

Determining the Significance and Integrity of Site 39DA7

Waubay National Wildlife Refuge – Northwest South Dakota

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Abstract

The Service is proposing to construct a new bunkhouse within the Waubay National Wildlife Refuge within an area already disturbed by road construction trailer pads, electric lines, and an existing sewer system. The location is within the large prehistoric site 39DA7. The site, in a 1999 consensus determination, was found not eligible for listing on the National Register of Historic Places. To determine if the area was indeed not eligible, the Service conducted test excavations in April of 2012. The excavations found limited amounts of cultural materials dating to the Middle Plains Woodland. However no features or activity areas were discovered. With this information, our interpretation that the site is not eligible for the National Register of Historic Places does not change for this part of the site. Therefore, there should be a determination of "No Historic Properties Affected" for this undertaking.

ACKNOWLEDGEMENTS

I would like to thank Assistant State Archeologist Michael Fosha for his analysis of the ceramics, stone material, and pipe. Without his knowledge, the completion and interpretation within this report would have been much diminished. I would also like to thank Amy Bleier for reviewing the collected stone and agreeing that much of the stone collected within the excavation screen was not cultural.

PROJECT DESCRIPTION

The undertaking is to construct a 40 x 50 bunkhouse within the Waubay National Wildlife Refuge headquarters complex. The complex was built within the boundaries of the large prehistoric site 39DA7. Because the proposed bunkhouse is within this site, the location chosen for the proposed bunkhouse is on an area already disturbed by a dead end road and adjacent trailer pads that have buried electrical lines and sewer lines running to them (Map 1, Photo 1). Included in the bunkhouse plans is a new sewer and drain field. The construction location is within the NE 1/4 of Section 32, T.123N, R.54W of Day County, South Dakota .

BACKGROUND

The Waubay site, 39DA7, is located at and surrounding the Waubay NWR Headquarters (Map 2). The site was originally recorded by Jim Haug and Tamzin Brown in 1980. In 1983, prior to the construction of the new headquarters facilities, a subsurface survey was conducted by Pope and Stuart (Pope and Bradley 1983). The survey led to additional test excavations in 1983 (Bradley and Ranney 1985). Ninety-four auger holes were drilled and then ten two meter square test units were excavated. These recovered a broad variety and accumulation of cultural materials including 760 ceramic sherds, 28 stone tools, and 38.3 kg of bone. Three features were defined, a small shallow pit, a bison bone concentration, and a hearth. The best archeological deposits within the site were apparently located in the eastern portion of the site, east of the headquarters (Jackson and Toom 1999). No additional cultural features were found when grading of the construction area. The headquarters, parking lot, pole building, and entrance road were built (Map 1).

In 1999, the Service constructed a new shop building in the large maintenance area adjacent to the proposed bunkhouse (the shop building is the white building in the center of the first aerial photo Map 1). Fish and Wildlife Service Archeologist Rhoda Lewis wrote "the area was originally an oak forest that was cut in the 1930s. The stumps were pulled and the area leveled for farm fields. The area was cultivated until circa 1970. Several buildings were erected adjacent to the proposed building site in 1985. A cultural resource survey was conducted in 1981 (Keller and Zimmerman 1981)... The site was tested in the 1981 survey. Cultural materials were observed in the top 30 cm of matrix. Below that is parent material. The cultural materials are within the existing plow zone. Based on the study, the site was recommended as not eligible for nomination to the National Register of Historic Places." (Lewis 1999). Prior to sending a consultation letter to SHPO, Rhoda visited the site and viewed an open pit adjacent to the project and said the profile was as described as before. SHPO responded to the letter with a determination that 39DA7 was NOT ELIGIBLE and that NO HISTORIC PROPERTIES WOULD BE AFFECTED (Vogt 1999).

Sometime in the 1990s or early 2000s two trail pads were constructed on the site where the Service is proposing to construct the new bunkhouse. In 2006, the final, third, camper pad was constructed. Service Archeologist Galen Burgett monitored the excavation of the third pad. He reported that no cultural materials were unearthed during this monitoring (Burgett 2006).

2012 SITE TESTING

On April 2 and 3, 2012, Service Archeologist Barry G. Williams conducted subsurface testing within the general area that the proposed bunkhouse was to be constructed. From all previous indications the area was disturbed. No prehistoric cultural materials were observed on the ground surface. Eleven shovel tests were excavated. Two shovel tests were expanded to 50cm by 50cm units. Finding some cultural material, additional tests were conducted on April 9 and

10, 2012 by Service Archeologists Barry G. Williams and Brant G. Loflin. Ten additional shovel tests and one 1X 1 meter unit were excavated.

