

D-69

HISTORIC STRUCTURE REPORT
ARCHITECTURAL DATA SECTION

for

CHIEF FACTOR'S HOUSE
KITCHEN
WASH HOUSE
FLAGPOLE
BELL POLE

L FORT VANCOUVER NATIONAL HISTORIC SITE
VANCOUVER, WASHINGTON

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COMPENDIUM

The Architectural Data Section of the Historic Structures Report provides the design criteria in narrative form and graphically for the reconstruction of the Chief Factor's House, Kitchen, Wash House, Flagpole and Bell Pole at Fort Vancouver National Historic Site.

The design of these structures follows the recommendations of the Historic Data Section and the findings of the archeologists so far as is practical. Where options have been presented or differences in interpretations exist, the architect has used his best judgement based on research and knowledge; and has consulted with interested parties to resolve differences, in particular with respect to structural considerations.

Dr. John A. Hussey, author of the Historic Data Section has given valuable counsel toward solutions.

This document completes the research necessary to produce authentic reconstructions of the above named structures as they existed during the heyday of this western headquarters of the Hudson's Bay Company on the Columbia River, c. 1845; and prepares the way for the production of construction drawings and contract documents for their physical reconstruction.

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I. ADMINISTRATIVE DATA

A. Identification and Proposed Treatment

The Chief Factor's House (also referred to as the "Big House"), Kitchen (also referred to as "cookhouse"), Wash House, Flagpole, and Bell Pole (also referred to as Belfry) at Fort Vancouver National Historic Site, Vancouver, Washington are classified as structures of "First Order of Significance". It is proposed that the above structures shall be reconstructed in the form, manner and appearance as they existed c. 1845, so far as possible from research by historians, archeologists and architects. See Plate 1.

B. Proposed Use of Structures

The structures listed in A, above, shall constitute major exhibits in place within the palisaded area of the reconstructed Fort Vancouver. The post was first founded during the winter of 1824-25 as the headquarters for the Hudson's Bay Company for all operations of the "Honorable Company" west of the Rocky Mountains. The fort was the residence of the Chief Factor, and was the commercial and cultural center as well as the seat of authority over the government of this vast primitive territory prior to the Oregon Treaty of 1846, when the boundary line between the United States and Canada was established at the 49th parallel and was the goal of travelers, missionaries and settlers arriving in the Oregon country.⁽¹⁾ It continued in

(1) Fort Vancouver by John A. Hussey, published by Washington State Historical Society in cooperation with the National Park Service, 1957, pg 1.

importance as a U. S. Army establishment after Hudson's Bay Co. moved its headquarters to Victoria, B. C.

It is proposed that facilities of major significance at the fort will be reconstructed and furnished to provide the opportunity for interpretation of the significant story of the fur trade and the early settlement of the Pacific Northwest. Guides or park personnel, preferably in period dress, should be on duty at the Chief Factor's house and Kitchen at all hours that the facilities are open to the public, and interpretive demonstrations may be conducted. (2)

C. Justification for Such Use

Public Law 715, 80th Congress, approved on June 19, 1948, authorized the establishment of Fort Vancouver National Monument to preserve the site and to commemorate the importance of Fort Vancouver in the settlement and development of the Pacific Northwest. The actual establishment was accomplished by Secretarial Order published in the Federal Register of July 9, 1954.

The Historic Restoration Plan of the Master Plan approved January 7, 1969 calls for the complete reconstruction of the Chief Factor's House and Kitchen. (3)

The Wash House will be reconstructed for adaptive use as a much needed Comfort Station and Janitor's Station.

The Flagpole and Bell Pole are not specifically mentioned in the Master Plan, probably because their locations were not known until

(2) Master Plan, approved 1/7/69 - pg 2.

(3) Ibid - pg 30.

found by archeological explorations. But these structures are considered of major significance and performed an important function at the establishment.

II. HISTORICAL DATA SECTION

The Historical Data Section of this report has been prepared by John A. Hussey, and has been published in a separate Historic Structures Report, Fort Vancouver, Volume I, dated June 1972. That work is complete with many illustrations that will not be repeated with this section; but should be in the hands of the architects completing the construction drawings. The Chief Factor's House or Big House is covered in Chapter IX; Kitchen, Chapter X; Wash House, Chapter VIII; Flagpole, Chapter V; and Bell Pole, Chapter VI.

III. ARCHEOLOGICAL DATA SECTION

After demolition and destruction of the Hudson's Bay Company structures at Fort Vancouver, C. 1866, by the U. S. Army and the occupation of the site by the Army, all visual traces above ground of the various structures were lost and it became necessary to re-establish their exact locations by archeological explorations. This began in September 1947 under the direction of Louis R. Caywood. Some of the results of those explorations are contained in a volume titled Fort Vancouver, by John A. Hussey, published by Washington State Historical Society in cooperation with the National Park Service, 1957, and in unpublished documents and notes on file at Fort Vancouver N. H. S.

Explorations are continuing under the direction of John J. Hoffman and Lester Ross for the purpose of establishing more exact data with respect to the facilities and life at Fort Vancouver as they existed during the occupation by Hudson's Bay Company c. 1826-1860.

The excavations have been completed at the Chief Factor's House and Kitchen and the findings are contained in manuscript form title Fort Vancouver Excavations - IV dated September, 1973; that for the Wash House is contained in Fort Vancouver Excavations - I, May, 1972; and that for the Flagpole and Bell Pole are contained in Fort Vancouver Excavations - V dated October, 1973, all by Hoffman and Ross.

These findings verify the exact locations and plan size of the structures and provide valuable insight into the probable fabric of the structures. However, they are not conclusive with respect to details and some findings pertaining to architecture and structure are interpreted differently in this report. The same applies to some of the interpretations in the Historical Data Section.

IV. ARCHITECTURAL DATA SECTION

A. Record Drawings and Documentary Information.

No original construction drawings of any of the structures are in existence. Several contemporary sketch plans drawn to scale, and perspective sketches of the fort are available for study. Also, two excellent photographs that focus on the Chief Factor's house, taken for the British Boundary Commission, May, 1869 are available. (See appended Plate 7 and plates in the Historic Data Section.)

Some factual information regarding the interior plan arrangements and finish are included in the Historical Data Section referred to above; but much of the detail must be conjectural based on research of similar structures and contemporary methods of construction. Some of the data is obscured by an obsolete and/or foreign use of terms.

The 1860 photograph shows that the Chief Factor's house is strictly symmetrical about each axis--the only apparent deviation being the location of a single brick chimney. This would accuse a symmetrical plan arrangement of the rooms within.

The structures at Fort Vancouver were fabricated in the French-Canadian manner, most commonly employed by Hudson's Bay Company in America, and referred to as "Post-on-sill" and by some French-Canadians as "Pateaux en coulisse" (post with groove). Other variations of such descriptive terms were also used. The basic system consisted of a structural frame of heavy squared posts at intervals--10 feet or so--mortised into floor sills and eaves girts, and with horizontal infill of roughly squared logs 6 inches or more thick with

tenons fitting into vertical grooves in the posts, and connections pinned with treenails. The floor sills and girders were founded on stumps of logs planted in the earth. The loft space was invariably made usable by placing ceiling beams three or four feet below the eaves girts, and roofing the structure with rafters and collar beams above head height. Some of the smaller structures had gable ends closed in with board on board, but it seems that hipped roofs at a pitch of about 8 to 12 was preferred. (See Plates 8, 9 and 10.)

This is an over simplified description as connections can be complicated; but in log construction the system lends itself well to buildings of variable size--not being limited in length of walls by length of logs. Substantial buildings can be erected in this manner with the simplest of tools, principally the broad axe, adze, saw, auger, mallet and treenails.

At locations, such as Fort Vancouver, where saw mills were in operation, the buildings could take on refinements such as the use of sawn timbers and sheathing the buildings with clapboard weather boarding. A problem was the inherent nature of wood to shrink, swell and crack; making chinking and caulking a re-occurring chore to keep building weatherproof when the logs were left exposed and as the structures weathered.

The Hudson's Bay Company had a water powered sawmill in operation near Fort Vancouver as early as 1828 and in 1843 had a new and improved mill--the third one--on a small tributary of the

Columbia six or seven miles upstream from the Fort. The sawn lumber was floated down the Columbia in rafts. (1)

Tools in common use and stocked at Fort Vancouver included, broad axes, axes of various size, adzes, hammers, hand saws, pit saws, sash saws, cross cut saws, hand planes for smoothing, hand planes for mouldings, squares, caulking irons, mallets, chisels, etc. (2)

Connection devices including large assortments of cut nails, spikes and wood screws were on hand. And a blacksmith shop with a large stock of iron bars, sheet iron, bolts and tools for working iron and making hardware was in operation at the Fort. (3)

Window glass was listed in sizes 7" x 9", 9" x 8" and 7-1/2" x 8-1/2". (4)

Hinges, locks and other finish hardware in various sizes and for various purposes were carried in stock. (5)

Paint in various colors was on hand; but Spanish brown, which was the favorite color for trim on Hudson's Bay Co. buildings, white and black were stocked in the largest quantities. (6)

Brick were imported from England and lime, apparently, imported from the Sandwich Islands, as archeologists have identified mortar as made from coral. (7)

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- (1) History of Fort Vancouver, Hussey pg 198
 - (2) Historic Data Section, Hussey, Inventory of Sunday Goods, pgs. 260 - 292 incl.
 - (3) Ibid pg. 268
 - (4) Ibid pg. 266
 - (5) Ibid pg. 268 and 270
 - (6) Ibid pg. 271
 - (7) Fort Vancouver Excavation IV, pg. 133

While skills and tools were available, it is known that most construction at Fort Vancouver was utilitarian in nature and that the comfort of people was not given very great consideration. Therefore it must be concluded that embellishments were at a minimum.

Archeologists have recovered from the site a variety of nails and hardware items.⁽⁸⁾ The nails are of three different manufacture--hand forged, machine cut and cast, and five descriptive types--tacks, sprigs, brads, nails and spikes. The hardware items include escutcheons, hinges, hasps, pintles, padlock parts, shutter latches, pulls, hooks, staples, and keys that indicate the large locks, common to the era.

It is noted that nails under 40d were either hand forged or machine cut but those over 40d (5") up to as much as eleven inches long were hand forged.⁽⁹⁾ This would indicate that some nails were handmade at Fort Vancouver and that all of the large sizes were. No floor nails seem to have been recovered, which would indicate that the flooring was square edged boards top nailed to a structural floor. Only a few cast nails were uncovered and it can be assumed that they relate to specialty items rather than construction.

The large timbers and infill logs probably were sawn by pit saws driven by water power, and boards and planks by "gang saws" as saw mills with this capability were in common use before the nineteenth century.⁽¹⁰⁾

(8) Fort Vancouver Excavation IV, pg. 133

(9) Ibid pg. 107-115

(10) "Sawdust Trails", by Charles E. Peterson, F.A.I.A., APT
Vol. V, No 2, 1973, pg.84 - pg. 122

Although power driven circular saws capable of producing "small stuff" such as clapboard, trim and shingles were in widespread use by early nineteenth century, there is no indication that equipment of that kind was at Fort Vancouver. (11)

B. Existing Conditions

The sites of each of the structures herein considered are presently bare of any structural elements from the historic or post-historic period.

The sites have been thoroughly explored by archeologists and the earth has been disturbed to variable depths below Hudson's Bay Company levels, some as much as four feet. The present grade level is approximately one foot above H.B.C. levels and no attempt will be made to place the structures at the historic levels, but will be placed with the same relation to present levels. See archeological reports referred to above.

(11) "The Introduction of the Circular Saw in the Early 19th Century",
Ibid, pg 162

C. Description of Fabric, Materials, Construction and Conditions.

C-1, Chief Factor's House

1. General:

The Chief Factor's residence was constructed in the French-Canadian manner, also called post-on-sill, or post with groove (poteaux en coulisse), and sheathed with clapboard. (1)

2. Dimensions:

a. Historically the nominal plan dimensions of the building are given as 70 ft. by 40 ft. Archeological findings indicate an average length of 70.825 ft. and an average width of 40.875 ft.; and that the building was constructed on a major module of 10 ft., and a minor module of 2-1/2 ft. (2) These findings indicate that the structural posts including the corner posts were placed 10 ft. on center, which would provide a uniform dimension for all in fill logs. Using 10 inch square posts at 10 ft. intervals provides a total length of 70.833 ft. and a total width of 40.833 ft. which substantially agrees with the historical and archeological dimensions.

b. The vertical dimensions of the structure are interpolated from the 1860 photograph (Plate 7) from the height of the entrance door and the exposure of the

(1) Historic Data Section pg. 104

(2) Fort Vancouver Excavations IV pg. 17

clapboard siding. By assuming the door to be a normal 6' - 8" high, and that the clapboard siding is a nominal 1/2" x 6" material applied with a 5 inch exposure to the weather, it is in agreement that the height of the structure from the first floor line to plate is approximately 14 ft., and that the floor line is approximately 6 ft. above ground.

- c. The inventories of stock carried in the stores at Fort Vancouver contain window glass of three sizes 7" x 9", 9" x 8", 7-1/2" x 8-1/2".⁽³⁾ A study of the proportions of the lights in the windows of the above mentioned 1860 photograph in relation to the clapboard siding and windows of a different proportion in other buildings indicates that the glass most probably was 7" x 9". Using a 9-inch module, the above determined vertical dimensions again reasonably coincide, allowance being made for a small amount of foreshortening in the photograph.
- d. Another check with respect to vertical dimensions can be obtained from the stairway to the veranda. The 1860 photograph shows nine risers. Assuming an average normal dimension for a riser as 7-1/4 inches will place the main floor level at approximately 6 ft. above grade, allowing 4-1/2 inches for slope of porch and door sill.

