

AN ARCHAEOLOGICAL NARRATIVE OF YORK'S CULTURAL LANDSCAPE, 1793-1998

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Fort York, located in downtown Toronto, served as a British military garrison from 1793 to 1870. Over the last 12 years archaeological fieldwork conducted in advance of proposed restorations recovered substantial amounts of archaeological and stratigraphic information from virtually all areas of the fort grounds. By mapping the elevations of six major stratigraphic phases and using this data to interpolate two and three-dimensional surfaces, insights were discovered into both the physical and social elements that influenced the way the landscape was used and modified over time. These new insights go well beyond what was previously known about the landscape through the maps and drawings of the Royal Engineers. Furthermore, this research illustrates the capability historical archaeology has in not only documenting these landscape developments, but also correcting historical misconceptions of the cultural landscape as depicted by documentary sources and exploring the socio-cultural dimensions reflected in landscape use and modification.

"That Historic Crap" sometimes seems to exist in an archaeological border zone, where every nineteenth century site was apparently occupied by a Rodney Dangerfield, because they don't get no respect ... Yet it seems to me this negative attitude represents a long out of date viewpoint, one smacking of antiquarianism, where somehow the oldest and the most primitive are what really are of relevance [Kenyon 1986:41].

There are many things Ian Kenyon will be remembered for when it comes to his contribution to Ontario archaeology. If there is one thing that impressed me during the brief time that I knew him it would have to be his strong conviction in the value Eurocanadian historical archaeology can have in contributing to the history of the Province. Right from my very first

exposure to historical archaeology I always believed this to be true. However, after talking to Ian and reading his many works he not only reinforced this belief in me, but also strengthened my need to constantly legitimise my archaeological interests as research worthy of pursuit.

When Kidd (1969:39) wrote that "Canada is a very young country ... and Canadians are learning that mere antiquity is not always what is most important" there was a sense of optimism in the future of Canadian historical archaeology. The same sentiment is repeated in Nadon's review of Canadian historical archaeology (1976:81-88). However, since that time historical archaeology, and particularly Eurocanadian historical archaeology, has not been able to make a significant and lasting foothold in Ontario universities. This sentiment was recognised in Ian Kenyon's 1986 review of historical archaeology and the consulting industry.

Although the state of historical archaeology in the American universities is relatively healthy, the situation in Canada, particularly in Ontario, is significantly different. Eurocanadian historical archaeology in Ontario universities is currently limited to a fringe academic pursuit among a few individuals with historical tendencies. This is primarily due to the early influence classical and 'prehistoric' or pre-contact archaeology have had on the development of archaeology as a discipline. In more recent years this is compounded by the financial inability of most anthropology departments to permanently develop and staff historical archaeology programs beyond occasional cours-

es and summer field schools (i.e., University of Toronto, Trent University, Wilfrid Laurier University and McMaster University). This lack of progress not only deviates from the situation in the United States, but it clearly contrasts with the significant amount of historical archaeology currently being carried out in the province by all levels of government and the archaeological consulting industry.



Figure 1. Location of Historic Fort York within Toronto's Urban Landscape

To be blunt, historical archaeology has a reputation of something of a bastard discipline, accepted less than comfortably by the anthropologists, historians, classicists, and others among whom it traces its occasionally uneasy parentage... Must we simply test the accuracy of historical documents, or can we add to them significantly? Can we shed light on culture as well as trivia? [Cole 1980: 169].

The reluctance by some academics to accept Euro-Canadian historical archaeology is entrenched in the belief that the research cannot contribute to the understanding of past cultures beyond providing supplementary 'trivia' for existing documentary sources and standing architecture. In part this impression of historical archaeology exists because in the past, and to some degree even today, these were the approaches and goals employed by many historical archaeologists in Ontario and the continent.

North American historical archaeology has come a long way since the theoretical and methodological debates of the 1960s and 1970s over the discipline's definition and goals (Schuyler 1978). Although these debates continue to dominate the more recent theoretical literature (Deetz 1998; Lightfoot 1995; Little 1994; Noble 1996), the current and well established direction is to move away from the strict supplementation and testing of documentary and architectural detail (Dollar 1978; Harrington 1952, 1978; Hume 1968), toward the illumination of both short and long term culture process and human behaviour (Beaudry 1988; Lightfoot 1995; Little 1992).

Realistically all historical archaeological research will include some level of supplementation and testing since this is the nature of the data available for historic sites. That is, if we consider documentary data as just another line of evidence for exploring the past, then why would we not want to analyse documentary data using these 'testing' methods? Comparing results from various forms of data is a fundamental part of all archaeologi-

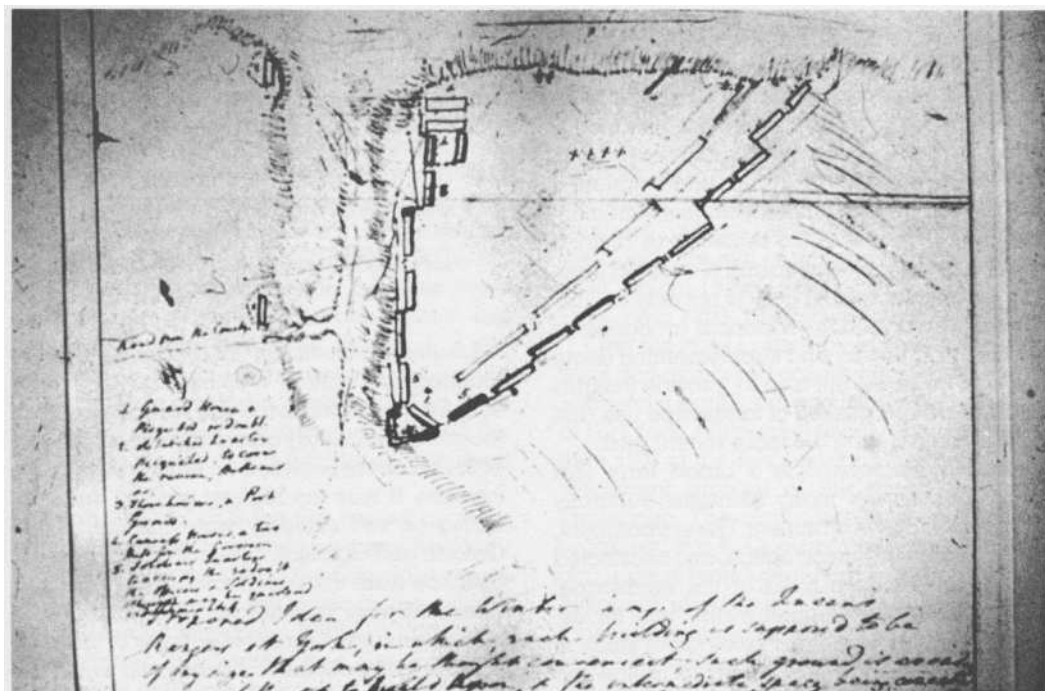


Figure 2. Sketch of the Winter Camp for the Queen's Rangers on the Fort York Site. Drawn by John Graves Simcoe, 1793. Note the Scale and Landscape Features are Distorted. The Lake is at the Top and North is at the Bottom. (QYR, Simcoe Map, 1793)

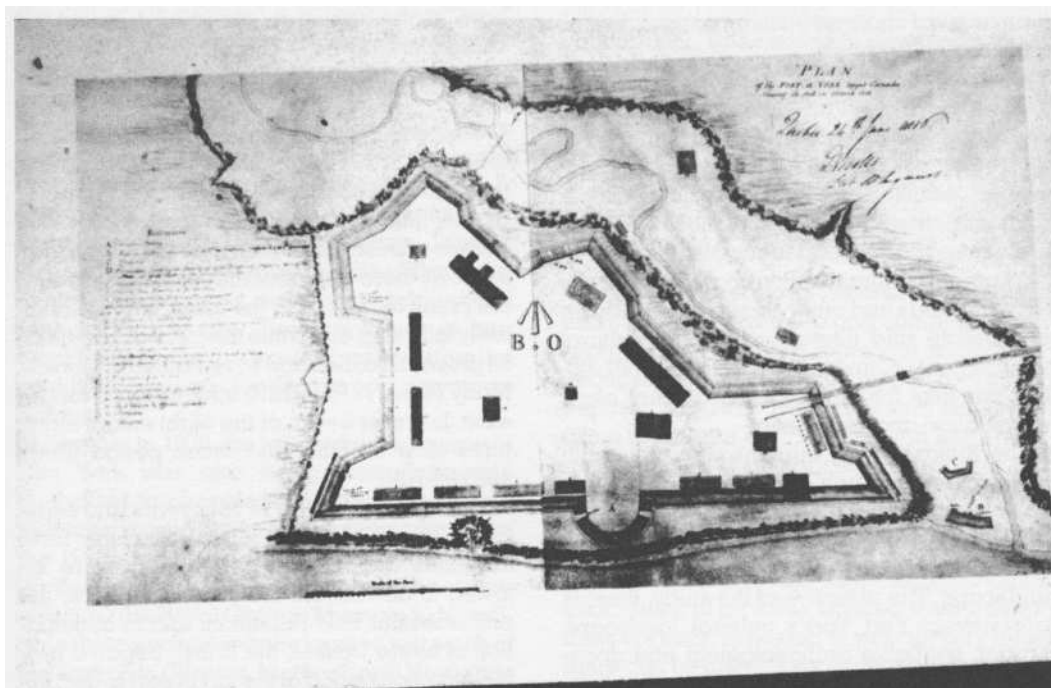


Figure 3. Plan of Fort York After the War of 1812, on the Original 1793 Simcoe Site. Plan Signed by Lt.-Col. Gustavus Nicolls at Quebec on June 24, 1816 (NAC, NMC-23139)

cal research where multiple lines of evidence are available to the researcher. However, data collected on historical sites also needs to be approached in such a way that historically unknown culture processes can be explored, ultimately documenting the undocumented (Vaccarelli 1996:8-13). It is from this sentiment and perspective that the research at Historic Fort York was undertaken and presented here. The all encompassing goal is not only to illustrate the contributions historical archaeology can make in testing and supplementing documentary sources, but also to provide insights into cultural processes of landscape use and modification during the more recent past.

Cultural landscape is a broad term that encompasses the many elements culturally imposed on the environment. The environment, both affected by human action, and unaffected or in its natural state, make up the "landscape" which James Deetz defines as the "total terrestrial context in which archaeological study is pursued" (1990:2). He goes on to define the cultural landscape as the "part of the terrain which is modified according to a set of cultural plans" (1990:2). These modifications can include terrestrial changes such as landfill, or architectural changes such as houses, fences and earthen ramps.

By constructing past landscapes through archaeology, we can better visualise and understand how the environment influenced where people settled and survived. Landscapes also illustrate how, over time, people will modify the environment to meet their particular needs. Landscapes can also become "a medium of communication that symbolically express status and other social roles" to those who create and interact within the cultural environment (Rotman and Nassaney 1997:42). This can take the form of social display, class segregation and distinction.

The interaction of humans and their built environment through space and time is a fundamental aspect of the history of Fort York. Thus the fort serves as an excellent example of human interaction and integration with the landscape. The objective of the study, then, is to construct Fort York's cultural landscape through available archaeological and documentary data to better understand not only its use and modification over time, but also the cultural processes reflected in its 205-year development. Since an analysis of all aspects

of the cultural landscape at Fort York is beyond the scope of this paper, I will focus on the terrestrial landscape (i.e., ground surfaces) and selected features of the built environment.

FORT YORK HISTORICAL BACKGROUND, 1793-1998

Lieutenant-Governor John Graves Simcoe founded Fort York in 1793 as a military garrison. Simcoe thought the site was an excellent location for a military garrison since this corner of the lakefront provided an easily defensible location. It was the highest ground and protected on two sides by water, namely Lake Ontario and Garrison Creek. It also was some distance from the American border thus free from a surprise land assault. This point of land also commanded an excellent view of the strait that led into a sheltered harbour on which the town of York (now Toronto) was to develop (Figure 1). With only one entrance, the harbour could be easily defended against a naval attack. These landscape features also would have made the area an ideal location for earlier First Nations occupation, however, to date no significant remains have been identified.

Simcoe's original garrison, which consisted of several crude log structures, was located on the west side of Garrison Creek (see Figure 2). By the time of the Battle of York took place between British and American forces on April 27, 1813, there were structures on both sides of the creek as well as in the creek bed. Immediately following this battle the fort was rebuilt on its present location and so remained (Figure 3). Many of the 1813 to 1816 structures no longer exist, however seven of the eight extant structures date to this construction period (Benn 1993:69-70).

During the post War of 1812 years and especially during the peaceful 1820s, the fort's defences and buildings generally were allowed to deteriorate (Benn 1993:80). After the unsuccessful 1837 Rebellion, and in anticipation of future trouble, the British began a new construction period at the fort in part to accommodate a larger garrison sent from England. This period was characterised by the construction of new barracks, repairs to the earthen

ramparts and a resurfacing of the fort (Benn 1993:93-107).

In 1841, a "New Fort" was constructed on what are now the grounds of the Canadian National Exhibition. From this time up to the early 1860s, most military activity occurred at this new location even though the old grounds were still maintained. Following the Trent Affair of 1861 there was a renewed interest in the old fort location especially since the New Fort's ability to defend the harbour was limited. The return of military activity to the old fort site included a rearmament and repairs to the fortifications and existing buildings. This work continued until the British formally turned the fort over to the Canadian military in 1870 (Benn 1993:107-120).

From 1870 to 1909 the fort served as store ground and living quarters for a small military force. The fort was sold to the City of Toronto in 1909, however it was still in use by the military into the early 1930s (Benn 1993:119-139). It was also during this period that the industrial expansion of the city began to encroach onto the lands around and inside the fort's boundaries. During the economic depression of the 1930s a "make work project" was initiated by the city which involved a major restoration of the fort's walls, bastions and buildings. Once this work was completed the fort was opened as a museum.