Shovel tests are excavations by shovel that are approximately 30 cm in diameter and were excavated to the culturally sterile orange clay loam parent material. All the soil was screened through a ¼ inch mesh screen. The excavation depths are recorded within Table 1, as are the artifacts recovered. Two of these shovel tests were expanded when ceramic sherds were discovered and are recorded as Test Pit 3 and Test Pit 11.

Shovel tests found cultural materials to a depth of approximately 25 cm below ground surface (bgs). Those materials included animal bone fragments and stone flakes (Table 1). When a pottery was found, shovel tests were expanded (Test Pit 3 and Test Pit 11). No artifacts were found in Shovel Tests 1, 2, 5, 6, 7, 8, 10, 13, 15, 18, and 21 (Map 3 and Map 4).

Unit	Excavation Depth	Stone Flake	Animal Bone	Sherd	Burnt Bone	Burnt Stone	Bison Teeth	Pipe
ST1	Parent Material 35 cm	0	0	0	0	0	0	0
ST2	Parent Material 40 cm	0	0	0	0	0	0	0
TP3	Parent Material 40 cm	0	2	6	0	0	0	0
TP4	20 cm	1	1	0	1	1	2	0
ST5	Parent Material 45 cm	0	0	0	0	0	0	0
ST6	Parent Material 30 cm	0	0	0	0	0	0	0
ST7	Parent Material 30 cm	0	0	0	0	0	0	0
ST8	Parent Material 25 cm	0	0	0	0	0	0	0
ST9	Parent Material 30 cm	0	2	0	0	1	0	0
ST10	Parent Material 30 cm	0	0	0	0	0	0	0
TP11	Parent Material 45 cm	0	2	4	0	0	0	0
Unit	Excavation Depth	Stone Flake	Animal Bone	Sherd	Burnt Bone	Burnt Stone	Bison Teeth	Pipe
ST16	Parent Material 47 cm	1	3	0	0	0	1	0
ST17	Parent Material 45 cm	0	2	1	0	0	0	0

ST12	Parent Material 25 cm	1	2	0	0	0	0	0
Unit 1	Parent Material 40 cm	6	36	10	2	0	0	1
ST13	Parent Material 30 cm	0	0	0	0	0	0	0
ST14	Parent Material 38 cm	0	2	0	0	0	2	0
ST18	Parent Material 25 cm	0	0	0	0	0	0	0
ST15	Parent Material 22 cm	0	0	0	0	0	0	0
ST19	Parent Material 35 cm	0	2	0	0	0	0	0
ST20	Parent Material 30 cm	1	0	0	0	0	0	0
ST21	Parent Material 30 cm	0	0	0	0	0	0	0
TOTAL		10	54	20	3	2	5	1

Table 1. ST = Shovel Test, TP = Test Pit, Unit = Excavation unit, BGS = below ground surface. All units except TP4 were excavated to the Parent Material.

Three test pits were excavated. Test Pits were 50 by 50 cm squares excavated in 20 cm arbitrary stratigraphic layers. Again, all soil was screened through a ¼ inch mesh screen. Test Pit 3 was expanded from a shovel test. In the 0-20 cm bgs level 4 pottery sherds and 2 animal bone fragments were recovered. Test Pit 11 was the result of the discovery on one pottery sherd and was also an expansion of a shovel test. Test Pit 11 was well within the tree line east of the existing sewer drain. Three pottery sherds and two animal bone fragments were found in the 0-20 cm bgs level. One pottery sherd was found within the 20-45 cm bgs level, within 25 cm bgs. Test Pit 4 was excavated to 20 cm bgs in one level. It was closed after the first level because of time limitations. The material recovered from that excavation included 1 stone flake, 1 animal bone fragment, 1 burnt animal bone fragment, 1 burned stone, and 2 bison teeth.

One excavation unit was dug between the two most productive test pits. Test Unit 1 a 1x1 meter test unit was excavated in 10 cm arbitrary levels beginning at the ground surface and again all soil was screened through a ¼ inch mesh. The artifacts collected by level are listed below in Table 2. It is safe to say that all artifacts came from 0-25 cm bgs. Of note, within this unit was the discovery of the only historic artifact, a pipe. It is possible that some of the animal bone fragments could have been historic as this was a farm prior to purchase for the refuge. The pipe is a Kaolin pipe dating to the late 1800s probable dates are between 1875 and 1890 (Fosha 2012).