(3) Historic Data Section pg. 266

3. Study of the 1860 photograph reveals the following features:

- a. Roof - hipped, covered with shingles,⁽⁴⁾ hip and ridge boards; and extended over the porch, supported by brackets and, questionably, by iron rods. Slope approximately 8 to 12 with lesser slope over porch. Slight overhand. No dormers.
- b. Exterior walls - covered with nominal 6" clapboard.
- c. Windows - bi-parting casement opening outward, 7" x 9" lights.
- d. Shutters - exterior louvered. Those at west end, at least, adjustable.
- e. Entrance door - hinged on the easterly jamb opening in and with eight-light transome above. Deep reveal indicates walls approximately 12 inches thick.
- f. All window heads - at same elevation as head of transome of entrance door.
- g. Chimney - three brick square and 28 courses high (approximately 7' - 6" high), located a couple of feet south of ridge and a few feet to west of entrance door.⁽⁵⁾
- h. Porch - extended approximately 3 ft. beyond each end of building and protected by railing with 2 inch square balisters.

(4) Some of the early buildings had board on board roofing. Reroofing major buildings with shingles began in early 1840's. John Hussey advises that in 1837 an employee was punished for stealing shingles out of the basement of the Chief Factor's house, so apparently this structure had shingles from the beginning.

(5) Confirmed by Fort Vancouver Excavations IV Figure 3.5

- i. Porch Stairs - descending with nine risers on a curve at each side of extension of porch. Basement of porch was enclosed with clapboard.
 - j. Metal supports - bars or pipe extended from top of railing to provide some questionable support to the roof over porch. Bars at ends of porch and at entrance stairs were bent to form arches.
 - k. Gutters - half round metal. Short piece without leader over porch stairs; and full length of west end with leader to rain barrel at north east corner.
 - l. Door to basement - pair of built up plank doors opening in showing a reveal of about 12 inches.
 - m. Painting - Front of house, window frames, railings and fence painted white. (Probably recent to taking of 1860 photograph.) Where west wall had been somewhat protected by vines there appears traces of white paint or whitewash, indicating the whole house had been originally painted white. Shutters were a dark color and probably a dark olive green. (Dr. Hussey advises that he has viewed the original water color sketch by T. P. Coode (Plate 6) and that the shutters and entrance door are rendered in a dark olive green in that sketch.)
4. Assumptions and Interpretations:
- a. East and north elevations were similar to south and west elevations shown by 1860 photograph, except for porch.

- b. Connecting element between house and kitchen was inclosed and provided exit to outside to facilitate access to privies along north palisade without passing through kitchen. Such an arrangement can also provide a second exit from the big house conforming to code requirements.
- c. There appears not to have been any dormer windows to the loft.

C-2, KITCHEN (Cookhouse)

1. General:

Little is known regarding the physical details pertaining to the construction of the Kitchen. It is the recommendations of the Historic Data Section pg. 175 that it should be constructed of logs in the usual Canadian post-on-sill manner, and that it should have usable loft space in the usual one and one half story manner. Consistent with the austerity of most of Hudson's Bay Co. construction in the wilderness, it is suggested that the logs were hand hewn and left unpainted.

2. Historically the nominal plan dimensions of the building are 60 ft. by 24 ft.⁽⁶⁾ Archeological explorations did not locate any foundation footings to confirm this; but the copy of the original site plan drawn by M. Vavasour in 1845, Plate 3, shows that the east wall of the Kitchen was in line with the east wall of the Chief Factor's house and that the west wall was approximately 10 ft. short of the Chief Factor's house; and that the two buildings were separated by approximately 8 ft. The plan is drawn to scale which calibrated indicates the building to be slightly more than 60 ft. long and about 25 ft. wide.

3. The vertical dimensions are not so readily determined. The Kitchen has been described as two stories high. The oil painting viewing the Fort from the northeast by the unknown artist, Plate 4, and the pencil sketch viewing the Fort from the northwest by George

(6) Historic Data Section pg. 167

Gibbs, 1851, Plate 5 both show the roof of the Kitchen over the top of the palisade. Each sketch indicates a building smaller than, and with a ridge line a little above the eaves line of the Chief Factor's house, which is approximately 20 ft. above ground. This would indicate that the kitchen was the usual 1-1/2 story structure with floor beams three or four feet below the eaves girt and with head room below collar beams in the loft.

4. The Gibbs drawing and the oil painting by the unknown artist both show that the kitchen had gable ends, and the Gibbs drawing indicates that the roof was board-on-board.

5. It appears that the floor of the kitchen was earth stabilized with lime.⁽⁷⁾ This is confirmed by archeological findings.⁽⁸⁾

6. The cooking facility appears to have been an open hearth located approximately 10 to 15 ft. west of the east wall and north of the center line in the area where archeological explorations found an accumulation of fragments brick, stone, mortar and metal.^{(9) (10)}

7. The inventory for the Kitchen in 1845 included "1 cast iron stove" and that of 1846 "1 stove w[ith] funnel (presumably chimney).⁽¹¹⁾ This stove probably served the living quarters, which would indicate a chimney in that area.

8. In plan the cookhouse should contain the kitchen proper, a pantry to serve the dining hall in the Chief Factor's house, dining space for several servants and employees, a larder (depense), quarters

(7) Historic Data Section, pg. 172

(8) Fort Vancouver Excavations IV, pg. 57

(9) Ibid Figure 3.2, pg. 19

(10) Ibid pg. 179

(11) Historic Data Section pg. 176

for the cook and family, and for people in the loft, space for washing clothes as well as dishes and ironing.

Other utilitarian considerations must, it would seem, include ready access to the water well located beyond the Wash House to the east, a place for protected storage of wood and coal, a cold room for meats, dairy products, etc., access doorway to servants dining space and quarters without intruding in the kitchen, proper.

9. Sash most probably were double hung proportioned to 7-1/2 x 8-1/2" lights; and the doors hand made plank. Presumably there were windows in the gables for the inhabited loft space. The sketches do not show any dormers.

C-3, WASH HOUSE

No portion of the original Wash House remains above ground. Since the destruction of the Fort the area has had other uses, and only questionable structural evidence was uncovered by archeological research. However, Hudson's Bay artifacts in the specific area "lends credence that some sort of structure did once exist on or near this spot."⁽¹²⁾

All evidence indicates that the structure had been fabricated of native timbers in the French-Canadian manner described above. This structure was utilitarian in nature, and being one of the less significant structures, probably was composed of hand hewn timbers and rough in character.

The density of brick fragments uncovered suggests that the floors were of brick, and that there was a stove and chimney for heating water.⁽¹³⁾

(12) Fort Vancouver Excavations - 1 pg. 21

(13) Ibid pg. 79

C-4, FLAGPOLE

The flag staff was 103 ft. long.⁽¹⁴⁾ It was sunk approximately 5 ft. in the ground. The flagpole probably was a native Douglas fir which was trimmed and peeled. There is no indication from the historic research that there existed at Fort Vancouver the capability of turning a timber that long. Further more, the time span between the wrecking of the old pole and erecting the new one (from September 14, 1844 until December 21, 1844) would hardly permit it.⁽¹⁵⁾

The supporting structure has been uncovered and consisted of four 6" x 12" timbers, halved at intersection and providing a 12 inch square hole.⁽¹⁶⁾ The timbers were located in the ground at ground level. The well-preserved cast indicates that the butt was round with a 12 inch diameter and extended 5 ft. below grade.⁽¹⁴⁾

The pit into which it was anchored was approximately 4 ft. in diameter, tapering to the bottom and large rocks placed in with the backfill to counteract overturning.

The top was capped with a flagpole truck, and halyard.

(14) Ibid pg. 62

(15) Fort Vancouver Excavations V, pg 6

(16) Ibid pg. 4

C-5, BELL POLE (Belfry)

The Bell Pole was a 12 inch square sawn timber which stood 45 ft. above ground with the butt end planted in a cask of salt sunk in the ground. (17)

The cask was uncovered at approximately one foot below present surface and it still retained a good cast of the pole which showed it to be 12 inches square and sunk 5 feet below grade. (18)

Cleats were secured to the spar to facilitate climbing.

The size of the bell is not known. However, on a trip to Sitka, Alaska in May, 1971, the author of this report discovered a bell which at the time had just been removed from the Russian Mission building and in the possession of St. Michel's Cathedral. This bell had embossed on its barrel "Beaver / 1835". The bell measured 13 inches in diameter at the lip and 11 inches high; and 15 inches to the top of the crown. See Plate 11. In the Coode drawing, Plate 6, it appears that the bell could have been about that size. As the S.S. Beaver belonged to Hudson's Bay Co. and there was a mould available for casting such a bell, it is speculation, only, that the bell was of that size. However, there are several claimants to original bells from the S.S. Beaver, including the Seattle Historical Society and the Marine Digest, Seattle. (19)

(17) Historic Data Section, pg. 71

(18) Fort Vancouver Excavations V, pg. 8

(19) Marine Digest, Seattle, 15/1/55

D. Description of Appearance of Structures During
Historic Period.

D-1, Chief Factor's House

The 1860 photograph, Plate 7 very positively shows the configuration and architectural elements and features of the south and west elevations, as they existed during the historic period. It was taken fifteen years after moving the Hudson's Bay Company headquarters to Victoria, B.C.⁽¹⁾ Occupation by H.B.C. had lingered on through its subsidiary Puget's Sound Agricultural Company and the operations of the Oregon Department until 1860 when the post was abandoned and fort property turned over to the U. S. Army.⁽²⁾

It appears from the photograph that maintenance slackened during the fifteen years while occupation by H.B.C. was in limbo. Apparently only the front of the house, windows and fences had been repainted. Traces of white paint, where protected by vines appears on the westerly wall, indicates that the building had been painted white, or at least whitewashed, when first constructed. The clapboard siding appears warped and displaced in patches also indicating neglect. However, one must conclude that these photographs faithfully indicate what the structure looked like during the historic period, except for the state of disrepair.

It appears that the extension of the roof to the full width of the porch was an afterthought. The water color sketch by Lt. T. P. Coode

(1) Historic Data Section, pg. 88
(2) Ibid pg. 95

c. 1846, Plate 6, indicates an overhang of about 3 feet and does not show any brackets or iron supports for the roof, whereas the 1860 photograph shows the roof extended over the width of the porch and braced by brackets and, questionably, supported by the iron bars. Historically the porch was reconstructed in 1845 or 1846--only 7 or 8 years after completion of the building. Rather than poor construction, it would seem more probable that the porch deteriorated from exposure to the dampish climate along the Columbia and water running off directly onto the porch. The questionable support from the iron bars and brackets will create serious structural problems in the reconstruction of this feature.

Neither the Historical Data Section nor the archeological report resolves the question of the "central ornament or feature of undetermined use shown in the railing in the 1860 photograph".^(3, 4) It is suggested that this feature was a sundial, which would seem to have been a necessary instrument at that time and place. The exposed portion of the extended porch and south exposure would have been a logical location for it.

The archeological report correctly, it appears to this observer, interprets the thickness and size of timbers - 6 to 9 inches thick - and at approximately 10 ft. intervals as footings for support of concentrated structural loads. However the report interprets the smaller intermediate footings at approximately 2' - 6" intervals as

(3) Ibid pg 119

(4) Fort Vancouver Excavations IV, pg. 48

repair footings.⁽⁵⁾ It is suggested that these footings were for posts or studs to which the clapboard siding below the floor girts was secured. The thin clapboard could not span 10 feet without intermediate support.

With respect to the members at 10 foot intervals, labeled joists in the archeological report, it is indicated that they spanned the 40 foot width of the building.⁽⁶⁾ To do so would require timbers for both the first and second floors at least 12 inches wide and 24 inches deep or equivalent logs and footings nearly 5 feet square. This does not seem logical within the apparent vertical dimensions, and so there must have been intermediate supports.

(5) Fort Vancouver Excavations IV pg. 17-30

(6) Ibid Fig. 3, pg. 22

D-2, KITCHEN (Cookhouse)

The appearance of the Kitchen during the historic period is largely conjectural, except that contemporary sketches, Plates 4 and 5 indicate that the structure had gable ends and was roofed with boards laid full length with the slope of the roof. The structure, as almost universal with Hudson's Bay Company establishments, most probably was post-on-sill with log infill. (7)

The logs for this structure could very well have been hand hewn and left unpainted as they were at Ft. Victoria which succeeded Ft. Vancouver as Western headquarters of the Hudson's Bay Company.

The ground plan of the Fort from the diary of George Foster Emmons, 1841, Plate 2, indicates an inclosed passageway between the Chief Factor's residence and the Kitchen. (8)

There is no indication of the interior arrangement except for the location of the passageway to the residence and the location of the hearth as uncovered by archeological excavations. (9)

(7) Historic Data Section pg. 175

(8) Ibid pg.121

(9) Fort Vancouver Excavations IV pg. 39

D-3, WASH HOUSE

The detailed appearance of the Wash House is conjectural. However, contemporary plan drawings by M. Vavasour in 1845, Plate 3 locate the Wash House, and, as these plans are drawn to scale the plan size of the structure has been determined as 15 feet by 30 feet.⁽¹⁰⁾ The above cited plan by Vavasour, also, indicates three openings symmetrically located in the west wall.

Extensive reroofing of the important buildings at the Fort with shingles began in the early 1840's. Prior to that time, many of the roofs were board-on-board type with gable ends. As the Wash House would have been considered of minor importance, it is assumed that it would have had such a roof, as recommended by the Historic Data Section.⁽¹⁰⁾

Because of the suggestions of brick floors, the sill logs probably rested on the ground and the floor was near the exterior ground level.