From the 1950s through to the 1980s more restorations were conducted, the most significant of which began in 1987 (Spittal 1991:1-3; Webb 1992:1, 1994b). These restorations were undertaken by the city and Heritage Toronto (formerly the Toronto Historical Board) in order to stabilise the many significant architectural features on the site. These activities in turn would ensure the fort's preservation within the rapidly changing landscape of downtown Toronto.

Starting in 1970, the terrestrial landscape at Fort York was also being altered through controlled archaeological excavations and monitored construction excavations spurred by the 1980s and 1990s restoration activities. The earliest controlled excavations were sponsored by the Royal Ontario Museum to investigate the guardhouse once located just south of the east gate (Waters, McNicall and Newlands 1975, Newlands 1979). In 1976, Clause Breede (1977) and the University of Toronto performed resistivity testing and small trench excavations

to locate the cookhouse and splinter proof soldiers' barracks once located along the south wall of the fort (See Figure 4, for test trenches TT 1 to TT4). Although the University of Toronto would return in 1988 to conduct an archaeological field school, the majority of the controlled excavations were conducted by Heritage Toronto. These excavations started in 1987 and are still in progress today (Brown 1988, Spittal 1996b, 1998a, 1998c; Webb 1989, 1991, 1992, 1993, 1994a, 1994b, 1996).

Over the last 11 years the controlled excavations and monitored construction activity have sampled a significant and representative area of Fort York. Although this only comprises less than 10% of the fort's surface area it is still a significant amount of the entire terrestrial landscape. The controlled excavations were organised into 40 Operations each designated according to various architectural features and historical use areas. The locations of these Operations are identified on Figure 4 as 1FY1 to 1FY40; excavation units or Sub-operations are shown but not labelled. By the summer of 1998 these excavations uncovered 280,508 domestic and military artifacts dating primarily to the eighteenth, nineteenth and early twentieth century (David Spittal, personal communication 1998). This collection represents one of the largest domestic and military collections to be recovered from any Eurocanadian site in the province.

THE LANDSCAPE OF HISTORIC FORT YORK (1793-1998)

Fort York, like many historic sites in large urban centres, has deep and complex stratigraphy. These profiles represent many short stratigraphic events including ash and cinder deposits, construction rubble and small land filling events, as well as long term loam accumulations. To document all the features and layers that occur at localised areas of the fort — each being a unique event to the development of the fort's landscape — would be an almost impossible task since archaeological information of all these isolated events simply does not exist. However, in virtually all profiles there can be defined six stratigraphic phases, composed of several features and layers, occurring consistently in the same stratigraphic relationship (a stratigraphic "phase"

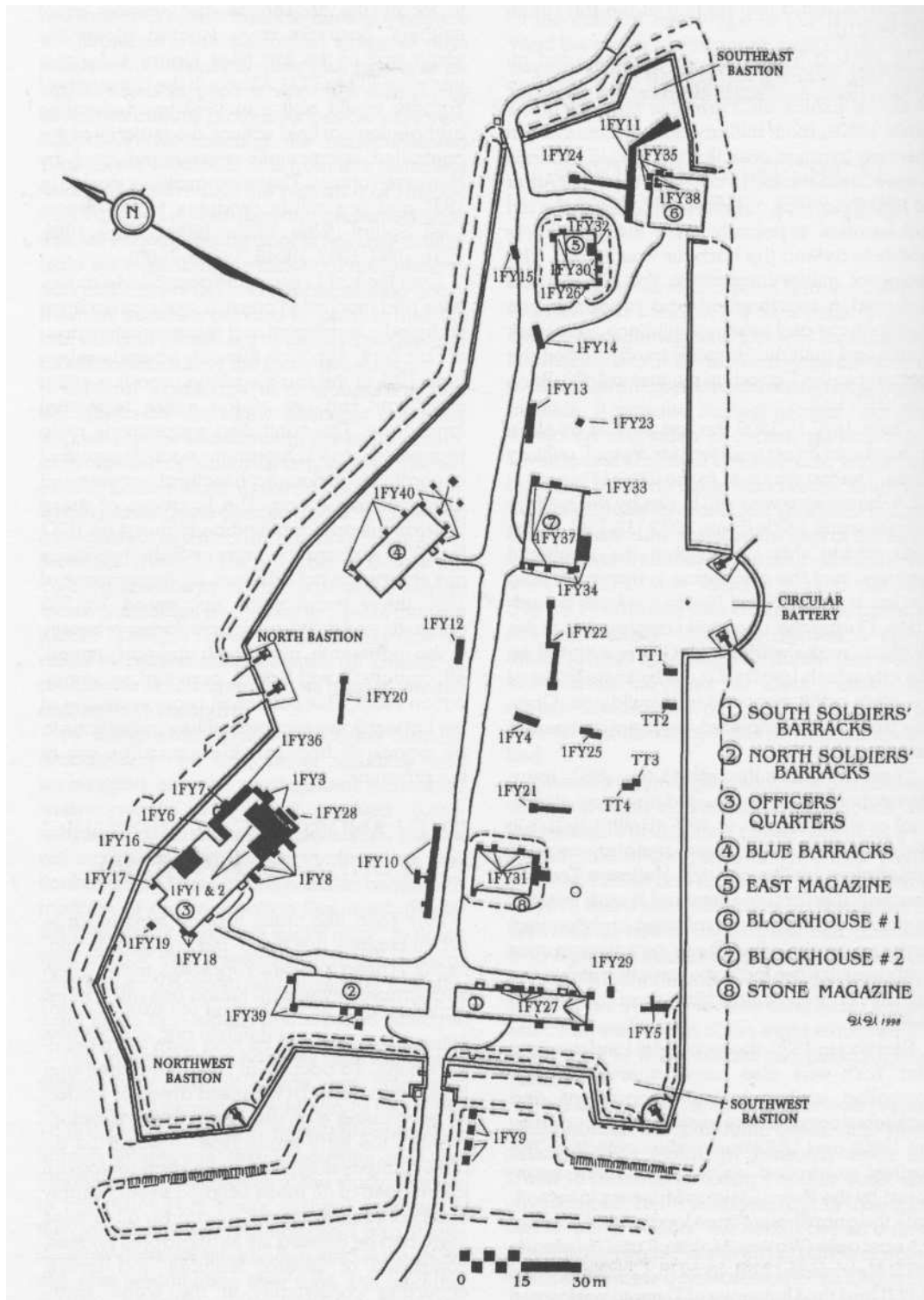


Figure 4. Location of Controlled Excavations for 1976, 1987-1998

will be defined as the grouping of several units of strata and interfaces, following Harris 1989:113-119, 158). This consistent stratigraphy across the site provides an opportunity to examine in detail the changing landscape at the fort over time.

These stratigraphic phases were isolated on the basis of stratigraphic position, general composition, associated material culture and documentary evidence. For example, Phase 3 was a loamy deposit usually greyish brown in colour. In most profiles it was subdivided into three to four layers, each differentiated according to colour differences, texture and type of inclusions. In some areas these layers may have been further separated by thin layers of ash, cinder, or brick fragment deposits. Since the layers had the same general composition and somehow contributed to the total accumulation, they were analysed as a single stratigraphic phase (FY3). In other words, it was not the individual features or layers that were important for analysis, but the accumulation of these features and layers into an inferred temporal phase.

Date ranges for each of these phases were also determined by the above criteria, however, these ranges are not assumed to be chronologically fixed but fluid. In other words, in some cases the starting and ending date range for certain phases changes depending on the location within the fort. For example, documentary sources suggest that the Phase 2 yellow clay fill may have been deposited in some areas as early as 1886 and in other areas in 1916 or 1934. For a description of the relative position, composition and date ranges of each of the six phases see Table 1. An example of how these six landscape phases were applied to groups of layers is provided in Figure 5.

All elevations recorded were taken at the final occurrence of each of the six phases. Therefore, the elevation "point" represents the last surface for that stratigraphic phase before it was covered by the next. If in some areas the phase did not exist the data for that location was not entered. In a case where the phase was extremely thin or blended with another, an elevation was entered because its stratigraphic relationship was known from the surrounding area. This occurred most often with the gravel landscaping (Phase 4), which was barely recognisable in a certain profiles.

Regardless of whether an elevation point was assigned according to its known stratigraphic relationship, or if no point was entered at all for any given location, the computer program used, Surfer 6.01, would interpolate the surface for that area based on the surrounding data points. Thus, a stratigraphic relationship was theoretically created where data was unavailable.

Field profiles drawings and reports for areas excavated in 1975, and from 1987 to 1998, constituted a primary source of stratigraphic data (Breede 1977; Brown 1988; Spittal 1996b, 1998c; Webb 1989, 1991, 1992, 1993, 1994a, 1996). This data was recovered by controlled excavations and therefore allowed for precise measurements of the elevations for the six stratigraphic phases used in this analysis (See Figure 4 for a summary of the excavation locations).

A second source of stratigraphic data was derived from hundreds of pages of field notes taken during monitoring of storm drain, water main and other construction trenches and their branch lines that criss-crossed the fort (Spittal 1991, 1992, 1993a, 1993b, 1993c, 1994a, 1994b, 1996a, 1996c, 1997, 1998a, 1998b). These trenches exposed complete stratigraphic profiles allowing the archaeologists to record stratigraphic information. There were several constraints involved in the recovery of stratigraphic data ranging from unfavourable and unpredictable weather, to reckless backhoe operators (Spittal 1991:10-12). These constraints had a bearing on which data was acceptable for this analysis and which was to be excluded. Details as to how the data was recorded and scrutinised for this research is reviewed in Vaccarelli (1993).

Data Recording Methods

All stratigraphic phase elevations were based on a fixed, metres above sea level (A.S.L.) datum. For controlled excavations, the elevation data were taken directly off the profile drawings of various sub-operations, while the recovery of elevation data from the monitoring notes proved more of a challenge. On the original monitoring field notes, the elevation for each stratum was measured, in centimetres, according to its approximate depth below the sod surface at the time. Since most trench excavation took place in 1988 and

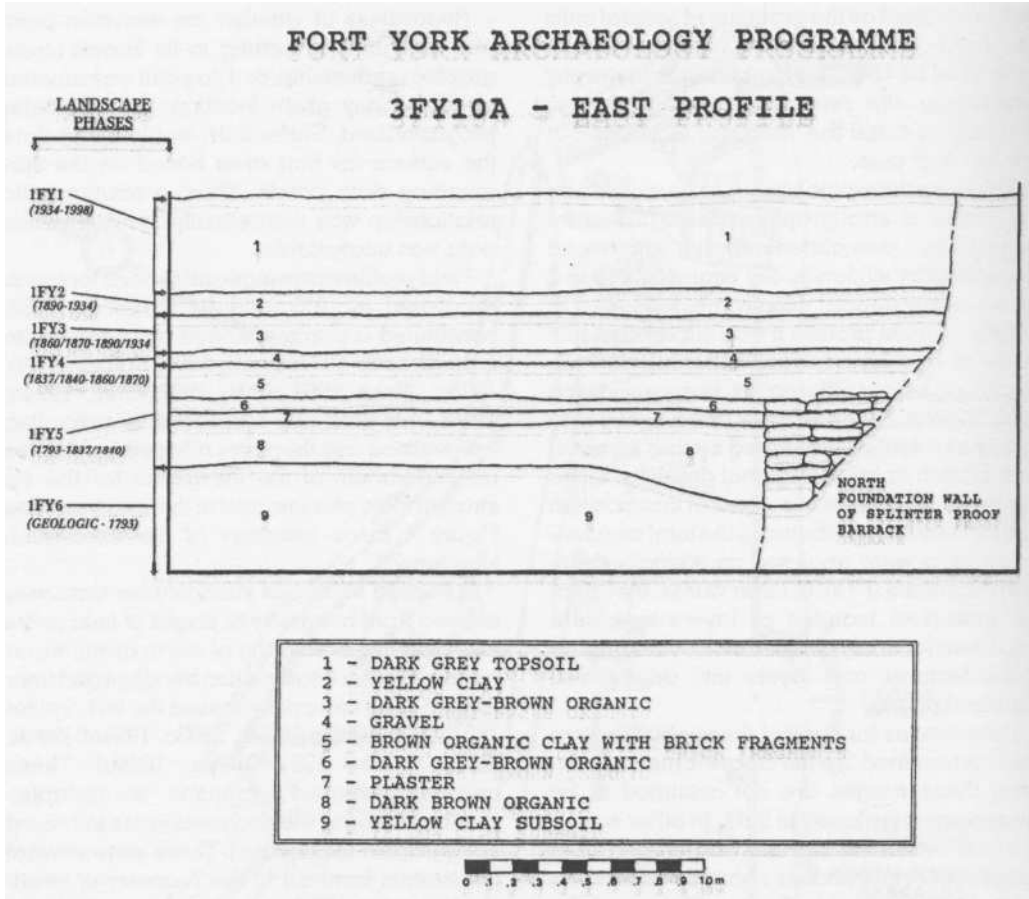


Figure 5. East Stratigraphic Profile from Storm Sewer Trench Excavation Monitoring (Operation 3FY10A, Seven Metres South of Southeast Corner of Brick Magazine, Spittal 1992:35)

Table 1. Name, Number of Elevation Points, Description and Date Ranges for Each Stratigraphic Phase.

NAME.	NUMBER OF ELEVATION POINTS	DESCRIPTION	DATE RANGES	
			Start	End
FY1	160	Greyish brown to dark brown loam with sod	1934	1986/1998
FY2	165	Yellow to Yellow brown clay fill	1890	1934
FY3	130	Dark brown to greyish brown loam	1860/1870	1891/1934
FY4	163	Fine to coarse gravel	1837/1840	1860/1870
FY5	167	brown to dark brown loam	1793	1837/1840
FY6	283	Yellow to dark yellow brown clay subsoil	Geologic	1793*

* Date does not take into account the presence of the French in the 1750s or any earlier First Nations groups as there is no data available to determine their impact on the landscape.

