Excerpts from a

Report on the 2004 Investigations at the Emmerson Springs Village (AkGx-5), Town of Halton Hills, Ontario Under Licence P081-002 and P081-004

Submitted to the Ministry of Culture and to the Ontario Heritage

by

Alicia L. Hawkins (licensee)
Anthropology Unit, Laurentian University, Ontario P3C 2C6
With contributions by
Aleksandra Pradzynski
Lindsay Swinarton
Adrian Keen

Table of Contents

Table of Tables

Table of Figures

Acknowledgements

The University of Toronto and Laurentian University 2004 field schools at Emmerson Springs involved a large number of participants during both fieldwork and processing and analysis stages in the fall and winter of 2004-05.

The Ontario Heritage Foundation is thanked for permitting excavation at the Emmerson Springs site, for allowing us to use the Farm Manager's house as a lab, and for loaning equipment. A letter of permission from the Ontario Heritage Foundation allowing excavation at the site, use of the facilities and removal of artefacts from the property may be found in Appendix 1. I especially wish to thank Dena Doroszenko, whose advice and experience proved invaluable. Val and Phil Alward, residents of the Scotsdale Farm, provided assistance with the water supply and access to buildings.

Michael Johnson, Jane Holland and Roshan Jussawalla of the Government of Ontario, Ministry of Culture provided assistance with licensing.

Students enrolled in ANT311 stayed at the Hart House Farm. We thank residents Gord and Heather Warn and Hart House Farm manager Sandy Henderson.

A number of Ontario archaeologists travelled to the site and spoke to students about work in archaeology in the province. We thank: Charlton Carscallen, Larry Pavlish, Christine Caroppo, Chris Anderson, Andrew Stewart and Anthony Davis.

Max Friesen, Hy Van Luong, Annette Chan and Silvia Beilin all provided support from the St. George campus of the University of Toronto. Pauline Bégin and Scott Fairgrieve provided support from Laurentian University.

The University of Toronto, Department of Anthropology, the Ontario Heritage Foundation and the University of Toronto at Mississauga, Departments of Anthropology and Geography, and the Laurentian University Anthropology Unit provided equipment.

Undergraduate Research Assistants were employed under the Summer Experience Program, funded in part by the University of Toronto and Laurentian University and in part by the Government of Canada. Cari Merkley of the Career Centre at the University of Toronto and Gabrielle Lavigne of the Placement Center at Laurentian Univeristy were crucial in the administration of these funds.

Max Friesen and the Anthropology Department at the University of Toronto are thanked for allowing use of the Howard Savage Faunal Archaeo-Osteology Laboratory for identification of animal bones.

Warmest thanks to Heather Henderson who stepped in to help supervise when we faced a staffing crisis, to Ron Williamson who allow Christine Crawford to leave her job

at Archaeological Services temporarily and to the Anthropology Department at University of Toronto for finding extra funds to pay for staffing on short notice.

Field Supervisors and Teaching Assistants (ANT311)
Jaime Ginter, Patricia Reed, Heather Henderson, Christine Crawford

Research Assistants - ANT311
Tom Porawski, Stephanie Graca Folgado
Lindsay Swinarton, David Britton, James Caldwell

Teaching Assistants (ANTR3095)
Yein Anna Oh, Stephen Walsh

Fieldschool students - ANT311
Leslie Bratton
Norma Hall
Kristina (Kiki) Ivic
Christina Jolliffe
Biliana (Bili) Jovanovic
Adrian Keen
Cynthia Kwok
Jansten Labagnao
Steve Landry
Mariette Lee
Tracey Li
Andrea (Andy) McAlpine
Andrea Oyarzun
Susan Rice

Fieldschool students – ANTR3095
Rob Beck
Matt Black
Karla Bosinger
Elaine Cheng
Amanda Jones
Meghan MacMillan
Elizabeth Matwey
Daphne Rodaway
Cortney St. Jean
Kristin Thor
Eric Tourigny

Research Assistants - Laurentian University
Elaine Cheng
Elizabeth Matwey

Laboratory Volunteers at Laurentian University
Kristin Thor

Summer Experience Program student employed by the OHF
Dyan Laskin Grossman
Donna Poulidis

Introduction

This report outlines the results of eleven weeks of fieldwork undertaken at Emmerson Springs Village (AkGx-5) in the summer of 2004. Fourteen undergraduate students from the University of Toronto (St. George campus) and nine staff participated in ANT311 in May and June 2004. Eleven undergraduate students from Laurentian University and three staff participated in fieldwork in July and August 2004. Additional contributions were made by Dena Doroszenko of the Ontario Heritage Foundation, a student employed by the Ontario Heritage Foundation, and volunteers.

