

NATIONAL HISTORIC LANDMARK NOMINATION

NPS Form 10-900

USDI/NPS NRHP Registration Form (Rev. 8-86)

OMB No. 1024-0018

KIMBALL VILLAGE SITE

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United States Department of the Interior, National Park Service

National Register of Historic Places Registration Form

1. NAME OF PROPERTY

Historic Name: Kimball Village Site

Other Name/Site Number: Site Number [redacted], Kimball Village, Kimball Mound, Kimball Site

2. LOCATION

Street & Number: Rural [redacted]

Not for publication: X

City/Town: Westfield

Vicinity: X

State: IA

County: Plymouth

Code: 149

Zip Code: 51062

3. CLASSIFICATION

Ownership of Property

Private: X

Public-Local: —

Public-State: —

Public-Federal: —

Category of Property

Building(s): —

District: —

Site: X

Structure: —

Object: —

Number of Resources within Property Contributing

1

1

Noncontributing

__ buildings

__ sites

__ structures

__ objects

__ Total

Number of Contributing Resources Previously Listed in the National Register: 1

Name of Related Multiple Property Listing: "Archeological Resources of the Initial Variant of the Middle Missouri Tradition in Iowa"

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4. STATE/FEDERAL AGENCY CERTIFICATION

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this ___ nomination ___ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property ___ meets ___ does not meet the National Register Criteria.

Signature of Certifying Official

Date

State or Federal Agency and Bureau

In my opinion, the property ___ meets ___ does not meet the National Register criteria.

Signature of Commenting or Other Official

Date

State or Federal Agency and Bureau

5. NATIONAL PARK SERVICE CERTIFICATION

I hereby certify that this property is:

- Entered in the National Register
- Determined eligible for the National Register
- Determined not eligible for the National Register
- Removed from the National Register
- Other (explain): _____

Signature of Keeper

Date

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6. FUNCTION OR USE

Historic: Domestic

Sub: Village site

Current: Agriculture/Subsistence

Sub: Agricultural

7. DESCRIPTION

Architectural Classification: OTHER: lodges

Materials: N/A

Foundation: N/A

Walls: N/A

Roof: N/A

Other: N/A

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Describe Present and Historic Physical Appearance.**SUMMARY**

The Kimball Village site is an exceptionally well-preserved, late precontact Plains Village site located on a broad natural terrace overlooking the Big Sioux River and beneath the shadow of western Iowa's Loess Hills. The site is situated in rural Plymouth County, Iowa, [REDACTED], in the northwestern corner of the state (Figure 1). The site has a suggested occupation early in the time span CE 1100–1250, based on radiocarbon dates, cross-dating of diagnostic artifacts, and cross-dating of trade items with those from the National Historic Landmark and World Heritage Cahokia Mounds State Historic site across the river from St. Louis, Missouri, 805 river km away. Kimball Village is marked by a mound rising over a meter above the modern floodplain surface (Figure 2). The mound has a raised appearance resulting from the accumulation of village debris (midden) and the disintegration of mud-walled lodges. Site deposits are over 2 m deep and include remnants of [REDACTED]

[REDACTED]. The site has seen only modest impacts to its surface from long-term cultivation and occasional artifact collecting. Subsurface disturbances are largely confined to three limited archeological investigations—the most recent in 2009—affecting less than three percent of the site. The latest research offers the most current overall assessment of the site's deposits, features, and integrity.

The Kimball Village site is an outstanding example of an early, single-component (more components may be present but have not been confirmed), Plains Village site belonging to the Middle Missouri tradition (MMT). As originally defined, the MMT represents one of three major culture-historical traditions along the Missouri River (Wedel 1961; Willey 1961) that make up the Plains Village tradition (Willey 1966:320–329) or Plains Village pattern (Lehmer 1971:65). The earliest manifestation of the MMT is called the Initial variant (a temporal category), meaning this was the first, archeologically distinct appearance of MMT peoples. The Initial variant of the Middle Missouri tradition (IMM) is divided into 10 phases, with sites in Iowa assigned either to the Big Sioux phase or the Little Sioux phase (Figure 3). Since its original definition, the MMT has been extended to include adjacent areas of the eastern Plains and prairies in Iowa and Minnesota. The Kimball Village site belongs to the Big Sioux phase and is exceptional among sites of that kind. Phases of the IMM generally represent coeval, mostly fortified, village farming communities found in discrete site clusters or localities, believed to reflect semiautonomous populations who moved within their respective locality, rebuilding, and in some cases reoccupying, earlier village sites (Tiffany 2007a:5). Colloquially, the Iowa sites are referred to as the Mill Creek culture. The striking similarities among IMM sites in village layout, material culture, subsistence practices, and period of occupation strongly suggest direct communication and cultural, if not actual genetic, connections among their residents.

Distinguishing physical characteristics of the Kimball Village site include the presence of numerous, tightly-spaced rectangular earth-and-timber lodges aligned in rows, an apparent encircling palisade, distinct stratigraphic layers, and abundant storage pits; [REDACTED]

[REDACTED] testifying to hunting and large mammal processing. Situated in an area with poor primary stone resources (i.e., quarries), most of the cutting, scraping, and hunting tools from the site were fashioned from chert derived from glacial till deposits although some was acquired, probably by trade, from primary sources in the Dakotas. Most of the four characteristic ceramic wares are of local clays and are types shared with other IMM sites. Minority vessels appear to be copies or actual trade pieces derived from Middle Mississippian societies to the south and east, including Cahokia. Other nonlocal materials, such as [REDACTED] that display a characteristic iconography, also illustrate the site's

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participation in a broad interaction network that stretched from the east coast of North America to the interior of the continent. The location of the site [REDACTED], and the quantity and nature of artifacts found there, suggest that Kimball Village inhabitants were strategic players in this transcontinental interaction and exchange.

The property meets Criterion 4 and Criterion 6 for National Historic Landmark nomination, Criterion D for National Register of Historic Places nomination, and applies to two themes of the NHL thematic framework: *Peopling Places* and *Developing the American Economy*. In its original ~900 year-old location, the Kimball Village site embodies all of the distinctive characteristics of early indigenous farmers, settlements, and material culture that typify early Plains Village sites. This was a transformative chapter in North American mid-continental history when people switched from hunting and gathering and small-scale crop production to a nucleated sedentary lifestyle based on intensive maize horticulture and compact villages of substantive timber lodges. Concomitant changes included new forms of community structure, socio-political organization, and intersocietal interaction. Once established, the MMT presented a new phenomenon on the Prairie-Plains—a lifeway based on compact, self-sustaining agrarian villages and tribal societies that successfully persisted for over 800 years. The location of the Kimball Village site, its early chronological position, deep deposits, intact horizons, settlement layout, architectural features, rich material culture, and occasional human remains offer the remarkable potential to address the theme *Peopling Places*. The site's location, exceptional and well-preserved artifact assemblages, subsistence data, and unequivocal evidence for long-distance contacts present an extraordinary opportunity to shed light on the adoption and consequences of an enhanced adaptive system among indigenous societies in North America applicable to the theme *Developing the American Economy*. The site is among the earliest and certainly one of the most intact and best preserved fortified Plains Village midden-mound sites—a rare site type among all sites of this archeological complex and key to examining rapid culture change at a major threshold in the history of the midcontinent.

No IMM sites of the Big Sioux phase have been designated as NHLs. The Kimball Village site was recently nominated to the National Register of Historic Places under a Multiple Property Submission for the IMM in Iowa (Alex and Peterson 2010; Peterson et al. 2010) and was listed on the National Register June 11, 2010, at the national level of significance. Two previous and related NHL theme studies include Early Indian Farmers, Villages, and Communities (National Park Service 1963) and Village Sites of the Middle Missouri Subarea CE 1000–CE 1800 (Winham et al. 1994). While the Kimball Village was not specifically identified in these studies as a potential candidate for NHL status (only one Mill Creek site was discussed), the Mill Creek midden sites of the Big and Little Sioux phases were recognized as the progenitors of the Plains Village pattern and the MMT. In 1964 the [REDACTED] and [REDACTED] both Little Sioux phase IMM villages, were designated as NHLs. Wittrock is a single component, non-midden, fortified village [REDACTED]. Phipps, considered the type site for the Mill Creek culture (Bryson and Baerreis 1968:9), [REDACTED]. Throughout the decades, and especially in 1993, portions of the Phipps site have been severely impacted by flooding and stream bank erosion from Mill Creek (Fishel 1995; Fishel and Van Nest 1994).

ENVIRONMENTAL SETTING

The Kimball Village site covers 0.8 hectares (1.9 acres) [REDACTED] (Figure 1). The toe slope of the [REDACTED]. The bluffs rise 30 m above the site. Today, the left bank of the Big Sioux River is [REDACTED]. It is possible that the river bank was nearer the site during late precontact times, although there are no obvious abandoned river channels (Figure 4). A recent survey in 2009 indicates that the Kimball Village site was built on a natural nose formation of either a fan or

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ridge (Whittaker 2010:3–28). Apparently, that landform was cut off from the ridge to the north by a meander that appears to have filled in prior to precontact human occupation; the south and west were protected by natural, vertical sides (Figure 5). A noticeably wide (.40 m) but shallow (30 cm) depression in the center of the mound was observed in the north half, only to rise towards the south. It is possible that this depression is where soil was borrowed to build lodges on the south tip of the original rise, or this depression might be natural (Whittaker 2010:3–29).

The maximum immediate local relief surrounding the Kimball Village site is less than 2 m. Big and Little Sioux phase sites in general occur on river or creek terraces, although residents avoided locating their settlements along broad, flat, treeless valleys, such as the Floyd River [REDACTED]. Some archeological settlements considered ancestral to the Big and Little Sioux phases—Late Woodland Great Oasis sites—do occur in such valleys, including the Floyd, and in lakeside settings (Tiffany 1982a). Factors affecting the location of Big and Little Sioux phase sites were likely the availability of essential natural resources, such as water, tillable soil, large game animals, and timber (Tiffany 1982a:11). Still unexplored is whether Big Sioux phase sites are located to take advantage of defensible positions. The creation of compact, fortified sites was a marked departure from the settlement pattern of earlier Great Oasis communities.

Pollen data suggest that during late prehistory, the native vegetation at the Kimball Village site was tall grass prairie, with a nearby stand of timber and thicket (Bryson and Baerreis 1968:16–19; James and Nichols 1969:315). Botanical analysis of wood charcoal from the site identified ash, elm, ironwood, maple, and willow (Henning et al. 1968:38–39). Native vegetation at the time of European contact was similar, with tall grass prairie predominating, and stands of trees most common in the steep ravines and areas near the Big Sioux valley (Soil Survey Staff 2009; Worster and Harvey 1976). An early account describes the east side of the Big Sioux–Missouri junction as a tangle of “bluffs, ravines, vines, valleys, tall grass, swamp, and plum bush and willow thickets” (Allen 1846:104). Along the banks of the Big Sioux River today, large willow, cottonwood, box elder and some elm and ash trees occur. The adjacent slopes to the east of the site are flanked along the lower portions with an oak-hickory association, and a few junipers are found among the predominating grass forms on the upper slopes and hilltops. Here also two Plains species, *Yucca glauca* (soapweed yucca) and *Mentzelia decapetala* (ten-petal blazing star), characteristic of very dry grasslands, find their easternmost distribution (Henning et al. 1968:80). The entire site itself is under cultivation, as it has been since at least the 1930s and probably several decades earlier.

The site lies in the northern part of the Iowa landform region known as the Loess Hills, a region sandwiched between the western plains and eastern prairie biotic communities and accessed by major rivers—including the Missouri, James, Big Sioux, Little Sioux, and Platte—and their tributaries. The Loess Hills are composed of extremely thick deposits of windblown silt that accumulated during the Illinoian (Loveland Loess) and Wisconsinan (Pisgah and Peoria loess) glacial episodes within a long corridor adjacent to and east of the Missouri River valley. Loess deposition slowed considerably after approximately 12,500 years ago. The resulting “intricate, finely sculpted Loess Hills topography is a product of the combined effects of wind deposition, erosional processes along entrenched stream systems, and gravity-induced slumping of thick, fine-grained sediment” (Prior 1991:52–54). Severe hillslope and gully erosion, massive valley sedimentation, and stream-channel entrenchment during the Holocene have episodically reworked and buried older landscapes.

Soils at the Kimball Village site are mapped as Modale variant. Modale series soils formed in 40–80 cm of silty alluvium and the underlying clayey alluvium. The Modale series is classified as calcareous, mesic Aquic Udifluvents. Udifluvents are poorly developed soils, horizonation is minimal. These somewhat poorly developed and drained soils, found most often on floodplains, are well suited to row crops.

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No detailed geomorphological investigation has been conducted at the Kimball Village site (Lee 1969). Future study of the site's cultural stratigraphy holds exciting potential to explain midden formation processes at this and contemporary Plains Village sites.

Historically, the Loess Hills region has been a crossroads of environments, cultures, native peoples, and innovations—a place valued for its unique, natural landscape. Archeologists have long speculated that the exceptional geography of the Loess Hills drew late precontact peoples to settle here. Generally, village communities were situated to take advantage of the surrounding prairie, marsh, and Missouri River and tributary streams; animal and plant resources; fertile floodplains and terraces for farming; and the steeply dissected valleys for timber. The location of the Kimball Village site, [REDACTED], also suggests a strategic location for trade, travel, and defense, and a gateway to resources on the Plains. An 1846 account noted great numbers of bison and the presence of antelope along the entire Big Sioux valley (Henning et al. 1968:80).

Some researchers have proposed that IMM people occupied the eastern Plains during a climatic episode called the Neo-Atlantic, dating to CE 1100 to 1250. They argue that this was a warm, moist period believed ideally suited to the emergence of horticulture. It was followed by a drier Pacific I episode (Baerreis and Bryson 1965). Research at the Kimball Village site in the 1960s focused on the relationship between climatic and culture change (Baerreis and Bryson 1968; Henning et al. 1968). More recent studies have challenged these earlier climatic interpretations with new hypotheses that favor cultural-ecological factors (Lensink 1993a; Henning 2005; Tiffany 1982a; Zalucha 1982a). Floral and faunal data surviving in the well-preserved cultural horizons at the Kimball Village site retain the potential to test these competing interpretations.

The modern climate in the vicinity of the site is subhumid and continental. Winters are cold and snowy. Modern recorded temperatures range from -32°C (-26°F) to 42°C (108°F). The average annual total precipitation is 66 cm. Of this total, 40.5 cm, or about 61 percent, usually falls in May through September. The growing season for most crops also falls within this period (Lensch 2009).

The bedrock geology throughout much of northwest Iowa consists of Cretaceous-age sedimentary rocks mantled by a cover of Quaternary sediments, primarily glacial till, alluvium, and loess (Anderson 1983; Hershey 1969; Morrow 2005). Cretaceous sediments contain few rocks and minerals of economic importance to precontact inhabitants of the region. The Cretaceous system is dominated by near-shore strata consisting largely of sandstone, shale, chalk, clay, and coal. Exposures are scattered along the lower bluffs and adjacent tributaries of the Big Sioux and Missouri River valleys in western Woodbury and Plymouth counties (Witzke and Ludvigson, 1987). The sandstone beds are the most resistant to erosion and, therefore, outcrop more commonly. Sandstone would have been used for manufacturing abrading tools, and the iron-rich beds provided a source of hematite and limonite—two iron oxides commonly ground into powder and used for pigments.

The Quaternary cover typically ranges in thickness from 30 to 120 m across most of the area and locally reaches thicknesses in excess of 150 m within the deeper parts of some bedrock channels. Pre-Illinoian till deposits beneath the loess are a source of igneous and metamorphic rocks useful for making ground stone tools like axes and celts. Siliceous rocks found in the till are suitable for the manufacture of chipped stone tools (Morrow 2005). Till deposits include secondary cobbles of Tongue River silica, petrified wood, quartz, various cherts and chalcedonies, Knife River flint, Sioux quartzite, and red pipestone. Another source for ground stone tools, particularly milling stones, is found in Pre-Cambrian-age Sioux quartzite, which occurs as scattered outcrops in the northwest corner of the state. In adjacent areas of Minnesota and South Dakota, seams of highly prized red pipestone (catlinite), are interbedded with the Sioux quartzite.

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Adequate chert identification and sourcing have never been applied to the complete Kimball Village site stone tool assemblage although the recovered artifacts are still available for study at The University of Iowa Office of the State Archaeologist (OSA). This collection numbers in the tens of thousands of items, offering the potential for an extended, detailed analysis that is, however, beyond the scope of this nomination. Baerreis noted the following chert or stone categories present in various quantities within the combined Kimball Village site and related collections from Little Sioux phase sites: cherts that are white chert, tan, brown chert, pink-to-light-red-brown, black, grey-brown, grey, dark grey, and two categories of mottled grey; brown chalcedony, other chalcedony; Tongue River "orthoquartzite," red quartzite, other quartzite; yellow jasper; and white quartz (Baerreis 1968:152–154). The sources of these materials, whether of a primary or secondary nature, are unknown at this time, but the extensive, extant stone tool collection from Kimball Village, once identified to sources, would certainly shed light on the procurement patterns and interaction among early MMT peoples.

PERIOD OF OCCUPATION: CE 1100-1250 AND CULTURAL IDENTITY

The Kimball Village site is estimated to have been occupied by IMM peoples during the period CE 1100—1250. A suite of eight radiocarbon dates, six run on wood charcoal, one on charred corn, and one on bone, were obtained during the 1963 University of Wisconsin (since 1971, the University of Wisconsin Madison) investigations at the Kimball Village site (Bender et al. 1965). Four of these dates came from the upper portion of the midden-mound, while four dates came from the lower portion. The depth of the midden was 250 cm. The bone date was rejected because of known problems dating total bone organic matter. The seven accepted dates were averaged, and the weighted mean of 832 ± 31 RCYBP was calibrated to CE 1158–1266 (2 sigma) (using Calib 6.0.1 (Stuiver and Reimer 1986–2010, 1993)). All of the dates from three of the Mill Creek sites researched in 1963, including Kimball, later came under critical scrutiny: "Unfortunately, these dates are hopelessly inconsistent with depth at each site [Phipps, Kimball, and Wittrock], presumably due in part to repeated pit excavation and other disturbances at the time of occupation" (Butzer 1973:254).

Based on recent reanalysis of the suite of radiocarbon dates from both IMM and later Extended Middle Missouri tradition sites and the use of ceramic cross dating with the Cahokia sequence, a shorter time frame for the entire IMM has been proposed (Ahler et al. 2007; Lensink 1993a, 1998, 2003b, 2005; Lensink and Alex 2008, Tiffany and Lensink 2011; Toom 1992b). The IMM is now believed to date to CE 1100–1250 (Lensink 2003b, 2010; Tiffany and Lensink 2011) with no single IMM village being occupied for longer than 69 ± 13 years (Lensink 2005). IMM peoples are believed to have occupied the Kimball Village site for 63 ± 17 years early in the time span of the IMM (Lensink 2005).

The transition to the full-blown IMM appears to have occurred earlier than CE 1100, perhaps as early as CE 1050 (Lensink 2003b; 2005). The lowest levels at the Kimball Village site produced a number of rim sherds characteristic of the Great Oasis complex, a late Woodland cultural group believed to have immediately preceded and given rise to IMM communities. The site also contains a high percentage of red-slipped ceramic vessels, which at Middle Mississippian sites such as Cahokia are most prevalent in the early part of the Mississippian tradition (CE 1050–1100). Therefore, the Kimball Village site could represent one of the earliest IMM villages with a beginning occupation CE 1050–1100. Recovery of a new suite of carefully controlled samples for radiocarbon dating from Kimball Village along with additional supplementary evidence from artifact cross-dating offers the potential to refine the estimated age and length of the Kimball site occupation. Taken together with evidence presented below regarding the indigenous origin of the MMT from local Late Woodland populations, continued field research at the Kimball Village site offers an exceptional opportunity to witness the rapid transition to the Plains Village lifeway, understand the processes, and evaluate the consequences.

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PREVIOUS INVESTIGATIONS AT THE KIMBALL VILLAGE SITE

Three episodes of archeological investigations were conducted at the Kimball Village site: the first in 1939 (Orr 1942), the second in 1963 (Henning 1968 and 1969) by which time the site had been noted in the Iowa Site File (ISF) and assigned the trinomial [REDACTED], and the most recent in 2009 (Kvamme 2009, 2010; Whittaker 2010). Since repeated reference is made to the results of these investigations in the remainder of this nomination, they are outlined here.

Although the Sioux City Academy of Sciences and Letters, a group of late nineteenth- and early twentieth-century natural scientists and laypersons, reported excavations at the Broken Kettle Village [REDACTED] (Powers 1910; Stafford 1906), another MMT midden-mound site [REDACTED] of the Kimball Village site, they were apparently unaware that the Kimball Village existed. It was not until 1936 that the site came to the attention of Charles R. Keyes. Keyes was responsible for first defining the Mill Creek culture in Iowa (Keyes 1927) based on the study of collections and sites as part of his appointment in 1922 to head up the Statewide Archeological Survey (Perry 2007).

Starting in 1934, Keyes coordinated archeological excavations in Iowa as part of Works Progress Administration projects under Project 1047 of the Iowa Planning Board. His field director for most of these projects was Ellison Orr, a retired telephone system worker, amateur archaeologist, surveyor, and naturalist (Alex 2008; Perry 2007). Orr would eventually excavate three IMM Mill Creek culture sites under the auspices of a similar endeavor, Project 3600. These included the Broken Kettle and Kimball villages of the Big Sioux phase and the Little Sioux phase Phipps village site (Keyes 1935a, 1935b, 1940; Orr 1942, 1963).

Keyes first learned of the Kimball Village site from W. C. French, a Civilian Conservation Corps officer who was fascinated by archeology (Keyes 1936a). In a series of letters sent to Keyes, French describes the surface discoveries made at the mound (French 1936a, 1936b, 1936c, 1937a, 1937b, 1937a, 1938), which was on property owned by Eleanor Kimball. Keyes describes the site as a "Mill Creek village site on terrace of Big Sioux river, 2½-3 miles N. of Stone Park" (Keyes 1937c). Keyes made an inventory of French's Kimball midden-mound site collection in October, 1939 (Keyes 1939b) (Table 1). Comparisons between the Keyes collection from the site now in the OSA repository and the French collection inventory suggest French did not donate these items to Keyes. The location of these items is unknown, and they are considered lost to science.

In May, 1939, Mrs. Kimball granted permission to excavate at the "old Indian village site" in her farm field, and she was compensated \$20 (Keyes 1939a; Orr 1942:64). Orr (1939a, 1942:63) reported that he and 14 WPA workers began survey and mapping at the site on August 28, 1939 (Figure 6). The goals of the 1939 project were to gain a better understanding of precontact cultures in Iowa, while keeping Depression-era workers employed. Throughout the field project, Orr sent letters to Keyes every three to ten days updating him on artifacts found and features identified (Orr 1939b-f). While most of the excavation information appears in his final report on the site (Orr 1942, 1963), some new information does emerge from review of the correspondence (Orr 1939 a-f).