1989, the closest surface elevations were those recorded by a 1986 survey of the fort. This map, prepared by Holding and Jones Inc. Ontario Land Surveyors, recorded the entire surface elevation of the fort at 10 to 15 metre intervals

and plotted this data on a 1:300 scale map (Holding and Jones 1986). Using these 1986 elevations, it was possible to determine the approximate elevation for each of the five below-surface phases by subtracting the depth

below surface measurement from the approximate surface elevation for that area. This generated an approximate A.S.L. figure for each stratigraphic phase.

All the elevation points accumulated for each stratigraphic phase were assigned an X and Y co-ordinate on a grid laid out over the 1986, 1:300 Holding and Jones topographic map. The Z figure was the elevation measurement for that X, Y co-ordinate and was entered in the database as an elevation A.S.L. These X-Y-Z triplets for each phase were entered into a single file to be processed through Surfer 6.01, in order to construct two and three dimensional representations of the fort's six landscape phases. In the end there were 6 data files representing the six stratigraphic phases, each composed of between 130 to 283 X-Y-Z triplets (See Table 1).

Interpolation Methods

The problem with software designed to manipulate spatially referenced data is that sometimes the point interpolation methods (i.e., data collected at a point designated by an x - y coordinate) are not appropriate for the nature of the data. This was illustrated by Kenneth Kvamme's study of different interpolation methods used by GIS software to construct three-dimensional surface representations (Kvamme 1990:116-17). His analysis led him to conclude that more research was needed in these interpolation methods since there were significant differences in the surfaces generated by each. He questioned the degree to which a particular analysis outcome is due to real pattern in the archaeological data or to the computer methods used to produce the data in GIS context" (Kvamme 1990:123). This can be problematic since archaeologists tend to accept this new computer generated data as "truths" and rarely question its validity (Aronoff 1991:285; Kvamme 1990:123). Kvamme suggests the importance of investigating the different effects computational procedures have on the nature of the spatial data used and the actual surface representations created by them.

There are several interpolation methods that can be used to create surface trends from elevation data, but as already mentioned each will produce sometimes radically different surfaces according to the interpolation param-

eters (i.e., search method, search radius and number of nearest points) and the accuracy and nature of the data used (Hodgson E989:130 143-150; Lan 1983:129-149). Surfer 6.01, the software used for this study, allows for six point interpolation methods for the generation of surface trends. The three most commonly used are: Inverse Distance - where the data points are "weighted" so that the influence of one point on another decreases with distance from the point being estimated. The greater the weighting power, the faster the decline in influence and the less effect points further out will have on the interpolation. *Kriging* - which uses a set algorithm based on a regional variable theory to interpolate the surface. Finally, *Minimum Curve* - which will calculate initial grid values based on the data provided so that any grid cell with a data point within it will have a fixed value during the calculation for that area. Then an equation is repeatedly applied in order to smooth the surface (Golden Software E994:5/14-5/19).

Although Kriging and Minimum Curve methods produce the most accurate results for evenly distributed data, they are not as accurate on sparse and clustered data as is the Inverse Distance method (Golden Software 1989: (3)26-32; Hodder and Orton 1976:163-E64; Hodgson 1989:132-135). Therefore, it was expected, and subsequently proven through testing, that the Inverse Distance method would be the most suitable method for the archaeological data used in this study (Vaccarelli 1993).

Since Surfer 6.01 was designed to illustrate elevation differences of several metres, the three dimensional surfaces generated had to be adjusted to accommodate the Fort York data, since data points in some areas only ranged a few centimetres rather than a few metres. Once interpolated these centimetres appeared more significant than they probably ever were in the past. In order to see a more realistic representation of these differences in elevation it was necessary to reduce the "Z scale factor" (specifying a vertical exaggeration) of the three dimensional printouts. The surface exaggeration was reduced to 1 cm = 1.02432 map units.

Since there was limited historical and archaeological data for known landscape features such as the road that bisected the fort, the dry moat surrounding the powder maga-

zines, and the ramparts, these areas were not included in the analysis, nor were they represented on the surface constructions. This was also true for the many structures that were constructed and demolished over the years. These exclusions were done, however, with the full acknowledgement that these features were integral elements of the historical landscape, but unfortunately could not be represented accurately with the data available.

LANDSCAPE SUMMARY

Phase 6 (FY6) [Geologic - 1793]

Phase 6 consists of extremely hard packed clay subsoil. In almost all areas of the fort the clay is yellow to yellow-brown in colour, however in some localised areas the clay is dark to light grey. These colour changes were probably a result of colours leeching down from the loamy strata above (Spittal 1991:54). This phase, (or layer) is easily identifiable and has been recorded in virtually all the excavations and monitored trenches. Along with a few centimetres of loamy soil Phase 6 represents the probable terrain relief before the British built the first garrison in 1793.

Phase 5 (FY5) [1793-1837/1840]

Stratigraphic Phase 5, is primarily a brown to dark brown loamy soil that lies above the subsoil and below the gravel phase (FY4). This phase appears in most parts of the fort as a single "buried horizon" positioned directly over subsoil (Spittal E991:33, 45-53 60; Webb 1992: 125). In other areas the phase exists in the same stratigraphic position but has a slightly different appearance, either with rubble inclusions and evidence of burning or with gravel inclusions (Webb 1991:99; Spittal 1991:42). In some areas of the fort this 'buried horizon' simply did not exist, however, the various forms the phase did take such redeposited mottled clay, or mottled loamy layers were usually in the same relative position (Spittal 1991:40, Webb 1991:11,14, 4E, 62, 63 105, 128) - that is, below the gravel phase and above the subsoil. In these areas, Phase 5 is considered to be the accumulation of strata ending with the appearance of the gravel phase. Recovered artifacts from Phase 5 date to the last quarter of the eighteenth century to the first quarter of the

nineteenth century. Thus Phase 5 represents the surface accumulations of the fort from the first British occupation in 1793 to the deposit of the gravel layer which in some areas may have occurred as early as 1837.

This date range is proposed with the acknowledgement that before the British arrived the French as well as several First Nations were in the area and probably using this part of the landscape. However, their archaeological presence and impact on the site's landscape is non-existent or minimal in comparison to those that occurred with the arrival of the British in 1793.

Phase 4 (FY4) (1837/1840-1860/70)

This gravel phase is an extremely thin single layer of gravel in some areas, while a thick, multiple layer of varying coarseness in others. Phase 4 appears in virtually the same stratigraphic position across the site - that is above the light brown to dark brown loamy Phase 5 and below a second dark brown to grey loamy Phase 3. The thickest and most frequent occurrence of the gravel is found in the parade ground area between the Stone Magazine and Block House #2, as well as north of the south wall and east of the East Magazine. In some areas the gravel phase consists simply of a coarse type (Spittal 1991:60; Webb 1991:72, 76-77, 105, 120), while in other areas this coarse gravel overlies several finer grades of gravel (Webb 1991:25, 72-73, 96). The gravel phase also occurs in a mixed clay or mottled clay with an extremely hard packed surface (a possible macadamised surface) (Spittal 1991:61; Webb 1991:40, 52, 105).

Where questions of disturbance can be eliminated, artifacts recovered from Phase 4 offer a temporal range from the late 1830s and early 1840s to the 1870s (Webb 1991:40, 57, 91, 94, 96, 76-77, E27). This agrees with the information recovered from stone box drains that often appear underneath the first layer of coarse gravel, since the date ranges for artifacts recovered from these drains are the same as the gravel layers themselves - early 1840s to the 1860s (Spittal 1991:57 70-71 75 91; Webb 1991:63, 93 108).

There are at least three documentary references regarding levelling and gravelling of the fort. The first is a circa 1839 reference to "levelling...and gravelling surrounding [the

artillery stables] surface" (NAC RG 8, Series C, Vol 447:258-261). A circa 1841 report describes the availability of "shingle and gravel" for the making roads and parade grounds (TRL, Baldwin Room, Miscellaneous Fort York documents, Reports). The third reference dates to March 14, 1848. In this document there is reference to the demolition of the splinter roof barracks located along the south wall of the fort and the levelling of the area with a bed of gravel "... to correspond to the parade" (NAC War Office Papers, WO55/882, s. 253ff). This gravelling event is confirmed by archaeological excavations along the south wall (Breede 1977) and is illustrated in Figure 5.

These documentary sources further illustrate that the gravel layers at certain areas of the fort most likely existed as early as 1839 and were probably continuously repaired or added to in order to maintain a level surface up until the 1860s. These documented dates are compatible with the archaeological evidence although the archaeological evidence consistently falls within the 1850s and 1860s range. This is most evident in the artifacts recovered from the stone box drains associated with the gravel phase. These drains were either constructed in the 1860s, or earlier drains were re-excavated, repaired or cleaned out and then recovered with gravel. It is also important to consider the fact that since the drains are open systems, artifacts could enter and pass through them at any time following their initial construction (Webb, personal communication, 1994).

The late dates for the gravel layer can also be explained by the changing use of the fort from the 1840s to the 1860s. In the late 1830s, the fort had undergone a major restoration that very likely included some gravelling of the landscape. This surface was probably intensively used up until 1841 when military activity was moved to the "New Fort." For the next 20 years the fort was maintained but not intensively used until the British military returned to the old site to rearm it as their primary military establishment. This took place in the early 1860s. It was during this construction period that intensive use of the surface occurred, thus the probability of artifact deposition would have been much higher during this time. This historical scenario also might explain *why* the date range for the gravel phase appears to cluster around the extreme limits of the time

frame.

Phase 3 (FY3) [1860/1870-1890/1934]

Photographs taken in the last quarter of the 1800s and the early 1900s show that most of the fort had become overgrown with plant life indicating the transition to a loamy soil accumulation and the end of the fort's gravel surface (TRL, Baldwin Room, TEE616, TEE616, T11635). As such, Phase 3 is primarily a greyish brown to dark grey loamy soil that stratigraphically appears above Phase 4 and underlies the Phase 2 yellow clay fill, and represents the natural accumulation of soil that began as early as the 1870s when the gravel surface was no longer maintained, and ended with the first clay fill landscaping event that may have occurred in some areas as early as the last quarter of the nineteenth century. This loamy phase does not appear in all areas of the fort, however when it does appear the artifacts recovered date to the last quarter of the nineteenth century (Spittal 1991:60; Webb 1989: 109-179; Webb 1991:72, 76, 90, 94, 101, 105-6, 149). The phase also appears directly beneath the clay banquette and rampart fill constructed in 1934 (Spittal 1991:33). Therefore it is conceivable that this phase in some areas of the fort existed right up until the 1930s when more clay fill was brought into the fort or redeposited during its restoration.

Phase 2 (FY2) (1890-1934)

Phase 2 consists of this clay landfill, although there are a few areas where this phase does not appear (Spittal 1991:40). Nonetheless, it has been recorded in virtually every area of the fort, with the thickest deposit occurring in the central area of the fort (Spittal 1991:42, 56, 60; Webb 1991:34,42, 52, 72, 90, 105, Webb 1992:149). Archaeological evidence suggests a depositional date for this phase to have been as early as the last quarter of the nineteenth century and into the first quarter of the twentieth century (Webb 1988:136; Webb 1991:56, 98,106; Webb 1992:149). However, it should be made clear that this clay landfill was probably not a single depositional event, but rather deposited similarly to the gravel of Phase 4 - that is it probably existed earlier in some areas of the fort and later in others. This has been illustrated by the variety of date ranges the

archaeological and documentary data provide. For example, stratigraphic information recorded during the monitoring of the trench that cut through the road between Blockhouse #2 and the Blue Barracks clearly illustrates the clay fill that underlies a thick brick rubble road surface (Spittal 1991:64, 86). This brick surface may be the same road seen in a 1909 photograph of the fort (TRL, Baldwin Room, T11620). Furthermore, an 1886 document describes a list of work conducted at the fort including substantial levelling and filling of the grounds (RCMI, Militia Reports, 1886).

It is also possible that much of this clay phase was a result of the construction of a circa 1916 streetcar track that cut into a significant portion of the north rampart (TRL, Baldwin Room, T110604). This excavation likely produced excess clay that may have been deposited in low lying areas of the fort (Catherine Webb, personal communication). Other areas of clay fill may represent land filling episodes that occurred during the restoration period in 1934 as illustrated by the clay fill found in the ramparts and banquette (firing step) overlaying a loamy deposit (Spittal 1991:33).

At the moment all that can be substantiated is that Phase 2 represents the top surface of probably several clay land filling events. The accumulation of these major land filling events ended around 1934.

Phase 1 (FYI) (1934-1986/1998)

Above the clay landfill there almost always occurs a brown and grey brown loamy soil. Since it is highly disturbed in many areas due to its proximity to the sod surface, its composition is variable across the fort. However, its stratigraphic position above Phase 2 and below the present sod surface is unquestionable. Phase 1 therefore represents the loamy topsoil accumulation that has occurred between 1934 and 1986. For this paper the 1986 surface data was used to represent the current surface. However, it is important to note that relandscaping and various restoration activities from 1988 to 1998 have made dramatic changes to parts of the terrestrial landscape. The impact of these significant changes on the forts current landscape have not yet been recorded.

DOCUMENTING AND INTERPRETING LANDSCAPE USE AND CHANGE

By using each of these stratigraphic phases of the fort as units of landscape development, inferences on the dynamics of landscape change and its relationship to Fort York can be better understood. This is especially the case since such inferences are not available from graphic or other documentary sources, since these present a more static record of the past landscape, and can be problematic since they are often misleading or inaccurate representations of past reality.

The most appropriate point to begin discussing landscape use and change over time at Fort York is with the earliest phase of the fort, Phase 6 (1793). From the two-dimensional and three-dimensional maps of this phase the irregularity of the terrestrial landscape when the fort was founded is clearly visible (Figures 6). Although this result is partially a product of the higher number and distribution of elevation points for this surface in comparison to other surfaces, much of the landscape variety is probably due to the natural state of the landscape when the fort was first founded. These surface irregularities, although not major, appear in most areas of the fort where data existed and clearly contrast with some of the more uniform stratigraphic phases that were to follow.