The density of recovered window glass indicates glazed windows, and the nature of the use of the building indicates a chimney serving a stove or hearth for heating water. It is not clear if "Wash House" meant that the structure was used for washing clothes or bathing, or both.⁽¹¹⁾

(10) Historic Data Section pg. 86

(11) Ibid pg. 83

D-4, FLAGPOLE

The flagpole erected December 21, 1844 to replace one blown down by a strong wind September 14, 1844 was described as being 103 feet long. (12) It appears as a single spar without bracing in several sketches of Fort Vancouver. (See plates XI, XVI, XVIII, XXII and LIII, Historical Data Section). These sketches in various manner show a device at the top which presumably is a flagpole truck for the halyard. Plate XI indicates something more than the truck at the top, but there is no hint as to what it may be, unless it were a revolving truck. (13)

The supporting structure has been uncovered and consisted of four timbers approximately 6" x 12", 9 feet long halved at the intersections and providing a 12 inch square collar for the pole. The flag staff was sunk approximately 5 feet in the ground and stood 98 feet above ground. (14)

(12) Ibid pg. 62 - 63

(13) Ibid pg. 64

(14) Fort Vancouver Excavations V, pg. 6

D-5, BELL POLE (Belfry)

The bell pole was described as being erected on December 31, 1844, "the Bell being placed at the top of a spar 45 feet above the ground the butt end of which was placed in a large cask of salt - - - -." (15) It is noted that the date of erection is only ten days after the erection of the Flagpole, which would indicate that this spar was replacing one that was a victim of the same wind storm.

The bell pole is most clearly depicted in the Coode watercolor sketch, Plate 6. It shows the pole with spaced cleats to facilitate climbing the spar. On top of the spar is a bell with a cantilevered arm and a line for activating the bell. The Coode sketch also indicates a wheel to activate the bell, but reliance apparently was placed on the lever arm for this purpose.

Archeologists found the cast of the spar left in the cask foundation to be 12 inches square, and the Coode drawing indicates that the size did not vary for its full length. (16)

(15) Historic Data Section pg. 72
(16) Vancouver Excavations V pg. 22

E. Architectural Description of Proposed Construction
and Preliminary Drawings.

E-1 CHIEF FACTOR'S HOUSE

1. Foundations - continuous concrete - perimeter; concrete piers - internal. Exposed concrete faced with wood or otherwise concealed.
2. Structure - post-on-sill with log infill pressure treated with preservative after fabrication before placing.
3. Exterior weatherboarding - 1/2" x 6" clapboard with corner boards over building paper.
4. Roof - hipped, 8 to 12 slope, extended over porch at less slope.
5. Roof covering - fire retardent shingles, ridge and hip boards over solid sheathing.
6. Windows - bi-parting casement opening out, 14 lights, 7" x 9" each leaf. Plain frames.
7. Shutters - exterior, adjustable louvers.
8. Chimney - 3 brick square (approximately 28"). 28 courses high (approximately 7' - 6" at south side). Project one course near top to form cap. Three flues to serve furnace, fireplace and stove.
9. Veranda - 1-1/4" T & G Fir over wood joists.
10. Veranda railing - 4" x 3" shaped top rail, bottom rail and 2" square balisters. Newel posts with ball shaped tops at stairs.
11. Stairs to veranda - nine risers curving around extended porch. Closed risers.
12. Veranda roof - continuation of main roof at reduced slope, supported by brackets.
13. Veranda trellis? - "iron rods or pipes, arched at center and at end of porch.

14. Gutters - half round metal; over entrance stairs to spill, and along west end with leader to rain barrel at N.W. corner. While not shown, it is assumed that such a gutter was installed at the east end, also.
15. Basement doors - double built up plank opening in.
16. Entrance door - six panel hinged on easterly jamb with eight-light transome. Side lights - single leaf of casement sash.
17. Interior doors - six panel.
18. Connecting unit to Kitchen - designed to provide second legal exit from Chief Factor's house as well as access to kitchen.
19. Plan dimensions - 70 feet x 40 feet c. to c. corner posts.
20. Vertical dimensions - grade to main floor approximately 6 feet; top of main floor girt to loft girt 11' - 3"; top of main floor girt to eaves girt 14' - 3".
21. Main floor plan - as suggested by Historic Data Section, except stairs to loft to be placed at west side of entrance hall. (1860 photo shows entrance door hinged on east jamb.)
22. Interior walls - vertical pine T & G random width, hand planed and beaded. Wainscot similar but narrower boards. Trim and chair rail - beaded edges.
23. Ceilings - pine T & G. random width not beaded.
24. Stairs to loft - open string with banister and square balisters and closed risers.
25. Fireplace - located at chimney location on main floor opening into office.
26. Flooring - 1" square edge plank over sub-floor and vapor barrier.

27. Hardware - hand wrought contemporary with c. 1845.
28. Window and door trim - hand planed beaded.
29. Exterior painting - body, sash and trim - white; shutters and doors - dark olive green.
30. Interior painting - walls, ceilings and trim - clear sealer; floors stain and sealer.
31. Window glass - hand made.
32. All nailing - square cut of proper size and style for purpose.
33. Log connections - treenails.
34. Electrical - wiring to concealed convenience outlets for maintenance only, and illumination as necessary.
35. Heating - warm air from furnace room in basement.
36. Furnace room - depressed in basement at southwest corner constructed for one-hour separation.
37. Cellar - unfinished, with stabilized earth floor at northwest corner.
38. All critical lumber pressure treated with paintable and colorless preservative after fabrication and before placing.
39. Utilities - brought to building by N.P.S.

E-2, KITCHEN (Cookhouse)

1. Plan dimensions - 60' x 24' center to center corner posts.
2. Height - story and one half.
3. Foundations - concrete, concealed.
4. Structure - post-on-sill with log infill, pressure treated with preservative after fabrication before placing.
5. Exterior - exposed logs, hand hewn with broad axe and chinked.
6. Roof - gable, 8 to 12 slope.
7. Roof covering - cedar boards placed "board-on-board" over solid sheathing and membrane.
8. Windows - double hung proportioned to 7-1/2" x 8-1/2" lights, sash 8/8, glass - hand made.
9. Doors - built up plank.
10. Ground floor - stabilized earth.
11. Loft floor - wood plank.
12. Kitchen hearth - large cooking hearth of stone and brick with built-in oven located where archeologists uncovered remains.
13. Chimney - brick for stove in quarters.
14. Interior plan - see layout appended.
15. Interior partitions - single plank.
16. Interior finish - log work left exposed.
17. Stairs - open steps to loft.
18. Hardware - hand wrought contemporary with c. 1845.
19. Painting, exterior and interior - doors and trim, Spanish brown; sash, white; logs left natural.
20. Window glass - hand made.

21. Nailing and log connections - same as for Chief Factor's House.
22. Electrical - bare essential concealed.
23. Heating, if necessary - a minimum borrowed from furnace in Chief Factor's house.

E-3, WASH HOUSE

1. The basic structure shall be of "post-on-sill" construction in the manner of construction employed by Hudson's Bay Company, c. 1845.
2. The building shall be approximately 30 feet long and 15 feet wide; one story with ceiling height of 9 feet; and floors of brick size quarry tile, placed 6 inches, minimum, above grade.
3. The roof shall be cedar boards placed "board-on-board" over solid sheathing and a membrane.
4. Foundations and sub-floor - reinforced concrete, concealed.
5. Sash - side hinged to swing out and 9 light, proportioned to 7-1/2" x 8-1/2" hand made glass.
6. All exposed timbers shall be hand hewn with broad axe, and lumber sawn with vertical saws (not circular saws). Trim shall be hand planed.
7. All lumber and timbers exposed to exterior atmosphere shall be pressure treated with preservative, without incising, after fabrication and before placing.
8. All nailing - square cut nails of appropriate size and style.
9. All timber members shall be assembled with wood pegs. Non-historic devices shall be concealed.
10. Doors shall be fabricated of hand planed beaded plank.
11. Chinking shall consist of oakum caulking and fibered plaster.
12. Finish hardware - hand made to contemporary design.
13. The interior shall be adapted to a modern comfort station.
14. Finish of Rest Rooms:

Floors - quarry tile - brick size.

Base - quarry tile

Wainscot - glazed tile

Walls above wainscot and ceiling - cement plaster.

15. Toilet partitions - metal - one water closet compartment in each room proportioned to accommodate wheel chairs.

16. Painting:

Exterior:

Body of building - natural

Trim and doors - Spanish brown

Sash - white

Interior of Rest Rooms

Plaster and wood - tinted enamel

17. Janitor's room:

Floor - cement

Walls and ceiling - cement plaster

Plaster and wood - tinted enamel

18. Interior illumination - electrical.

19. Water heater - 10 gallon electric.

20. Plumbing vents - accumulate in attic and vent through false chimney.

21. Exhaust fans - exhaust through false chimney.

22. Accessories and mirrors - as required by N.P.S.

E-4, FLAGPOLE

1. Flagpole - Douglas fir tree, peeled and trimmed, 12" diameter, butt, 5-1/2" minimum top, ^{to 1 1/2"} 103 feet long, pressure treated with preservative. , *natural finish.*
2. Flagpole truck - Revolving brass truck for 5-1/2" diameter wood pole.
3. Halyard - Waterproof braided cotton with phosphor bronze core.
4. Accessories - snaps, cleats, etc.
5. Foundation - four 6" x 12" by 9' long timbers set in form of cross below grade, halved at intersections, forming 12" square collar for flagpole. Timbers to be pressure treated with preservative.
6. Sub structure - Set section of 3 ft. diameter concrete pipe, four feet long centered below wood collar beams, and set flagpole to a depth of ~~7~~^{10'} feet.

Note: Attention is directed to the fact that the flagpole to conform with historic appearance cannot be lowered to correct trouble with flagpole truck, and dependence must be made on a crane or fire ladder. A flag staff with a 12" diameter base is recommended to be not more than 70 feet high, and if 12" square not more than 82 feet high. A 98 ft. high staff should have a base 17" in diameter or 14" square.

check FAS approval

E-5, BELL POLE (Belfry)

1. Bell pole - Douglas fir timber 12" square, 50 feet long pressure treated with preservative after fabrication.
Cleats - 2 x 4" by 2'-6" long dapped in to timber at 2 ft. o.c. to top of spar.
2. Foundation - section of concrete pipe 3 feet in diameter by 5 feet long set below grade and spar set plumb to a depth of 5 feet in center thereof.
3. Bell - cast bronze 13 inches in diameter at lip.
4. Bell mounting - base and yoke with cantilever arm and wheel for activating bell; and waterproof rope.

APPENDIX

ESTIMATES OF COST

PLATES

Plate Architectural Data Sect.		Plate Historical Data Sect.
1	Site Plan Historic Fort Area, Ft. Vancouver	II
2	George F. Emmon's Plan of Fort	III
3	M. Vavasour's Plan of Fort	VIII
4	Oil Painting by Unknown Artist, Yale Univ.	XV
5	Sketch of Fort by George Gibbs	XVIII
6	Water color sketch by Lt. T. P. Coode	XII
7	1860 Photo of Chief Factor's House	XXIX
8	Drawing-Whse. at Ft. St. James, B.C. Canada	LXXIX
9	Drawing-Whse. at Ft. St. James, B.C. Canada	LXXX
10	Drawing-Whse. at Ft. St. James, B.C. Canada	LXXXI
11	Photograph-Whse. at Ft. St. James, B.C. Canada	LXXVIII
12	Photograph of Bell "Beaver/1835"	
13	Sketch - Ft. Williams. Ontario, Canada	Plate 12 Grand Portage H.S.R.

PRELIMINARY DRAWINGS

	Shts.
Chief Factor's House	C.F. 1-6 incl
Chief Factor's Kitchen	K 1-3 incl
Wash House	W - 1
Flagpole	F-B - 1
Bell Pole	F-B - 1

LEE SAYLOR, INC.
CONSULTING COST ENGINEERS

1541 PALOS VERDES MALL
WALNUT CREEK, CALIFORNIA 94596

(415) 933-6000

QUANTITY SURVEYS
ESTIMATES
COST ANALYSIS
BUDGETS
FORECASTS
FEASIBILITY STUDIES
CPM/PERT

October 2, 1974 

LSI#1896c

Fort Vancouver, Wash.

MASTER SUMMARY

1. Building #18 Chief Factor's House	\$311,617
2. Building #17 Kitchen	116,087
3. Building #27 Wash Room	44,444
4. Bell Pole	8,000
5. Flag Pole	6,000
	<hr/>
SUB TOTAL	\$486,148
General Conditions	53,852
Cont. & Escal.	81,000
Contractor's Bond & Fee	74,500
	<hr/>
TOTAL	\$695,500

QUANTITY TAKE-OFF

ESTIMATE

ECT	JOB NO.	PG.
Chief Factors House, Kitchen & Adj. Struct. Wash Hs.	LSI#1896c	1
ARCH/ENGR/OWNER	PREPARED BY	
Louis Koue	GC	
PROJECT LOCATION	CHECKED BY	
Ft. Vancouver, Washington	KB	
DESCRIPTION	DATE	
Chief Factor's House Bldg. 18 10/2/74 ▲	September 30, 1974	

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL COST
<u>SUMMARY OF ESTIMATE</u>					
2.1	Demolition				None
2.2	Service Site				None
2.3	General Site				None
2.4	Off Site Work				None
2.5	Underpinning, Shoring				None
2.6	Site Utilities				None
2.7	Landscaping & Irrigation				None
	Site Sub Total				
2.8	Piling, Piers, Caissons			.12	684
2.9	Excavation & Fill (Bldgs.)			.70	3,934
3.1	Concrete, Foundations			3.38	18,912
3.2	Concrete, Structural			.03	180
3.3	Concrete, Architectural				None
3.4	Concrete, Precast				None
3.5	Concrete, Slabs on Grade			.13	700
3.6	Reinforcing			.57	3,218
3.7	Cementitious Decks			.30	1,680
4.1	Masonry & Stone			.54	3,000
5.1	Structural Steel				None
5.2	Misc. Iron & Arch. Metals			.89	5,000
5.3	Metal Siding & Decks				None
6.1	Carpentry, Rough			19.29	108,044
6.2	Carpentry, Finish			13.56	75,933
6.3	Glulam Beams & Trusses				None
6.4	Stairs & Rails, Wood			.99	5,560
6.5	Rough Hardware			.82	4,600
7.1	Waterproofing				None
7.2	Thermal & Sound Insulation				None
7.3	Roofing & Rigid Insulation			3.15	17,650
7.6	Sheet Metal & Skylights			.36	2,020
7.7	Architectural Sheet Metal				None
.9	Caulking & Sealants			.72	4,056
.1	Hollow Metal Work				None
8.2	Wood Doors & Frames			.88	4,940
8.3	Doors, Special				None

