Early Woodland Adaptations in the Chenango Valley: An Example from the Rogers Prehistoric Site, Chenango County, New York.

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Abstract

The Rogers prehistoric site is a large, stratified multi-component site dating from the Late Archaic through the Early Woodland periods. The site is located on the southern edge of a ridge overlooking the Chenango River at the Rogers Environmental Center located near the Village of Sherburne in Chenango County, New York. A cluster of three radiocarbon dates ranging between 2470 and 19□0 years BP were obtained from three separate hearth features as well as a Meadowood projectile point dating to Early Woodland times. Functional analysis of stone tools, as well as the features and information from other Early Woodland sites in the valley suggest that the Rogers site was one of a number of seasonal base camps utilized during the spring and fall months to exploit adjacent wetland habitats on the sporadically inundated floodplain of the Chenango River. Analysis of the macrofloral remains from the feature fill and will be used to help reconstruct environmental conditions during the emergence of Woodland culture in the upper reaches of the Susquehanna drainage.

Introduction

The Rogers prehistoric site is located on the southern edge of a glacial terrace overlooking the Chenango River near the Village of Sherburne in Chenango County, New York (Figure 1). The site is located on the grounds of the Rogers Environmental Education Center, which has been operated by the New York State Department of Environmental Conservation since 1966. The Rogers prehistoric site was initially identified by a Phase I cultural resources survey conducted in 2003 as part of water system improvements for the Village of Sherburne, and was later investigated by a data recovery in 200□ (Moyer and Moyer 200□). Planted rows of white pines occur in the northern half of the site. A steep swale defines the southern and western boundaries of the site, and averages between 8 and 1□ ft above the gravel terrace below. This swale is well defined in the area adjacent to the site, but is much lower and indistinct toward the north.

A total of fifteen 1x1m excavation units were placed in areas of high artifact concentrations or in areas where charcoal was identified during the shovel testing (Figure 2). A total of seven cultural features were identified from the excavations at the Rogers prehistoric site: four from the excavation units and three from the mechanized trenching conducted prior to the installation of the water pipe.

Because the site is located on an environmental education center, special efforts were made to try to obtain as much paleoenvironmental information as possible to help their educators explain past environmental changes that led to the current landscape and environment visible today. Initially, soil core samples were attempted by Juliann Van Nest of the New York State Museum but were stopped by loose rocks and cobbles and were ultimately determined too sandy for pollen or phytolith samples to be present. It appeared that we would have to find an alternate means of gathering the environmental data we needed.

Artifacts

A total of 3,□79 prehistoric artifacts were recovered as part of the data recovery at the Rogers prehistoric site. All of the artifacts recovered are currently housed in the anthropological collections at the New York State Museum (NYSM). Chipped stone debitage made up over 97 percent of the artifacts recovered (Table 1). Flake fragments made up almost three quarters of the debitage followed by chert shatter, whole or intact flakes, and finally cores and core fragments. Rather than place the debitage into primary, secondary and tertiary flakes on the basis of size or amount of cortex (i.e., original outer surface), length and width of intact flakes were plotted (Figure 3). Mean flake size was relatively small, averaging approximately 1.7 x 1.3 cm. This suggests that tool maintenance and expedient flake tool manufacturing activities were taking place rather than the large scale lithic reduction expected for the manufacture of performs or formal tools. Over 87 percent of all of the complete flakes had no cortex on their dorsal surfaces, also suggesting latter stage reduction or maintenance activities. Expended cores and core fragments recovered from the Rogers site suggest expedient tool manufacturing rather

than the manufacture of cache blades or bifaces (Figure 4). Those bifaces recovered tended to exhibit signs of heavy wear and edge trauma, suggesting use on the site rather than being freshly manufactured for use at a latter date.

All prehistoric artifacts were examined under light microscopic (x30) magnification to aid proper identification and to look for evidence of use wear. A total of 43 fragments of chert debitage showed patterns and other evidence of wear consistent with specific forms of utilization (Table 2). One of these flakes exhibited what was ultimately determined to be historically recent edge damage and was excluded from the study. As shown in Table 8, Only four of the flakes showed evidence of longitudinal wear suggestive of cutting or sawing motions, while transverse wear indicative of scraping occurs in 2□ (□8.1%) of the examples. The experimental replication and use of stone tools indicate that activities such as butchering and hide scraping are often associated with transverse patterns of use wear, suggesting that these activities were taking place at the site. Five (11.6%) of the examples exhibited hinge fractures that often result from percussion or transverse pressure at a steep angle. These latter examples likely reflect chopping activities as well. Feathered terminations occur on 33 (76.7%) of the examples, suggesting that a soft material was being more actively worked, which is also suggestive of butchering activities.

Several projectile points and point fragments were recovered, including the base of a side notched Meadowood point and a large contracting stem point that appears to be a Bare Island or possibly a Poplar Island point dating to the Late Archaic period (Figure □). Other artifacts recovered include a single net sinker, the only evidence of fishing recovered from the site. Only two pebble cobble tools were identified from the Rogers prehistoric site. One of these appear to have been used as a hammer stone on hard surfaces, while a long groove near the center of the object shows striations suggesting lateral scraping. The second groundstone artifact also shows evidence of bashing on the corners, and a central pecked area suggests use as an anvil for processing nut or other foods. Three fragments of what appear to be drills were recovered from the Rogers site, suggesting that wood some other soft material was being worked.

Stratigraphy and Features

A total of eight soil anomalies were designated cultural features as part of the data recovery. One of these features, Feature 3, was ultimately determined to be a non-cultural rodent disturbance, bringing the total number of cultural features encountered to seven. Radiocarbon samples were collected from each of these features and submitted to Beta Analytic for radiometric dating. Results suggest that three of the features (Features 2, 4 and □) identified in the excavation units appear to represent occupations datingto the Early Woodland Period. Three other features (Features 6, 7 and 8) all appear to date to the Late Woodland period, with dates ranging between 290 and 890 years BP. The final feature, Feature 1, was determined by Beta Analytic to have insufficient carbon for dating and was omitted from the study. In addition to radiocarbon samples, soil samples were taken from matrix of each of these features and submitted to Dr. Linda Scott Cummings of PaleoResearch Laboratories for paleobotanical analysis.

Before continuing the discussion of the features, it is important to note an issue that soon became apparent during the excavation of the units. Pronounced areas of disturbance as well as deeply incised pits were noted in the profiles of Units 1-6, 7-10, 11-14, and also in Unit 1□ (Figures 6-9). Upon consultation with Juliann Van Nest, a geoarchaeologist at the NYSM, it was decided that these pronounced pits were likely the work of tree tips. Tree tipping is usually the result of storm damage and most commonly occurs in tree species with shallow root systems or in areas with shallow bedrock. While seldom addressed archaeologically, tree falls can move large amounts of soil and can push relatively shallow artifacts much deeper below the ground surface than plowing and other agricultural activities might otherwise do. Additionally, tree tips can alter the shape or composition of prehistoric cultural features, and the cavity created by the fallen tree can become filled with organic matter, creating dark soils that resemble deep pits. Over the course of millennia, successive tree growth and tips have the potential to alter broad areas of the landscape. For these reasons, identifying the function of each of the features was determined by examining the content of the features rather than their shapes.

Feature 2 is a hearth/fire pit located in the northern half of Units 2 and at a depth of111 cm below the ground surface. In accordance with procedures outlined in the data recovery plan and Sec. 233 permit, all cultural features were bisected and drawn and photographed in plan view and profile (Figure 10). Bisection of Feature 2 revealed that the feature was approximately 19 cm in thickness and had a relatively flat bottom, which was reassuring given the ungulating topography suggested by the soil profiles. Feature 2 yielded a conventional radiocarbon date of 19 0± 40 BP, with a calibrated age range of 1990-1820 BP (Beta-221610). A paleobotanical sample was taken from the fill in the southeast portion of the feature in Unit . The results suggest that Early Woodland people were enjoying a diverse diet, including hickory nuts, elderberries, and small seeds, in this case, maygrass (*Phalaris*). The charcoal record consisted mainly of unidentifiable charcoal fragments, although a few small fragments of *Quercus* and *Ulmus* charcoal suggest that oak and elm were being used as fuel.