Other features worth noting are the east-west low ridge and the series of shallow swales that run parallel to this low ridge. The largest and deepest were recorded just northeast of Blockhouse #2 and south of the Blue Barracks (refer to Figure 4 for the location of structures referred to here). These shallow swales probably extend southeast toward the significant drop-off recorded next to Blockhouse # 1. This may be a natural bank extending down to the lake or an excavation into the bank designed to provide easier access to the lakeshore.

When comparing the Phase 5 surface (Figure 7) with Phase 6 it is apparent that although there is a general rise in elevation and a smoother appearance in some areas, the surface irregularities still exist especially along the bottom of the low ridge and the large swale at the centre of the fort. In the historical record,

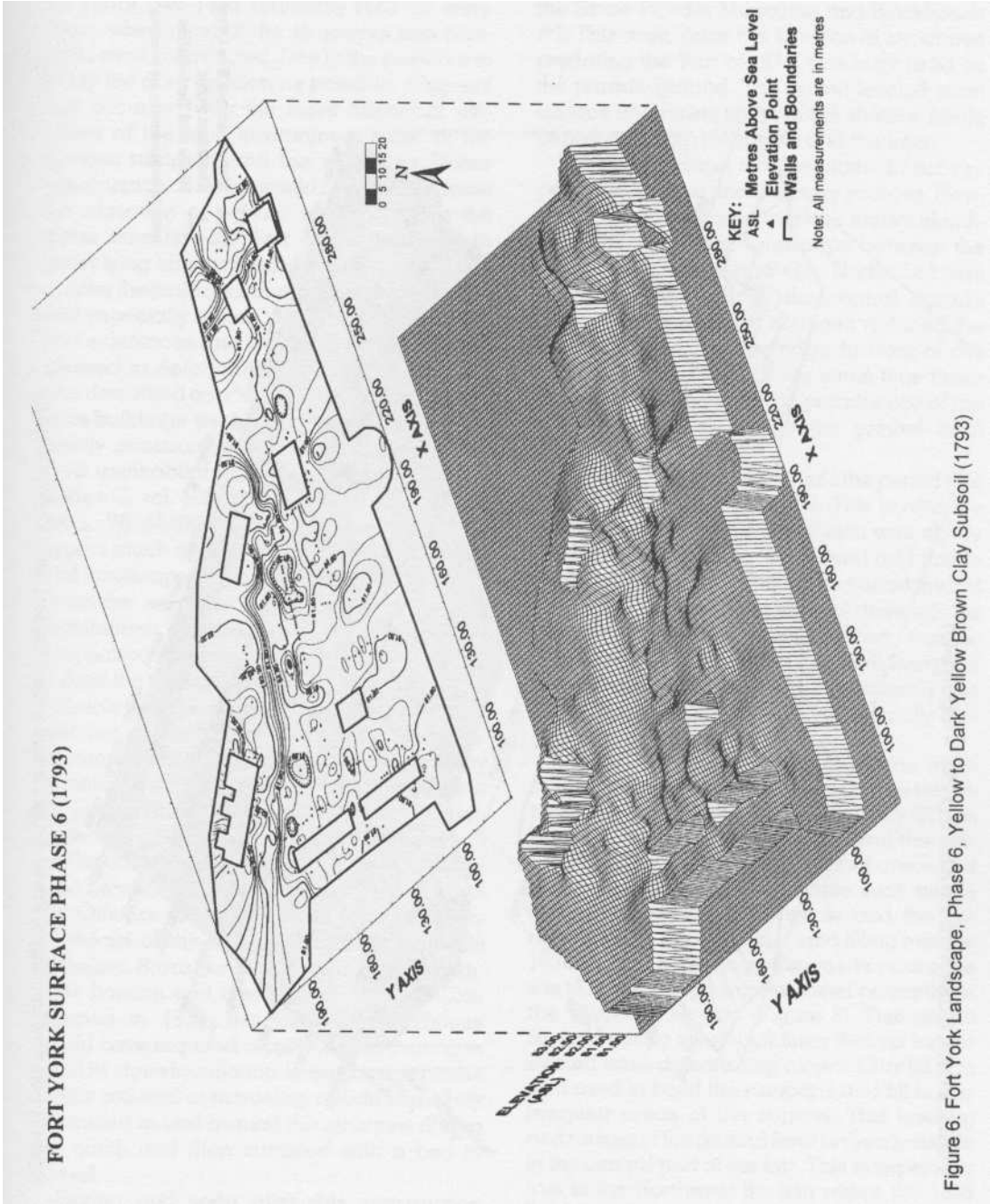


Figure 6. Fort York Landscape, Phase 6, Yellow to Dark Yellow Brown Clay Subsoil (1793)

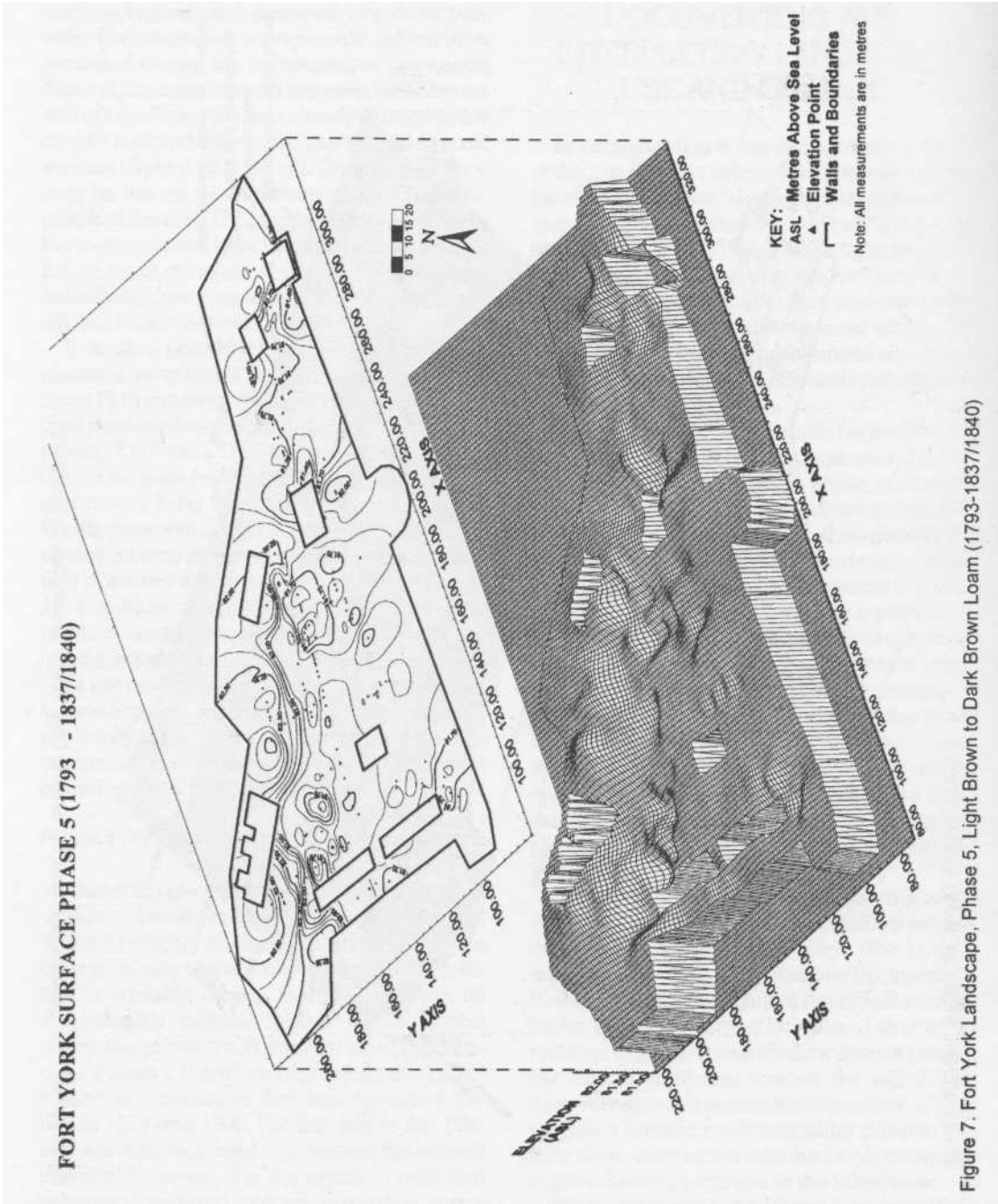


Figure 7. Fort York Landscape, Phase 5, Light Brown to Dark Brown Loam (1793-1837/1840)

the years 1793-1816, (primarily 1813-15), were years when most of the structures and ramparts were constructed. Due to the pressure to fortify the area as soon as possible, progress first occurred with the more important elements of the built environment such as the earthen ramparts and the structures. These construction activities would have helped raise the elevation of certain areas while at the same time smooth over others by filling in lower lying land with excess soil.

After the main construction period of 1813-15 and especially during the peaceful 1820s, the Fort's defences and buildings generally were allowed to deteriorate. In 1826, the garrison was described as a "Very ruinous old fort", most of its buildings were out of repair" and all the hastily constructed wood buildings were al-most uninhabitable (Firth 1962:18; NAC, RG8, Series C, vol. 580 pp. 70-79, 124-125, 132-134; NAC, W055/887, s, 160ff.). One would not expect much deliberate change to the terrestrial landscape during a period when even the defensive earthen embankments were not maintained. The results of the Phase 5 landscape reconstruction support this.

After the unsuccessful 1837 rebellions a new construction period characterized by the erecting of new barracks, repairing the earthen ramparts and resurfacing the fort began. By examining the Phase 4 surface, the levelling of the fort and the raising of the surface elevation by these construction activities can be seen in two locations (Figure 8), one of these being the area between the North Soldiers Barracks and the Officers Quarters. This area is directly southeast of the former location of the 1838 Rebellion Barracks constructed in the Northwest Bastion and demolished in 1934. Constructed in 1838, this massive blockhouse would have required significant excavating to build its stone foundation. It appears that some of this soil and construction debris was likely deposited in and around the structure and to the south and then surfaced with a bed of gravel.

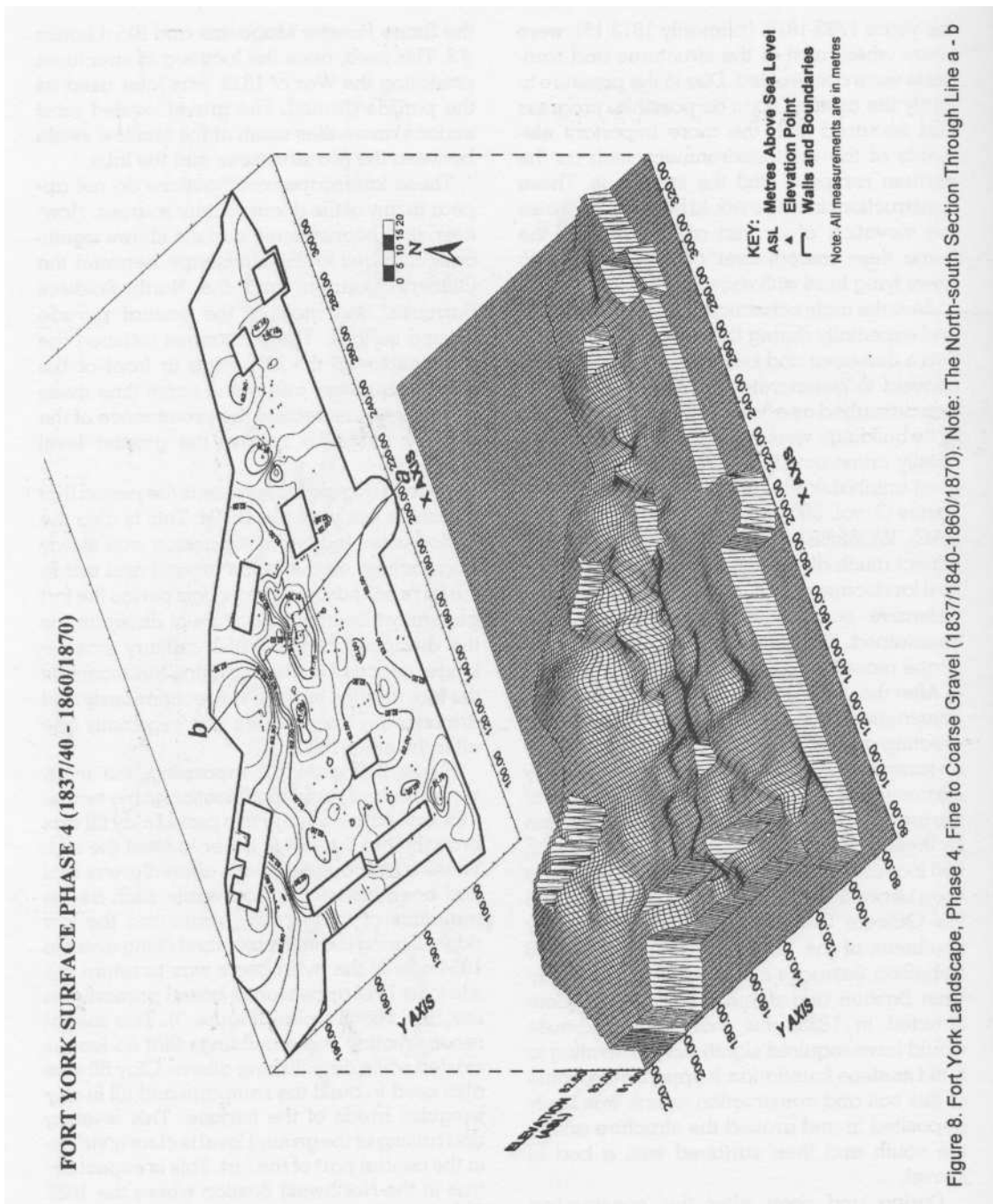
During and soon after this construction period resurfacing took place in the form of laying gravel and forming a macadamized surface. The gravel addition to the landscape, although not complete in all areas of the fort, would have produced a more uniform surface and thus a more orderly appearance. The most significant leveling can be seen between

the Stone Powder Magazine and Blockhouse #2. This area, once the location of structures predating the War of 1812, was later used as the parade ground. The gravel leveled most surface anomalies south of the shallow swale between the two structures and the lake.