This work comprises a follow up to work begun in 2002 and continued in 2003. The main areas on which we focussed our work in 2004 were

- to finally determine the location of longhouse walls suggested by excavations in 2002 and 2003;

- to determine the nature of the hillslope midden north of midden units N275E175 and N279E175 excavated in 2003;

- to attempt to determine the extent of hillslope midden deposits through testpitting; and

- to re-examine the question of site size through test pitting by students familiar with artefact identification.

We set aside a search for the palisade for logistical reasons. We aimed to collect further information that could help place the site chronologically and determine its relation to the Wallace site (AkGx-1).

The goals of the field school included both pedagogical and research objectives. Among the former were teaching of basic field skills: hand excavation using both trowels and shovels, use of mapping equipment, and recording methods. In addition, I wished to emphasize the link between fieldwork and research - that our methods and location of excavation relate to research interests - and that plans and methods evolve based on the results of ongoing fieldwork. Students in the ANT311 course were challenged to contribute to an ongoing discussion about how the excavation should proceed in light of a series of research questions of varying complexity.

Student projects entailed examination of the resources present in the Emmerson Springs vicinity. These were also conducted at Hart House Farm so as to avoid contamination of the archaeological site. The student projects included:

1) Determination of the density of chert in the till;

2) Determination of the types of igneous rocks locally present that would have been available for use in production of groundstone tools and as pottery temper;

3) Reproduction of Iroquoian pipes using local clays;

4) Organization of ‘School Day’ when students from Limehouse Public School were invited to visit the site and Public Archaeology Day, when friends and parents were invited to visit the site.

During the fall of 2004 and winter of 2005 two students at Laurentian University assisted in cataloguing of material from the excavations. In addition, another student systematically examined light fractions for Eastern White Cedar, a second student worked on point counts of different minerals in thin-sections of pottery and a third student began a study of the chemistry of cherts represented in the collection using Fourier Transform Infrared Spectroscopy. All of these studies are on-going. Students at

University of Toronto at Mississauga continue to work on identifying plant remains from the site.

This report follows the guidelines set out by the Ministry of Culture. Some of the sections included below are repetitions of the background provided in the 2002 and 2003 reports (Hawkins 2002, 2006). The analysis sections include materials recovered in both 2003 and in 2004 and with the exclusion of the faunal analysis section, these sections are repetitions of the analysis sections in the 2003 report.

Location and Environment

Site location

The Emmerson Springs Village (AkGx-5) is located on the Scotsdale Farm, a property William and Violet Bennett bequeathed to the Ontario Heritage Foundation. The village lies on Lot 9, Concession 9, Esquesing Township, Halton County, Ontario (Figure 1). It is most easily accessed via the Bennett Heritage Trail, which leads northeast from 8th line. The site is found on a promontory overlooking Owl Creek, a tributary of the Credit River.