Feature 4 was identified in Unit 4 at a depth of 34 cm below the ground surface (Figure 11). In plan view the circular dark stain appeared to be a small pit or possibly a large post mold, although when bisected, the feature appeared to taper sharply, with a large fragment of fire cracked rock occurring directly adjacent. The small size of the feature as well as the tapered shape and shallow depth all initially suggested to us that the feature was likely a burned tap root, although the presence of fire-cracked rock in close proximity suggested that it might be the truncated remains of a fire-related cultural feature. To be certain, we treated the find as a cultural feature and collected samples for radiocarbon and macrofloral analysis. We were both pleased and surprised when a conventional radiocarbon date of 2380 ± 0 BP and a calibrated age range of 2 00-2330 BP (Beta-221612) were obtained from Feature 4, suggesting that it also dated to Early Woodland times. Macrofloral remains indicated that elm was the dominant charcoal present, with lesser amounts of sycamore, maple, as well as a fourth unidentified charcoal type. This diversity of charcoal species likely reflects a highly diverse, forested environment some two thousand years ago. While no seed remains were present in the macrofloral record, a hickory nutshell fragment was recovered, and chert microflakes less than 2 mm in diameter were also included in the fill remains. When examined

together, the above information suggests that Feature 4 represents a prehistoric cultural feature and not a burned tap root as we initially suspected.

A little over a meter to the southwest from Feature 4, we encountered another small stain leading into the south wall of Unit 7 at a depth of 40 cm below the ground surface (Feature □; Figure 12). Soil from eastern half of this feature yielded a conventional radiocarbon date of 2470 ± 40 BP, with a calibrated age range of 2730-2360 BP (Beta-221613). This is the oldest radiocarbon date obtained from our investigations at the Rogers prehistoric site. Unfortunately, the paleobotanical remains from the feature were less interesting, with walnut or hickory nut fragments likely representing processing or storage activities. That Feature □ represents a storage pit remains somewhat speculative, especially since charcoal of white oak was also present in the sample. It would seem equally plausible that this feature might represent a fire pit or hearth rather than a storage pit, since nutshells were often disposed of in fires to prevent injuries while barefoot. Also, because of their density, nut shells make an excellent fuel source in their own right.

Discussion

While Early Woodland components are not common in the Upper Susquehanna drainage, they occur with some frequency. Funk (1993:146-147) notes the recovery of Meadowood points from a series of sites in the Upper Susquehanna drainage, including the Russ site, Locus 1 of the Fortin site, the Camelot 1 and 2 sites, the Maple Terrace site, and the Enck No.2 site. While not present in the assemblage from the Rogers prehistoric site, Vinette I style pottery from Meadowood and associated Middlesex and Bushkill components was recovered from the Cottage site, the Johnsen No. 1 site, and the Munson site. Little of this evidence comes from the Chenango Valley, however, with the nearest Meadowood period site discussed by Funk being the Russ site, located approximately 30 miles southeast of the Rogers Site along the Susquehanna River near the present community Wells Bridge in Otsego County (Funk 1998:431).

While Early Woodland point styles occur infrequently in the Chenango Valley, radiocarbon dates from this period are even less common (Figure 13). The nearest

comparable radiocarbon dates included in Funk's (1993:168) study are the Maple Terrace Site, which recovered a date of 2630 ± 70 BP in association with a Meadowood point and some Vinette I pottery, the Kuhr No. 1 Site, which yielded a date of 2330 ± 8□ BP in association in Vinette I pottery, and the Cottage Site, which recovered a date of 1810 ± 100 years BP in association with a broad stemmed projectile point and thought to be associated with the Bushkill complex or possibly a Canoe Point occupation (Funk 1993:162). As shown in Figure 13, radiocarbon dates from the Rogers prehistoric site fill several gaps in Funk's published radiocarbon sequences for the Upper Susquehanna and its tributaries.

I believe that the Rogers prehistoric site was one of a number of seasonal base camps utilized during the spring and fall months to exploit adjacent wetland habitats on the sporadically inundated floodplain of the Chenango River. While we suspect that the site was also occupied in the spring and early summer, the results of the macrofloral analysis only suggest occupation in the late summer/fall months, when raspberries/blackberries, elderberries, many types of grass seeds, and hickory nuts and walnuts are available. This could be due to biases in preservation within the features. The results of lithic use wear analysis suggest that while butchering and hide processing were likely taking place at the site (both common activities in the late fall and winter), other tools show evidence of working on different surfaces, and artifacts such as the drill fragments, pebble/cobble tools, and the netsinker all suggest that other activities were also taking place. Additionally, while expended cores and debitage of all sizes were found at the site, none of the biface fragments recovered suggests that classic Early Woodland cache blades were being produced at the site, which according the Granger (1978:71), was a classic late fall activity during Meadowood times, when people would make preparations for the upcoming hunting season.

If the Rogers prehistoric site was only occupied in the late fall, it suggests that Early Woodland people in the Chenango Valley were less sedentary, and that seasonal mobility was more complex, with people occupying areas for shorter periods, and with fewer seasonal reoccupations. Under traditional models of Woodland development, patches of

small grass seeds were often visited and maintained in the spring to produce better harvests when people returned in the fall. The adoption of agriculture in the Eastern Woodlands has been postulated to derive from increased sedentism created by people tending these new semi-domesticates longer as it begins to play a more significant role in their diets. While it appears that Early Woodland people were likely procuring and processing wild grass seeds at the site, the amount of labor involved in the exercise and the significance of small grass seeds in their overall diets is not fully understood.

In addition to the Early Woodland component, I also wanted to mention briefly the Late Woodland component, represented by a grit-tempered cord impressed pottery sherd (Figure 14) and three small cultural features (Features 6, 7 and 8) identified as part of the mechanized scraping along the proposed water line (Figure 1□). Radiocarbon samples from each of these features yielded dates of 8□0+/-40 BP, 760+/-40 BP, and 3□0+/-60 BP, respectively. The mechanized scraping at the Rogers prehistoric site involved removing the disturbed topsoil to identify features. In addition to the features, we also plotted a number of artifacts as well as a large lithic concentration near the northern part of the proposed water line (Figure 16).

Summary

In summary, our investigations at the Rogers prehistoric site have produced valuable archaeological and paleoenvironmental information about past lifeways along the upper reaches of the Chenango Valley. Trees growing in or near the site vicinity appear to have included maple, sycamore, oak, elm, and other types of hardwoods. Elm and sycamore appear most frequently in the charcoal features dating from the Early Woodland, with maple increasing in popularity during the Late Woodland and evidence of pine charcoal not appearing until approximately 370 BP. The presence of maygrass in a dated charcoal features suggests the potential for early plant domestication and provides us a glimpse of what life was like at the moment when the beginnings of agriculture were taking hold in the Chenango Valley.

Acknowledgements

I'd like to thank Doug Mackey, Chris Reith, Juliann Van Nest, Charles Vandrei, and the Village of Sherburne and the folks at the Rogers Environmental Education Center. Rebecca Moyer analyzed the artifacts from the site and provided valuable comments on this manuscript. Thanks also to our crew: Royce Duda, Bennett Brumson, and Michael Jennings for all of their hard work and energy.

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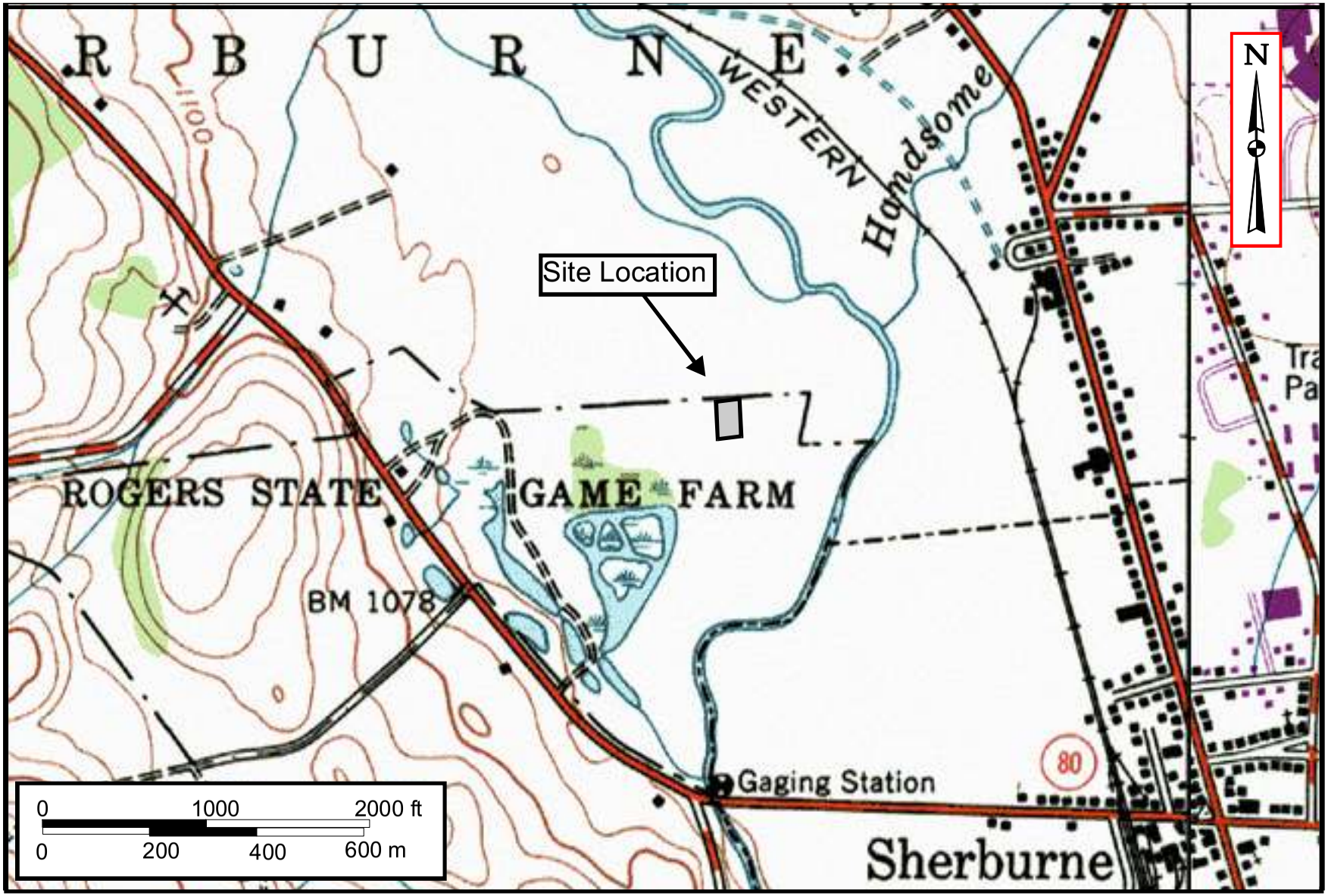

