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by James H. Morrison

Abstract

The southeast salient was the most conspicuous and probably the most photographed section of the Halifax Citadel for over a century. This study will trace the construction of this salient begun in 1830 and the additions made to it since that time. Due to the construction of a Redan, first mooted in 1831, the completion of the southeast salient was delayed for over a dozen years. By 1843, both the escarp and the retaining wall had been completed.

The casemates from the main entrance to sallyport 2 have been vital to discipline in the Citadel. Six of the seven casemates were listed as defensive casemates, the seventh C-0 being used for storage. The guard room and lock-up room C-49 and C-50 were respectively from the 1840s. C-1, C-2, C-3, and C-4 were also involved in various prison related activites. C-3 and C-4 were perhaps the most altered with the addition of new or wider doors in this century and the closing in of the gunports in both casemates.

The rampart buildings and flagstaves on the southeast salient identify it as the communication centre of the Halifax Defence Citadel. It also served as a weather forecasting station and chronometer check for ships in the harbour. The signal mast informed the city merchants which ships were coming into the harbour. Thus the southeast salient served not only the military but also the city and harbour. The few buildings constructed initially were for the signal stores and small arms store. The Director of Signals was in the Cavalier building. By the 1870's, however, the director had his office on the southeast ramparts. Over the next five decades there was a great deal of structural activities on the southeast salient including a time ball building and a new signal building built ca. 1920. The left face of the southeast salient collapsed, and the rubble of the escarp remained in the ditch until the 1950s. By 1961, a decade after Parks Canada had assumed responsibility for the Halifax Citadel, only the time ball building remained on the ramparts. Two years later it was gone.

Preface

The southeast salient took a decade to complete. Begun in 1830, it was not finished until 1843 due to the addition of a Redan on the east front. This report examines the construction of this salient and the section up to the main entrance. It also traces the evolution of this section of the Halifax Citadel to ca. 1950 in as far as the documents allow. The restoration of this part of the Citadel will be undertaken within the next year and this report should provide some guidance for the restoration work.

The report has been divided into two parts. The first is a narrative history of the southeast salient in order to place it in perspective as regards the rest of the Citadel. The second part is a structural analysis of the southeast salient. This analysis will first describe and make observations on various sections of the southeast salient as it now stands. It will than trace the evolution of each section in order to investigate what was built initially and how its construction relates to what is there now. Within Part 2 are four headings namely Walls, Casemates, Sallyport and Rampart Structures. Each of these has been divided in two with sub-headings - observations and evolution described above.

Both the Historical Research section and the Engineering section of the Halifax Defence Complex have been of enormous assistance. I am grateful for the time they took to explain and the patience they exhibited while explaining. The many "maybes" are theirs and mine due to the lack of documentation. The errors I will claim as my own.

Southeast Salient

Narrative

Viewed from almost any angle, one of the more conspicuous aspects of the Halifax Citadel is the signal mast. A lithograph of the town of Halifax done in 1832 and a later one in 1837[1] included three masts outlined on the horizon with nothing else of especial note except the dark grey bulk of the Citadel. The section of the fort in which these masts were anchored was the south front and more specifically the southeast salient. After Lieutenant Colonel Gustavus Nicolls completed the south end of the fort in 1831, the masts were then positioned on the southeast salient. This was not the first time the south end of the fortifications on the hill had been so favoured. When the "temporary structure of earth and fascines"[2] that preceded the present Citadel had been built, the south end of the roof of the Cavalier barracks, which stood in the centre of the third Citadel supported the first signalling or telegraph system.[3] It was conceived and erected by Edward, Duke of Kent in the late eighteenth century. The south end was a favoured signalling area as it was plainly visible by both the city of Halifax and any ships entering or anchored in the harbour. Thus the construction of the southeast salient generally was related to its position relative to the town and the harbour. This led to differences and alterations in the southeast salient of the present Citadel when it is compared to the evolution of other parts of the fort. This report will address itself to an account of the construction of the southeast salient of the Citadel and the later physical changes which it underwent.

Prior to the fourth and present fort on Citadel Hill, there were three earlier fortifications, each built according to the contingencies of the time and therefore of a temporary nature. The final Fort George was to be, in the words of the engineer Nicolls, ". . .of a permanent nature."[4] The immediate problem was the shape of the hill. Preceding forts had sprawled

over its crest. The plan for a fortress most similar to the present work was that of Arnold, presented in 1824.[5] It was Nicolls' 1825 plan, however, that became the permanent fort, which in the end was more to "show the flag" than to "bare the sword."

The original plan of 1825 contained the essential form that the Citadel would take and was drawn more to conform with the terrain (which had always been a problem for the engineers) than according to any regular system of fortifications.[6] The southeast salient would change very little from the original plan. Only the addition of the redan to the eastern front in the 1830's would alter in some respects the left face of this salient angle. But this was to come, as the whole fortress underwent three decades of alterations before it was judged complete.

It would be useful here to look at the southeast salient as Nicolls conceived it in his plan. The subsequent changes to plans and construction are then better understood.

Beginning at the re-entrant angle on the south front,[7] more specifically at sallyport 2, the outer wall of ironstone escarp extended 190 feet in an easterly direction. Within this wall, 100 feet from the sallyport, Nicolls inserted two defensive casemates to provide flanking fire into the ditch on the left face of the south ravelin. The escarp wall then formed an acute angle and extended 190 feet in a northerly direction. This aspect of Nicolls' plan for this section of the fort was not drastically changed and was included in the eventual construction of the southeast salient. The left face of it was flanked in the first plan by a 60-foot flank wall added to the left face. Two defence casemates in this flank wall would provide flanking fire for the east curtain when required. The east curtain extended to meet a similar construction, the northeast demi-bastion. Within the east curtain were two pairs of defensive casemates to flank the ditches of the east ravelin. Due to the terrain the north and south fronts were considered short so as "not to admit of regular flanks."[8] Thus the plans did not outline full bastions with curtain walls on the north and south sides. This in effect left these two fronts in an exposed position if the enemy penetrated to the ditch. To overcome this deficiency Nicolls included

casemates of reverse fire in the counterscarp. In the case of the southeast demi-bastion, this fire would cover both the left and right faces. Access to the reverse fire casemates was by way of a sallyport on the left face of the demi-bastion. An additional defensive measure was the inclusion of mine galleries around the outer perimeter of the counterscarp. Provision was made for mines in the counterscarp opposite the southeast demi-bastion.

It should be noted at this point that these countermines were never built for the southeast demi-bastion. The south front was the least likely to be attacked due to its location. It could be supported by the powerful batteries on George's Island or British ships in the harbour.[9] It was also due to its proximity to the harbour that it was singled out as the centre of communications for the forts around the harbour.

Nicolls' plan was accepted with little change, in 1828.[10] By 1829 construction had begun on the west front,[11] the face farthest from the city with the intention of building towards the city and ultimately building the east curtain to fully enclose the fortress.

Both 1829 and 1830 were active building seasons and by October of 1830 much of the west front had been completed in addition to the southwest and northwest demi-bastions. With half of the escarps completed, Nicolls could now visualize what the interior would be like. It was obvious from the beginning that Fort George would be compact, but now with the walls up on the west, Nicolls no doubt felt that cramped would be a better word. Some changes would have to be made and the eastern front was the obvious place to make them. It would appear that Nicolls shifted the contractors to the north and west to rebuild the front in order not to commit himself completely to his original plan.[12] Perhaps he already had a redan in mind, an innovation which he did not suggest until 1831.

The second major decision regarding the Citadel escarps was made under more dramatic circumstances. In December 1830 two walls on the west front collapsed. Both climate and inferior construction were blamed. Consequently Nicolls was forced to alter his initial plan for Fort George and to further reinforce the walls against obvious deterioration by the elements.

Escarp walls were to be thickened, more cement used on the front of the walls and pointing, a more judicious use of counterforts, and a larger size of stone.[13] Observing such precautions, Nicolls felt sure that the work to be done in 1831 was unlikely to meet ". . . with similar misfortunes to that of 1829."[14] With these precautions in mind, Nicolls proposed to proceed with the parts of the escarp mentioned in the estimate for 1831 and this estimate included the remainder of the right front face of the southeast demi-bastion and the whole of the left face of the same demi-bastion.

It is not precisely clear when construction began on the southeast demi-bastion. It would appear that some of it had been built during the 1830 building season and the remainder was completed in 1831 and 1832. The delay in its completion was caused by the change in building strategy in 1831 and the change from an eastern curtain and ravelin to a redan. By the fall of 1831 the southeast demi-bastion had been completed up to its eastern flank. Nicolls had departed but his final major innovation - a redan on the eastern front had been approved. The southeast demi-bastion had become a salient. Let us look briefly at the southeast salient as it stood in late 1831 to fully appreciate to what extent it differed from the original plans.

John Metzler of Halifax had in 1830 and 1831 built the two faces of what became the southeast salient in ironstone. The right face of the southeast salient had been built in 1830 and it was simply a continuation of Metzler's work on the left face of the southwest demi-bastion. There was a significant difference, however. Although both walls were twenty-five feet high and topped with four inch coping, the 1830 walls (and this included the northwest demi-bastion) were wider from base to coping. The base three feet below ground had been increased from seven feet eight inches to eight feet and at the top (beginning twenty feet above ground level) from four feet to five feet two inches. The counterforts were five feet by four feet.[15] With the collapse of the two wall sections mentioned above, Nicolls took further precautions. Although the base remained the same, the top was increased from five feet two inches to six feet. The counterforts were kept at the same measurement, five feet by four feet, reaching twenty feet above

ground level. On the left face of the southeast salient only 200 feet of the wall from the salient angle was built. Due to the considerations being given to a redan for the east front, this section of the wall did not include any interior structures. The sallyport in Nicolls initial plan had been omitted and the defence casemates originally planned for the left flank had not been commenced.

The plans for the right face were not so uncertain and the two planned defence casemates, C3 and C4, were completed in 1831. Nicolls had intended to build sixteen casemates in all and these would be mainly for storage and the defence of the ditch. C3 and C4 were to complement C51 and C52 in the defence of the south ravelin. These defence casemates will be analyzed in more detail in Part II of this report.

As the building season of 1831 passed, the walls of Fort George had all but been completed, with one notable exception. The eastern front had not yet been decided upon. Both the southeast and northeast salients were being constructed to a predetermined point as Nicolls had not committed himself to the shape that the eastern front would take. By the summer of 1831, Nicolls was preparing to leave his uncompleted structure for Quebec. On September 5, 1831 he dispatched his solution for the eastern front to London. The proposed ravelin was to be abandoned and replaced by a redan. Nicolls felt that a redan would provide what his two-ended arrow shape could not. One of his prime motives was to augment the interior space of the fortress,[16] which was obviously becoming cramped as the escarps were completed. This innovation would improve external fire and would not cost any more than the former plan of an east curtain and a ravelin. The eastern front now to be covered by a redan would be the last built as the interior had still to be excavated and the cavaliers built. Nicolls had stated his preferences, and this proposal, together with the legacy of improvised construction he had left, effectively delayed the completion of the escarp of the Citadel for almost a decade. After a number of revisions the redan was provided for in the 1836 estimates and built between 1839-43 by Lieutenant Colonel Rice Jones.

Nicolls' successor was Lieutenant Colonel Richard Boteler. He found more immediate matters to worry about than the redan. Within a year he had submitted three estimates which reassessed what had been done and what was left to do. Three items in these estimates were of some relevance to the southeast salient. The redan was to be retained. The south and east front counterscarps were to be built without mine galleries and the iron-stone wall facings were to be replaced with granite. The second item reflects the widespread belief that the south front and the north front were the least likely to be attacked. The final item provided a better quality building stone, which had the advantage of being available in Nova Scotia.

The proposed redan had one major obstacle to overcome before it could be begun - the terrain. As planned the redan would be built on ground that fell away rapidly to the east and therefore lay below the plane of the rest of the work. As considerable fill was necessary to form the glacis, the foundations of the walls on the eastern side would have to be deeper than the rest by an average extra depth of over ten feet.[17] This factor entailed almost £1,000 additional expense on the escarp alone and in the seven estimates that were made by Lieutenant Colonel Boteler and Captain Loyalty Peake in 1833, the redan made up over ten percent of the cost of each of the seven. In 1834 the work still lagged with the Inspector General of Fortifications noting ". . . all that remains to be determined is [the] mode of closing the Eastern Front, originally proposed by Nicolls 5 September 1831 . . . ."[18]

By 1836 provision was made for an escarp on the east front and the estimate for 1838 included masonry 490 feet in length, five feet in mean breadth and thirty feet six inches mean height. By 1843 the redan had been completed and joined with the two salients on the east front. The Citadel, at least from outward appearances, was ready to "show the flag."

The building of the redan had its effect on the structure of the southeast salient in the 1830s. Therefore a brief examination should be made of this structure. There were two major difficulties where the redan joined the salient - how to complete the re-entrant angle where once a flank had been planned and how the well on the east front was to be included in the work.

The second difficulty was relatively simple. In Nicolls' original plan the well lay between the original east curtain and the ravelin on the east front. The redan as planned would simply include the well within the enclosure so that it was situated behind the escarp wall. In Nicolls' plan, the well lay thirty-five feet from the nearest point on the east curtain and thirty-eight feet from the nearest point on the counterscarp.[19] Lieutenant Colonel Boteler's plan of April 1832[20] enclosed it within the redan area but not inside the redan structure. This was to change, however, because, due to the problems and expenses involved with the glacis on the eastern front and the height of the proposed redan, the redan was shortened. This brought the well within casemate 49 when the redan was finally completed in 1843. This well carried an estimated 11,000 gallons of water and measured fifty-four feet deep and seven feet in diameter. It was floored over when the guard room, C49 was finished because the Citadel had very little need of that water source.[21]

Casemate 50 which adjoins C49 was to be used, according to the original plans, as a guard room with cells. Lieutenant Colonel Rice Jones in 1835 played with the idea of utilizing it as a casemate for an engine,[22] but by the 1838 estimates he had revised his thinking and casemate 50 went back to being planned as a lock-up. This was to complement the guard room in C49, a role which it was to retain for much of the Citadel's active period. Cells were not added to C50 until about 1856.

Lieutenant Colonel Rice Jones guided the construction of the Citadel through the important re-evaluation period from 1833-42. The Fortifications Department was prepared for an excess over the original estimate but Rice Jones had to justify it scrupulously to the IGF and to the rather harping criticisms of Nicolls. Greenough in his study details the Nicolls-Jones correspondence of 1835-36,[23] their disagreements over the caponiers, redan escarp and casemated accommodation, but all that interests the writer is how the exchange pertains to the southeast salient. It is noteworthy that the eventual completion of the eastern front incurred much of the additional expense that was in the estimates. Rice Jones noted in his letter of 16 December 1835 that the great difference between the original plan and his was the inclusion of the two sallyports and the two

casemates on the eastern front and the extra depths of foundations for the redan.[24] Nicolls writing in 13 January 1836, cannot understand why additional expense should be requested for a casemated guard room.[25] He was also irked by the extra expense of the sallyports. Presumably he was referring to the two proposed by Rice Jones, which were to be built on the eastern front flanking the redan, in place of his one. In answer to the former point, Rice Jones replied that his expense was not additional for it was the amount formerly allocated for the guard house proposed by Nicolls for the eastern ravelin. As to the latter point, Rice Jones believed two sally-ports to be essential to maintaining communication with the counterscarp gallery. Jones' proposals prevailed and by 1840 the construction of the casemates of defence, C49 and C50, had begun.[26]

Due to the addition of a redan on the east front, the casemates on the reentrant angles of the redan, namely C0 and C33 were not begun until after the redan was completed in 1843. The estimates for 1844-45 provided for casemating these two re-entrant angles of the redan as coal stores, for a total cost of £279.5.8 1/8. This item was brought forward in the estimates for 1845-6 and presumably was constructed in 1846 for it did not appear in the estimates for 1846-7. By 1849 what had been a pie-shaped space on Calder's plan of 1844 had been divided,[28] and what is now casemate O, with an entrance nineteen feet south of the point of the re-entrant angle was available for use. Due to the reduction of the number of supply casemates that Lieutenant Colonel Savage enforced in 1848, the intended coal store was being used as a provost prisoners' hard labour room in 1854. For much of its existence it has served as a store for either cartridges or oil.

Of the twenty-eight new casemates that Rice Jones had estimated for in 1836, two were to be built on the southeast salient to flank the ditch on the right face of the redan - presently C1 and C2. These two casemates had not been provided for in the original 1825 estimates as the defence of the east curtain was to be left to the artillery on the ramparts. The two casemates of defence were included for the first time when the plan for the redan was finalized.[29] Between 1836 and 1842 these two casemates were completed - built at right angles to the left face of the southeast salient

with loop holes and gun ports angled so as to view the ditch along the right face of the redan. Lieutenant Colonel Calder, in his estimates of 1843, planned to build additional casemates in all available space under the ramparts. He made no mention of C1 and C2 as, presumably they had been completed. Although initially built as a gun room, C1 was used as a military prison and chapel and it was not until the 1850s that a 24 pounder was mounted. These remained in place until c. 1880.[30] C2 also served as a gun room for the same period. By the turn of the century both had become storage rooms and thus they remained until 1950.

The estimates for 1831 had included sixteen defence casemates. With the completion of the southeast salient, it is probable that casemates 3 and 4 were completed by the fall of 1832.[31] Details of their construction are scanty, but it does reflect the evolution of thought from the original Nicolls' plan concerning the defence casemates.[32] Initially all casemates were angled so as to lie along a line that looked directly down the ditch. None of these angled casemates were ever built. The first innovation came on the south and north fronts when the casemates in both the southwest and northwest demi-bastions were built. Three sevenths of each of these casemates were slanted towards the ditch and the remainder (to the entrance) was constructed at right angles to the face of the demi-bastion.[33] The defence casemates on the northeast and southeast salients, C22 -C23 and C3 - C4 respectively, present yet another alteration. Here the casemates were built squarely under the ramparts perpendicular to the escarp wall. The gunports and loopholes were angled towards the ditch which they were meant to flank.[34] Whether this was done to avoid congestion at the interior salient angle or a structural innovation is not known. Perhaps Nicolls suspected that more casemates would be added and the angled defensive casemates of his original plan would be awkward to build around. There is no explanation given in the documents to explain the positioning of either C3 - C4 or C49 - C50. Although both C3 and C4 were completed as gun rooms in 1831, by 1845 the guns had been removed and replaced with guard beds. C3 became the guard room with a connecting door leading to C4 which was the strong room for convicts.[35]

Presumably they reverted to gun rooms in the late 1850s when the other defence casemates were being armed and are shown as such in 1874.[36] As with C1 and C2, C3 and C4 ceased being defence casemates in the 1880s and during the twentieth century were used for a variety of purposes.

By 1848 the casemates were basically completed. Problems had already manifested themselves - water problems.[37] Lieutenant Colonel Calder had been asked to carry out an experiment using tile and flag stone in order to learn how best to stop the leakage into the casemates, which had occurred as early as 1842.[38] Calder noted that none of the casemates which he had constructed were wet and this included casemate 0. He explained that this was due to the fact that he had hipped the dos d'anes at each end and counter flagged the resulting slope. He believed that similar action could be taken on the end walls of the redan. His proposals were not considered, however. Instead London countered with a proposal of its own. London suggested that asphalt and brick should be used, having obviously missed the point as to where the leaks were occurring. Calder was transferred before he could become involved in the asphalting experiment and his successor Savage arrived in 1848 to face staunching problems for the next half dozen years. Coincidental with his arrival was a second related problem - that of troop accommodation. All he had to offer them were leaky casemates.

In November 1848 a complete inspection was made of all the Citadel casemates by Captain Burmester and the Clerk of the Works, Richard Hawken. Burmester's report found that over half - 30 - of the rampart casemates were wet and this included C3 and C4, which were both declared unfit for troops. Casemate 2 was noted as damp at one end, but fit for troops, while C49, C50, and C1 were found to be completely dry and fit for troops.[39] All six casemates exhibit a different construction pattern. The four "fit" ones were flagged but only C1 and C2 were hipped as well. The two unfit casemates, C3 and C4, were tiled and dry flagged but not hipped, and obviously these two had to be changed before they could accommodate troops.

Casemates 49 and 50 had problems other than leakage from the arches. The estimates for 1849-49 make provision for repairs to the leakage around the windows and doors of the guard room in the redan and east front.

The dos d'anes of these casemates were to be uncovered as much as was necessary and hipped. Counterflagging of ironstone in cement and mortar was to be inserted in the valleys between the dos d'anes. The upper course masonry on the retaining wall and the coping of both the retaining wall and escarp wall was to be taken up and reset.[40] As with the work proposed for the other casemates the documents are not altogether clear as to whether this was actually done or not. An earlier proposal that concerned these two casemates was definitely not done. In 1846 a proposal was made by Calder to construct a storage tank in C50 to obtain a better supply of water.[41] At some time between 1850 and 1855 this was vetoed.

Savage then set about eliminating as much storage space as possible in order to accommodate troops. Eventually six of fifty-four casemates under the ramparts were to be used for storage and if additional barrack space was needed seven more casemates could be built in the left face of the southeast salient, where demi-casemates one to twelve now stand. Casemates 2, 3, and 4 were planned as barrack accommodation, each holding twelve men.[42] First, however, the casemates had to be staunched and London was adamant that asphalt was to be tested in place of the flagging that Savage had proposed. The asphalt proved unsuited to the Nova Scotian climate. Nevertheless, Savage did utilize the asphalt in these areas, namely the dos d'anes or where arches butted against interior retaining walls, that would be protected by a substantial covering of earth. Even then asphalt was not completely successful, possibly due to the uneven settlement of the wall.[43] Between 1851 and 1854, fifty-four casemates were covered with three-quarter inch asphalt, laid in two equal coats. The earth forming the ramparts was filled in next from three feet two inches to six feet in depth.[44] How successful this measure would be, would have to be faced by Savage's successors.

Lieutenant Colonel Stotherd arrived in 1854 and found that twenty-one of the casemates were damp. Casemate 49 was the only casemate on the south-east salient which was considered damp and even then this was slight. Its dampness was blamed on a slight defect in the asphalt which had been applied in the early part of the decade. The continuing leakage problem

was one of the factors leading to the appointment of a committee by the Inspector General of Fortifications in 1856. This committee was destined to bring the Citadel under closer scrutiny than ever before.

Lieutenant Governor LeMarchant, the General Officer Commanding, complained to the Secretary of State for War in 1855 that the Citadel was still not finished. A committee was formed to examine the site, and their work is analyzed extensively in chapter ten of Greenough's report. The committee, which sat in 1856, provided some indication of the conditions of the southeast salient at that time.

Generally there was little discussion of the southeast salient, although there was some difference of opinion about the stability of the escarp. Mr. J. Forman, in a letter to LeMarchant on 1 May 1856 noted, after examining the southeast and south walls, that the granite had bulged and the arches of the retaining wall had distorted and were rent. LeMarchant added that "the water percolates through most of the joints. . . "[45] on the south front and stones were being forced out of the walls. Although he raised questions on the bulging, the committee did not agree with LeMarchant's assessment. After examining the south front, the committee found the interior masonry good. LeMarchant pressed his point and wished it to be recorded that

> when the ground at the fort of the Piers of the Recesses in the interior Revetments of the Ramparts of the South Front was opened to examine the foundations, the hole had filled with water nearly to the surface . . . from which he infers that the works are standing in water.[46]

The committee disagreed and felt that the presence of water was due to the early spring and judged the south side of the fort to be in generally satisfactory condition. Thus, the ironstone escarp that had been built a quarter of a century earlier had remained intact and it was not until the twentieth century that the bulging eventually led to a partial collapse in the southeast salient. This may have been due more to the structural additions to the ramparts, however, than to the dampness within the walls.

Up to this point, the major pieces of construction have been stressed. There were other structural changes taking place on the southeast salient that should be discussed briefly here as they are important for any clear understanding of the structural evolution of the salient angle.

It would appear that the two sets of steps to the ramparts were not constructed until the late 1840s. The precise date is not known. Steps to the left flank of the southeast demi-bastion were provided by Nicolls in his earliest plans.[47] By 1831 the plans showed three sets of steps leading to the ramparts on the southeast salient.[48] Apparently during the first few years of construction there was little interest in where the steps were as long as there was one set leading to the ramparts. Rice Jones, in his estimates submitted in 1834, made provision for ". . . the retaining wall of the Rampart of the Eastern Front with its steps of communication."[49] He noted them again in 1836 and provided for seventy-six steps to the ramparts and sallyports, each six feet by one foot six inches. He does not, however, mention how many steps for each.

The other set of steps on the southeast salient - to the right of casemate 4 - are mentioned in the estimates for 1836. Item #4 was very general in this regard and steps were only mentioned in conjunction with a number of other items.

> Retaining wall of Rampart North, South and West fronts including Sallyports, Ramp, Steps, Casemates under wall, and Casemate for Stores, etc., under Rampart, North front.[50]

The steps were to provide access to both the ramparts and the sallyports.

There were to be twenty granite steps measuring six feet by one foot six inches to the ramparts and forty steps of the same size for the sallyports. Location and total number of steps was not included in these estimates.

Initially it was planned that the steps leading to the ramparts on the re-entrant angle were to be enclosed by the retaining wall at the outer edge of the re-entrant angle. In 1843, however, with the redan completed and additional accommodations a prerequisite an alteration was suggested by Calder. The steps were to be placed towards the face of the retaining wall instead of behind it. With iron railings in place of a solid wall, the steps would be less liable to be rendered impassible by snow

and more easily cleared if blocked. To clinch his argument, Calder noted that the alteration would also increase the length of the casemates proposed - in this case the coal storage casemate - CO. There is no evidence to suggest the steps to the ramparts on the south front were altered in any way. Both sets of steps were probably completed in the 1840s. In a plan drawn in 1845, the steps are clearly marked on the south front as "steps leading to the Rampart of the work."[51] The re-entrant angle steps were not mentioned in any of the estimates after 1843 and they appear in their altered form in a plan sketched in 1846.[52] It may be assumed that these were built between 1844 and 1845.

The right and left faces of the retaining wall of the southeast salient are notable for their lack of casemates. Almost one-half of the demi-casemates on the Citadel are situated in the southeast salient, however. The left face contains twelve demi-casemates starting at sallyport one and ending with DC12, which adjoins C3. Along the right face of the retaining wall are seven demi-casemates numbering DC13 to DC19, from the steps to sallyport 2. These demi-casemates were first provided for in the estimate for 1834.[53] In Rice Jones' estimate for that year there is no specific mention of the demi-casemates, but a sketch shows their measurement under Item #3 - an item which provided for joining the redan to the faces of the northeast and southeast salients. Their presence is explained by H. Wentworth as the proposed method of building the retaining wall of the rampart on the face of the southeast salient. It would therefore appear that these arched spaces were intended more as supporting structures than as storage or accommodation space. Usually they were viewed as spaces to be filled with random items. It was proposed that they measure nine feet wide, nine feet high, and seven feet deep and each be separated by a pier wall two feet six inches wide.

The more definitive estimate of 1836 contained a similar sketch with the same measurements for the demi-casemates on the left face of the retaining wall. The following item, #4, in this estimate provided for the completion of the retaining wall of the rampart on the south front. It included a sketch of demi-casemates similar to Item #3 with the same measurements. The pier walls in this case varied, however, for they were three feet wide.

The only comment made was that they would be structured as they were in Item #3 i.e. as part of the retaining wall of the rampart.[54] It is not clear when these demi-casemates were completed. DC11 and DC12 were included on a plan dated 1846.[55] The demi-casemates on both left and right walls are included in a plan as completed by 1847.[56] Those numbering 1-12 were completed at some time before 1846 for Calder wished to make use of them.[57] Calder proposed to deepen these "small arches" so they could contain a field gun with its limber. Since the dimensions of the arches have not changed, it is assumed that this proposal was not carried out. Given the pressures of troop accommodation, Calder seems to have been determined to use them. A second more elaborate plan was made by Calder in 1847.[58] This time he wished to use the right arches as a space for solitary cells. This would be a two storied building with six cells on each floor. Again Calder was turned down.