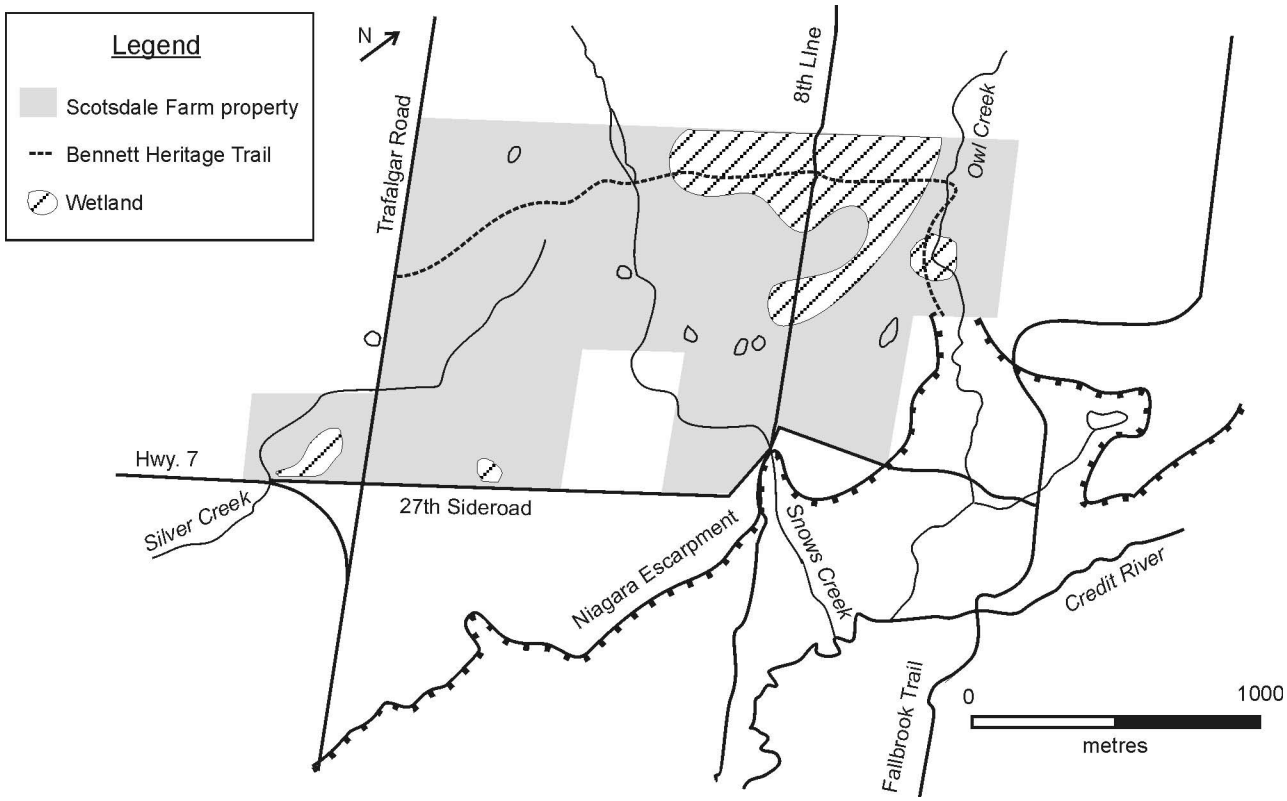

Figure 1. The location of the Scotsdale Farm and Emmerson Springs Village. Modified from Fox (1984). (Note: village location deleted from original map)

In the following sections I consider the environmental context of the site in terms of the suitability of the region for practice of agriculture, the available natural resources including water, flora, fauna, lithic and clay resources. Finally, I outline the climatic conditions during the period of occupation.

Geology and lithic resources

The Scotsdale Farm is underlain by Middle Silurian Amabel Formation limestone (Fox 1984; Ontario Geological Survey 1991). Underlying this is Queenston shale (Chapman and Putnam 1984; Ontario Geological Survey 1991), an important source of clay for modern brickmakers and a source used by at least one art pottery manufacturer

(Guillet and Joyce 1987). Fox (1984) recovered non-cultural fossiliferous chert pebbles, beige to cream in colour in till and outwash deposits. He suggests that Amabel formation limestones are the likely source of these cherts. A student project carried out in 2004 (Jollife, Lee and Landry 2004) demonstrated that the density of chert in the sediment is very low, and that in addition to beige and cream coloured chert, dark brown translucent and orange chert pebbles are present. All of the chert recovered through this project was very small and the density of chert was very low, suggesting that local lithic resources would not have been sufficient for procurement of material for chipped stone tool manufacture.

In addition to bedrock formations other lithic resources available in the vicinity include those in secondary context: glacial and fluvially redeposited rocks. We have not systematically surveyed the area to determine the location and nature of rocks in secondary context, but we did note their presence both in the soil on-site and in the creek-bed west of the site. Both of these locations are likely sources of the metamorphic and igneous rocks such as granite, schist, and amphibolite. Student project conducted in 2004 examined the availability of chlorite schist and amphibolite, two raw materials used for ground stone tools. Students were not successful in locating either material in the creek bed or in the stone fences that line the local fields (and which would represent the material present in the till). However, they sampled a small area and non-systematically, so the results of this survey must only be that these materials are not locally common.

While archaeologists commonly focus on the source of chert for chipped stone manufacture, it is important to remember that stone was used in a variety of ways. We recovered fire-cracked rock, hammerstones, grinding stones, groundstone tools, a stone effigy, and a fragment of a groundstone pipe. Characterization of the mineral additions made to clay (temper) suggests that potters used minerals derived from stone rather than unconsolidated sediment (Hawkins 2002). Therefore, a future survey of locally available stone would contribute to understanding past landscape use.