Figure 1. Detail of Earlville USGS topographic map showing the location of the Rogers prehistoric site.

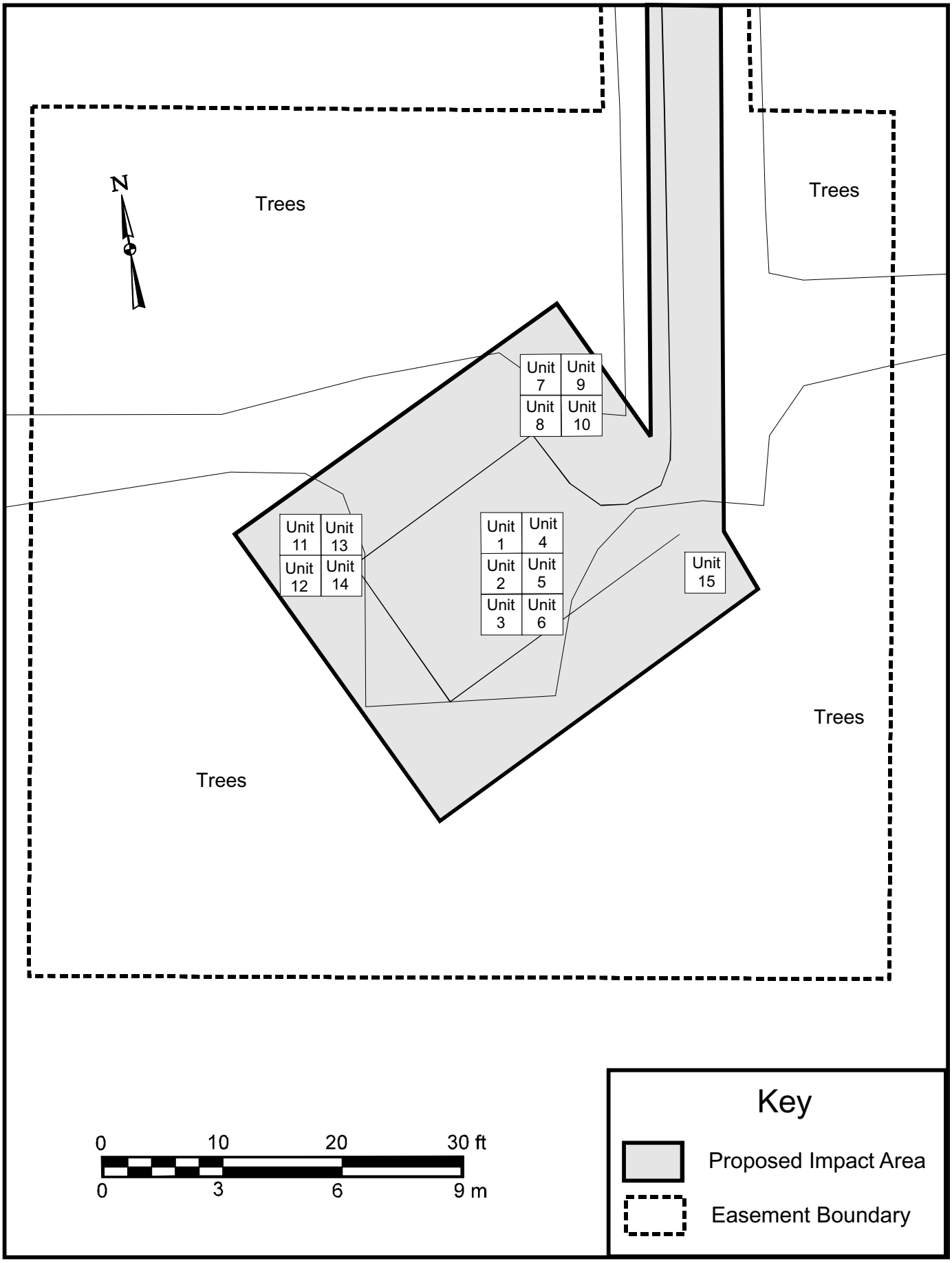

Figure 2. Map showing the placement of units at the Rogers prehistoric site.

Table 1.

Chipped stone debitage from the Rogers Prehistoric Site

Type	Frequency/ percentage	Mass (g)/ percentage
Whole Flakes	265 (8.0%)	257.47 (11.7%)
Flake Fragments	2416 (72.9%)	795.99 (36.2%)
Shatter	623 (18.8%)	860.4 (39.2%)
Cores and Core Fragments	8 (0.3%)	285.4 (12.9
Total Debitage	**3312 (100.0%)**	**2199.25 (100.0%)**

Figure 3.
Scatter plot showing the length and width of complete flakes recovered from the Rogers prehistoric site