Orr's crew first excavated a trench, Trench A, east-west across the southern one-third of the site (Figure 7). The trench was divided into excavation units, called sections. Trench A consisted of 22 sections, totaling 152 feet in length [This section of the nomination presents measurements according to the original system of measurements used by the researcher at the time]. The sections of Trench A typically measured 5 x 7 feet, but several were expanded into larger units. After post mold alignments suggesting lodges were discovered, 18 additional sections of varying size were excavated out from Trench A to follow the house outlines. Trench B was placed parallel to the first trench. Orr's (1942:64) text states that Trench B was 5 feet north of Trench A, but his map

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and later text (Orr 1942:90) and a modern geophysical survey (Kvamme 2009, 2010) suggest it was actually 50 feet north. Trench B contained seven units, all measuring 5 x 7 feet. Nine test pits or "T.P.'s" were excavated at outlying parts of the site. These units were variable in size with most measuring 5 x 5 feet.

All told, Orr (1942:74) calculated the excavations covered a surface area of 1,966 square feet, with 593 cubic yards excavated. Modern recalculations using his trench dimensions suggest the excavations may have covered an area as large as of 2,168 ft² with an excavated volume of approximately 15,851 ft³. In most instances, the WPA crew excavated in 1-foot depth increments (Peterson et al. 2010).

The post mold alignments at Kimball Village delineated three (A-C) and possibly four lodges (Figures 8 and 9). Orr also (1942:67-68) recorded hearths and pits at Kimball Village, including several "all filled with yellow clay" and artifacts (Figure 10).

Orr (1942:41) also described the discovery of human remains in the village, acknowledging that "ossuaries containing bundled (often many) skeletons have been found on surrounding bluff tops." These may be in reference to sites 13PM23 and 13PM248, both of which could be seen in the Loess Hills east of the Kimball Village.

After two-and-a-half months, the WPA excavations at the Kimball Village site ended (Orr 1939f). A final report on the site excavations was issued in 1942, and was combined with the Broken Kettle site findings (Orr 1942). Keyes' (1944) notes mention the Kimball village site one last time in May, 1944, when he again visited the Broken Kettle and Kimball villages, this time with A. F. Allen, editor of the *Sioux City Journal*. Keyes makes no mention of further findings at the site.

After excavation was completed, Keyes, Orr, or both catalogued the artifacts. Keyes sent some materials out for specialized analysis including limited identification of plant materials from both the Kimball and Broken Kettle villages by Volney Jones (1940) of the University of Michigan, and analysis of mussel shells by T. C. Stephens (1941, 1943). Some of these results were included in Orr's (1942, 1963) final report and are summarized below.

The 1939 excavations exposed [REDACTED] at the Kimball Village, and led to innovations in the study of Mill Creek culture. The Broken Kettle and Kimball village sites became the type sites for the Big Sioux phase of the IMM (Ives 1962) (Figure 1).

Artifacts and findings from the 1939 work at Kimball Village were also incorporated into graduate student studies (Fugle 1957; Ives 1956). Fugle utilized the Kimball Village site collection of stone, bone, and shell artifacts to characterize the Mill Creek culture (1957, 1962) (Figures 11). He summarized artifacts from the site omitting ceramics, later seriated by Flanders (1960) and analyzed by Ives (1962). Not only is the artifact catalog valuable toward understanding what types of artifacts were found, but the vertical artifact distribution indicates cultural materials could be found throughout the site's entire depth.

Ives (1962) analyzed Orr's ceramic collection from Kimball and Broken Kettle villages (Figure 12), along with 1955 collections from the Little Sioux phase Phipps site, (13CK21), to establish essential descriptions of Mill Creek pottery. Although he tabulated the rim sherds from the Kimball Village site, Ives did not tabulate the body sherds but indicates that he "examined" them (Ives 1962:11). He noted some significant differences in the pottery, which led him to propose a reclassification of the Little and Big Sioux "foci" [part of Midwestern Taxonomic Method, a classification system used at the time (McKern 1939)] as the Big and Little Sioux phases (Ives 1962). Ives classified the Mill Creek ceramics by ware and vessel type, and his classification scheme was adopted with a number of modifications by the next researcher to study the Kimball Village ceramics, Dale

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Henning (1969a:192). Ives mentioned that [REDACTED] decreased in quantity in the upper levels of the midden; and the 1969 researchers also noted that [REDACTED]. [REDACTED] is part of IMM assemblages considered to reflect influences from Middle Mississippian societies. Henning noted that this form may be the “earliest evidence for contact with the Cahokia area by Mill Creek peoples” (Henning 1969:273). Griffin (1946, 1949) had noted a relationship between Mill Creek and Cahokia previously. Numerous researchers used the 1939 artifact and excavation data from the Kimball Village site to formulate new theories about IMM peoples (c.f., Anderson 1981, 1986, 1987; Fugle 1962; Ives 1962; Johnson 2007b; Peterson 1967a; Ruppé 1955–1956, 1959a, 1959b). This collection of 9,014 objects and associated catalogs, notes, maps, and correspondence is curated at the OSA repository in Iowa City.

The 1963 University of Wisconsin’s excavation of four units at the Kimball Village site was designed to evaluate the relationship between climate and culture change (Henning 1968; 1969). It was proposed that the Neo-Atlantic episode, beginning around CE 800, brought warmer air masses and increased precipitation to the eastern Plains. This, in combination with the arrival of improved maize varieties, launched Mill Creek culture on its agricultural trajectory (Anderson 1986, 1987; Baerreis and Bryson 1965). According to this scenario, around CE 1200 expanded westerlies, marking what was called the Pacific climatic episode, decreased summer precipitation in northwest Iowa as much as 25 percent (Bryson and Baerreis 1968; Bryson and Murray 1977). This was viewed as a catalyst for a profound change for the Mill Creek villagers including their abandonment of northwest Iowa (Lensink 1993a:190).

In order to test this relationship, five Mill Creek sites, including the Big Sioux phase Kimball Village and Broken Kettle sites, and three Little Sioux phase sites, Wittrock (13OB4), Waterman Siding (13OB2), and Phipps (13CK21), were chosen for study. Phipps, like the Kimball Village and Broken Kettle sites, contained thick midden deposits that suggested to researchers the opportunity to study the relationship between culture and climate over what was presumed to be a long period of time.

Walter Klippel supervised the 1963 excavations at Kimball Village, which were directed by Dale Henning. Within the site boundaries, excavations covered an area of 75 ft² and removed a volume of 625 f³ of fill. Three 5-x-5-foot test units (two of these contiguous) (Squares 1–3) were excavated in 6-inch levels (Figure 7). A fourth, non-cultural square was excavated 50 feet south of the site to document a natural soil profile. General levels were not screened, but feature fill was screened through ¼-inch hardware cloth and some water flotation was used. Pollen samples were taken from unit profiles and features (Henning et al. 1968:82).

Squares 1 and 2 were excavated at the peak of the southern mound crest to a depth of at least 9 feet below surface. Square 3 was excavated 30 feet southwest on the mound slope, 20–24 inches lower in elevation than the previous two squares, and to a depth of 84 inches (Henning et al. 1968:81). At the top of the mound, sterile soils were reached at 96 and 102 inches below the surface. Square 3 encountered Orr’s culturally sterile “gumbo” soil at a depth of 76 inches (Bryson and Baerreis 1968:13).

The 1963 excavations encountered dark soils which made it difficult to distinguish features. The top 36 inches of Square 1 were homogenous and filled with rodent runs. At 66 inches below surface in Squares 1 and 2 thin strata of alternating soils were observed, these continued to the base of excavations. In Square 3 similar strata were observed at a depth of 18 inches (Henning et al. 1968:82; see also Lee 1969). Five features and a burial were encountered. Feature orifices were located throughout the mound.

Details of the 1963 excavations, features, specialized analyses of the artifacts, and samples of the fauna and flora found at all five of the Mill Creek sites investigated by the University of Wisconsin, including the Kimball

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Village, were reported by individual analysts in a two-volume edition of the *Journal of the Iowa Archeological Society* (Henning ed. 1968 and 1969). The researchers presented data that tested the hypothesis of climate as a prime mover in the establishment and ultimate abandonment of northwest Iowa by IMM peoples. This research also provided training to a large cadre of aspiring Midwestern archeologists, who over the next two decades produced theses and dissertations on Mill Creek and the MMT, wrestling with such diverse issues as ceramic classification (Alex 1981a; Anderson 1972); economy and environment (L. Alex 1973; Benn 1972, 1974; Dallman 1977; Scott 1972, Wegner 1975; Zalucha 1982a), community patterns and social organization (Tiffany 1978b; Zimmerman 1971), and taxonomy and chronology (Peterson 1967a; Vis 1968; Vis and Henning 1969). Citation of the Kimball Village site findings appeared in most of these reports.

In 2009 the OSA conducted a cultural resources study of late precontact archeology in Iowa's western Loess Hills (Pope and Collins ed. 2010). As part of this project, the Kimball Village site was evaluated for consideration of its nomination to the National Register of Historic Places. Kenneth Kvamme and students from the Department of Anthropology, University of Arkansas, conducted geophysical surveys at the site in March 2009 (Kvamme 2009), while at the same time William Whittaker of the OSA investigated the Kimball Village site with a combination of total station mapping, auger testing, soil coring, and pedestrian survey (Whittaker 2010). These investigations were to ascertain if the site retained the high degree of depositional integrity reported by the 1939 and 1963 researchers (Whittaker 2010). The investigations resulted in substantial field data regarding structures, site stratigraphy, and general distributions of artifacts observed during auger tests and cores as described below (reported in detail in Pope and Collins 2010). This research provided detail for the successful nomination of the site to the National Register of Historic Places in 2010 (Peterson et al. 2010), as well as for the current NHL nomination.

The entire village area of 9,600 m² was surveyed and mapped, plus the surrounding, non-cultural edges were surveyed, revealing the full extent of the site (Kvamme 2009, 2010). Various geophysical instruments and techniques were used, including soil resistivity, EM-conductivity, ground-penetrating radar, and magnetic gradiometry. Due to a combination of frozen and water-saturated ground, and deposits composed largely of fine-grained silt, the magnetometry yielded the most informative data. Virtually all anomalies of potential interest were located by that method. The results verify that significant archeological features lie intact beneath the surface (Figure 13). The anomaly distribution suggests the site likely contains [REDACTED] [REDACTED]. Evidence of a fortification ditch is ambiguous, but a point distribution of small anomalies around the site perimeter is interpreted as the location of former palisade posts. The geophysical survey relocated the excavation trenches made by Orr in 1939. Another, shorter area of possible disturbance appeared in the southeast corner of the site, perhaps signifying the "deep pit" excavated by an owner or tenant sometime before Orr's (1942:64) excavations.

Whittaker's 2009 investigation of Kimball Village included 13 20-cm-diameter auger tests placed across the site in a linear transect at 5-m intervals in an effort to understand the depth of cultural deposits (Figures 7, 14, 15) (Whittaker 2010). Auger tests were removed in arbitrary 20-cm levels to examine soil stratigraphy and were screened with ¼-inch hardware cloth. The augers were taken to the depth of buried natural subsoil. In addition, seven soil cores were made with a 2-inch probe and described in more detailed fashion. Soil cores were also screened, but because of their narrow diameter, few artifacts were recovered. Several probable features were observed within the site, including [REDACTED] [REDACTED]. The 5-m interval of auger tests and soil cores, however, did not allow for determination of the shape or extent of these features.

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The 2009 field investigations (reported in detail in Pope and Collins 2010) yielded new and important field data about structures, site stratigraphy, and general distributions of artifacts observed during auger tests and cores. A new series of topographic maps that could be superimposed on aerial photographs and older excavation maps (Figures 7, 14, 15), and general stratigraphic profiles (Figures 16 and 17) resulted from the project.

Comparing these recent findings with those reported by the two previous investigations suggests that very little soil has been lost due to erosion or cultivation since the earliest investigations at the site. In 1939 Orr documented a [REDACTED]. More than two decades later, Bryson and Baerreis (1968:13) reported a [REDACTED]. Most recently, Whittaker (2010) and Kvamme (2009, 2010) found that the site still contains [REDACTED] (Figure 18 and 19). The site remains an extraordinarily well-preserved village occupied by IMM inhabitants sometime between 750 and 900 years ago.

PHYSICAL CHARACTERISTICS

The following derives from all three investigations conducted at the Kimball Village site. It relies heavily on the results and discussions presented in the most recent research by Kvamme (2009, 2010) and Whittaker (2010).

Site Type

The Kimball Village site is a compact IMM village of perhaps 24 suspected lodges evident near the surface that served as the permanent residence for an agrarian community whose members may have spent brief periods of each year procuring needed resources such as stone away from the village (Figure 20). The strategic location of the site near the confluence of the Big Sioux and the Missouri River, the evidence of a possible fortification, and the large numbers of nonlocal artifacts also suggest that the community was a focus for trade and interaction between distant communities to the east and west—in essence, a gateway to the Plains. If all of the lodges apparent at the site were occupied at the same time, over 250 people could have lived in the village contemporaneously—given Tiffany's (1991a, 1991b) projected mean household size of 11 individuals, based on an estimate of 5 m² of house floor per individual (Wedel 1979:94). The lifespan of a Plains lodge is estimated at 10–15 years based on historic accounts and experimental archeology related to the disintegration of the wooden support timbers (Lensink 2005), making it virtually certain that many lodges would be replaced and relocated over the span of occupation at Kimball. Evidence for overlapping house structures and multiple horizons at the Kimball Village likewise suggest multiple rebuilding episodes. The total number of houses and total population of the village at any single time remain unknown.

Archeological Deposits, Structures, and Features

Archeological Deposits

The Kimball Village site now appears as a low, raised midden-mound 2.6 m in total depth on the river terrace (Figure 2). The mound rises approximately 1.5 m above the surrounding terrace, suggesting that over a meter of silt has built up around the midden in the past century. There are no visibly discernible house depressions on the plowed surface. All structural evidence [REDACTED]. Using a transit and chains, Orr recorded the site dimensions as 98 m north-south x 60 m east-west [Orr and Henning's original system of measurements in feet and inches is converted to metric in this section for comparative purposes] (Orr 1942). Henning et al. (1968:81) found the site measured 122 x 76 m. Given that Orr was a surveyor by trade and Henning an experienced, professional archeologist, the disparity in their figures could reflect the location from which they were taking their measurements. Whittaker's (2010) site

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dimension measurements conformed to those of Henning et al. (1968) (Figure 21). The magnetic gradiometry survey at the Kimball Village site suggests that site structures, features, and midden are confined to an oval-shaped region of the mound measuring about 95 m north-south by 55 m east-west (Figure 13) (Kvamme 2009, 2010).

The site is overlain by a plow zone varying from 15 to 30 cm deep. Artifacts are comparatively scarce in this level. The variation in the depth of the plowed layer may correspond to the locations of lodges as suggested by Kvamme (2009, 2010). It is possible that when the final lodges were abandoned, the site was pocked with lodge depressions, standing or abandoned structures and other features such as drying racks, and the like. When mechanically plowed during the historical period, these features and house depressions were eventually filled in with soil dragged from other parts of the field that had comparatively fewer artifacts. The combination of the current use of low-till/no-till cultivation and surface collecting are also likely factors.

Orr (1942) reported an overburden of [REDACTED] found at the base of the midden-mound. It is likely that later house features existed higher in the mound but were missed by researchers in both 1939 and 1963. The 2009 augering suggests [REDACTED] (Figures 16 and 17). [REDACTED] represent more stable land surfaces during the site occupation. Earlier researchers also reported [REDACTED] within the mound (Henning 1968, 1969). The dark homogeneous sediments comprising the site soils make feature definition difficult, except near the base of the site where [REDACTED] (Orr's "gumbo"). As a result, most features—including the structures identified by Orr (1942)—have been identified from great depths [REDACTED]. Orr noted that there were "lens shaped deposits of pure white ashes found throughout mound, occasionally surrounded by red burned earth" (Orr 1942:40). These occurred at various depths, from between [REDACTED]. Based on the findings of these previous investigations and the 2009 research, it is reasonable to assume that [REDACTED] (Whittaker 2011, personal communication).

In comparison with Orr's site profile and topographic map it is apparent that the south end of the Kimball Village site midden-mound has been affected by plowing (Figure 18). The east side of the mound has been buried, probably by alluvium and plowing. The top of the mound has been rounded from plowing but is less affected by erosion (Whittaker 2010:265) While the complete mechanisms of mound formation at the Kimball Village site have not yet been part of detailed geomorphological and geophysical investigations, it is apparent that around 1.9–2.5 m of deposits remain (Kvamme 2009, 2010; Whittaker 2010).

Structures (lodges, palisade, ditch)

The most outstanding structures at the Kimball Village site are [REDACTED]. Orr identified [REDACTED] (Figures 8 and 9) (Orr 1942). Lodges were defined by double rows of post molds spaced 15–30 cm apart, enclosing rectangular areas. Lodges were reported as [REDACTED] (Orr 1942:39). The post molds usually extended 20–33 cm deep, with vertical sides, and were 10–15 cm in diameter. One house may have had a central support post, 25.4 cm in diameter. Orr indicated these structures were built "directly on the gumbo, [REDACTED]" (Orr 1939c).

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Orr presumed the three Kimball Village lodges were contemporaneous because the post molds from the separate lodges were encountered at the same upper levels of elevation and extended into the subsoil to similar depths. The floor of the lodges was level with the surrounding ground, i.e., they were not semi-subterranean as were lodges of other early Plains sites including other IMM villages (e.g., R. Alex 1973; Baerreis and Alex, 1974).

Orr identified no daub or charred timbers within the Kimball Village site, but noted that in some cases, the post molds contained small amounts of decayed wood. Evidence for burned earth or daub was encountered at the base of the site. Orr excavated an estimated 30 percent, 33 percent, and 82 percent of the interiors of Houses A–C, respectively (Table 2). Recent estimates suggest the sizes of Orr's Houses A–C as 53 m², 62 m², and 58 m², respectively (Lensink 2005).

No lodge structures were identified during the 1963 investigation. Henning et al. (1968:82) suggest that the 1963 excavations may have excavated through house floors or other features in the upper part of the midden. Given that Orr's lodges were found [REDACTED], the 1939 crew may also have missed features higher in the midden-mound as discussed above.

Through magnetic gradiometry in 2009, the entire village area was surveyed and mapped, amounting to an area of 9,600 m². The results verified that significant [REDACTED], with perhaps [REDACTED] including those found by Orr (Figure 13) (Kvamme 2009, 2010). Orr himself originally estimated that 20 lodges probably existed (1939d, 1942). The 2009 magnetic survey confirmed that lodges were predominantly rectangular in shape and [REDACTED], many with entryways facing south. The presence of two smaller lodges with a square shape, both with suggested central hearths, was also indicated (Kvamme 2009, 2010). One overlapped with or was adjacent to House B uncovered by Orr (1939), but in an unexcavated area of the site. One other IMM site in Iowa—Chan-ya-ta (13BV1), a Little Sioux phase village—has square-shaped lodges (Tiffany 1978b; 1982a).

Artifacts and burned earth or daub found at the base of the midden-mound seemed to cluster at the transition between the fill and the natural subsurface, usually 2 m or more below ground surface. This cluster is suggestive of the floor of a lodge (Whittaker 2010:3–30).

The gradiometer survey also showed anomalies 0.5–2 m in diameter encircling the village area (Figure 13) (Kvamme 2009, 2010). These anomalies tend to be spaced 3 m apart, but with a range of from 1 m to 6 m. It is conjectured that these anomalies may represent holes that once held stout palisade timbers. These, in turn may have supported a lighter structure (palisade) of brush or wicker (Kvamme 2009, 2010). More elusive was clear evidence for a corresponding ditch surrounding the village. There were several small perimeter regions, elongated and nearly linear in shape that exhibited raised magnetism, but did not show discrete edges common to filled ditches. These may be natural (Kvamme 2010:4-16). It could be that a perimeter ditch was once present, but may have been shallow, and land-leveling resulting from more than a century of plowing may have reduced and smoothed out the magnetic signatures typical of these features (Kvamme 2010:4–10).

During the 2009 test excavation at the north end of the midden-mound, possible ditch remnants were encountered. Two were [REDACTED]. One began 140 cm below surface and extended to 180 cm below surface; and the second extended 55–110 cm below surface (Figure 16) (Whittaker 2010:3-29). Their identity as remnants of a ditch or pit features remains unconfirmed. Nevertheless, the likelihood that the Kimball Village site—believed to be early in the IMM—was fortified, has

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important implications for understanding the origin and development of the fortified village—an architectural complex which is a hallmark feature of the Plains Village pattern itself.

The recent testing demonstrates both discrete depositional horizons and additional features at the Kimball Village site (Figure 16 and 17) (Kvamme 2009, 2010; Whittaker 2010). Largely unexplored at this time, is the potential for identifying structures and features in horizons higher up in the midden-mound. Such information could significantly contribute to an understanding of the occupation span and changes in the structure of the village over time, as well as IMM site formation processes in general. The geophysical results shed much light on the organization of the Kimball Village site and its potential for understanding the organization of the prehistoric community which created and occupied it. Superimposed house floors encountered at the Broken Kettle IMM site (Henning and Henning 1982) suggest the possibility of encountering similar features at Kimball Village.

Features

In addition to the known lodges and possible palisade and ditch structures, the Kimball Village site contains numerous cultural features including [REDACTED]

[REDACTED]. Orr's excavated Houses B and C at the base of the midden-mound, displayed evidence of centrally located hearths (Figures 8 and 9). House C also revealed [REDACTED]. Pits were 0.37–0.61 m deep and 45–91 cm wide. One pit was bell-shaped; the others were deep basins. Pits were also encountered on the exterior of the lodges. Orr noted several pits were “all filled with yellow clay” and artifacts (Orr 1942:67–68). The 1963 excavation of three 5-x-5-foot test units encountered four features. [REDACTED]

[REDACTED] (Henning et al 1968:83). The 2009 auger tests and coring documented possible hearths and ditch or pit features, a concentration of clam shells, and an artifact cluster along with burned earth and charcoal at the base of the mound which might signify a house floor (Whittaker 2010).

Previous investigations at IMM village sites have concentrated almost exclusively on the features found within structures. The presence of [REDACTED] as suggested at the Kimball Village site presents the opportunity to understand aspects of village and household activities conducted external to houses. These might include processing of animal and plant materials, clay preparation for ceramic-making, ceramic-firing, stone and bone tool production, and refuse disposal. Storage pits found outside a structure could signify the need to hide foodstuffs or other storable supplies from neighbors or visitors to the community. Refitting artifacts and faunal elements found distributed among houses—heretofore never attempted—may shed light on the scale and context of production, consumption, sharing, and/or exchange in an early agrarian community as discussed below. This would have implications regarding prehistoric social relationships.