Although local sources of chert for chipped stone manufacture apparently exist (Fox 1984), the occupants of Emmerson Springs did not use them to any significant extent. As described in the 2002 report (Hawkins 2002), the chipped lithic assemblage is overwhelmingly dominated by Onondaga chert. According to Fox, the closest source of Onondaga chert would have been at least 100 km south of the site. Outcrops of other chert types (Lockport or Ancaster) lie closer to the site (Eley and Bitter 1989: 104), but only minor amounts of non-Onondaga cherts occur in the archaeological assemblage.

Geomorphology

A number of features of the local geography are relevant to understanding habitation of Emmerson Springs.

Water is seasonally available from Owl Creek, a tributary of the Silver Creek, which is itself a tributary of the Credit River. Owl Creek is fed, in part, by a spring that flows from the hill slope west of the site. On the west side of Emmerson Springs one finds a 'spillway' (Poulton and Associates 1994: 3), a former drainage channel formed by glacial meltwater during the Pleistocene (Chapman and Putnam 1984: 15). As is typical of such features (Chapman and Putnam 1984), a cedar swamp is present at the base of the slope. Poulton describes a second spillway on the east side of Emmerson Springs. This meets the western one on the southwest of the site. He describes these lowlands as "active

year-round drainages with associated bogs, still pools and cedar stands." We noted that by mid-summer a tributary of Owl Creek north of the site was dry.

As described above, the spillway is a likely source of lithic raw materials other than chert. Cedar swamps provide winter yarding habitats for white-tailed deer.

The site itself is found on a terraced plateau. This topography, described below, likely structured the settlement pattern: the hill slope separating two terraces was an unlikely location for longhouses. Glacial till (Wentworth Till) overlies limestone bedrock on these terraces. Till may have served as a source for both clays and lithic resources, however excavation has shown that the location of clay is unpredictable and the C horizon in the occupation area varies in texture from sandy loam through clay.

Considered on a different scale, the Niagara Escarpment is a major geomorphological feature in the region. The significance of the Niagara Escarpment in the past requires consideration of a number of factors. It is a highly visible feature of the landscape, is difficult to traverse in places and may be considered either a pathway or a barrier or both. Further, it may be considered in terms of resources: shales outcrop, the Credit River and tributaries flow at the base of the escarpment in the study region, and swamps may have provided habitats for white-tailed deer. Crawford (no date) cites it as an example of an 'edge' where floral diversity and productivity may be high. Numerous Iroquoian sites have been documented associated with the Niagara Escarpment south of Emmerson Springs (Finlayson 1998).

Soils

Consideration of the soils of Emmerson Springs includes the bedrock geology, the nature of the quaternary deposits, classification of the soils that have developed in this area and differences between the published soil classification and our field observations. Emmerson Springs lies atop the Niagara Escarpment on Amabel formation limestones, dolostones, siltstones and sandstones (Freeman 1979). In some areas near the site, sediments are very thin and bedrock is exposed. Much of the fire-cracked rock we recovered is sandstone and dolostone and is likely to have been procured locally. The Amabel formation is underlain by soft Queenston shales, limestones, dolostones and siltstones (Freeman 1979). These are exposed in the face of the Niagara Escarpment east of the site.

The Quaternary deposits on which the Emmerson Springs soils were formed are the Halton tills, which are described as a ‘red to brown gritty silt to clayey silt till’ (Karrow, et al. 1990). Our observations of the sediment underlying the plough zone include patches that fit the above description, however sediment texture ranges from gravely through clayey, with some areas having a high sand content.

According to Gillespie (1971) three soil series occur in the Emmerson Springs vicinity: Farmington loam (a brunisolic soil), Lockport clay (a luvisol) and Dumfries loam (a luvisol). Based on the soil map for Halton county, the site itself lies on a Farmington loam (Gillespie, et al. 1971)(see Figure 2). This soil has three horizons

1. Ah horizon, characterized as ‘Very dark grayish brown (10YR3/2) loam; medium granular structure; friable consistency, slightly stony; pH 7.0’colour, a loam texture, medium to granular texture- soil type from the map

2. Bm horizon, characterized as ‘Yellow brown (10YR5/4) loam; medium subangular blocky; firm consistency; moderately stony; pH 7.4.’ The depth of the Bm horizon ranges from 6 to 11 inches.