QUANTITY TAKE-OFF				ESTIMATE	
JECT				JOB NO. LSI#1896c	PG. 2
ARCH/ENGR/OWNER				PREPARED BY	
PROJECT LOCATION				CHECKED BY	
DESCRIPTION Chief Factor's House Bldg. 18				DATE September 30, 1974	
				10/2/74 ▲	
ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL COST
<u>SUMMARY OF ESTIMATE - (CONT)</u>					
8.5	Glass, Glazing & Sash			1.43	7,988
8.7	Finish Hardware			.69	3,850
8.9	Store Frt., Sash & Doors				None
9.1	Lath, Plaster, Fur & Stud				None
9.2	Gyp. Wall Board, Fur & Stud				None
9.3	Ceramic Tile				None
9.4	Terrazzo				None
9.5	Acoustic Tile				None
9.6	Wood Flooring			1.89	10,593
9.7	Resilient Flooring				None
9.8	Painting			1.46	8,175
9.9	Plastic Wall Surfaces				None
.10	Chalk and Tack Board				None
15	Toilet Partitions				None
10.20	Fold & Demount. Partitions				None
10.40	Toilet Accessories				None
10.50	Building Specialties, Gen.				None
11.00	Equipment, All Types				None
12.00	Furnishings				None
12.30	Cabinets				None
12.35	Laminated Plastics				None
13.00	Special Construction				None
14.00	Conveying Systems				None
15.10	Plumbing				None
15.30	Heating & Ventilating			2.25	12,600
15.50	Fire Protection Systems				None
16.00	Electrical Work			1.48	8,300
	Total			55.65	311,617
01.10	General Conditions				
17.10	Contingency				
17.20	Escalation				
17.30	Geographical Escalation				
	Sub Total				
	Bonds				
	Contractor's Fee				
	TOTAL ESTIMATED PRICE				
	ENR# _____ CURRENT/BID DATE				

QUANTITY TAKE-OFF

ESTIMATE

PROJECT Chief Factors House, Kitchen & Adj. Struct. Wash Hs.		JOB NO. LSI#1896c	PG. 7
ARCH/ENGR/OWNER Louis Koue		PREPARED BY GC	
PROJECT LOCATION Ft. Vancouver, Washington		CHECKED BY KB	
DESCRIPTION Kitchen Bldg. 17		DATE September 30, 1974	

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL COST
<u>SUMMARY OF ESTIMATE</u>					
2.1	Demolition				None
2.2	Service Site				None
2.3	General Site				None
2.4	Off Site Work				None
2.5	Underpinning, Shoring				None
2.6	Site Utilities				None
2.7	Landscaping & Irrigation				None
	Site Sub Total				
2.8	Piling, Piers, Caissons				None
2.9	Excavation & Fill (Bldgs.)	1,440	SF	1.03	1,488
3.1	Concrete, Foundations			2.18	3,143
3.2	Concrete, Structural				None
3.3	Concrete, Architectural				None
3.4	Concrete, Precast				None
3.5	Concrete, Slabs on Grade			1.54	2,218
3.6	Reinforcing			1.18	1,703
3.7	Cementitious Decks				None
4.1	Masonry & Stone			10.38	14,950
5.1	Structural Steel				None
5.2	Misc. Iron & Arch. Metals			2.08	3,000
5.3	Metal Siding & Decks				None
6.1	Carpentry, Rough			35.56	51,211
6.2	Carpentry, Finish			7.06	10,168
6.3	Gluelam Beams & Trusses				None
6.4	Stairs & Rails, Wood			1.91	2,752
6.5	Rough Hardware			2.01	2,900
7.1	Waterproofing				None
7.2	Thermal & Sound Insulation				None
7.3	Roofing & Rigid Insulation			3.19	4,600
7.6	Sheet Metal & Skylights				None
7.7	Architectural Sheet Metal				None
7.9	Caulking & Sealants			.23	324
8.1	Hollow Metal Work				None
8.2	Wood Doors & Frames			1.81	2,600
8.3	Doors, Special				None

QUANTITY TAKE-OFF

ESTIMATE

JECT

JOB NO. LSI#1896c PG. 8

ARCH/ENGR/OWNER

PREPARED BY

PROJECT LOCATION

CHECKED BY

DESCRIPTION

Kitchen Bldg. 17

10/2/74 ▲

DATE September 30, 1974

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL COST
<u>SUMMARY OF ESTIMATE - (CONT)</u>					
8.5	Glass, Glazing & Sash	1,440	SF	.23	3,828
8.7	Finish Hardware			1.04	1,500
8.9	Store Frt., Sash & Doors				None
9.1	Lath, Plaster, Fur & Stud				None
9.2	Gyp. Wall Board, Fur & Stud				None
9.3	Ceramic Tile				None
9.4	Terrazzo				None
9.5	Acoustic Tile				None
9.6	Wood Flooring			.17	242
9.7	Resilient Flooring				None
9.8	Painting			1.50	2,160
9.9	Plastic Wall Surfaces				None
10	Chalk and Tack Board				None
.15	Toilet Partitions				None
10.20	Fold & Demount. Partitions				None
10.40	Toilet Accessories				None
10.50	Building Specialties, Gen.				None
11.00	Equipment, All Types				None
12.00	Furnishings				None
12.30	Cabinets				None
12.35	Laminated Plastics				None
13.00	Special Construction				None
14.00	Conveying Systems				None
15.10	Plumbing				None
15.30	Heating & Ventilating			2.50	3,600
15.50	Fire Protection Systems				None
16.00	Electrical Work			2.57	3,700
	Total			80,62	116,087
17.10	General Conditions				
17.10	Contingency				
17.20	Escalation				
17.30	Geographical Escalation				
	Sub Total				
	Bonds				
	Contractor's Fee				
	TOTAL ESTIMATED PRICE				
	ENR# _____ CURRENT/BID DATE				

QUANTITY TAKE-OFF

ESTIMATE

JECT Chief Factors House, Kitchen & Adj. Struct. Wash Hs.		JOB NO. LSI#1896c	PG. 12
ARCH/ENGR/OWNER Louis Koue		PREPARED BY GC	
PROJECT LOCATION Ft. Vancouver, Washington		CHECKED BY KB	
DESCRIPTION Wash House Bldg. 27		DATE September 30. 1974	

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL COST
<u>SUMMARY OF ESTIMATE</u>					
2.1	Demolition				None
2.2	Service Site				None
2.3	General Site				None
2.4	Off Site Work				None
2.5	Underpinning, Shoring				None
2.6	Site Utilities				None
2.7	Landscaping & Irrigation				None
	Site Sub Total				
2.8	Piling, Piers, Caissons				None
2.9	Excavation & Fill (Bldgs.)	450	SF	4.54	2,045
3.1	Concrete, Foundations			8.19	3,684
3.2	Concrete, Structural				None
3.3	Concrete, Architectural				None
3.4	Concrete, Precast				None
3.5	Concrete, Slabs on Grade			2.96	1,332
3.6	Reinforcing			2.03	912
3.7	Cementitious Decks				None
4.1	Masonry & Stone			.89	400
5.1	Structural Steel				None
5.2	Misc. Iron & Arch. Metals				None
5.3	Metal Siding & Decks				None
6.1	Carpentry, Rough			17.47	7,863
6.2	Carpentry, Finish			3.04	1,370
6.3	Gluelam Beams & Trusses				None
6.4	Stairs & Rails, Wood				None
6.5	Rough Hardware				None
7.1	Waterproofing				None
7.2	Thermal & Sound Insulation				None
7.3	Roofing & Rigid Insulation			6.58	2,960
7.6	Sheet Metal & Skylights			.28	128
7.7	Architectural Sheet Metal				None
7.9	Caulking & Sealants			.40	180
8.1	Hollow Metal Work				None
8.2	Wood Doors & Frames			2.31	1,040
8.3	Doors, Special				None

QUANTITY TAKE-OFF

ESTIMATE

JECT

JOB NO.
LSI#1896c

PG. 13

ARCH/ENGR/OWNER

PREPARED BY

PROJECT LOCATION

CHECKED BY

DESCRIPTION

Wash House Bldg. 27

10/2/74

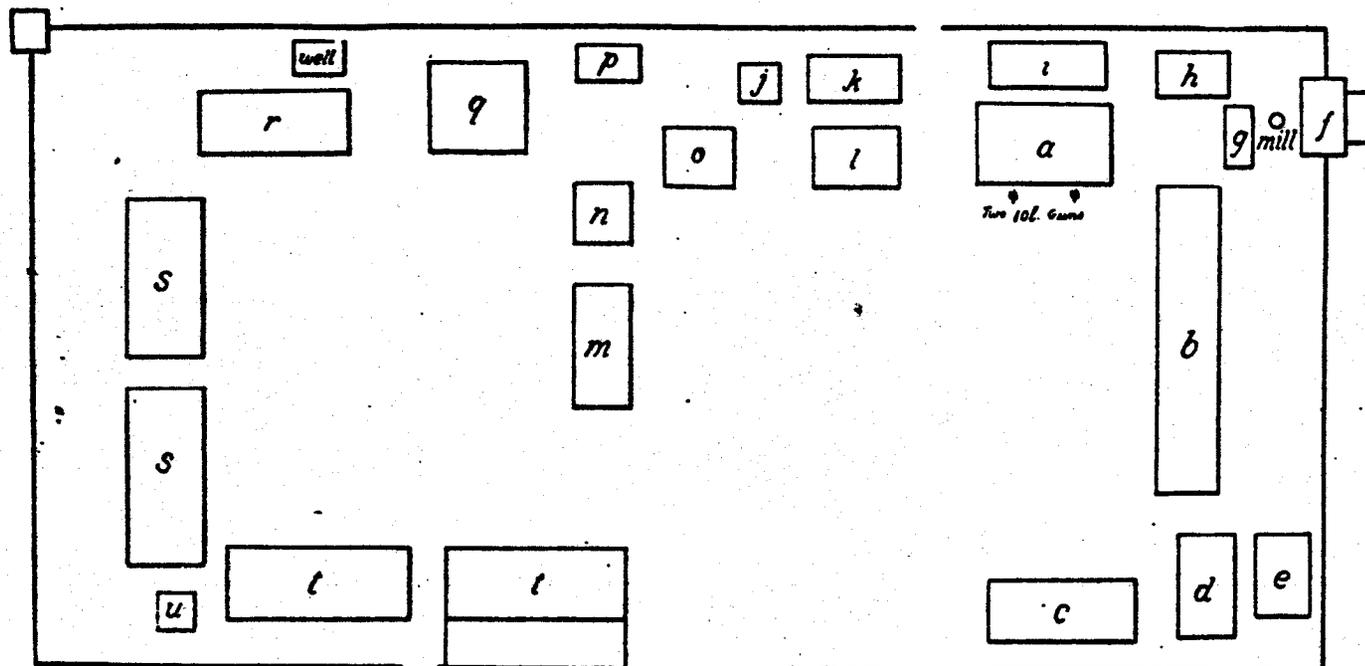


DATE

September 30, 1974

ITEM NO.	DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT COST	TOTAL COST
<u>SUMMARY OF ESTIMATE - (CONT)</u>					
8.5	Glass, Glazing & Sash	450	SF	2.51	1,130
8.7	Finish Hardware			1.33	600
8.9	Store Frt., Sash & Doors				None
9.1	Lath, Plaster, Fur & Stud			8.89	4,000
9.2	Gyp. Wall Board, Fur & Stud				None
9.3	Ceramic Tile			8.44	3,800
9.4	Terrazzo				None
9.5	Acoustic Tile				None
9.6	Wood Flooring				None
9.7	Resilient Flooring				None
9.8	Painting			2.50	1,125
9.9	Plastic Wall Surfaces				None
10	Chalk and Tack Board				None
15	Toilet Partitions			2.22	1,000
20	Fold & Demount. Partitions				None
10.40	Toilet Accessories			1.30	585
10.50	Building Specialties, Gen.				None
11.00	Equipment, All Types				None
12.00	Furnishings				None
12.30	Cabinets				None
12.35	Laminated Plastics				None
13.00	Special Construction				None
14.00	Conveying Systems				None
15.10	Plumbing			13.11	5,900
15.30	Heating & Ventilating			2.00	900
15.50	Fire Protection Systems				None
16.00	Electrical Work			7.76	3,490
	Total			98.76	44,444
01.10	General Conditions				
17.10	Contingency				
17.20	Escalation				
17.30	Geographical Escalation				
	Sub Total				
	Bonds				
	Contractor's Fee				
	TOTAL ESTIMATED PRICE				
	ENR# _____ CURRENT/BID DATE				

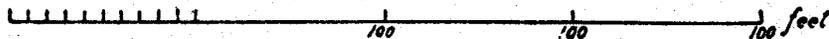
PLAN OF FORT VANCOUVER, COLUMBIA RIVER.



- | | |
|-------------------------|----------------------|
| a—Chief Factor's House. | l—Priest's House. |
| b—Dwelling Houses. | m—Old R. C. Church. |
| c—Indian Trading Store. | n—D. Office. |
| d—Smith's Shop. | o—Office. |
| e—Iron Store. | p—Carpenter's Shop. |
| f—Bakery. | q—Wheat Store. |
| g—Warehouse. | r—Beef do. |
| h—Harness Shop. | ss—Stores and Shops. |
| i—Kitchen. | tt—Stores. |
| j—Jail. | u—Powder Mag'n. |
| k—Owyhee Church. | |

Bastion 20 feet square with octagonal top containing 8 3-pd. iron guns. Built of squared timbers. Pickets 15 feet high.