Burials

In 1939 Orr encountered [REDACTED]

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[REDACTED]

Modern review of the excavation materials reveals that Orr did not return all of these skeletal remains to Keyes, possibly leaving the more fragmentary elements in the field. For instance, Orr (1942:87) sketched the five person burial, clearly depicting five crania. Modern analysis suggests that the five-person-burial contained the bundled, partial remains of at least four persons—an older infant, a teenaged female, a male in his twenties, and a possible young adult male. It is possible these remains represent interment after a scaffold burial. Orr mentions the bundled remains of two children within a burial pit in a house, but modern analysis suggests the remains of only one individual, aged 5.5–6.5, was present or returned to the laboratory (Schermer et al. 1998). There were also instances where WPA excavators encountered isolated human remains, not recognized as such until they were brought into the laboratory. At [REDACTED], for example, isolated fragments from four individuals were not recognized as human in the field, but were later identified during analysis in the laboratory (Schermer et al. 1998:69).

A [REDACTED] was identified in the 1963 excavations along the north end of Feature 4, 51 cm below surface (Bryson and Baerreis 1968; Henning, 1968, 1969). It is likely that the burial pit had been excavated accidentally into the edge of an existing, abandoned storage pit. A male, 25–32 years old, was interred in a flexed position. All the teeth present had abscesses at the roots, and spinal evidence suggested spondylolisthesis, exhibited as the fifth lumbar vertebra displaced over the sacrum.

[REDACTED] (Baerreis 1968:142–143; Henning et al. 1968:83; Peterson 1969). No other human remains were identified.

Artifacts and Ecofacts

The quantity of artifacts—30,000—recovered from the three investigations at the Kimball Village midden mound is staggering, considering that less than 1 percent (0.13 percent) of the total site area has been tested and that only a limited area of the site was subjected to fine-screening techniques. The dearth of fine-screening has undoubtedly affected the recovery of very small materials, such as stone flaking debris and especially ecofactual data (charred seeds, fish scales, and small bones), essential to environmental and dietary reconstructions. Collating the three different excavated samples to provide comparative information and to estimate the distribution of materials throughout the site is also difficult due to differences in excavation techniques and subsequent analysis and reporting, although the 1963 researchers attempted to compare some of their results with those of 1939 (Henning 1968 and 1969).

Items recovered during all three investigations, as well as accompanying documents (notes, maps, and correspondence), are curated at the OSA. The collection remains of enormous research value, providing comparative early Plains Village artifact data with which investigators may evaluate and characterize the material culture and organization of technology in an early Plains Village community, community structure, external relations among interacting communities over a broad region of the midcontinent, and hypotheses related to climate change and culture. A brief, general description of the vast artifact assemblage from the Kimball Village is summarized here based on the detailed descriptions by others including Anderson (1972), Henning ed. (1968, 1969), Fugle (1957, 1962), Ives (1962), Tiffany (1982a), and Whittaker (2010).

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General Artifact Assemblage

Artifacts from the Kimball Village site represent a spectacular array:

[REDACTED] (Figures 11, 12, 22–25). All the detritus of village life occurs, some of it intentionally left behind as trash (e.g., flaking debris, broken pottery, and charred seeds and bones), while other items were inadvertently lost or forgotten (e.g., [REDACTED] [Figure 11]). Artifacts fall into the general descriptive types that are characteristic of IMM sites as originally described by Lehmer (1971). The site is also notable among IMM villages in containing an assortment of nonlocal artifacts including [REDACTED] [REDACTED]—all suggesting external contact and trade. The quantity and quality of materials is even more remarkable considering that no fine screening was utilized in the 1939 excavation and that only the fill from features was screened in 1963.

The number—9,014—and range of artifacts recovered in the 1939 excavations alone (Table 3) was astonishing and formed the basis for essential descriptions and classifications of Mill Creek culture, as well as the formulation of new theories about MMT peoples. The 0.6 m³ of material from the 1963 test units produced 13,502 artifacts and reproduced the categories found by Orr two decades previously (Henning et al. 1968). Limited auger tests and soil cores at the Kimball Village site in 2009 resulted in a very well-controlled and sizeable sample of 6,941 artifacts (Whittaker 2010).

Lithic Artifacts

Stone artifacts include [REDACTED]. Chipped stone items comprise [REDACTED] (Henning, Henning, and Baerreis 1968). The [REDACTED] were viewed as a trait shared specifically with Middle Mississippian sites such as Cahokia (Baerreis, 1968:158) where they become common after CE 1050 (Hall 1967, 1991). The most recent investigations in 2009 also recorded the recovery of [REDACTED]. (Whittaker 2010). Whittaker suggests that although the soil from all 12 of the 2009 auger tests was screened through ¼-inch mesh, the site produced a relative dearth of flaking debris. This may indicate that flaking to create or modify stone tools was rarely practiced within the village, or may reflect refuse disposal practices.

Among the utilitarian items of pecked and ground stone were a large number of [REDACTED] [REDACTED] of sandstone, limestone and clinker or scoria. The latter material forms in areas where seams of lignite coal burn, producing heat that bakes the nearby sediments to create a natural brick. This clinker found at the Kimball site probably originated in the Fort Union formations of North Dakota (Baerreis 1968:179) and floated down the Missouri River system. The high frequency of abraders found at the Kimball Village site and at the nearby Big Sioux phase Broken Kettle site (13PM1) led 1960s researchers to propose that the two villages were using these sanding stones to produce bone tools for trade with other

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communities (Baerreis, 1968:180). [REDACTED] also occur. The Kimball Village site residents also utilized red (hematite) and yellow (limonite) ocher ("earthy" iron ore) in a ratio of 6 to 1 as compared to the four other Mill Creek sites investigated in 1963 (Baerreis 1968; Henning et al. 1968:90-92, 187-188). Two other ground stone items [REDACTED] were again suggestive of external contacts with Middle Mississippian sites where both occur.

Bone and Shell Artifacts

As at other MMT sites, bone artifacts form the most copious artifact group. The Kimball Village [REDACTED] represent by far the most common bone tool (Figures 22-25). Lesser numbers of utilitarian types include [REDACTED] all suggestive of an economy reliant on both the harvest and the hunt. Bone was also fashioned into items of adornment including [REDACTED].

Locally derived mussel shell made its way into [REDACTED] (Figures 24 and 25). Nonlocal shell—*Marginella*, *Olivella*, and *Leptoxis*—was used for adornment perhaps in jewelry or sewn onto clothing. *Marginella* and *Olivella* are marine shells derived from the Gulf Coast and Atlantic (Henning 1996). *Leptoxis* is a snail shell whose nearest sources are the Wabash River in Indiana, and perhaps the central Illinois River Valley (Henning 1996). Sections of [REDACTED] were also found in all three investigations. Fugle lists 15 shell artifacts from the 1939 excavations (Fugle 1957), and Baerreis reported 14 from the 1963 project (Baerreis 1968). A number of these items had been worked into pendants (Baerreis 1968:190-192; Whittaker 2010). In the 2009 investigation, [REDACTED] The specimens were smoothed on one side, exposing two holes through which a string could be threaded (Figure 26). Based on estimates of total site population, Tiffany (1991a 337) calculated that [REDACTED] site over the course of its duration based on estimates of total site population.

Ceramics

The ceramics recovered from the Kimball Village site are generally characteristic of those found at IMM sites particularly eastern IMM sites, such as Mitchell in South Dakota and those of the Little Sioux phase in Iowa (Figure 27). IMM [REDACTED] which is no longer preferred because the taxon does not meet the definitional standards of a ware in the ware/type system (Alex 1981a; Anderson 1981:14), each ware is distinguished primarily on the basis of a flaring or S-shaped rim form, with specific types defined largely by exterior lip and rim decoration. Mill Creek "ware" consisting of several different vessel types such as [REDACTED] are believed to have been inspired by Middle Mississippian forms. Sanford, Chamberlain, and Foreman ware types have antecedents in earlier Great Oasis types. Ceramic decoration typically includes incised geometric patterns such as triangles, rectangles, and diamonds, or horizontal bands of trailing applied to the shoulders. Other motifs include the so-called running deer or flag and dot, turkey track, and "weeping eye". Vessels with carinated shoulders may have curvilinear trailed designs. Iconography such as the weeping eye motif, rolled lips, and use of red slip are believed to represent Mississippian inspirations. Some pots have loop

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or effigy handles representing small mammals and birds (Figure 29). Mill Creek pottery shares with other eastern IMM sites a predominance of undecorated vessel bodies and a low but consistent use of trailed designs on the vessel shoulder (Tiffany 2007a). Between eastern and western IMM sites there are marked differences in the frequency of major pottery types and method of decoration.

The large pottery sample (2,552 rim sherds) from the Kimball Village, first acquired in 1939 and later studied by Ives (Ives 1962), was used with other site assemblages to establish essential descriptions of Mill Creek pottery and refine the four major ceramic groupings characteristic of the IMM. One of the notable characteristics of the Kimball Village site ceramics was the [REDACTED]

(Ives 1962:28).

The 1963 ceramic assemblage was astonishing in quantity considering that [REDACTED] were all acquired from the excavation of two contiguous 5-x-5-foot excavation units (Henning 1969:241). The use of ¼-inch mesh to screen feature fill in 1963 doubtlessly contributed to the higher rate of recovery. All four IMM wares were recovered, with Mill Creek and Chamberlain wares representing more than 75 percent of the total (Henning 1969). Researchers did not detect obvious seriation trends in ceramic style ratios with depth at the site (Henning 1969; Henning et al. 1968:84–85). Four Great Oasis rim sherds were recovered from the lower excavation levels. Great Oasis is considered to presage Mill Creek.

Ceramics recovered from the limited auger tests and cores in 2009 included 1,844 ceramic sherds (2,521 g), of which 43 were rim sherds. All four ceramic wares were present with Chamberlain predominating. An attempted seriation of typed rims suggested that the site was probably not occupied long enough for long-term changes in ceramic style, with [REDACTED] (Whittaker 2010).

Early on, [REDACTED] found at Kimball Village were recognized as evidence of Middle Mississippian influence. Big Sioux phase sites in general may have as much as 20 percent or more of the ceramic assemblage composed of pottery reflecting Middle Mississippian influences (Tiffany 1983:95). Such influence includes finely ground shell tempering; rolled lips; ceramic vessel shapes including bowls, bottles, and seed jars; scroll decoration on vessel shoulders; red-slip vessels; and actual Middle Mississippian vessels types such as Powell Plain and Ramey Incised. Broad trailed (incised) ceramics believed to be inspired by the Middle Mississippian Ramey type (Figure 30) or actual imported vessels composed 0.8 percent of the ceramics from 1939 and 1963 Kimball Village site investigations (Lensink 2011, personal communication). In 2009, 10 of 1,844, or 0.5 percent of the ceramics recovered, were shell-tempered. Tiffany estimated that 77 shell-tempered pots may once have been present at the site (Tiffany 1991a:335).

The Kimball Village site and the nearby Broken Kettle site also contain ceramics with [REDACTED] are occasionally found in IMM sites, and are termed Stuart Collared. Such forms are suggestive of a locally forming ceramic tradition related to sites of the Initial Coalescent tradition on the Central Plains (Tiffany 2012, personal communication). Ives (1962:23-25) makes a clear case for this in his analysis of Big Sioux phase ceramics.

Artifacts Indicative of Trade

Many artifacts found at IMM sites, including Kimball Village, reflect the wide-ranging contacts these communities had with other peoples. Ceramic evidence alone, shows interaction with some Late Woodland groups in eastern Iowa (Benn and Green 2000; Tiffany 1982b), southwestern Wisconsin (Finney 1993; Finney

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and Stoltman 1991), and Caddoan groups from the southern Plains (Anderson and Tiffany 1987). These are in addition to more obvious ties to other eastern IMM communities in Iowa, South Dakota, and southern Minnesota (Gibbon 1993; Henning and Toom 2003; Knudson 1967; Scullin 2007). The similarities between Iowa Mill Creek sites and the Lower James phase sites in southeastern South Dakota suggest that these communities were closely related and frequently in contact. Resources from the Plains, including bison and certain lithics, are common at Iowa sites. There is no local bedrock source for the chipped stone tools made by Big Sioux phase peoples. Many tools were fashioned from materials extracted from local glacial till or stream and river gravels. The presence of large pieces of Knife River flint and Bijou Hills silicified sediment, however, point to trade or to direct procurement from locations in North and South Dakota. Certain specific raw materials and diagnostic artifact types also suggest a strong eastern exchange network. Burlington and other cherts and chalcedonies derive from sources in central and southeastern Iowa. In southwestern Iowa, Mill Creek pottery or local imitations have been reported from Nebraska phase sites in the Glenwood locality (Anderson and Anderson 1960:37–38; Billeck 1993:124–125; Green 1992; Ives 1955; Tiffany and Lensink 2014), and in sites of the Itskari and St. Helena phases of northern Nebraska (Blakeslee 1988:6)—all part of the Central Plains tradition. Late Woodland sites in Allamakee County, Iowa, including Hartley Fort, Waterville Rockshelter (13AM124), and Sixteen Rockshelter (13AM122) (Logan 1976; Orr 1963; Tiffany 1983, 1991a); sites of the Eveland phase of the Spoon River culture in the central Illinois valley (Conrad 1991; Harn 1991; Tiffany 1991a); and the Diamond Bluff site in western Wisconsin contain Mill Creek ceramic imports. Hartley Fort pottery also occurs at one Little Sioux phase site and at the Late Woodland Fred Edwards site in Wisconsin (Finney and Stoltman 1991:243; Stoltman 1991; Tiffany 1991a:320). Mill Creek pottery has also been reported from Monks Mound at the Cahokia site and the Mitchell site, a satellite Mississippian town just north of Cahokia proper (Kelly 1991; Porter 1974, Tiffany 2007).

Nonlocal materials, particularly stone, shell, and pottery as described above, from both Big Sioux phase village and mortuary sites demonstrate the strongest external relationships with Middle Mississippian communities to the east and south during the period of CE 1050–1200 especially the Stirling phase (CE 1100–1250) of Cahokia (Hall and Hall 2003; Tiffany and Adams 1998). The Stirling phase corresponds to the time when Mississippian influence in the western Prairies and eastern Plains border was most extensive. Artifacts recovered from three Big Sioux phase villages, including the Kimball Village [REDACTED] Broken Kettle [REDACTED] and Larson (13PM61), and items from the Big Sioux phase Siouxland Sand and Gravel burial site (13WD402), have provided examples of locally made and imported Middle Mississippian horizon markers such as [REDACTED]

[REDACTED] (Anderson and Tiffany 1987; Tiffany 2003b). Iconography, displayed at the Kimball Village as seen on ceramic design motifs such as the scroll or the weeping eye, imply a shared ideology with Middle Mississippian societies (Anderson 1975a, 1975b; Anderson et al. 1979). These items are characteristic of both the Lohmann and Stirling phases found at Cahokia, CE 1050–1250 (Tiffany 1991a, 2007a).

The location of the Big Sioux phase villages near the confluence of the Big Sioux and Missouri River was likely strategic and related to trade. As Henning (2007:71) has suggested, “Judging from available data, there can be little doubt that the preeminent traders of the eastern Plains were residents of Mill Creek villages. No other cultural tradition on the Plains is so well represented in the Mississippi valley at this time.” Of the three examined Big Sioux phase Mill Creek villages, only the Kimball Village has not been significantly impacted and retains a high level of integrity to explore these dynamic, multi-dimensional external relationships among different social systems.

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Faunal Remains

Faunal remains from the 1939 research at Kimball Village were counted and generally identified to animal type only (bison, deer, elk, canine, bird, and fish) (Orr 1942). Thirteen species of mussels were identified from shell recovered (Stephens 1941, 1943). The three test units from the 1963 investigations yielded 10,675 faunal elements. Only the megafauna—bison (*Bison bison*), deer (*Odocoileus virginianus*), and elk (*Cervus canadensis*)—were identified to species and counted, with minimum numbers of individuals calculated. Results indicated that deer predominated at Kimball Village, comprising 61 to 77 percent from each of the five analyzed horizons. Bison was second, with 21 to 37 percent, followed by elk with 1 to 2 percent of the total (Bryson and Baerreis 1968:20–23; Frankforter 1969). Other tentative faunal identifications included fish, bird, rodent, carnivore, turtle, and rabbit, with the remainder not identified.

Beyond basic identifications, a reassessment of the ratio between deer and bison at the site (Zalucha 1982a), and a subsequent study that aged deer mandibles to reevaluate seasonality and hunting practices and their relationship to resource depletion and climate (Lensink 1993a), the Kimball Village site fauna has not been subjected to the kind of detailed analyses that might provide information on seasonality or butchering/utilization patterns. Overall the faunal assemblage testifies to a community involved in large- and small-game hunting supplemented by fishing and wild plant food-gathering. The high incidence of artifacts fashioned from large mammal bone, together with the large number of both stone scrapers and iron oxide pigment ostensibly used in hide-working and hide-decorating, have prompted hypotheses related to the extraction, production, consumption, and exchange of materials, specifically meat and hides, by early MMT residents (Tiffany 1991a, 1991b, 2003b, 2007a).

Botanical Remains

The recovery of botanical remains—primarily corn—was only incidentally reported in the 1941 report on the Kimball Village site. Jones also reported “short pieces of carbonized grass...some of the grass is matted together” (Jones 1940). It is not clear if this meant a clump of material or represented an actual mat fragment. No other botanical identifications were offered for the Kimball Village botanical remains from the 1939 season of excavations with Jones reporting conditions for preservation as “not favorable” (Peterson et al. 2010).

Bryson and Baerreis (1968:17–18) reported that no oak species were identified from the wood found at the site in 1963, although oak is now common in the area. Pollen samples taken from wall profiles during the 1963 investigations did yield oak pollen (Bryson and Baerreis 1968:12). Henning et al. (1968:38–39) identified bottomland woods: ash (*Fraxinus* sp.), cottonwood (*Populus deltoides*), elm (*Ulmus* sp.), ironwood (*Ostrya virginiana*), maple (*Acer* sp.), and willow (*Salix* sp.). Pollen analysis further indicated bald cypress (cf. *Taxodium*), basswood (*Tilia* cf. *americana*), juniper (*Juniperus* sp.), and pine (*Pinus* sp.) pollen in very low percentages, with the pine and cypress considered exotics (James and Nichols 1969:308–309). Identified non-arboreal pollen included maize (*Zea mays*), fireweed (*Epilobium angustifolium*), goosefoot (*Chenopodium* sp.), grass (*Gramineae*), and sedge (*Cyperaceae*). The pollen analysis notes that corncobs were recovered from all levels of the Kimball Village excavations, although this point was not made elsewhere in the report (James and Nichols 1969:315). Corn, both cobs and kernels, was recovered in both 1939 and 1963, and Cutler and Blake (1976) described both from Mill Creek sites including Kimball. Burned grass was also reported from Feature 4 (Henning et al. 1968:79). No further tabulations or analyses were conducted. Fine-screen recovery was not utilized during the 1939 project, and only applied to feature fill in 1963. Water flotation, uncommon as a data recovery tool in those times, was not utilized in 1939 but was utilized with some samples from both the midden and features in 1963 (Henning ed. 1968). Based on more recent botanical analyses from other Mill Creek sites, including the nearby Big Sioux phase Broken Kettle site, the Kimball Village could be expected to provide

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substantive information on early cultigens including: sunflower, squash, goosefoot, marshelder, and tobacco (Adrain 1993; Jones 1993).

Ecofacts and Climate Change

The analysis of large mammals recovered in 1963, taken together with the floral analysis, played a major role in supporting a model of culture change proposed by the researchers with climate viewed as a prime mover in the origin and eventual exodus of MMT people from northwest Iowa (Bryson and Baerreis 1968; Bryson et al. 1970; Lehmer 1970; Wendland 1978). A restudy of the large mammals from Kimball Village and other Mill Creek sites (Lensink 1989, 1990, 1991a, 1993a; Zalucha 1982a) and reassessment of the earlier data—including the radiocarbon dates (Lensink 1993a; Zalucha 1982a), and evidence from freshwater diatoms (Laird et al. 1996, 2003)—have called into question the climatic model and the role (or at least the nature and timing) of climatic change as a prime mover in the origin and demise of the IMM in Iowa (Laird et al. 1996, 2003; Lensink 1993a; Tiffany 1982a; Zalucha 1982a). Although the length of occupation for the Kimball Village site is now believed to be shorter and earlier than was originally proposed, the extensive deposits, well-preserved faunal and floral data, and evidence for rebuilding at the site, offer the potential for understanding the multiple factors that may have affected the development and establishment of the earliest Plains Villagers.

Depth, Extent, and Distribution of Archeological Deposits, Artifact Density

Due to recent geophysical prospecting and test excavation through coring and auguring at the Kimball Village site (Kvamme 2009, 2010, Whittaker 2010), the extent of the archeological deposits is much better understood than was previously the case and suggests that the site has tremendous potential for understanding the occupational and depositional history of an early, fortified IMM midden-mound village as well as its community organization.

Kimball Village site structures, features, and midden deposits are believed to be confined to [REDACTED] (Figures 1, 4, 21) (Kvamme 2009, 2010). The midden-mound is apparently a fairly complex mix of soils (Figures 16 and 17) despite earlier claims by Orr (1942) and Henning et al. (1968; see also Lee 1969) that the mound was uniformly homogenous above its base. In 2009 soil profiles extracted from auger tests varied from location to location and typically changed color or texture several times in each profile, suggesting a very complex depositional history. It appears, however, that there is a general concentration of artifacts by count (Figure 31) and weight (Figure 32) [REDACTED], and that these correspond to changes in the soil profile. This suggests the location [REDACTED] perhaps one intermediate between the basal features initially identified by Orr and top features perhaps identified by Kvamme in 2009.

[REDACTED] were identified during augering in 2009, supporting the idea of a [REDACTED]. Orr (1939:83) identified a concentration of clam shells between 0.9–1.3m below surface in one of his profiles. Another intermediate stratum with [REDACTED]. These probably correspond with Henning et al.'s (1968) observation that, [REDACTED]. Orr (1939:83) also identified a [REDACTED]. The base of the site fill was often abrupt in the augers and soil cores, clay increased towards the bottom, and artifact amounts declined. At around [REDACTED], but these soon tapered with depth.

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Refuse disposal undoubtedly contributed to building up the depth of the Kimball Village midden-mound as Orr originally noted. Other mechanisms exist, however, that could help to explain the tell-like visual quality of the site (Alex and Peterson 2010:33–34). At other IMM sites it has been proposed that lodges were built atop the detritus of earlier ones, soils were banked along exterior house walls, soils blanketing earlier lodges washed down or were scraped down when lodges were rebuilt, and/or soils were imported to raise the village elevation (R. Alex 1973; Anderson 1985b, 1986; Baerreis and Alex 1974; Fishel 1995a, 1996; Lehmer et al. 1973; Tiffany 1982a; Van Nest 1995). The mechanisms of site and midden formation at the Kimball Village site or at any other Big Sioux phase site have not yet been studied as part of detailed geomorphological and geophysical investigations. The recent documentation of layered horizons within the site deposits (Whittaker 2010) suggests the possibility of multiple, short, sequential occupations and rebuilding episodes hitherto unexplored.

Noncontributing Components

The only known component to the Kimball Village site is the IMM. There is no indication of occupation by earlier or later groups. A small number of Great Oasis ceramics and red-slipped pottery at the base of the midden—marking initial contact between emerging Plains Village cultures and Mississippian groups—suggest that the first residents at the site were early in the origin of the IMM. There are no noncontributing components.