3. R, characterized as ‘Dolomite bedrock’ (Gillespie, et al. 1971).

The designation of the soil as Farmington loam did not fit well with our field observations. Specifically, the horizon underlying the plough zone varies in colour from 5YR 3/4 through 10YR 4/3, and varies in texture from sandy loam to clay loam. More importantly, however, although we dug to well below 30 cm (11 inches) both on site and off-site, we did not encounter the dolostone bedrock. A test pit at the base of the slope northwest of the slope showed a layer of alluvial silt over dolostone bedrock at approximately 30 cm below surface. Some of the sediment deposition in this area is likely a recent event given that we discovered a chert flake in this location.

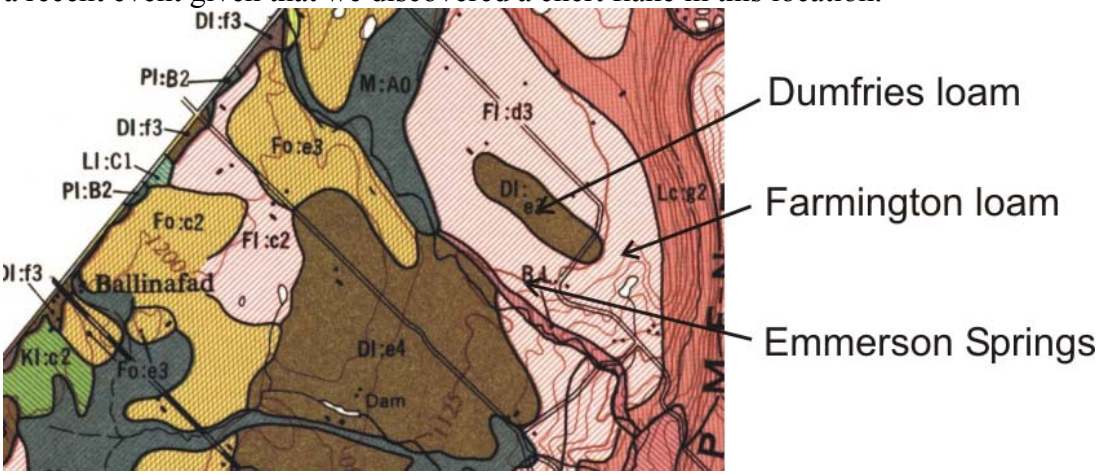

Figure 2. A section of the soil map of Halton County showing the location of different soil types in comparison with the location of Emmerson Springs. From Gillespie et al. (1971).

The Soils of Halton County show an outcrop of Dumfries loam near the site location. This is a stony luvisol developed on till. The soil horizons typical of a Dumfries loam are:

1. Ah, characterized as ‘very dark grey (10YR 3/1) loam; fine crumb and granular structure; friable; very stony; pH 7.0’

2.Ae1, characterized as ‘dark yellowish brown (10YR4/6) granular and small weak subangular blocky; friable; stony; pH 7.0’

3. Ae2, characterized as ‘brown (10YR5/3) loam; weak medium subangular blocky; friable; stony pH 7.0’

4. Bt, characterized as ‘Reddish brown (7.5YR 5/5) loam; medium subangular blocky; friable; stony; pH 7.4’

5. Ck, characterized as ‘Yellowish brown (10YR 5/4) stony loam till; calcareous; pH 7.8’

Figure 51. Point tip with impact fracture originating from snapped edge

Figure 52. Retouched triangular flake, possibly a point abandoned in manufacture or a child's point

The complete points may be classified as belonging to one of three basic forms: triangular points with a convex base, triangular points with a concave base, and triangular points with a barb.

The lengths of the points without barbs range from 25.0 to 30.1 mm, while widths range from 14.3 to 19.6 mm. In most cases, the dimensions of these points fit within those expected for both Daniels Triangular and Nanticoke Triangular points (London Chapter of the Ontario Archaeological Society 2001). However, Nanticoke points tend to be narrower and their normal length range is 30 to 45 mm. Both types are made from Onondaga chert and both usually have convex lateral edges and concave bases making it difficult to distinguish between the two types (London Chapter of the Ontario Archaeological Society 2001). The Emmerson Springs points range in size and there is no clear division between long narrow and small wide points. This suggests that all can be placed within the same type, and that this is the Daniels Triangular type. This is consistent with expectations based on the known distributions and chronological placement of these points: they are found as far northeast as Milton and are found at Neutral confederacy sites from A.D. 1550 until the mid-seventeenth century dispersal (London Chapter of the Ontario Archaeological Society 2001).