Scale 100 feet to an inch



M. Vavasour
Lt. Royal Eng.
1845

PLATE 3

Plate —Ground Plan of Fort Vancouver, 1845, Based upon Map Drawn by M. Vavasour.
From *Quarterly of the Oregon Historical Society*, X (March, 1909), opposite p. 100.

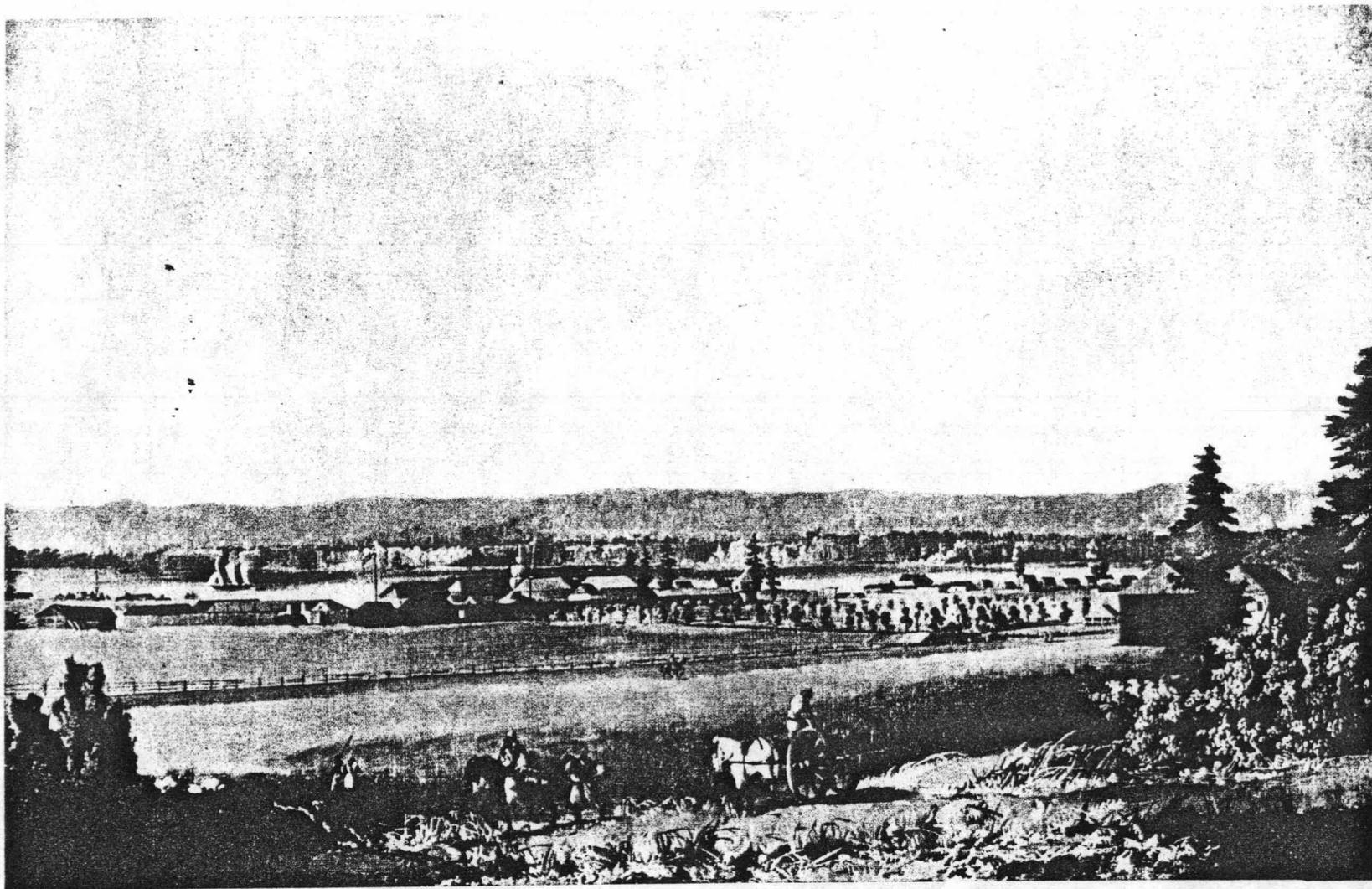


PLATE 4

Fort Vancouver c.1845. Oil painting by unknown artist,
Coe Collection of Western America, Yale University.

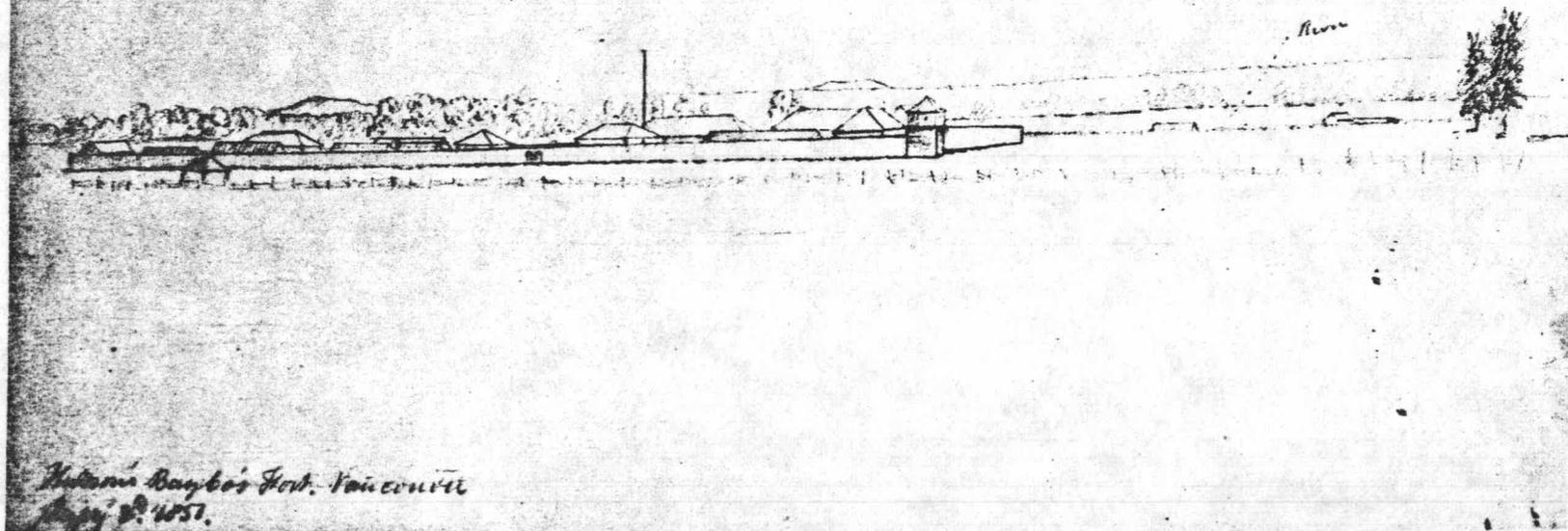
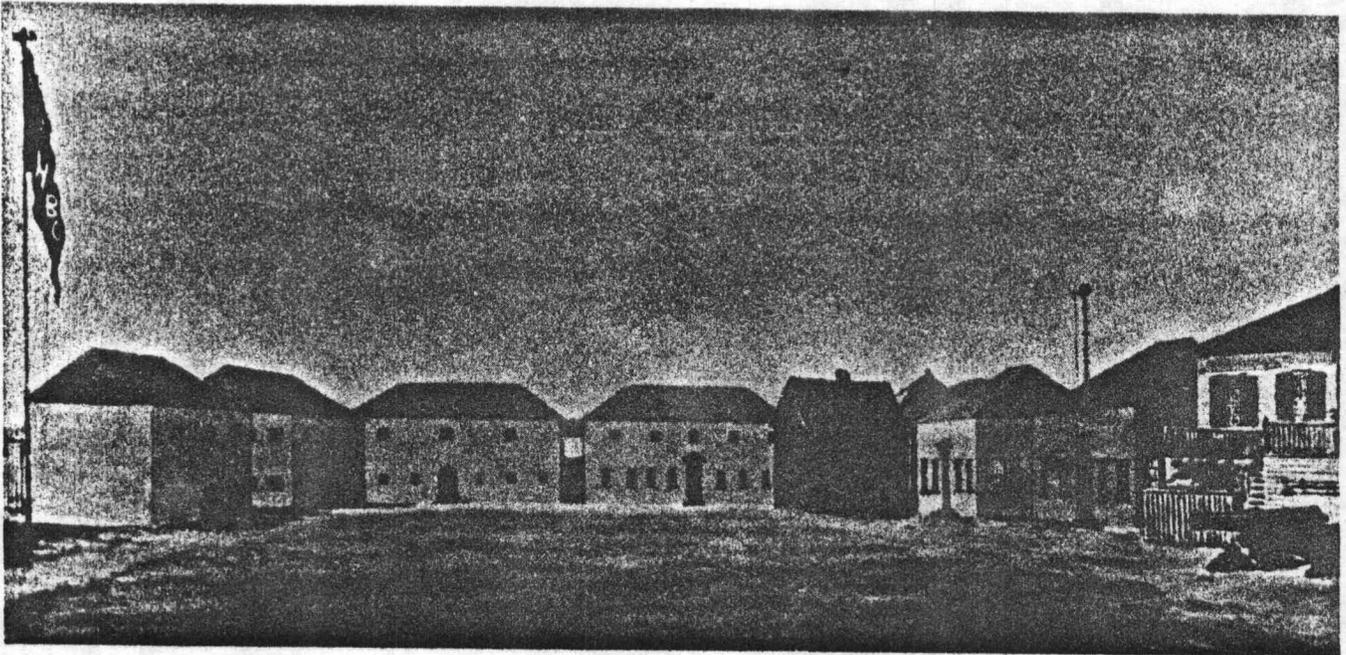
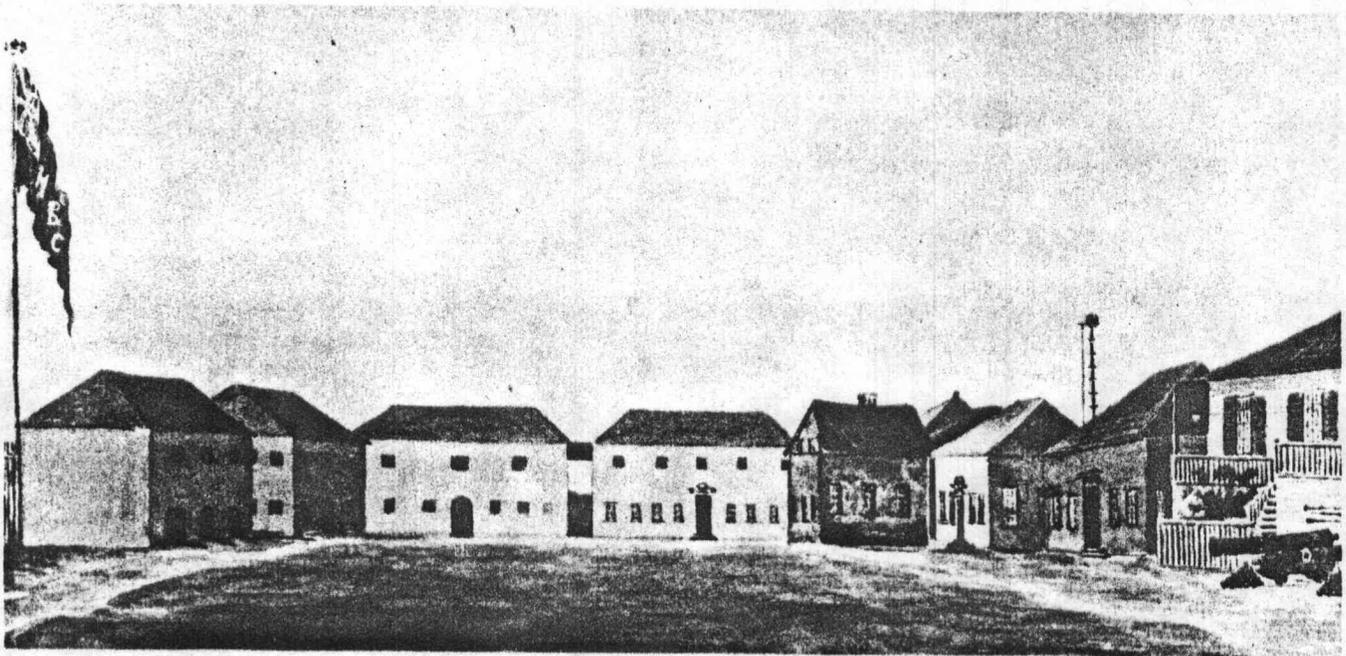


PLATE 5 —Fort Vancouver from the North, July 2, 1851, Drawn by George Gibbs.
From collection of photographs entitled "Drawings by George Gibbs in the Far North-
west, 1849-1851," in the American Bureau of Ethnology, Smithsonian Institution.



a. Colored photograph made in 1928 from the original watercolor sketch.



b. Water color copy made in 1928 from the original water color sketch made by Lt. T. P. Coode, c. 1846-47.