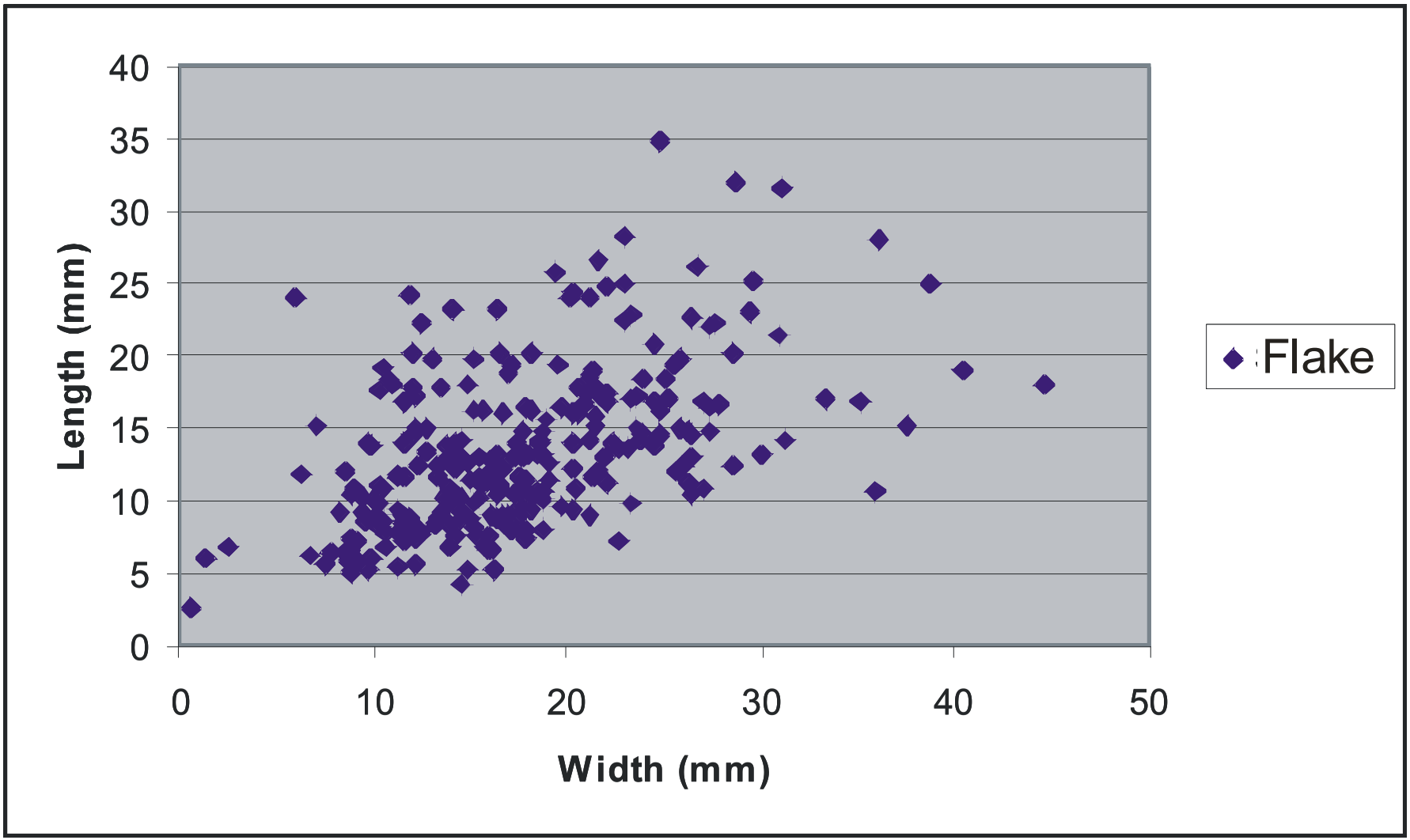

Figure 4.
Chart showing the frequency and percentage of cortex on the dorsal surfaces of complete flakes from the Rogers prehistoric site

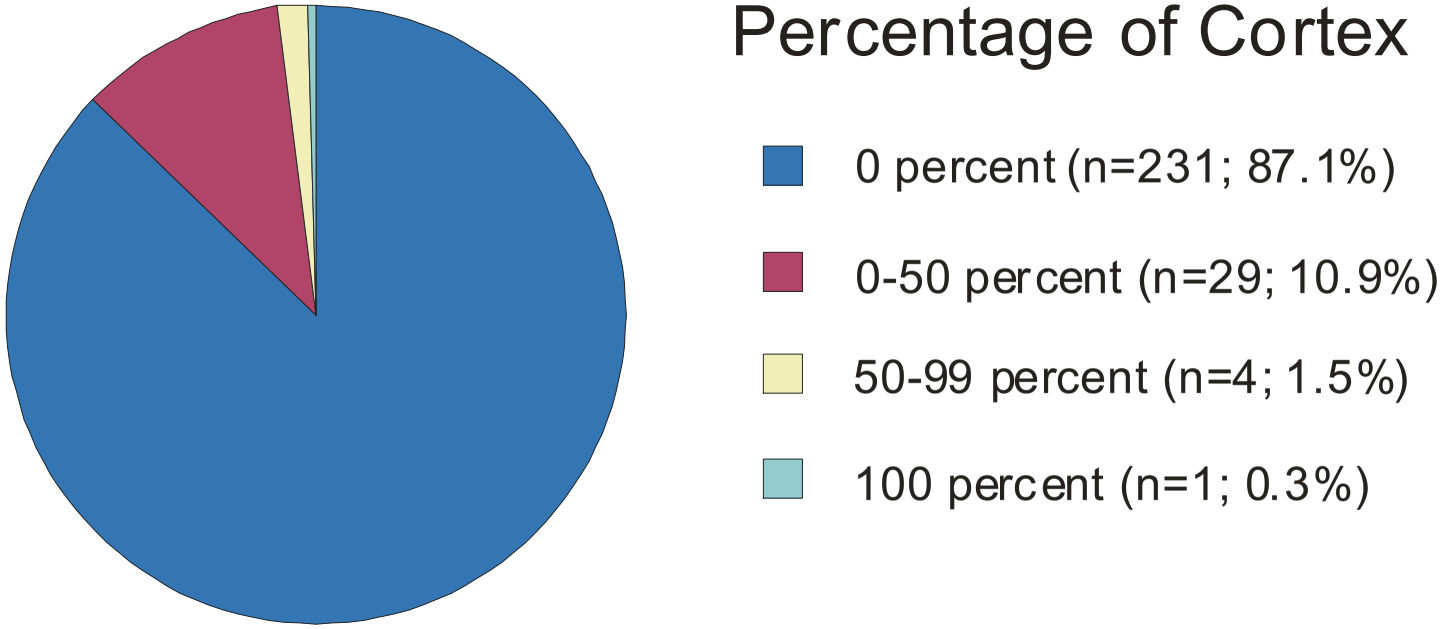

Table 2.
Evidence of use wear on chipped stone debitage from the Rogers prehistoric site

Description of wear	Frequency/ Percentage	Comments
Feathered termination	15 (34.88%)	
Longitudinal motion/hinge fracture	1 (2.32%)	
Longitudinal motion/ feathered and hinged termination	1 (2.32%)	
Transverse motion/feathered termination	17 (39.53%)	1 retouched
Transverse motion/hinge termination	4 (9.30%)	
Transverse and longitudinal motion	2 (4.65%)	
Transverse motion	1 (2.32%)	
Transverse motion with scalloping	1 (2.32%)	
Edge damage (indeterminate)	1 (2.32%)	
Total	**43 (100.00%)**	

Figure 5. Knife and projectile point fragments recovered from the Rogers prehistoric site.

Table 3.
Summary of Features from the Rogers prehistoric site

	Provenience	Radiocarbon Date*	Active Interpretation
Feature 1	Unit 3 Level 3 50-66 cmbd	Insufficient charcoal/ND	Possible truncated storage or fire pit
Feature 2	Units 2 and 5 111 cmbgs	Beta-221610 1950+/-40BP Cal 1990-1820 BP	Hearth/Fire Pit
Feature 3	Determined Non-Cultural		Pit caused by fallen tree roots
Feature 4	Unit 9 Level 4 34-46 cmbd	Beta-221612 2380+/-50BP Cal 2500-2330 BP	Small truncated fire pit
Feature 5	Unit 7 Level 4 41-48 cm	Beta-221613 2470+/-40BP Cal 2730-2360 BP	Storage/Fire Pit?
Feature 6	Test Trench N4.75/E1.85 37 cmbgs	Beta-221614 850+/-40 BP Cal 900-810 BP	Storage/Fire Pit?
Feature 7	Test Trench N12.20/E0.90 43 cmbgs	Beta-221615 760+/40 BP Cal 740-660 BP	Deflated hearth or fire feature
Feature 8	Test Trench N69.0/E0.90 41 cmbgs	Beta-221616 350+/-60 BP Cal 520-290 BP	Possible fire pit/ Non-cultural tree burn?

*calibrated dates are given at one standard deviation (66% level of probability)

