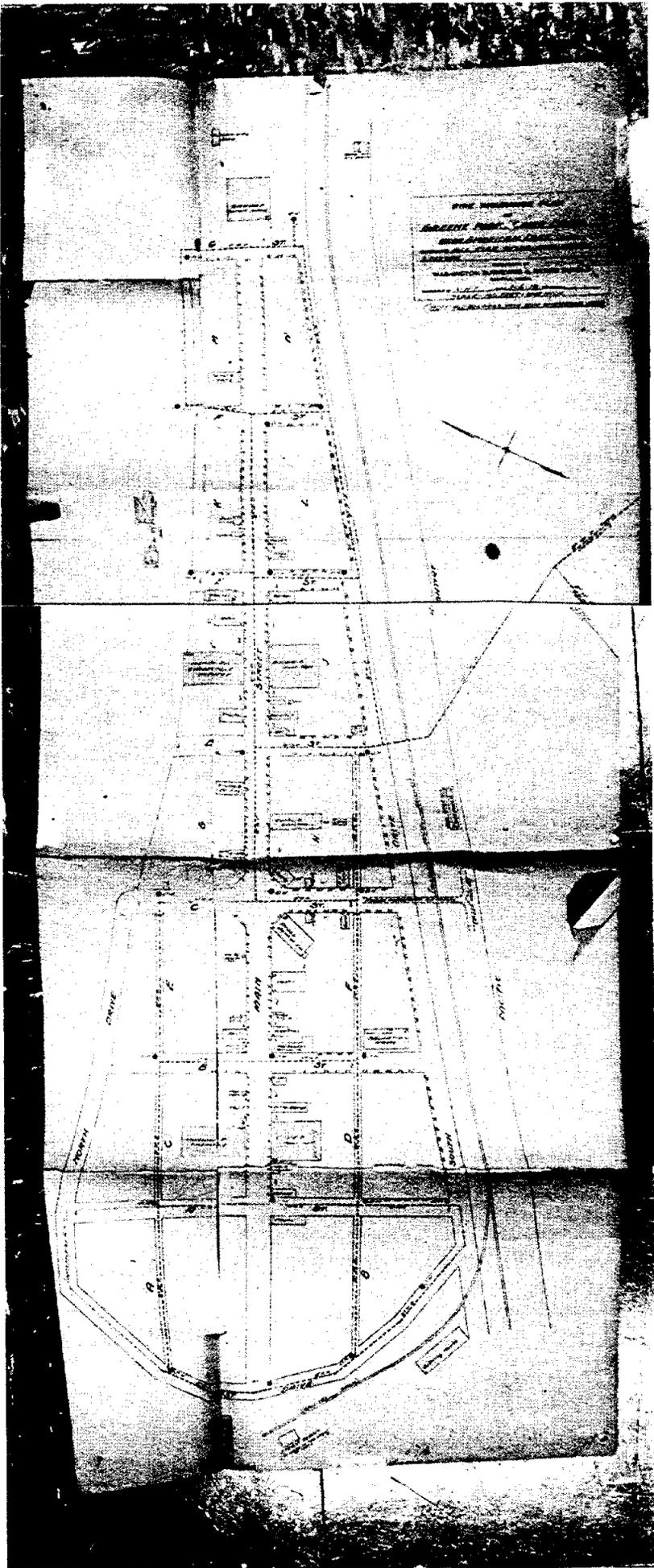
they are associated with the lives of persons significant in the nation's past;

they embody the distinctive characteristics of a type, period of construction, represent the work of a master, possess high artistic value, or represent a significant and distinguishable entity whose components may lack individual distinction; or

they have yielded, or may be likely to yield, information important in prehistory or history.

Fort Lewis is one of two remaining active posts from the period of planned consolidation of facilities into division-level installations, which is also considered by some to be the highpoint of military planning under the centralized control of the Office of the Quartermaster General. Although most buildings on their own do not stand out as masterpieces, the overall combination of site planning and architectural design consistency qualifies the installation as a significant historic property. The physical characteristics have already contributed to a study of the military planning process focusing on the 1927 to 1939 period (Swanburg, 1982), and have the added potential for additional study and analysis of the military social functional relationships in period planning. It also provides a critical opportunity to investigate national and regional landscaping practices at major military installations, which is an aspect that has received little attention. Military landscape design has limited documentation except for the actual plantings, and also appears to reach a zenith during the 1930s.