APPEARANCE OF THE SITE WHILE OCCUPIED

Sometime after CE 1050, the Kimball Village site was established on a natural rise along the Big Sioux terrace and occupied by a number of presumably related extended families. Rectangular timber-and-earth lodges were constructed in rows with a timber stockade and probable ditch surrounding the village (Figure 20). The approximate number of lodges occupied at a single time could have been around 20. The presence of sequential horizons and the evidence of overlapping lodges suggest rebuilding episodes. Lensink proposes (2005; personal communication 2011) a village population of approximately 230 based on the product of the number of lodges (20) and the mean house area of 57.7 m², divided by the area of house space required per individual (5 m²) (Wedel 1979:94). Tiffany's projected mean of 11 individuals per house at Kimball (Tiffany 1991a) results in a maximum total of 264 residents if Kvamme's (2009, 2010) suggested 24 lodges estimate is used.

Lensink (2005:139) summarized the findings of IMMT house use-life studies and posited that the use life of IMM lodges in northwestern Iowa was around 15 years. Using this value and a methodology based on midden accumulation rates (Baerreis and Alex 1974; Henning and Henning 1982) and ceramic consumption (Drennan 1984; Tiffany 1991a), Lensink (2005) proposes that the duration of occupation at the Kimball Village was 63±17 years.

The combined artifact and architectural data reveal Kimball was only occupied by Big Sioux phase peoples, meaning that the occupation occurred sometime during the 150 year span of the IMM (CE 1100–1250). While researchers in the past used radiocarbon dating to estimate the total duration of the IMM variant (i.e., Henning 2005, 2007; Toom 1992b), Lensink has demonstrated the difficulties with this dating method for the time under consideration (Lensink 1993a, 1997, 1998, 2003b; 2005). Mississippian and Mississippian-inspired pottery and artifacts are considered the current, most reliable means to cross-date IMM development with the extensively documented and dated Cahokia sequence (Hall 1991). The current data of this nature from the Kimball Village site suggest this village was first occupied at the very beginning of the IMM.

Well-tended gardens of diverse crops were probably maintained within several hundred meters of the village, although to date they have not been identified. Moreover, evidence of such gardens is not likely to have survived historic agricultural practices. Rather, the former presence of nearby farm plots is inferred through the

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recovery of cultigens (specifically maize), storage pits, and gardening implements from the site. Indeed, the terrace on which Kimball is situated would have made an ideal location for extensive gardens, as it does for the modern extant agricultural fields. The documentation of the only documented precontact agricultural field system on the eastern Plains at the Litka site (13OB31), an IMM site of the Little Sioux phase 90 km north of Kimball Village (Gartner 2003; Lensink and Alex 2008), suggests that a fairly complex agricultural field system once existed in the vicinity of the Litka site (Figure 33).

The view to the west of the Kimball Village site would have included a valley bottom probably covered in scattered timber, vines, tall grass, swamp, plum bush, and willow thickets. East of the site is a fairly steep but short climb to the top of the Loess Hills bluffs (30 m of elevation) and the location of at least two burial locations (13PM23 and 13PM248) believed to be the cemeteries or ossuaries of the Kimball Village deceased (Schermer and Lillie 2010c). A journey south along the Big Sioux River to the juncture with the Missouri or north to other IMM sites was the easiest transportation corridor to resources known to have come from these directions. Tiffany (2007a) posits three other primary corridors—two overland, and one riverine—for communication and trade between IMM sites, Mississippian centers, and terminal Woodland sites in the Upper Mississippi Valley (Tiffany 1991a:339; 2003:26–27).

SITE INTEGRITY

The Kimball Village site is in excellent condition, especially relative to other sites of its kind, and has a very high level of archeological integrity to answer nationally significant questions pertaining to the formation of the Neolithic stage of nucleated village life on the Plains. Dense layers of [REDACTED]. Known subsurface disturbance has been restricted to normal cultivation practices (the upper 25 cm only) and three episodes of limited archeological testing by Orr in 1939, the University of Wisconsin in 1963, Kvamme in 2009, and Whittaker in 2009. Known impact to the site from these investigations is reflected in Figures 7, 15, and 18, and Table 4. Following archeological testing, all units were backfilled and the site returned to its pre-excavation contours. These alterations have not affected the site's ability to convey its significant associations and retain its general post-abandonment surface appearance as a late precontact midden-mound. Approximately 97 percent of Kimball Village remains untouched by archeological excavation, and, therefore, the site almost certainly still contains a wealth of unexploited field data.

At present, Kimball Village is in a cultivated farm field, as it has been since the 1930s and probably since the 1870s. One local retired farmer is known to surface collect the site with permission from the current landowner. Otherwise, the present landowner discourages such activities and strongly supports landmark designation for the site. Because [REDACTED] of the site, Kimball Village may occasionally be flooded, but does not see the scouring effects so typical of sites right on a river's edge. Major flooding in 2011 along the Missouri and Big Sioux rivers had no impact on the site. The site is far enough removed from the highway corridor (130 m) that road construction has never affected it.

Future Plans

For the foreseeable future, the Kimball Village site will be protected by the current landowner who is committed to its preservation. Except for continued agricultural activities, there are no plans to develop the site. The current landowner has generously supported and cooperated with efforts to study, document, and list the site on the National Register of Historic Places and to nominate it as a National Historic Landmark. Should future transfer of ownership of the site be considered, it is believed that the landowner would be amenable to discussing a number of preservation options. Recently, the Iowa Department of Natural Resources purchased a

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tract of land [REDACTED] the Kimball Village known to contain a cemetery-ossuary [REDACTED] probably related to the Kimball Village site [REDACTED]. A number of organizations including The Archaeological Conservancy, Plymouth and Woodbury County Conservation Boards, Iowa Heritage Foundation, Iowa State Historical Society, and OSA supported these conservation efforts. The property was subsequently admitted to Iowa's State Preserve System for its outstanding archaeological resources as the "Heendah Hills State Preserve". In 2016 it will be dedicated as Iowa's 98th State Preserve, the highest level of protection offered at the state level. This exemplifies both public appreciation for area archeology and potential preservation options for the future.

INTEGRITY STATEMENT

The Kimball Village site exhibits an extremely high level of historic integrity in terms of all seven aspects of integrity: location, design, materials, workmanship, feeling, and association.

Location: The Kimball Village site location is excellent. The village is situated in its original location where Initial Middle Missouri tradition people constructed, occupied, and later abandoned it.

Design: The Kimball Village site possesses excellent integrity of design. The well-preserved features of lodges, probable palisade, storage pits, hearths, and midden areas represent an exceptional example of an early, perhaps earliest, MMT fortified community in form, plan, space, structure, and style.

Setting: The setting of the Kimball Village site is excellent. The topographic features and position of the site are the same as in late precontact times with no known changes.

Materials: The Kimball Village site possesses excellent integrity of materials. There are no intrusive artifacts or features at the site, the artifact and feature assemblages are complete, and the quality and quantity of artifacts and features are outstanding.

Workmanship: The Kimball Village site possesses excellent integrity of workmanship. The Middle Missouri tradition inhabitants' creation of a compact, patterned, and fortified village, with closely spaced timber lodges suggests expertise in community planning, design, and architectural construction. The enormous and varied artifact assemblages exhibit the hands of both the artisan and the artist.

Feeling: The site possesses excellent integrity of feeling. The lack of modern intrusions and the site setting as it was during the time of occupation—on the floodplain of the Big Sioux River and in the shadow of the Loess Hills bluffs—conveys a sense of how it must have felt over a millennium ago.

Association: The integrity of the site's association is excellent. Under NHL nomination guidelines (National Park Service 1999:37), integrity of association is retained "if it is the place where the event or activity occurred and is sufficiently intact to convey that relationship to an observer." The Kimball Village site midden-mound still rises above the surface of the surrounding floodplain, obvious if pointed out to even the casual observer (Figure 34 and 35) The site's entire community layout (houses, pits, hearths, palisade) is superbly intact to convey its integrity of association through excellent mapping and geophysical data. It is only through mapping and preservation that the most intact village sites such as Kimball can be appreciated by archeologists and the public.

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8. STATEMENT OF SIGNIFICANCE

Certifying official has considered the significance of this property in relation to other properties:
Nationally: X Statewide: __ Locally: __

Applicable National Register Criteria: A _ B _ C X D X

Criteria Considerations (Exceptions): A _ B _ C _ D _ E _ F _ G

NHL Criteria: 4 and 6

NHL Theme(s): I. Peopling Places
V. Developing the American Economy

Areas of Significance: Archeology / Precontact
Agriculture
Commerce
Ethnic Heritage/Native American
Community Planning and Development
Economics
Architecture

Period(s) of Significance: CE 1100-1250

Significant Dates: N/A

Significant Person(s): N/A

Cultural Affiliation: Big Sioux Phase of the Initial Variant Middle Missouri Tradition

Architect/Builder: N/A

Historic Contexts: I. Cultural Developments: Indigenous American Populations
B. Post-Archaic and Pre-Contact Developments
10. Plains Hunters and Gatherers
11. Plains Farmers

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State Significance of Property, and Justify Criteria, Criteria Considerations, and Areas and Periods of Significance Noted Above.**SUMMARY**

The Kimball Village site is an outstanding example of an early, single-component, compact, fortified Plains Village site occupied by people of the Big Sioux phase of the Initial variant of the Middle Missouri tradition (IMM) early in the time span CE 1100–1250. The site is perhaps the earliest—and the best—of only a very few MMT midden-mound villages and contains intact and well-preserved stratigraphic horizons, structural features, and enormous artifactual and ecofactual assemblages. There are 6 identified IMM villages in the Big Sioux locality. Only one other Big Sioux phase site, Broken Kettle (13PM4), is also a midden-mound village, and it is highly compromised. The Kimball Village site qualifies as nationally significant because of the outstanding scientific information it is known to contain, information that will illuminate the precipitating factors, processes, and consequences in the development of the Plains Village lifeway on the eastern Plains CE 1100–1250. The transition from dispersed settlements with a broad-based subsistence economy—the Woodland lifeway—to tightly nucleated, fortified communities reliant on maize agriculture—the Plains Village lifeway—marked a major economic transformation in North America. This transformation occurred concomitant with qualitative alterations in the form of community structure, socio-political organization, and intra- and inter-societal interaction. The Kimball Village site is geographically and chronologically positioned to provide nationally significant information about this developing way of life as it rapidly emerged from its Late Woodland roots, to explore how and why this occurred, and to investigate the consequences to societies across much of the midcontinent.

The site is also nationally significant for its defensive village architecture, multiple, closely spaced timber and earthen lodges apparently surrounded by palisade and ditch—a defining settlement type of the MMT. The site's patterned community layout with abundant and concentrated lodge remnants, encircling palisade, and possible ditch offers an exceptional opportunity to address aspects of early MMT defense, demography, community, and social interaction as reflected in site structure and in the distribution of site debris and arrangement of features. The presence of [REDACTED] presents the opportunity to understand aspects of village and household activities conducted external to houses, a virtually unexplored aspect of the IMM. The site's strategic geographical position and its [REDACTED], place it in a unique position to evaluate the role of culture contact, competition, and conflict in the coalescence of small, dispersed Late Woodland communities into compact, fortified villages.

The property meets Criterion 4 in the area of Architecture and Criterion 6 for National Historic Landmark nomination and Criterion D for National Register of Historic Places nomination by virtue of its demonstrated and potential national archeological significance. The Kimball Village site is nationally significant under two National Historic Landmark themes. As an outstanding example of an early, fortified MMT midden-mound village with high integrity, the site contains data essential to understanding theories, concepts, and ideas related to the primacy of intensive maize horticulture and related topics of extraction, production, distribution, consumption, exchange, trade, and technology as pertinent to the theme of **Developing the American Economy**. The physical location of the Kimball Village site, its early temporal placement, well-preserved horizons, patterned layout, fortification, structures, features, and enormous and stunning material culture, underscore its potential as key to understanding concepts of family, household, community, migration, encounters, conflict and colonization as related to the theme of **Peopling Places**.

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CULTURAL CONTEXT

The Kimball Village site represents a compact, fortified, agrarian community occupied for less than 100 years by people of the Big Sioux phase of the Initial variant of the Middle Missouri tradition early in its history from CE 1100—1250 (as discussed in Section 7). The Middle Missouri tradition (MMT) is one of three major cultural-historical taxa (traditions)—Middle Missouri, Central Plains, and Coalescent—found within three subareas of the Plains: Middle Missouri, Central Plains, and Northeastern Plains (Lehmer 1971; Wedel 1961; Willey 1966). Together these three traditions form the Plains Village Pattern (Lehmer 1971).

The MMT has been divided temporarily into three variants: Initial (IMM), Extended, and Terminal (Lehmer 1971). The IMM is also split geographically into western (IMMw) and eastern (IMMe) divisions (Toom 1992a). The IMM is the earliest variant in the formation and development of a village way of life on the eastern Plains, and is considered to have been an outgrowth of local Late Woodland cultures including Great Oasis (Tiffany 1983:96; 2007a:6). The IMM only, is the focus of this nomination and encompasses both western and eastern divisions (Toom 1992a).

Village sites grouped within the IMM shared tightly organized, often fortified villages, rectangular semi-subterranean lodges with long entrances, intensive gardening (Benn, 1974; Nickel 2007; Wegner 1979; Wood 2001), hunting and gathering, the use of the bow and arrow, and increasing reliance on bison hunting (Henning 2005:163). The abundance of bone and bone artifacts at IMM sites has suggested to researchers that bison herds were close by, possibly representing an eastward extension during this time period.

The easternmost and earliest manifestation of the IMM is represented by 48 sites in northwestern Iowa, and over 50 sites along both sides of the Missouri River and its tributaries in South Dakota, with three outlier sites in southern Minnesota (Figures 3 and 36). IMMe sites in Iowa occur in two geographical localities and are grouped into two phases, Big and Little Sioux phases, collectively referred to as the Mill Creek Culture. This extension of the MMT to the eastern Plains beyond the Missouri River main stem is a modification of the MMT as originally proposed by Lehmer (1971) and Lehmer and Caldwell (1966). Since the mid-1960s, however, village sites off the Missouri River in the adjacent Plains and western Prairies, including those in northwest Iowa, fitting the MMT cultural and temporal parameters, have been solidly placed within the IMM (Alex 1981a; Anderson 1969a; Henning 1971a; Tiffany 1982a, 1983). With but a few other exceptions (Bamforth and Nepstad-Thornberry 2007; Johnson 2007a, 2007b; Tiffany 2003a; Toom 2004), Lehmer's model for the IMM has remained largely unchallenged by Plains researchers. A new taxonomy has been adopted for later variant sites of the MMT (Extended and Terminal variants) and those of the later Coalescent tradition, based primarily on work in North Dakota (Ahler et al. 2007).

Iowa's Big and Little Sioux phases are linked by a constellation of traits relating to settlement, economy, and technology to eight other member phases of the IMMe in South Dakota and Minnesota (Figure 36) (Tiffany 2007a). The Bloom, Mitchell, Sheldon Reese, and Twelve Mile Creek sites—all in South Dakota—belong to the Lower James phase, which along with the Brandon phase (South Dakota), Cambria phase (Minnesota), and Big and Little Sioux phases (Iowa) form the IMMe. All other Initial variant sites on the Missouri River main stem are grouped into five additional phases: Swanson, Grand Detour, Sommers, Cattle Oiler, and Anderson, forming the IMMw (Figure 36). The historical relationship between communities in the eastern and western divisions of the Initial variant is the subject of continued research and enters into hypotheses regarding the origin and evolution of the tradition itself. Researchers generally see the IMMw sites as different spatially and perhaps culturally from IMMe sites. Most of the well-documented evidence for Mississippian influence is associated with the IMMe sites although Mississippian influence in the form of locally crafted pottery copies as well as marine shell and other trade items does occur at some Missouri River main trench sites of the IMMw (Ludwickson 1993; Tiffany 2003b:22).

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IMM sites in South Dakota range from 3 acres to over 45 acres and contain from a few surface depressions demarcating former lodges—Breeden has only four and Dinehart five—to over 60 such depressions at Sheldon Reese. About half of the South Dakota sites are possibly fortified, most by a ditched-and-palisaded spur of land, with precipitous slopes protecting the site on three sides. Villages appear to be arranged in vague lines of lodges, but Brandon, Mitchell, and Langdeau have no apparent order (Ludwickson et al. 1981).

None of the South Dakota sites except for Mitchell (Alex 1988; Meleen 1938) have provided more than minimal data regarding mortuary customs, and no well-defined mortuary locations are known. Information from Big Sioux phase mortuary locations currently represents the best data available on IMM funerary customs. Few IMMw sites show any signs of appreciable midden accumulation and only two (Sommers and Pretty Head) exhibit surface-visible accumulations (Toom 1992c:124) that could help elucidate site formation processes (R. Alex 1973; Baerreis and Alex 1974).

In contrast to the IMMe sites, several IMMw sites, including Cattle Oiler, Breeden, Jiggs Thompson, and Crow Creek, are multicomponent and contain later MMT and non-MMT components. Recent investigation of radiocarbon dates and ceramic sequences (see Johnson 2007), as well as the presence of Great Oasis ceramics at some sites (Dinehart and Langdeau) and Middle Mississippian-inspired items at others (Mitchell and Twelve Mile Creek), indicate that some South Dakota locations may also represent a fairly early period in the MMT and thus could contribute to understanding its origin from local, late Woodland communities. Ceramic differences have been noted between the IMM sites of South Dakota and those of Iowa particularly the high incidence of cord-impressed decoration at IMMw sites. Later components at sites such as Crow Creek offer the potential for understanding the demise of the IMM and its relationship to both the Extended Middle Missouri variant and the emerging Coalescent tradition. None of the Iowa sites exhibit evidence of these later components.

The IMM ceases as a recognizable archeological entity by CE 1300 (Ahler et al. 2007), with the last known occupations in Iowa dating no later than CE 1250. Sites in northwest Iowa after CE 1250 are followed by occupations belonging to the Oneota tradition. Researchers have pointed to the contemporaneous decline of Cahokia and the spread of Oneota (Henning 2007; Tiffany 2007a). The IMM may have evolved into some villages on the Missouri River recognized as the Extended Middle Missouri variant (Johnson 2007b:49) or perhaps was partly incorporated into the Initial variant of the Coalescent tradition (Tiffany 2007b).

Skeletal studies of Initial variant specimens in Iowa, although rare, suggest a relationship between individuals from the Big Sioux phase Broken Kettle site and the Initial Coalescent population at Crow Creek in South Dakota (Owsley et al. 1981). Other studies support a similarity between Initial variant individuals and a pooled “Mandan” group consisting of individuals from all MMT sites and the Heart River (Mandan) complex in North Dakota (Ahler et al. 2007:108; Jantz 1976; Jantz and Willey 1983). Skeletal remains from Big Sioux phase sites including the Kimball Village and nearby, related burial locations present the best skeletal evidence currently known from which to examine physical anthropological relationships using early MMT population data.

Contrastive Features of Big and Little Sioux Phases MMT

In Iowa the 48 sites of the IMM are grouped into two separate phases, Big Sioux and Little Sioux (Figure 3). Little Sioux phase settlements are found along the valleys of Mill, Brooke, and Waterman creeks and the Little Sioux River, in Buena Vista, Cherokee, and O'Brien counties. The Big Sioux phase is concentrated in Iowa's Loess Hills, specifically, along the Big Sioux River and the Broken Kettle and Perry Creek valleys of Plymouth and Woodbury counties. Overland, the heartlands of these two phases are separated by about 80 km (Fishel 1995).

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IMM sites in Iowa are generally well known and have been the subject of numerous investigations and reinvestigations over the past 110 years (see Tiffany 1982a for summary). The two phases are very similar to other IMM sites in village layout, material culture, general subsistence practices, and period of occupation. Big and Little Sioux phase people lived in small (rarely over 0.5 hectare), compact villages with lodges often arranged in rows, that subsisted on a dual economy of bison hunting and horticulture, with gathering of wild plants and utilization of smaller animals adding to subsistence based on an annual cycle. Recent studies in Iowa have indicated the survival of an extensive ridged agricultural field associated with one of these sites, the only such discovery to date (Figure 33) (Gartner 2003). Many sites have documented fortifications, and others are suspected to have had them. The deep middens, small spatial extent, multiple lodges and fortifications have suggested that their occupants felt threatened by outsiders and thus tightly enclosed their villages (Henning 2005:166)—a new settlement pattern decidedly different from their Late Woodland predecessors.

In the Little Sioux locality 26 sites represent confirmed or suspected IMM villages, a burial location (burials also occur within villages), an agricultural field, and possibly seasonal, special purpose camps (Tiffany 1982a:90). Twenty-five of these sites cluster in five geographical areas, each containing from 2–8 sites located within 6 km of one another (Fishel 1995a:69). Only four of the Little Sioux phase villages, Phipps (13CK21), Brewster (13CK15), Chan-ya-ta (13BV1), and Wittrock (13OB4) have been extensively excavated. Phipps, Brewster, and Bultman (13BV2) are deeply stratified with superimposed living surfaces suggesting rebuilding episodes (Tiffany 1982a; Henning 2005:166). The Bultman site has been destroyed, and Phipps and Brewster have been compromised by bank erosion and flooding and by the installation of a modern utility line (Brewster). At least six Little Sioux phase villages have palisades or ditch earthworks or both that can be considered probable fortifications. Three of these sites, Chan-ya-ta, Wittrock, and Double Ditch (13OB31), also display surface indications of house depressions (Figure 37) but are not deep midden sites. Double Ditch is the northernmost of the IMM sites in Iowa and may represent one of the latest occupations. It is not to be confused with the large fifteenth-century Double Ditch site (32BL8) in North Dakota. Except for minor test investigations and geophysical survey, 13OB31 is in pristine condition, most of it in an unplowed pasture (Goodmaster 2007a, 2007b).

Big Sioux phase sites are currently known from six potential villages and eight separate mortuary facilities dispersed over a 17 x 9 km area in the valley of the Big Sioux and three of its tributaries (Figure, Tables 5–7) (Fishel 1995a:69). In addition, three of the villages contain mortuary facilities. Big Sioux phase village areas ranges from 0.34 to 3.65 ha. In addition to the Kimball Village site (13PM4), five other villages or suspected villages have been assigned to the Big Sioux phase: Broken Kettle (13PM1), Joy Creek Major (13PM7), Gytens (13PM60), Larson (13PM61), and an unnamed site 13PM429/13WD105 (Table 5) (Alex and Peterson 2010; Peterson et al. 2010). Joy Creek Major, Gytens, and 13PM429/13WD105 have been subjected to surface collection only. Nothing is known about site integrity or the presence of subsurface features such as lodges, palisades, or storage pits. None are deep midden-mound sites. Kimball, Broken Kettle, and Larson villages have received some professional archeological excavation (Doershuk et al. 1999; Henning 1968, 1969, 1982c, 1982e, 1996, 1998; Orr 1942; Whittaker 2010). Larson produced no evidence of fortifications.