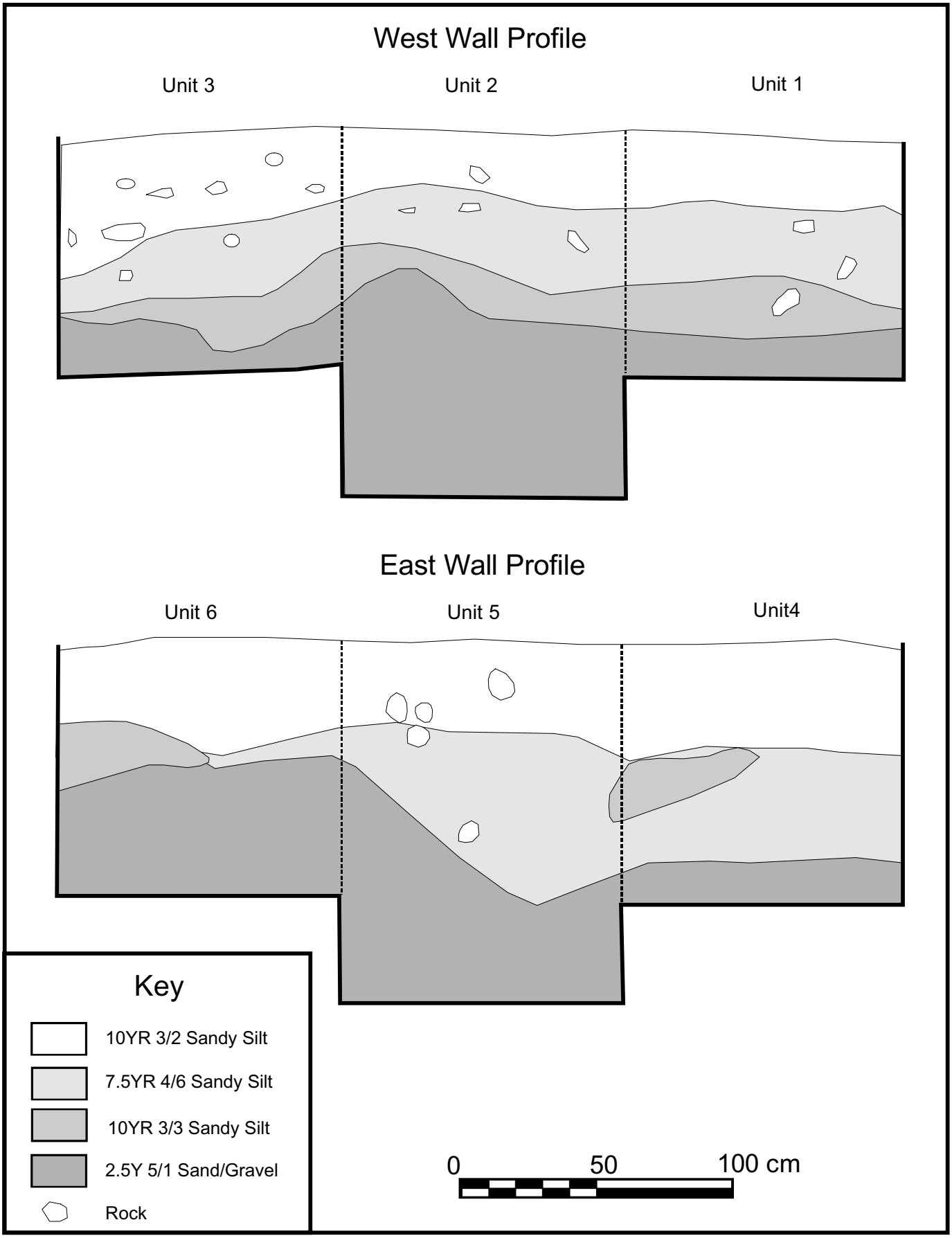

Figure 6. East and west wall profiles of Units 1-6.

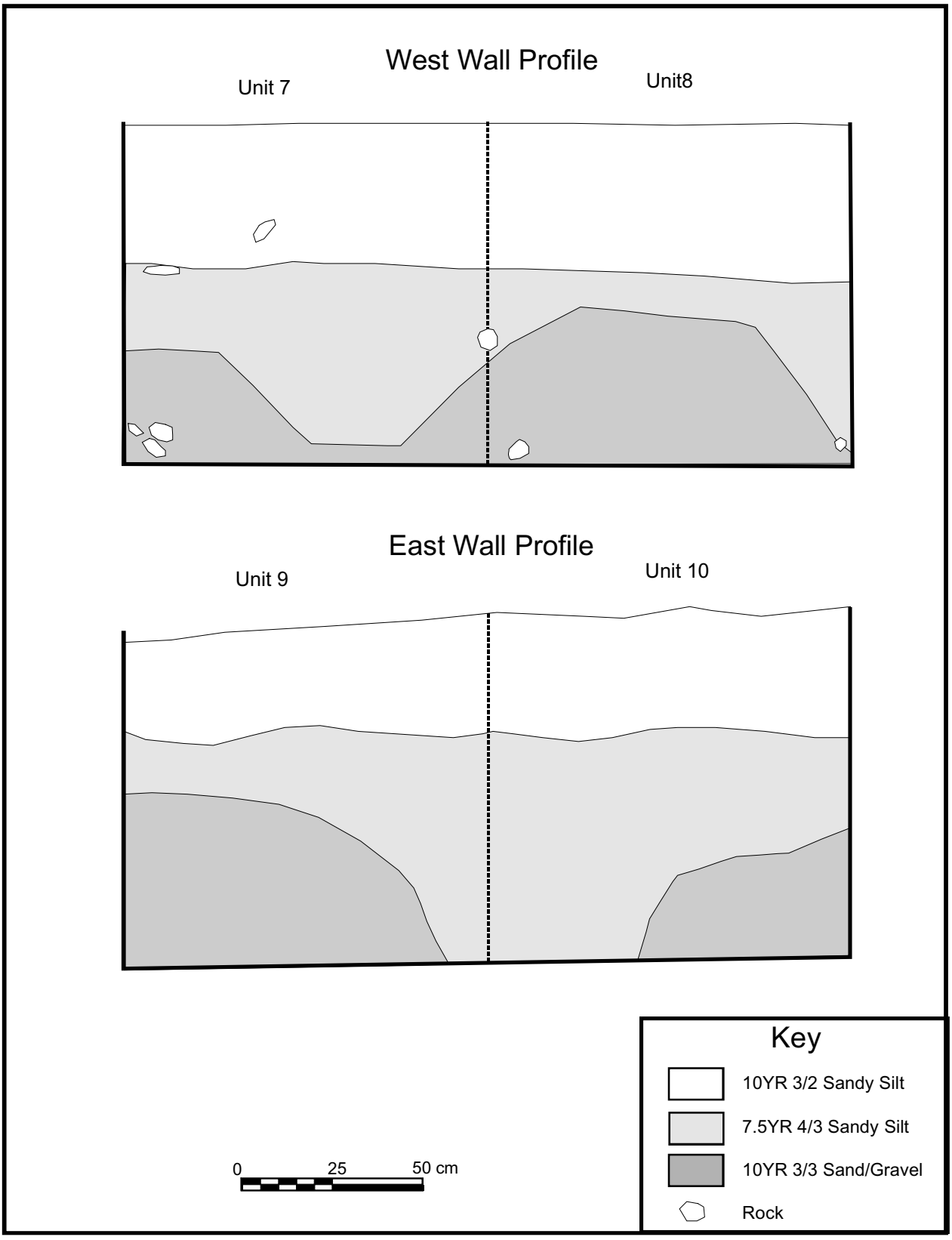

Figure 7. East and west wall profiles of Units 7-10.

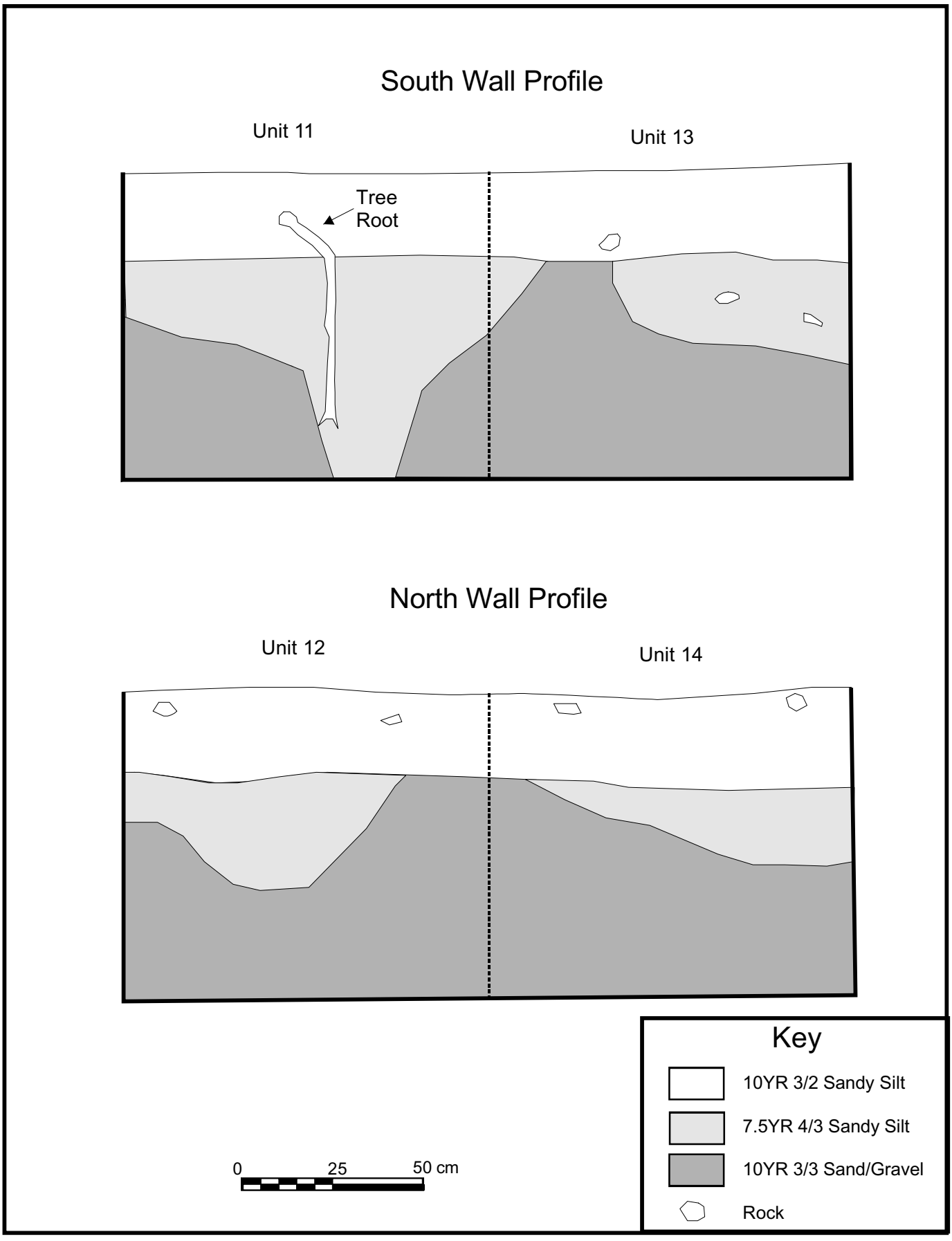

Figure 8. North and south wall profiles of Units 11-14.