From c.1856 then, these demi-casemates began to be used in much the same way as they are still used today - namely, as storage. A plan for 1875 shows the left face demi-casemates fulfilling a variety of roles - as a pump room, coal store and stable. The left face was used by both the REs, and RAs and DC19 was to hold a fire engine.[59] There have been some structural changes in most of the demi-casemates, but most notably DC12, DC18 and DC19. This will be discussed in greater detail in Part II of this report.

By 1860, the Citadel was complete but becoming obsolete. With the introduction of rifling, the subsequent world wide revolution in gunnery had left the fortress of Halifax, despite the £10,000 per year to construct it, virtually defenceless. But this was not obvious to the citizenry of Halifax, who continued to look at the Citadel as the bulwark of the city's defensive system. In reality it was what Nicolls had intimated - a monument to flag waving.

With the structure more or less complete, the Citadel now experienced a century of additions and alterations to the basic work. It was important for the fortress to adapt itself to the reduced role it must play in the actual defences of the city and harbour and become a co-ordinator of communications with the various outposts that protected the harbour. The southeast salient was greatly affected by this change and perhaps suffered

damage because of it.

As mentioned earlier, the most prominent feature of the present Citadel was the flagstaves. The earliest and rather inaccurate sketch of the flags was done by Lieutenant Colonel Hicks. The Citadel changed but the general location of the flag did not. From Hicks' work to Mercer's sketch in 1842, (See Figure 1) through to the photographs of 1860 and on to the 1950s, the flag was invariably on the south front or the southeast salient.[60] Despite their prominence visually, the flag staves were not dealt with in any great detail by the documents, although the signalling system utilized in Halifax does have much more documentation. It is due to this system that the signal staves as well as the flag staves were featured on the southern front. It was the most obvious front for ships coming into the harbour. It was also easily seen from York Redoubt, which was one of the relay stations for the telegraph system.

The staves that were initially used in the fourth Citadel were presumably the same ones used for the third Citadel. Nicolls' plan for 1831 was the first to identify the position of the telegraph, signal and flag staves. The former two stood in front of the cavalier building next to the east front. The flag stave was positioned in the middle of the west curtain rampart.[61] Nicolls' plan was to move the two communication staves to the southeast front and the flagstave to the southwest bastion. When this was done is not clear. There was also some mention of placing the signal stave on the eastern end of the Cavalier building. This was not done. As the southeast salient was still being completed, it is likely that the telegraph and signal staves were moved over just before work started on the redan in the mid 1830s. A sketch done by Mercer shows the signal staves in their final position in 1838 with what appears to be the flagstave yet to be moved from the west curtain.[62] By 1839 a detailed lithograph by William Eager represents the staves as being in their final position.[63] It should be emphasized that these sketches are not the most reliable sources, but are used in the absence of documentary information.

The photograph of the southeast salient taken c.1860 is the first known photographic evidence for the signal stave, (See Figure 2) and in the subsequent

photographs over the last century it has remained the most striking feature of the fortress. An 1879 photograph (See Figure 3) clearly shows the signal stave in the corner of the southeast salient with its base imbedded in the ground and the pole anchored to the escarp wall.[64] To the right, and topping the ramparts of the right face, stood the telegraph pole apparently imbedded in the ramparts. It is most probably the stave for displaying storm signals.[65] A photo taken about one year later (See Figure 4) gives evidence of the impending change in communications from visual to auditory. A telegraph pole stands in the east ditch of the southeast salient and is attached to the right face of the escarp.[66] Despite the telegraph, telephone, and later the wireless, the flag staves were kept up for a variety of reasons. Since the 1840s it had served to inform Haligonians of the approach of various merchant vessels as well as issuing a warning of approaching storms. Once again, it would appear that its basic raison d'être by 1920 was to show the flag (See Figure 5) and in some cases a profusion of them.[67] Brenda Dunn notes in her report, that by 1938 visual signals had been abandoned permanently with the exception of the storm warning service, which continued at the Halifax Citadel until 1945.[68] The flag staves were removed in the early 1950s, the most likely date being 1951, the year the signal station, built during the Canadian period was reduced to ruins. A photograph taken ca. 1954, shows only one flag stave and it rises from the parade square (See Figure 6).

Not surprisingly, with the southeast salient rampart a centre of communications, there were a number of buildings constructed on the southeast salient, which were connected to the flag system. The first real evidence of structures on the ramparts appears in the 1860 photograph mentioned above (See Figure 2). On the extreme right of the photograph is what appears to be a wooden structure standing just beyond the smooth bore on the south front. It is too large to be a portable expense magazine and corresponds most closely to the signal hut featured in a photograph taken in 1879.[69] This was built presumably to hold the flags to be used but does not appear on the plans. Some twenty feet farther along the rampart towards the southwest demi-bastion, stands the Director of Signals headquarters, which also does not appear on the plans before this date. These two structures were absolutely necessary

for the successful operation of the vital communications system to the various outposts. Although no date before 1860 can be fixed, William Eager's 1839 sketch does feature an unexplained structure between the two signal masts, which may well have been the signal hut on the southeast salient. Until further evidence is found, this statement must remain speculative.

The third building on the southeast salient ramparts was a wooden building used as a small arms store (See Figure 3). It stood approximately thirty-five feet from the signal stave on the eastern front of the southeast salient and twenty-five feet back from the left face of the escarp. Given the angle from which this photograph was taken, it would seem that this hut did not exist in 1860 and therefore was built sometime between 1861 and 1879. It was later used as an instrument repair shop at times and by 1908 had become a side arms store once more. It was removed between 1916 and 1920.

A block plan (See Figure 7) completed in 1891 includes two other structures on the southeast salient. The first was on the east rampart. This structure was a small wooden building, ten feet square and used as a position finder cell. A depression range finder pit eight feet square was positioned on the south rampart and was located some fifteen feet from the escarp and in close proximity to the flag stave and the Director of Signals' Quarters. By 1922 it had been relocated to a building on the southeast salient and the signal gun stood on the former site of the Depression Range Finder Pit. Archaeological research has found in an extensive dig in the area that this pit although shown on the plans was not there.

The final addition to the southeast salient in the nineteenth century was at the re-entrant angle between the redan and the southeast salient. This was a wooden upper storey built over the redan ramparts and extending up to the re-entrant angle (See Figure 8 & 9). This was begun in C. 1880 and is shown as being complete in 1883.[70] This structure was used as a rifle range and storage space. In 1936 it was noted that this structure was not in good condition,[71] and c. 1940 it was dismantled. It will not be dealt with in this report and is only mentioned here because it was

built above casemates 49 and 50 on the redan. (See Figure 10).

In 1916 a plan was drawn for accommodating a new signal station on the Citadel (See Figure 11) and by 1920 it had been completed.[72] This new wooden structure (See Figure 12) was built on the interior angle of the southeast salient with the signal stave at its apex. Its construction led to the immediate demolition of the signal station on the south rampart and the eventual demolition of the signal hut. A photograph taken in 1923 shows that this building was still standing (See Figure 13) but by the 1950's it had been destroyed. Near it was a square building, that may have been connected with the telegraph signal mast (See Figure 14). It may also have been used as a storage room for the signal gun, which was located on the south rampart in 1922.[73] After 1950, it had been removed, but another shed-like building appears in a photograph taken in 1950. Little is known as yet about this structure.[74]

Possibly the most visually attractive structure on the southeast salient and the most obvious to city and harbour was the time ball building. A time ball was originally planned for a building under construction in the city. It was suggested that a temporary time ball building be placed on the southeast salient - a temporary building, which lasted for fifty years.[75] In 1908 a small wooden tower topped by a time ball within a metal frame was erected (See Figure 7). Its sole purpose was to provide an accurate standard time for the ships in the harbour to set their chronometers by. The ball was lowered and the one o'clock gun fired simultaneously (See Figure 15). Besides acting as a time check for the harbour and the city (until 1937) the time ball building also housed meteorological instruments from 1920 to 1947. They were removed then because the agreement between the Department of National Defence and the Department of Transport had expired. The rather delapitated building remained standing,[76] however, and was restored in 1956 after the Citadel had become a National Historic Site (See Figure 16). It remained as the last building on the southeast salient until it was finally demolished in 1963.[77]

The enormous amount of construction on the southeast salient may have had some effect on the stability of the left face of the salient. For an ironstone escarp, that was regarded by LeMarchant as unstable in the 1850s,

it had lasted remarkably well. Photographs taken c. 1880 show obvious bulges below the coping of this front and stone work that appears to be loose (See Figure 17). After 1880 and at some point before a block plan with amendments dated 1907, (See Figure 18) two buttresses were added by the British to the tottering left face some twenty feet apart with the re-entrant angle one hundred and thirty feet from the nearest buttress.[78] These, it appears, simply delayed the inevitable. By the time the new signal station was finished in 1920, so was a section of the southeast salient. Age and the everchanging profile of the ramparts had taken their toll and one hundred and five feet of wall crumbled into the ditch (See Figure 15). A plan dated 1920 was made, (See Figure 19) presumably soon after the event occurred, to brace the rest of the wall with struts and construct a concrete wall where the ironstone had been. The concrete wall was not built. It was planned that the Unemployment Relief Program in the 1930s would undertake this task, but it was postponed. Timber buttresses were added to the south front which was also of ironstone, for it was feared that this wall was also unstable. The "slope to the ditch" was a nagging reminder to the Massey Commission in 1950 that any planned restoration of the Halifax Citadel would entail an enormous amount of reconstruction and this should be done soon. The wall was restored and two buttresses put in place by 1955.[79]

The remainder of this report (Part II) will examine in detailed fashion the construction of the southeast salient. It will attempt to trace the structural evolution of the various parts of this section of the Halifax Citadel.

Part II Structural Study

Walls:

Escarp: Observations

Beginning at the left side of the entrance to the Halifax Citadel and therefore the right face of the Redan, the escarp wall is constructed of rough-hewn granite laid in regular courses, complete with headers and stretchers. The wall at the entrance reaches a height of twenty-five feet. Proceeding towards the re-entrant angle, the gun ports for both C49 and C50 occur thirteen feet above ground level and these look down the ditch between the left face of the southeast salient and the musketry gallery. Each gun port has one large opening for the cannon and each is flanked by two sighting and musketry slots. The last musketry slot is almost at the re-entrant angle. At this angle the escarp becomes the left face of the southeast salient. Barely six feet from the angle was the gun port for defensive casemate 1. This gun port has been filled in. The base blocks for the gun port and loopholes are in place but the remainder of the granite that may have been there is not immediately identifiable. The gun port and loopholes for C2 are in place and some twelve feet beyond is the exit of sallyport 1. About sixteen feet south of sallyport 1, the material used to construct the wall changes. The escarp of coursed granite becomes squared rubble and broken coursed ironstone. The coping which juts some five inches beyond the coping that topped the granite wall. Generally speaking the granite wall has maintained the form in which it was built. The ironstone structure from here to the

buttresses has not remained stable and has tended to buckle especially in the area between ten and twenty feet above ground level. At the buttresses where some reconstruction has been done, it is quite regular but once beyond the buttresses the last sixty feet of escarp to the southeast salient angle is somewhat irregular or buckled. The ironstone masonry construction is quite normal with the large pieces of ironstone some six feet long at or near ground level and the small broken coursed pieces within the last five feet to the coping.

The left face of the southeast salient has two buttresses twenty feet apart. The first of these occurs seventy-five feet south of sallyport 1. The two buttresses are constructed of rock faced granite and ironstone and the capstones or coping are of concrete. Both were built when this section of wall was restored in the 1930s. Between these two buttresses is a scupper which provides drainage for the water from the top of the escarp. Beyond the second buttress is a second drainage outlet for this wall. In this case, two clay drain pipes have been installed relatively recently.

As one proceeds towards the salient angle from the second buttress, the composition of the escarp becomes rough cut and coursed ironstone. The salient angle itself is of smooth faced granite and built at an angle of 9^{o} from the vertical until it reaches a point five feet from the angled coping; it is completed at an angle nearly perpendicular with ground level.

The right face of the southeast salient is wholly of ironstone, squared and coursed, with the exception of the areas around the windows, doors, loop-holes and where the escarp joins the southwest demi-bastion, all of which is of tooled granite. The coping is of grooved sandstone. Proceeding from the salient angle, the escarp shows its age as did the left face. There is a depression in the wall around C3 and C4 with a pronounced overhang near the coping.

The area around the C3 gun port is probably original; however, it is noted that there are two recently altered drain holes under the window and an altered vent hole above. There is a loophole to the west. The window to C4 has obviously been altered considerably with all that remains being the arch one and one-half feet above where the window once was. The door-way that has replaced the window and enlarged the opening appears to be framed with tooled granite that once framed the windows. The wooden steps

and wooden platforms are recent. There also appears to be a vent hole over what was once the window arch. Once past the casemate openings the wall becomes generally a more solid work than the preceding section. In the last forty feet of the wall before sallyport 2 and the angle with the southwest demi-bastion there are generally more small ironstone blocks and a dozen or so tooled granite blocks included in the construction. Just to the east and above sallyport 2 is a gargoyle and following the same course of ironstone eastward there appears to have been a second one ten feet to the west of the doorway to C4.

In terms of elevation, there is a considerable difference between the left and right face. The left face at the re-entrant angle is 231' 1 3/4" high and inclines slightly to 230' 10 3/8" by the salient angle. However, the right face rises from this level at the salient angle to 236' 5 5/8" where the wall joins the southwest demi-bastion, a clear reflection of the irregular terraim.

Retaining Wall

From the right side of the main entrance to the re-entrant angle, the wall is of rough-hewn granite and laid in regular courses just as the escarp wall was. At the entrance, the wall is 20'6" high rising to 22'6" at the re-entrant angle. There have been a number of changes to this retaining wall during its history. The first scupper is some five feet to the right of the entrance and on the same horizontal level as the height of the arch. There are two other scuppers, the first between C-49 and C-50 and the last four feet before the re-entrant angle. All three would appear to be important for the drainage of water collecting over the casemates. There is at present one drainage pipe remaining on this wall. There are oxidation marks on the granite which locate where two others once stood. The first is situated two feet to the left of the entrance to C-49 and the second is almost midway between the windows of C-49 and C-50. In both cases, there are iron locations for the drain pipe clamps but only in the case of the last drain pipe is there a granite scupper leading to the drain pipe hopper.

All three are obviously to drain the ramparts of water into the pipes and down to the sewer exits at their base. The entrance to C-49 is eight feet to the right of the entrance. C-49 has two windows (3' 6" X 2' 6") and both are framed in wood and granite. Some eight feet to the right of the second window is a third window of similar dimensions. Due to the granite work done beneath it, however, it would appear that it was originally constructed as an entrance to C-50. The granite threshold of this doorway is laid on the same level as the entrance to C-49. The fourth and final window on this section of the redan is of similar dimensions and on the same level as the other three windows. It is 6'6" beyond the first window to C-50. Between the two windows of C-50 and 8'6" above ground level is a bricked in space which is on the same horizontal level as the first scupper. It is not in the proper place to be a drainage location. It may have had something to do with the heating system or air circulation. Much of the granite coping on this wall has been removed to allow a platform and pulley system to be constructed for raising objects to the rampart level.

Two granite stairways and one landing have been built around the re-entrant angle. The first nine steps (5' X 1') reach the landing at the angle. From this landing a second set of steps have been built to the top of the ramparts. There is an iron balustrade on the right hand edge of these steps that goes from ground level to the top of the ramparts.

From the re-entrant angle, the granite extends the complete length of the retaining wall left face. At a point twenty feet from the re-entrant angle is the entrance to C-0. Above and to the south of this doorway is the first in a line of granite scuppers (8 in all) which provide drainage from the top of the wall. The dark stain on the granite face is where the drain pipes were. Some twenty feet beyond C-0 is the entrance to C-1 with two windows to the left of the door. The entrance to C-2 is ten feet farther on and there are two windows to the right of the entrance. The first doorway on this retaining wall leads to sallyport 1. The first of six granite buttresses each thirteen feet high topped with granite capstone occurs seven feet beyond the entrance to sallyport 1. This buttress flanks the first of two demi-casemates (DC1 & DC2). DC2 is flanked on the south side by a second buttress and this pattern of buttresses flanking every second demi-

casemate continues to the salient angle. DC12 is an exception in that it does not have a flanking buttress. There are twelve demi-casemates in all, cut into the left face of the southeast salient retaining wall. The last demi-casemate (DC12) has been altered considerably by being closed off with brickwork and a window.

Beginning above DC5 and three feet below the coping is the first in a line of locations for anchor rings which it would appear supported the flag stave which stood in the corner of the southeast salient. There are similar locations above DC8 and DC10 with two above DC12. The final twelve feet of this face (which includes DC12) veers westwards and joins the right face of the southeast salient retaining wall at virtually a right angle to allow for access to the steps on the right face of the retaining wall. The height of the retaining wall on the left face changes very little with a height of 22' 1 1/8" at C-1 and a height of 21' 5 3/8" at the salient angle.

The right face of the southeast salient is for the most part of rock faced granite topped with coping of tooled granite. The first twenty-three feet from the salient angle, however, is of squared and coursed ironstone. This area includes the substantially modified entrance to C-3 and C-4 and a window framed in granite to the west of C-4. Between C-3 and C-4 is a scupper which provides drainage from casemate vaults and these also occur between every set of demi-casemates. There are also two flights of steps with an iron railing leading to the ramparts. The wall then juts outward for ten feet at virtually a right angle and continues to the end of the southeast salient retaining wall at sallyport 2. This wall has four granite buttresses which flank six demi-casemates in the same fashion as the left face. The final demi-casemate (DC-19) has a buttress to the east and the demi-casemates (DC18 and DC19) are finished in squared ironstone with an entrance to each one. Just above the first flight of steps and demi-casemate 14 are locations for ironwork to connect the guy wires which supported the flag stave. To the east of C-4 is a lengthy stain marking where a drain pipe probably stood and the location of some ironwork five feet below the coping. Above the scuppers between DC15 and DC16, DC17 and DC18 and over sallyport 2 are voids behind the retaining walls. The final void measures 4 1/2' wide (northsouth) x 2 1/2' wide (East west) and 8'6" deep beginning 4'6" below the top of the capstone. The others are of similar dimensions. What these are is not clear from the documents,

but they appear to have been connected with the drainage system as each ends directly over the scuppers. The retaining wall which parallels the escarp wall rises from 237' 3 3/8" at its commencement to 241' 9 1/2" at sallyport 2.

Evolution

As pointed out in the text, the major part of the southeast salient escarp was completed in 1831. It was built with the material noted in the 1828 estimates and according to its specifications an escarp wall of iron building stone twenty-five feet high coped with four inch free stone and quoined at the angles with granite stone. The first real profile of this wall occurs in Boteler's plan of 1832.[1] It shows a wall 718 feet wide at the base tapering to 6 feet for the last 5 feet to the coping, with a foundation 3 feet deep and 8 feet wide. By the time the redan was planned (1833) the base had been widened to 8.2 feet and the width at the coping to 6.6 feet. The underground foundation was also widened to 9 feet and was now 9.8 feet deep. The redan escarp walls were completed in 1843. Obviously someone had learned from the wall collapse of 1830.

Both the ironstone and granite escarp were to have counterforts. Only the ironstone was built with counterforts, however. Its counterforts measured 4 feet by 5 feet, rose over 20 feet and were placed 13 to 14 feet apart. The material was most probably ironstone. Although counterforts were planned for the granite section (5.6' x 5' x 20'),[2] the casemated piers were felt able to serve the same purpose. The slope in the salient noted in the as founds was a constant problem[3] and was due to the ground falling away abruptly on the eastern side of the trace.

Captain Loyalty Peake was the first to suggest substituting granite for the ironstone. He reasoned that the expense of this change in masonry would be no greater than using ironstone, for quality granite was very abundant in the neighbourhood of Halifax.[4] Lieutenant-Colonel Boteler agreed and wished to face the work with ashlar of well wrought beds and joints, laid in courses. Rice Jones felt that this was the only method

that would stand up to so severe a climate.[5] It was during his stay in Halifax that the remainder of the southeast salient was completed. The estimate for 1838 gives the best indication of methods of construction.

> The masonry to be of Ironstone faced with rough granite Ashlar, which is worked at the same rate as Ironstone, set alternately headers and stretchers, beds from one foot to one foot six inches, joints 8 inches Drafts of 1 1/2 inch, round the face of each stone....[6]

The foundation planned for this wall was certainly of greater proportions than that completed for the ironstone section of the southeast salient. It measured 6 feet wide and 9 feet 6 inches deep on the average. This section of the wall, faced with ashlar granite, was completed by 1843.

The present retaining wall in the southeast salient was reconstructed in 1875 and was the result of the effort to rebuild the southeast salient retaining wall.[7] Very little can be found in the documents as to when and how the retaining wall was built. With the southeast salient being more or less completed by 1830, the retaining wall may have been done in the late 1830s once the addition of a redan had been decided on. The redan was completed in 1843 and no doubt the final section of the southeast salient up to the main entrance was completed shortly thereafter. There is very little change in the profile of the retaining wall after the redan was introduced. The retaining wall for the rampart of the eastern front measures 16.0 feet in height, 6.6 feet wide at the base and 2.6 feet at the coping. It is backed with a tiered formation having a base of 5.6 feet. The base of the wall measures 6.0 feet by 7.0 feet.[8] The retaining wall proposed for the redan had previously the same measurements.[9]

In 1836, Rice Jones presented his estimate and included a reference to the retaining wall of the rampart on the eastern front to be built to join the redan to the faces of the northeast and southeast salients.[10] The retaining wall was to be 280 feet in length, 3'6" wide and 6 feet deep. No doubt the increased width was due to the efforts by Rice Jones to escape the misfortune that had befallen Nicolls. The granite faced retaining wall that was built did not have counterforts but was to be

supported by 24 piers which would support casemates, sallyports, gateway and privy. For the southeast salient and the re-entrant angle, this would include four casemates and one sallyport. It is not clear if the demi-casemates in the remainder of the east front of the southeast salient were completed by this time.

Plans for the completion of the retaining wall in the south front of the southeast salient (dated 1836) outlined the completion of the north, south and west fronts. Again, it was perceived that pier walls would be a better stabilizing element than buttresses. In his estimate, Rice Jones planned a retaining wall 1000 feet in length, 3' 6" feet wide and 20 feet high to cover the north, south and west fronts. There would be provisions for 64 piers to support this length. There is no specific detail of the individual fronts although a sketch of the longitudinal section of the retaining wall is included in the plans.

In the decades that followed, it is not clear what these demi-casemates on the south and east fronts were used for. In 1847, a plan was submitted by Lieutenant-Colonel Patrick D. Calder that DC13 to DC19 should be used as prison cells.[11] This was not approved, however. By 1855, there was a comment by Lieutenant-Colonel Richard Stotherd that the southeast salient escarp walls were in a state of disrepair and may have to be rebuilt.[12] No statement was made as regards the retaining wall or what condition they were in.

A year later, 1856, a more thorough examination was done by a committee chaired by Lieutenant-Colonel Stotherd and this time both escarp and retaining walls came under the committee's critical eye.[13] To some on the committee, the southeast salient was considered to be in an unsatisfactory state and the report noted that portions of the retaining wall of the ramport of the east, south and west fronts had bulged slightly but this was of no consequence. A test dig was made in the south front to satisfy the committee, however, and they judged the interior masonry to be good. One, however, presented a minority report:

> Lieutenant-Colonel Le Marchant wishes it to be recorded that when the ground at the foot of the Piers of the Recesses in the interior Revetments of the Ramports of the South Front was opened to examine the foundations, the hole filled

with water nearly to the surface... from which he infers that the works are standing in Water.[14]

The committee remarked that this was due to the spring rains and no further investigation was carried out.

The spring rains eventually had their impact on the southeast salient for in 1875 plans were made to rebuild the retaining walls of both the right and left faces. The walls in many places were out of plumb and the arches of the demi-casemates and in some cases the pier walls had cracked. The data below is taken from the commentary contained in the plan signed by Lieutenant F.W. Watkins RE on 18 October, 1875.

Location	Use	Comment
DC-1	Pump Room	Arch Cracked
DC-2	Stable (with door)	Arch cracked and left pier wall
DC-3	Stable	Arch crack and both pier walls
DC-4	R.E.	Arch Badly cracked
DC-5	Recess	Arch badly cracked about 5" wide
DC-6	Oil Store	Very bad crack over pier
DC-7	Coal Store	Bad crack 4" wide in arch
DC-8	Recess	Crack about 2" wide
DC-9	Wood Store	Arch cracked: both piers slightly cracked
DC-10	R.E.	Arch cracked 2", pier sound
DC-11	Coal Store	Slight crack
DC-12	Empty	Quite sound
DC-13	R.E.	Crack 1/2" in arch and in adjoining pier
DC-14	R.E.	2 cracks in arch about 1" each
DC-15	R.A.	Cracked arch

Location	Use	Comment
DC-16	R.A.	Bad Crack in arch
DC-17	R.A.	Bad Crack in arch
DC-18	R.A.	Pier cracked
DC-19	Fire Engine	Sound

The retaining wall and the demi-casemates were thus rebuilt and it would appear have remained basically unchanged until Parks Canada assumed control. The actual use to which these casemates were put is rarely detailed in the documents. A partial listing is supplied in the preminary casemate use study by Brenda Dunn, John Johnston and Richard Young in 1977. What this listing omits has been noted in this report.

By 1879, a coal shed had been completed in the southeast salient (See Figure 3). This probably changed the demi-casemates usage for at the rear of the building was a wagon shed which was parallel to the right face of the southeast salient. This structure may have meant that the adjacent demi-casemates would be used for storage purposes.[15] At the same time, it should be noted that DC-2 was no longer closed off and it would appear that it was not being used as a stable any longer.

During the twentieth century, it would appear that the demi-casemates were being used as random storage recesses. By 1908, DC-8 (earth closet), DC-10 (oil) and DC-11 (coal) were boarded with a partition (probably partial). DC-12 had been sealed off completely and was now accessible through casemate 3.[16] On the right face, DC-13 was also partitioned for coal storage. This was the last clear indication of what the demi-casemates were used for. A twentieth century photograph shows the left face but no detail. By 1950, cannon barrels littered the entrance to these demi-casemates and a board fence closed them off to the general public (See Figure 20). This was presumably due to the possible danger they posed as noted by Brenda Dunn in her report.[17]

As early as 1867, the sum of £406. was to be spent on pointing the southeast face due to the deliterious effects of the climate. This was probably done in 1870. However, photographs taken in 1880 show both the left and right face as still not wholly sound. Both have stones jutting out below the coping and the right face has a large bulge near sallyport 2. Some action had been taken by the first decade of the twentieth century

for two masonry buttresses were located on the left face of the southeast salient by 1906.[18] These, however, could not survive the various additions including the new signal station to the top of the rampart and 105 feet of the wall gave way and slid into the ditch. Strutts were added to the remainder of the left and the right face as well (See Figures 15 and 21). Plans were made in 1920 for a concrete wall but nothing was done. Despite the work being done on this face in 1935 viz. repointing the north end of the left face, the collapsed wall was not repaired until the 1950's.

Casemate Study

There are seven casemates to be examined in this study - six of which were originally constructed as gun rooms or defensive casemates. The seventh was not initially planned for any specific purpose and in the years following its construction was a catch-all storage room. This was due to its location on the re-entrant angle of the redan and the left face of the southeast salient. To the right of the main entrance are the last two casemates on the right face of the redan C49 and C50. As pointed out above, the catch-all casemate C-0 is at the re-entrant angle with an entrance on the left face of the southeast salient. Beside it are C1 and C2, both defensive casemates. The final two casemates C3 and C4 are on the right face with C3 opening at the salient angle and C4 next to it. All seven casemates were constructed initially in rectangular form and have maintained that structure up to the acquisition of the Halifax Citadel by Parks Canada. None of them were built with the slant like shape that C51 and C52 possess. However, although their initial construction was straightforward these casemates assumed in the years that followed a number of structural changes that will be traced below.