The key issue to remember is that the primary significance of the historic district rests in its military site planning and design concepts. These concepts are represented by the total fabric of the historic district including space organization, park-like landscaping, buildings, building materials, and harmonious architectural design. Consequently, in order to minimize deterioration of the historic qualities that make this an historic district, maintenance, repair, rehabilitation, and new construction must take the original design principles into account. In addition, there are several buildings within the installation that have unique or higher quality architectural design properties, which compel even more rigid preservation and design consideration. These include the Chapel (Building 2001), the original post Headquarters (Building 1010), the Gas Station (Building 4176), and the Red Shield Inn (Building 4320), which is now the museum. As a public facility promoting Army history and image, the museum should have priority for a more restorative preservation approach; this is most urgent since previous modifications and poor maintenance have resulted in unfortunate damage to the original fabric and unique architectural qualities. Although the historic properties report (Building Technology Inc., 1986) lumps most of these buildings into a Category III designation, this evaluation and associated recommendations also should be reconsidered.



MAP OF GREENE PARK,  
CAMP LEWIS 1918

Historic buildings were typically constructed under less stringent, or in some cases, non-existent codes governing construction. These codes include building codes, zoning codes, mechanical codes, electrical codes, fire codes and all relevant supplements and local requirements. Codes are typically revised every two or three years in response to amendment proposals from users, to dangerous conditions and disasters, to new building materials and methods, and other safety and welfare concerns. Although construction at Fort Lewis may not be governed by these codes, they should serve as guidelines for safe construction.

Designers must have a working knowledge of all relevant codes and attempt to incorporate these code standards in all renovation work. Of special significance are exiting standards governing corridors, stairs, window openings and other fire exiting measures. Other items frequently encountered are the need for safety glazing adjacent to doorways, railings spaced to prevent small children from squeezing through, preservative treated wood where in contact with concrete or masonry, attic and crawl space ventilation to prevent decay, impervious surfaces in toilet rooms to prevent the spread of bacteria and many other requirements designed to provide "minimum standards to safeguard life or limb, health, property and public welfare".

Because it is often impossible to bring an older building up to the standards of today's codes, the architect and engineer must rely on good judgment keeping in mind the intent of the safety measures. In most cases, if reasonable efforts are made to improve safety, some leeway may be granted when necessary to maintain historic character defining elements.

# DEMOLITION, SELECTIVE REMOVAL AND SALVAGE

1.6

Historic buildings are composed of many elements which are often in delicate condition, no longer produced or expensive to reproduce. Therefore, "demolition" when applied to these buildings, is usually termed "selective removal". Selective removal practices often required that many elements are not demolished, but rather are removed, protected, stored, labeled and refurbished for reinstallation.

This removal requires much care for, recognition of, and understanding of, historic elements. They must be removed in reverse order for their installation, with pieces numbered and locations documented.

Selective removal of historic elements should be done under direction of an architect familiar with historic structures. A documented survey listing significant or reusable elements should be conducted prior to the start of work.

Other demolition can proceed only after significant elements have been removed and elements remaining in place have been protected.

Salvageable material needs to be stored in a dry, protected location, well organized and completely inventoried to prevent unnecessary disturbance to stored items. A procedure and facility for this process must be developed and maintained. Exception must be taken with directives to "dispose of unused items", "clean house", and other policies in conflict with this need.