These landscape modifications do not appear in any of the documentary sources. However, the reconstructed surface shows significant changes to the landscape between the Officer's Quarters and the North Soldiers Barracks, and most of the central parade ground surface. These changes reduced the prominence of the low ridge in front of the Officers quarters and at the same time these filling events increased the prominence of the shallow swale by raising the ground level around it.

Phase 3 (Figure 9) represents the period that began as early as the 1870s. This is also the period when industrial expansion was slowly encroaching on the lands around and inside the fort's boundaries. During this period the fort generally remained in a state of disrepair, as the discipline of the British military was no longer imposed on the changing landscape of the fort; thus the surface was continuously and dramatically altered. This was especially true after the early 1900s.

Phase 2 (Figure 10) represents the more extensive and rapid modification to the terrestrial landscape. During this period clay fill was brought into the fort in order to level the site. These landscape additions altered areas that had been historically noticeable such as the remnants of the shallow swale and the low ridge. During the last major land filling event in 1934 one of the main goals was to return the site to its 1815 appearance based primarily on the 1816 Nicoll's plan (Figure 3). This meant reconstructing some buildings that no longer existed while demolishing others. Clay fill was also used to build the ramparts and fill in any irregular areas of the surface. This leveling and raising of the ground level is clearly visible in the central part of the fort. This is especially true in the Northwest Bastion where the 1838 Rebellion Barracks were demolished in 1934 and the area re-landscaped with fill. Other areas to the west of Blockhouse #2 do not appear to have been modified with much landscaping. The final surface of the site, Phase 1, for the most part mimics the final leveling out of the fort in the 1930s (see Figure



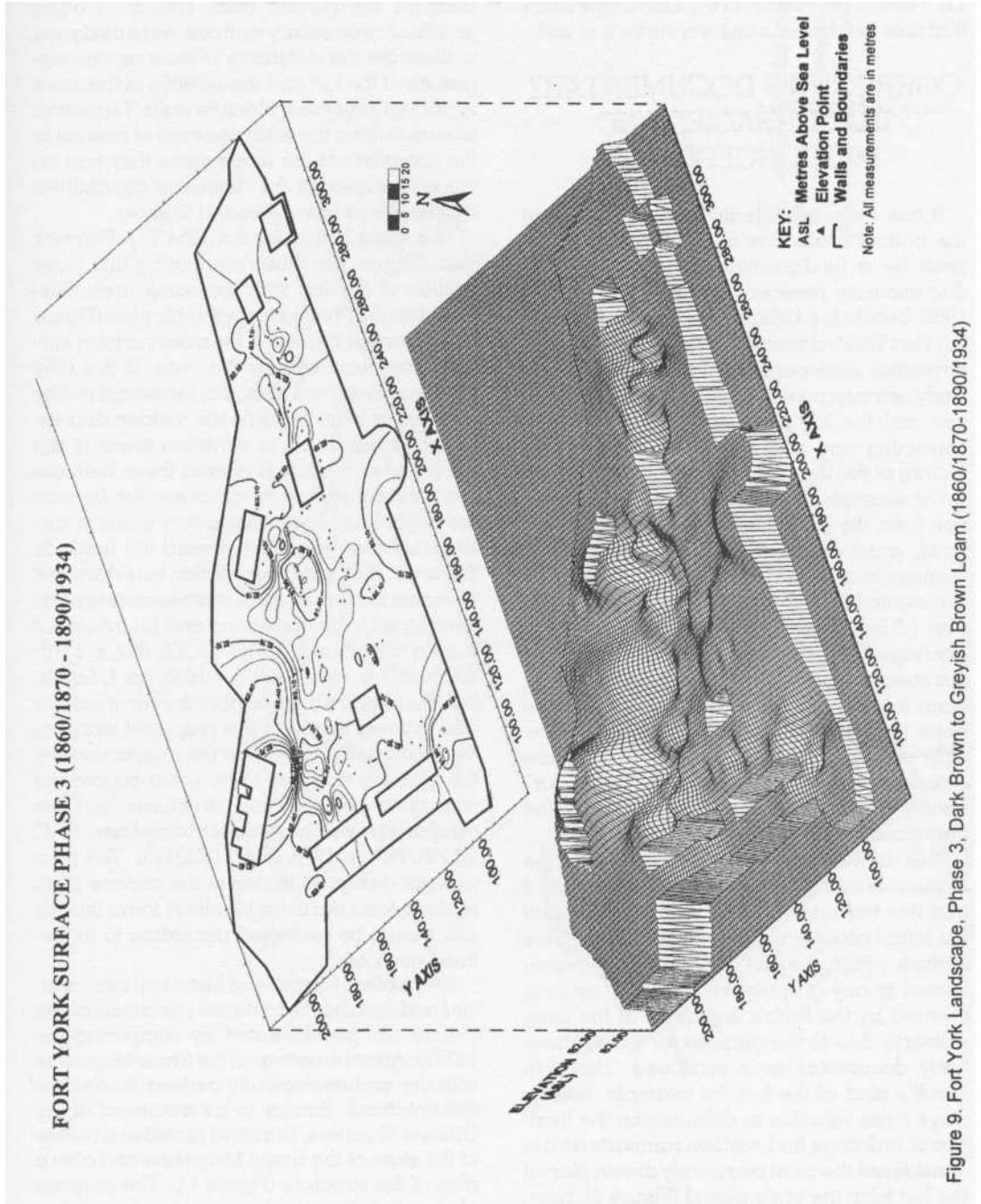


Figure 9. Fort York Landscape, Phase 3, Dark Brown to Greyish Brown Loam (1860/1870-1890/1934)

11). Further alterations to the landscape since that time produced a uniform surface of sod.

CORRECTING DOCUMENTARY INACCURACIES AND MISCONCEPTIONS

It has been repeatedly demonstrated that the critical evaluation of military documents must be a fundamental component of that documentary research and analysis (Babits 1988; Seasholes 1988; Scott 1991). By comparing Fort York's documentary record regarding terrestrial landscape with the results of this study new interpretations regarding landscape use and the fort's development, as well as correcting and redefining the documentary picture of the fort, are now possible.

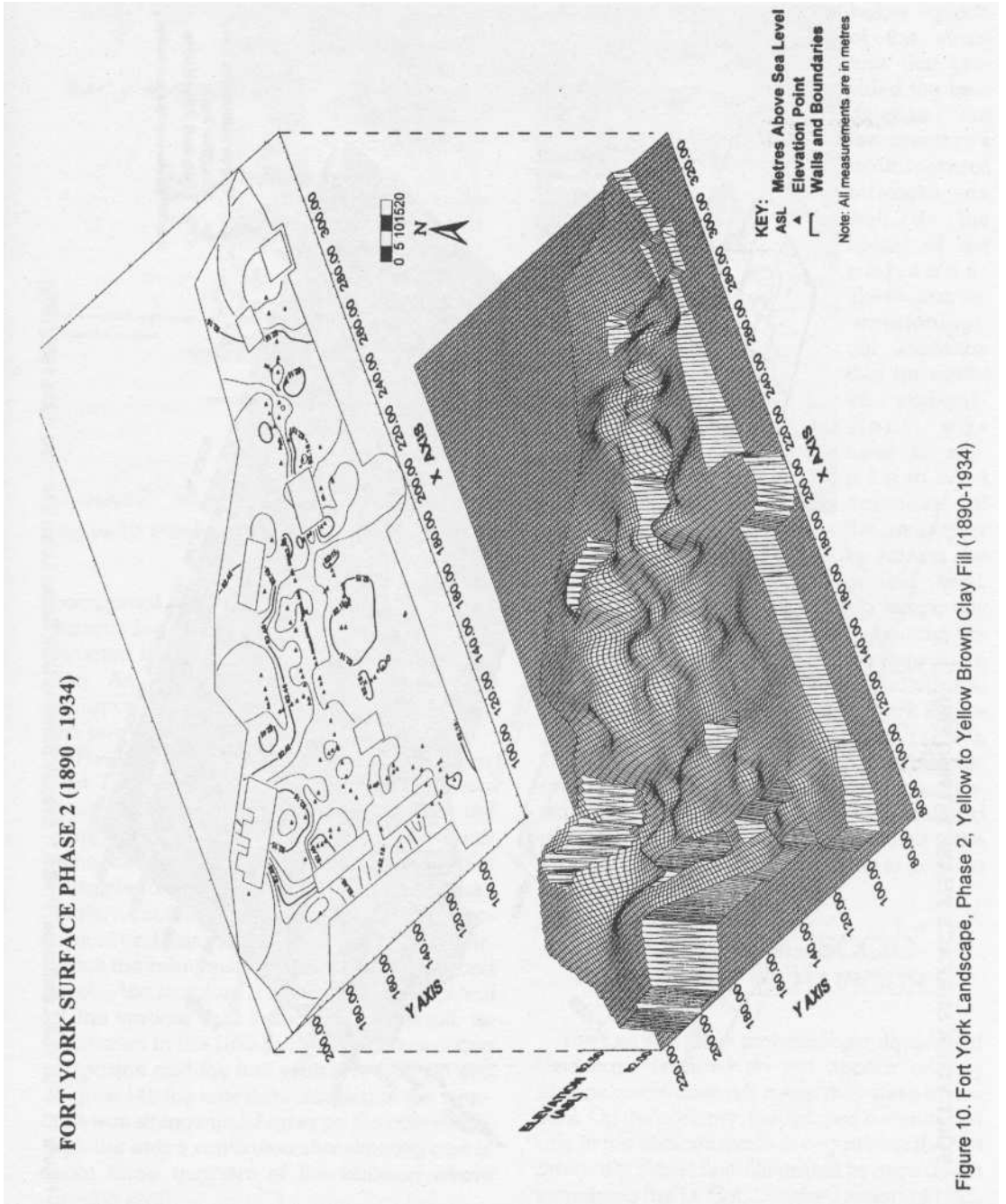
For example, the most significant observation from the Phase 6 map is the clearly defined, gradual rise in elevation towards the northeastern end of the fort (Figure 6). The rise in elevation ranges from 70 centimetres to just over 1.5 metres along the east-west axis of the low ridge. Considering that over the north wall is a steep descent to the Garrison Creek flood plain this area of the landscape would have been the highest point within the triangular strip of land the fort was situated on before descent (see Figure 3 for the "triangular" nature of the fort area and the location of the creek bed.).

This new data more clearly depicts the original terrain the fort was founded on, and that this terrain was fairly unaltered up until the initial construction period in 1813-15. This feature within the fort walls was not represented in any graphic documentary sources created by the British engineers at the time, primarily due to the purpose for which those early documents were produced. The 1816 Nicoll's plan of the fort, for example, has always been valuable in determining the location of buildings and earthen ramparts as it is considered the most accurately drawn plan of the fort from the early period (Figure 3). However, the plan is limited because it only shows the topography outside of the forts walls and not the features of the terrestrial landscape within the walls. This is also true for the 1823 Durnford map (Figure 12). Features such as the low ridge and the broad swale used as a midden were not depicted on the map simply

because the Nicoll's plan, similar to other graphic documentary sources, were designed to illustrate the defensive feature as one approached the fort and the location of the more important structures within its walls. Terrestrial features within the walls were not of interest to the compilers of the maps since they had no value in depicting the defensive capabilities that the maps were intended to show.

The same is true for the 1854 W.J. Renwick plan (Figure 13). When comparing this cross section of the fort with the same area illustrated on the Phase 4 topographic plan (Figure 8), the former depicts a far more uniform surface than was actually the case. If the 1854 plan was designed to depict terrestrial reality it should at least illustrate the midden depression and quick rise in elevation towards the north end of the fort. However, these features are not illustrated on the cross section. Instead the Royal Engineers drew a very uniform surface that rose gradually toward the north. In this case, the 1854 cross section was drawn at the same time when there were several reports dealing with the conditions and future use of the old fort grounds (NAC, W055, 887, s. 171ff; W055/887, s. 154ff; RG8, vol. 1635, pp. 1, 5b, 7b, 9a). Therefore, it appears that the cross section was created to depict the proposed works to be conducted primarily on the ramparts since the drawing appears to be more concerned with distances between structures and the ramparts as well as possible firing lines (NAC W055, 887, s. 177ff; NMC 0023145). The plan was not designed to depict the surface in its realistic form but in an idealistic form, thus its use should be restricted according to its defined purpose.