PLATE 6

Fort Vancouver, Washington

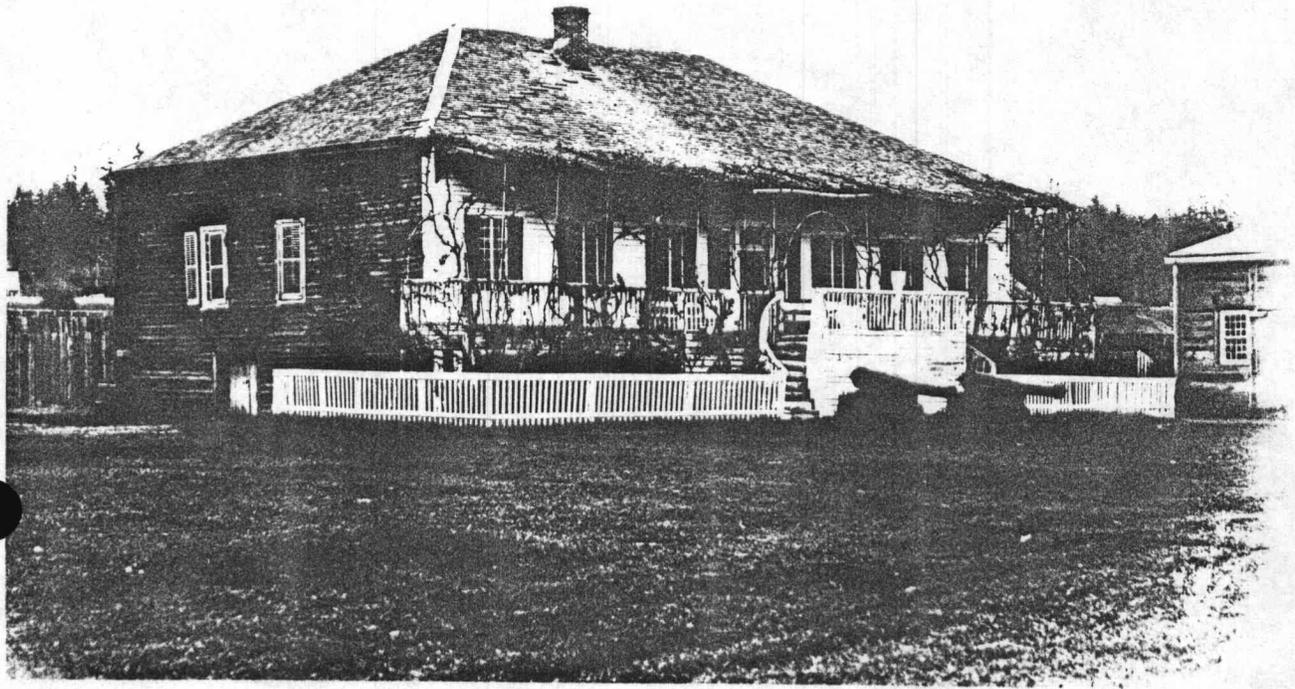
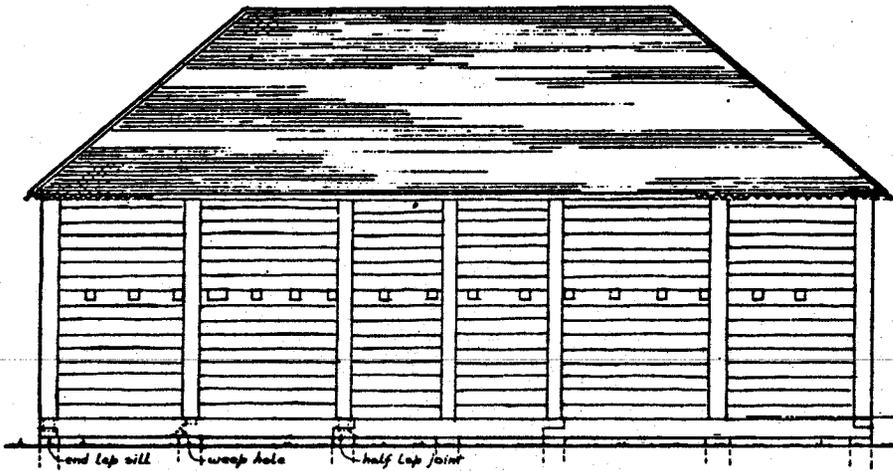
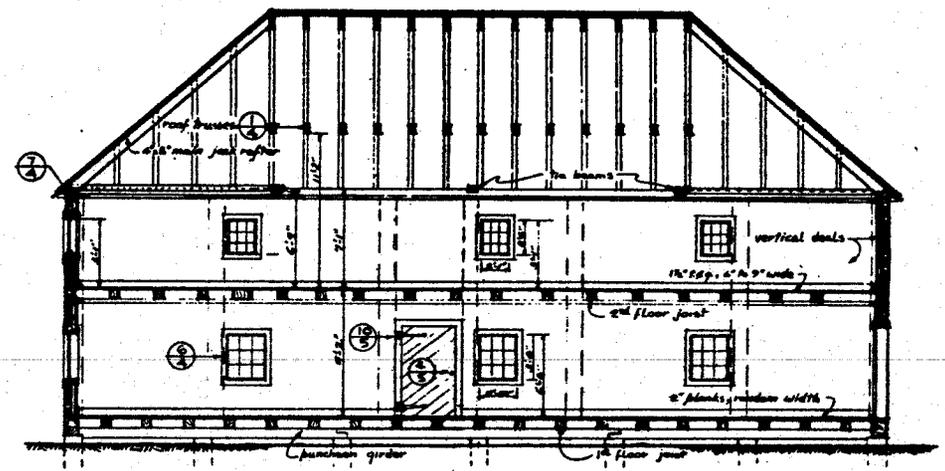


PLATE 7

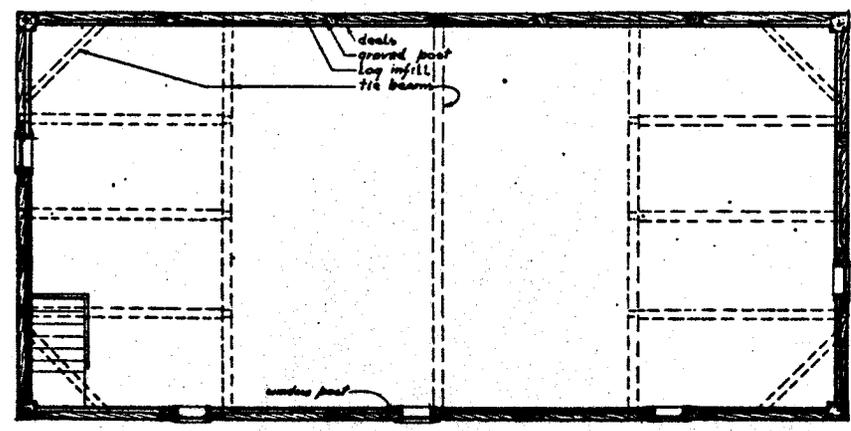
Chief Factor's House, Fort Vancouver, 1860.



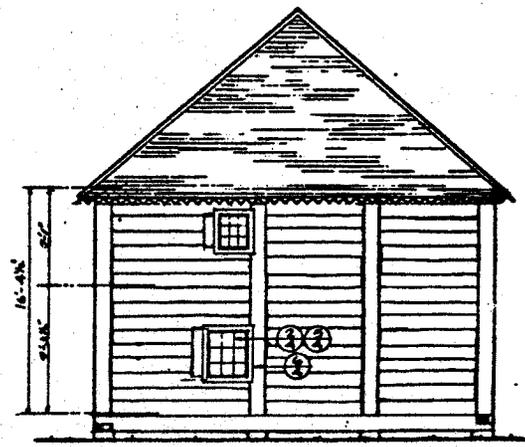
REAR ELEVATION



LONGITUDINAL SECTION

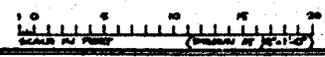


SECOND FLOOR PLAN

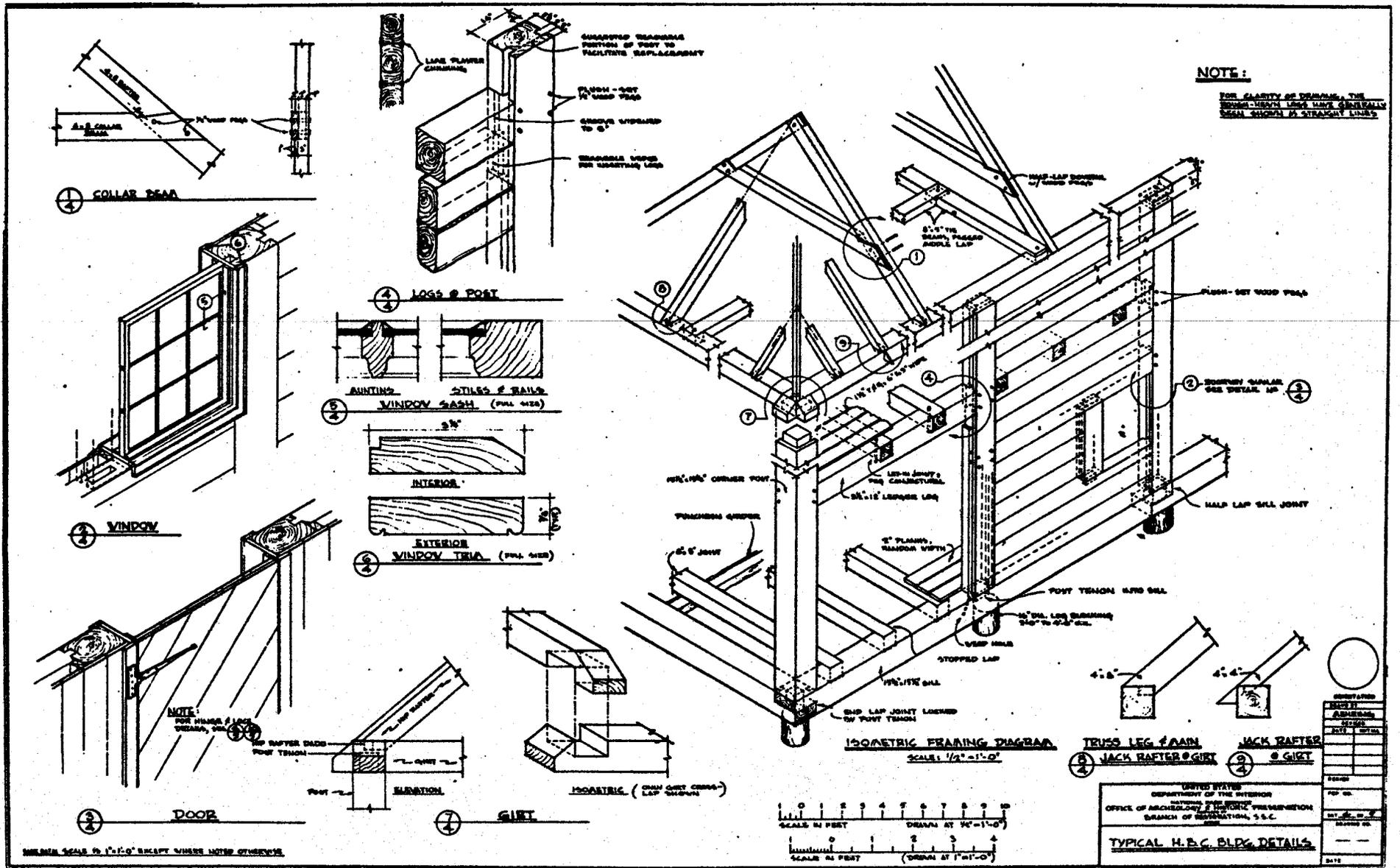


RIGHT END ELEVATION

NOTE:
For general framing, see
Isometric Framing Diagram,
sheet 77a.



DATE	
BY	
CHECKED BY	
APPROVED BY	
SCALE	
PROJECT NO.	
DATE	



NOTE:
 FOR CLARITY OF DRAWING, THE JOINTS BETWEEN LINES HAVE GENERALLY BEEN SHOWN AS STRAIGHT LINES.

① COLLAR BEAM

④ LOSS & POST

② WINDOW

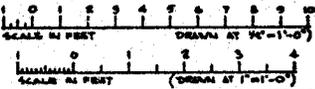
③ DOOR

⑦ GIRT

ISOMETRIC FRAMING DIAGRAM
 SCALE: 1/2" = 1'-0"

TRUSS LEG RAFTER
 JACK RAFTER & GIRT
 ② JACK RAFTER & GIRT
 ③ GIRT

UNITED STATES
 DEPARTMENT OF THE INTERIOR
 NATIONAL BUREAU OF GEOLOGICAL SURVEY
 OFFICE OF ARCHITECTURE & MONUMENTS PRESERVATION
 BRANCH OF RESTORATION, S.S.C.
 TYPICAL H.C.C. BLDG. DETAILS



DESIGNED	
DRAWN	
CHECKED	
DATE	
NO.	
DATE	

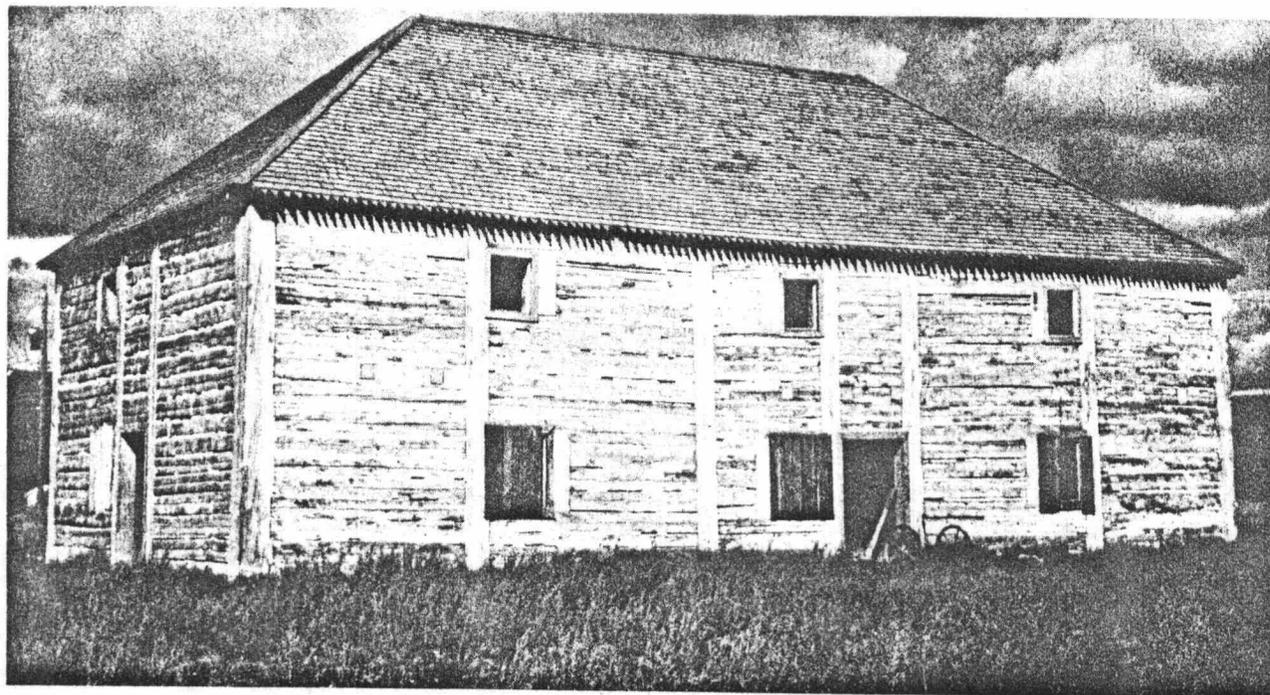


PLATE 11

Warehouse at Fort S t. James, British Columbia,
Canada



PLATE 12

Bell in possession of St. Michael's
Cathedral, Sitka, Alaska.