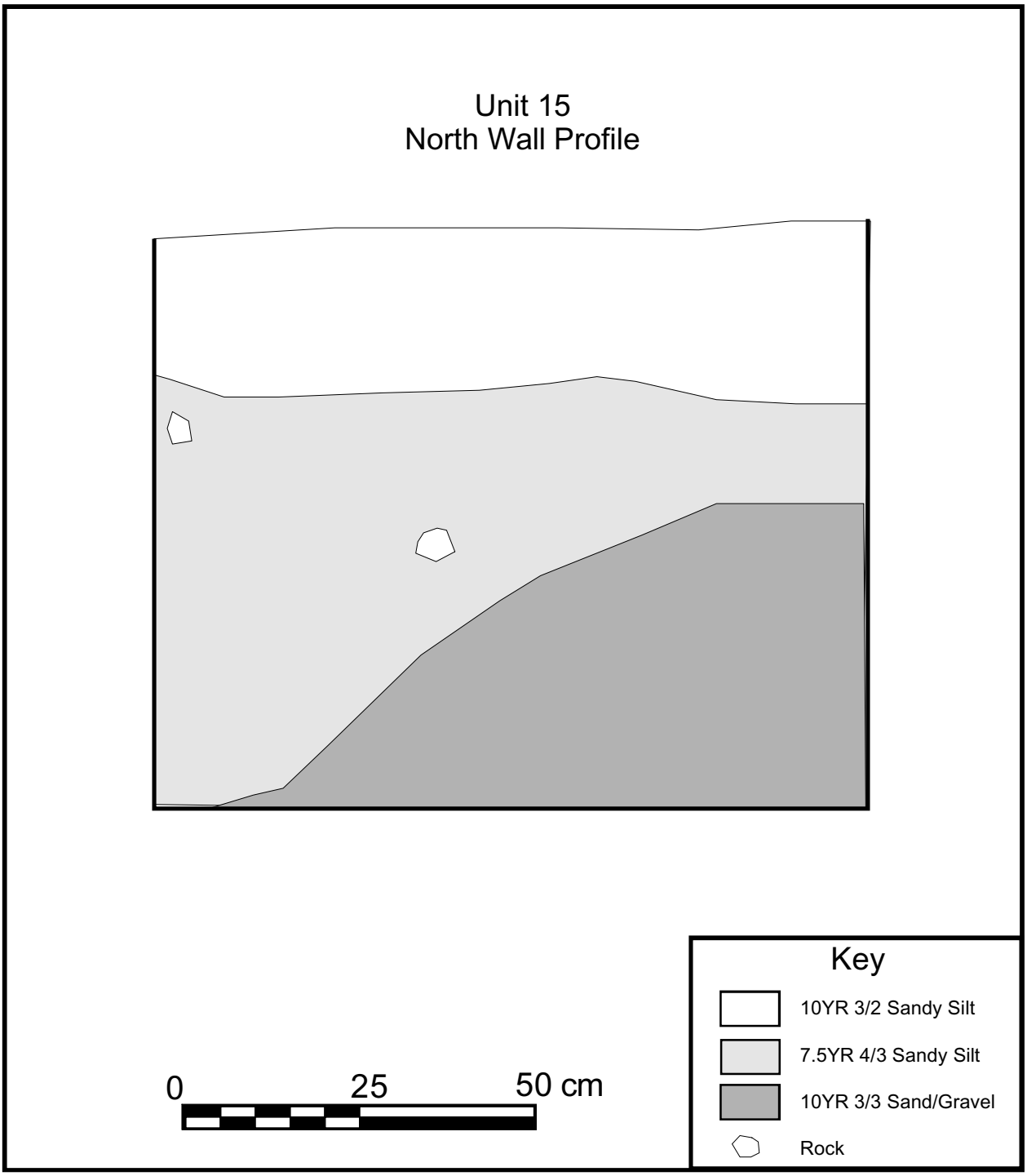

Figure 9.North wall profiles of Unit 15.

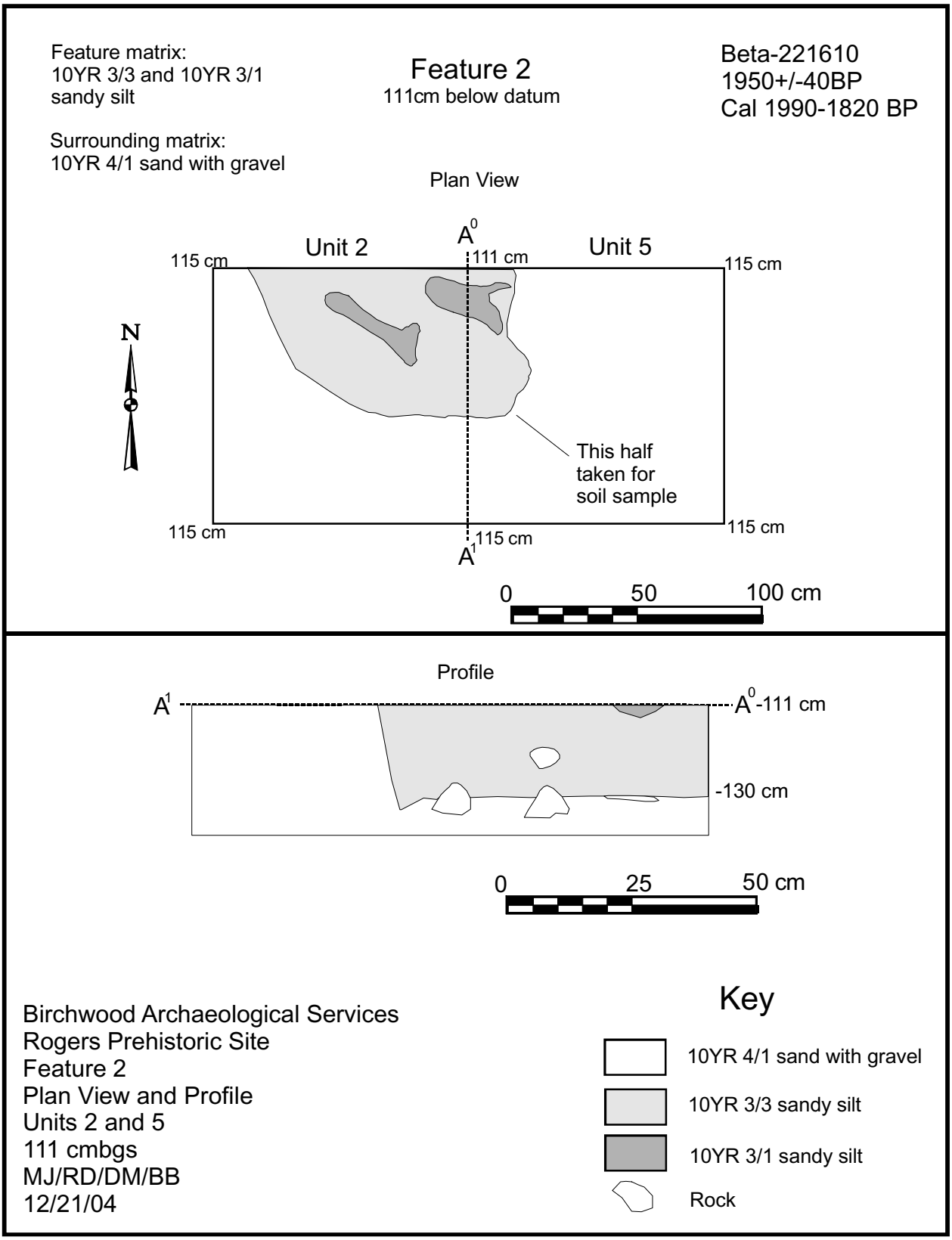

Figure 10. Plan view and profile of Feature 2.