The only known Big Sioux phase village with high integrity and documented, patterned community features, including lodges and palisade, is the Kimball Village (Kvamme 2009, 2010; Whittaker 2010). The Kimball Village is also significant as one of two type sites for the Big Sioux phase of the IMM. The other, Broken Kettle is also a midden-mound but is highly disturbed by excavation, erosion, and farm buildings built directly on top of the site area.

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There is tangible evidence for contact and interaction among sites in both the Big and Little Sioux localities and Mississippian centers, especially during the Stirling phase at Cahokia. At one time researchers proposed that the IMMe, especially the Big and Little Sioux phase communities, represented an actual migration of Middle Mississippian people from the Mississippi Valley through sites such as Aztalan in Wisconsin and Cambria in Minnesota (Griffin 1967). Additional research, recalibration of radiocarbon dates, and cross dating with ceramics and other diagnostic artifacts demonstrate that some IMMe sites are as early as their supposed prototypes in the Mississippi Valley.

The IMM, and the Big and Little Sioux phase sites in particular, are considered a direct outgrowth of local, resident Great Oasis peoples (Tiffany 2007a:70). Big Sioux phase and Little Sioux phase sites occur within the largest cluster of Great Oasis sites in the Midwest. Great Oasis in general dates earlier (CE 950–1100) than sites of the IMM. Geographically, Great Oasis sites overlap the distribution of the IMMe with an extension into central Nebraska and an additional cluster centered on the Raccoon and Des Moines valleys in central Iowa. Great Oasis has also recently been demonstrated in southwest Iowa (Lensink and Tiffany 2005a, Tiffany and Alex 2001:71). Great Oasis is considered Late Woodland in character due to a diversified hunting economy and many lacustrine settlement locations, while expressing locally strong but uneven emphasis on corn horticulture, developed bone tool industries, and ceramic wares that portend the eminent appearance of IMM Plains Villagers (Ahler and Crawford 2003; Haberman 1993; Tiffany and Alex 2001:71–85). Some researchers actually include Great Oasis as a member of the IMMe (i.e., Henning 2005).

Great Oasis sites exist as short-duration hamlets of small rectangular lodges without fortifications, although fortifications are reported at the Oldham site in South Dakota (Huscher 1957) and possibly at 13PM62 (Henning 1996). Imported *Leptoxis* (Figure 26), some rare marine shell, Lohmann phase shell-tempered pottery, and red-slipped pottery at sites like West Broken Kettle (13PM25) also presage interaction with early Mississippian societies during the Lohmann phase at Cahokia, CE 1050–1100. The presence of Great Oasis pottery together with IMM pottery at early sites (including at the base of the Kimball Village midden-mound), and the continuity in material culture from Great Oasis reinforce a solid consensus among scholars that the IMM was an *in situ* development resulting from the coalescence and transformation of loosely aggregated, Late Woodland communities into compact, nucleated, fortified communities—a new settlement pattern on the Plains—who were experiencing increasing interaction with Mississippian societies to the east (Anderson 1969a; Benn and Green 2000; Henning 1967, 1969a, 1971a, 1991, 2005, 2007; Henning and Toom 2003; E Henning 1981; Lensink and Tiffany 2005a; Peterson 1967a, 1967b; Tiffany 2007a; Tiffany and Alex 2001; Toom 1992b, 2004; Wood 2001). Previous research at the Kimball Village site and other Big Sioux phase sites, especially the Larson (13PM61) and Gytens (13PM60) village sites on Perry Creek where both IMM and Great Oasis pottery occur in context with Mississippian Lohmann and Sterling horizon markers, indicates that the transition in Iowa was a fairly rapid one that happened around CE 1050–1100 (Alex and Tiffany 2000; Henning 1982a, 1982b, 1982c, 1996; Lensink 1992, Lensink and Tiffany 2005a; Tiffany 2007a; Tiffany and Alex 2001). Lensink (2011, personal communication) has speculated that Great Oasis populations from central Iowa may have moved northward into the Little Sioux locality becoming IMM at about the same time that local Great Oasis populations in the Big Sioux were undergoing the same transition. Information from the Kimball Village site remains key to understanding the processes of this rapid transition.

Still debated is the possible contemporaneity between some Great Oasis sites and sites considered here as belonging to the Big Sioux phase. Henning (1996) has argued that sites like Larson and Gytens were actually late Great Oasis sites contemporary and interacting with sites of the Big Sioux phase, and that Great Oasis should be considered an early member of the MMT (Henning and Henning 1978:12, 14; Henning 2005; Tiffany 1983:96–97; Tiffany and Alex 2001). The alternative view is that these two sites are very early members of the Big Sioux phase and reflect the actual transition from Great Oasis to Mill Creek (Tiffany and Alex 2001).

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The proposed settlement-developmental model for the IMM in Iowa, and other MMT sites, suggests a relatively small population that over time split away from parent villages into new communities relocating and reoccupying sites in a given locality partly in response to local resource depletion, particularly timber, farmland, and game (Griffin 1967). Base villages (such as the Kimball Village site) would have been moved from time to time as local resources were depleted, with some villages later reoccupied (Anderson 1987; Tiffany 1991a, 2007a; Toom 1992a). Base villages would have been located in environmental settings most conducive to agriculture and hunting, with budded villages in more marginal areas (Tiffany 1991a:319). While this model has been proposed for both the Little and Big Sioux localities, each phase is considered to represent a local developmental sequence with its own, but parallel, cultural-historical trajectory. The contemporaneity, relationship, and degree of interaction between populations in the two areas, while assumed, is largely unexplored at this time.

The MMT abandonment of northwest Iowa was apparently completed by CE 1250 (Lensink 2003b). While some later MMT sites in South Dakota may represent descendant communities (Toom 1992b), exactly why the Big and Little Sioux localities were abandoned at this time is unknown. The earliest Oneota sites in northwest Iowa appear to represent people who originated along the Mississippi Valley and Wisconsin. They postdate Mill Creek, and represent the intrusion and occupation of Oneota peoples into former Mill Creek territory (Lensink 1992:194; Henning 2007; Ritterbush 2007). Another unsubstantiated proposal suggests that some Mill Creek and other IMM people were absorbed into the rapidly expanding Oneota world (Gibbon 1995:191). Previous interpretations about the existence and disappearance of Mill Creek society emphasized the role of climate (Bryson and Baerreis 1968; Dallman 1983; Henning 1968, 1969). More recently, however, reexamination of some of the earlier data as well as new studies have questioned the validity of the model and challenged the conclusions of the original research (Clark 1990; Laird et al. 1996, 2003; Lensink 1993a; Tiffany and Lensink 2011; Zalucha 1982a). The movement of Coalescent peoples originating from the Central Plains into the Middle Missouri region may have been a factor as was the decline of Middle Mississippian culture and the potential disruption to trade (Henning 2007:71). Once again, the Kimball Village site sequence has the potential to address this important question.

CRITERIA JUSTIFICATION

Winham et al.'s (1994) National Historic Landmark theme study, *Village Sites of the Middle Missouri Subarea, CE 1000–CE 1887*, pertains to Middle Missouri subarea Plains Village sites and is directly applicable to the present National Historic Landmark nomination. Winham et al. (1994:19–22) note that Middle Missouri villages may be accorded significance under National Historic Landmark Criteria 1, 2, 4, and/or 6. The Kimball Village site was accepted to the NRHP under Criterion D and is here nominated under NHL Criteria 4 and 6.

Criterion 4

The Kimball Village site meets Criterion 4 for National Historic Landmark nomination for its significant architectural features as expressed in the remains of over 20, well-preserved lodge remnants tightly clustered within a possible palisade—a new type of defensive architecture on the eastern Plains and western Prairies. Although varying through space and over time, this is a defining settlement type of the Plains Village pattern which persisted until its disruption in the nineteenth century. Community fortification and other evidence for defense are most prevalent in the archeological record of North America between CE 1000 and 1400 (Haas 1999; Lambert 2002:229). The suggested chronological position of the Kimball Village early in the period CE 1100–1250 site makes it one of the first instances of this fortified settlement type. The high integrity and exceptional preservation of the site's outstanding architectural components, as recently confirmed by

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geophysical survey, offer the opportunity to investigate the origin and nature of defensive architecture on the Plains and the pioneering techniques that created it, and to explore the sociocultural and political dynamics that inspired it.

Criterion 6

The property meets Criterion 6 for National Historic Landmark nomination for its demonstrated and potential archeological significance. The suggested early temporal position of the Kimball Village site, its deep stratified deposits, well-preserved community pattern, and abundant material cultural assemblage establish its national significance as a source of information about the processes that created the very earliest, nucleated, fortified village communities and the transformative effects of a new economy on societies throughout a broad area of the Midcontinent.

Research Opportunities

The Kimball Village site can yield information about a number of nationally important archeological research topics and related anthropological issues that address two NHL themes as noted below. The most important of these topics as originally proposed in Alex and Peterson (2010:17–35) and discussed within the NHL thematic framework include:

1. *The Origin of the Plains Village Pattern and the Role and Centrality of Endogenous and Exogenous Factors or Prime Movers*
2. *Mississippianization of the Plains*
3. *Nucleation and Fortification of Early Plains Villages and the Appearance of Tribes*
4. *Household and Community Patterning, and Precontact Landscapes*
5. *Site Formation Processes, Rate of Midden Accumulation, Component Isolation, Duration of Occupation, and Technological Opportunities in Documenting Communities and Culture Change through Time*

THE NHL THEMATIC FRAMEWORK

Closely linked to both the *Developing the American Economy* and the *Peopling Places* themes, the fundamental question that the Kimball Village site can help answer is: *What are the social dynamics and historical processes behind the transformation and spread of early farming societies during the Plains Village period?*

Statement of Significance: Developing the American Economy

Early Plains villages, as represented by the Kimball Village site, reflect the Formative stage (Willey and Phillips 1957) when the first farming-based, sedentary societies emerged across North America. The adoption and spread of intensive maize-horticulture has long been identified as a hallmark of this transformation. Concomitant with this new subsistence strategy were qualitative developments in society that included increased sedentism, a rise in population, new patterns of community organization and social interaction, and an elaboration in symbolism. (Pollock et al. 2010:7). Associated developments include new technologies to produce, process, store, and consume primarily domesticated crops. Together these can be viewed as yet another instance of what archeologists have long referred to as the Neolithic Revolution, one of the key transformations in human history (Childe 1928; 1951). While there is no doubt that farming was one of the fundamental aspects in the complex and dynamic process that led to new social-economic configurations, the

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relationship among subsistence, sedentism, material production, and social relations warrants closer analytical scrutiny (Pollock et al. 2010:7–8). Some recent scholars, in fact, have called into question the primacy of subsistence as the single driving force that directed other facets of the new socio-economic pattern (see Pollock et al. 2010). Kimball Village merits National Historic Landmark status as it relates to most of the defining topics within the theme of Developing the American Economy (NPS 1999:82). Plains Village sites, and the Kimball Village site in particular, offer the ideal opportunity against which to evaluate essential questions related to what some scholars have called the “neolithization” of societies (Pollock et al. 2010:7).

Central to the original definition of the Plains Village lifeway was an economy divided “about equally” between the harvest and the hunt (Lehmer 1954a; 1971). Decades of northern Plains research, however, has focused largely on taxonomy, chronology, settlement, ceramics, technology, and exchange, (Johnson 2007;b), particularly for later variants of the Middle Missouri and the Coalescent Traditions (Ahler et al., 2007). Detailed study of early Plains Village subsistence strategies and their relationship to other aspects of society have not been thoroughly investigated. The 1960s University of Wisconsin research of Big and Little Sioux phase sites examined floral and faunal data but primarily as they pertained to hypotheses about climate and climatic change (Henning 1968, 1969; Dallman 1977, 1983). Subsequent studies of IMM diet were primarily selective in their samples and particularistic in nature (Adrain 2003; Benn 1972, 1974; Jones 1993; Lensink 1993a; Wegner 1975, 1979). More recent research on the IMM has centered almost exclusively on questions of radiocarbon dating, taxonomy, the relationship among the various component phases to antecedent and descendant taxa, and contact and exchange with contemporary groups, especially Middle Mississippian societies. The early chronological position of the Kimball Village site, its rich, deep deposits reflecting over a half-century of site occupation, and its well-preserved cultural and ecofactual data sets make it the ideal candidate to undertake a detailed analysis of subsistence economy as it relates to the rapid transition in community patterning and sociopolitical organization associated with the Plains Village pattern. Such study promises to create solid, baseline data against which to compare other Plains Village components and antecedent Late Woodland-Great Oasis components. The following are some of the critical and related questions such research might address:

- Are there measurable differences in the type and quantity of domesticated species between the Kimball Village site and antecedent sites such as Great Oasis that suggest early MMT people were practicing a different agricultural pattern?
- What tropical or indigenous cultigens were grown at the site, and what was the relative importance of each one?
- How much of the dietary requirements of the village inhabitants were satisfied by plants; how much by wild foodstuffs, including large and small animals, fish, and birds?
- Would comprehensive analysis of extant and new paleobotanical collections provide information to support intensive agriculture as one factor in the duration of occupation argued for the Big Sioux phase sites (Lensink 2005)?
- What evidence exists for increased bison hunting to support the current hypothesis that Plains herds expanded their range at this time?
- Does the quantity of large mammal bone and stone artifacts related to butchering and processing reflect the extraction and consumption of quantities of game animals in larger proportions than would be necessary for the site inhabitants (Fishel 1995a, 1997; Tiffany 1991a, 1991b; 2003b)?
- Does sourcing the chipped stone tools from the site indicate local procurement of such resources that might also point to local procurement of bison as well (Fishel 1995a:68 Fishel 1995a, 1997; Tiffany 1991a, 1991b, 2003b)? How does this factor into hypotheses regarding exchange and trade with external communities?

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A prevailing assumption about early agrarian societies worldwide is that, with greater sedentism, villages were established, and these villages were composed of discrete households—the key socioeconomic unit channeling the production and flow of resources within the community (Pollock et al. 2010:8). With its community patterning, individual lodges, storage facilities (within and external to houses), and potential for mapping the distribution of huge assemblages of material culture and subsistence resources among lodges, the Kimball Village site offers an ideal “laboratory” from which to understand the scale and context of production, consumption, sharing, and exchange in an early agrarian community, and how this may have altered over the half-century the site was occupied. Study of the site’s storage features permits estimates of the volume and quantity of foodstuffs produced from household to household. Adding detailed analysis of the site’s large technological assemblages, and their distribution across the site, may help us understand the nature and primacy of various subsistence pursuits, the degree to which discrete households were the primary socioeconomic unit of production, whether there is evidence of internal changes in such pursuits over time, and how foodstuffs and other materials were shared, hidden, or exchanged within the village.

The role of inter-societal contact and exchange—particularly with emerging, highly ranked Mississippian societies—has loomed large in discussions of the emergence of the Plains Village pattern. Many of the assumptions regarding the origin of the MMT, and its evolution between CE 1100 and 1250, posit such contact and interaction as “influencing” factors (Tiffany 2003b:26) if not actual “prime movers” (Anderson 1987:528; Tiffany 2003b:31) in the evolution of the MMT. Evidence for Mississippian interaction at Big and Little Sioux phase villages and mortuary sites in particular, has included locally made and traded items as described previously in this nomination. Such items and calibrated radiocarbon dates provide evidence that the IMM formed in late Lohmann phase times (CE 1050–1100) and continued through Stirling phase times (CE 1100–1200) (in the Cahokia sequence) as one node of Mississippian interaction beyond the Mississippi Valley (Kelly 1991; Green 1997; Tiffany 2003b:26).

What is the evidence for, nature of, and intensity of Mississippian contact and influence on early Plains Village cultures? How does this fit with models of the “Mississippianization” of communities outside the major Mississippian centers (Emerson 1991; Kelly 1991; Pauketat 2002, 2003; Tiffany 2007)? Did such interaction have any relevance to village coalescence and fortification either as part of a perceived threat or as an architectural type inspired by the fortifications documented at Mississippian sites like Cahokia during Lohmann times?

The sharing or even trade of Mississippian items and influence at non-Mississippian sites including early Plains villages and burial locations, has been evaluated within notions of an “Interaction Sphere” (Caldwell 1964a; Tiffany and Adams 1998:21), the “Mississippianization” of non-Mississippian societies (Emerson 1991:231), and as a part of a “symbiotic-extractive network” (Gibbon 1973, 1974, 1991). Each model offers a framework within which to assess questions of economic process, communication, transportation, and the nature of the socio-political organization. Tiffany (1991a, 1991b) proposed a specific model of exchange for early IMM societies which posits frequent, direct, continuous, and two-tiered movement of prestige items, iconography, and commodities (chiefly bison hides and meat) by both men and women via alliance networks analogous to historic Plains exchange systems. The role of actual trade as an economic prime mover within a Mississippian or “Stirling” interaction sphere (Green 1997) as proposed in this model was subsequently questioned by some researchers (Emerson and Hughes 2000:80) who view the type of interaction between Mississippian and IMM communities as intermittent, indirect, and largely involving only low volumes of luxury or ritual items being received by persons of higher status (Emerson and Hughes 2001:149–150; Henning 2005:168).

The Kimball Village site offers substantive data to evaluate the nature and extent of Mississippian interaction at one peripheral “node” of Mississippian influence, and to elucidate how such interaction was manifest in the

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economic system of an early Plains village. Data from the Kimball Village can assess the various economic models currently proposed. Utilizing new material-sourcing techniques as recently applied to MMT collections (i.e., Alex, 2010; Stoltman 1989, 1991), the origin of suspected nonlocal items found at the Kimball Village site can be confirmed and their numbers quantified, thus offering clues to the direction and intensity of Mississippian (or other) contact and influence on the eastern Plains. The distribution of nonlocal items across the site, from house to house, offers a means to evaluate how such items were shared within the community. If, as some have suggested, they represent luxury or ritual objects given to persons of higher status only (Henning 2005:168), then we might expect to see a more restricted distribution within the village. If they did in fact reach both men and women, as part of a two-tiered system where commodities were also being exchanged, then we might expect to see a more equitable distribution across the site. Detailed analysis and quantification of bison remains and associated tools for processing and preparing meat and hides can provide necessary baseline data to evaluate Tiffany's model of "meat for the elite." Although Tiffany (2003b:31) has suggested that Plains Village sites do not have the stratigraphic control to evaluate the nature of Mississippian contact over time as "sustained, episodic, or ephemeral," the identification of early Mississippian horizon markers at the base of the Kimball Village midden-mound and recent confirmation of internal stratigraphy including additional living surfaces at the site suggest at least the potential for tracing the nature of this exchange throughout the half century or more the site was occupied.

While the nature and consequences of contact with Mississippian societies have dominated discussions of IMM sites, external connections with other communities might also elucidate aspects of the economic system. A basic raw materials analysis of the chipped-stone tools, as has been conducted at the Little Sioux phase Phipps site (Fishel 1995), may document other possible external connections and basic changes in technology from earlier Late Woodland/Great Oasis. Does the lithic reduction at Kimball compare favorably with the flake-core technology found at other IMM sites and those in the Mississippi Valley (Fishel 1995a:65)? Does this signify a change in patterns of stone tool production different from Great Oasis?

Much also has been written about the ideological underpinnings of motifs found on Mississippian ceramics and other unique artifacts. What portions of the Mississippian ideological system were imported into IMM society along with the motifs found on ceramics and other special trade items? Analysis of the distribution of such items across households at the Kimball Village, when combined with similar analyses from other Big Sioux phase villages and mortuary locations, again may suggest whether such items and any symbolic messages they may have carried, were widely shared within early Plains Village communities. If so, then perhaps they do reflect a new, more widely adopted ideological system, or if not, perhaps they served only as status markers for the few individuals who had access to such items. The appearance of such motifs on certain forms of material culture at a time when a new socio-economic pattern was also developing begs the question as to whether their deliberate acquisition was for personal possession or to mark new social distinctions within early Plains Village society. Does this in itself signify a qualitative change in the nature of society and social relations from that presumed for earlier Great Oasis communities?

Statement of Significance: Peopling Places

While there is solid consensus that early sites of the Plains Village pattern were an outgrowth of local, dispersed, unfortified Late Woodland farming hamlets that coalesced into permanent, fortified, weakly ranked, horticultural villages around CE 1050–1100 (Henning 1971a; Tiffany 2007a; Tiffany and Alex 2001; Wood 2001), factors leading to these events, the socioeconomic processes involved, and the relationship between descendant and antecedent communities remain a part of ongoing debate. Prime movers or precipitating factors proposed in the past included intensive maize production, the expansion of bison herds to the east, shifting climatic regimes, and participation in long-distance interaction with highly ranked societies east of the

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Mississippi River—the so-called “Mississippianization” of communities away from the primary Mississippian centers such as Cahokia (Emerson 1991; Henning 2005:161; Tiffany 1991a and 1991b). Anderson included four of these factors as part of his developmental model for the Big and Little Sioux phases, adding Oneota expansion to account for their disappearance from Iowa (Anderson 1987:530–531). Technological innovations including the adoption of the bow and arrow are also cited as related developments (Henning 2005). With much ink spilled in debating these issues, the origins of the MMT remain unclear (Johnson 2007:168).

The Big Sioux locality not only contains early IMM sites but also the highest number and greatest concentration of Great Oasis communities. The question is not one of a migration of peoples into the area, but of the development of a new lifeway among indigenous populations. This makes the location an ideal laboratory in which to understand how the Plains Village transformation took place because it appears to have occurred here. We have the Great Oasis sites that represent communities before the transformation and we have the Kimball Village site, perhaps the best existing early example of the after. In light of the shorter chronology now suggested for the Kimball Village (Lensink 2003b, 2005; Tiffany and Lensink 2011) and evidence for its early position in the MMT, the site offers an outstanding opportunity to investigate the processes and consequences of early village formation over a period of only a few generations. By comparing the abundant evidence from Kimball with information from nearby Great Oasis sites we have a means to evaluate the nature of a major transformation in economics and settlement amidst what otherwise appears to be a strong degree of material, technological, and stylistic continuity.

As outlined in the statement of significance related to Developing the American Economy, intensive maize production is considered key to the Plains Village transformation, and Kimball Village offers well-preserved cultural and ecofactual data sets to undertake a detailed analysis of subsistence economy for comparison with Great Oasis. Does the volume and variety of cultigens (particularly maize), quantity and capacity of storage features, and numbers and kinds of artifacts related to farming actually confirm that early IMM communities were engaged in more intensive maize horticulture than their Great Oasis predecessors? Would carbon isotopic analysis of early IMM skeletal remains reveal differences in abundance of maize in the diet? Does the relative abundance of native cultigens (*Chenopodium* for instance) decline or drop out at IMM villages, and if so, how quickly? Recent study suggests that the IMM emphasis on hunting large mammals and the subsidiary production of bone artifacts when compared to Great Oasis may only have been one of degree rather than kind (Morrow, Torgerson, and Weinrich 2005). Do the deep midden deposits and presence of stratified horizons contain information reflecting stable or changing subsistence pursuits during the period the Kimball Village was occupied?