Casemates 49 and 50: Observations

C49 and C50 have been consistantly used for the same purpose since the completion of the Halifax Citadel in the 1850's. C49 has been occupied by

the Citadel guard from as early as 1854 while C50 has contained the lock-up and cells from the same year. Both are part of the Nicolls' plan to re-shape the east front. Due to their role as gun rooms and their proximity to the main entrance were probably among the first casemates completed on the redan ca. 1840. Although the function of these casemates changed very little in a century this structure went through a number of changes.

Both casemates are at present part of the visitor's introduction to the Citadel and contain books, pamphlets and exhibits. The entrance to both casemates is presently by way of C49 from the parade square. This opening was initially constructed as a door ca. 1840 then served as a window for some time and was finally reset as a door ca. 1957. (See Figure 22 and Figure 16). The frame of the doorway is of granite and brick. The casemate is at present whitewashed and contains a number of modern fixtures which tend to inhibit as found observations. Its most prominent feature is the well, about seven feet in diameter, which is just to the left of the entrance. Generally speaking, the walls of this casemate are of rough and squared rubble ironstone and the floor is of wood with a parquet floor completed around the turn of the century. The ceiling is of red brick (now whitewashed) and has what would appear to be a chimney hole in it some twelve feet from the end wall. The northeast wall has two doors, both of which are now blocked with plywood. These two entrances, brick arched, were probably the most used in the Citadel when C49 was used as the guard room for the regiments. They apparently have remained structurally unchanged since they were first cut in the 1840's.

The southeast end wall has three openings - a gun port and two musketry slits situated at an angle and looking down the left face of the southeast salient. Each of these openings is now closed with a window. Under the large gun port is an iron eye and two iron rings situated about two and one-half feet above the floor. These were to assist in the run-up of the twenty-four pounder which was placed in this gun room initially. The southwest wall has two doorways each providing an entrance to different sections of casemate 50. Between the end wall and the first entrance is a square hole with a wooden door (18" x 12") and a brick and wooden frame about five feet above floor level. Then between this opening and the first doorway is a brick edged fireplace with an iron grate which is no longer in use.

A hole above the fireplace was presumably set for the later addition of a furnace. The first doorway to C50 gives access to the area of this casemate known as the lock-up or prisoners' room. It is framed in brick and appears more recent than the second doorway which is framed in granite and provides access to the two cells in C50. Between these two doors about six and one-half feet above floor level is a line of iron spikes which were probably for the clothes of both the guards and prisoners. The two windows in the front or northwest wall are edged in wood and brick. The frame between the entrance to C49 and the first window is exceedingly narrow and has been changed as the door was once a window.

C50 is divided into two equal parts by a partition of brick across the width of the room. The northwest half of the room contains two cells and an access way to these cells which becomes an egress through to C49. As one enters this area, there are two windows to the right on the northwest wall. Both are framed in granite, brick and wood and the wall itself is of ironstone and granite. Given the cut of the ironstone inside the casemate and the granite outside the casemate, it would appear that the first window was once a door.

The partitioning walls of the prison are of red brick and extend from the floor to the red brick ceiling of the casemates. Both the northeast and southwest walls of this section are of squared rubble ironstone. Each cell has a wooden door lined with a metal sheet of iron on the inside. Above each door is a barred window measuring two feet by three feet. Each door is equipped with a heavy iron bolt and lock. A single peep hole about 10" x 7" provides visual access to both cells at the same time. Also on this brick wall are six barred holes, perhaps a foot square, which serve as air outlets. There is one on each side of each door and one each above the barred windows over the doors. Within the second cell at the top of the partition wall between the cells is a hole in the ceiling. However, this hole is blocked up on the side. The access to the cells also has a drainage outlet at the southwest end of the casemate with the floor sloping to the drain.

Behind the brick wall partitioning this casemate is what was usually known as the lock-up room. At present there is a separate entrance to this area from C49. Three walls are of square rubble ironstone; the fourth being

the red brick partition. The ceiling of the casemate is also of red brick and the floor of wood parquet. To the left of the entrance is a space in the wall that would appear to be a shared fireplace with C49. Some six feet above floor level on the northeast are two holes 5" x 7" and about five feet from the southeast wall. The end wall is of granite and some ironstone to the ceiling and has bars across the gun port which is flanked by rectangular loop holes. Below the gun port are the two iron rings and eye for the cannon recoil. The southwest wall as noted is of granite and rough rubble ironstone. It has a 16" x 24" space some five feet above floor level which has been bricked in. The partition also has what appears to be a vent hole in each corner at ceiling level measuring 8" x 12". These do not go through to the cell area.

With this survey completed, it is necessary to look at the structural evolution of these casemates to the extent that the documents provide the information.

Evolution

C49 and C50 were part of the addition to the east front planned by Lieutenant-Colonel Rice Jones in the 1830's to add eight defensive casemates. His activities are detailed in John Joseph Greenough's report[19] and will not be discussed here. However, it should be pointed out that the shell of each casemate measured as follows:

	Length	Width	Height	Material
Piers [Sidewalls] Foundation	38 1/2'	5'	9'	Ironstone
Piers [Sidewalls] Above Foundation	38 1/2'	4 1/2'	7'	Ironstone
End Walls		3'	20'	Ironstone faced with granite
Arches	38 1/2'	16'(span)	2' 3"	Thick brick

Except for the repairs for leakage,[20] there was no change in the basic measurements as outlined above.

The floors as planned in 1836 were to be of brick on edge paving but

by 1848 only the flooring in C49 had been laid. The well fifty feet deep and about seven feet in diameter had been closed when the guard room was finished and floored over when the new flooring was laid in the 1840's.[21] All of the plans note the well as covered over well into the twentieth century. The floor of C50 could not have been completed by 1848 for an arched tank was planned beneath the floor to handle the water in the well.[22] The floor for C50 was probably laid before 1854 for when its use as a lock-up and gun room is discussed there is no mention of the fact that there is "no flooring".[23] Such an omission would seem to suggest that the floor had been laid.

In 1843, it was planned by Lientenant-Colonel Patrick D. Calder to heat these adjoining casemates by inserting a fireplace in the room's partition in order to warm both rooms. This he noted was "... a common method in this country where it is an object to save fuel."[24] The stove or fireplace was probably built soon afterwards as the two casemates were declared fit for troops in 1848. This method of heating the casemates was used for the rest of the century and it was not until ca. 1910 that the coal furnace was introduced in the area near the wall fireplace and therefore in close proximity to the flue.[25] (When the water pipes included in the sketch of the coal furnace were laid is not known.)

In the 1840's C49 was noted as a guardroom while C50 was a gun room and lock-up room combined following the practice of utilizing gun rooms for prisoners.[26] By 1854, C50 is still a lock-up room and gun room and C49 was listed as accommodating the Citadel guard. The earliest plans actually showing cells in C50 are those for 1844.[27] In these plans four cells are noted in the front half of the casemate and it would appear that the lock-up room was in the other section. There is a separate entrance to each section. C49 is also divided into two parts with an outside entrance (still extant but blocked) to each area. There is no further evidence to suggest that this particular structure for the cells was ever initiated and in fact the plan for 1846 denotes an entrance for C50 from the parade square.[28] If such was the case, it was no doubt blocked up and an exit or exits provided through C49 thus securing the prisoners. Cells, as a distinct part of C50 are not mentioned until the comments made in 1856 concerning the condition of the casemates.

They had not been mentioned specifically before thus leading one to believe that cells for prisoners did not exist in C50 until 1855 or 1856.

The only detailed plan of these two casemates appears to be the one done in 1890 and concerns the Citadel Guard Room heating system.[29] This closely represents the two casemates as they are now. C50 is shown the same as it is now but C49 is noted as containing a furnace and coal storage area in the southern most corner of the room.[30] Obviously there was no longer a cannon in the casemate. It is possible that the cannon platform is still there for the coal area measures about sixteen feet in length by fifteen and one-half feet the width of the casemate. It is likely that the first measurement of sixteen feet is inaccurate for with two constants - entrance to casemate 50 lock-up and the distance between the two end walls of C49, the platform can be no more than thirteen feet in length. Otherwise it would block the entrance to C50 lock-up. Concerning C50, there was also some discrepancy in the documents for the design of the prison when one views the plans done in 1891, especially that by Lieutenant-Colonel A. Hill.[31] Partitions (brick? or wood?) have been arranged so there are now two smaller cells or ablution areas seven feet by four feet with an entry to the lock-up room through the partition dividing the casemate. (There is a substantial amount of brick work on the southwest wall of C50 suggesting that this was the case.) To the left of the passageway through the partition is what appears to be a toilet. By the turn of the century, C50 had assumed its present structure which it has maintained unchanged since then. The cell doors used for the cells in C50 are detailed in the War Office Pattern book, No. 2, for 1901. These two doors follow this pattern quite closely.[32]

C49 in 1908 was still the guard room[33] but the area where the coal storage and furnace was located had become the dining room area for the men on guard duty. It would appear that the gun platform was still there as there appears to be steps to the dining room area through the centre of the partition. There is also a small partition enclosing the second entrance to C-49, that is to say the doorway nearest the parade square into the passageway. When both the gun platform and small partitions were removed is not known.

Casemate O: Observations

Casemate O is on the re-entrant angle with its entrance on the left retain-

ing wall of the southeast salient. The wooden door is set in smooth granite and brick. The brick work begins at three feet above the ground, continues up to the jambs, and ends just above the door. This entry provides access to a passageway which runs perpendicular to it. To the south is the entrance to C1 while to the north the passageway leads to C0. The walls of the casemate are of squared rubble ironstone throughout and the arched ceiling is of brick. The passageway, 15 feet long and five feet wide, is separated from the largest part of the casemate by a brick partition. This partition is built to the ceiling, fifteen feet long and 20" thick. The only doorway in the casemate is six and one-half feet by four feet and is situated at the north end of the partition. It provides access to the inner area of the casemate from the passageway. Some three feet from the doorway and four and one-half feet above ground level is a wooden framed opening (two feet by one and one-half feet) which penetrates the brick partition. There are two single air vents: one above and one below this opening. Just below the larger opening, about 6", is a slot for a squared wooden bar, a bar which would presumably be placed in the squared hole on the west wall of C0 as well. This hole is 4" square and 5" deep. It is three feet above floor level. It is not clear what the two smaller holes below are for. Also on the partition between the larger window-like opening and the south wall are three holes two feet by three feet by one and one-half feet each about one foot apart and one and one-half feet above floor level.

The remainder of the casemate measures fifteen feet by ten feet with an arched brick ceiling. It contains no fitments of any kind. At the south end of the partition next to the wall and three and one-half feet above floor level is a slot 12" x 4". There are four scattered slots in the ceiling each 10" x 10" x 4" and they appear to have been placed to accommodate a pulley device as C0 was a store room for much of this period.

Evolution

Since its construction, C0 has been a store room for a number of things from prisoners to oil. Its structure was necessitated by the addition of the

redan; two casemates C0 and C33 were built one on each re-entrant angle of the redan and the two salients. As neither of the re-entrant casemates is mentioned in the estimates after 1846, they were probably finished by that time.[34] Details in the estimates for 1844-45 (See Appendix II) make it clear that both were intended as coal stores.[35] It is possible that the room was left for a number of years in its trapezium shape as shown by the sketch in the estimates and a plan for 1847.[36] There appears to be no division of the room in this period nor was there any passageway to C1. The only entrance was probably from the parade square. When the ironstone partition was built in the east end of the casemate is not known but probably by the 1870's. C0 had become a cartridge store (See Appendix I for other uses). R. Young in his volume The West Front: Halifax Citadel details the construction of such stores. It was constructed just as it is now.[37] It would appear, however, that the only entrance to the casemate by this time was by way of C1 (See Figure 23). Photographs taken in 1879 do not show the courtyard door which is there now. The external doorway, it would seem, was not added to the casemate until after Parks Canada took over in 1951. (See Figure 20)

With the construction of the cartridge store, a passage was necessary to control access to the store. This would explain the slots described above for a bar and a gateway to limit entrance to the store. The opening in the brick partition was glass-encased and held a lantern to light the store. Thus the air vents mentioned above were needed to supply a draught. There was also shelf space on the partition wall near the entrance to C1. Perhaps this is why the holes appear on the lower level of the brick partition. There was one door space provided for access to the store room but nothing is known of the construction of the door.

The vault of the casemate has a number of openings. As Young points out, these were probably used to support some kind of timber framing for the cartridge store racks.[38] The hole at the end of the brick partition wall within the cartridge room was perhaps used for the same purpose.

Casemate 1: Observations

A 4'6" x 3' passageway connects C0 and C1. C1 is also of squared rubble ironstone and granite and covered with an arched brick ceiling. There is

extensive brick work around the passageway entrance and the exit to the parade square. To the left of the latter doorway as one is exiting, are two windows which are framed three-quarters of the way around with brick with what appears to be a granite window head. To the north of the passageway entrance are a line of seven slots 4" x 5" x 10", which are four and one-half feet above floor level. They are not equi-distant from each other. There are eleven slots on the opposite wall of about the same size but not directly in line with the seven slots mentioned previously. Also on the west wall of the casemate is a cast iron fireplace frame. The flue appears to be bricked up. The opposite wall has a drainage pipe from ceiling to floor. Although this was once a defensive casemate, the north end wall of granite and ironstone show little evidence of this. Obviously a new wall has been erected between casemate and gunports.

Evolution:

Although initially planned as a defensive casemate, it is doubtful if a cannon was ever mounted in C1. The casemate was completed in the 1840's and the casemate use study noted that in 1848 it was a gun room but the guns were not mounted. By 1848, it had become a military prison and chapel, however; there are no structural details of this change available. By 1856, it was used as an orderly room and still later a storage room for the RA's. It remained a storage room up until it was taken over by Parks Canada.

This casemate is six feet shorter than the adjoining casemate C2. This is due to the closing up of the gunports and loop holes in the end wall. It is not clear when this took place but it was probably when the artillery change was made in the 1880's.[39] The plan for 1878 noted that C1 has a twenty-four pounder mounted.[40] This casemate has little physical evidence left of how it was once used. The locations for the fireplace and lamp recess on the north wall are still obvious. Both have been bricked up, however; they appear only on the plan for 1847.[41] It is not clear when the lamp recesses were bricked up but the Citadel probably got electric lights installed by the time of the century[42] at which time the lamp recesses would not be necessary. The estimates do not specifically mention

the fireplace either in C1 or C2. It is probable that the structural details will not differ greatly from those fireplaces examined in Cameron Pulsifer's report entitled "The Southwest Front: Halifax Citadel."[43] It is not known when the original fireplace was blocked.

The original window and door have been replaced by modern ones of a similar pattern and a second window has been added between the door and window. The 1838 estimate (See Appendix II) provides details of the materials used in the original, which were probably completed by 1845. The specific measurements for the windows of C1 and C2 are not given but are probably similar to those examined by R. Young in his report entitled "The West Front: Halifax Citadel."[44] Young's description is based on Calder's 1846 plan.[45] Since it is likely that the windows and doors of C1 and C2 were installed in the 1840's, the pattern described by Calder was probably the one used.

As noted above, the walls of C1 and C2 are lined with regular openings in the granite. It is presumed by the author that these are all that remain of the shelving that was placed in this casemate and is evident in the plan for 1891.[46] The shelves lined three of the four walls of C1. At the left of the parade square entrance was an L-shaped shelf which covered the end wall and up to the passageway to C0 on the north wall. Between the passageway and the fireplace was a five foot long shelf and then a shelf eleven feet long from the fireplace to the end wall. The end wall of the casemate did not have shelves and in fact the end area of C1 appears to have been partitioned off in a square ten feet by ten feet. Whether the line on the 1891 plan is a thin wooden partition or the remnants of a platform for the twenty-four pounder is not clear. The shelving resumed on the south wall with a continuous shelf twenty-four feet long.

These shelves may well be part of the original construction especially as C1 and C2 were used for such a variety of activities from 1850 on. Although there are no details of the shelves extant in 1891 or before, Calder provided details of intended shelving in 1846.[47] He described cast iron shelves, pin rails and arm bands and noted that they were for guardrooms and casemates of defence. There is no confirmation, however, that these fitments were actually installed.

Casemate 2: Observations

C2 is the most difficult casemate in this study to make observations about as it is presently being used as a storage area for artifacts. It has one entrance, a doorway framed in brick and granite on the west wall, and two windows on the same wall framed in brick, with a granite window head. The side walls (north and south) are of smoothed ironstone and both have slots vertically of the same measurements and the same position as those in C1. The fireplace is on the south wall approximately midway between the east and west walls. It consists of a cast iron frame set in brick. The east end wall is of granite and has one gunport and two musketry loop holes. Beneath the gunport are two iron rings and an iron eye as there was in C49. These were presumably support for the twenty-four pound cannon which occupied this casemate at one time. The south wall is of granite and rubble ironstone. The casemate has an arched brick ceiling. The cement floor is carpetted.

Evolution:

Casemate 2 was built at the same time as C1 and for the same purpose - a defensive casemate. C2 would also evolve into a storage room. Unlike C1, C2 has maintained its measurements of 38.0' x 15.5'. The location of the door and windows have not been changed, although the doors and windows themselves are modern. Again, as with C1, a second window has been added between the door and window after the original construction. The plan for 1891 has included a reference to the new window. Therefore they were built at some point in the last half of the nineteenth century.

Both fireplace and lamp recess are precisely opposite those in C1 on the south wall and were probably bricked up at the same time. The fireplace had been installed by the 1840's for by 1848 the casemates were deemed fit for troops, although neither floor nor joints had yet been laid.[48] By the 1854 survey, the floor was laid and the fireplace "smoking", for the room was being utilized as a gunroom and also as an office and boardroom. Until the twentieth century, the casemate's primary purpose was as a gunroom and at various times a temporary prison and barrack room.[49] It was still armed with a twenty-four pounder when the new armament was introduced ca.

1880. By 1900 it had become a bread and meat store. The holes on both the south and north walls maybe for shelf space as noted for C1 and were probably put in quite early for each of the listed uses would require some storage space. Their exact material and measurements are not known but it is presumed that the fitments and shelves were probably of cast iron as mentioned for C1. There were four sets of shelves in C2. There were two on the south wall, flanking the fireplace. The one to the west was seventeen feet long and the one on the east side of the south wall was thirteen feet long. The other set of shelving was on the north wall and was divided by the partition. The shelves were twenty-one feet long on the west side of the partition and fourteen feet on the east side. This partition had been divided by a three foot thick partition with a doorway opening on the south end of the wall. This partition encloses the cannon area (14' x 12') and the second area for eight men (21' x 12'). By the turn of the century the shelves, partition, cannon and men are gone and the casemate has become a bread and meat store. There does not appear to be any further change in this casemate.

Casemates 3 and 4: Observations

Both C3 and C4 have been altered more than any of the above mentioned casemates. They are both the same size - 39' x 15'. Both are lined with scratched cement stucco (walls and ceilings) and therefore all work done on the features of this casemate and any additional fitments have been covered. The entrance to casemate 3 is framed in wood and concrete with a metal and granite lintel. Within this casemate there is a passageway to the adjoining demi-casemate (DC12). At the entrance to this passageway exiting from C3 in the upper right corner is a metal fitment suggesting a hinge of some sort. About midway along the east wall there is what appears to be a stove pipe hole. Perhaps this is where the stove was and earlier, the fireplace. There are two cast iron drainage pipes on either side of the stove pipe hole. The gunport at the south end of the casemate has been widened and the rifle slits have disappeared. The west wall is cut through with two doorways which lead to C4, both of which are sealed. The first one is three feet from the north end wall and the second is twelve feet from the south end wall. Each doorway is 2 1/2' wide and about 6' high with a bricked passageway 2 1/2' long.

There are doors in each but they have been blocked off. Between these two doorways is a third cast iron drainage pipe which, as with the other two, goes from floor to ceiling.

Casemate 4, as noted, is also lined in scratched stucco although some areas have been chipped away, for example, the fireplace location, in order to provide an opportunity to observe the same. It is assumed that the walls are of ironstone and granite and the ceiling bricked. The entrance to this casemate (on the north end) is much wider (7 feet) than other casemate entrances and this appears to be a modern adaptation. To the west of the entrance is a window framed in wood and brick. Metal has been inserted in the upper corner of the west side of this opening. The west wall has a fireplace halfway between the south and north end walls. However, it has been sealed over with cement. The end wall has also been changed considerably the rifle slits have been closed in and what was once the gunport is now a large door. The lintel of the gunport is distinct on the escarp wall above the exit. As with C3, the casemate has a concrete floor. The east wall has two doorways which have already been discussed.

Evolution

As with almost every other casemate in this study, the defensive casemates 3 and 4 were at some time utilized as prisons. They were initially built as gunrooms and fitted out for troops, which they probably began to accommodate while Lieutenant-Colonel P.D. Calder was in command (1842-1848). The 24-pounder guns were not mounted until the 1850's.

Casemates 3 and 4 were both planned by Nicolls and he is not particularly informative as to their being finished. Estimates done in 1833 note that four casemates of defence have been completed on the south front each measuring 35.0' x 15.0' x 4'. The internal structure of these casemates was probably similar to those later proposed by Captain Loyalty Peake in June 1833. These were to be done in the same manner as other finished casemates including C3 and C4.[50] This would suggest that each casemate would have a single window and an oak door framed in oak. The flooring was of brick on edge.

The early use of this casemate is not known although it would appear

that they were used to accommodate troops in some fashion. A plan signed by Calder in 1846 noted that these two casemates were the guardroom and the strong room.[51] During the 1840's as the troops were being moved into the Halifax Citadel, inevitably there arose the need to provide facilities to imprison them.[52] Due to the necessity of ensuring the confinement areas were light and well ventilated and secondly the need for space for the surplus number of prisoners, C4 was large enough to serve as a strong room. This was noted as "temporary" as C4 was a defensive casemate and was earmarked as a part of the eventual barrack accommodation. To ensure that it was not a security risk, the embrasure and loopholes on the escarp wall were barred and the only access to C4 was by way of C3 which was noted as a guard room.[53] The plan for 1842 shows two windows in C4 facing the parade square. C3 has one exit to the parade square and a window which looks into DC12. The latter is now an entrance to DC12 and the original door and doorway has been changed considerably since then. By 1849, further measures had to be taken with regard to C3 and C4 and their function as prisons. In October, 1849 several convicts escaped from the strong room[54] and it became necessary to add new bars to the gunports and windows where the old ones had been since the early 1840's. The door and frame were covered with sheet iron, probably the same one and one-half pound per foot iron suggested by Calder in 1843.[55]

Other improvements were in order for by 1848, both gunrooms had been declared unfit for troops and the "damp old brick floors" were reported as worn out and defective. Between this date and the mid-1850's, the floors were repaved, for by 1854, C3 was being utilized as a military prison kitchen and C4 was for military prison surgery. The only problem, which both shared was a smokey chimney. Both fireplaces and lamp recesses were in place by 1847 and most likely were installed in the early 1840's. The fitments appear to be exactly the same as those built in C1 and C2 as do the gunports and loopholes. It is not clear when the lamp recesses and fireplaces were bricked up but the latter may have been used well into the twentieth century with the addition of a stove for both were occupied during the 1920's. The other uses for these casemates can be found in Appendix I.

Documentary details of structural change in these two casemates after 1860 is scarce and the plans, as reliable as they may be, are the only recourse for the historian. By the 1850's, both of these defensive casemates

could fulfill their role as gunrooms for a 24 pounder was installed in each. The armament plan for 1878 notes the cannons as still installed and the casemate was also used as a barracks room. By the 1880's, these guns were dismantled[56] and the two casemates were being used only as a barracks with eight men in C3 and seven men in C4. From Hill's plan of 1891, it would appear that a doorway was cut midway between the two windows of C4 as an exit for both C3 and C4.[57] The doorway in C3 has become a window and what was once a window in C3 has become an entrance to the ablution area which was in DC12.

In the early twentieth century, the use of these casemates had changed once more but structurally the casemate had remained the same. There were eight men living in C4 who were responsible for the signal mast and they utilized the livingroom and diningroom set up in C3. The diningroom (26' x 15') was situated at the front of the casemate, nearest the parade square, while the livingroom (12' x 15') lay behind two six feet long by one foot thick partitions probably of wood and divided by a doorway.[58] Each partition contained a three foot wide opening. It is doubtful if this was a window. The gunports in each of these casemates had been altered considerably by 1908 probably due to the need for natural light by the occupants. In 1908, there was an opening six feet wide, a double window where the windows once were (See Figure 23). Exactly when this was changed is not known but undoubtedly between 1880 and 1900. It is probable that the windows referred to are those that are now in place.

A further cutting was made in the walls in the 1920's when a door to C3 was installed, opening on to the parade square. This was made after 1928 but before 1954 for the door to casemate 3 is shown as open in a photograph taken at that time.[59] The plans and documents do not indicate when the door replacing the window in C4 described above was cut. It is not included in the plans for 1924. When it was cut after that is not known.

Although by 1922, C3 had not changed drastically, C4 certainly had. There was now a partitioned area 17 1/2' x 7 1/2'in the south and west corner of the room which housed the signal switch. Entrance to this room was by way of another partitioned area (12 1/2' x 7 1/2') occupying the southern third of the casemate. It is not known what the remainder of the casemate was being used for. It was likely to do with signalling, either electrical

or visual. The proximity of this casemate to the stairwell leading to the ramparts and the signal hut made it a natural for housing the signal men.

Sallyport 1

Observations

Sallyport 1 is basically the shape of a rolling pin. Its two handles, the entrance and the exit, are of differing sizes. The one at the east end is 5' x 4'7" and the other at the west end is 3 1/2' x 4 1/2'. The main body of the "pin" is 36 feet long and the width is 5' 10 3/4" at the west entrance and 5' 9 1/2" at the east entrance. Finally the entrance to the sallyport from the parade square is 6' high and 3' 11 1/2" wide and the door is set in to the retaining wall by 1' 3". The exit from the sallyport to the ditch is 6' 3" high and 3' 10 3/4" wide and this door is set back from the escarp wall by 1'2". There is a granite step at both entrance and exit and a granite step at the head of the slope of the sallyport. The slope is of cement, dirt and gravel. The walls are of broken coursed ironstone and the arches of red brick. The arch commences at the door and begins its slope just beyond the first step and at the same angle as the floor. It tapers as it descends and at the base of the slope it straightens out and then slopes once more to the exit. At present it is about 7' above the slope at its highest point and about 5'6" at the base of the sallyport.

General observations on the present state of the sallyport are difficult. There is little really to observe. There is some fresh brickwork around the west entrance. Also at the head of the slope in the sallyport and to the left is an iron ring(pintle) attached to the wall about 7' above floor level. At the bottom of the slope and to the left is an iron fragment at about the same level together with a bracket some two feet above floor level. As will be noted below, these may have been part of the hinge to either the wooden or iron doors which were situated at the top and base of the sallyport slope. Apparently unconnected to the doors are two iron fragments in the south wall at the foot of the sallyport slope where the sloping arch becomes horizontal. The first metal "peg" (1" diameter) is about 3' above floor level and the second is 14" above the first. It is not known what these were used for.