Yet another example of historical inaccuracies and the misinterpretations documents can induce can be illustrated by comparing the 1823 Durnford drawings of the Stone Magazine with the archaeologically derived landscape constructions. Similar to his treatment of the Officers' Quarters, Durnford provides a review of the state of the Stone Magazine and also a plan of the structure (Figure 14). The purpose of a powder magazine was to store large quantities of powder, in a dry cool environment, while at the same time protect that powder from accidental firing, sabotage and enemy fire (Benn 1991:6). In order to accomplish their purpose these magazines were carefully constructed with heavy walls and a



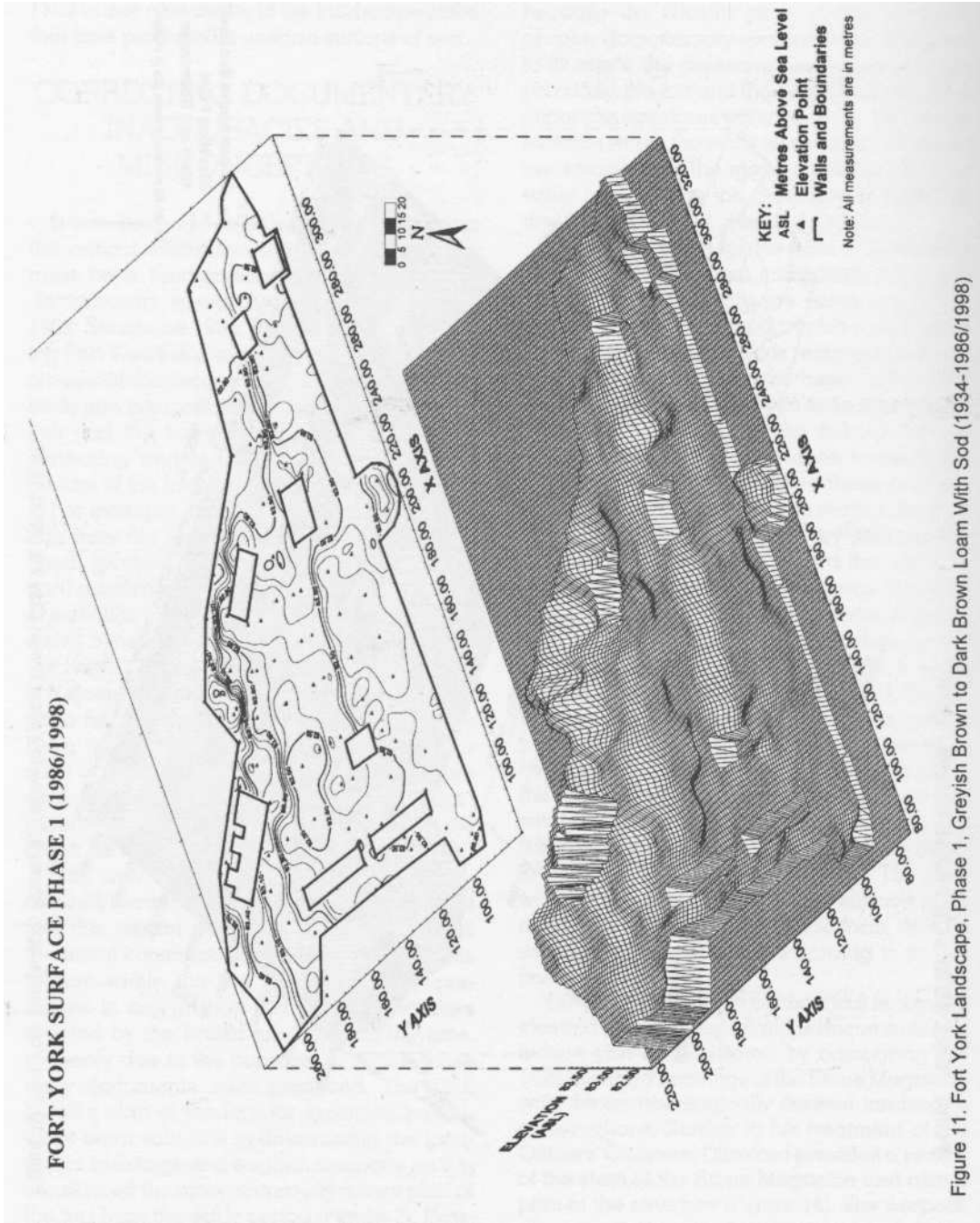


Figure 11. Fort York Landscape, Phase 1, Greyish Brown to Dark Brown Loam With Sod (1934-1986/1998)



Figure 12. Plan of Fort York by Lt. Col. Elias W. Durnford, 1823 (NAC, NMC H4/450)

bombproof roof. The entire structure may be surrounded by a palisade, and partially constructed below ground level for extra protection. An elaborate ventilation system was incorporated into the building in order to keep the powder dry (Benn 1991:7, 11).

The 1823 depiction of the Stone Magazine at Fort York illustrates some of these defensive features. However, when these drawings are compared to archaeological data new questions are raised regarding their accuracy. For example, a drawing of the Stone Magazine's eastern profile, based on available archaeological and historical information, clearly illustrates the relationship of the adjacent ground level to the structure (Figure 15). Instead of half of the vertical wall being below ground, as illustrated in the 1823 profile by the low sitting magazine and the half visible ventilation slits (Figure 14), the new data shows that the structure was sitting much higher on the landscape, with the entire ventilation slits showing and at least three quarters of the building above ground level.

This new information not only directs one to critically evaluate the purpose and accuracy of Durnford's 1823 drawing but it also forces a re-evaluation of the defensive capabilities of the dry moat. Since so much of the structure was high above ground level right from its initial construction it was probably not the depth

below grade of the structure that provided the best defence, but the structure's architectural strength as well as the height of the palisade. There was no archaeological evidence that an earthen embankment was used to supplement defences of

the magazine by raising the ground level,

however evidence of at least two temporally separate palisades were recorded during the 1991 excavations. These palisades were documented in one 1878 and one 1885 photograph of the Stone Magazine (CTA, Fort York Photographs, 1878; TRL, Baldwin Room, T11597). Thus by considering this new data and re-evaluating documentary source a more substantiated interpretation can be achieved regarding the various defensive features of the Stone Magazine and their capacity to function in the protection of the powder.

INTERPRETING SOCIO-CULTURAL BEHAVIOUR

The fact that these archaeologically derived landscape features do not appear on any historic maps does not mean they were irrelevant. On the contrary, they played a significant role in the choices made in organising the fort internally. This is best illustrated by once again examining the Lt. Col. Durnford report of 1823. The purpose of this report was to outline the state of the structures at the fort and record necessary repairs. Durnford provides plan and profile drawings of all the main structures associated with the fort (NAC, RG 8 Series II, and Vols. 80-81). By comparing Durnford's elevation and section of the Officers Barracks

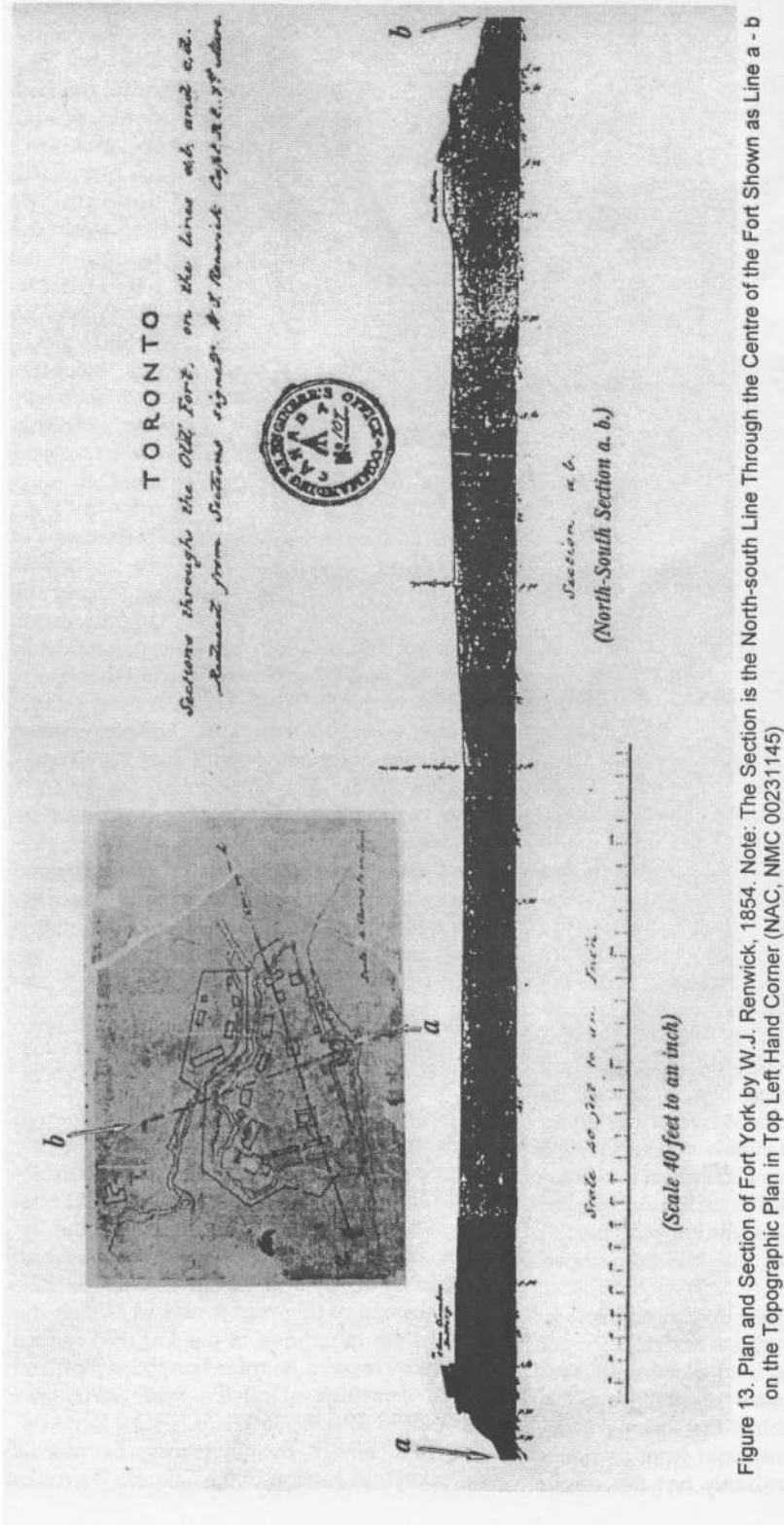


Figure 13. Plan and Section of Fort York by W.J. Renwick, 1854. Note: The Section is the North-south Line Through the Centre of the Fort Shown as Line a - b on the Topographic Plan in Top Left Hand Corner (NAC, NMC 00231145)

(Figure 16), with the archaeological data (Figure 17) the limitations of the document in terms of understanding the structures real position and elevation according to the terrestrial landscape is easily seen.

The reconstructed drawing based on the interpolation of the surface in that area shows that the Officers' Quarters foundations were clearly visible at either end of the structure. Furthermore, there was a drop of over half a metre from the southwest corner to the south-east corner of the building. Not only does this new data clearly illustrate the problems in relying on Durnford's drawing for realism, but it also provides in-sights into the planing and initial construction of the building not recorded in documentary sources.

For example, the Officers' Quarters was one of the few structures designed with a basement kitchen (Figure 16). In order to construct a kitchen of that size the British Engineers had to plan for the excavation and removal of much soil, (in this case hard packed clay subsoil). This would require

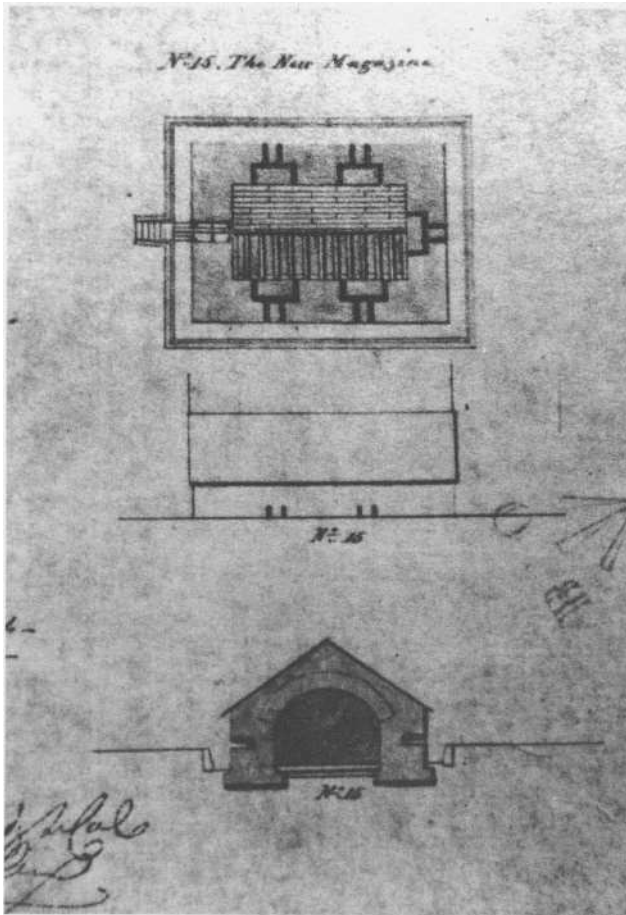


Figure 14. Plan, Elevation and Section of the Stone Magazine by Lt. Col. Elias W. Durnford, 1823 (NAC, **NMC-5361**)

many more hours of labour and extra wages for the harder work involved. The British military had very strict regulations regarding the payment of their workers according to the nature and amount of work completed. This was clearly illustrated in an 1852 "Analysis of Schedule Prices" document that was created to replace and update earlier regulations regarding the payment of workers for different types of labour and skills (NAC W055/886[71 s. f.300-455, reel B-2834). Therefore, in order to minimise costs of the construction of the Officers' Quarters it would be important to minimise the amount of work involved.

The subsoil construction around the Officers' Quarters shows that in the area where the kitchen was located there is a significant drop in elevation ranging from 40 to 80 centimetres

(Figure 6). This would mean that the excavation of the kitchen basement would have required significantly less time and money since the amount of soil to be removed was decreased anywhere from 43 to 86 cubic metres. The subsoil surface in this area illustrates that the British engineers used the natural features of the terrain in order to take advantage of as much of the natural height of the landscape, while at the same time orient the building in a manner that would minimise the amount of resources needed to excavate and build the basement kitchen.

The archaeologically derived landscape not only helps us understand the planning process involved in the initial layout of buildings within the fort walls, but it also gives us insights into the social values placed on landscapes. These social values helped to determine the way landscapes were organised and modified by the British military hierarchy during the early layout of the fort.