Dimensions:

Diameter at lip - 13 inches

Height of Barrell - 11 inches

Height to top of crown - 15 inches

Raised lettering: "BEAVER / 1835"

Photo by A. L. Koue



PLATE 13

Sketch of Ft. Williams , perportedly by Lord Selkirk.
Note log infill does not extend below floor
level, and knee bracing.

H30-DSC-THP

93 Woodland Way
Piedmont, California 94611
October 17, 1974

~~V. Smith~~ VS
~~G. Thomas~~ G
Mattes

Mr. Merrill J. Mattes
Manager, Historic Preservation Team
Denver Service Center
National Park Service
655 Parfet Street
P. O. Box 25287
Denver, Colorado 80225

Dear Merrill:

As requested by the copy of your September 30 memorandum to the Regional Director, Pacific Northwest Region, and in partial fulfillment of Purchase Order No. PX200050208, dated August 19, 1974, please find enclosed my review and analysis, with recommendations, of the Preliminary Drawings, Historic Structures Report, Chief Factor's House and Kitchen, Reconstruction Phase II, Fort Vancouver National Historic Site (Drawing No. 389/28,001). Only sheets 1 through 9 were received by me.

Many thanks for your kind words concerning the draft of Vol. II, Historical Data Section, FOVA. It is, of course, gratifying to learn that publication by the GPO is contemplated. If I can assist, please let me know. I can see only one problem with such general publication. The permissions to quote and reproduce source materials and pictures were all based upon assurances that the report would be issued in a small edition intended primarily for in-Service use. For a more extensive distribution the Government should, in my opinion, make its own requests for premissions. I do not feel that I am responsible for any questions which might arise from any reproduction of the report beyond what was contemplated at the time of my contract. I believe you will agree that this is a fair and reasonable position.

At the present time I am beginning to lay out my projects for 1975. Since finances, research, and travel are all involved, I need to be able to make some commitments considerably in advance. As you know, over the past year or so several people in the Service have approached me concerning the possibility of my writing a handbook for Fort Vancouver,

but nothing definite ever seems to result. I would like to give this project first priority while the subject is still fresh in my mind and before I get started on something else. Are you aware of any movement within the Service in this direction?

The trip to France was great, and as you will see by the enclosed report, not entirely unproductive as far as Fort Vancouver is concerned. I also got some good information on fortress gate construction -- nothing I haven't said previously in reports -- but none of our architects seems interested in applying the data; they would rather dream up gates out of the air or follow other reconstructions, which are also all hypothetical.

I hope to have a report on the Architectural Data Section, Phase II, in your hands within a few days. Very best wishes.

Sincerely,

A handwritten signature in black ink, appearing to read "John", written in a cursive style.

John A. Hussey

Enclosure.

ANALYSIS, WITH RECOMMENDATIONS,
OF
PRELIMINARY DRAWINGS
CHIEF FACTOR'S HOUSE AND KITCHEN
FORT VANCOUVER NATIONAL HISTORIC SITE
VANCOUVER, WASHINGTON

Analysis
by
John A. Hussey

Piedmont, California
October 16, 1974

INTRODUCTION

Since the present reviewer consulted with Mr. Lewis A. Koue during his preparation of the Preliminary Drawings for the reconstruction of the Chief Factor's House and Kitchen (Drawing No. 389/28001), and since the several sheets of this drawing were reviewed at the meeting of consultants at Fort Vancouver on August 29 and 30, 1974, the plans already reflect a number of oral comments and recommendations made by the present reviewer. Those suggestions will not be repeated here.

The present report, then, covers additional matters, or matters which have been given further thought, on Sheets 1 through 9 of Drawing 289/28001 (Sheets 10 and 11 were not received by the present reviewer).

ANALYSIS

As was brought out in Volume I, Historical Data Section, Historic Structures Report, Fort Vancouver, the only aspects of the Big House and Kitchen which are clearly defined by the historical evidence are the appearance of the south and west sides of the former structure, the roof line of the

latter, and the dimensions of both buildings. Archeological evidence has provided additional details concerning chimney and hearth locations, porch and fence dimensions, kitchen flooring, Big House cellar, and a few other points.

Most of the remaining aspects of the two buildings as proposed for reconstruction in Drawing 389/28001, are based upon a few rather unsatisfactory eye-witness descriptions, upon comparative data concerning similar structures at other Hudson's Bay Company posts, and upon simple logic. Also, several compromises have been made with known H.B.C. building practice in the interest of economy or because certain structural members, such as beams sufficiently heavy to span 40 feet without intermediate support, are now difficult to obtain. And one or two features, such as the exit door in the passage between the buildings, have been included in the interests of visitor safety or administrative needs.

Despite the compromises, however, the structures as proposed by the drawings under review generally approximate the original buildings as closely as is possible given the presently available data. Most of the known compromises will not be visible to visitors and thus will not detract from the historic appearance of the structure.

In the opinion of the present reviewer, Mr. Koue has

done a superb job of translating a mass of often vague and contradictory evidence into a definite plan which will permit the reconstruction of the Big House and its Kitchen in such a manner as to convey a feeling of authenticity.

RECOMMENDATIONS

A. It is recommended that Drawing No. 389/28001 be accepted, after possible minor adjustment for suggestions made below and by others, as the basis for the preparation of construction drawings for the Chief Factor's House and the Kitchen.

~~o.v.~~ B. The nine sheets of this drawing received by the present reviewer did not depict details of certain features such as door sills, hardware, oven, etc. It is recommended that designs for these important items be subject to review before being included in the final construction drawings.

C. It is recommended that consideration be given to the specific comments and suggestions made below before the final construction drawings are undertaken. These suggestions largely concern minor points but ones which, in sum, will have a considerable effect upon the historical authenticity of the reconstruction.

The items mentioned are mainly those which were not

discussed with Mr. Koue or at the meeting at Fort Vancouver; or they are items which were left unresolved by those discussions. In other words, they are points upon which Mr. Koue and the present reviewer did not completely agree. But one or two of the points were agreed upon with Mr. Koue or at Fort Vancouver, but subsequent thought or new information have caused the present reviewer to revise his previous stand. In such cases, the reasons for the change are fully discussed below.

SPECIFIC COMMENTS AND SUGGESTIONS

SHEET 1

✓ 1. Main Floor Plan, Chief Factor's House

a. Garden fence. As shown on the plan, the north end of the fence on the west side of the Big House starts to curve toward the building about 10 feet north of the southwest house corner and joins the west house wall about 16 or 17 feet north of that corner. This curved section apparently is so designed after a study of the two 1860 photographs showing the Big House; and it is true that a careful examination of those pictures does seem to show the fence so curving. It is also apparent, however, that if such a curve actually existed, the fence touched the house beneath or just south of the southern window and not north of it as

O.K. shown on the plan. In other words, the bend was sharper than depicted in the drawing.

Hoffman indicates it was a square corner.

Archeology apparently throws no light on this matter, since the most northerly fence post found was at about the 10-foot mark. The present writer does not know how to solve this problem, but he would suggest balancing the fences on the two sides of the building. Both fences might join the structure at about the 10-foot mark (as does the east fence in the plan), but the northern corners might be somewhat rounded to conform with the condition apparently shown for the west fence in the photographs. (In the opinion of the present reviewer it is not entirely certain that these corners were rounded or that the fences actually turned the corners on the north and joined the house, but there is no way to be certain on these points.)

/ b. Sundial. The drawing shows the sundial situated slightly back of the veranda railing and somewhat west of the veranda rail mid-point. However, a very sharp print of the better of the 1860 photographs of the house clearly and beyond argument shows that the sundial base interrupted the front railing and was at its center (on the other hand, an uncropped print of the Coode water color seems to show the sundial base as sitting on the railing, but it is impossible to see if the base extends down to the floor behind the railing or through the railing).

E. O.K.

It is urgently suggested that the location of the sundial be changed on the plan to the center of the railing. OK.

✓ c. Flooring. At the Fort Vancouver meeting it was agreed that the flooring would be 3" T&G subfloor running the length of the building with 1" planed finish floor running perpendicular. The present reviewer at that time went along with this decision in view of the arguments presented for it, despite knowledge that the H.B.C. would have had only the single heavy T&G plank flooring (planed for a Big House) running the length of the building.

However, in France recently he had an opportunity to see several very ancient heavy plank floors in shops and inns (including one very elegant and expensive inn). Invariably the planks ran the length of the structure. These floors were without any stain, varnish, or other finish. They were unevenly worn, and sometimes slight gaps between boards were visible. But the point is that they looked "right." Despite the wear they were clean and neat. One instinctively felt, "This is how it was." Admittedly this was a subjective reaction, but floors of this type are in accord with the historical data relating to H.B.C. structures.

This reviewer urgently suggests that this matter be reconsidered. If it is felt that a 10-foot span would be too great for 3" planks alone, it should be remembered that there is absolutely no evidence, archeological or otherwise, that OK.

the Big House floor joists were 10 feet apart. The span could just have well been 5 feet or even less. The spacing of the footings did not necessarily have any relation to the spacing of the joists in this type of construction. Upon further reflection, it will become perfectly obvious to all concerned that a floor with a visible surface of perpendicularly laid, stained and sealed planks would be a glaring historical error.

2. General Notes

√ a. Note 5, roof covering. The use of "Perfection" shingles, particularly with only 4" exposed, probably would be an error for 1845. It will be recalled from Vol. I of the Historical Data Section (p. 114) that there is no definite record of this building being "shingled" until the new roof of 1846. As was brought out in the appendix to Vol. II (p. 688), however, there is evidence that "shakes" may have been stored in the Big House cellar as early as 1837, leading to the conclusion that a shake roof could have been applied when the structure was originally built.

In the in-Service correspondence on this subject, a good deal has been said about the distinction between "shakes" and "shingles" in the historical record and in conversations relating thereto. Actually the two terms were synonymous in H.B.C. correspondence during the 1830's and 1840's. There is ample evidence that "shingles" at Fort Vancouver during that period were 36" long. Surely such "shingles" were "shakes."

At the Vancouver meeting in August cedar split shakes with 8"-12" exposure were agreed to, and it is suggested that this decision be reflected in the final construction drawings.

current

✓ While on the subject of the roof, it may be well to mention here that the 1860 photographs show a series of cleats applied over the shingles to facilitate access to the chimney. Although it is not known that these cleats were in place as early as 1845-6, it is suggested that they be included in the restoration project since they would form an interesting interpretive feature.

yes.

✓ b. Note 13, roof drains. Undoubtedly the short gutter over the front entrance was of metal. The situation with the remaining gutters is not so clear. It is impossible to tell from the photographs whether these latter gutters were of metal or wood. Certainly they were larger than the one over the entrance. If further examination of the pictures does not resolve this question, it is probable that metal gutters would be satisfactory, but the difference in sizes should be reflected in the specifications.

O.K.

c. Note 18, wainscot. The specifications call for the wainscot boards below the chair rail to be narrower than those on the walls above. It is true that the drawing of Fort William (Plate LXIII in Vol. I, Hist. Data Section) shows this condition, but apparently it was more common for

the same boards to run from floor to ceiling, with the lower or "wainscot" portion being formed simply by tacking on a chair rail at a suitable height. Such a condition is shown in Plate LXIV in Vol. I and in Plate CLIX in Vol. II. This latter practice is also largely employed at the reconstructed Fort William

This point is not important. Either way would have precedent; but the present reviewer suggests the second technique on the basis of both history and economy.

d. Note 27, interior painting. The suggestion that the floors not be stained and sealed has been noted above.

e. Note 28, exterior painting. The dark olive green color of the shutters might be more clearly defined as the shade shown in the Coode water color. The present writer can attempt to make a color sample if requested.

SHEET 2

1. Basement and Foundation Plan, Chief Factor's House

a. Wine cellar. The plan calls for the visible walls above ground level to be lined with puncheons. The present reviewer would agree for the inside walls, but he suggests solid, horizontal, squared-log infill for the exterior walls of this portion. As he interprets the archeological findings, the log infill originally started at ground-level sills all

optional.

O.K.

O.K.

?

around the building, but for reasons of economy it was agreed to start the infill at the first-floor level for the reconstruction. But where visitors can see the wall structure, it is suggested that log infill be used.

SHEET 3

1. Loft Plan

a. Floors. It is suggested that the 1" floor over the 2" structural floor be eliminated for reasons already discussed. Visible flooring should run with the length of the building. No finish is needed except in areas for NPS administrative use.

b. Partitions. It is suggested that the T&G partitions extend upward not to the roof but only to the height of the collar or tie beams. The main loft room should be ceiled at collar beam height, with planking fastened to the lower edges of the rafters from ceiling level down to the top of the walls. The low walls may or may not have sheathing as is desired. (NOTE: Partitions extending only to the collar beams are shown on Sheet 5, so evidently Mr. Koue actually intends the partitions to go only that far and not "to Roof" as shown on Sheet 3.)