Evolution

As can be seen from the above, sallyport 1 has gone through very little structural change. What changes there were involved repointing and changes to the steps. The sallyports of the east front ie. those on the southeast salient and the northeast salient were included in the estimates for the whole of the east front. Sallyport 1 was probably completed in the late 1830's after it was finally decided that a redan would be added to the eastern front. The estimate by Captain Loyalty Peake in 1833 noted only one sallyport (35.0 x 6.0)[60] but by 1835 Rice Jones had planned two sallyports on the eastern front and these were to become the present sallyport 1 and sallyport 6. The estimate for 1838 gave details of construction and provided for the construction of two sallyports.[61] The sallyports arches were to be 38 1/2' long 1'6" thick and with a span of 6'. The pier walls were to be 7' high.[62] There were to be 36 granite steps 6' x 1'6" tread and riser. This is four fewer than those provided for the sallyports in the north, south and west fronts. The sallyport was to have the same door fittings as the casemates, that is, a door frame of 6" x 8" and a door of 3" oak. There is no mention of any other type of door and within the estimate it would seem that the door referred to is the opening on to the parade square ie. the retaining wall for only ten door frames are listed for the eight casemates and two sallyports on the eastern front. The pintle mentioned in the as founds may have been part of this door. There is no mention of the door to be fitted on the escarp end of the sallyport and it is probable that the level of the ditch had yet to be completed and doors were not fitted until the late 1850's.

It is not clear if brick-on-edge steps were to be installed or not. This was certainly the case in sallyport 3[63] built by Nicolls. Whether there were granite or brick steps in sallyport 1 is not known. The estimate by Lieutenant Colonel Rice Jones in 1838 does note that the bricks-on-edge is for paving floors. To base an argument on this statement would be faulty, however.

By the 1850's the doors for the escarp side of the sallyport were being considered. The annual estimates for 1858 made provision for six sallyport doors for the Halifax Citadel.[64] The sketch shows two metal plated oak gate doors each about 2'3" wide and 6'8" high.[65] They were to open inward and

and were placed 1 1/2' in from the escarp wall. The doors were secured in place by a 4" x 3" oak bar 5'6" long and secured by a metal bracket on the door and a stone notch on each wall. The pintles for the hinge pins were embedded into the sallyport walls. The metal hinges measured about 2' long and 2" wide. The oak doors were 5" thick as compared with 3" at the top of the sallyport passage. The upper part of each gate had a metal on each side.

The as founds include what could be the remnants of a door similar to this one. At the bottom of the sallyport, 5 1/2' from the exit are some metal fragments embedded in the north wall. At the spring of the arch (approximately 7') is a metal fragment which may have been part of the pintle for a door hinge. Directly below it and two feet from floor level is a metal bracket 8" x 4" embedded in the stone. Opposite this bracket and on the south wall is recent cement work where another bracket may have been. It should be pointed out that the door planned by Stotherd was situated 1 1/2' into the escarp wall while these remnants are 5 1/2' from the escarp wall. Whether this is a completely different door or an adaptation from the original plan is not known. It is possible that there were two doors at the base of the sallyport-an outer door and an inner door. However, this is strictly speculative until there is further documentary evidence.

Rampart Structures

Observations

As noted previously, the southeast salient ramparts are the most "built upon" section of the Halifax Citadel. By the 1960's, however, it had been cleared of all structures. As there is virtually nothing to "observe", this section will begin with a structural evolution of the salient. There has been some recent archaeology and this will be mentioned where relevant. The armament on the ramparts and related structures will not be commented on upon as this aspect of the Halifax Citadel research has been touched upon by J. Johnston in his report.[66] It should also be noted that a separate study on signalling specifically and communications generally will examine in greater detail the function of the signal mast, its flags and telegraphic objects.

Flagstaves

Evolution

The signal mast was the most conspicuous part of the Halifax Citadel, yet it appears to be much less prominent in the documentary evidence. Although essential for communications to the outforts, flagstaves, their substance, design and construction, are rarely examined in the documents. The research after 1860 is somewhat easier with more plans and a number of photographs. Before 1860 however the evidence is scanty and most times non-existent.

In 1831, it was proposed by Nicolls that two of the three staves namely the Telegraph and Signal Staff be erected on the south front of the southeast salient.[67] The flagstave was planned for the southwest demi-bastion.[68] Although the Director of Signals was located in the Cavalier building it was felt by Nicolls that the Telegraph Staff should not be connected to the building as its weight might affect the masonry of the building.[69] It is not clear when either of the new staves was erected but it is presumed that the signal stave would be a new one for in 1828 there were complaints that the signal stave as it stood was in a dangerous condition.[70]

What type of wood these early staves were made of is not known. It is also not clear if the signal stave was erected on the ramparts where it was planned it would be or placed in the angle of the southeast salient where later photographs locate it. A report done in 1845 intimates that the signal stave was about sixty feet long.[71] It probably had a separate top mast and a yard arm from which the signal objects could be flown or hung. A photograph taken in 1860 (See Figure 2) indicates the structures of the mast and it would appear that the mast was by then in the angle of the southeast salient. Comparing the two earliest extant photographs of the signal stave (See Figure 2 and Figure 3) it would seem that the main mast was 100 feet long and 25" in diameter at its widest point. The top mast was 35 feet long with a diameter of about 10". The longer of the two spars was of mora wood,[54] 30 feet long and tapered at each end. The smaller spar, 12 feet above the first, was also tapered and was 15 feet long. The stave itself is secured to the retaining wall and probably its base is resting on the ground. At the top of the rampart is a walkway providing access to the flagstave. It was built at the salient angle and its two ends rested on the left and right faces of the southeast salient retaining wall. In addition to this support, the signal stave was held up by a number of guy wires which

were attached to both the retaining wall and the escarp wall. A number of these have been uncovered recently by the archaeology team. The telegraph staff on the south front of the south east salient was much smaller. It was embedded in the rampart and, as with the signal staff was supported by guy wires. The observable main mast is 50 feet long and the top mast is 35 feet long. It has one spar, tapered with a length of 27 feet.

There also appears to be a third stave on the rampart, this one on the east front and at least 50 feet long. It is supported by guy wires as well. This stave was probably for hoisting storm signals.

A decade later (1889) there appears to be only two flagstaves on the southeast salient, one for signalling ships and the other for storm signals.[73] No mention was made of the one labelled above as the telegraph staff although the General Officer Commanding Halifax, Colonel J. Goldie noted that there are three staves on the south front. The third was for the ensign, C. Pulsifer points out that the ensign flag was situated in the southwest demi-bastion.[74] Goldie may have missed a stave for Colonel Hill's plan of 1891 included all three staves on the southeast salient as they were situated in the 1879 photograph and labels them the signal stave on the south front, the signal stave on the angle of the salient and the storm signal staff. With the addition of the new signal building ca. 1920 the storm signals staff was removed. By 1930, however, a third stave or pole was raised about 10 feet north of the time ball building. Whether this was another storm signal stave or served another purpose is not known. By 1950 the staff at the salient angle (See Figure 24) was much changed from the one noted in 1879 and from it flew the ensign. Within three years it was gone. The sole flagstave on the Citadel was on the parade square and for the first time in over a century no flag nor signal object flew from the southeast salient.

Buildings

Evolution

There is even less structural history evidence for southeast buildings constructed on the salient other than that noted above for the flag stave. Generally speaking the buildings constructed here were connected with communication. The structural period after 1906 is detailed by Brenda Dunn in her report[75] and since there has been no new evidence it is pointless to repeat what she has already written except in such cases where a review is necessary.

To properly examine the period before 1906, one is left with only a few photographs and a plan for 1891.

A building on the south front existed as early as 1860, midway between the signal station and telegraph stave and was apparently used as a storage area and work space for those responsible for signalling. It was a peaked building with a roof sloping east and west. It was approximately 12' x 15' with a height of 7 feet to the eaves. It was equipped with a stove as it had a chimney. There also appear to be ladders on each slope of the roof for members of the signal corps to view messages from the outposts. (See Figure 2 and Figure 3). On the east side of the building were six steps leading apparently to a platform also for an observer. When the structure was built is not known. By 1891, it had been changed. An addition was made on the east side, 12' x 15', and it was to serve as part of the signalling establishment. Access to it was via the original building. A photograph taken in 1900 (See Figure 25) provides evidence of a window in the south side of the original building. It is probable that this window was constructed when the original building was erected to provide a clear view for the signal receiver of the outforts. The plan for 1908 shows a second addition 13' x 13' to this but this time on the west side. It has a window on the south side and a door and window on the north side. It was used by the sergeant in charge of signals. By this time the original building has been divided to provide for a telephone exchange and signal station exchange.[76] (It is at this time also that C4 was being listed as occupied by eight men who are all part of the signal corps.) With the erection of a new signal station building ca. 1920 this building was destroyed (See Figure 26). The partial foundation uncovered by archaeological research is part of the Canadian building which Dunn discusses in her report.[77]

Also destroyed in this same period was a building noted on the 1908 plan as erected on the east front of the southeast salient. It is noted as a side arm store and was previously an instrument repair shop when it was turned over to the Canadians in 1906. This is probably the same building that appeared in an 1879 photograph (See Figure 3) as it is located in exactly the same spot. It is a shingled building with a small window on the west side and a high gable roof sloping to east and west.

The final structure on the southeast salient in the 1870's stood some ten feet west of the telegraph mast (See Figure 3). It was a shingled building with two windows on the west side and a medium gabled roof sloping north and south. The entrance appears to have been on the west side and it had a small covered partition around the entrance. By 1891, it appears that an additional room and porch had been added on the west side. The entrance was now a door in the centre of the west wall and the porch and addition had a tar and gravel roof by 1914. The roof sloped to the north and south and had a chimney. The 1891 plan shows that the building had been partitioned into three rooms all of which serve as office space for the Director of signals. A photograph taken in 1900 (See Figure 27) shows the roof of this building and part of the east end wall. By 1908 the structure had been added to again, with a room on the east end which formed an ell with the original structure (See Figure 26). It was constructed with a sloping roof and and additional chimney.[78] It was removed in 1922-23.

The only other building erected on the southeast salient was a storage shed at the foot of the telegraph stave, which by the 1920's was called the storm stave. It was built after the British Director of Signals building had disappeared and apparently was used for the storage of flags. A glimpse of its pitched roof can be seen in Figure 28 and a vague outline of its form in Figure 14. It was still standing in 1950 (See Figure 24) but by 1953 had disappeared as had everything else but the time ball building (See Figure 16). It stood until ca. 1963 when it was finally removed.[79]

Appendix I: Casemate Use

Casemate 49: length: 38.5 feet
width: 16.5 feet
area: 635.0 square feet

Use

1848 - Gun Room
1854 - Citadel Guard
1856 - Citadel Guard 1 sergeant and 16 rank and file
1891 - Guard Room
1908 - Guard Room and Dining Room
1910 - Guard Room and Dining Room
1922 - Guard Room
1924 - Guard Room
1936 - Caretakers Quarters

Casemate 50: length: 38.5 feet
width: 15.5 feet
area: 596.75 square feet

Use

1848 - Gun Room
1854 - Lock-up Room
1856 - Lock-up and Cells
1891 - Lock-up and Cells
1907 - Cells
1908 - 2 Cells and Lock-up
1910 - 2 Cells and Prisoners Room
1922 - Cells and Prisoners Room
1924 - Coal and Prisoners Room
1936 - Caretakers Quarters

Casemate 0: length: 21.0 feet
width: 15.5 feet
area: 325.5 square feet

Use

1854 - Provost Prisoners hard labour room
1856 - Engineer Store
1891 - Cartridge Store
1908 - Cartridge Store
1922 - Oil Store
1924 - Oil Store

Casemate 1: length: 32.0 feet
width: 15.5 feet
area: 496.0 square feet

Use

1848 - Gun Room
1854 - Military Prison, Chapel
1856 - Orderly Room
1891 - R.A. Store
1906 - R.A. Store
1908 - R.A. Store
1922 - Paint Store
1924 - Paint Store

Casemate 2: length: 38.0 feet
width: 15.5 feet
area: 589.0 square feet

Use

1848 - Gun Room
1854 - Office and Boardroom
1856 - Office and temporary military prison
1875 - Barrack Room
1891 - Gun Room
1906 - Bread and Meat Store
1908 - Bread and Meat Store

Casemate 3: length: 39.5 feet
width: 15.0 feet
area: 592.5 square feet

Use

1848 - Gun Room
1854 - Military Prison Kitchen
1856 - Kitchen, Stores and Temporary Prison
1891 - Gun Room
1906 - Store
1908 - Dining Room and Living Room
1922 - Coal
1924 - Coal

Casemate 4: length: 39.5 feet
width: 15.0 feet
area: 592.5 square feet

Use

1848 - Gun Room
1854 - Military Prison Surgery
1856 - First Class Prisoners Room, Store
1891 - Gun Room with Signal Hut
1906 - Barrack Room
1908 - Signal Staff 8 men
1922 - Signal Switch

Appendix II

The following includes two estimates relevant to the southeast salient. The first concerns the casemates of defence at the re-entrant angle namely C49, C50, C1 and C2. The second estimate is the proposal for casemating the two re-entering angles of the Redan namely C33 and C0.

1. "Abstract of Estimates for the completion of Halifax Citadel" - Lt. Col. Rice Jones, 1 Feb. 1838. PANS MG12 RE56

Item 3 Casemates of defence, Casemated guardroom, Sallyports, Main Entrance, retaining wall of Rampart Eastern Front.

"The excavation is for the foundation of the rear wall of the Casemates, Sallyports, Gateway, steps to Rampart etc. 290 feet in length, 4 feet wide and 6 feet deep; retaining wall of the Rampart 280 feet in length, 3 1/2 feet wide and 6 feet deep; 24 piers to retaining wall 7 feet long, 3 feet wide and 6 feet deep; 14 Casemate piers 28 1/2 feet long, 5 feet wide and 6 feet deep and for walls and pit of Privy 20'x 13' x 12'.

The masonry is for the foundations of the rear wall of the casemates and retaining wall of rampart, of the Casemate Piers and piers to the retaining wall and walls of the pit for the Privy of the same dimensions as stated above; Also for the walls above foundations viz. 290 feet x 3 x 20 and 280 x 3 20. Dwarf wall of Rampart 570 ft. x 2 ft. 6 in. wide and 2 ft. high, 24 piers to retaining wall 7 ft. x 2 ft. 6 in. and 9 ft. 6 in. high with dos d'anes to the arches; - 14 Casemate Pier 38 1/2 ft. long by 4 1/2 ft. and 7 ft. high with dos d'anes, including gateway and sallyports and walls of Privy - The rear walls of the cells of the retaining wall to be convex towards the Rampart.

There are 24 arches to retaining wall of the dimensions shown on the sketch; 8 to Casemates of defence 38 1/2 ft. long, 1 ft. 6 in. thick, and 6 ft. span; - Gateway 38 1/2 feet by 2 feet 3 in. thick, span 10 feet; - Privy 13' x 2'3" thick span 10 feet.

The tiling is for the casemates 8 (38 1/2 ft. x 22); Sallyports 2 (38 1/2 ft. x 13), Gateway 38 1/2 x 26 and Privy 13 x 22 ft.

"The workmanship is for the face of the wall including the coping 570 ft. x 27 ft...."

"The 76 steps to ramparts and sallyports are 6 ft. by 1 ft. 6" tread and riser - the extra cut granite is for the extension or focade of the Gateway, as shown in the Plans Elevation, and 320 feet of common, cut for the ribs of the archway. The 10 door frames are 6" x 8" and the door of 3 inch oak; - 12 joists to Privy 11 feet long 8" x 4" pine - the 2 inch plank includes the floor, seats, etc."

No. 3	Detail on above				
1323	Cubic Yards of Earth excavated for foundations	10d	55	2	6
6282	Perches of Masonry in wall and foundations	14/2	4449	15	0
1287	Perches of Brickwork in Arches	307	1930	10	0
90 1/2	Square of tiling laid in cement	62/-	280	11	0
15390	Supl. feet of workmanship on face of wall	1/8	1282	10	0
2622	Supl. feet of cut granite steps, etc.	2/5	316	16	6
454	Square yards of brick on edge paving floors	5/6	124	17	0
54	Cubic feet of oak in door frames	2/11	7	17	6
195	Supl. feet of 3 inch oak in doors	1/5	13	16	3
405	Supl. feet of sashes and panes complete	1/10 1/2	37	19	4 1/2
3278	The wrought iron hinges, bolts, etc.	3d	40	19	6
5	Cwt. of lead for above iron work	32/6	8	2	6
30	Cubic feet of pine scantling in joists to privy	1/1	1	12	6
2	Square of 2 inch pine plank in joists for privy	32/2	3	4	4
3	Iron rimmed locks in joists for privy	4/6	-	13	6
50	Perches of brickwork in partitions to guardroom	30/	75	0	0
4	Strong padlocks for cells	4/	75	16	0
150	Yards 2 coat oil painting to woodwork	8d	5	0	0

82	Cwt. of sheet lead 10 lbs. and suppl. feet for gutters to roofs	32/6	133	5	0
20	Perches of brickwork in arch over wall	30/	30	0	0
1234	Supl. ft. of extra cut granite for main entrance	3/-	185	2	0

"This item #3 provides for joining the Redan to the faces of the North-, East and South-East Bastions, including 8 Casemates of defence, 2 Sally-ports, The Main Gateways and the retaining walls of the Rampart of the Eastern Front with its steps of communication."

"The walls and piers of these Casemates are of the same thickness as quoted in Item 2. - The Piers to the retaining wall of Rampart 2 feet 6 in. thick: the retaining wall 3 feet thick arches 1 foot 6 inches thick, - The Casemates of defence are only 15 feet wide with arches 2 feet 3 inches thick; Sallyport arches 1'6" thick, there are 42 cut granite steps, of Embrazures 200 Supl. feet of cut granite in each, the Gateway 320 Supl. feet 36 steps to Sallyport of cut granite. - The flooring to Casemates Brick on edge, 10 oak outside doors, and frames 6 feet x 3 ft. 3 ins. - 30 lathes and frames 4 ft. 6 in. x 3 ft.

"The iron work is for bolts, bars, gratings, etc. Two of the Casemates of defence are to be fitted up as Guardroom and Solitary Cells as shown on Plan No. 1 and a well which will fall within the Guardroom to be arched over with pumps outside, See Plan No. 1 lead gutters as before described."

2. "Report and Estimate of Works and Repairs proposed to be carried on in the Royal Engineer Department. In Nova Scotia, New Brunswick and their Dependencies in the year 1844-5." n.d. by Patrick D. Calder. PANS, MG12, RE56.

"This portion of the Item provides for casemating the two Re-entering Angles of the Redan for the Coal Stores as per accompanying sketch."

"The external wall and steps were provided for in the Revised Estimate before mentioned - this provides only for the following work - excavating

for foundations of external walls coloured yellow 20'0" x 8'0" x 4'0". The foundation to be of Stone Masonry in Mortar. The floors to be laid with iron stone flagging in Mortar. The vaulting to be of brick-work 2 ft. 3 in. thick, and the Dos d'anes to be covered with ironstone flagging in Mortar. Gutters of 8 lb. milled lead. Doors, door frames, locks, hinges latches, holdfasts, etc. are to be similar to those of the other detailed casemates and painted 3 oils, common colours.

Report: Casemates of re-entering Angle of Redan

48 yards cube of earth excavated and recovered	10d		2	0	0
150 perches of rubble masonry in foundation and superstructure	15/-	112	10	0	
160 yards Supl. Iron stone flagging in dos d'anes laid in Mortar	3/8	29	6	8	
164 perches of brickwork in vaulting of Casemates	23/5	192	0	4	
100 yards supl. iron stone pavement laid in mortar	3/8	18	6	8	
100 feet lineal of extra cutting of skewbacks	1/-		5	0	0
5 1/2 feet cubic wrought rebated and chamfered pine, in door frames	1/6			8	3
36 feet sulp. 2 inch wrought and pained (?) pine doors filled in front with inch wrought and rebated sheeting and herring boned back.	10d		1	10	0
18 Cwt. of 8 lb. milled lead laid in vallies.	34/-	30	12	0	
7 1/2 lbs pig lead	28/-			1	9
1/2 bushel coal	9d				4 1/2
12 yards supl. 3 oil lead on doors	7d		-	7	0
48 inches of letters on doors.			-	3	0
2 door frames bedded and ranged			-	2	6
16 lbs. wrought iron for holdfasts, door spuds			-	6	-
2 10 inch. iron rimmed lead slot lock and fixing			-	11	10
2 wrought iron latches and fixing				2	4
2 labels to keys littered and fixing				1	0
2 pairs 24 inch wrought iron stronghook and eye hinges with screws for 2" doors	3/-	"		6	0
Total		279	.	5	8 1/2

Endnotes

Southeast Salient: Narrative

1 Canada. Public Archives (hereafter cited as PAC), L. Haghe, "View of Halifax from Dartmouth Cove," 1832; R. Petley, "View of Halifax from the Indian Encampment at Dartmouth," 1837.

2 Harry Piers, The Evolution of the Halifax Fortress: 1749-1928, rev. ed., (Halifax, Public Archives of Nova Scotia, 1947), p. 37.

3 Raymond F. Baker, The Early Citadels at Halifax, 1749-1815, Manuscript Report Series, No. 107 (hereafter cited as MRS), (Ottawa: Parks Canada, 1973), p. 134.

4 Nova Scotia. Public Archives (hereafter cited as PANS), MG12, RE54, p. 2, G. Nicolls to Ordnance (Byham), 20 December 1825.

5 PAC, MG12, WO55, Vol. 862, pp. 555-9, Arnold to Ellicombe, 16 November 1824. For a fuller discussion See John Joseph Greenough, The Halifax Citadel, 1825-60: A Narrative and Structural History, MRS154, (Ottawa: Parks Canada, 1974), Vol. 1, pp. 36-65.

6 PANS, MG12, RE54, Nicolls to Ordnance (Byham), 20 December 1825.

7 Great Britain. Public Record Office (hereafter cited as PRO), S/N 649, MR947, G. Nicolls, "Fort George, Citadel Hill - As proposed exercising ground," 1825.

8 PANS, MG12, RE54, p. 3, Nicolls to Ordnance (Byham), 20 December 1825.

9 PAC, MG12, WO55, Vol. 865, p. 577, Nicolls to Mann, 7 October 1828. Nicolls had also planned that a small work would be erected some 950 yards south of Fort George on the ruins of Fort Massey effectively securing the south and east fronts of the fort.

10 J.J. Greenough, op. cit., p. 69.

11 Richard Young, The West Front: Halifax Citadel, MRS 206, (Ottawa: Parks Canada, 1977), passim.

12 Ibid., p. 23.

13 PANS, MG12, RE25, No. 336, Nicolls to Bryce, 28 January 1831.

14 Ibid.

15 PRO, MPHH 205 (S/N 651), Boteler, "Fort George, Halifax NS - elevation of gorge of west ravelin #8," 1832.

16 PANS, MG12, RE8, p. 213, Nicolls to Bryce, 5 September 1831.

17 PANS, MG12, RE54, p. 43, Boteler to Bryce, 13 April 1832.

18 PAC, MG12, WO55, Vol. 871, p. 342, "Extracts from a Report from the Inspector General of Fortifications dated 4 June 1834."

19 PRO, MPHH 205 (S/N 651), Boteler, "Plan of Fort George, Halifax NS - as supposed to be when finished agreeably to the documents on the spot,"1832.

20 PRO, MPH 486, "Plan of Fort George, Citadel Hill showing the works in progress, approved, and those estimated for the year 1832," 1832.

21 PAC, MG12, WO55, Vol. 887, p. 620, Stotherd to IGF, 22 November 1855.

22 PAC, MG12, WO55, Vol. 872, p. 320, Rice Jones to Nicolls, 16 December 1835.

23 J.J. Greenough, op. cit., pp. 116-143.

24 PANS, MG12, RE54, p. 86, Rice Jones to Nicolls, 16 December 1835.

25 PAC, MG12, WO55, Vol. 227, "Exploratory Statement upon Colonel Nicolls observations No. 2 dated Quebec 13 January 1836 by Rice Jones," 30 April 1836.

26 PANS, MG12, RE56, "Report and Estimate of Works and Repairs proposed to be carried on in the Royal Engineer Department in Nova Scotia, New Brunswick and their dependencies in the year 1844-5," n.d.

27 Ibid.

28 PAC, MG12, WO44, Vol. 227, "Plan of Officers' Casemates, Halifax Citadel - copy of a sketch by the late Capt. Wentworth, RE," ;844; MG12, WO55, Vol. 883, p. 773, Savage to IGF, 9 January 1844.

29 PRO, MPH 486, "Plan of Fort George, Citadel Hill showing the works in progress, approved, and those estimated for the year 1832," 1832.

30 Andrew John Bayly Johnston, Defending Halifax: Ordnance 1825-1906, MRS 234, (Ottawa: Parks Canada, 1977), p. 126.

31 Cameron W. Pulsifer, "The Southwest Front: Halifax Citadel," Manuscript on file, Halifax Defence Complex (hereafter cited as HDC); PRO, MPHH 205 (S/N 651), Boteler, "Plan of Fort George, Halifax NS - as supposed to be when finished agreeably to the documents on the sport," 1832 which shows C3 and C4 complete as of November 1832.

32 PRO, S/N 649, MR 947, Nicolls, "Proposed Plan for Fort George, Citadel Hill," 20 December 1825. A revised plan PRO S/N 649, MR 947, Nicolls, "Fort

George, Citadel Hill - As proposed exercising ground," 1825, shows the first change in the positioning of the defence casemates.

33 Cameron W. Pulsifer, op. cit., p. 20.

34 PAC, RG8, C, Vol. 1592, p. 13, "Plan of the casemates in the Citadel at Halifax, NS, used as a strong room and guard house," 1845.

35 PANS, MG12, RE47, p. 239, Dickson to Herbert, 30 August 1845.

36 PAC, W. Barten, "General Plan of the Citadel showing positions for guns for new armament," 1874, revised 1878.

37 J.J. Greenough, op. cit., pp. 168-211 for complete details.

38 PANS, MG12, RE54, p. 149, Fanshawe to Commanding Royal Engineer, 11 August 1842.

39 J.J. Greenough, op. cit., Vol. 2, Part 2, pp. 308-312.

40 PAC, MG12, WO55, Vol. 882, p. 479, "Report and Estimate of the expense of remedying the leakage of the Officers, Soldiers and Guard Room Casemates with Seyssel Asphalte used at Fort George, Halifax, Nova Scotia."

41 PAC, MG12, WO55, Vol. 880, "Plans and sections of tanks for a better supply of water proposed to be constructed under gun room (Item #4)," 1846.

42 PAC, MG12, WO55, Vol. 883, p. 773, CRE to IGF, 9 January 1849.

43 PANS, MG12, RE12, pp. 497-503, Savage to Burgoyne, 12 June 1854.

44 Ibid., p. 499, Parsons to Savage, 13 February 1854.

45 PAC, MG12, WO55, Vol. 1558(7), "Report of the Committee on the State of the Citadel and Harbour Defences of Halifax, Nova Scotia," 5 May 1856, appendix D.

46 Ibid., Note C, p. 99.

47 PRO, S/N 649, MR 947, Nicolls, "Fort George, Citadel Hill - As proposed exercising ground," 1825.

48 PRO, MPHH 205, (S/N 651), Boteler, "Plan of Fort George, Halifax NS - as supposed to be when finished agreeably to the documents on the spot," 1832.

49 PAC, MG12, WO44, Vol. 227, Rice Jones to Pilkington, 15 March 1834.

50 PAC, MG12, WO55, Vol. 873, Westmacott, "elevation and section of retaining wall," 1836.

51 PAC, RG8, C, Vol. 1952, p. 13, "Plan of the Casemates in the Citadel at Halifax, NS, used as a strong room and guard house," 1845.

52 PAC, MG12, WO55, Vol. 880, "Plans and section of tanks for a better supply of water proposed to be constructed under gun room (Item #4)," 1846.

53 PAC, MG12, WO44, Vol. 227, "Halifax Citadel - casemates of defence, casemated guard room, sally ports, main entrances and retaining wall of rampart eastern front," 1834.

54 PAC, MG12, WO55, Vol. 872, Lyster, "Plan of Fort George - Citadel Hill - shewing the works in progress approved and those estimated for the year 1832," 15 December 1835.

55 PAC, RG8, C, Vol. 1952, p. 13, "Plan of the Casemates in the Citadel at Halifax, NS, used as a strong room and guard house," 1845.