For example Phase 6 depicts a shallow depression close to the centre of the fort roughly between the Blue Barracks and Blockhouse #2. This "swale" was first recorded in the 1988-1989 monitoring work, however, the approximate dimensions of the feature were unknown (Spittal 1991:44-5, 86). According to the subsoil re-construction of Phase 6, the depression would have been 20 to 30 metres in diameter and approximately half a meter to a meter deep. The

northern boundary of the feature rises dramatically towards the Blue Barracks. Since the depression was the lowest point in the area it probably allowed for the accumulation of stagnant water, thus, for obvious reasons the area was not a desirable spot to build on. It was probably for this reason that the depression was used as a midden area by the early nineteenth century occupants of the fort as was illustrated archaeologically (Spittal 1991:44-5).

The Phase 6 map showing the low east-west ridge (Figure 6) also provides insights into understanding why the British engineers located certain buildings on specific areas of the

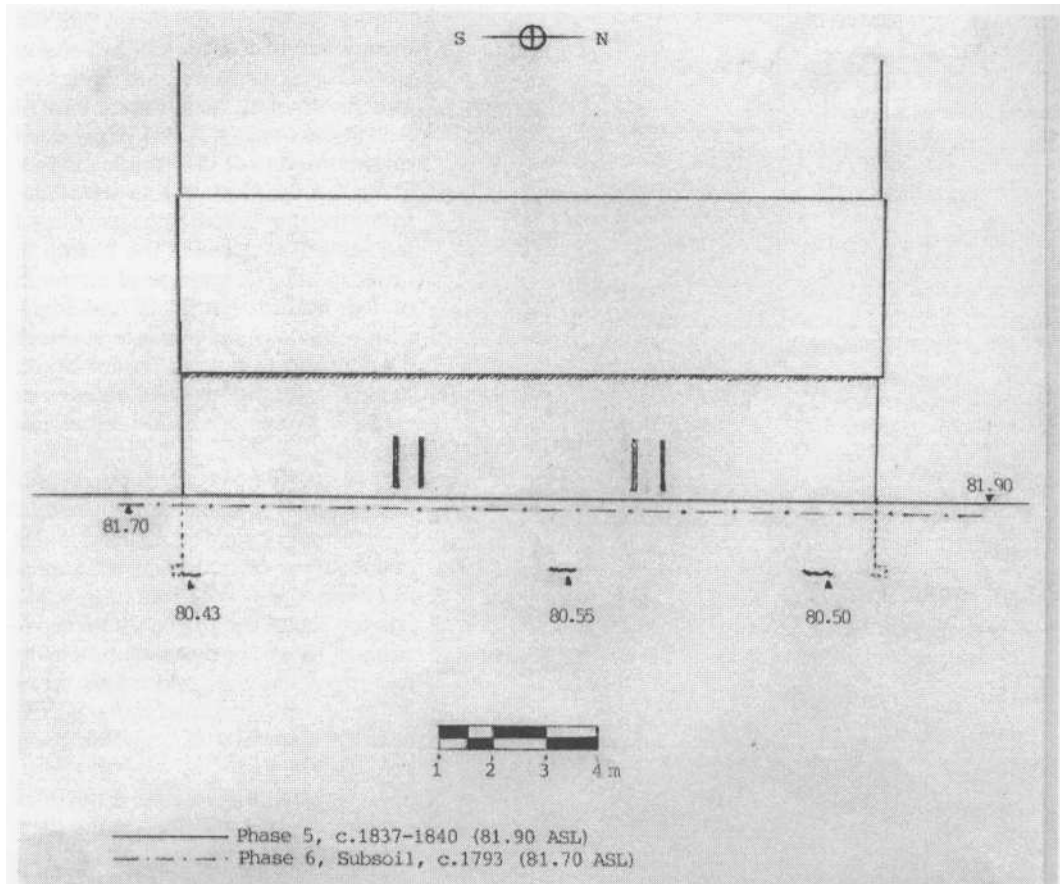


Figure 15. Stone Magazine Surface Elevations Based on Archaeological Data (circa 1793-1840)

landscape. First of all the low ridge had the best view of the Garrison Creek flood plain as well as a slightly better view of the fort grounds and the lake. Since this land was the highest point within the fort walls, it was farthest from the water table and much better drained (to the north and southeast). The historic drainage system of the fort, which has been well documented archaeologically, further illustrates that the water was drained from the northwest, towards the lake to the southeast (Spittal 1991:57, 70-71, 75, 91; Webb 1991:63, 91 93 108).

Together, the higher elevation and superior drainage qualities of this area of the landscape would have increased not only its utilitarian value but also its social value in comparison to the low-lying areas closest to the lake. The social value of this part of the landscape was illustrated in the way the hierarchical structure and operation of the British military was manifested in the landscape.

There are several early plans of the fort that show the orientation and location of the fort's built environment (Figures 2, and 12). These maps locate the Officers' Quarters, the Commandants' Quarters, and Engineers' Office along the top of this higher terrain and clearly aligned with the east west direction of the low ridge. While at the same time the dwellings of the lower ranks were placed in the lower areas closer to the lake. The planing and the eventual use and modification of the landscape between 1813 and 1816, when the fort was being reconstructed, clearly reflects this hierarchy and the need to reinforce established social positions. This was accomplished by not only making use of this socially desirable natural feature, but also by using this feature to draw a symbolic distinction between the officer ranks and the lower ranks. In other words it was not haphazard decision making that reserved this higher ground for the construc-

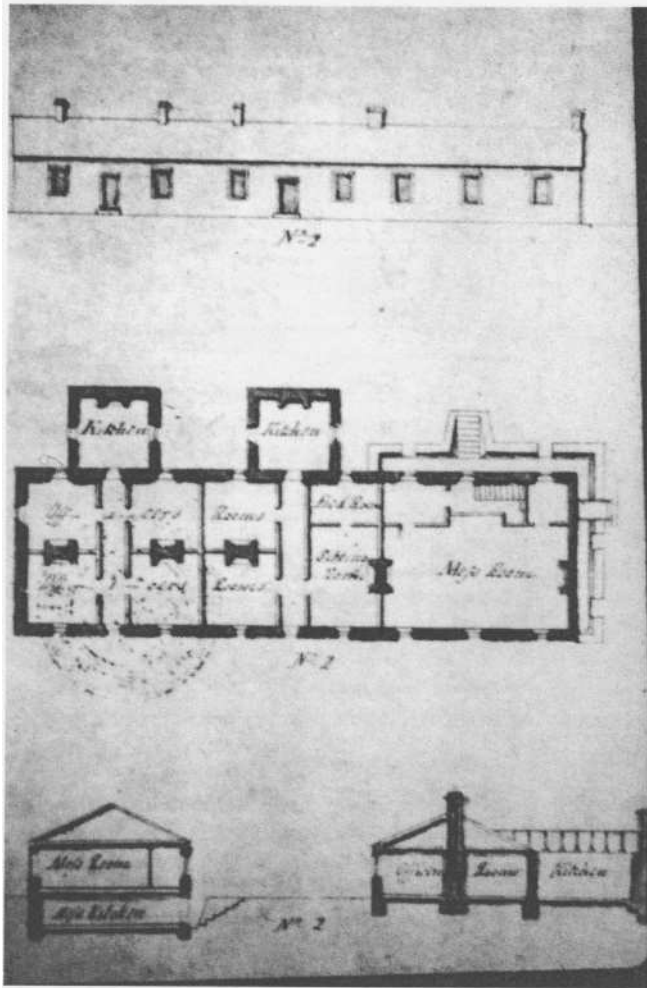


Figure 16. Plan, Elevation and Section of the Officers' Quarters by Lt. Col. Elias W. Durnford, 1823 (NAC, NMC-5353)

tion of the living quarters for the highest ranking members of the British military. By placing these structures on the high ground and building the lower ranking quarters on lower areas the landscape was culturally manipulated by the upper ranks to reinforce the social structure within the British Military.

In time historical events would dictate how the landscape would be perceived and used. The massive refortifications following the 1837 Rebellions started a trend that would blur the social distinctions the terrestrial landscape once symbolized. This was illustrated in the construction of the imposing 1838 Rebellion Barracks just west of the Officers Quarters in

the Northwest Bastion. Once the location of the Engineers Quarters this part of the landscape was one of the few locations within the fort grounds that that could accommodate such a large structure. Thus, by 1837 the strategic pressure to rearm the fort overruled the previous organization and use of the landscape; strategic necessity now superseded the need to project social hierarchies.

Eventually these construction activities and landscape modifications along with others occurring as late as the 1930s would continuously alter the landscape to the point where terrestrial symbols of social rank were almost completely removed. Archaeological evidence, however, allows us view these landscape features and speculate on the cultural behaviours that are manifested in the terrestrial environment.

CONCLUSION

When looking at the constructed ;cultural landscape of Fort York one can see the natural features that motivated and affected the treatment and use of the terrestrial landscape. By evaluating these features new insights can be reached in the interpretation of the forts' development over time. Furthermore, the new data also illustrates the inaccuracies and misconceptions inherent in the graphic documentary sources available for the fort. These misconceptions are due

to the nature of the documentary sources and the purpose for which they were created. Relying simply on these documentary sources for landscape depictions can be problematic since they were not designed to illustrate aspects of the internal landscape, which as it was shown played a significant role in the utilitarian and sociocultural organisation of the fort during the early years.

If one considers how these landscape features would appear in conjunction with random deposits of ash, cinder and construction rubble, the midden areas, and the pools of stag-

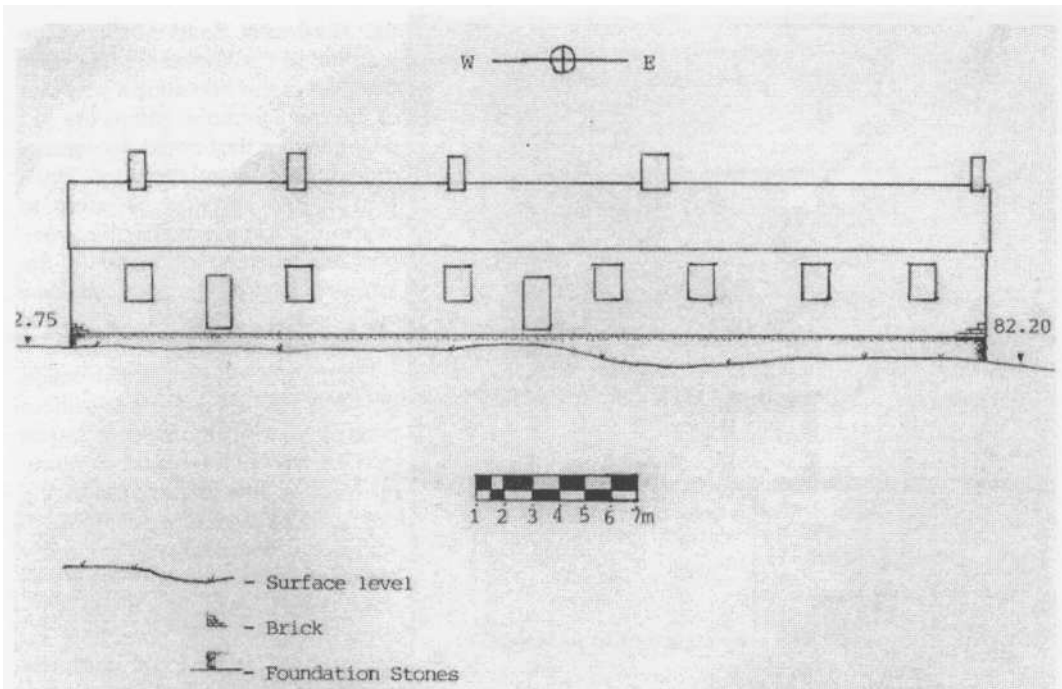


Figure 17. Officers' Quarters Surface Elevations Based on Archaeological Data (Subsoil, circa 1793 to 1820s)

nant water, the landscape as perceived through documentary sources does not serve past reality justice, and is only a mere image of what the Royal Engineers thought were the important features of an ideal, orderly landscape. It is ironic that in the 1930s when the fort was restored to its 1816 appearance this ideal perception of order and uniformity was mimicked through the reconstruction of the fort with the use of straight stone walls where eroding earthen ramparts once stood, and clay landfill levelling areas that in the past were far more irregular. Yet the archaeological data, and the surfaces generated from that data, narrate a landscape history that was not as uniform and idyllic as the nineteenth century engineers recorded or the museum administrators of the 1930s reconstructed. All six stratigraphic phases when viewed together depict how more dynamic the landscape was in reality.

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and rushed late submission to this volume. Finally, the usual disclaimer applies; any errors and obtuseness in the data and interpretations presented are the sole responsibility of the writer.