Unit 1	Excavation Depth	Stone Flake	Animal Bone	Sherd	Burnt Bone	Burnt Stone	Bison Teeth	Pipe
Level 1	0-10 cm bgs		2	8				1
Level 2	10-20 cm bgs	6	22	2	2			
Level 3	20- 30 cm bgs		12					
Level 4	30-40 cm bgs							
Totals	Parent Material 40 cm bgs	6	36	10	2	0	0	1

Table 2. Test Unit 1.

STRATIGRAPHY

Cultural materials, stone, ceramics, pipe, and animal bone were found within the upper 25 cm of soil. Described in the NRCS soil survey (<http://websoilsurvey.nrcs.usda.gov>) this 25 cm is mostly a loam (0-8 inches/ 0-20 cm) as described as the Forman-Buse-Aastad Loam. Beneath this loam, in the same series, is a clay loam which we found changed to an orange Parent Material at 22-47 cm bgs which fits the series description. With the scrubbing of trees and brush in this clearing for the trailer pads, it is quite possible that ideally the cultural material would have be limited to the upper loam.

Stone

Little can be said about the crude stone flakes. They are all secondary flakes and with the exception of one Knife River Flint flake, are of local Swan Creek Chert (Fosha 2012). Their numbers and locations are reflected in Table 2.

Bone

Little can be said about the bone. It is mostly from medium to large game, elk or bison and is very fragmented. Fifty-four fragments were recovered. There were also 3 burnt fragments and 5 bison teeth finds.

Pottery

All of the 20 recovered sherds are of a Middle Plains Woodland variety which closely resembles or is St. Croix Ware (Anfisnon 1979, Fosha 2012). This ware, St. Croix, dates from AD 600 to 900, Middle Plains Woodland. Table 3 reflects the sherd counts and analysis.

Excavation Unit	Depth	Ceramics
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TP 3	0-20 cm bgs	6 sherds, non-diagnostic body sherds
TP11	0-20 cm bgs	2 sherds, St. Croix like cord impressed 1 sherd, non-diagnostic body sherd
TP11	20-45 cm bgs	1 sherd, horizontal cord impressed with rapped stick impressions above, St. Croix like
ST 17	0-45 cm bgs	1 sherd, horizontal cord impressed, St. Croix like
Unit 1	10-20 cm bgs	1 sherd, horizontal cord impressed, St. Croix like, 6 sherds, smooth body sherds
Unit 1	20-30 cm bgs	1 sherd, cord impressed, St. Croix like, 1 sherd, non-diagnostic body sherd

Table 3. Pottery Sherds.

Nation Register Evaluation

The results of our excavations at 39DA7 found pottery that dates to AD 600 to 900 in the middle of the Plains Woodland, a period characterized by increase sedentism with a continued reliance on bison hunting (Jackson and Toom 1999, Winham and Hannus 1989). Very limited quantities of stone was found and bone was very fragmented, but of large game, bison, which is consistent with what would be expected during this time period. No features or activity areas were discovered.

The site has previously been determined ineligible for listing on the National Register of Historic Places (Vogt 1999). As a prehistoric archeological site, it should continue to be evaluated for National Register eligibility based on Criterion D, its information potential. Is it likely to yield information important to our understanding of prehistory? In our summary, above, we identified our data set: artifacts alone. No features.

The historic context and appropriate research questions for that context can be found within the State Plan (Winham and Hannus 1989). The Site is found within the Prairie Coteau Archeological Region. From the pottery we can assign the site to the Middle Plains Woodland. Winham and Hannus developed a number of contexts for the Woodland Period (1989). Directed at the Coteau des Prairies is the question of: "are the Woodland resources a unique adaptation". Other more general research questions include, is the introduction of ceramics definitely a marker of cultural change; define phase distinctions for woodland; what is the relationship between Woodland and Great Oasis: etc. (1989). Our dataset of artifacts alone cannot answer these questions. It requires features such as house types, storage pits with floral and faunal remains, hearths with charcoal for specific dating, etc.

In this location the site also lacks integrity in that it does not contain activity areas or physical features such as storage pits, hearths, or houses, all facets of design, setting, workmanship, feeling, and association, It does retain its location in that the cultural artifacts are in most respects in situ even though altered by the tree removal and brush grubbing.

Determination of eligibility is defined by a combination of site significance and integrity (Little et al. 2000). In this portion of the larger site 39DA7 the lack of prehistoric cultural features does not change the consensus determination of 1999 that the site is ineligible for listing on the National Register of Historic Places.