Studies of large mammal remains from Kimball Village (Lensink 1989, 1990, 1991a, 1993a), together with floral analysis at other Mill Creek sites (Zalucha 1982a), and evidence from freshwater diatoms (Laird et al. 1996, 2003), have called into question the climatic model of Bryson and Baerreis and the role of climatic change as a prime mover in the transition to Plains Village life. Current evidence suggests that most of the regional climatic indicators reflect localized changes in climate not the regional patterns suggested in the original research (Laird et al. 1996, 2003; Lensink and Tiffany 2011). Yet the primacy of climatic change as a precipitating factor in the origin of the Plains Village pattern remains a persistent one (Henning 2005; Johnson 2007b). Could the collection of well-controlled microfauna, such as gastropods, using water flotation techniques from identified stratigraphic horizons at the Kimball Village site, combined with non-site proxy data such as that from freshwater diatoms, provide valid samples to further address this issue?

Household archeology offers the promise of understanding the family or residential group in early MMT villagers and qualitative changes in social organization from earlier times (Mehrer 1995). Applying building analysis, and looking at temporal trends between Kimball Village and antecedent Great Oasis communities, is it

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possible to assess shifts in the structural design and construction of lodges or changes in the patterning and variety of features? Is there evidence within households for changing patterns of activity areas? Fishel has proposed that the differential distribution of design combinations and motifs on Great Oasis pottery as studied at the Cowan site (13WD88) 19 km south of Kimball Village, may reflect village-wide, household-wide, and individual styles (Fishel 2005a:44). At least three of the IMM wares (Chamberlain, Sanford, and Foreman) are believed to have evolved directly from earlier Great Oasis High Rim, Wedge Lip, and S-shaped Rim wares, further supporting the idea that IMM technology was rooted within Great Oasis culture (Fishel 2005a:53). Could a distributional analysis of design combinations and motifs on IMM at the Kimball Village also suggest similar or different household, individual, and village-wide styles that might also reflect social relationships among community members? When compared to other IMM villages, could such social relationships be illuminated at the regional level?

Early Plains village sites such as Kimball Village exhibit evidence of numerous lodges tightly enclosed in defensive palisades and positioned on riverine and creek terraces near major confluences with community cemeteries situated in the nearby uplands. Combined with other site types (e.g., fish traps and agricultural fields), does this reflect the creation of a new “domesticated landscape” that differs from that seen in earlier, more dispersed Great Oasis? Could the application of certain technologies, such as geophysical survey or high-precision mapping such as LiDAR, confirm other site types in the Big Sioux locality? When used with source analysis of site resources, could such technologies also provide evidence to map out the larger precontact landscape? What does the clustering of IMM villages like Kimball suggest about their inhabitants’ notions of space, community, and landscape when compared to the small, isolated, unfortified hamlets of their Great Oasis predecessors?

While the settlement structure and pattern differs from Great Oasis, the occurrence of IMM villages within the territory of their predecessors, suggests spatial stability of communities at what is considered a crucial economic transition. Continuity also exists in ceramics and bone tool assemblages. Does this continuity also reflect stability in other societal institutions including social organization and religion? Does it reveal continuity in gendered roles or perhaps kinship organization? Would a detailed comparison of chipped stone tools and chipped stone tool technology from Kimball Village and a Great Oasis assemblage, such as Cowan, also show such continuity?

While there is no question that IMM communities were in contact with the Mississippian world, researchers are exploring the nature of this interaction and its transformative effect on the evolution of Plains village society as discussed in the section of this nomination on Developing the American Economy (Tiffany 2007a). Once again qualitative and quantitative comparison of the nonlocal items and ceramics believed to reflect Mississippian influence from the Kimball Village with those from nearby Great Oasis sites, such as Cowan, would offer a further measure of the degree of “Mississippianization” that occurred within the IMM. In addition, it is suggested that IMM villages were concentrated along or near the Missouri (and, it might be added, nearby confluences) to assure access to Mississippian goods (Alex 1981; Tiffany 2007a:14). Does a comparison of the settlement locations of Great Oasis and Big Sioux phase communities show a qualitative change in this direction?

The shift from simple to more complex society, a corollary to the establishment of agrarian village life, created new systems of decision-making and resource allocation that required new settlement systems with a new settlement pattern (Mehrer 1995). For the early Plains villagers this is reflected in larger populations clustered in fortified villages. The new level of decision-making is assumed to have been embedded in the creation of weakly ranked, tribal-level society (Tiffany 2007a). Tiffany has proposed that agricultural intensification and specialization on the Plains mark a shift to a group focus on the extended family, which became the main

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economic unit (Tiffany 2007a:13). Is it possible to operationalize this proposal with archeological data from the Kimball Village?

Understanding aspects of prehistoric behavior is linked to identifying patterns in the archeological record that reflect such behaviors (Binford 1987:452). Recent studies reveal that a people's ideology, society, and economy are expressed in the ways that they organize their homes, work places, and communities (Mehrer 1995:15). This requires basic research and the mechanical interpretation of the archeological site itself, site formation processes, micro-stratigraphy, and the distribution and patterning of site furniture including structures, features, and cultural and ecofactual debris. The recent and highly successful geophysical survey at the Kimball Village site (Kvamme 2009, 2010) reveals the potential of such techniques to verify and identify buried features, including existing lodges and defensive systems. Investigative tools such as this may also permit researchers to examine questions of village settlement patterns, including the size, shape and orientation of lodges, depths of floors below surface, spacing of lodges with respect to one another within the palisade perimeter, relative density of lodges and their arrangement within villages, and the interior layout of hearths, storage pits, and roof supports (Bales and Kvamme 2005). Such information, as gleaned from Kimball Village, may be applied to examine the way early MMT cultures utilized space and potentially for exploring the cultural norms and even beliefs that influenced how site components were organized (Bales and Kvamme 2005:158). When combined with more recent estimates of house and village size (Lensink 2005; Lensink and Tiffany 2005a, 2005b) and a shorter chronology, it may be possible to more accurately estimate IMM population density and community patterning (Toom 1992a).

Recent geophysical survey has shown the potential to determine whether deeply buried sites like Kimball display evidence of fortification. We currently have no conclusive evidence that any Great Oasis site was fortified. The transition from Great Oasis to Mill Creek appears to be a transition to tightly nucleated and fortified communities. Why did fortification become necessary with the establishment of the IMM Big Sioux phase? Tiffany has suggested a relationship to the accumulation of wealth in the form of exchanged goods and stored food that created resource competition (Tiffany 2007a:14). The nature of the Kimball Village, [REDACTED] offers the possibility to identify whether changes in settlement over time included an increase in storage facilities and accumulated goods which could support Tiffany's hypothesis. Is there also evidence at Kimball Village that fortification was not part of the earliest construction at the village?

Existing information on Great Oasis (e.g., Schermer 2003) and IMM human skeletal remains (e.g., Key 1983, 1994; Lillie 1990a, 1990b, 1990c, 1996, 2002c, 2002e, 2004a, 2004b; Schermer and Lillie 1990, 2011a, 2011b; Owsley et al. 1994), including that recently recovered from the large ossuary-cemetery Spirit Knoll (13PM248) (Schermer and Lillie 2011c) adjacent to the Kimball Village, and data on Mississippian populations could be thoroughly examined and compared. Such analysis would (a) assist in answering questions regarding the relationship between IMM populations and their likely precursors, (b) identify biological relationships among IMM and other MMT and later Coalescent populations, and (c) determine potential affiliation with Mississippian peoples. Non-local individuals (e.g., Mississippians) may be identifiable using comparative cranial studies and stable isotope analyses. Results could provide new information to directly answer questions regarding the origin of IMM populations and their relationships to other contemporary and descendent populations. The future recovery of human skeletal remains from the Kimball Village, pursuant to Iowa burial legislation, could also expand such opportunities for biological archaeological research into the origins, history, and relationship of the MMT and related populations.

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COMPARATIVE NRHP and NHL RESOURCES

Initial variant MMT villages are represented in the National Historic Landmark program by several village sites in Iowa and South Dakota. IMM sites have significantly contributed to our understanding of the transition to nucleated village life, the origins of the MMT, changing subsistence patterns, and trade networks.

The six IMM National Historic Landmarks are:

- Bloom (39HS1, Lower James phase, IMM-east),
- Crow Creek (39BF11, Swanson phase, IMM-west; also Initial Coalescent),
- Langdeau (39LM209, Grand Detour phase, IMM-west),
- Mitchell (39DV2, Lower James phase, IMM-east),
- Phipps (13CK21, Little Sioux phase, IMM-east),
- Wittrock (13OB4, Little Sioux phase, IMM-east).
-

In addition to these six National Historic Landmarks, other IMM sites or sites with IMM components have been listed on the National Register of Historic Places, including the villages of Antelope Creek (39ST55), Brandon (39MH1), Breeden (39ST16), Cattle Oiler (39ST224), Dinehart (39LM33), Jiggs-Thompson (39LM208), King (39LM55), and Sheldon Reese (39HS23)—all in South Dakota; and Chan-ya-ta (13BV1) and Brewster (13CK15) both Little Sioux phase site in Iowa.

The Kimball Village site is the only Big Sioux phase site placed on the National Register of Historic Places (2010) and would be the only Big Sioux phase National Historic Landmark. It is one of two sites—along with the markedly compromised Broken Kettle site—considered type sites for the Big Sioux phase. Discoveries at the site have significantly contributed to refining the definition of the Mill Creek culture and the IMM. As presented in this nomination, Kimball is among the earliest and certainly the most intact and best preserved fortified Plains Village midden-mound site.

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Previous documentation on file (NPS):

- Preliminary Determination of Individual Listing (36 CFR 67) has been requested.
- Previously Listed in the National Register. NR# 10000343, Listed June 11, 2010
- Previously Determined Eligible by the National Register.
- Designated a National Historic Landmark.
- Recorded by Historic American Buildings Survey: #
- Recorded by Historic American Engineering Record: #

Primary Location of Additional Data:

- State Historic Preservation Office
- Other State Agency (Office of the State Archaeologist at the University of Iowa)
- Federal Agency
- Local Government
- University
- Other (Specify Repository):

KIMBALL VILLAGE SITE

United States Department of the Interior, National Park Service

National Register of Historic Places Registration Form

10. GEOGRAPHICAL DATA

Acreeage of Property: The archeological resource comprises 1.9 acres (0.8 ha).

UTM References:	Zone	Easting	Northing
	[REDACTED]		

Verbal Boundary Description:

The Kimball Village, 13PM4, is located in Plymouth County, Iowa, [REDACTED]
 [REDACTED], Hancock Township. [REDACTED]. The site is privately
 owned by Dr. Robert and Mrs. Kathryn Rasmus, 3131 Memorial Dr., Sioux City, Iowa. Figures 3, 4, and 21
 depict the site boundaries.

Boundary Justification:

The boundary as described encompasses the entirety of the terrace surface containing all known village site features and the full extent of the observable artifact scatter. During investigations at 13PM4, archeologists studied the horizontal extent of the surface artifact scatter and the vertical extent of buried subsurface deposits (Bryson and Baerreis 1968; Henning, ed.1968, ed. 1969; Orr 1942; Whittaker 2010). Kvamme (2009, 2010) conducted a survey that extended beyond the surficial artifact scatter, identifying subsurface features, such as houses and a possible palisade, through a variety of geophysical methods. The boundaries correspond to the limits of cultural materials and deposits on the landform.

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11. FORM PREPARED BY

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NATIONAL HISTORIC LANDMARKS PROGRAM
April 24, 2015

KIMBALL VILLAGE SITE

United States Department of the Interior, National Park Service

Photo Info., Tables, Figures

National Register of Historic Places Registration Form

PHOTOGRAPH INFORMATION**List of Photos and Photo Identification Information.**

Name of Property: Kimball Village Site
 County and State: rural Plymouth County, Iowa
 Name of Photographer: William E. Whittaker
 Photograph Date: March 17, 2009
 Location of Original Digital Files: Office of the State Archaeologist, The University of Iowa (OSA),
 700 Clinton Street Building, Iowa City, Iowa 52242.

Photo Number	Description	Camera Direction
1	General view of Kimball Village. Elevational rise where people are standing is the highest portion of the midden mound village.	N
2	General view of Kimball Village. Loess Hills in background.	NE

Photo Log

Ink and Paper Combination: Cannon BCI-68K on Epson Premium Glossy Photo Paper using a Cannon SP900 Inkjet printer

Photo 0001:

Kimball Village

Plymouth County, Iowa

William Whittaker Photo

March 17, 2009

Image archived at the Office of the State Archaeologist, University of Iowa, Iowa City. General view of Kimball Village. Elevational rise where people are standing is the highest portion of the midden mound village. View toward North.

IA_PlymouthCo_InitialVariantMPD_KimballVillage_0001.tif

Photo 0002:

Kimball Village

Plymouth County, Iowa

William Whittaker Photo

March 17, 2009

Image archived at the Office of the State Archaeologist, University of Iowa, Iowa City. General view of Kimball Village. Loess Hills in background. View toward Northeast.

IA_PlymouthCo_InitialVariantMPD_KimballVillage_0002.tif

KIMBALL VILLAGE SITE

United States Department of the Interior, National Park Service

Photo Info., Tables, Figures

National Register of Historic Places Registration Form

National Historic Landmarks
Property Name: Kimball Village Site

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TABLE 1 & 2

REASON: TABLES 1 & 2 CONTAIN SENSITIVE INFORMATION AS DEFINED UNDER SECTION 304

The location of this property is restricted information under law:

National Historic Preservation Act of 1966, as amended, section 304, 16 U.S.C. 470w-3(a)

- *Confidentiality of the location of sensitive historic resources*

Section 304

[16 U.S.C. 470w-3(a) – Confidentiality of the location of sensitive historic resources]

(a) The head of a Federal agency or other public official receiving grant assistance pursuant to this Act, after consultation with the Secretary, shall withhold from disclosure to the public, information about the location, character, or ownership of a historic resource if the Secretary and the agency determine that disclosure may –

- (1) cause a significant invasion of privacy;
- (2) risk harm to the historic resources; or
- (3) impede the use of a traditional religious site by practitioners.

[16 U.S.C. 470w-3(b) – Access Determination]

(b) When the head of a Federal agency or other public official has determined that information should be withheld from the public pursuant to subsection (a) of this section, the Secretary, in consultation with such Federal agency head or official, shall determine who may have access to the information for the purpose of carrying out this Act.

[16 U.S.C. 470w-3(c) – Consultation with the Advisory Council]

(c) When the information in question has been developed in the course of an agency's compliance with section 106 or 110(f) of this Act, the Secretary shall consult with the Council in reaching determinations under subsections (a) and (b) of this section.

A redacted version was included with the series, from the state and year for this property that was sent to the Federal Records Center and from there to the National Archives.

A full version was sent in the address restricted series to the Federal Records Center and from there to the National Archives.

KIMBALL VILLAGE SITE

United States Department of the Interior, National Park Service

Photo Info., Tables, Figures

National Register of Historic Places Registration Form

National Historic Landmarks
Property Name: Kimball Village Site

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TABLE 3

REASON: TABLE 3 CONTAINS SENSITIVE INFORMATION AS DEFINED UNDER SECTION 304

The location of this property is restricted information under law:

National Historic Preservation Act of 1966, as amended, section 304, 16 U.S.C. 470w-3(a)

- *Confidentiality of the location of sensitive historic resources*

Section 304

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[16 U.S.C. 470w-3(c) – Consultation with the Advisory Council]

(c) When the information in question has been developed in the course of an agency's compliance with section 106 or 110(f) of this Act, the Secretary shall consult with the Council in reaching determinations under subsections (a) and (b) of this section.

A redacted version was included with the series, from the state and year for this property that was sent to the Federal Records Center and from there to the National Archives.

A full version was sent in the address restricted series to the Federal Records Center and from there to the National Archives.

KIMBALL VILLAGE SITE

United States Department of the Interior, National Park Service

Photo Info., Tables, Figures

National Register of Historic Places Registration Form

Table 4**ESTIMATED UNEXCAVATED AREAS AT KIMBALL VILLAGE (FROM PETERSON ET AL. 2010)**

Researchers	Totals excavated	
	Area (feet²)	Volume (feet³)
Orr (1942)	2,168	15,851
Bryson and Baerreis (1968); Henning ed. (1968/1969)	75	625
Whittaker (2010)	5	35
Total excavated	2,248	16,511
Site size	82,800	579,600*
Total unexcavated	80,552	563,089*

*assumes average deposit depth of 7 ft

Table 5**BIG SIOUX PHASE VILLAGE SITES (FROM ALEX AND PETERSON, 2010)**

Site	Site Name	Estimated acres (hectares)
13PM1	Broken Kettle*	1.10 (0.44)
13PM3	Kimball*	1.90 (0.77)
13PM7	Joy Creek Major	0.84 (0.34)
13PM60	Gytens	3.54 (1.41)
13PM61	Larson*	9.01 (3.65)
13PM429/WD105	(unnamed)	1.22 (0.49)

* also considered a mortuary facility

Table 6**SEPARATE BIG SIOUX PHASE MORTUARY FACILITIES**

Site	Site name	Isolated burials, cemetery, or within village
13PM23	Kimball Burial Site	Cemetery
13PM36	Belle Vista North	Isolated
13PM37	Belle Vista South	Isolated
13PM65	Rock Creek Ossuary	Cemetery
13PM127	Ossuary #2	Cemetery
13PM172	(unnamed)	Cemetery
13PM248	Spirit Knoll	Cemetery

KIMBALL VILLAGE SITE

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Table 7
BIG SIOUX PHASE PROPERTY TYPE COUNTS (AS OF APRIL 1, 2010)

Property type	Site count	Totals	Site trinomial	Site name
Village	6			
with identified human remains	3		13PM1, 13PM4, 13PM61	Broken Kettle, Kimball, Larson
lacking identified human remains	3	3	13PM7, 13PM60, 13PM429/WD105	Joy Creek Major, Gytens, unnamed
Mortuary facilities	11	11		
within a village site	3		13PM1, 13PM4, 13PM61	
not within a specific village site	8		13PM23, 13PM36, 13PM37, 13PM65, 13PM127, 13PM172, 13PM248, 13WD402	Kimball burial, Belle Vista North, Belle Vista South, Rock Creek Ossuary, Ossuary #2, unnamed, Spirit Knoll, Siouxland Sand and Gravel
Total identified Big Sioux phase sites		14		

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FIGURES

Figure Number	Description of Figure
1	Topographic quadrangle map depicting boundaries of the nominated Kimball Village site (13PM4) (from USGS Sioux City North 1963; photorevised 1971, 1976, 7.5' series quadrangle map). Site center UTM reference is Zone 14N, Easting 705390, Northing 4718880.
2	Photograph of Kimball Village site, 13PM4, in 1939 (from Orr 1942:91). Caption reads: <i>Looking west from hill east of the Kimball Mound at ¼ mile. Timber belt along the Big Sioux across the center of the picture, back of which is the flood plain of the Missouri river and Big Sioux in S. Dakota. Note mound excavation in the center of the corn field</i> (from Peterson and Alex, 2010:51).
3	Kimball Village site, 13PM4, in northwest Iowa in the context of recorded Initial Middle Missouri tradition sites of the Big and Little Sioux phases (redrawn from Lensink 1993a:190) (modified from Alex and Peterson 2010:79).
4	Location of the Kimball Village site, 13PM4, in relation to a 2007 aerial photograph (base aerial from United States Department of Agriculture 2007) (from Peterson et al. 2009).
5	Aerial photographs showing possible meanders or braids near the Kimball Village site, 13PM4, (Google Map) (from Whittaker 2010).
6	Orr's 1939 excavations at the Kimball Village site, 13PM4. Caption reads: <i>West end of Trench A, Kimball Mound. Looking southwest. Men at work in House C Note cornstalk cover of Section #21</i> (from Orr 1942:103).
7	Map showing the location of Orr's (1939) trenches and units at the Kimball site, 13PM4 (from Orr 1942: 118) (from Whittaker 2010:3-8).
8	Orr's (1939) plan map of his main trenches at the Kimball site, 13PM4, modified and cleaned (from Whittaker 2010:3-9).
9	Orr's (1939) detail map of feature (including house) locations at Kimball Village (redrawn from Orr 1942 in Alex 1980:133) (from Peterson et al. 2010).
10	Photograph of post molds and pit features at House C, Kimball Village, in 1939 (from Orr 1942:102). Caption reads: <i>Storage-refuse pit in House C. Looking northeast. Note top of gumbo-like soil in north trench wall at left with stratification above</i> (from Peterson and Alex, 2010:58).
11	Photographs of select non-ceramic artifacts from 1939 excavations at Kimball Village (composite from Orr 1942:102, 111, 110). Paraphrased captions. Top: [REDACTED]
12	Photographs of select ceramics from 1939 excavations at Kimball Village (from Orr 1942: clockwise from top left, page 108, 100, 146, 113). Top left: [REDACTED]

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Figure Number	Description of Figure
13	Image of cumulative magnetic interpretations at the Kimball Village site, 13PM4 (Kvamme 2009, 2010). The perimeter "point" anomalies represent suspected palisade posts (blue).
14	Total Station derived topographic map of the Kimball Village site, 13PM4, superimposed on recent aerial photograph (Google Maps) (from Whittaker 2010:3-16).
15	Map of Kimball Village site, 13PM4, showing soil core and auger test locations from 2009, along with earlier excavation locations (from Whittaker 2010:3-18).
16	Interpretation of auger test results, showing ditches or pits and possible surfaces at the Kimball Village site, 13PM4 (from Whittaker 2010:3-34).
17	Results of soil descriptions at the Kimball Village site, 13PM4 (from Whittaker 2010:3-31).
18	Comparison of 1939 Orr topography with 2009 topography of the Kimball Village site mound, 13PM4. Shows that the south end of the mound has been heavily eroded, probably due to plowing. The top of the mound is less eroded, but more rounded than it was in 1939. This comparison assumes that the 1939 datum is buried under ca. 50 cm of fill (from Whittaker 2010:3-23).
19	Comparisons of Orr's 1939 profile with a 2009 profile of the Kimball Site tell, 13PM4. Profiles are from the same general area, facing north. Comparisons show the sides of the tell have eroded, while parts of the base on the east side have filled in (from Whittaker 2010:3-22).
20	Reconstruction of Wittrock village (13OB4), a fortified Little Sioux phase village in O'Brien County, similar to Kimball Village in layout (from McKusick 1973).
21	Map of Kimball Village site, 13PM4. Location of old site boundaries, surface scatter limits, and new site boundary. Datum points, soil cores, and surface scatter limits mapped with GPS. From USGS Sioux City North (1998), 7.5' series quadrangle map (from Whittaker 2010:3-4).
22	Sample artifact assemblages from Initial variant Middle Missouri tradition sites in Iowa including the Kimball Village site (13PM4) curated at the OSA (Photo Archives, University of Iowa Office of the State Archaeologist).
23	Artifact assemblages from the Kimball Village site (13PM4) curated at the OSA (Photo Archives, University of Iowa Office of the State Archaeologist).
24	Various artifacts from the Kimball Village site (13PM4) curated at the OSA (Photo Archives, University of Iowa Office of the State Archaeologist).
25	Bone and shell artifacts, and one ceramic rim handle (upper right) from the Kimball Village site (13PM4) curated at the OSA (Photo Archives, University of Iowa Office of the State Archaeologist).
26	<i>Leptoxis</i> shell beads recovered in 2009 from the Kimball Village site (13PM4) curated at the OSA (Photo Archives, University of Iowa Office of the State Archaeologist).
27	Ceramics from the Kimball Village site (13PM4) curated at the OSA (Photo Archives, University of Iowa Office of the State Archaeologist).
28	Mississippian-inspired ceramic rim sherd with Ramey-Incised motif on the shoulder from the Kimball Village site (13PM4) curated at the OSA (Photo Archives, University of Iowa Office of the State Archaeologist).
29	Ceramics and ceramic handles from the Kimball Village site (13PM4) curated at the OSA (Photo Archives, University of Iowa Office of the State Archaeologist).
30	Ramey-Incised ceramic rim sherd with scroll motif on the shoulder from the Kimball Village site (13PM4) curated at the OSA (Photo Archives, University of Iowa Office of the State Archaeologist).