# SECRETARY OF THE INTERIOR'S STANDARDS FOR REHABILITATION

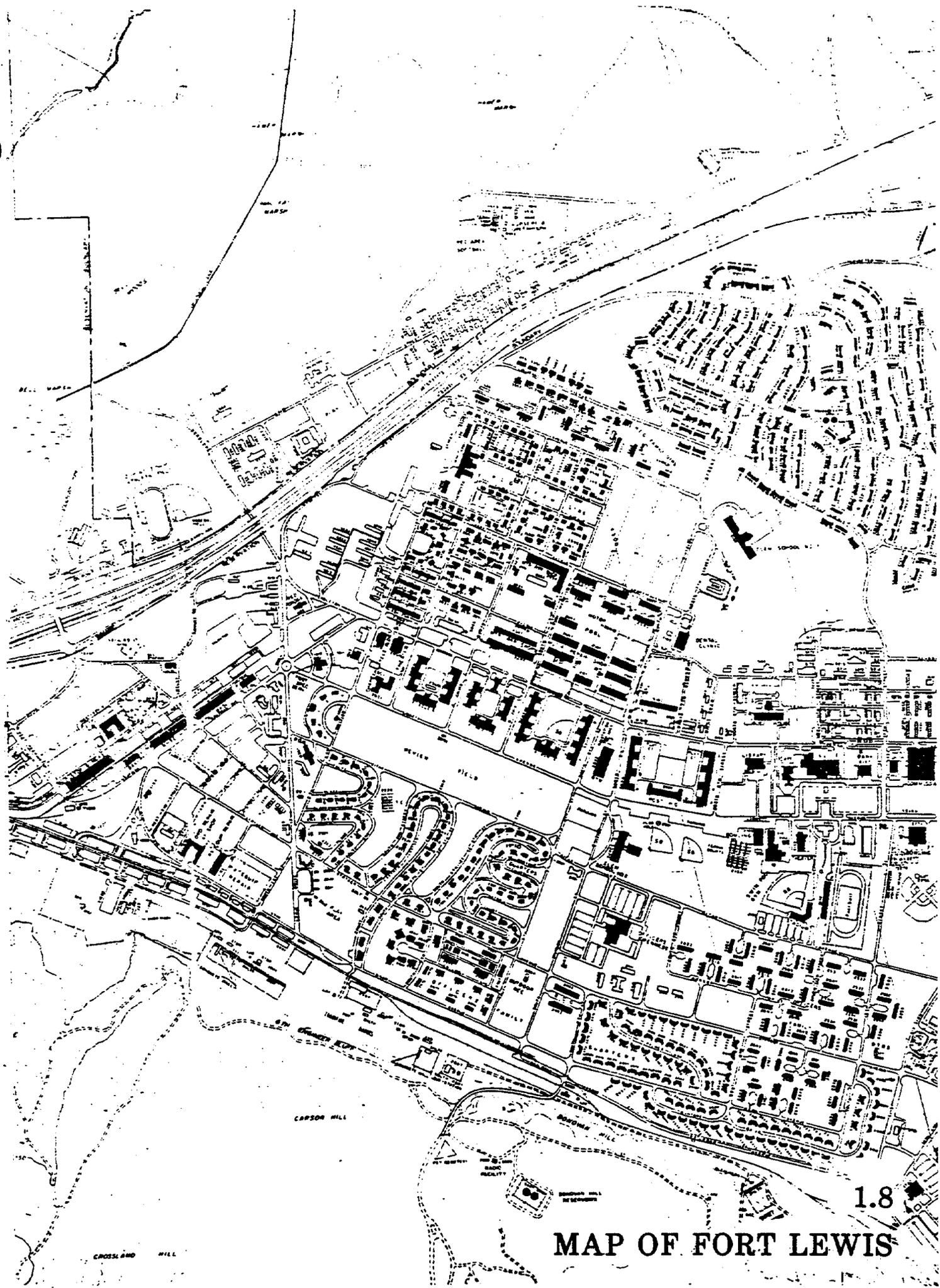
1.7

The U. S. Department of the Interior, National Park Service, Preservation Assistance Division has published the Secretary of the Interior's Standards for Rehabilitation to direct work undertaken on historic buildings. The Secretary of the Interior is responsible for advising Federal agencies on the preservation of historic properties and has therefore developed ten Standards for Rehabilitation.