Summary

The results of our excavations at 39DA7 found pottery that dates to AD 600 to 900 in the middle of the Plains Woodland, a period characterized by increase sedentism with a continued reliance on bison hunting (Jackson and Toom 1999, Winham and Hannus 1989). Very limited quantities of stone was found and bone was very fragmented, but of large game which is consistent with what would be expected during this time period.

Excavations at the 39DA7 have not changed our interpretation for this part of the site with regards to the determination that the site is not eligible for listing on the National Register of Historic Places (Vogt 1999). While cultural material is found within the upper 25 cm below the ground surface in an area that has been cleared of trees and brush and can be considered in situ, no features or activity areas have been discovered in our 22 test excavations.

The Service has moved the building site north, placing it in an area that has been heavily disturb by construction of a road and trail pads and their buried electric lines and sewers. Only the proposed septic sewer will impact areas containing in situ cultural materials.

While we believe that our testing has been more than adequate to determine that this portion of the site is not eligible for listing on the National Register, as a further precaution, the Service will strip the area of the sewer prior to construction to look for features, which if found will be recovered using standard archeological practices.

At this time we consider a finding of "No Historic Properties Affected" to be appropriate for this undertaking.

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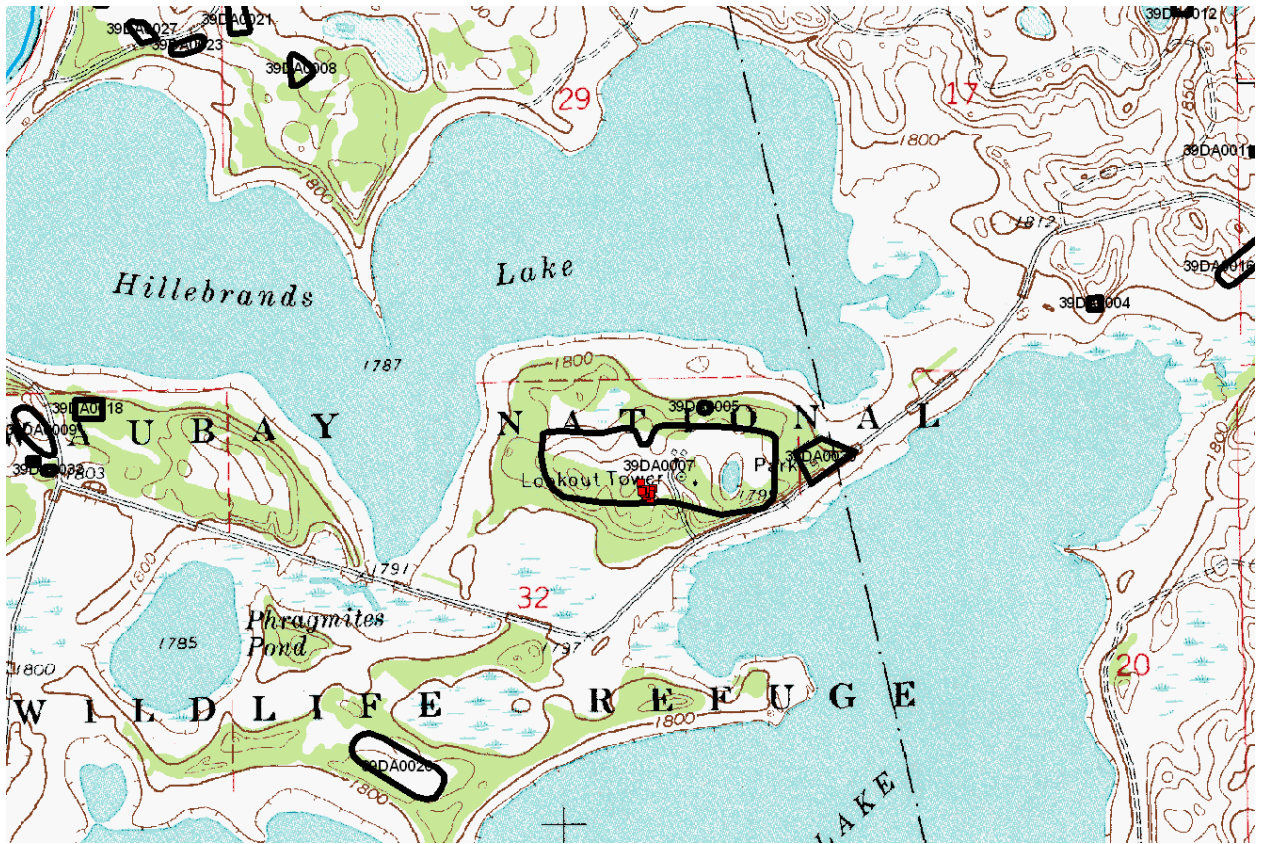
1999 Letter on file.