REFERENCES CITED

- Aronoff, S.
1991 *Geographic Information Systems: A Management Perspective*. WDL Publications, Ottawa.
- Babits, L. E.
1988 Military Records and Historical Archaeology. In *Documentary Archaeology in the New World*, edited by M. C. Beaudry, pp. 119-125. Cambridge University Press, Cambridge.
- Beaudry, M. C. (editor)
1998 *Documentary Archaeology in the New World*. Cambridge University Press, Cambridge.
- Benn, C.
1993 *Historic Fort York, 1793-1993*. Natural Heritage / Natural History Inc. Toronto.
1991 Bombproof Powder Magazines of the War of 1812 Period in Upper Canada. *Arms Collecting* 29(1):3-13.
- Breede, C.
1977 *Fort York Resistivity and Archaeology Project Report*. Manuscript on file, Heritage Toronto, Historic Fort York, Toronto.
- Brown, D.A.
1988 *Fort York Archaeology Programme 1987-1988. Excavation and Preliminary Analysis Report: 1. The Officers' Brick Barracks; 2. Testing for Government House; 3. Testing for an 1814 Barracks in the Southwest Bastion*. License report of file, Ministry of Citizenship, Culture & Recreation, Toronto.
- CTA (City of Toronto Archives, Toronto)
Fort York Photographs, Photo of Stone Magazine Looking North, Anonymous Photographer, circa 1878.
- Cole, J. R.
1980 An Anthropologist Looks at Historical Archaeology. *Proceedings of the Conference on Northeastern Archaeology*, edited by J. A. Moore, pp.E67-171. Research Report Number 19, Department of Anthropology, University of Massachusetts, Amherst.
- Deetz, J. F.
1990 Prologue: Landscape as Cultural Statements. In *Earth Patterns, Essays in Landscape Archaeology*, edited by W. Kelso and R. Most, pp.1-6. University Press of Virginia, Charlottesville.
1998 Discussion: Archaeologist as Storytellers. *Historical Archaeology*, 32(1):94-96.
- Dollar, C. D.
1978 Some Thoughts on Theory and Method in Historical Archaeology. In *Historical Archaeology: A Guide to Substantive and Theoretical Contributions*, edited by R. L. Schuyler, pp. 216-222. Baywood Publishing, Farmingdale, New York.
- Firth, E.G.
1962 *The Town of York 1793-1815*. A Collection of Documents of *Early Toronto*. The Champlain Society, Toronto.
- Golden Software
1991 *Surfer, Reference Manual*, 4.0. Golden Software. Golden, Colorado.
1994 *Surfer (ver. 6.01) For Windows User's Guide, Contouring and 3D Surface Mapping*. Golden Software, Golden, Colorado.
- Harrington, J.C.
1978 Archaeology as an Auxiliary Science to American History. In *Historical Archaeology: A Guide to Substantive and Theoretical Contributions*, edited by R. L. Schuyler, pp. 3-7 Baywood Publishing, Farmingdale, New York.
- Harris, E.
1989 *Principles of Archaeological Stratigraphy*. Academic Press. Toronto. Hodder, I., and C. Orton
1976 *Spatial Analysis in Archaeology*. Cambridge University Press, Cambridge.
- Hodgson, M.E.
1989 Searching Methods for Rapid Grid Interpolation. *Professional Geographer* 41:143-150.

- Holding and Jones Inc.
 1986 Plan of Topography of Old Fort York Being Part of the Garrison Commons and Part of Parcel No. 4, Registered Plan 1101 (City) City of Toronto, Municipality of Metropolitan Toronto. Holding and Jones Ltd.
- Hume, I. N.
 1968 *Historical Archaeology*. Alfred Knopf, New York.
- Kenyon, I.
 1986 'That Historic Crap!' Historic Archaeology Resource Management. In *Archaeological Consulting in Ontario Papers of the London Conference 1985* edited by W. A. Fox, pp. 41-50. Occasional Publications of the London Chapter, Number 2, Ontario Archaeological Society Inc., London.
- Kidd, K. E.
 1969 Historic Site Archaeology in *Canada*. Anthropology Papers, National Museum of Canada, Number 22.
- Kvamme, K. L.
 1990 GIS Algorithms And Their Effects On Regional Archaeological Analysis. In *Interpreting Space: GIS and Archaeology*, edited by K. M. Allen, S. W. Green, and E. B. W. Zubrow, pp.112-133, Taylor and Francis, London.
- Lan, N.S.N.
 1983 Spatial Interpolation Methods A Review. *The American Cartographer* 10:129-149.
- Lightfoot, K. G.
 1995 Culture Contact Studies: Redefining the Relationship Between Prehistoric and Historical Archaeology. *American Antiquity* 60(2): 199-217.
- Little, B. J.
 1994 People with History: An Update on Historical Archaeology in the United States. In *Journal of Archaeological Method and Theory*, 1(1): 5-40 edited by M. B. Schiffer, Academic Press, New York.
- NAC (National Archives of Canada, Ottawa)
 R.G. 8, British Military Documents, Report on List of Works Performed circa 1839, Series C, Vol 447, pp. 258-261.
- RG. 8, British Military Documents, Miscellaneous Inspection Reports and Correspondence, 1826-1829, Series C, Vol 580, pp. 70-79, 124-125, 132-134.
- RG 8, British Military Documents, Report on the State of the Fortifications, compiled by Lt.-Col. Elias. W. Durnford 1823, Series II, and Vols. 80-81.
- RG8, British Military Documents, Inspectional Report on the State of the Fortifications, 1854, Vol. 1635, pp. 1, 5b, 7b, 9a.
- War Office Papers, March 14, 1848 Report, Royal Engineers, Kingston, WO55/882, s. 253ff.
- War Office Papers, Sir James Carmichael Smyth's Report on Defence of Fort c. 1826 WO55/887, s, 160ff.
- War Office Papers, Miscellaneous Reports and Correspondence, c. 1854-1856 W055, 887, s. 154ff, s. 171ff.
- War Office Papers, Miscellaneous Reports and Correspondence, c. 1852, W055/886[7J s. f.300-455, reel B-2834.
- National Map Library of Canada, Plan of Fort York signed by Lt.-Col. Gustavus Nicolls, June 24, 1816. Catalogue Number NMC-23139.
- National Map Library of Canada, Plan of Fort York by Lt.-Col. Elias W. Durnford, 1823. Catalogue Number H4/450.
- National Map Library of Canada, Plan and Section of Fort York in 1854 by W.J. Renwick. Catalogue number NMC 00231145.
- National Map Library of Canada, Plan, Elevation and Section of the Stone Magazine by Lt.-Col. Elias. W. Durnford, 1823. Catalogue Number NMC-5361.
- National Map Library of Canada, Plan, Elevation and Section of the Officers' Quarters by Lt.-Col. Elias. W. Durnford, 1823. Catalogue Number NMC-5353.

- Nadon, P.
1976 *L'Archeologue Historique au Canada*. Symposium on *New Perspectives in Canadian Archaeology*, 22-23 October 1976, edited by A. G. McKay pp.81-88. The Royal Society of Canada, Ottawa.
- Newlands, D.L.
1979 Archaeological Investigations at Fort York, Toronto. *Archaeological Newsletter (Royal Ontario Museum) New Series*, No. 164. The Royal Ontario Museum, Toronto.
- Noble, V.E.
1996 Yesterday, Today and Tomorrow: A Plea for Change in the Practice of Historical Archaeology. *Historical Archaeology* 30(2):74-84.
- QYR (Queen's York Rangers, Toronto)
Fort York Armouries Archives, Fort York Maps, Sketch by John Graves Simcoe, 1793.
- RCMI (Royal Canadian Military Institute, Toronto).
Archives, Militia Reports, circa 1886.
- Rotman, D. L., and M. S. Nassaney
1997 Class, Gender, and the Built Environment: Deriving Social Relations From Cultural Landscapes in Southwestern Michigan. *Historical Archaeology* 31(2):42-62.
- Schuyler, R. L. (editor)
1978 *Historical Archaeology: A Guide to Substantive and Theoretical Contributions*. Baywood Publishing, Farmingdale, New York.
- Scott, S. D., P.K. Scott, J. W.F. Smith and J. MacLeoy.
1991 Reorientation of Historical Maps of Old Fort Niagara Using Computer-Assisted Cartography. *Journal of Field Archaeology* 18(3): 319-343.
- Seasholes, Nancy S.
1988 On the Use of Historical Maps. In *Documentary Archaeology in the New World*, edited by M. C. Beaudry, pp.92-118. Cambridge University Press. Cambridge.
- Spittal, D. A.
1991 *Fort York Archaeology Programme, Report on Sewer Construction Monitoring, Phase I - 1989, Trunk Storm Sewer and Water Main Construction*. 2 Vols. License report on file, Ministry of Citizenship, Culture and Recreation, Toronto.
- 1992 *Fort York Archaeology Programme, Report on Sewer Construction Monitoring, Phase II - 1990 Catch Basin and Branch Line Construction*. License report on file, Ministry of Citizenship, Culture and Recreation, Toronto.
- 1993a Fort York Archaeology Project, Report on *Drainage Construction Monitoring, Phase III- 1990 Landscaping*. License report on file, Ministry of Citizenship, Culture and Recreation, Toronto.
- 1993b *Fort York Archaeology Project, Report on Construction Monitoring, South Soldiers' Barracks, Building Restoration and Perimeter Drain Construction 1990-1991*. License report on file, Ministry of Citizenship, Culture and Recreation, Toronto.
- 1993c *Fort York Archaeology Project, Report on Construction Monitoring, Electrical and Mechanical Services, Construction of hydro Vault 1991*. License report on file, Ministry of Citizenship, Culture and Recreation, Toronto.
- 1994a *Fort York Archaeology Project, Report on Construction Monitoring, Brick Officers' Quarters, Building Restoration and Installation of Drains 1992-1993*. License report on file, Ministry of Citizenship, Culture and Recreation, Toronto.
- 1994b *Fort York Archaeology Project, Report on Construction Monitoring, Restoration of the East Magazine 1994*. License report on file, Ministry of Citizenship, Culture and Recreation, Toronto.
- 1996a *Fort York Archaeology Project, Report on Construction Monitoring, Restoration of Blockhouse No. 2. Perimeter Drain, Air Conditioning Vault Construction 1995*. License report on file, Ministry of Citizenship, Culture and Recreation, Toronto.

- 1996b *Fort York Archaeology Project, Excavation and Preliminary Analysis of the 1813/1814 Blockhouse No. 2.* At *Historic Fort York*. License report on file, Ministry of Citizenship, Culture and Recreation, Toronto.
- 1996c *Fort York Archaeology Project 1996 - Report on Construction Monitoring. Restoration of Blockhouse No. 1.* License report on file, Ministry of Citizenship, Culture and Recreation, Toronto.
- 1997 *Fort York Archaeology Project 1997 - Report on Construction Monitoring. Installation of New Natural Gas Pipe Lines.* License report on file, Ministry of Citizenship, Culture and Recreation, Toronto.
- 1998a *Fort York Archaeology Project, 1997 - Report on Construction Monitoring. Excavation and Preliminary Analysis of the 1814 North Soldiers' Barracks at Historic Fort York.* License report on file, Ministry of Citizenship, Culture and Recreation, Toronto.
- 1998b *Fort York Archaeology Project, 1997 - Report on Construction Monitoring. Restoration of the 1814 North Soldiers' Barracks.* License report on file, Ministry of Citizenship, Culture and Recreation, Toronto.
- 1998c *Fort York Archaeology Project, 1998 - Excavation and Preliminary Analysis of the 1814-138 Blue Barracks.* License report on file, Ministry of Citizenship, Culture and Recreation, Toronto.
- TRL (Toronto Reference Library, Toronto)
 Special Collections Centre, Baldwin Room, Miscellaneous Documents on Fort York, 1841 Report.
 Special Collections Centre, Baldwin Room, Photograph Collection, Anonymous Photographer, c. 1900 photo looking north towards Stone Magazine and Officer's Quarters. Catalogue Number T11615.
 Special Collections Centre, Baldwin Room, Photograph Collection, Anonymous Photographer, c. 1900 photo looking northeast towards Blue Barracks and Blockhouse #2. Catalogue Number T11616.
- Special Collections Centre, Baldwin Room, Photograph Collection, Anonymous Photographer, c. 1885 photo looking north towards Officers' Quarters. Catalogue Number T11597.
 Special Collections Centre, Baldwin Room, Photograph Collection, Anonymous Photographer, late 19th century photo looking east towards Block-house # 1. Catalogue Number T11635.
 Special Collections Centre, Baldwin Room, Photograph Collection, Anonymous Photographer, c. 1909 photo looking west towards Officers' Quarters and 1838 Barracks. Catalogue Number T11635.
 Special Collections Centre, Baldwin Room, Photograph Collection, Anonymous Photographer, c. 1916 photo looking southwest towards north wall. Catalogue Number T110604.
- Vaccarelli, V.
 1996 *Prosperity, Adversity and the Appearance of Worth; Socio-Economic Status and the Macdonells of Pointe Fortune Ontario, 1813-1881.* Unpublished M.A. thesis, Department of Anthropology, Trent University, Peterborough, Ontario.
- 1993 *Constructing and Interpreting Fort York's Cultural Landscape, 1793-1993.* Manuscript on file at Historic Fort York, Heritage Toronto, Toronto.
- Watters, G. E., G.G. McNicoll, and D. L. Newlands
 1979 The Search for the Fort York Guardhouse. *Archaeological Newsletter (Royal Ontario Museum) New Series*, No. 118. The Royal Ontario Museum, Toronto.
- Webb, C.
 1989 *Fort York Archaeology Project 1988, Excavation and Preliminary Analysis Report.* 3 Vols. License report on file, Ministry of Citizenship, Culture and Recreation, Toronto.
- 1991 *Fort York Archaeology Programme 1989, Excavation and Preliminary Analysis Report.* 3 Vols. License report on file, Ministry of Citizenship, Culture and Recreation, Toronto.

- 1992 *Fort York Archaeology Project 1990, Excavation and Preliminary Analysis Report*. 3 Vols. License report on file, Ministry of Citizenship, Culture and Recreation, Toronto.
- 1993 *Fort York Archaeology Project 1991-2, Excavation and Preliminary Analysis Report*. 3 Vols. License report on file, Ministry of Citizenship, Culture and Recreation, Toronto.
- 1994a *Excavation and Preliminary Analysis of the 1813/1814 Blockhouse No. 1 and 2. And the 1826 Kitchen Addition of the Officers' Quarters - Historic Fort York*. License report on file, Ministry of Citizenship, Culture and Recreation, Toronto.
- 1994b *The Fort York Archaeological Project 1987 - 1994 Excavation, Mitigation, and Research: A Summary Review of the Archaeological Resources at Historic Fort York*, Toronto. Manuscript on file, Heritage Toronto, Historic Fort York, Toronto.
- 1996 *The Fort York Archaeology Programme. Excavation and Preliminary Analysis of the interior and Exterior of the 1813 Blockhouse No. 1 at Historic Fort York, Toronto*. License report on file, Ministry of Citizenship, Culture and Recreation, Toronto.