56 PAC, MG12, WO55, Vol. 881, Calder, "Solitary Cells," 7 August 1847.

57 PAC, MG12, WO55, Vol. 880, Calder to IGF, 31 March 1846, No. 140 "Supplementary Report and Estimate of Works for completing the Citadel at Halifax amounting to £26,563.3.1 1/3."

58 PAC, MG12, WO55, Vol. 881, Calder, "Solitary Cells," 7 August 1847.

59 PAC, Watkins, "Citadel, east salient right and left faces, sketch of proposed method of rebuilding retaining wall," 1875.

60 PAC, Hicks, "North Aspect of Halifax (distant view)."; Mercer, "Halifax Citadel from the Road to the NW Arm by Rosebank,"; Hastings Doyle Album, p. 12, "Views from the Citadel, Halifax NS."

61 PRO, MPH 486, "Plan of Fort George, Citadel Hill showing the works in progress, approved and those estimated for the year 1832," 1832; Cameron Pulsifer, op. cit., pp. 83-4.

62 PAC, Mercer, "Commons from Mc... about sunrise," 22 August 1838.

63 Toronto Public Library, Eager, "Halifax from the Red Mill, Dartmouth," c. 1839.

64 PRO, WO78/2944, photograph of southeast salient, 1879.

65 Morning Chronicle, 7 September 1873, Vol. IX, No. 209, col. 1, p. 3.

66 HDC, 108-01-2-880-0009, photograph, c. 1880. The electric telegraph was completed to the Citadel in 1870. PAC, RG8, C, Vol. 1653A, p. 576, "Report and Estimate of Works and Repairs proposed to be carried on by the Royal Engineer Department in the Nova Scotia Command in the year 1869-70."

67 HDC, 108-01-2-920-0207, photograph, c. 1920.

68 Brenda Dunn, "The Halifax Citadel 1906-51: The Canadian Period," Manuscript on file, HDC, 1977, p. 103.

69 PRO, WO78/2944, photograph of southeast salient, 1879.

70 PANS, photograph of sentries at entrance, post 1883.

71 Indian and Northern Affairs, HQ, HC2, Memo by N.A. Sparks, 24 November 1936.

72 HDC, Saxton, "Proposed accommodation for signal station, Citadel," 25 October 1916; HDC, 108-01-2-920-0207, photograph, c. 1920.

73 Brenda Dunn, op. cit., p. 106.

74 PAC, Massey Commission photographs, #16, 1950.

75 A time ball was noted on a block plan of the Halifax Citadel done in 1891 and is located on the exact spot where the later one was built in 1908. As this plan also contains obvious later additions, such as the brick block and the buttresses on the left face of the southeast salient, it is assumed that both the time ball building and buttresses were twentieth century additions.

76 HDC, 108-01-2-947-0202, photograph, 1947.

77 Brenda Dunn, op. cit., p. 100.

78 PAC, Hill, "Halifax NS, The Citadel or Fort George, Block Plan," 1891.

79 HDC, 108-01-3-956-0201, photograph, c. 1956; Terrence D. MacLean, "Construction and Restoration at the Halifax Citadel 1950-1970," Manuscript on file, HDC, 1976.

Present Structure: Observations

1. PRO, MPHH 205 (s/n 651), "Fort George, Halifax, N.S. - Elevation of gorge of west ravelin #8" signed by Lieutenant-Colonel Richard Boteler, CRE 14 February 1832.
2. PAC, MG12, WO44, Vol. 227, p. 351, Estimate #11, Halifax Citadel, eastern front, 1833 by H. Wentworth, RE.
3. PANS, MG12, RE54, #256, Major-General Sir Alexander Bryce, IGF, to Lieutenant-Colonel Richard Boteler, CRE, 25 May 1832.
4. PAC, MG12, WO 44, Vol. 227, p. 312, Captain Loyalty Peake to Major-General Robert Pilkington, 12 June 1833.
5. PANS, MG12, RE54, Lieutenant-Colonel Rice Jones to I.G.F., 30 April 1836.
6. PANS, MG12, RE56, "Abstract of Estimates for the completion of Halifax Citadel" by Lieutenant-Colonel Rice Jones, 1 February 1838.

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9. PAC, MG12, WO44, Vol. 227, p. 351, op. cit., estimate #11.
10. PAC, MG12, WO55, Vol. 873, Fol. 644, Estimates for Casemates of Defence... Eastern Front by Rice Jones.
11. PAC, MG12, WO55, Vol. 881, p. 860, Plan for solitary cells to accompany the special estimates by Lieutenant-Colonel P.D. Calder, 7 August 1847.
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13. PAC, RG8, I, "C" Series, Vol. 1558 (7), p. 41, "Report of the Committee on the State of the Citadel and Harbour Defences of Halifax, Nova Scotia," 5 May 1856.
14. Ibid., p. 99.
15. PRO, WO 78/2944, See H.D.C. 108-01-2-879-0202 of photographic collection.
16. Parks Canada, "The Citadel or Fort George - ground plan," 1908 See H.D.C. 108-01-1-908-0002.
17. Brenda Dunn, op. cit., p. 129.
18. Parks Canada, "The Citadel or Fort George - block plan," 1907 Signed by C. Ward, RE. See H.D.C. 108-01-1-907-0001.
19. J.J. Greenough, op. cit., Vol. 2, Part 2, p. 140.
20. Ibid., Vol. 2, Part 2, passim.
21. PAC, MG12, WO55, Vol. 887, Lieutenant-Colonel Richard J. Stotherd CRE to IGF 22 November 1855.
22. Pans, MG12, RE42, p. 8, 9 February 1849.
23. J.J. Greenough, op. cit., Vol. 2, Part 2, pp. 308-309.
24. PANS, MG12, RE26, #633, Lieutenant-Colonel Edward Matson, IGF to Calder, 18 August 1843.
25. Parks Canada, ca. 1890, "Citadel Guard Room - heating system:" See H.D.C. 108-01-1-890-0006.
26. Cameron W. Pulsifer, "Cannons and Convicts: Casemates 51 and 52, Halifax Citadel, Casemates of Defence and Garrison Cells, passim., Manuscript on file, H.D.C.
27. Redan, Halifax Citadel, tracing from Lieutenant-Colonel Rice Jones' plan dated 2 January 1836. See H.D.C. 108-01-1-844-0004.

28. PAC, MG12, WO55, Vol. 880, p. 1018, "General plan showing the relative positions of the services brought forward in supplementary estimate," signed by Lieutenant-Colonel P.D. Calder, 3 March 1846. See H.D.C. 108-01-1-844-0004.
29. Parks Canada, Citadel guard room, op. cit.
30. Due to the fact that the term furnace is used and the obvious difference between this undated map and that of Lieutenant Colonel A. Hill dated 1891, it is felt by the author that the date of 1890 for this map is too early and ca. 1910 would be more accurate.
31. PAC, The Citadel or Fort George - Ground Plan, 19 October 1891.
32. Royal Engineer Corps Library, Chatham, "WO Pattern Book, No. 2,: Drawings and Specifications of Pattern Articles to be adopted in War Department Works and Buildings 1892-1901" plan 202.
33. Parks Canada, The Citadel - ground plan 1908, op. cit.
34. PANS, MG12, RE56, "Report and Estimate of works to be carried on at the Citadel Halifax, Nova Scotia. For the year 1846-7." by Lieutenant-Col. P.D. Calder.
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36. PANS, Ground Plan of Fort George or Citadel, 1847 signed by Lieutenant-Colonel P.D. Calder, 10 March 1848.
37. PAC, The Citadel 19 October 1891, op. cit.
38. Richard Young, op. cit., p. 169.
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42. Phyllis Blakeley, Glimpses of Halifax, (Belleville: Mika Publishing, 1973), pp. 113-115.
43. Cameron W. Pulsifer, "The Southwest Front...." op. cit., pp. 51-52.
44. Richard Young, op. cit., pp. 54-55.
45. PAC, MG12, WO55, Vol. 880, Fol. 961, "Plan, Elevation and Section of Retaining Wall to be built, casemate of defence...," Lieutenant-Colonel P.D. Calder, 31 March 1846.

46. PAC, "The Citadel... 1891", op. cit.
47. PAC, MG12, WO55, Vol. 880, Fol. 994, "Supplementary Report and Estimate of Works for completing the Citadel at Halifax, Nova Scotia," Lieutenant-Colonel P.D. Calder, 31 March 1846.
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49. PAC, "The Citadel...1891," op. cit.
50. Cameron W. Pulsifer, "The Southwest Front....," op. cit., p.22.
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53. Ibid., p. 243.
54. PANS, MG12, RE48, p. 107, John Baselyette, Adjutant, General Office (Halifax) to Lieutenant-Colonel Henry J. Savage CRE, 19 October 1849.
55. PANS, MG12, RE56, "Estimate of the Allocations and of the Citadel at Halifax" by Lieutenant-Colonel P.D. Calder, 22 May 1843.
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57. PAC, "The Citadel or Fort George - Ground Plan," 19 October 1891.
58. Parks Canada, "The Citadel, ground plan 1908, op. cit.
59. Nova Scotia Museum, P 170.45A.
60. PAC, MG12, WO44, Vol. 227, "Estimates for the completion of Fort George, Halifax, N.S." by Captain L. Peake, Halifax, 12 June 1833.
61. PANS, MG12, RE56, "Abstract of Estimates for the completion of the Halifax Citadel," Lieutenant-Colonel Rice Jones, 1 February 1838.
62. Ibid.
63. Cameron W. Pulsifer, "The Southwest Front....", op. cit., p. 64.
64. PAC, RG8, I, C, Vol. 1653A, "Report and Estimate of Works and Repairs proposed to be carried on in the Royal Engineer Department in Nova Scotia, New Brunswick, etc. in the year, 1859-60." by Lieutenant-Colonel R.J. Stotherd, 15 October 1853, p. 130.
65. Ibid., p. 136. Also see Pulsifer. "The Southwest Front..., op. cit., p. 65.
66. A.J.B. Johnston, passim.
67. Cameron W. Pulsifer "The Southwest Front....", pp. 83-84.
68. PANS, MG12, RE25, #387, n.p., G. Nicolls to Major-General Sir Mulcaster, 2 December 1835.

69. PANS, MG12, RE54, n.p., Nicolls to I.G.F., 1 March 1836.
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71. PAC, RG8, I, C, Vol. 1653, p. 114, "Report and Estimates of Works and Repairs proposed to be carried on in the Royal Engineer Department in Nova Scotia, New Brunswick and their Dependencies for 1845." by Lieutenant-Colonel Calder, 15 November 1844.
72. PAC, RG8, I, C, Vol. 1431, p. 310gg, M. Nugent A.M. General to Senior Naval Officer, Halifax, 10 October 1865.
73. PAC, RG8, I, C, Vol. 1375, p. 82, G.O.C. Colonel J. Goldie (Halifax) to IGF, 8 July 1889.
74. Cameron W. Pulsifer, "The Southwest Front...," op. cit., p. 84.
75. Brenda Dunn, op. cit., pp. 98-107.
76. Parks Canada, "The Citadel - ground plan 1908," op. cit.
77. Brenda Dunn, op. cit., pp. 98-107.
78. Ibid., pp. 100-101.
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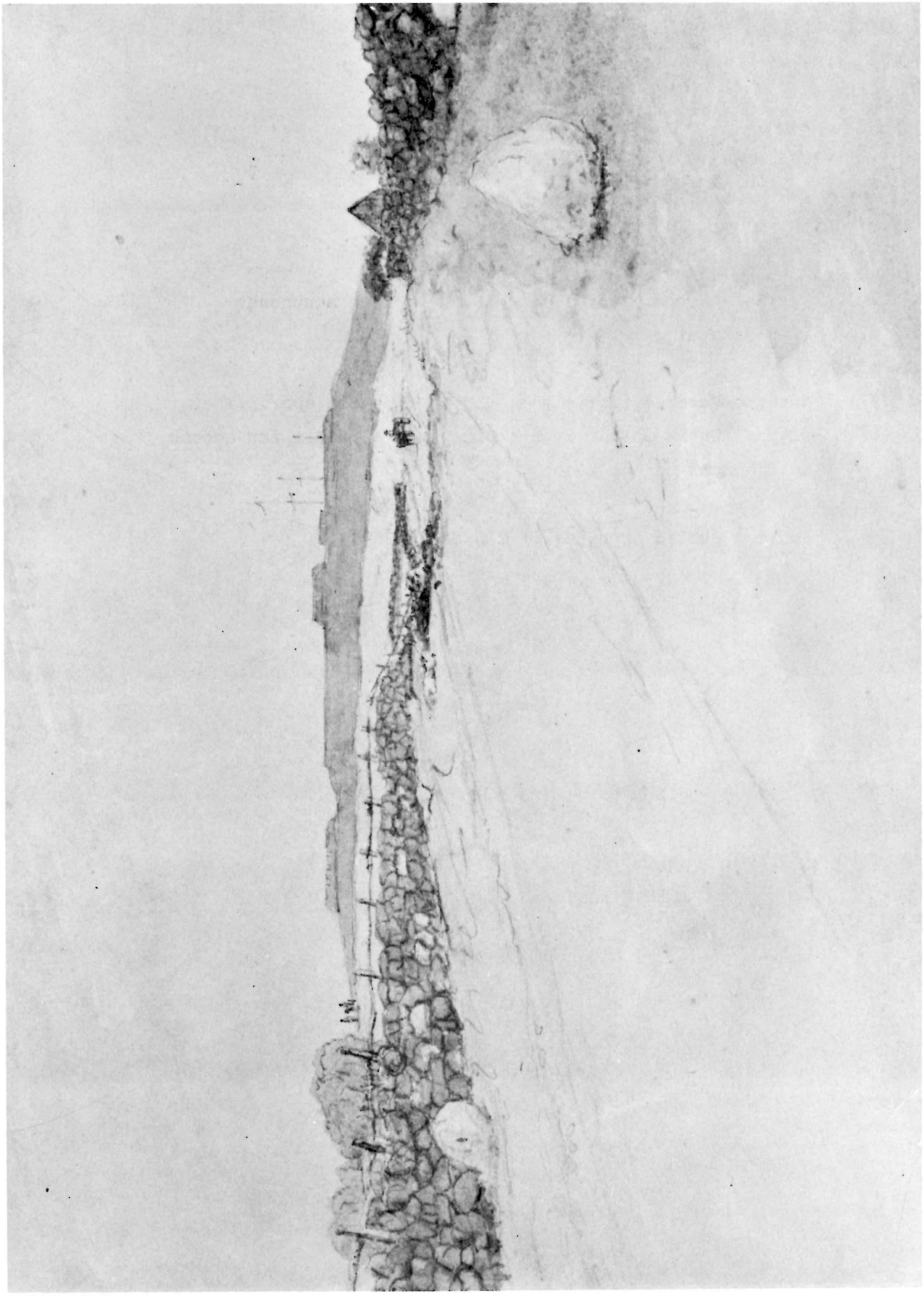
1 Halifax Citadel from the Road to the Northwest Arm, July 18, 1842 by Alexander Cavalié Mercer, water colour and pencil.

Such drawings only provide a rough idea of where the staves were.

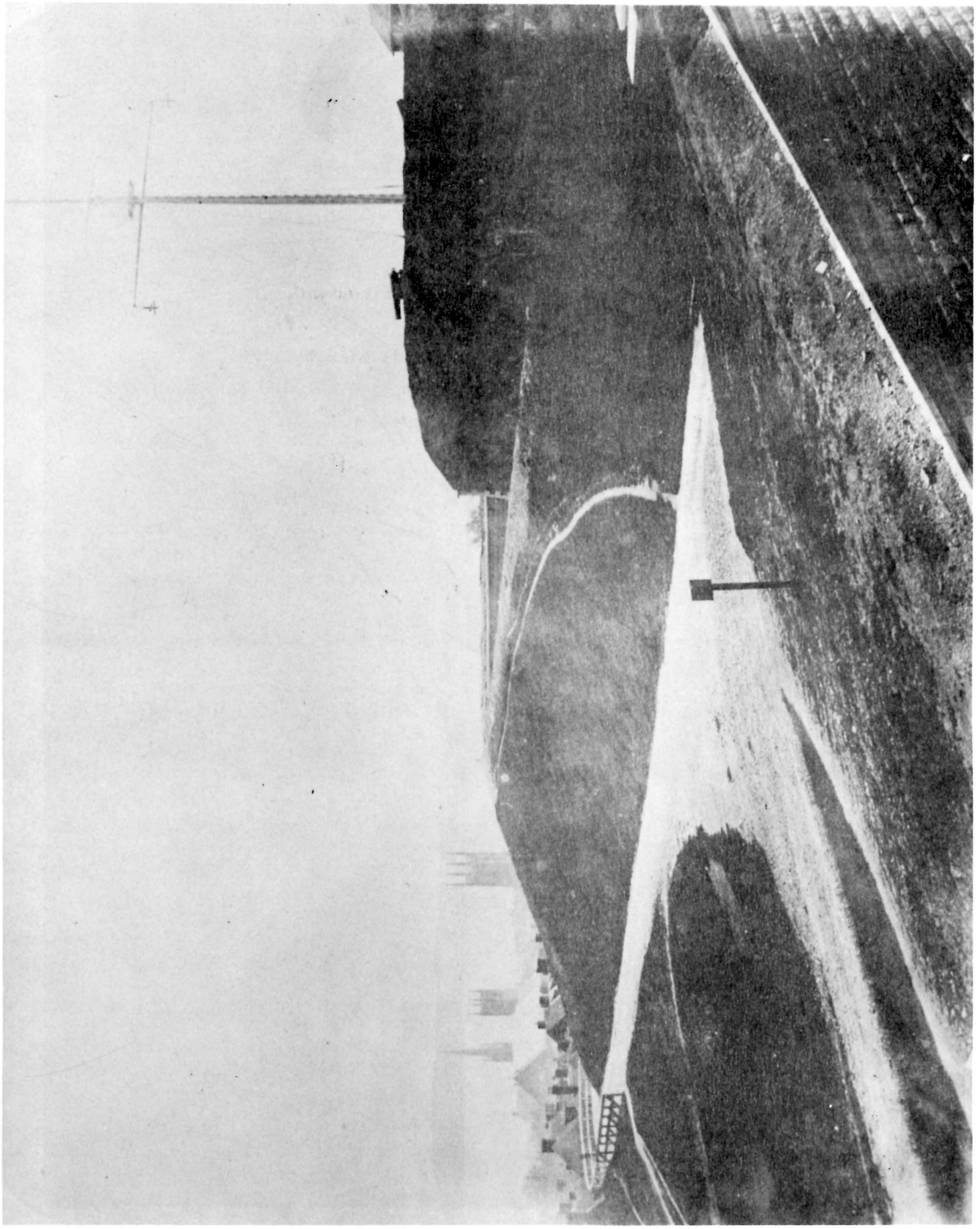
Source: Public Archives of Canada (C-13727)



2 Views from the Citadel, ca. 1860, looking southeast from Citadel gate.

Note the crosses for signalling on the main spar. The signal hut is in the right corner and a ladder for access to the roof can be seen.

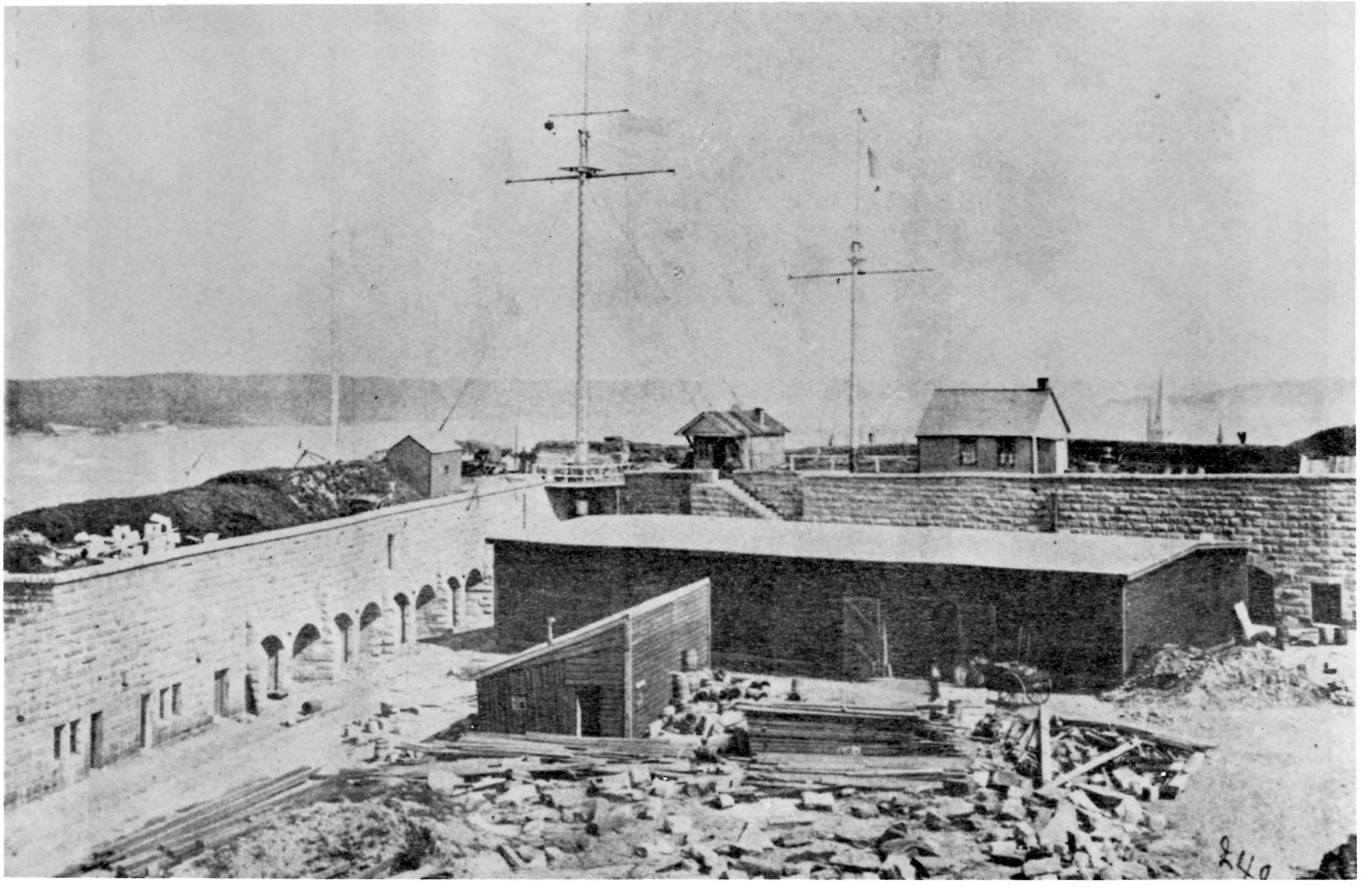
Source: Public Archives of Canada (C-25753)



3 Coal shed and work shed (?) in southeast salient.

Note the steps to the left of the signal mast.

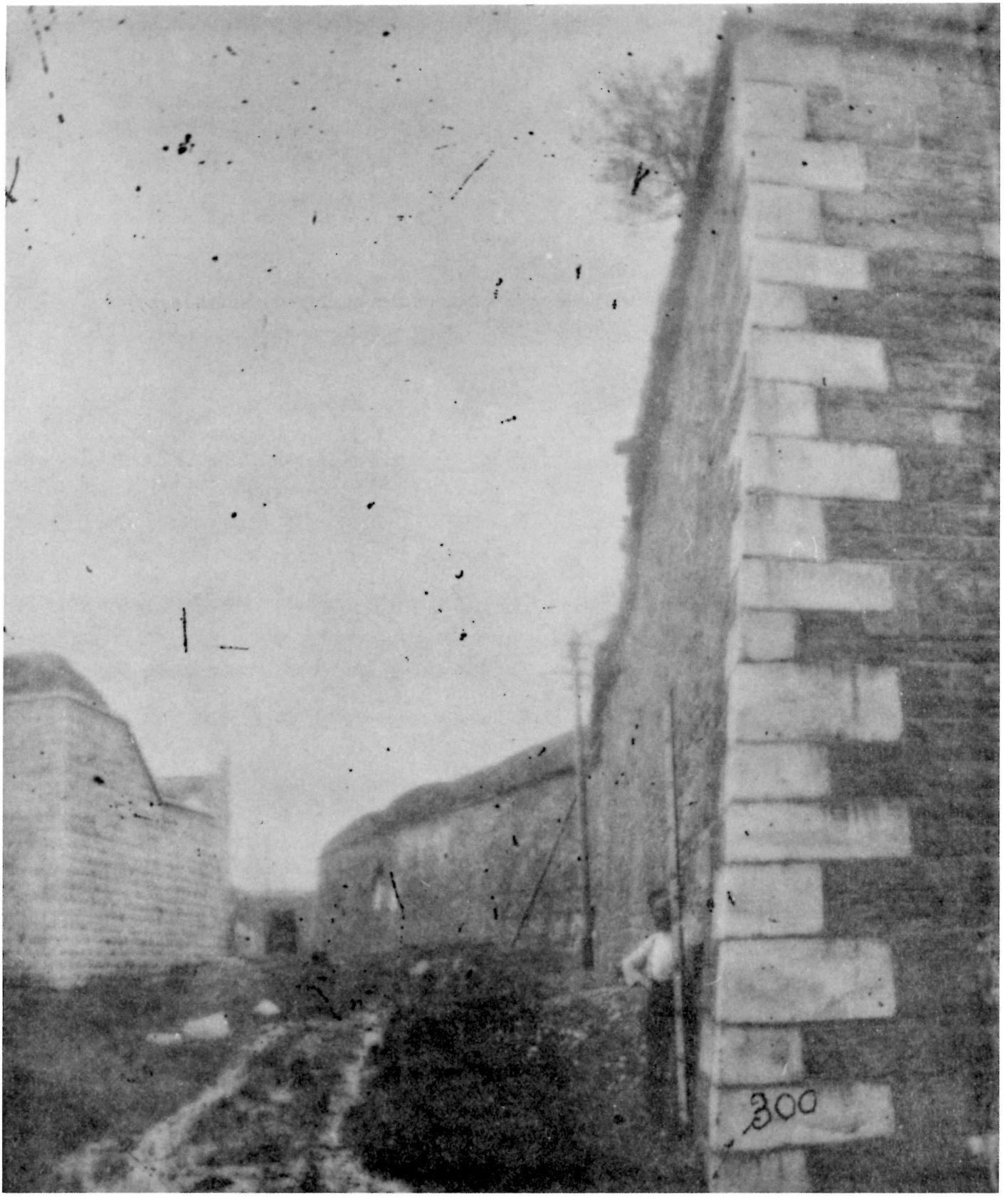
Source: Public Record Office (WO 78/2944)


240

4 South ditch and South Ravelin ca. 1880.

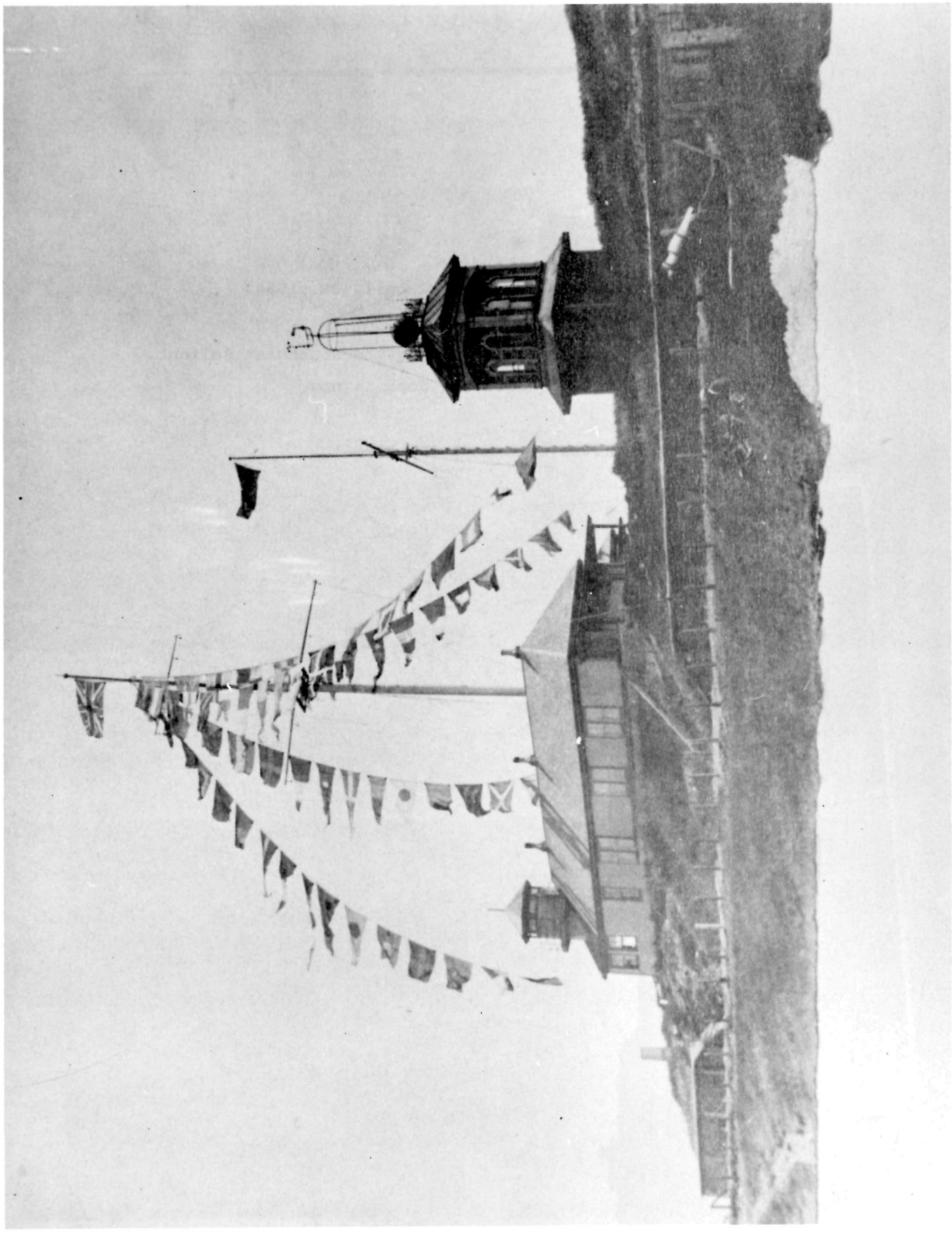
Note the bulge in the right face of the southeast salient. A telegraph pole can be seen near sallyport 2.