MAPS

Waubay National Wildlife Refuge

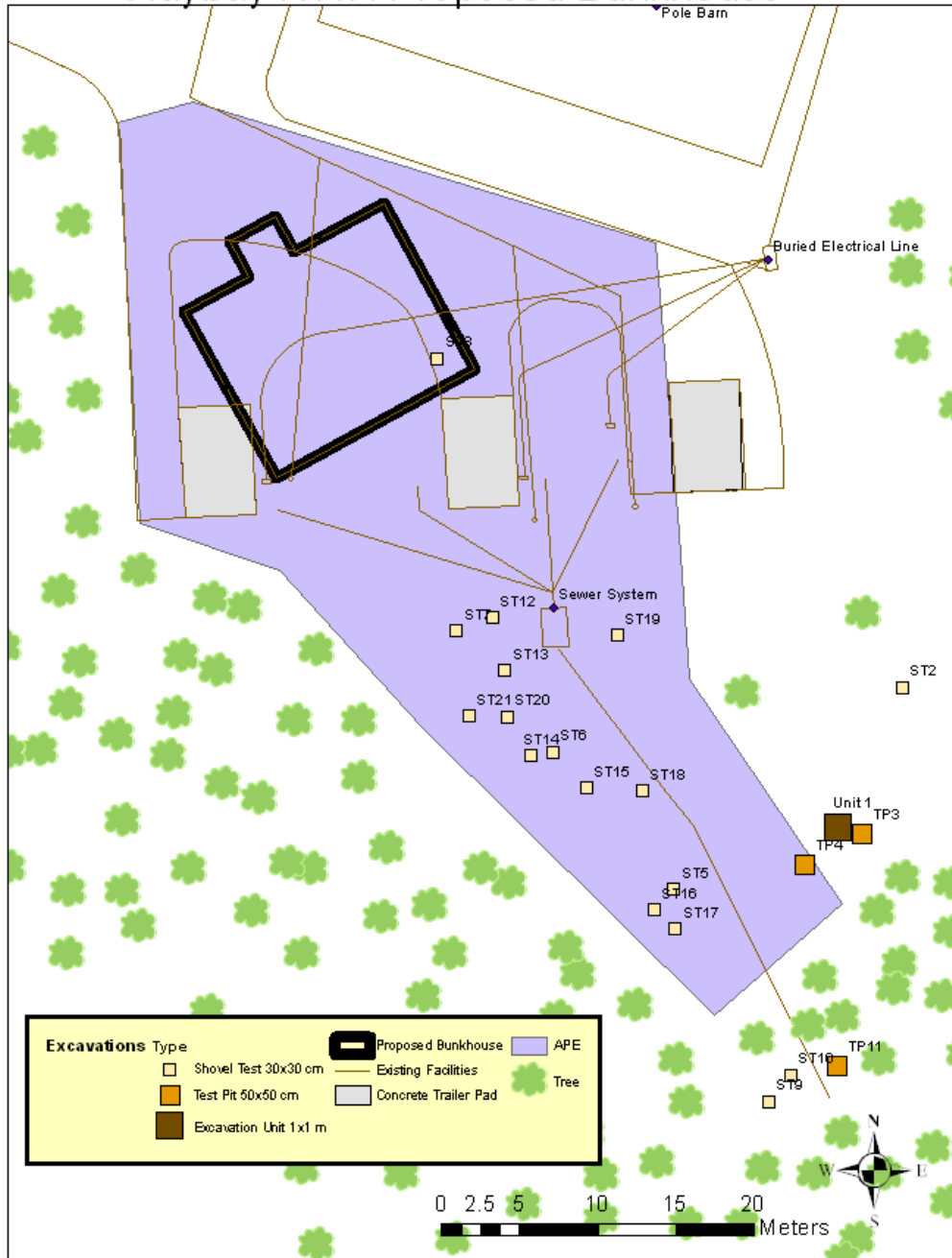


Map 1 . Enemy Swim Lake West. Section 32, Township 123N, Range 54 West.