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Figure Number	Description of Figure
31	Distribution of artifacts per 10-cm level by count at the Kimball Village site, 13PM4. Proveniences that were not 10-cm were averaged as 10-cm levels. Soil Cores and Orr's profile estimated. (from Whittaker 2010:3-32, 3-33).
32	Distribution of artifacts per 10-cm level by weight (g) at the Kimball Village site, 13PM4. Proveniences that were not 10-cm were averaged as 10-cm levels. Soil Cores and Orr's profile estimated. (from Whittaker 2010:3-32, 3-33).
33	Litka Ridged Field Site (13OB31), the only known Middle Missouri tradition agricultural field. Field ridges in center of photo (Alex 2000) (Mary and Jim Helgevold; Photo Archives, University of Iowa Office of the State Archaeologist).
34	Kimball Village site (13PM4) and surrounding area, bird's-eye view to the southeast. United States Department of Agriculture Farm Service Agency, Google (2011), Google Image (2012).
35	Hillshade Relief Map of the Kimball Village site midden-mound (13PM4), from 1-meter LiDAR (Light Detecting and Ranging). Iowa Geographic Map Server-Iowa State University Geographic Information Systems Support and Research Facility, Ames. (http://ortho.gis.iastate.edu/search.html)
36	Location of current phases of the Initial variant of the Middle Missouri tradition (redrawn from Tiffany 2007a:4) (from Alex and Peterson 2010:77).
37	Double Ditch Site (13OB31). (Mary and Jim Helgevold; Photo Archives, University of Iowa Office of the State Archaeologist).

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National Historic Landmarks
Property Name: Kimball Village Site

PAGE REMOVED**FIGURE 1****REASON: FIGURE 1 CONTAINS SENSITIVE INFORMATION AS DEFINED UNDER SECTION 304**

The location of this property is restricted information under law:

National Historic Preservation Act of 1966, as amended, section 304, 16 U.S.C. 470w-3(a)

- *Confidentiality of the location of sensitive historic resources*

Section 304

[16 U.S.C. 470w-3(a) – Confidentiality of the location of sensitive historic resources]

(a) The head of a Federal agency or other public official receiving grant assistance pursuant to this Act, after consultation with the Secretary, shall withhold from disclosure to the public, information about the location, character, or ownership of a historic resource if the Secretary and the agency determine that disclosure may –

- (1) cause a significant invasion of privacy;
- (2) risk harm to the historic resources; or
- (3) impede the use of a traditional religious site by practitioners.

[16 U.S.C. 470w-3(b) – Access Determination]

(b) When the head of a Federal agency or other public official has determined that information should be withheld from the public pursuant to subsection (a) of this section, the Secretary, in consultation with such Federal agency head or official, shall determine who may have access to the information for the purpose of carrying out this Act.

[16 U.S.C. 470w-3(c) – Consultation with the Advisory Council]

(c) When the information in question has been developed in the course of an agency's compliance with section 106 or 110(f) of this Act, the Secretary shall consult with the Council in reaching determinations under subsections (a) and (b) of this section.

A redacted version was included with the series, from the state and year for this property that was sent to the Federal Records Center and from there to the National Archives.

A full version was sent in the address restricted series to the Federal Records Center and from there to the National Archives.

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Figure 2. Photograph of Kimball Village site, 13PM4, in 1939 (from Orr 1942:91). Caption reads: *Looking west from hill east of the Kimball Mound at 1/4 mile. Timber belt along the Big Sioux across the center of the picture, back of which is the flood plain of the Missouri river and Big Sioux in S. Dakota. Note mound excavation in the center of the corn field* (from Peterson and Alex, 2010:51).

KIMBALL VILLAGE SITE

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National Historic Landmarks
Property Name: Kimball Village Site

PAGE REMOVED**FIGURE 3-5****REASON: FIGURES 3-5 CONTAIN SENSITIVE INFORMATION AS DEFINED UNDER SECTION 304**

The location of this property is restricted information under law:

National Historic Preservation Act of 1966, as amended, section 304, 16 U.S.C. 470w-3(a)

- *Confidentiality of the location of sensitive historic resources*

Section 304

[16 U.S.C. 470w-3(a) – Confidentiality of the location of sensitive historic resources]

(a) The head of a Federal agency or other public official receiving grant assistance pursuant to this Act, after consultation with the Secretary, shall withhold from disclosure to the public, information about the location, character, or ownership of a historic resource if the Secretary and the agency determine that disclosure may –

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- (2) risk harm to the historic resources; or
- (3) impede the use of a traditional religious site by practitioners.

[16 U.S.C. 470w-3(b) – Access Determination]

(b) When the head of a Federal agency or other public official has determined that information should be withheld from the public pursuant to subsection (a) of this section, the Secretary, in consultation with such Federal agency head or official, shall determine who may have access to the information for the purpose of carrying out this Act.

[16 U.S.C. 470w-3(c) – Consultation with the Advisory Council]

(c) When the information in question has been developed in the course of an agency's compliance with section 106 or 110(f) of this Act, the Secretary shall consult with the Council in reaching determinations under subsections (a) and (b) of this section.

A redacted version was included with the series, from the state and year for this property that was sent to the Federal Records Center and from there to the National Archives.

A full version was sent in the address restricted series to the Federal Records Center and from there to the National Archives.

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Figure 6. Orr's 1939 excavations at the Kimball Village site, 13PM4. Caption reads: *West end of Trench A, Kimball Mound. Looking southwest. Men at work in House C Note cornstalk cover of Section #21* (from Orr 1942:103).

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National Historic Landmarks
Property Name: Kimball Village Site

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FIGURE 7-9

REASON: FIGURES 7-9 CONTAIN SENSITIVE INFORMATION AS DEFINED UNDER SECTION 304

The location of this property is restricted information under law:

National Historic Preservation Act of 1966, as amended, section 304, 16 U.S.C. 470w-3(a)

- *Confidentiality of the location of sensitive historic resources*

Section 304

[16 U.S.C. 470w-3(a) – Confidentiality of the location of sensitive historic resources]

(a) The head of a Federal agency or other public official receiving grant assistance pursuant to this Act, after consultation with the Secretary, shall withhold from disclosure to the public, information about the location, character, or ownership of a historic resource if the Secretary and the agency determine that disclosure may –

- (1) cause a significant invasion of privacy;
- (2) risk harm to the historic resources; or
- (3) impede the use of a traditional religious site by practitioners.

[16 U.S.C. 470w-3(b) – Access Determination]

(b) When the head of a Federal agency or other public official has determined that information should be withheld from the public pursuant to subsection (a) of this section, the Secretary, in consultation with such Federal agency head or official, shall determine who may have access to the information for the purpose of carrying out this Act.

[16 U.S.C. 470w-3(c) – Consultation with the Advisory Council]

(c) When the information in question has been developed in the course of an agency's compliance with section 106 or 110(f) of this Act, the Secretary shall consult with the Council in reaching determinations under subsections (a) and (b) of this section.

A redacted version was included with the series, from the state and year for this property that was sent to the Federal Records Center and from there to the National Archives.

A full version was sent in the address restricted series to the Federal Records Center and from there to the National Archives.

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Figure 10. Photograph of post molds and pit features at House C, Kimball Village site, in 1939 (from Orr 1942:102). Caption reads: *Storage-refuse pit in House C. Looking northeast. Note top of gumbo-like soil in north trench wall at left with stratification above* (from Peterson and Alex, 2010:58).

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National Historic Landmarks
Property Name: Kimball Village Site

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FIGURE 11-15

REASON: FIGURES 11-15 CONTAIN SENSITIVE INFORMATION AS DEFINED UNDER SECTION 304

The location of this property is restricted information under law:

National Historic Preservation Act of 1966, as amended, section 304, 16 U.S.C. 470w-3(a)

- *Confidentiality of the location of sensitive historic resources*

Section 304

[16 U.S.C. 470w-3(a) – Confidentiality of the location of sensitive historic resources]

(a) The head of a Federal agency or other public official receiving grant assistance pursuant to this Act, after consultation with the Secretary, shall withhold from disclosure to the public, information about the location, character, or ownership of a historic resource if the Secretary and the agency determine that disclosure may –

- (1) cause a significant invasion of privacy;
- (2) risk harm to the historic resources; or
- (3) impede the use of a traditional religious site by practitioners.

[16 U.S.C. 470w-3(b) – Access Determination]

(b) When the head of a Federal agency or other public official has determined that information should be withheld from the public pursuant to subsection (a) of this section, the Secretary, in consultation with such Federal agency head or official, shall determine who may have access to the information for the purpose of carrying out this Act.

[16 U.S.C. 470w-3(c) – Consultation with the Advisory Council]

(c) When the information in question has been developed in the course of an agency's compliance with section 106 or 110(f) of this Act, the Secretary shall consult with the Council in reaching determinations under subsections (a) and (b) of this section.

A redacted version was included with the series, from the state and year for this property that was sent to the Federal Records Center and from there to the National Archives.

A full version was sent in the address restricted series to the Federal Records Center and from there to the National Archives.

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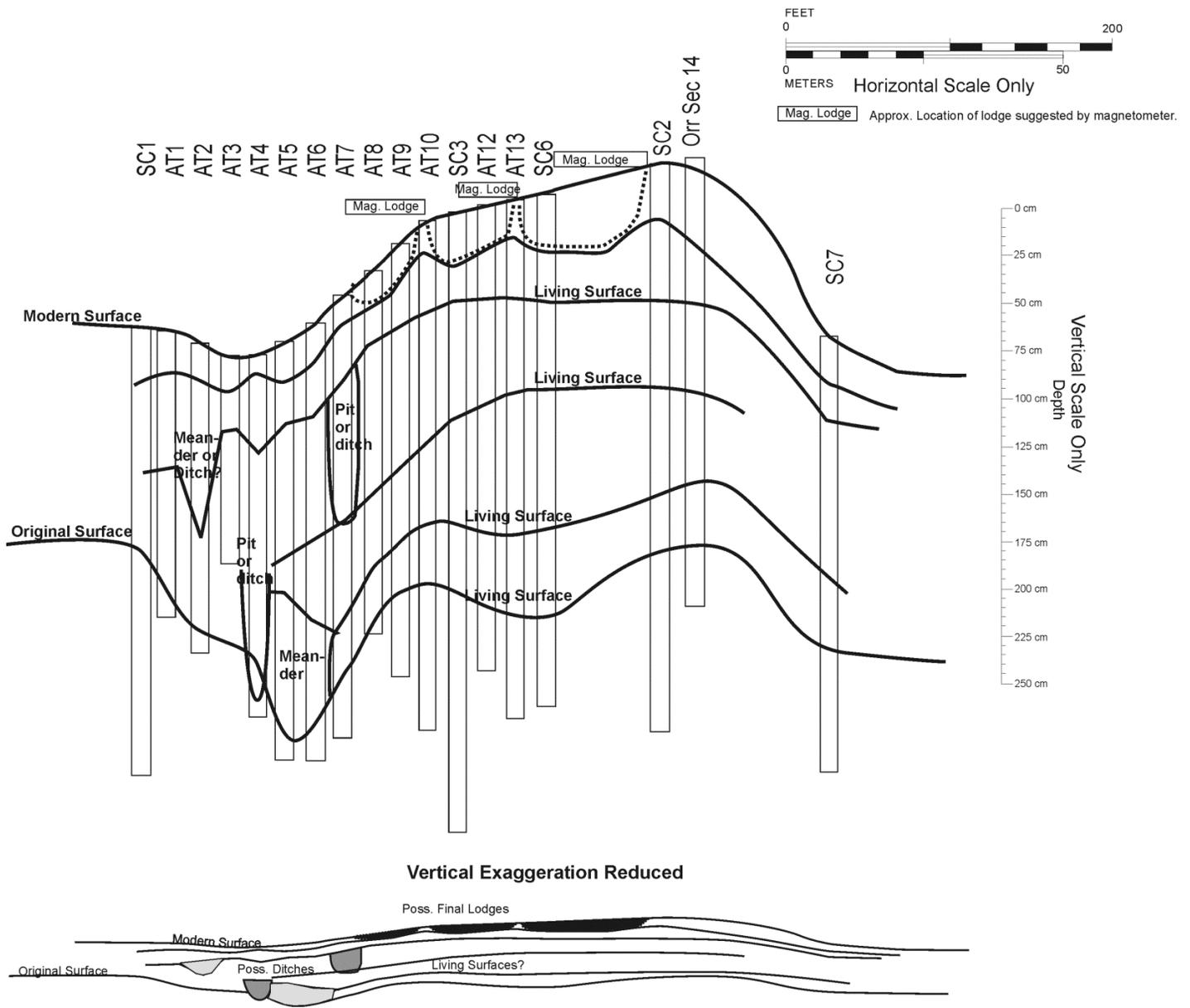


Figure 16. Interpretation of auger test results, showing ditches or pits and possible surfaces at the Kimball Village site, 13PM4 (from Whittaker 2010:3–34).

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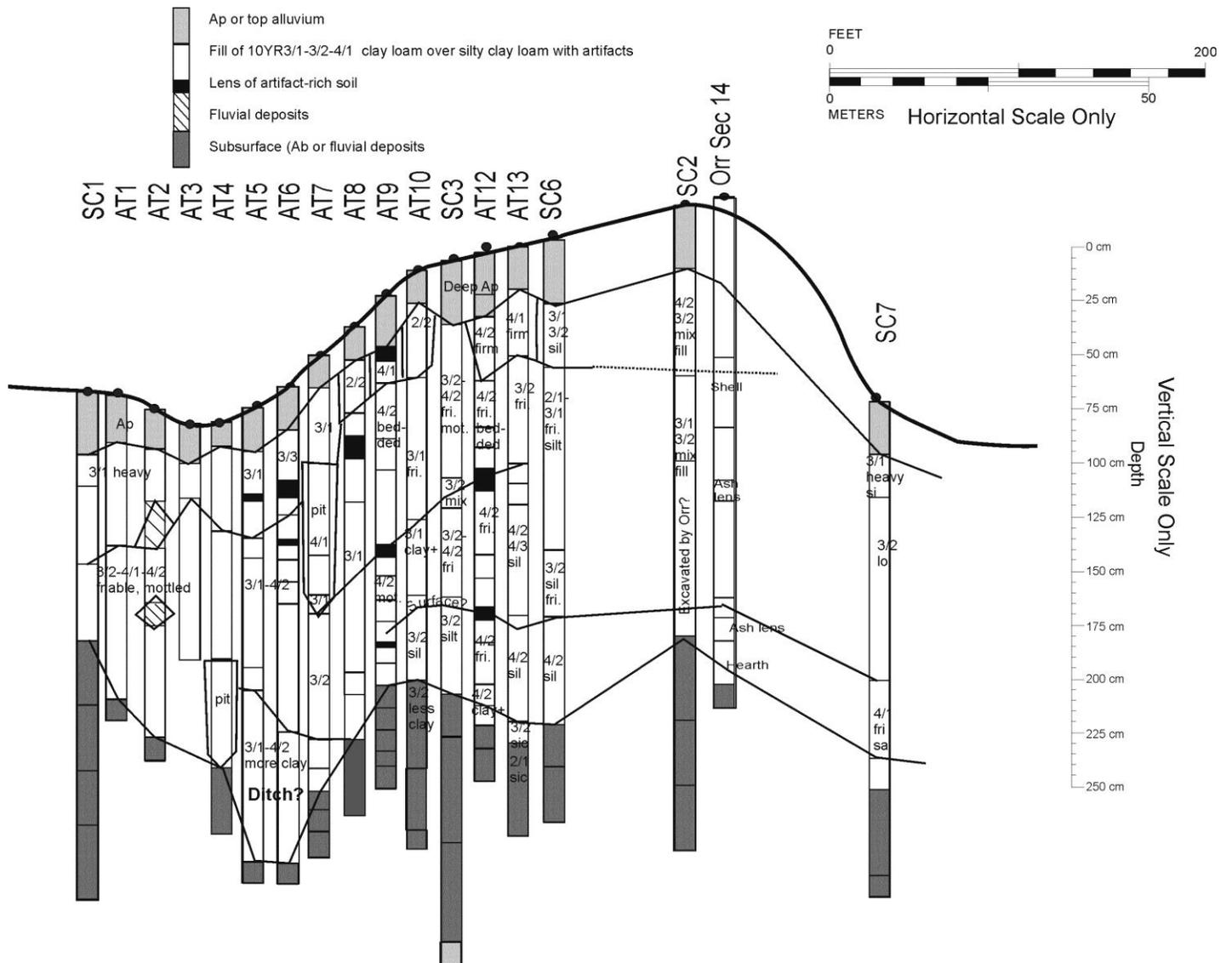


Figure 17. Results of soil descriptions at the Kimball Village site, 13PM4 (from Whittaker 2010:3-31).

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National Historic Landmarks
Property Name: Kimball Village Site

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FIGURE 18

REASON: FIGURE 18 CONTAINS SENSITIVE INFORMATION AS DEFINED UNDER SECTION 304

The location of this property is restricted information under law:

National Historic Preservation Act of 1966, as amended, section 304, 16 U.S.C. 470w-3(a)

- *Confidentiality of the location of sensitive historic resources*

Section 304

[16 U.S.C. 470w-3(a) – Confidentiality of the location of sensitive historic resources]

(a) The head of a Federal agency or other public official receiving grant assistance pursuant to this Act, after consultation with the Secretary, shall withhold from disclosure to the public, information about the location, character, or ownership of a historic resource if the Secretary and the agency determine that disclosure may –

- (1) cause a significant invasion of privacy;
- (2) risk harm to the historic resources; or
- (3) impede the use of a traditional religious site by practitioners.

[16 U.S.C. 470w-3(b) – Access Determination]

(b) When the head of a Federal agency or other public official has determined that information should be withheld from the public pursuant to subsection (a) of this section, the Secretary, in consultation with such Federal agency head or official, shall determine who may have access to the information for the purpose of carrying out this Act.

[16 U.S.C. 470w-3(c) – Consultation with the Advisory Council]

(c) When the information in question has been developed in the course of an agency's compliance with section 106 or 110(f) of this Act, the Secretary shall consult with the Council in reaching determinations under subsections (a) and (b) of this section.

A redacted version was included with the series, from the state and year for this property that was sent to the Federal Records Center and from there to the National Archives.

A full version was sent in the address restricted series to the Federal Records Center and from there to the National Archives.

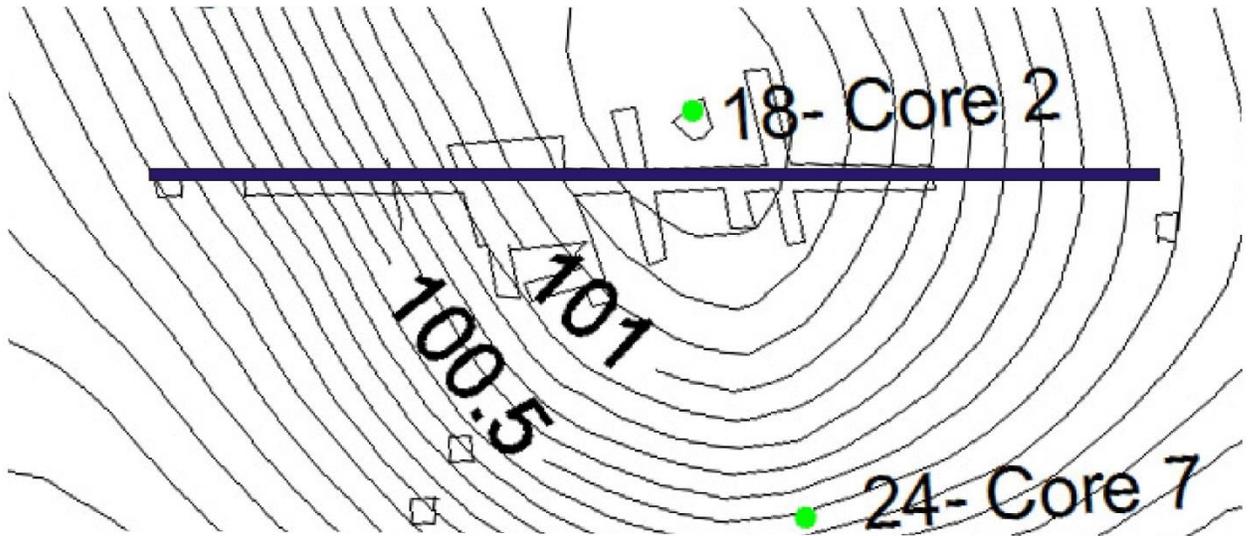
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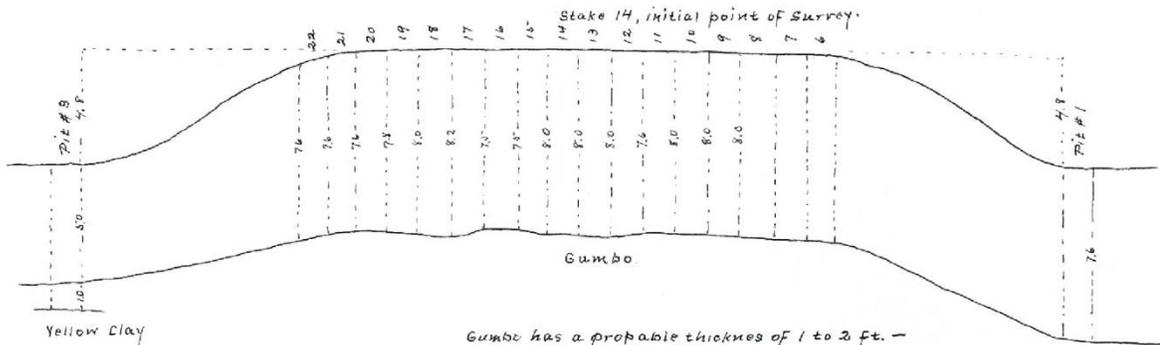
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Orr's 1939 profile Location on 2009 topo map



Orr's (1939) west-east profile



2009 profile, same scale, approx. same location, superimposed on 1939 profile

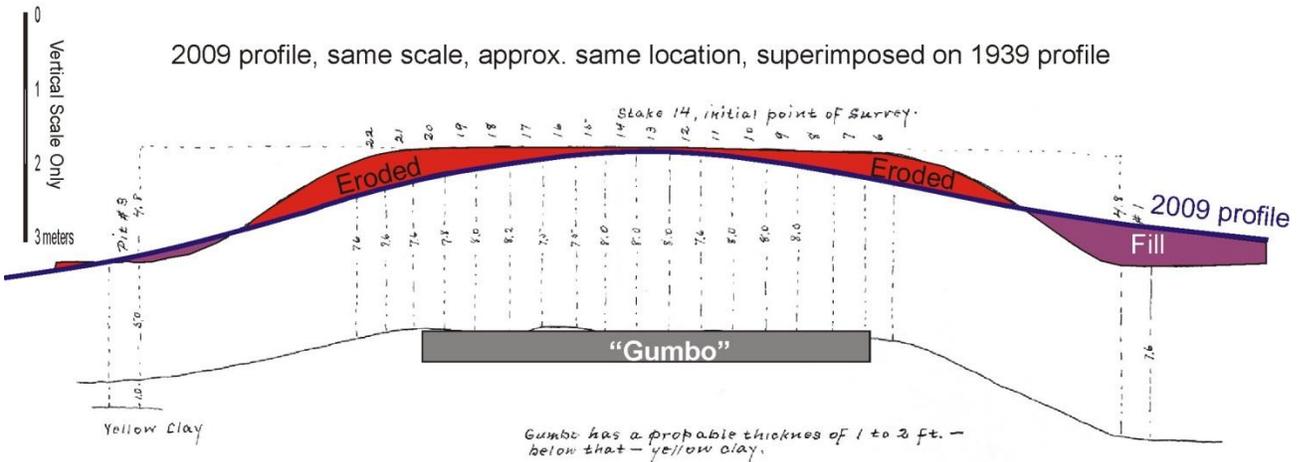


Figure 19. Comparisons of Orr's 1939 profile with a 2009 profile of the Kimball Village site tell, 13PM4. Profiles are from the same general area, facing north. Comparisons show the sides of the tell have eroded, while parts of the base on the east side have filled in (from Whittaker 2010:3-22).