Source: Parks Canada


300

5 Signal mast, signal station and time ball building, southeast salient ca. 1920.

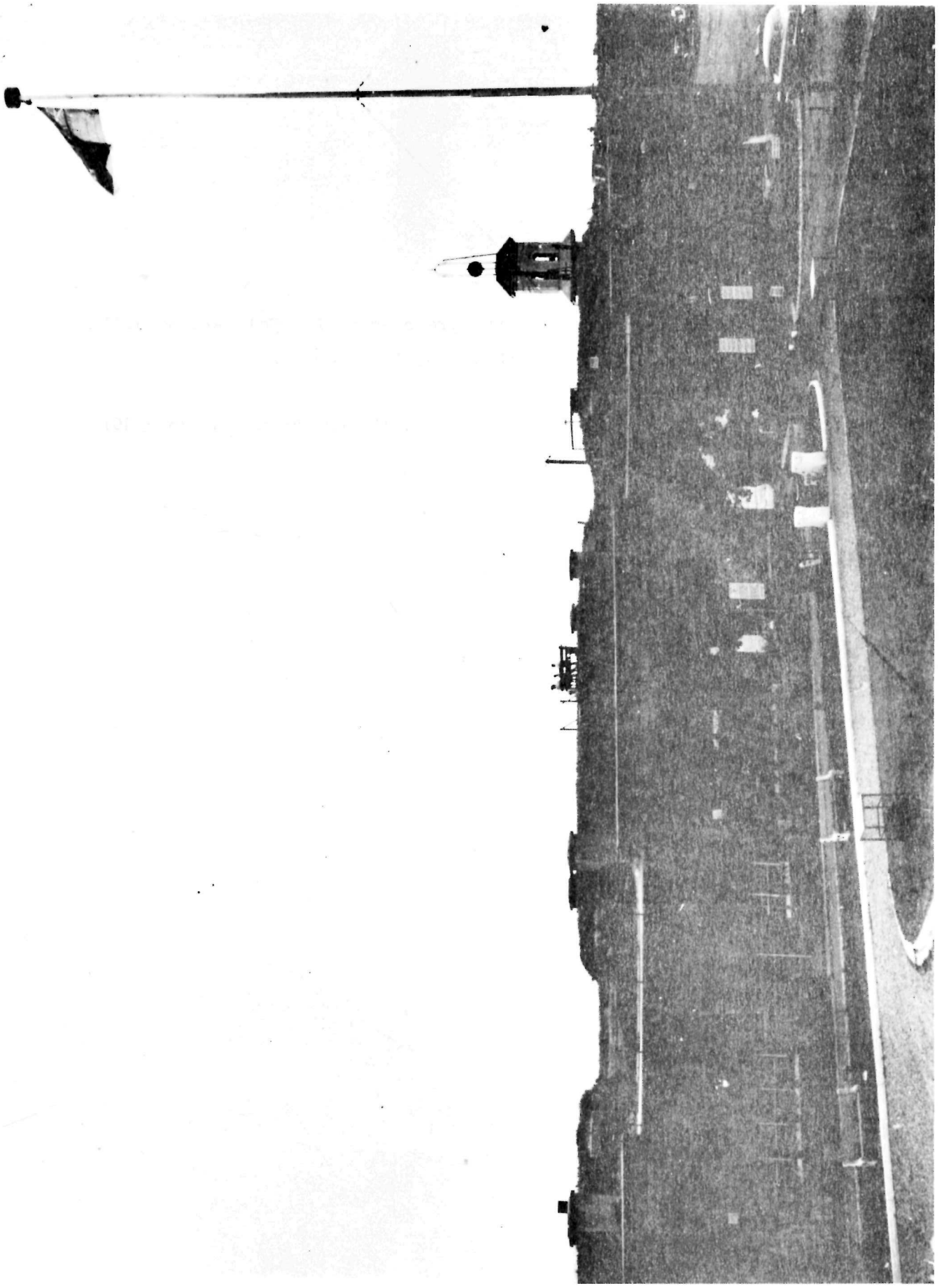
Source: Parks Canada



6 Courtyard and part of Redan and time ball, ca. 1954.

Note that only the timeball is left on the southeast salient. There is a window in C49 where the door is now.

Source: Public Archives of Canada (PA-31936)



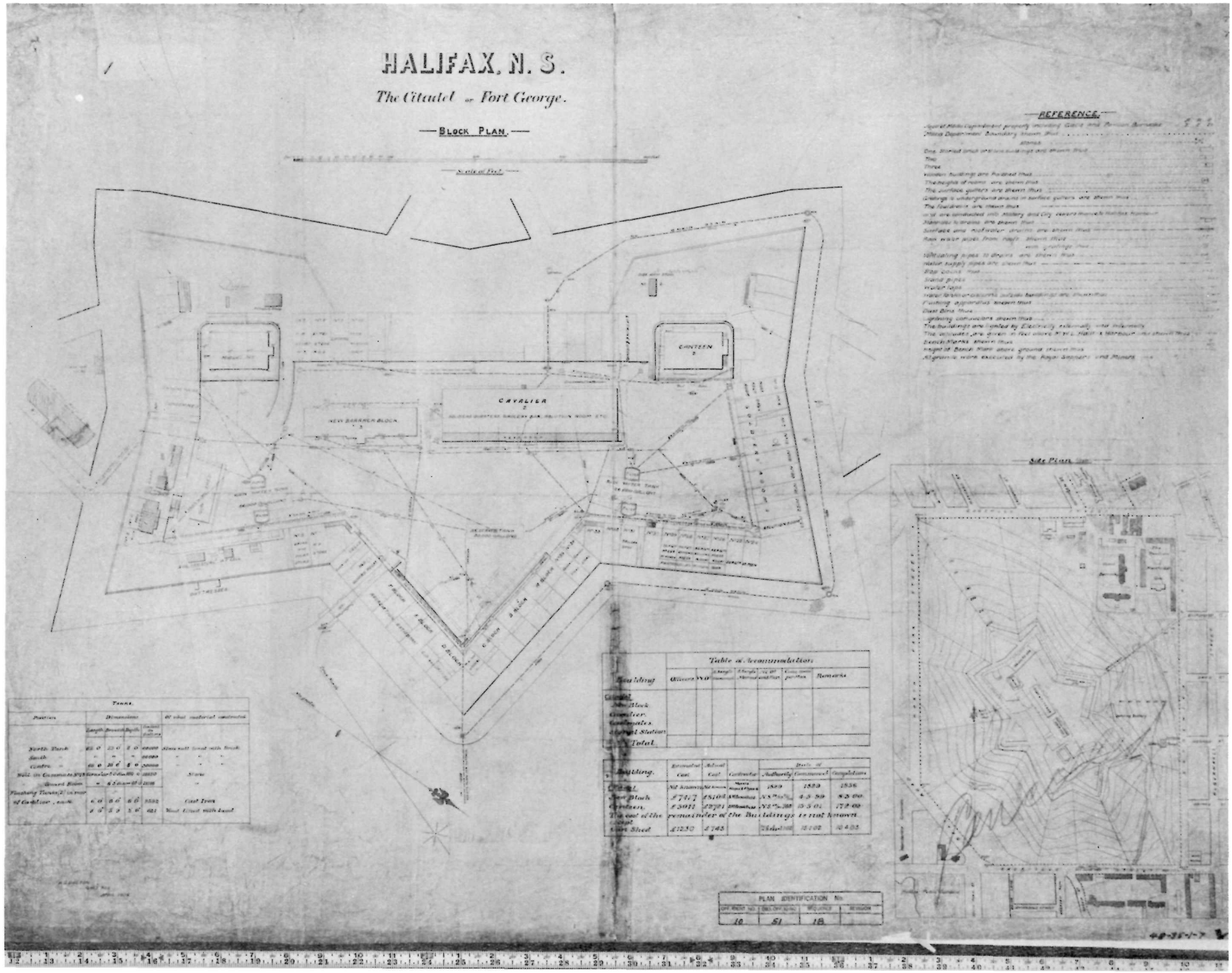
7 The Citadel Block Plan 1891 prepared by Lt. Col. Arthur Hill and revised by H.G. Dalton, OMS, April 1908.

Source: Public Archives of Canada (RG84M, Accession 756-846)

HALIFAX, N. S.

The Citadel or Fort George.

— BLOCK PLAN. —



REFERENCE.

Table of Accommodation.

Building	Officers	NCO	Sleeping Rooms	Cubic Air Space per Man	Remarks
Citadel					
Men's Block					
Cavalier					
Casemates					
Signal Station					
Total					

Building.	Estimated Cost.	Actual Cost	Contractor	Dates of Authority	Dates of Commencement	Dates of Completion
Citadel	Not known	Not known	Messrs Reed & Plenty	1809	1809	1856
Men's Block	£7417	£8104	Wheaton	25th Feb.	4th Sep.	8th Dec.
Canteen	£3011	£2721	Wheaton	25th Feb.	15th Oct.	17th Dec.
The cost of the remainder of the Buildings is not known.						
Coal Shed	£1250	£745		28th Feb.	10th Dec.	10th Dec.

Position	Dimensions				Of what material constructed
	Length	Breadth	Depth	Cubic Contents	
North Flank	85 0	20 0	8 0	68000	Stone wall lined with Brick
South "	"	"	"	68000	" " "
Centre "	60 0	20 6	8 0	59000	" " "
Well in Casemates	Circular	7 dia.	80	3080	Stone
Guard Room	"	65	80	2080	"
Flanking Traverse, 2 in rear of Cavalier	60	80	80	3840	Cast Iron
	20	33	30	621	Wood Lined with Lead

PLAN IDENTIFICATION No.

CITY PLAN NO.	DRG. OR SCALE	REQUISITE	REVISION
10	51	18	

8 Main Gate, C49 and C50 gun ports. Closeup of Redan 1880. Photo **reversed.**

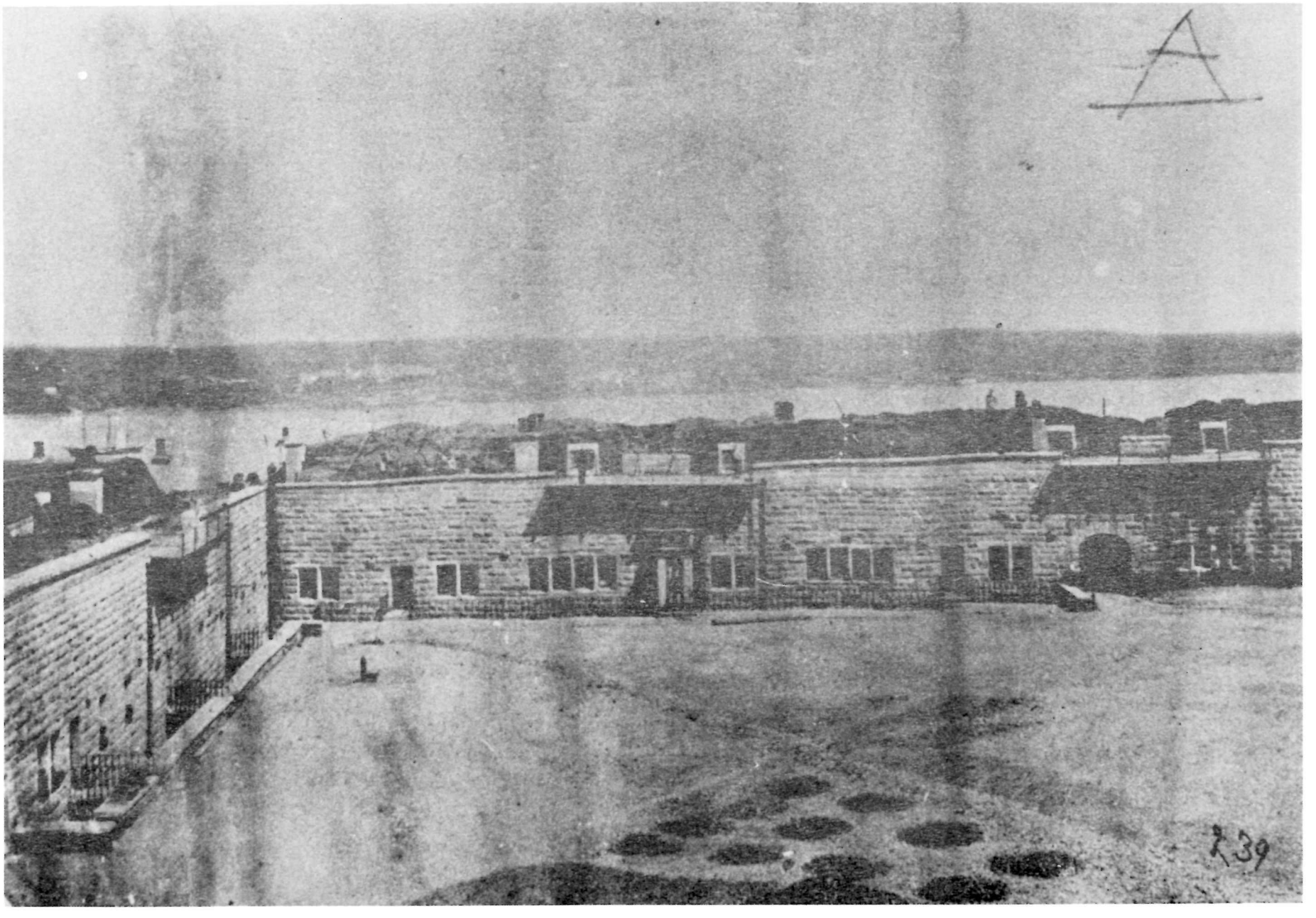
Note the timber in place for wooden upper storey in the Redan ramparts.

Source: Parks Canada

9 Interior of Redan, showing courtyard and casemates 1879.

Note the window in C49 where there is now a door.

Source: Public Record Office WO78/2944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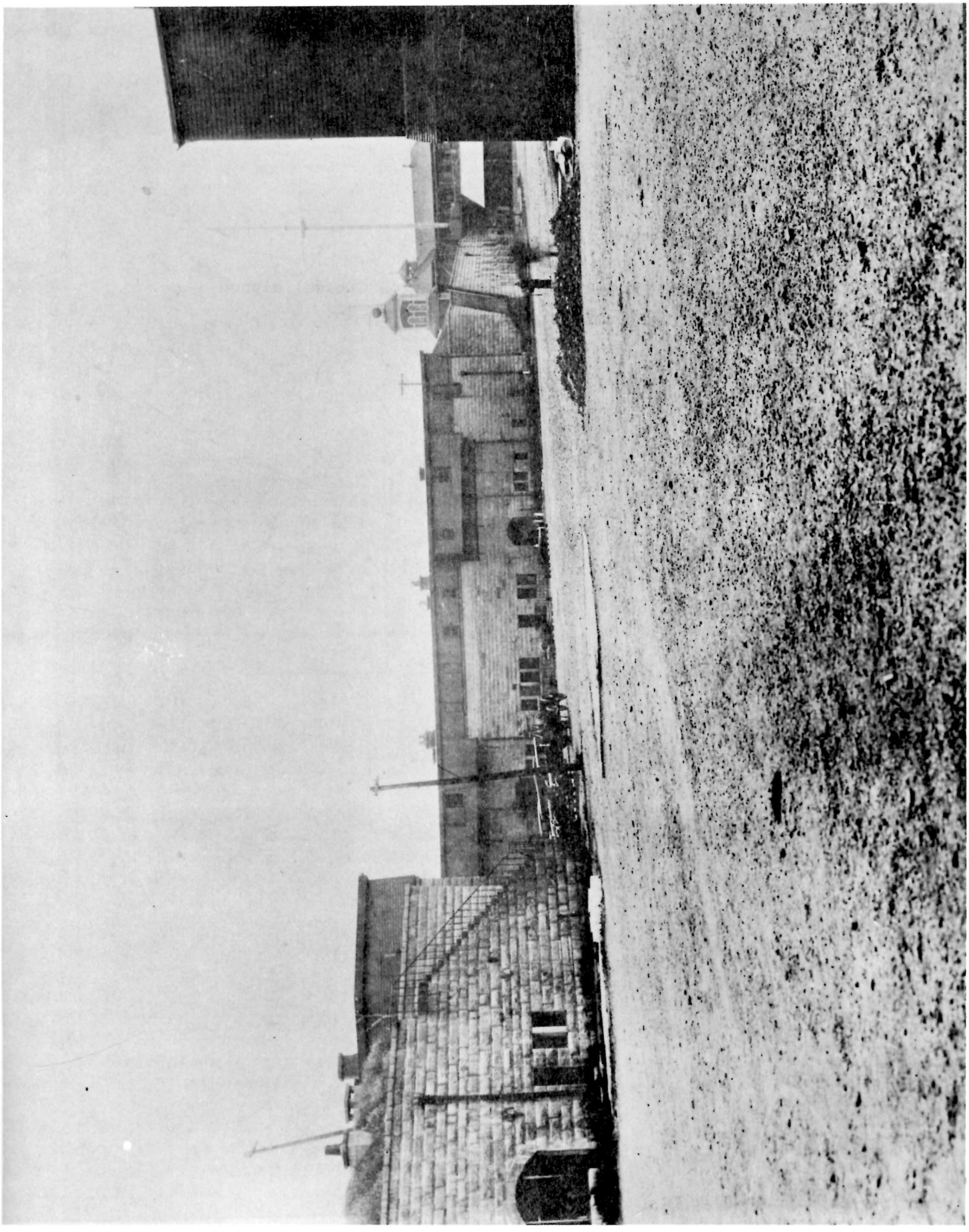
239

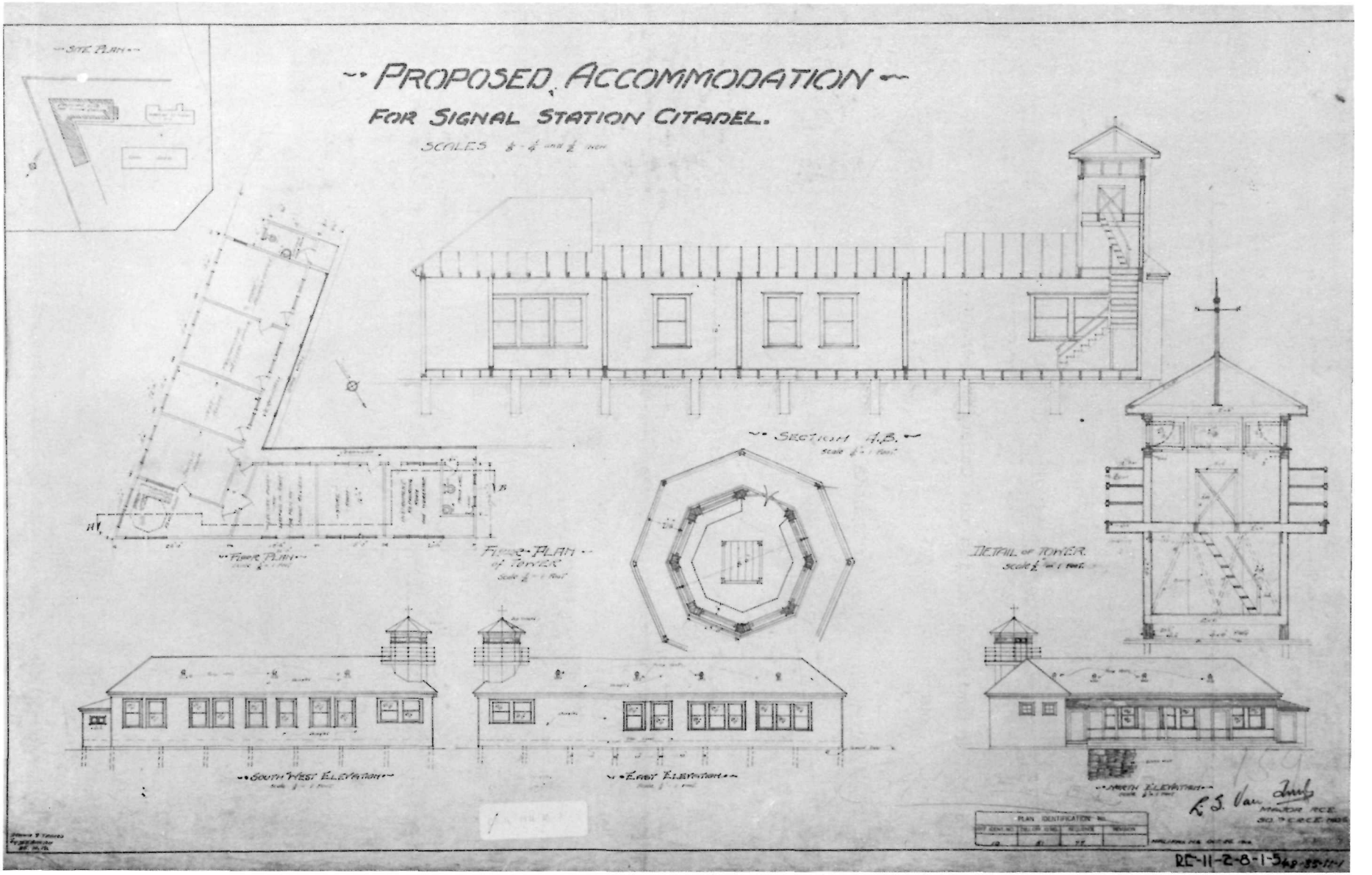
10 Interior of southern part of the Redan including the southeast salient, 4 July 1928.

Source: Nova Scotia Museum (P170 28,123 - neg. #6713, Gauvin and Gentzell)



11 Proposed accommodation for signal station Citadel signed by D.F. Saxton and others, 25/10/1916.

Source: Parks Canada


SITE PLAN
PROPOSED ACCOMMODATION
FOR SIGNAL STATION CITADEL.
SCALES
SECTION A.B.
FLOOR PLAN
FLOOR PLAN of TOWER
DETAIL of TOWER
SOUTH WEST ELEVATION
EAST ELEVATION
NORTH ELEVATION
PLAN IDENTIFICATION No.
RE-11-2-8-1-5

12 Detail of aerial photograph of Citadel from 1500 feet.

Signal station built during the Canadian period ca. 1920 is on the southeast salient.