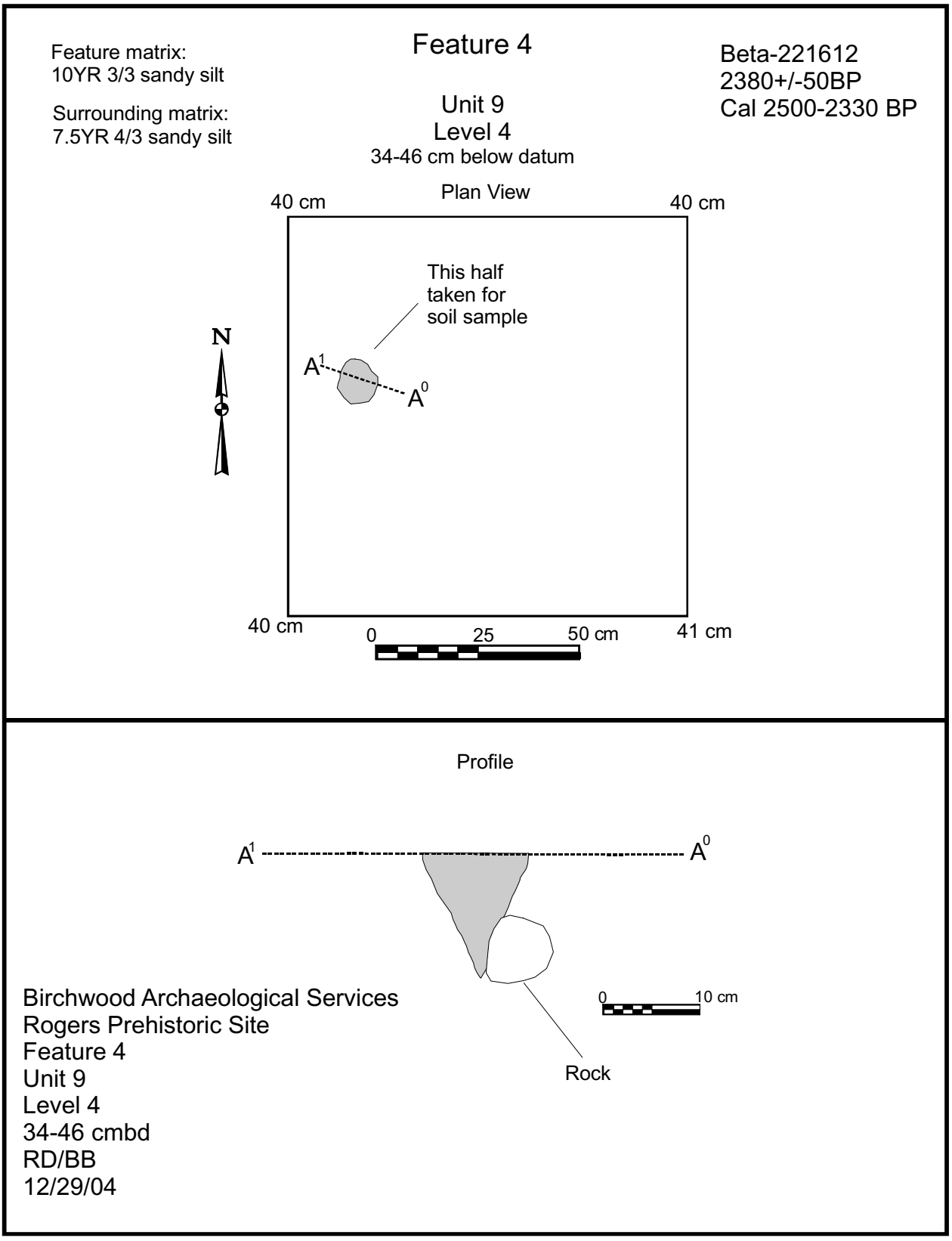

Figure 11. Plan view and profile of Feature 4.

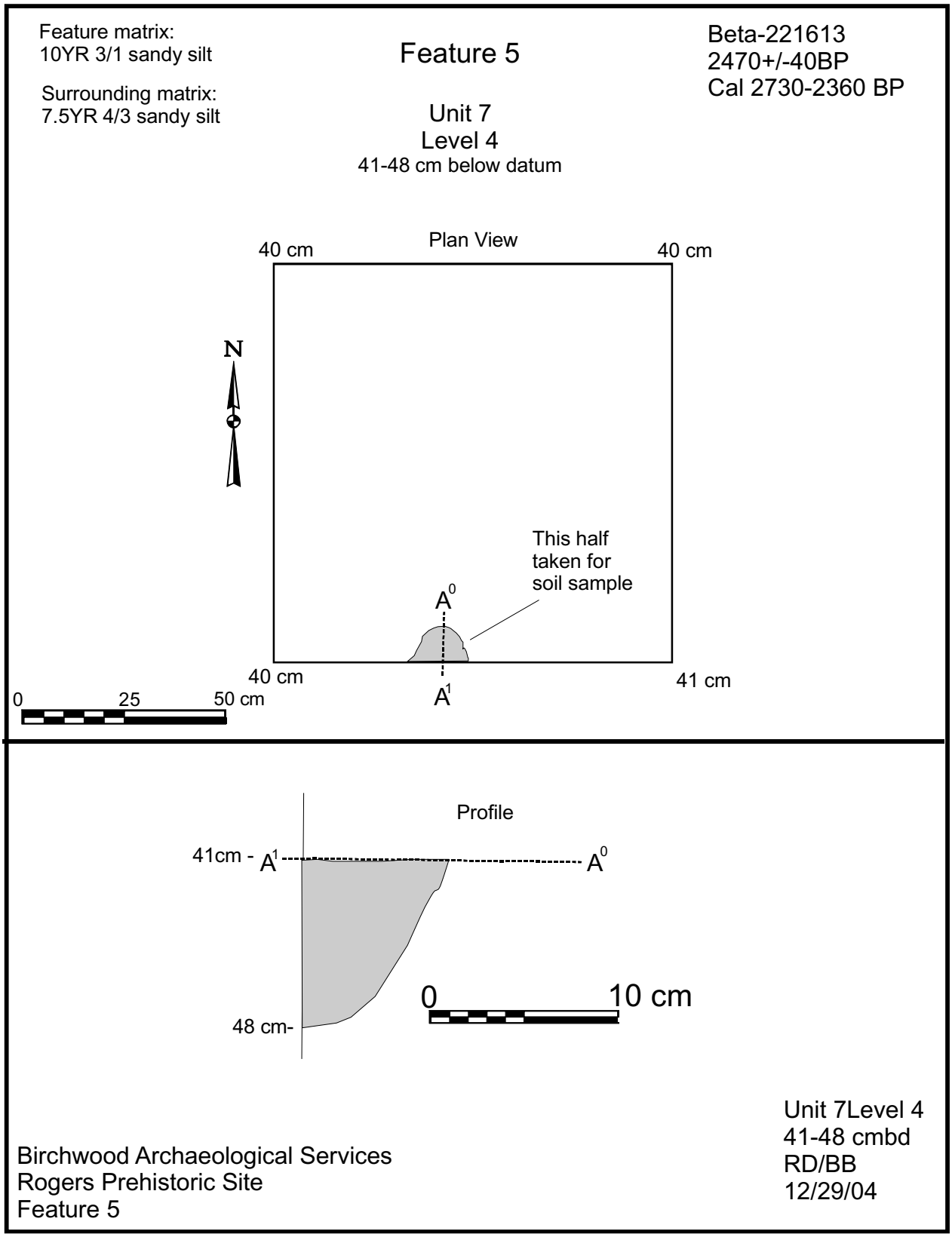

Figure 12. Plan view and profile of Feature 5.

Figure 13.