The Standards for Rehabilitation are as follows:

1. Every reasonable effort shall be made to provide a compatible use for a property which requires minimal alteration of the building, structure, or site and its environment, or to use a property for its originally intended purpose.
2. The distinguishing original qualities or character of a building, structure, or site and its environment shall not be destroyed. The removal or alteration of any historic material or distinctive architectural features should be avoided when possible.
3. All buildings, structures, and sites shall be recognized as products of their own time. Alterations that have no historical basis and which seek to create an earlier appearance shall be discouraged.
4. Changes which may have taken place in the course of time are evidence of the history and development of a building, structure, or site and its environment. These changes may have acquired significance in their own right, and this significance shall be recognized and respected.
5. Distinctive stylistic features or examples of skilled craftsmanship which characterize a building, structure, or site shall be treated with sensitivity.
6. Deteriorated architectural features shall be repaired rather than replaced, wherever possible. In the event replacement is necessary, the new material should match the material being replaced in composition, design, color, texture, and other visual qualities. Repair or replacement of missing architectural features should be based on accurate duplications of features, substantiated by historic, physical, or pictorial evidence rather than on conjectural designs or the availability of different architectural elements from other buildings or structures.
7. The surface cleaning of structures shall be undertaken with the gentlest means possible. Sandblasting and other cleaning methods that will damage the historic building materials shall not be undertaken.
8. Every reasonable effort shall be made to protect and preserve archaeological resources affected by, or adjacent to any project.
9. Contemporary design for alterations and additions to existing properties shall not be discouraged when such alterations and additions do not destroy significant historical, architectural or cultural material, and such design is compatible with the size, scale, color, material, and character of the property, neighborhood or environment.
10. Wherever possible, new additions or alterations to structures shall be done in such a manner that if such additions or alterations were to be removed in the future, the essential form and integrity of the structure would be unimpaired.

In addition to these ten standards, this booklet continues with an explanation of each point and specific applications to building materials. The complete text of the Secretary of the Interior's Standards for Rehabilitation is included in the Appendix, Part F.



MAP OF FORT LEWIS

# NOTES

# HISTORIC ARCHITECTURAL DRAWINGS 1.9

These architectural drawings represent original drawings or prints from the original drawings of the indicated buildings. This listing is not comprehensive in scope but does indicate those in-house drawings which should be referenced during the development of any new working drawings for these buildings.

<u>BLDG. #</u>	<u>DWG. DATE</u>	<u>DWG. TYPE</u>	<u>DWG. CONTENT</u>	<u>FILE</u>	<u>SHTS</u>
4291	1933	traced 1970	complete set	3344	7
4291	1934	revision	plan	2823	1
4292	1930	traced 1970	complete set	2824	5
2004	1940	prints of orig.	lobby addition, complete	3618	13
4290	1940	prints of orig.	addition of 2 wings, complete	6105	41
4290	1929	prints of orig.	plans of first phase		2
NCO Bungalow	1928	prints of orig.	plans, elevations, details	6105	3
NCO Rowhouse	1940	prints of orig.	plans, elevations, details	625/ 4545	2
NCO Residence	1933	prints of orig.	plans, details		2
2055, 2058, 2057	1934	prints of orig.	plans	2851	1
2044	1934	prints of orig.	complete set	2843	4
2070, 2066, 2063, 2072, 2069, 2065 2064, 2071	1933	prints of orig.	plans and elevations	2852	2
2056, 2060, 2059	1933	prints of orig.	plans and elevations	2851	1
2051, 2054	1934	prints of orig.	complete set	2850	5
2045, 2049	1934	prints of orig.	complete set	2833	6
2050, 2043, 2062	1934	prints of orig.	complete set	2846	3
4174	1933	prints of orig.	wall section, details entry details structural concrete elevations	2858	4

<u>BLDG. #</u>	<u>DWG. DATE</u>	<u>DWG. TYPE</u>	<u>DWG. CONTENT</u>	<u>FILE</u>	<u>SHTS</u>
4174	1934	prints of orig.	lighting plans & schedule	2858	2
1010	no date	print of orig.	door types mechanical schedules electrical plans of attic and basement	2794	1
1010	1933	1971 trace	structural plumbing and heat	2794	2
2019	1927	traced 1970	main entrance details	2836	1
2019	1968	MCA remodel	plans/new equipment	2678	1
2019	1927/1970	print of orig.	plans/heating-electrical	2836	1
2025	1938	traced 1940	complete set	2841	6
2012/2013	1929	traced 197	complete set	2839	7
2014	1933	traced 1970	complete set	2892	8
2026/2027	1938	traced 1940/1970	floor plans/details	2872	5