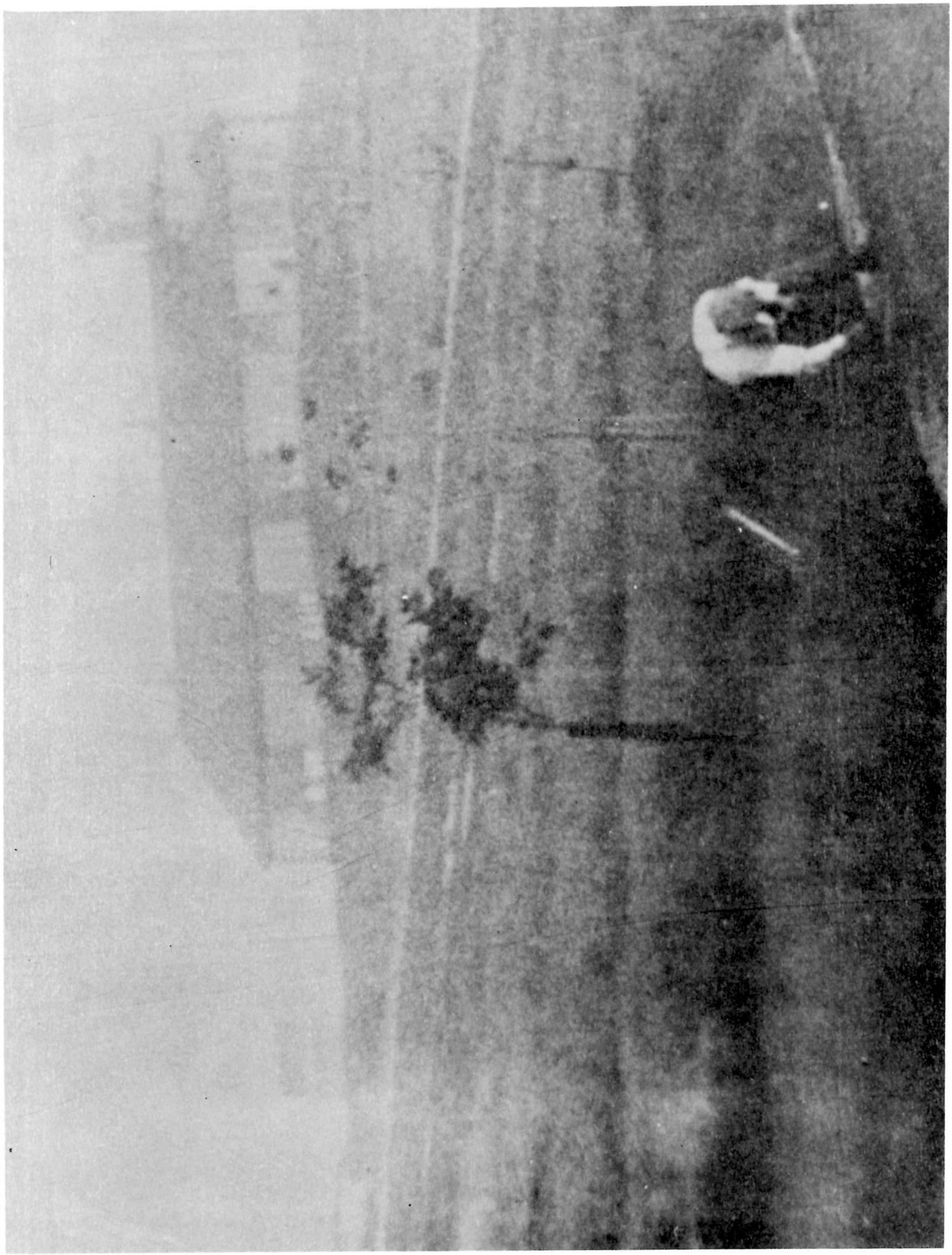
Source: Public Archives of Canada (C-8080)

13 Aerial view of Citadel from 1500 feet, 1923.

Source: Public Archives of Canada (C-8080)

14 Citadel signal station from Brunswick Street, 1933.

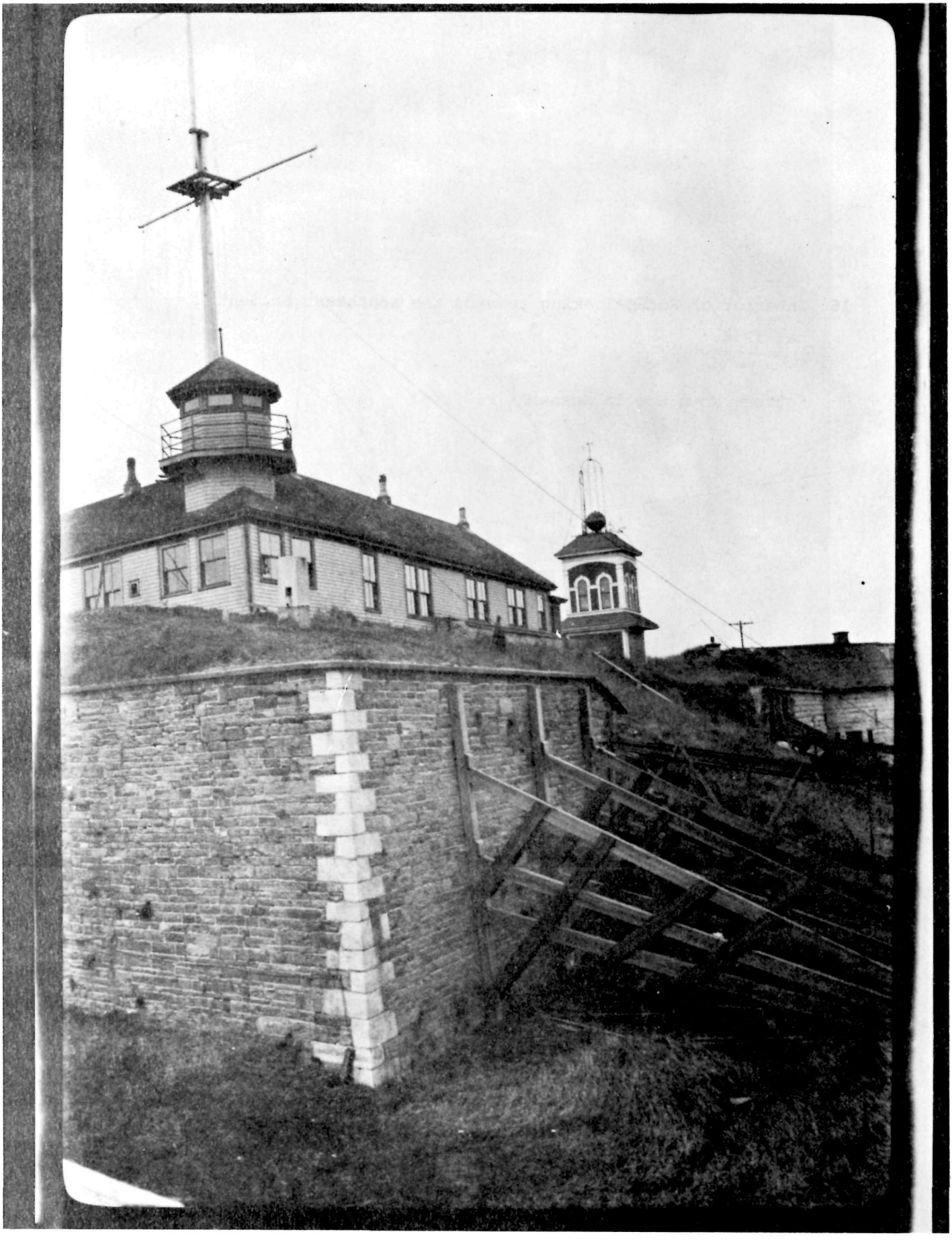
Source: Parks Canada



15 The Citadel walls, the southeast salient, 8 October 1927.

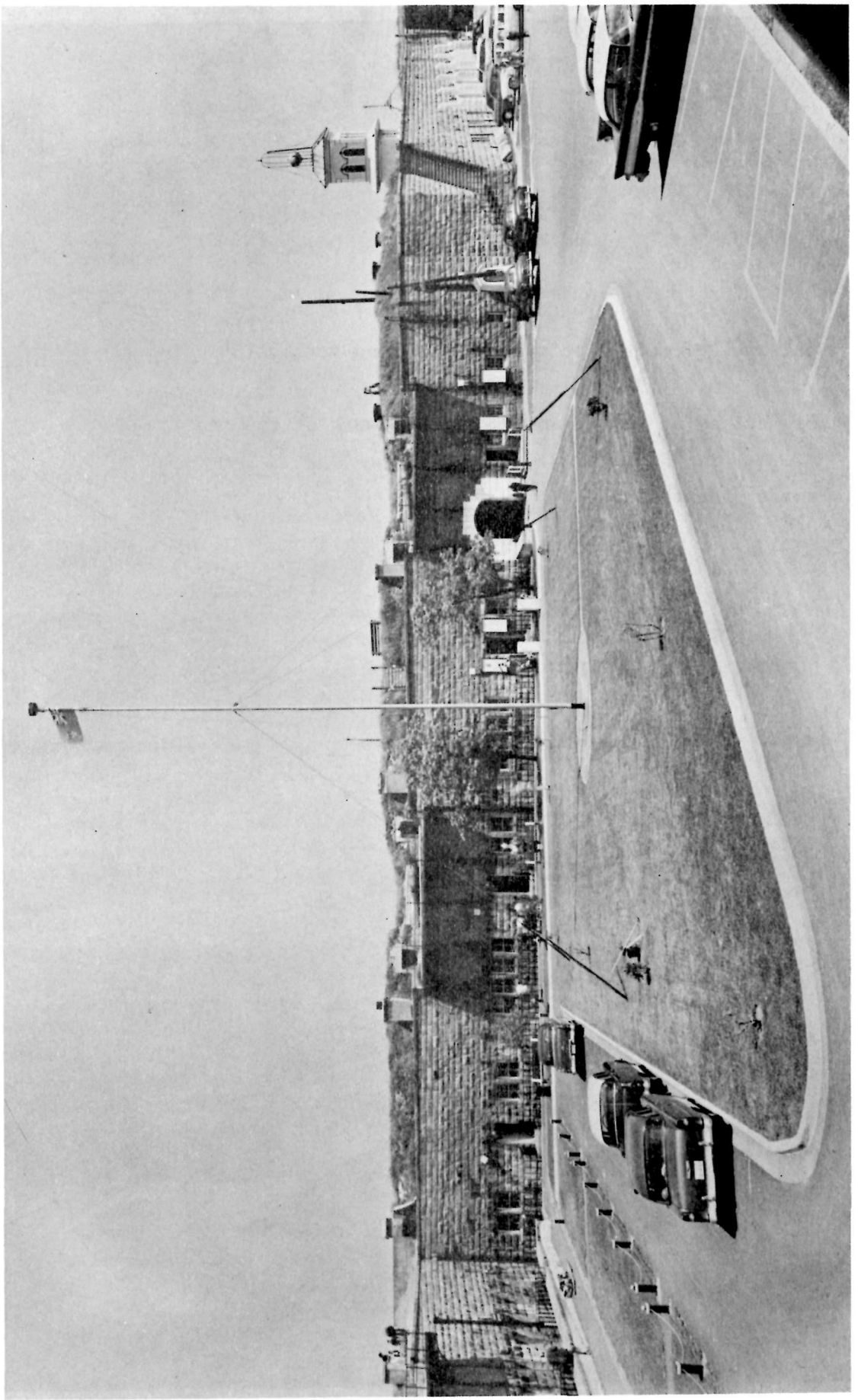
The buttresses to support the left face of the southeast salient can be seen.

Source: Public Archives of Canada (PA-87819)



16 Interior of Redan looking towards the southeast salient ca. 1956.

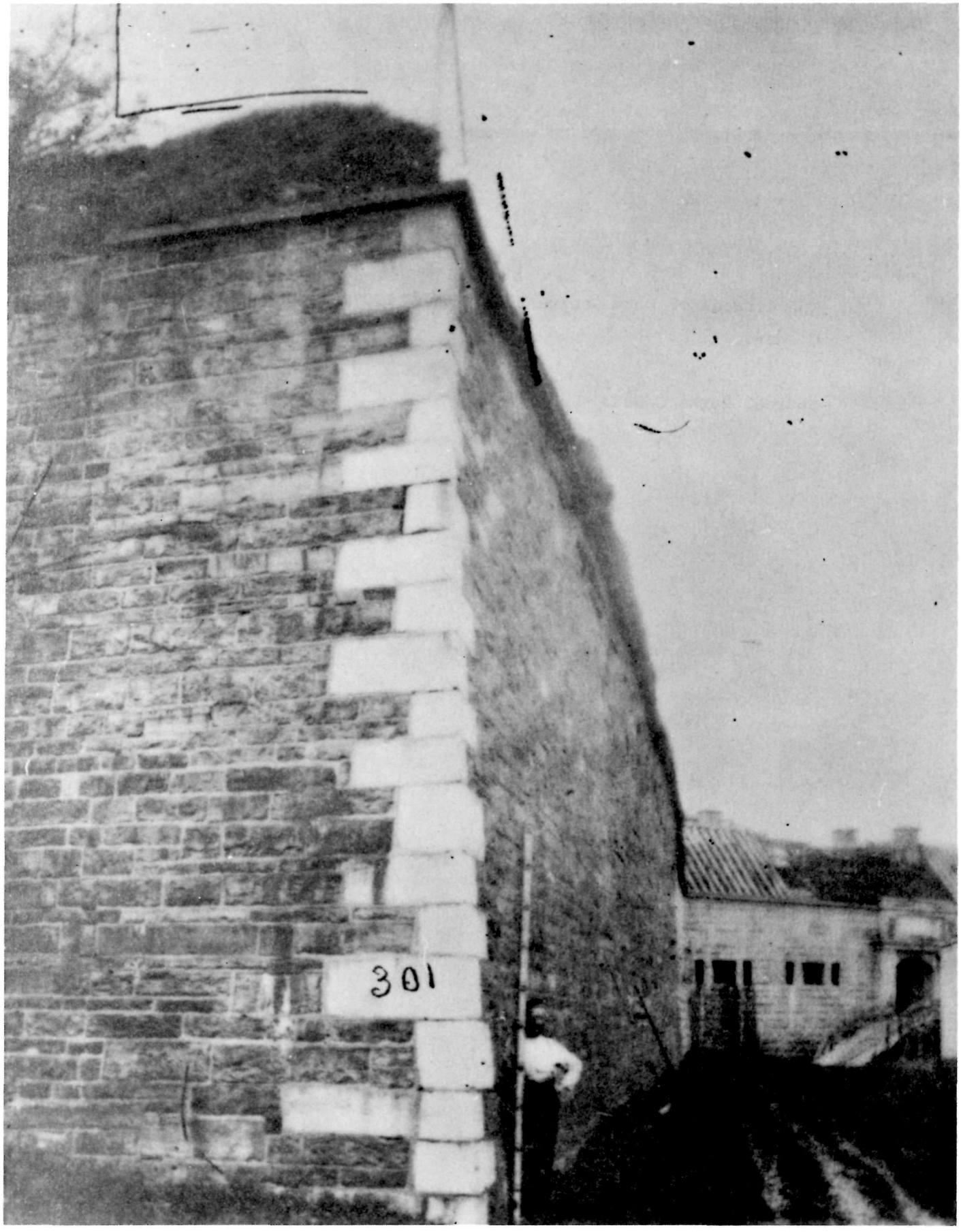
Source: Nova Scotia Museum (P170,45)



17 East face of southeast salient, looking north, 1880.

Note bulges at coping and loose stonework of the face.

Source: Parks Canada


301

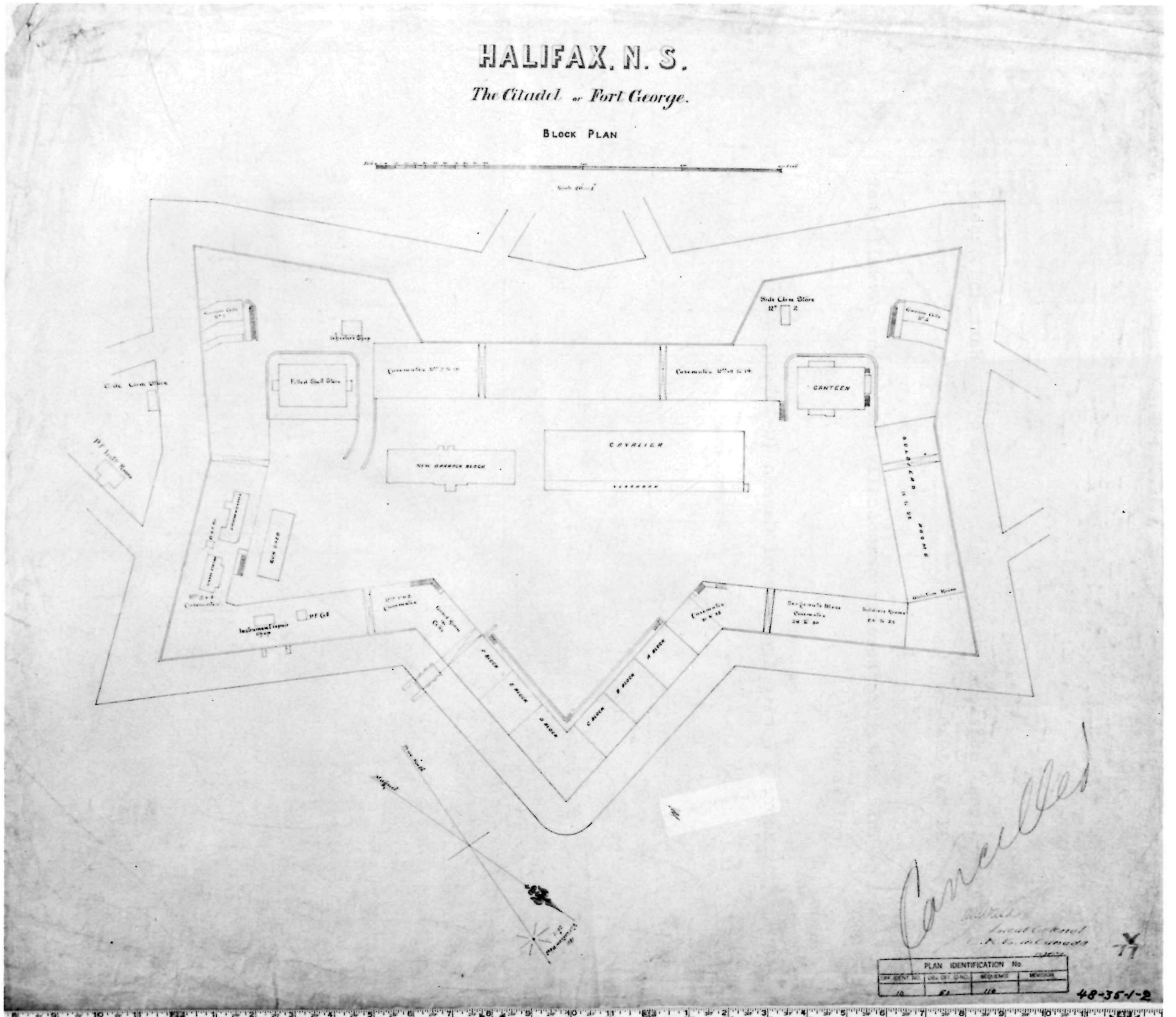
18 The Citadel or Fort George Block Plan, 1907, signed by C. Ward.

Source: Parks Canada

HALIFAX, N. S.

The Citadel or Fort George.

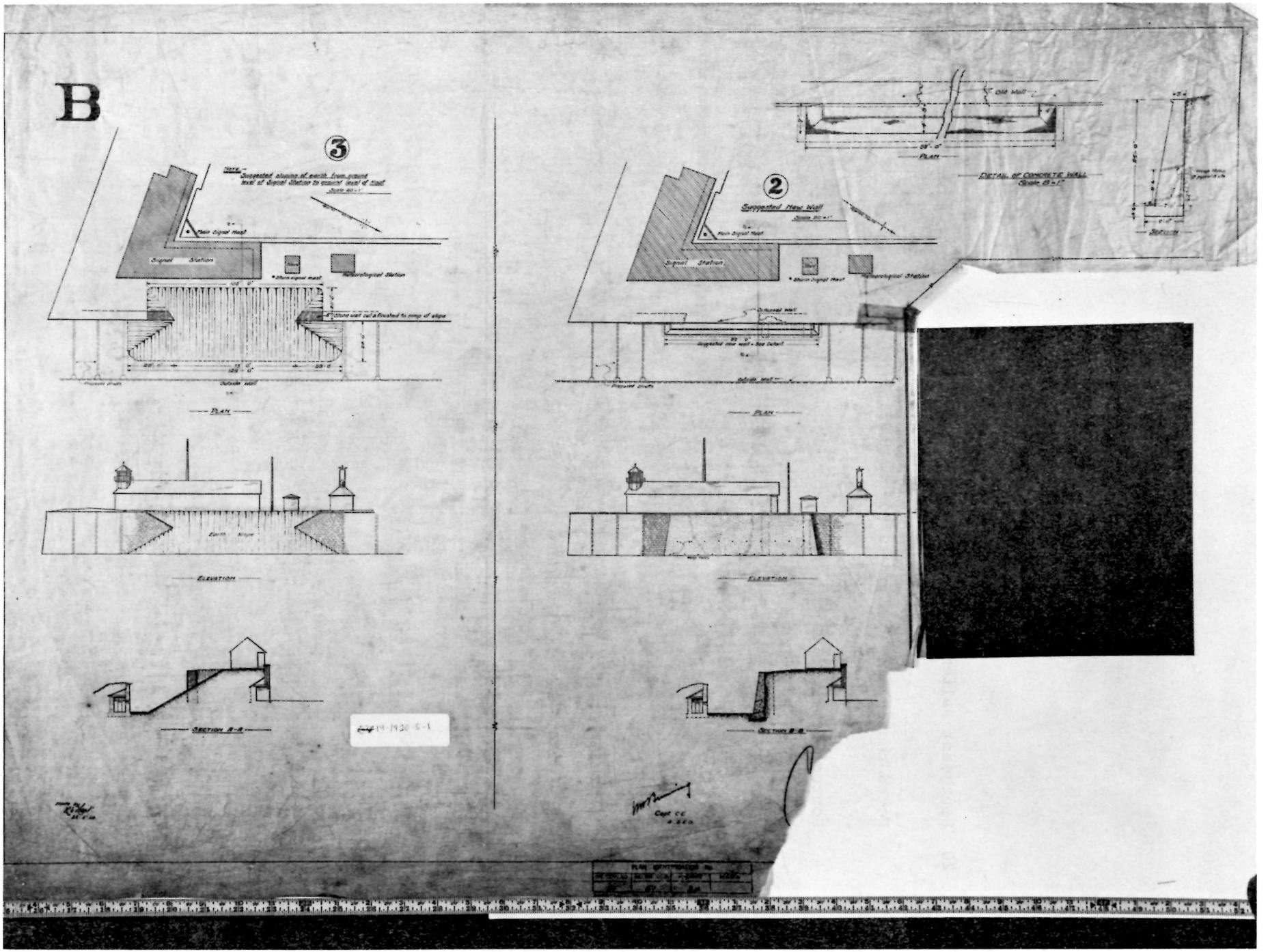
BLOCK PLAN



19 Signal Station, Citadel Hill signed by R. Hart and others, 22 May 1920.

This sketch represents graphically the amount of wall that collasped.

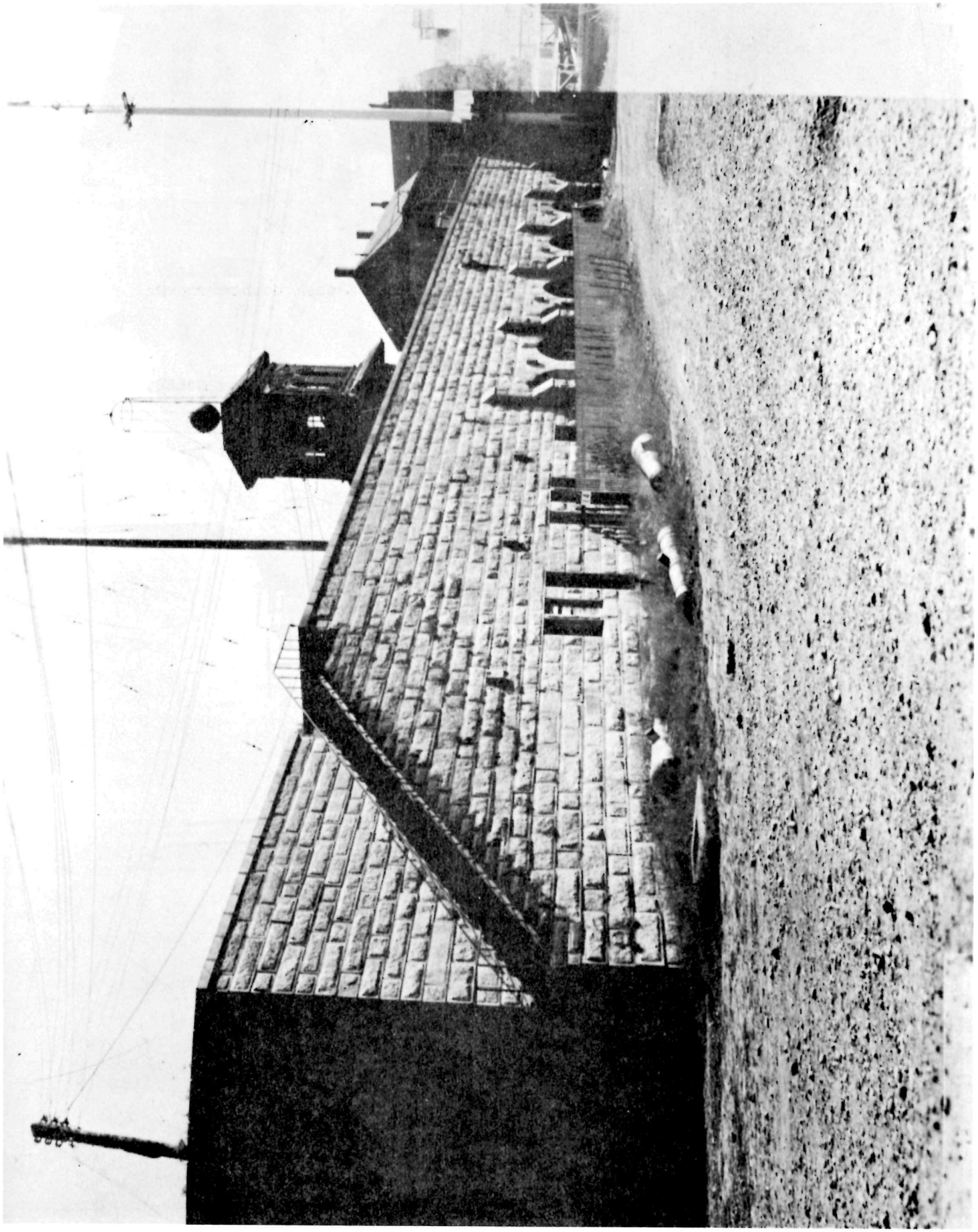
Source: Public Archives of Canada (C-70945)


B
3
Suggested closing of exits from ground level of Signal Station to ground level of Roof
Main Signal Mast
Signal Station
Storm signal mast
Meteorological Station
Stone wall cut & finished to ramp of steps
Outside Wall
PLAN
Earth Slope
ELEVATION
SECTION A-A
2
Suggested New Wall
Main Signal Mast
Signal Station
Storm Signal Mast
Meteorological Station
Outside Wall
PLAN
ELEVATION
SECTION B-B
Old Wall
PLAN
DETAIL OF CONCRETE WALL
Scale 10 = 1'
Station
Capt CE
A.D.C.

20 Southeast salient from parade square, 1950.

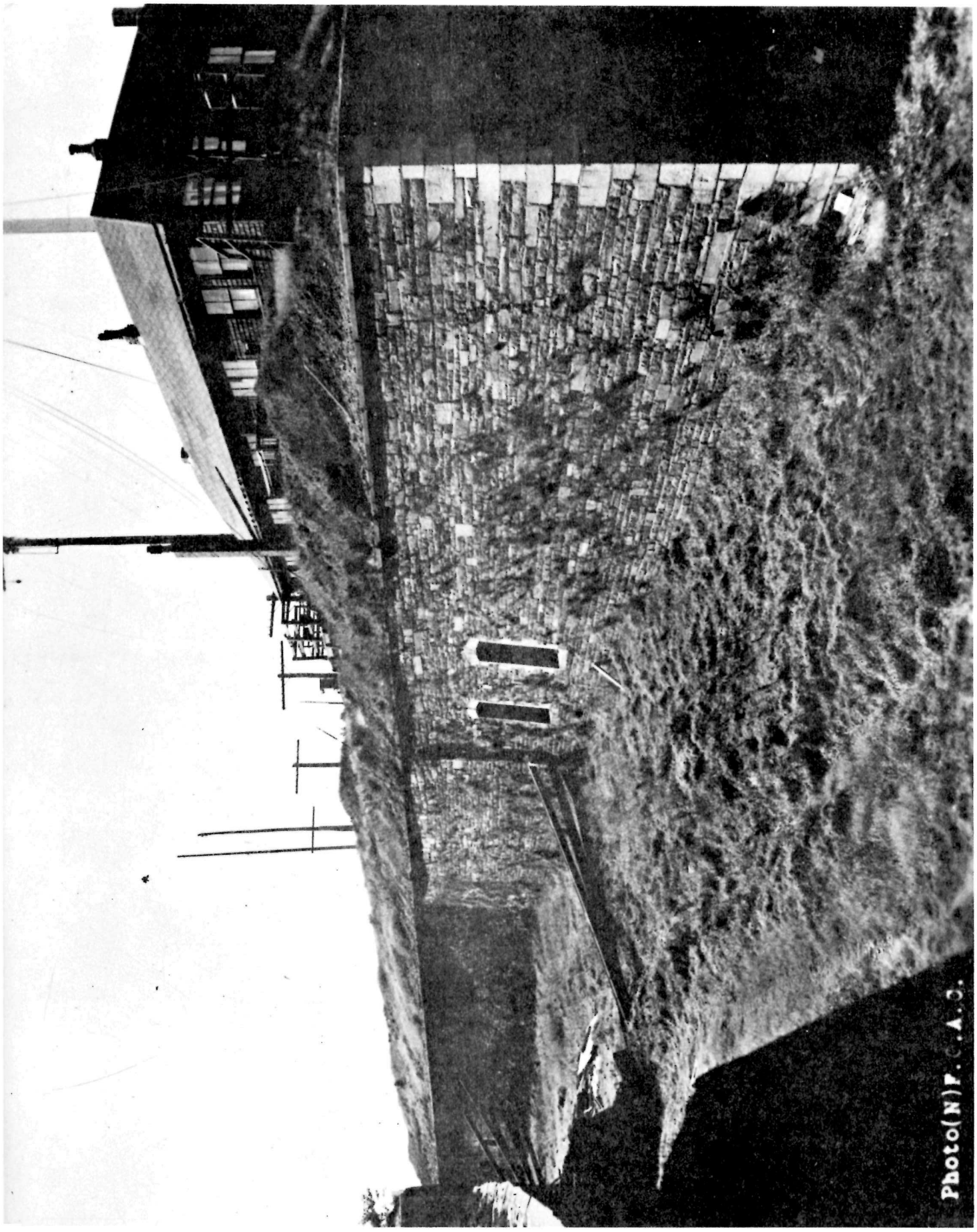
Noted the lack of a doorway to casemate Ø.