2. Privy

Mr. Koue has shown much skill and employed much care in designing the two privies, but unfortunately at that time certain new information was not available to him concerning

~~OK~~
 looks same
 same dir
 length

?

O.K.

privy construction at Fort Vancouver. Messrs. J. J. Hoffman and Lester Ross, through both archeological findings and historical analysis, were the first to reveal in detail the structure of at least two double privies at Fort Vancouver. Their report, Fort Vancouver Excavations -- I, made clear the general construction of these latrines.

In Chapter XXX, "Miscellaneous Minor Structures," in Vol. II of the Historical Data Section (pp. 648-658 of the draft), certain refinements of the findings of Messrs. Hoffman and Ross have been suggested based upon sharper photographic prints than those generally available. The details of out-house construction as brought out in these two studies are too lengthy to be considered here. Suffice it to say that the latrines had shed roofs, puncheon sides, probably clapboard fronts, and ventilation holes in the front walls over the doors. There were no vent stacks or lattice screens.

It is suggested that the two studies mentioned above be consulted by the architects preparing the construction drawings. It is essential that the privies be completely redesigned.

O.K.

SHEETS 4 & 5

1. Half Elevation and Section

These drawings, if interpreted correctly by the present reviewer, appear to show that the upright framing timbers rise from the foundation piers to the plate or sill at the

first floor level. Then they appear to resume again above the sill and rise to the plate at the top of the walls. It was the understanding of this reviewer that at the Fort Vancouver meeting it was agreed that the main perimeter support posts would be a single timber from foundation to top plate, with the floor sills notched into these posts.

In the latter case, in order to assure the rigidity of the building and meet earthquake danger, the sills could further be fastened to the uprights by concealed iron straps or other concealed ties. Also, as the plans show, long steel or wooden rods driven down through several successive infill logs would, together with the interlocked and morticed sills and plate corner joints, form an earthquake resistant structure. Since the present drawings do not provide for diagonal bracing of the short supporting posts between foundation and first-floor sill, it is difficult for the present reviewer to see how the building would have the desired rigidity, since the thin sheathing probably would not suffice to resist lateral earthquake shock.

In making these remarks, this reviewer freely acknowledges that he is no engineer or architect. Thus he may have misinterpreted the drawings, and undoubtedly the stresses mentioned have already been taken into account. Yet, from the historical standpoint alone, continuous uprights would seem to be required.

✓ Yes,
please show
stabilized
system
proposed.

2. Support for Roof Overhang.

The drawings clearly and accurately indicate the lowest horizontal roof sheathing board around the perimeter of the Big House as extending beyond the exterior edge of the plate so as to form a slight overhang. This was a usual feature of H.B.C. construction.

However, the drawings do not appear to show any method of supporting this overhang. Mr. Koue is perfectly familiar with the several techniques employed by the Company to provide this support, and it may be that the present reviewer has not interpreted the drawings correctly. At any rate, it is suggested that the proposed nature of these supports be indicated if it has not already been done.

*please
indicate.*

SHEET 6

Points in question on this sheet have already been noted in connection with remarks concerning earlier sheets.

SHEET 7

1. [Ground Floor Plan], Kitchen

a. Trapdoor. It is not clear that there would have been need for a trapdoor to the loft, but there certainly is no harm in having one.

O.K.

b. Coal bin. Historical evidence demonstrates beyond reasonable doubt that coal was not used for either cooking or heating at Fort Vancouver, at least until after

1846. To ship coal from England was expensive, and thus this fuel was in very limited quantity and seems only to have been used in the blacksmiths' forges and, possibly, in other workshops. It is suggested that the coal bin be eliminated.

*O.K.
what fuel
& storage?*

✓ c. Wooden floors. The floors in the quarters on the ground level probably were of pounded earth or lime plaster as in the rest of this level. On page 173, Vol. I, Historical Data Section, it was brought out that archeological findings indicate that the entire ground floor of the Kitchen had a plaster floor. The H.B.C. did not worry about making its employees comfortable. It is suggested that the floor boards on sleepers over concrete be eliminated.

*O.K.
use stabil.
earth.
lime plaster*

SHEET 8

✓ 1. Section A-A, Kitchen

The diagonal sheathing on the inside face of the door in the passage way between the Big House and the Kitchen should go clear to the edge of the door. Usual Company practice was not to have a frame or border around such doors.

O.K.

✓ 2. West Elevation and North Elevation

The open solid-wood shutters should have two horizontal bracing boards on their inner surfaces. These surfaces would be visible when the shutters were open.

O.K.

3. Section B-B

√ The type of door shown is not typical of H.B.C construction. The inside of the door should be of either diagonal or horizontal planks extending clear to the edge of the door. Or, if made of a single thickness of planks, it might well be like that depicted in Plate XII, Historic Furnishings Study, Bakery, Fort Vancouver. Probably strap hinges would have been used on the doors in a rough building such as the Kitchen.

O.K.

SHEET 9

1. Typical Wall Elevation, Kitchen

√ a. Roof. Apparently it was not usual H.B.C. practice to place vertical roof boards over horizontal sheathing. It is suggested that the sheathing be of vertical, ungrooved boards, placed tightly together and covered with membrane. The top two layers of vertical boards could then be applied as shown in the drawing, "Typical Board-on-Board." See Plate LIX, Vol. I, Historical Data Section, for an example at one good reconstruction project.

?

2. Typical Table & Bench

Although little definite information is available, it would appear that "sawbuck" tables were not often used by the H.B.C. Tables similar in design to those shown in Vol. I, Historical Data Section, Plate LXIII, and Historic Furnishings

N.I.C.

Study, Bakery, Fort Vancouver, Plates XI and XII, would seem more appropriate.

The servants' table in the kitchen at Lower Fort Garry was accompanied by both chairs and benches. The benches were heavy slabs of wood into which four round legs had been inserted, at an angle, one at each corner.

GENERAL SUGGESTION

It has recently been recalled to the writer's mind that when St. Paul's Catholic Church, near Salem in the Willamette Valley, was built during the 1840's, the window frames and possibly the shutters were made at Fort Vancouver. Mr. Lester Ross states that the shutter hardware at the church, which still stands, is identical with that recovered during archeological excavations at Fort Vancouver.

good.

It is suggested that before the final construction drawings for the Big House are prepared, Service architects visit St. Paul's and record window, shutter, and hardware details.

H30-DSC-THP

93 Woodland Way
Piedmont, California 94611
October 23, 1974

Mr. Merrill J. Mattes
Manager, Historic Preservation Team
Denver Service Center
National Park Service
655 Parfet Street
P. O. Box 25287
Denver, Colorado 80225

Dear Merrill:

As requested by the copy of Acting Manager Luzador's October 11 memorandum to the Regional Director, Pacific Northwest Region, and in partial fulfillment of Purchase Order No. PX200050208, dated August 19, 1974, please find enclosed my analysis, with recommendations, of the Architectural Data Section, Historic Structure Report, Reconstruction Phase II, Fort Vancouver NHS, Project No. 9430-5437.

Sincerely,



John A. Hussey

Enclosure

~~V. Smith~~
G. Thomas

ANALYSIS, WITH RECOMMENDATIONS,
OF
ARCHITECTURAL DATA SECTION
HISTORIC STRUCTURE REPORT
RECONSTRUCTION PHASE II
(CHIEF FACTOR'S HOUSE, KITCHEN, WASH HOUSE,
FLAGPOLE, AND BELFRY)
FORT VANCOUVER NATIONAL HISTORIC SITE
VANCOUVER, WASHINGTON

Analysis
by
John A. Hussey

Piedmont, California
October 23, 1974

INTRODUCTION

As was the case with the Preliminary Drawings for the Chief Factor's House and Kitchen, the Architectural Data Section which is the subject of this review reflects to some extent consultations between Mr. Koue and the present writer while the designing was in progress.

The analysis which appears below and the suggestions resulting from that analysis are, therefore, confined to matters which were left unresolved by those consultations and to matters upon which this reviewer has had additional thoughts. It will be noted that the topics treated in the suggestions are largely the same as those discussed in some detail in this reviewer's "Analysis, with Recommendations, of Preliminary Drawings, Chief Factor's House and Kitchen," dated October 16, 1974.

It has not seemed necessary to reproduce the supporting arguments for the duplicated suggestions. Thus, where appropriate, reference is made to the data in the above-mentioned report by the words "See 'Analysis, Preliminary Drawings,' p. _."

ANALYSIS

The Architectural Data Section, Reconstruction Phase II, Fort Vancouver, reflects a vast knowledge of Hudson's Bay Company construction techniques and a large amount of research on the part of Mr. Koue. Analysis leads to the conclusion that, on the whole, the report does indeed prepare the way for the production of construction drawings and contract documents for the Chief Factor's House, Kitchen, Wash House, Flagpole, and Belfry.

There are, however, a few matters which appear to require further discussion and, perhaps, revision. These are as follows:

C. Description of Fabric, Materials, etc.

C-1, Chief Factor's House

P. 14. Item k. Gutters. As was brought out on p. 8 of "Analysis, Preliminary Drawings," the short gutter over the front entrance was of metal, but it is not possible, in the opinion of the present writer at least, to be certain if the remaining gutters were of metal or wood. At any rate, they were markedly larger than that over the front entrance.

C-2, Kitchen

P. 17, Item 7. Chimney. The presence of a stove in the living quarters would not necessarily indicate that there was a brick chimney in that same area. An exposed stove pipe

from the stove to the hearth chimney, even over a distance of 30 feet or more, would have been quite in keeping with Company practice.

P. 18. Item 8. Coal bin. As explained on pp. 13-14, "Analysis, Preliminary Drawings," there would not have been a coal bin in connection with the Kitchen.

D. Description of Appearance of Structures . . .

D-1, Chief Factor's House

P. 22. Exterior painting. The fact that all sides of the Big House were painted white up to at least about 1849 is best demonstrated by the Yale painting by an unknown artist.

P. 23. Sundial. Mr. Koue is quite correct in suggesting that the "central ornament" on the Big House porch was the base of a sundial. On a clear print of the 1860 photograph the style of the sundial can readily be seen.

Pp. 23-24. Intermediate footings. The question of whether the infill logs began at ground level or at first-floor level still has not been resolved to the satisfaction of all interested parties. The matter is academic for purposes of reconstruction (except for the exterior walls of the wine cellar), however, because it has been agreed that for reasons of economy the walls below the first floor will not have infill; rather, studs will be provided for

support of the clapboard exterior siding. In the opinion of the present reviewer it would be desirable to have infill logs on those parts of the cellar walls which would be visible to visitors.

RECOMMENDATIONS

A. It is recommended that the Architectural Data Section, Reconstruction Phase II, be accepted as the basis for the reconstruction of the five structures in question after consideration has been given to the suggestions made below and by others and after any revisions resulting from that consideration have been made.

B. It is recommended that consideration be given to the specific comments and suggestions made below.

SPECIFIC SUGGESTIONS

(The following suggestions are numbered according to the items in Section E, "Architectural Description of Proposed Construction and Preliminary Drawings," pp. 29-37 of the Architectural Data Section.)

E-1 Chief Factor's House

5. Roof covering. It is suggested that shakes with 8"-12" exposure be used as the outer roof covering. See "Analysis, Preliminary Drawings," pp. 7-8.

8. Chimney. Suggest specifications read "Project third course from top to form cap." The 1860 photograph shows this detail, and it might be well to be specific in the specifications.

12. Veranda roof. Suggest specifications read ". . . supported by brackets and iron rods."

14. Gutters. As has been mentioned, it is only certain that the gutter over the entrance was of metal. Whether the remaining gutters were of metal or wood is not clear, but certainly they were larger than that over the entrance. Very probably there were gutters on all sides of the building except the front, where the gutter was confined to a short length over the entrance.

It is suggested that further study be given to the gutters in clear prints of the 1860 photographs. If the matter cannot be resolved, the side and rear gutters could be of either metal or wood, but it should be mentioned in the specifications that they were larger than the front gutter.

22. Interior walls. As explained at length on pp. 8-9 of the "Analysis, Preliminary Drawings," it is not necessary for the wainscot to be of narrower boards than the upper part of the walls. It would be more economical and perhaps more in keeping with usual Company practice to have the vertical wall boards run from floor to ceiling, with the chair rail applied over them at a suitable height.

Also, it would have been quite in keeping with Company practice to form the chair rail of rather elaborately molded stock. Inventories show that several "mould planes" were part of the equipment of the Fort Vancouver carpenter shop; the inventory for 1847 even lists a "wainscot plane."

It is suggested that these facts be considered when preparing the final working drawings and specifications.

26. Flooring. As explained in detail in "Analysis, Preliminary Drawings," pp. 6-7, it seemed desirable to there suggest that only one thickness of flooring be used -- 3" T&G planks running with the length of the building. This suggestion has since been discussed with Mr. Koue. For reasons of both initial and long-range economy, he suggests that the two layers of flooring be retained but that the top 1" planks also run with the length of the building. This solution would seem to solve the problem, and it is suggested that it be adopted.

It is still suggested, however, that the floors not be stained or sealed.

29. Exterior painting. It is suggested that the dark olive green color of the shutters and doors be more clearly defined as the shade of green shown in the Coode water color.

30. Interior painting. It is suggested that the floors not be stained or sealed except in areas to be reserved for NPS administrative use. See "Analysis, Preliminary Drawings," pp. 6-7.

E-2 Kitchen

13. The need for a second chimney for the stove in the living quarters is questionable. See pp. 2-3 above. It is suggested that consideration be given to running a stove pipe from the stove to the hearth chimney. If this suggestion is adopted there would, of course, have to be a slight change in the design of the hearth and its flues.

E-4 Flagpole

5. Foundation. The timber bracing proposed for the pole is historically correct. However, is there an engineering requirement for such an elaborate feature which would not be visible to visitors? If there is a less expensive solution to the support problem, it is suggested that it be employed.