Figure 53. Complete points recovered from Emmerson Springs in 2003 and 2004.

The only Late Woodland point type that is specifically described as barbed is the Glen Meyer Tanged point, which is found on sites dating from ca. A.D. 700 to A.D. 1300. It seems unlikely that the points recovered from Emmerson Springs are Glen Meyer Tanged points. Indeed, the length of one point falls outside the expected range. Illustrations of Daniels Triangular Points show that occasionally the base is oblique to the centre of the tool, resulting in a barbed base (London Chapter of the Ontario Archaeological Society 2001). Given that both points fall easily within the dimensions described for Daniels Triangular points, the simplest explanation is that they are both variants of this type.

Wedges

The sample of wedges and wedge fragments recovered in 2003 and 2004 includes eight objects; all except for one are made from Onondaga chert. They include both objects that appear to have some type of standardized form and those that make be a by-product of bipolar reduction. The average size of the eight pieces is 19 mm X 17 mm X 6 mm. Many show hinge fracturing on opposed edges and bifacially, as would be expected of both bipolar reduction and from use as wedges.

Discussion

As described above, the settlement patterns and material culture uncovered at Emmerson Springs in 2004 confirms its identification as a Late Iroquoian village, probably with affinities to other sites on the Niagara Escarpment or the Spencer-Bronte creek drainages. Given the estimated date of 1550 to 1580, identification as 'Huron' or 'Neutral' may be premature.

The introduction to this report introduced several research questions, which will now be considered.

1) Where are the longhouse walls associated with the features uncovered by excavations in 2002 and 2003?

The longhouse on the lower terrace runs approximately east to west, and our excavations appear to have uncovered the western end of this house. A row of posts immediately south of this may represent a second house or a palisade. A row of posts in an isolated unit to the east may represent an extension of the first house or may be a third house.

2) What is the nature of the hillslope midden north of midden units N275E175 and N279E175?

The hillslope midden at E159 appears quite localized, with the unit at N285 being much richer and deeper than that at N287. It appears that artefacts accumulated in a natural crevasse. None of the material in N285 appears plough disturbed, but the upper levels do appear to be formed by slopewash.

3) What is the extent of the hillslope midden?

Examination of this midden by testpitting determined that it extended from the top of the slope to the creek. However, it did not have great lateral extent, occurring mainly on the slope below N280-N287.

4) Is the estimation of site size determined in 2002 correct?

A second session of testpitting of the north section of the field, focussing on the eastern half did not result in a radical change in the estimation of site size.

Artefacts recovered in the 2004 season did little to change our assessment of the site age, nature or cultural affiliation. We recovered more copper-based metal but no glass trade beads. The pottery is dominated by types with vertical or oblique lines one the rim. The faunal remains suggest a group of people dependent primarily on white-tailed deer, but who also exploited a number of other species. There is nothing to suggest that this was not a small village dating to about 1550-1580, and occupied throughout the year.

Conclusions

The 2004 excavations at Emmerson Springs resulted in an expanded understanding of the settlement patterns of the site, and in the extent of the midden deposits adjacent to this area.

Suggestions for future excavations include:

1) expanding the excavations in to determine the length of longhouse 1;
2) expanding the excavations to the south to determine whether the row of posts paralle1 to longhouse 1 represent a second house or a palisade;
3) investigation of the area to the east where we discovered a clear row of posts;
4) investigation of the settlement pattern on the upper terrace; and
5) limited excavation of the Midden 1.

Midden 1 is a rich resource. The basic proportions of different animal species did not change a great deal when the sample examined was expanded from about 10,000 to over 30,000. Therefore, it seems unlikely that further identifications will result in major changes in the future. Similarly, the nature of other artifact classes appears to be fairly well known at this time. Therefore, excavation in Midden 1, which provides mainly artifactual and ecofactual data, should be conducted conservatively to preserve deposits for future excavations.

Emmerson Springs once again provided students with the opportunity to excavate in different contexts and gave them exposure to a wide range of artefact types. The site is a valuable resource and could be used in an educational context for many years to come.