Source: Public Archives of Canada (Acc. No. 1970-170, Box #4683, HS12505).



21 Rampart level, looking west from south end of east counterscarp of southeast salient, 1950.

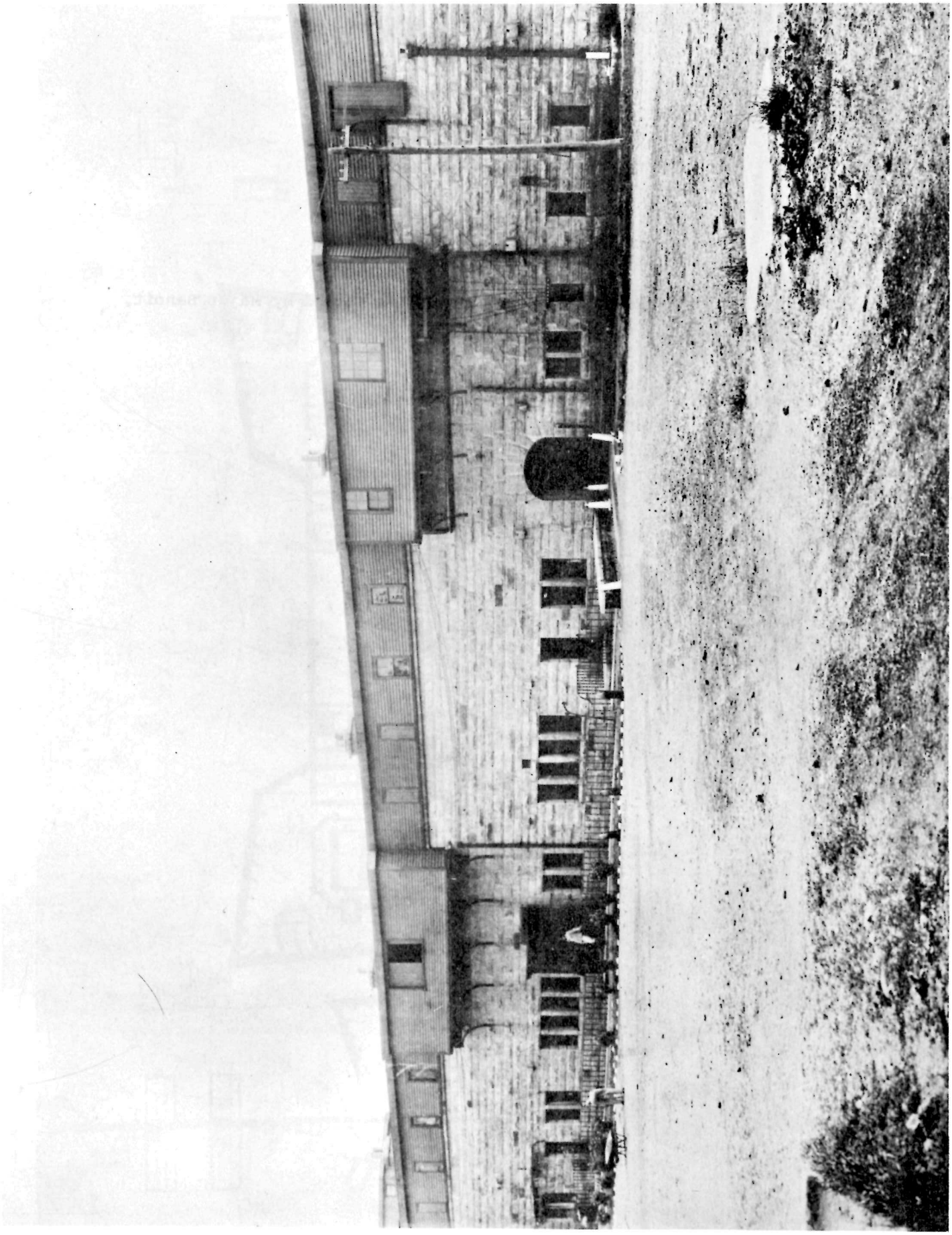
Source: Public Archives of Canada (Acc. No. 1970-170, Box #4683, HS12500).


Photo(N)F.C.A.C.

22 Interior of southern half of the Redan, Halifax Citadel.

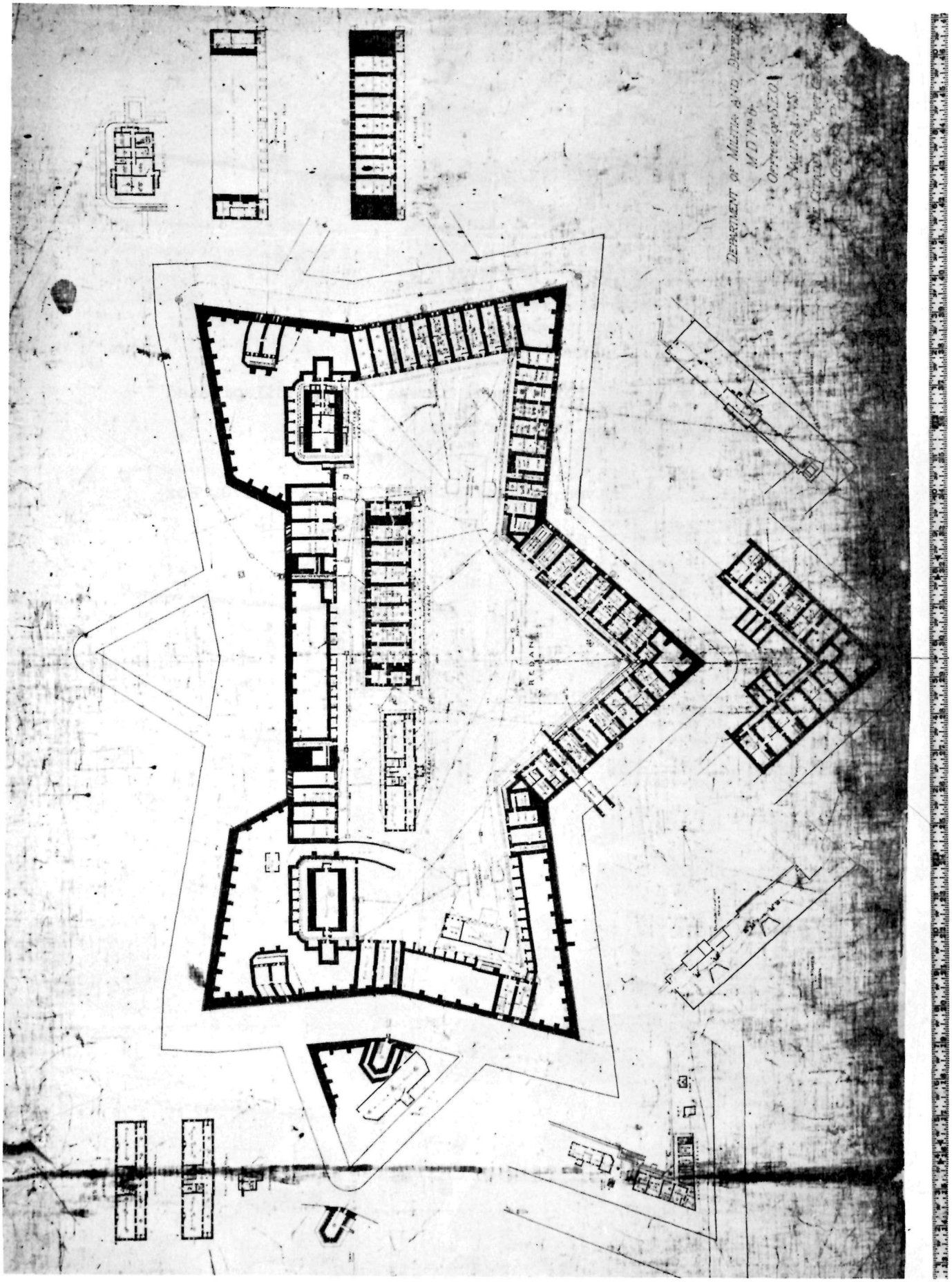
The wood upper storey has been added to the ramparts above C49 and C50.

Source: Nova Scotia Museum (P. 170/28.122 (6296) Gauvin and Gentzell)



23 The Citadel or Fort George, Ground Plan, signed by Major Benoit, January 1922.

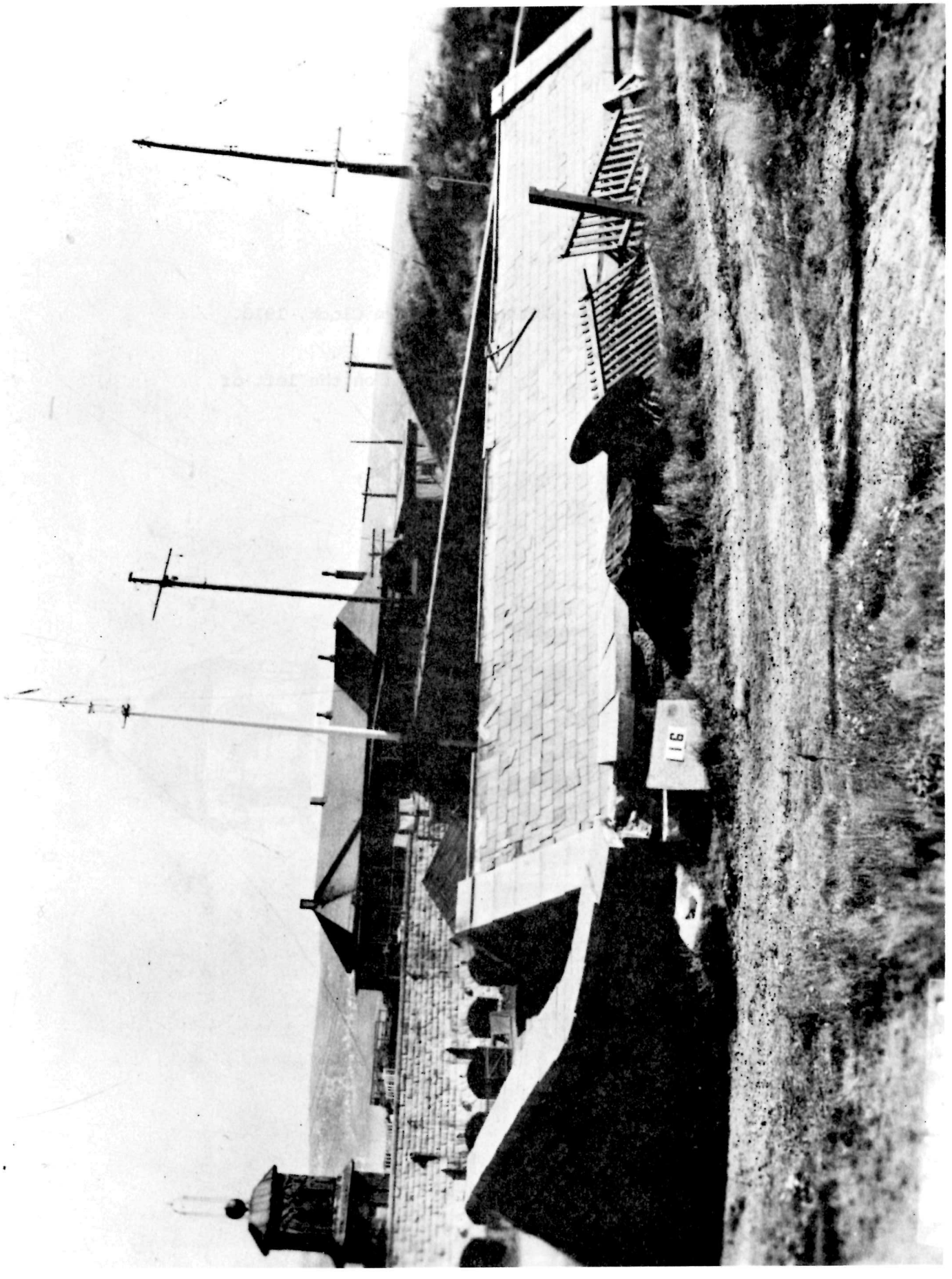
Source: Parks Canada


DEPARTMENT OF MILITIA AND DEFENCE
M.D. No.
Office of Survey
Ottawa, 25th Oct. 1915
Scale of Feet
Compiled from Plan
Militia No. 55

24 Southeast salient and powder magazine, 1950.

Note the signal and storm signal staves and the dilapitated condition of the time ball structure.

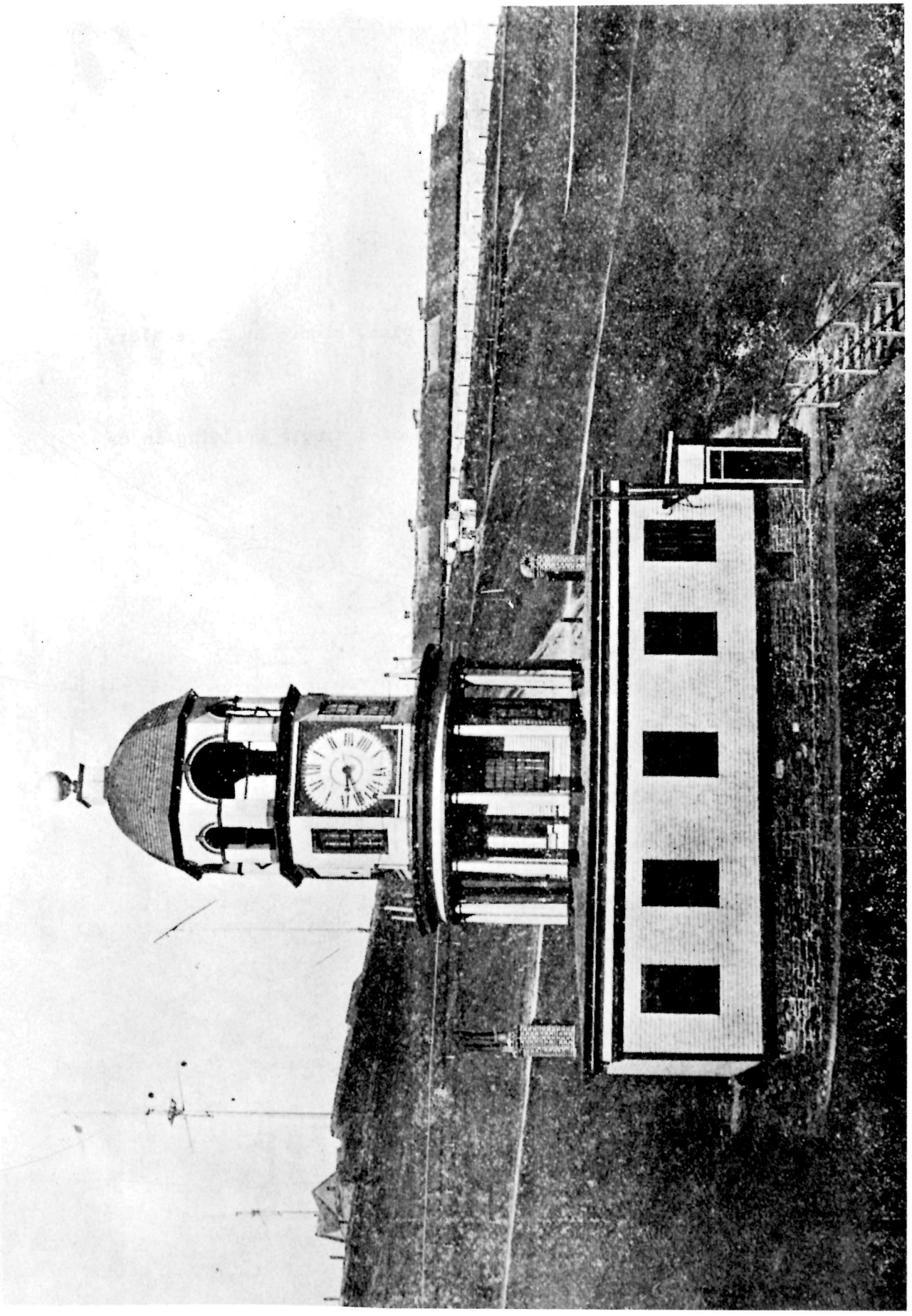
Source: Public Archives of Canada (Acc. No. 1970-170, Box #4683, HS12477)


116

25 Looking northwest from southeast of Town Clock, 1910.

Note the addition to the signal station on the left of the photograph.

Source: Public Archives of Canada (C-5445)



26 Citadel signalling station, record plan, signed by C. Hechler, 23 October 1914.

This plan makes clear the evolution of a single building in ca. 1860 and the additions made to it.

Source: Parks Canada

HALIFAX N.S.

CITADEL

RECORD PLAN

— SIGNALING STATION —

SHEET No.

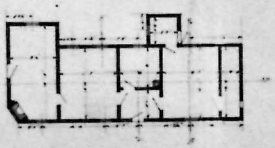
SCALE 8 FT. 1 INCH R.F. ½"

FEET

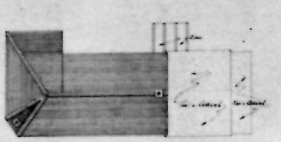
SCALE 4 FT. 1 INCH R.F. ¼"

FEET

FOUNDATION PLAN

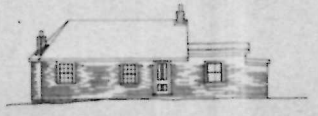


FLOOR PLAN



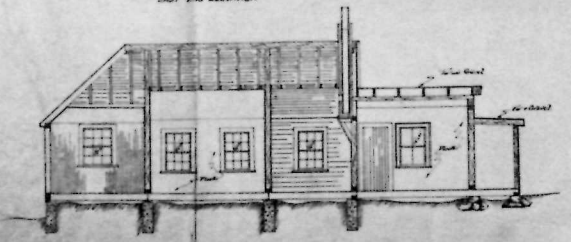
ROOF PLAN

EAST END ELEVATION

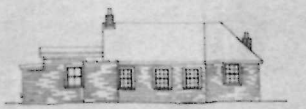


NORTH SIDE ELEVATION

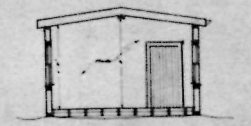
WEST END ELEVATION



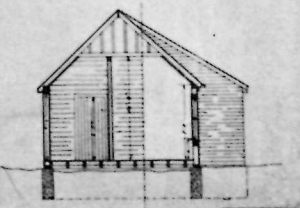
— LONGITUDINAL SECTION A-B —



SOUTH SIDE ELEVATION



— CROSS SECTION C-D —



— CROSS SECTION E-F —

27 View of Citadel from the corner of Sackville and Brunswick Streets.

Note the signal structures to the left of the signal stave and the addition to the one nearest the signal stave,

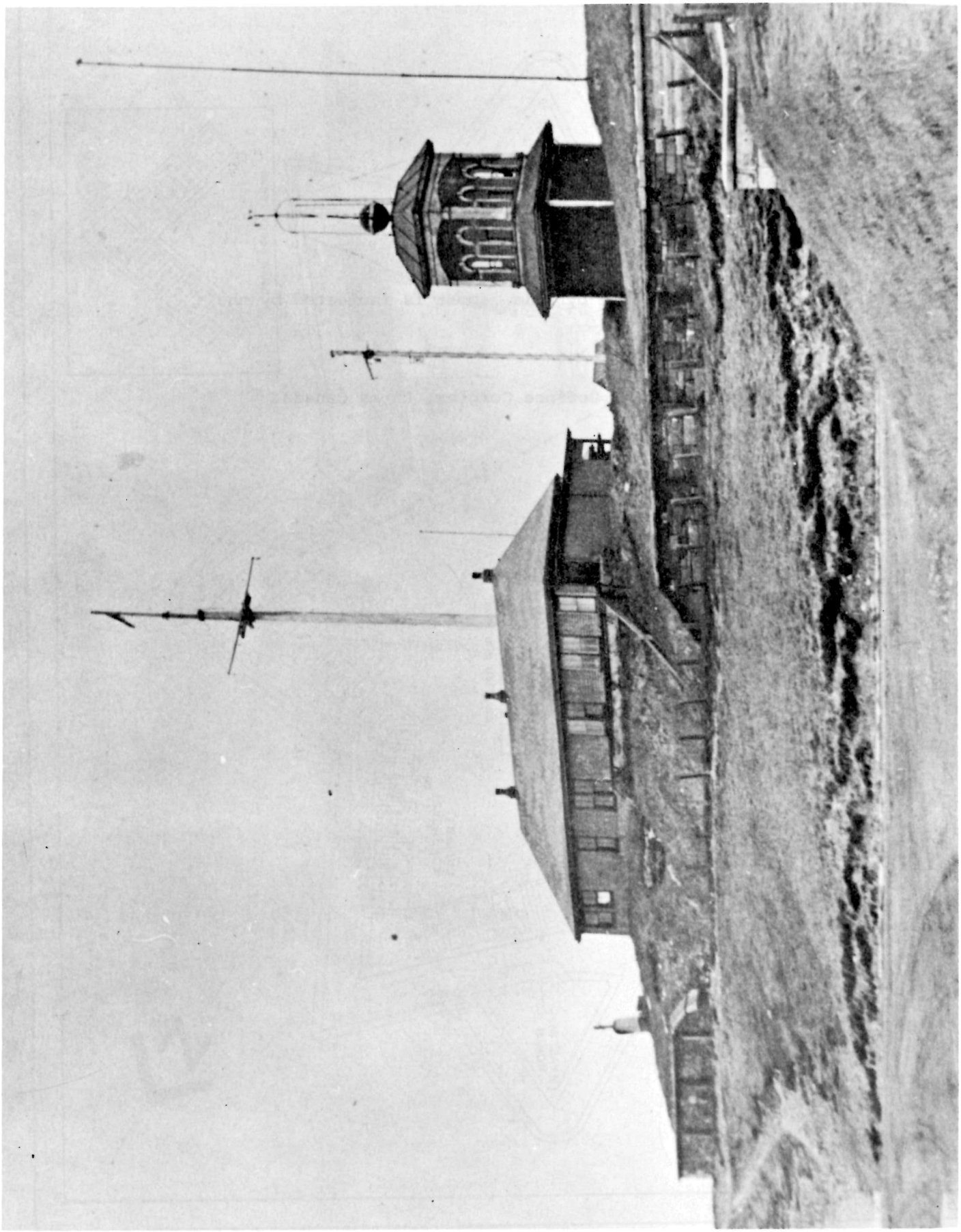
Source: Nova Scotia Museum (P. 170.17)


CITADEL - LOOKING NORTH
O'Donnell

28 Signal Station and Time Ball, southeast salient, Halifax Citadel, ca. 1935.

Note the peaked roof of the storage shed on the south front ramparts. The superstructure on the signal building has been removed.

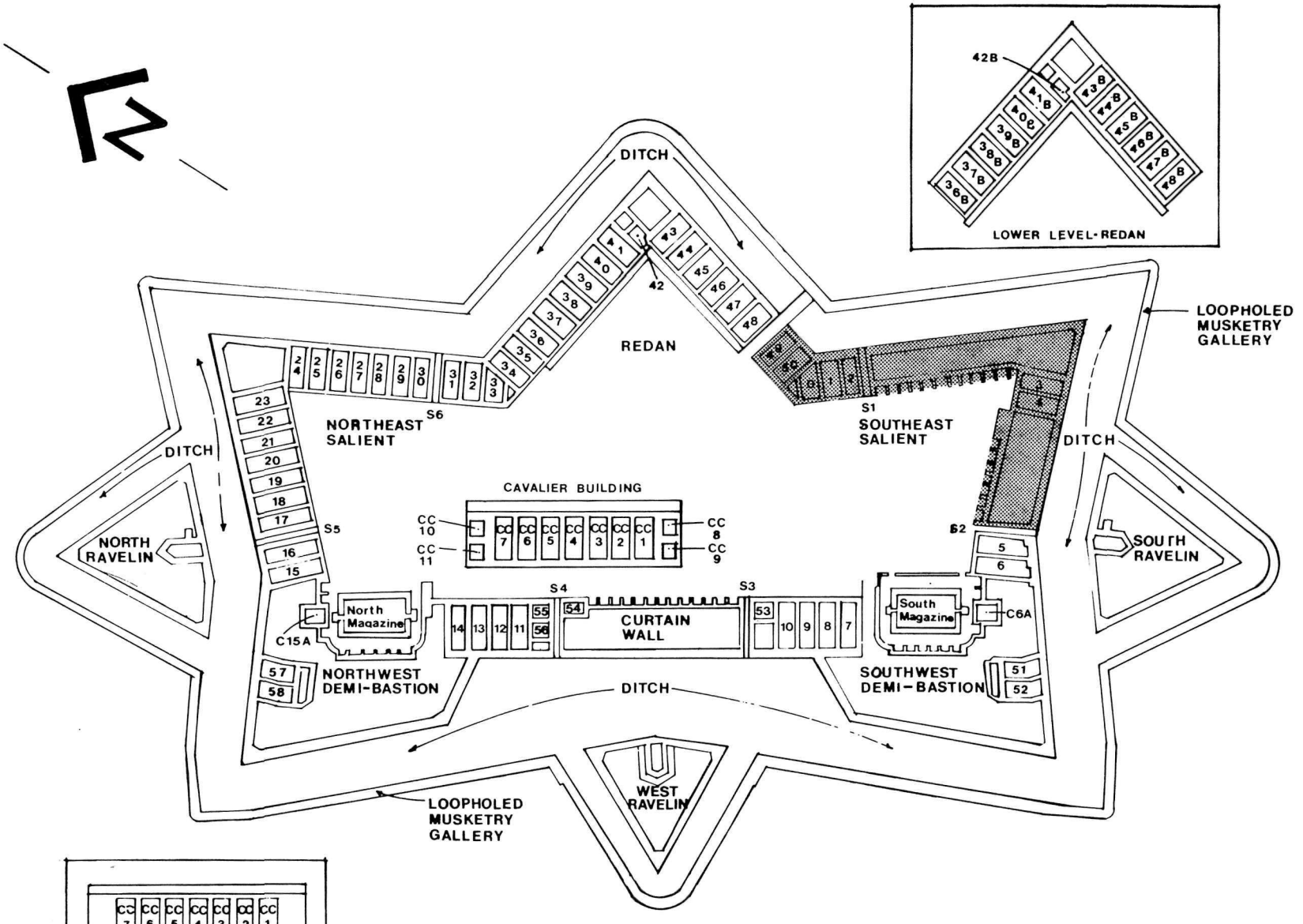
Source: Department of Environment, Canada



29 Location Plan, Halifax Citadel.

The area covered by this report is indicated by the shading.

Source: Halifax Defence Complex, Parks Canada.


DITCH
REDAN
LOOPHOLED MUSKETRY GALLERY
NORTHEAST SALIENT
S6
SOUTHEAST SALIENT
S1
DITCH
DITCH
CAVALIER BUILDING
NORTH RAVELIN
S5
S2
SOUTH RAVELIN
S4
S3
North Magazine
South Magazine
C15A
C6A
CURTAIN WALL
NORTHWEST DEMI-BASTION
SOUTHWEST DEMI-BASTION
DITCH
WEST RAVELIN
LOOPHOLED MUSKETRY GALLERY
LOWER LEVEL-REDAN
CAVALIER BUILDING 2nd FLOOR PLAN
HALIFAX CITADEL
HALIFAX N. S. SCALE 1":120' (APPROX.)