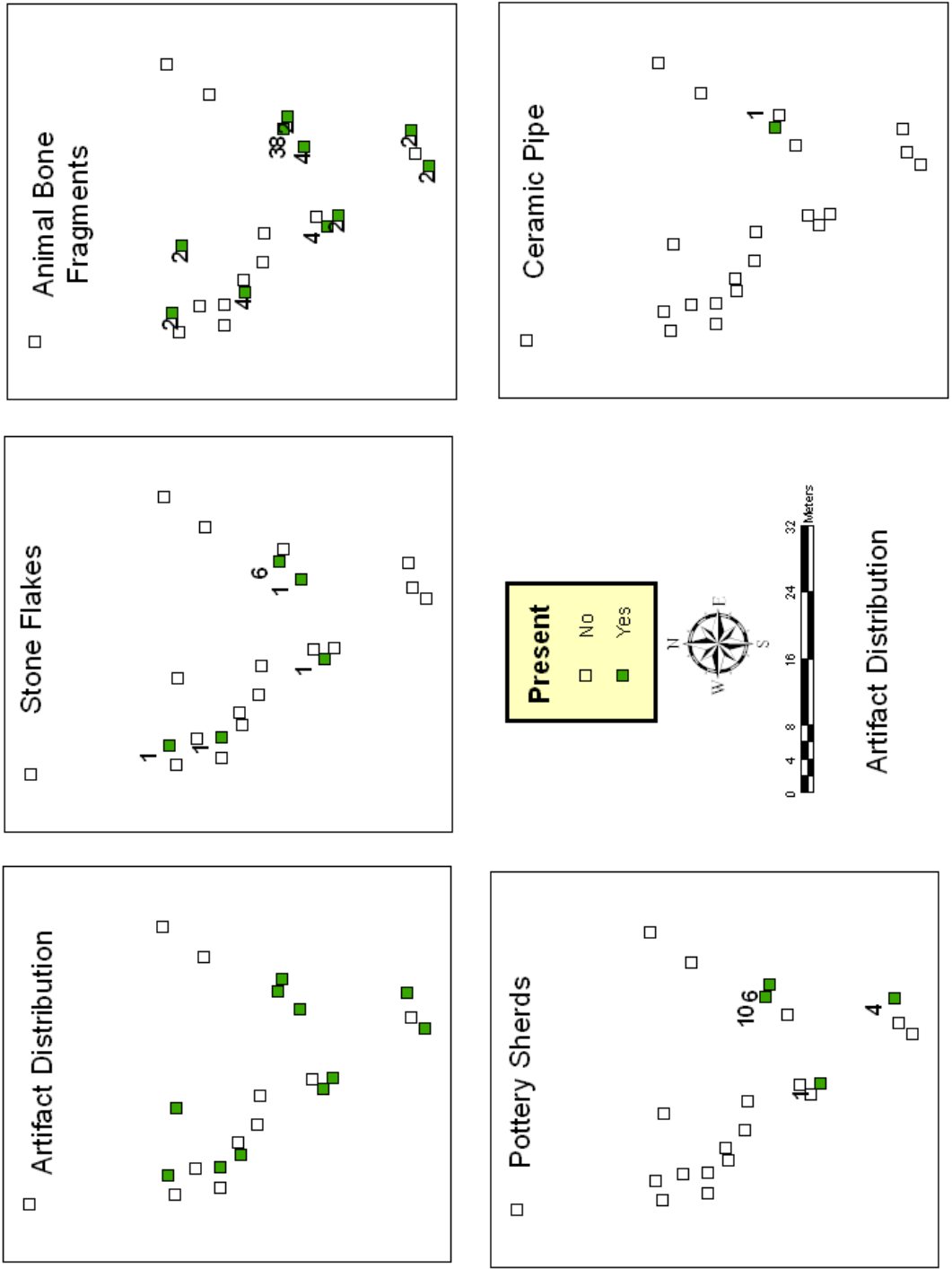


Map 2 . Enemy Swim Lake West. Section 32, Township 123N, Range 54 West.

Waybay NWR Proposed Bunkhouse



Map 3. Excavations.



Map 4. Artifact Distributions.

PHOTOS



Proposed bunkhouse location, view to the south.



Proposed bunkhouse location, view to the west.



Propose location view to the south, Shovel Test 1 in foreground, Shovel Test 2 next to pad, and Test Pits 3 and 4 just before woods and east of fire pit (brown wheel).



Main septic sewer, runs south from two red posts to red post in the center of the opening, view to the south. Shovel Test 5 in photo.



Unit 1 1x1 meter test excavation.



Photo Kaolin Pipe.