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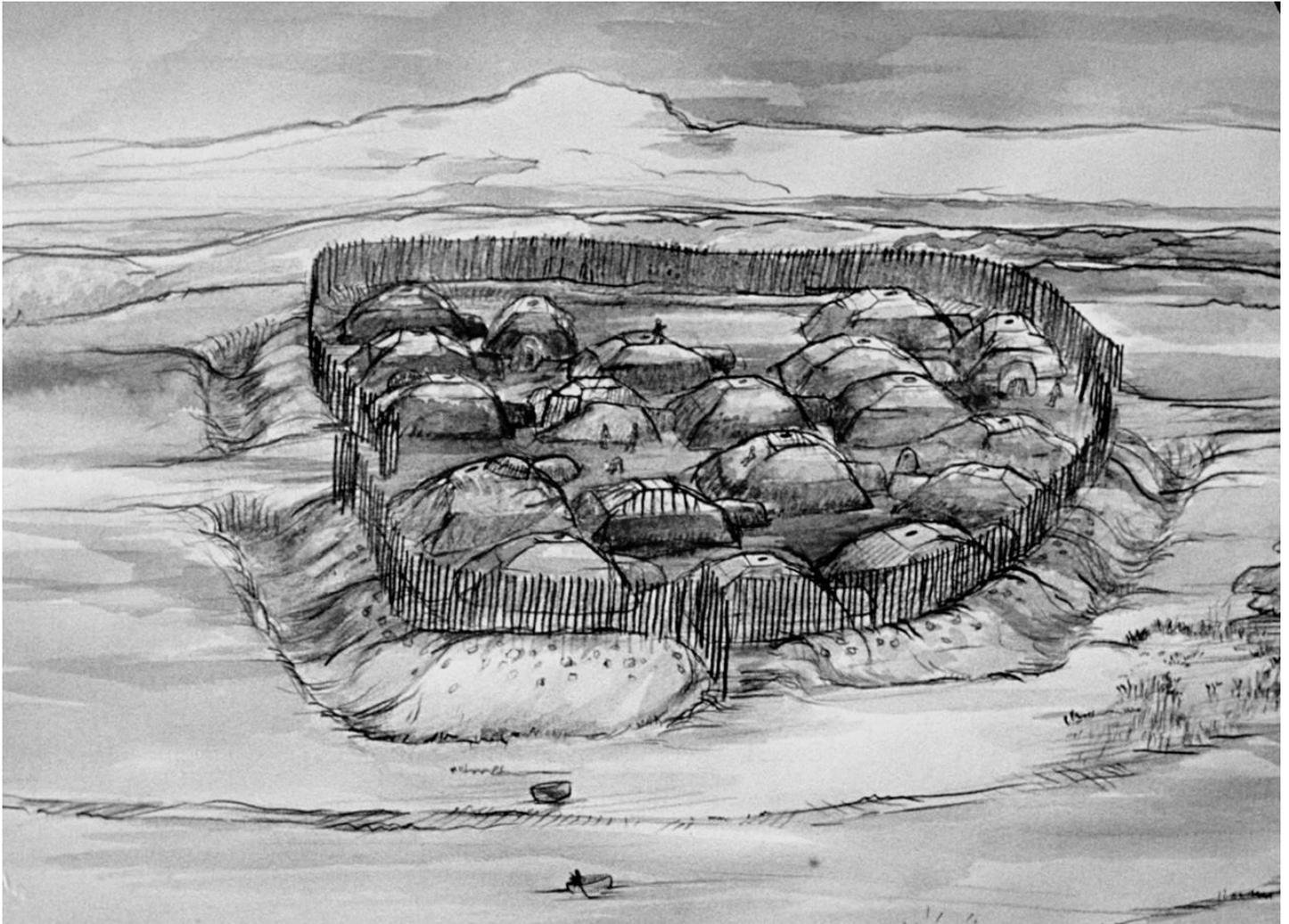


Figure 20. Reconstruction of Wittrock village (13OB4), a fortified Little Sioux phase village in O'Brien County, similar to Kimball Village in layout (from McKusick 1973).

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National Historic Landmarks
Property Name: Kimball Village Site

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FIGURE 21-30

REASON: FIGURE 21-30 CONTAINS SENSITIVE INFORMATION AS DEFINED UNDER SECTION 304

The location of this property is restricted information under law:

National Historic Preservation Act of 1966, as amended, section 304, 16 U.S.C. 470w-3(a)

- *Confidentiality of the location of sensitive historic resources*

Section 304

[16 U.S.C. 470w-3(a) – Confidentiality of the location of sensitive historic resources]

(a) The head of a Federal agency or other public official receiving grant assistance pursuant to this Act, after consultation with the Secretary, shall withhold from disclosure to the public, information about the location, character, or ownership of a historic resource if the Secretary and the agency determine that disclosure may –

- (1) cause a significant invasion of privacy;
- (2) risk harm to the historic resources; or
- (3) impede the use of a traditional religious site by practitioners.

[16 U.S.C. 470w-3(b) – Access Determination]

(b) When the head of a Federal agency or other public official has determined that information should be withheld from the public pursuant to subsection (a) of this section, the Secretary, in consultation with such Federal agency head or official, shall determine who may have access to the information for the purpose of carrying out this Act.

[16 U.S.C. 470w-3(c) – Consultation with the Advisory Council]

(c) When the information in question has been developed in the course of an agency's compliance with section 106 or 110(f) of this Act, the Secretary shall consult with the Council in reaching determinations under subsections (a) and (b) of this section.

A redacted version was included with the series, from the state and year for this property that was sent to the Federal Records Center and from there to the National Archives.

A full version was sent in the address restricted series to the Federal Records Center and from there to the National Archives.

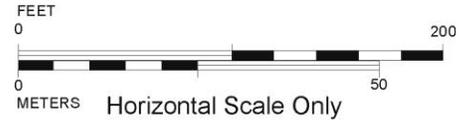
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Averaged artifact count per 10 cm level;
soil cores and Orr unit estimated.

- 0-9
- 10-24
- 25-49
- 50-74
- 75-99
- 100-149
- 150-199
- 200+



- x Minor artifact cluster
- o Prob. living floor
- p Prob. pit feature

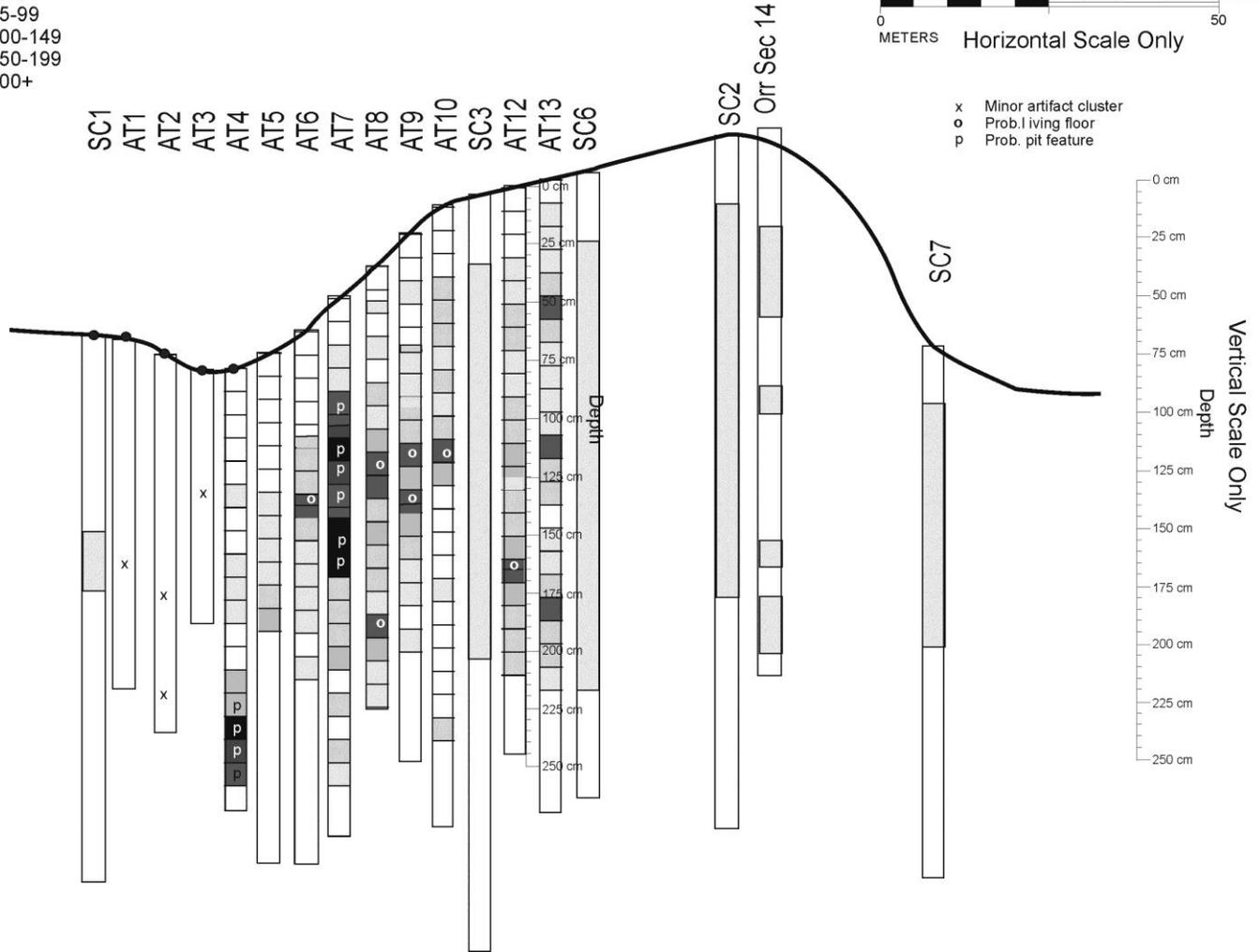


Figure 31. Distribution of artifacts per 10-cm level by count at the Kimball site, 13PM4. Proveniences that were not 10-cm were averaged as 10-cm levels. Soil Cores and Orr’s profile estimated (from Whittaker 2010:3–32, 3–33).

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Averaged artifact weight per 10 cm level.

- <1
- 1-9
- 10-24
- 25-49
- 50-99
- 100-149
- 150-199
- 200+

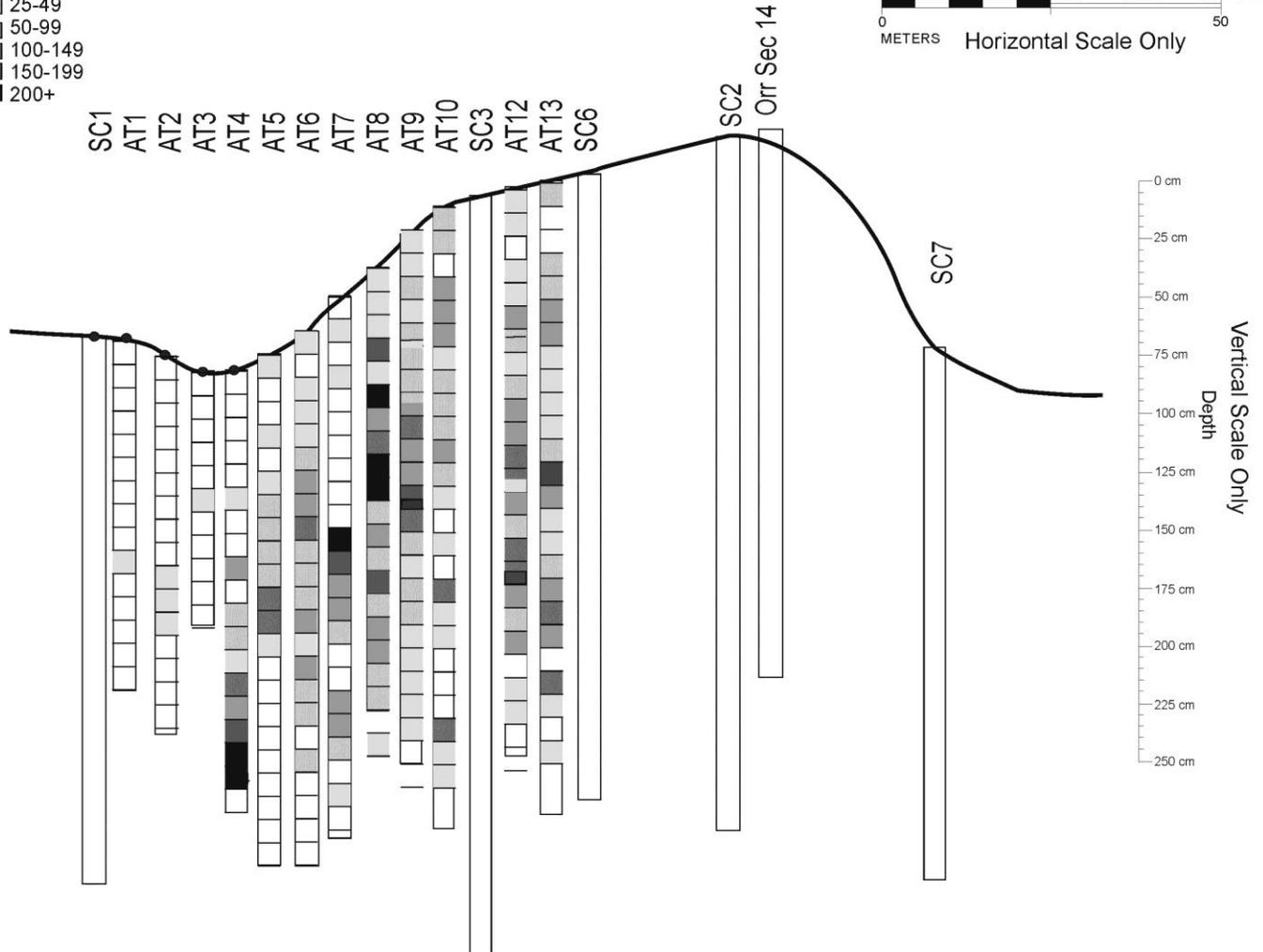
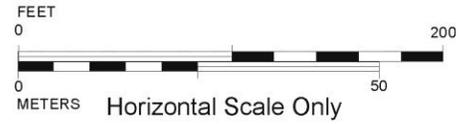


Figure 32. Distribution of artifacts per 10-cm level by weight (g) at the Kimball site, 13PM4. Proveniences that were not 10-cm were averaged as 10-cm levels. Soil Cores and Orr’s profile estimated (from Whittaker 2010:3–32, 3–33).

KIMBALL VILLAGE SITE

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Figure 33. Litka Ridged Field site (13OB31), the only known Middle Missouri tradition agricultural field. Field ridges in center of photo (Alex 2000) (Mary and Jim Helgevold; Photo Archives, University of Iowa Office of the State Archaeologist).

KIMBALL VILLAGE SITE

United States Department of the Interior, National Park Service

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National Historic Landmarks
Property Name: Kimball Village Site

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FIGURE 34-35

REASON: FIGURES 34-35 CONTAIN SENSITIVE INFORMATION AS DEFINED UNDER SECTION 304

The location of this property is restricted information under law:

National Historic Preservation Act of 1966, as amended, section 304, 16 U.S.C. 470w-3(a)

- *Confidentiality of the location of sensitive historic resources*

Section 304

[16 U.S.C. 470w-3(a) – Confidentiality of the location of sensitive historic resources]

(a) The head of a Federal agency or other public official receiving grant assistance pursuant to this Act, after consultation with the Secretary, shall withhold from disclosure to the public, information about the location, character, or ownership of a historic resource if the Secretary and the agency determine that disclosure may –

- (1) cause a significant invasion of privacy;
- (2) risk harm to the historic resources; or
- (3) impede the use of a traditional religious site by practitioners.

[16 U.S.C. 470w-3(b) – Access Determination]

(b) When the head of a Federal agency or other public official has determined that information should be withheld from the public pursuant to subsection (a) of this section, the Secretary, in consultation with such Federal agency head or official, shall determine who may have access to the information for the purpose of carrying out this Act.

[16 U.S.C. 470w-3(c) – Consultation with the Advisory Council]

(c) When the information in question has been developed in the course of an agency's compliance with section 106 or 110(f) of this Act, the Secretary shall consult with the Council in reaching determinations under subsections (a) and (b) of this section.

A redacted version was included with the series, from the state and year for this property that was sent to the Federal Records Center and from there to the National Archives.

A full version was sent in the address restricted series to the Federal Records Center and from there to the National Archives.

KIMBALL VILLAGE SITE

United States Department of the Interior, National Park Service

Photo Info., Tables, Figures

National Register of Historic Places Registration Form

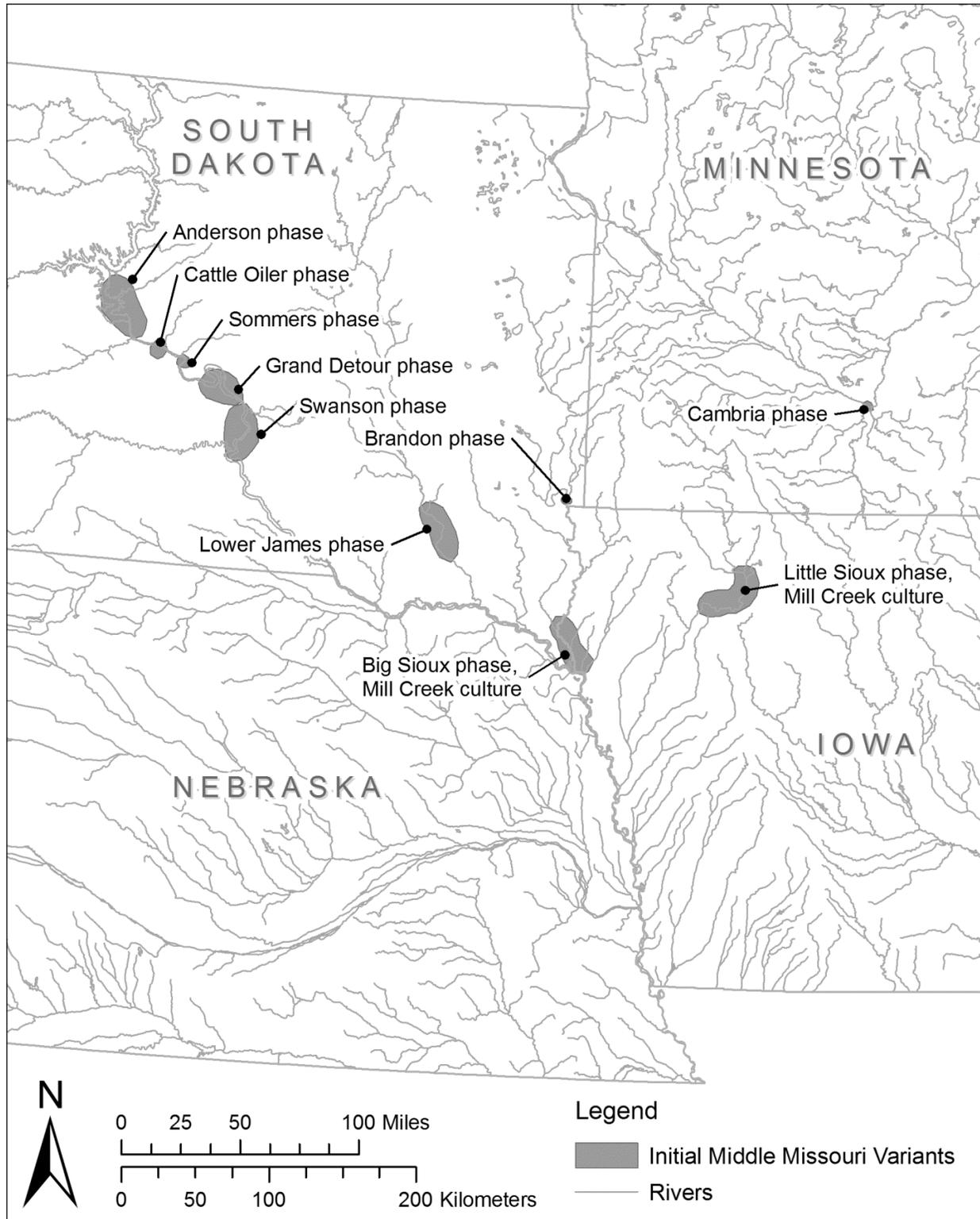


Figure 36. Location of current phases of the Initial variant of the Middle Missouri tradition (redrawn from Tiffany 2007a:4) (from Alex and Peterson 2010:77).

KIMBALL VILLAGE SITE

United States Department of the Interior, National Park Service

Photo Info., Tables, Figures

National Register of Historic Places Registration Form

National Historic Landmarks
Property Name: Kimball Village Site

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FIGURE 37

REASON: FIGURE 37 CONTAINS SENSITIVE INFORMATION AS DEFINED UNDER SECTION 304

The location of this property is restricted information under law:

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[16 U.S.C. 470w-3(b) – Access Determination]

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