Early Woodland Radiocarbon Dates
in the Susquehanna Valley

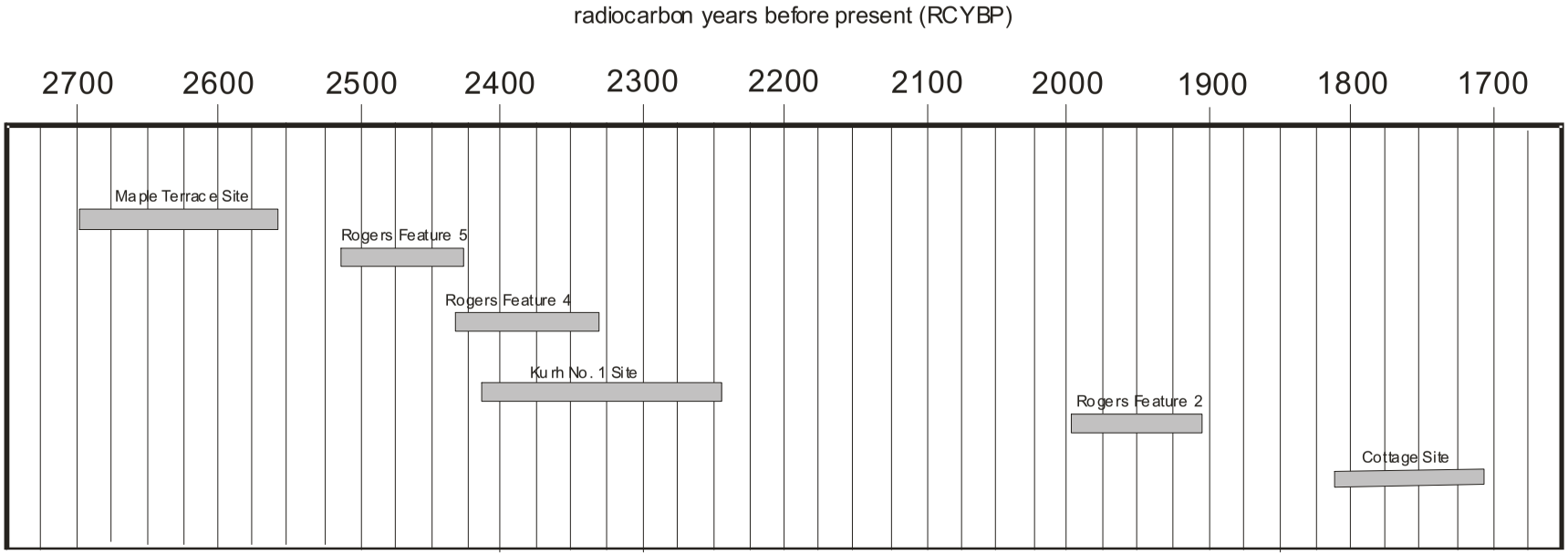

Figure 14 Prehistoric pottery recovered from the Rogers prehistoric site.

Late Woodland Features

Rogers Prehistoric Site

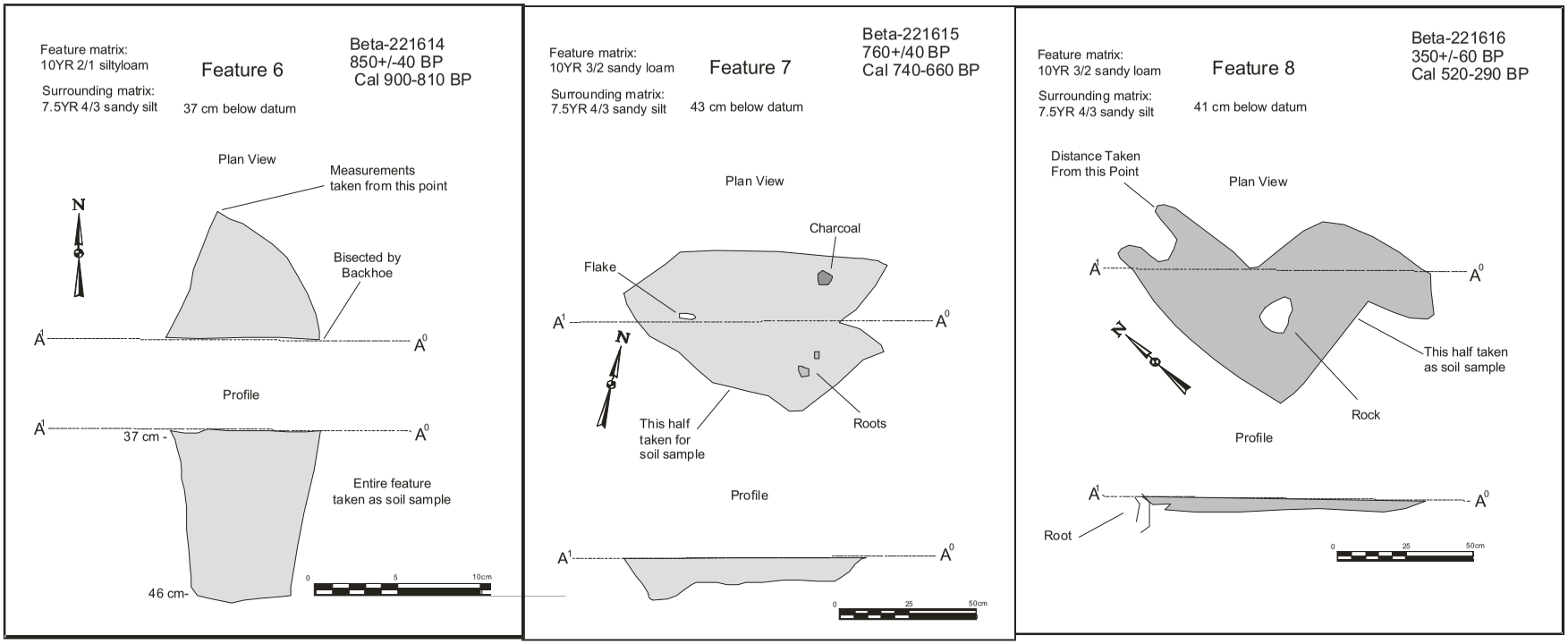

Figure 15. Late Woodland features from the Rogers prehistoric site.

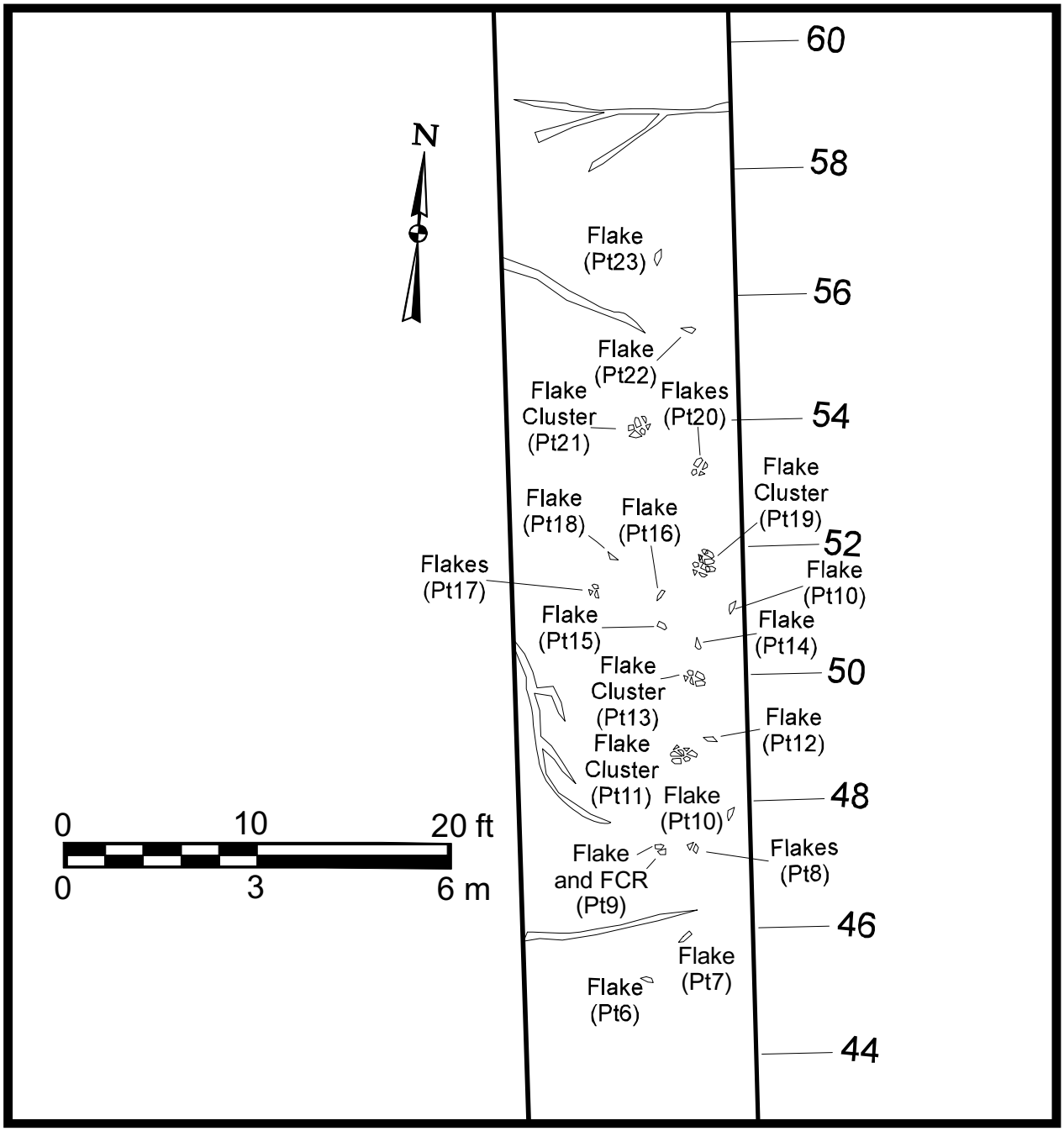

Figure 16. Map showing an artifact cluster along the mechanized scraping corridor.