

**Research Questions: House Forms**

Housing represents one of the most basic human needs, but in terms of the homes built by the Wampanoag and their ancestors, they appear to be of low visibility (but high focus) in the archaeological record. Few sites in southern New England have yielded post holes and even fewer have yielded identifiable house forms created by the post holes identified. This is due in large part to the testing and excavation techniques employed on most CRM projects, where archaeologist test sites with scattered 1 x 1 or 2 x 2 m square pits and excavation units are often placed in areas with the highest artifact counts. Only when archaeologists start to open large areas such as at Wapanucket, Sandy's Point, or here at Ja-Mar, are complete identifiable house forms laid bare.

**Post Molds**

Post molds represent the tangible, if ever so slight, remains of the homes within which the Native inhabitants live in while occupying a site. They can be formed by a post having been withdrawn and the resulting hole being filled either intentionally or naturally with topsoil, a structure could have burned and the portion beneath ground was progressively charred until the fire was naturally extinguished, people may have abandoned posts in situ in an upright position and they simply rotted in place, or any of the above may have happened and post-occupation activities such as the impact on the post mold by roots and rodents burrowing into softer soil impacted the stain, resulting in an altered post mold shape.

Archaeologist identified possible post molds through careful troweling of the B1 subsoil following mechanical removal and shovel scraping of the plowzone. Disturbance by plowing, natural mottling of the subsoil by bioturbation and root activity, erosion, and dry conditions during excavation easily resulted in the recovery of a post mold that measured only 50% of its original length. Excavation included the recording of several attributes for the each of the possible post molds: depth below surface of first appearance, width, length, shape, color, artifacts, and orientation. Archaeologists bisected each potential post mold with a trowel to view profile, as every circular stain could not be assumed to be a post mold, and then photographed, drew, and measured each bisection. Moeller recorded a similar set of information during his excavations at the Faucett Site in Bushkill, Pennsylvania (Moeller 1992). He tried to use a scientific rationale versus a “connect the unnumbered dots” approach to identify potential house forms. His hypothesis was that wooden posts were differentially selected for particular function that they will serve and that all the posts used for single functions would be similar in attributes and more dissimilar to posts from another use (Moeller 1992: 25). He found that post molds ranged in width from 1.3 to 16.5 cm (.5 to 6.5 inches) with an average being 5.1 cm (2 inches). Moeller recorded the shape of the post molds either as hemispherical (shallow and bowl-shaped), blunt (shallow with a flat base), long and straight sided, tapering (with a conical shape), or slanted with colors being medium gray, dark gray, light brown, medium brown, dark brown and probably associated with moisture and organic content, type of wood used and manner post mold formed (Moeller 1992: 23).

Archaeologists identified and excavated 1601 post molds across the project area (Table 1) with

Table 1. Post mold characteristics

Location	Count	Diameter Range	Average Diameter	Depth Range	Average Depth
Lot 1H	13	5-25 cm	10 cm	20-35 cm	30 cm

<b>Lot 2H</b>	31	5-20 cm	9.25 cm	2-20 cm	10 cm
<b>Lot 4H</b>	172	3-18 cm	8.7 cm	2-30 cm	12.4 cm
<b>Lot 4S</b>	65	6-20 cm	11.2 cm	1-40 cm	11.8 cm
<b>Lot 5H</b>	322	2-30 cm	6.3 cm	1-40 cm	8.8 cm
<b>Lot 6H</b>	27	5-9 cm	5.8 cm	1-12 cm	3.7 cm
<b>Lot 6S</b>	32	5-15 cm	7.1 cm	2-20 cm	9.1 cm
<b>Lot 7H</b>	97	3-11 cm	7.1 cm	1-25 cm	7.7 cm
<b>Lot 7HN</b>	302	2-25 cm	7 cm	1-30 cm	8.8 cm
<b>Lot 7SN</b>	174	3-16 cm	6.7 cm	1-40 cm	8.6 cm
<b>Lot 8S</b>	24	3-15 cm	8.1 cm	2-20 cm	11 cm
<b>Lot 8H</b>	157	2-20 cm	7.7 cm	NA	NA
<b>Lot 8HN</b>	185	3-15 cm	6.7 cm	1-28 cm	8.1 cm
<b>Total</b>	<b>1601</b>	<b>2-30 cm</b>	<b>7.8 cm</b>	<b>1-40 cm</b>	<b>10.8 cm</b>

most being in Lot 5H and Lot 7HN (**Figure 1**). Appendix I has the raw data for the excavated post molds. Post molds ranged in size from two to 30 cm in diameter (average 7.8 cm [3 inches]) and extended from one to 40 cm (average 10.8 cm [4.25 inches]) below the top of the B1 horizon . Lot 6H yielded post molds with the smallest diameters while Lot 4S yielded the largest. Post molds were found to commonly be conical to tapered cone in shape with some being angled. Angling reflects the practice of inserting the post for the house into the ground at an angle and then bending them towards the center of the house, thus producing a bow-shape to each arch. This adds strength to the structure and helps to keep the posts from becoming dislodged. It does not seem that this technique was continually practiced as archaeologists found that Native people had inserted many into the ground in a straight up and down position. Post molds were missing in some house form arcs and were absent in Lot 1 House Form 2 and Lot 2 House Forms 4 and 5. The size and form of the proposed house form being hypothesized as a result of anomaly placement and distribution. Testing found these lots subjected to more intense historical activity than those to the south. This fact, combined with the relatively more dramatic slope present here led to poor preservation of post molds. Archaeologists believe that erosion and subsequent plowing erased these post molds.

## 2. Ethnohistoric Data

The first recorded European description of a Native house in southern New England came from Verrazanno in 1524. Sailing into Narragansett Bay, he stated that people covered the houses with mats that could be removed and transported to another place easily as needed (Parker 1968: 19). The Plymouth colonists, exploring on Cape Cod in 1620, came upon two houses located close together. They stated that

“The houses were made with long young sapling trees, bended at both ends stucke into the ground; they were made round, like unto an arbor, and covered downe to the ground with thicke and well wrought matts, and the doore was not over a yard high, made of a matt to open; the chimney was a wide open hole in the top, for which they had a matt to cover it close when they pleased; one might go upright in them, in the midst of them were four little trunches knockt in the ground, and small stickes laid over, on which they hung their pots, and what they had to seethe; round about the fire they lay on matts, which are their beds. The houses were double matted, for as they were matted without, so were

they within, with newer and fairer matts.” (Parker 1968: 19).

Other European explorers echoed the Plymouth colonists' descriptions, such as William Wood who in 1634 added that in winter they make some fifty or threescore feet long (Wood 1977: 112-113). Thomas Morton, who lived closer to the Native people of present day Quincy, Ma, than any other European before Roger Williams, noted that

“they gather poles in the woods and put the great end of them in the ground, placing them in forme of a circle or circumference, and, bendinge the topps of them in the forme of an Arch, they bind them together with the barke of Walnut trees, which is wonderous tuffe, so that they make the same round on the Topp for the smooke of their fire to assend and passe through; these they cover with matts, some made of reeds and some of long flagges, or sedge, finely sowed together with needles made of the splinter bones of a Cranes Legge, with threeds made of their Indian Hempe, which grouthe naturally, leaving severall places for dores, which are covered with mats, which may be rowled up and let downe again at their pleasures, making use of the severall dores, according as the winde sitts.” (Morton 1972: 135-135).

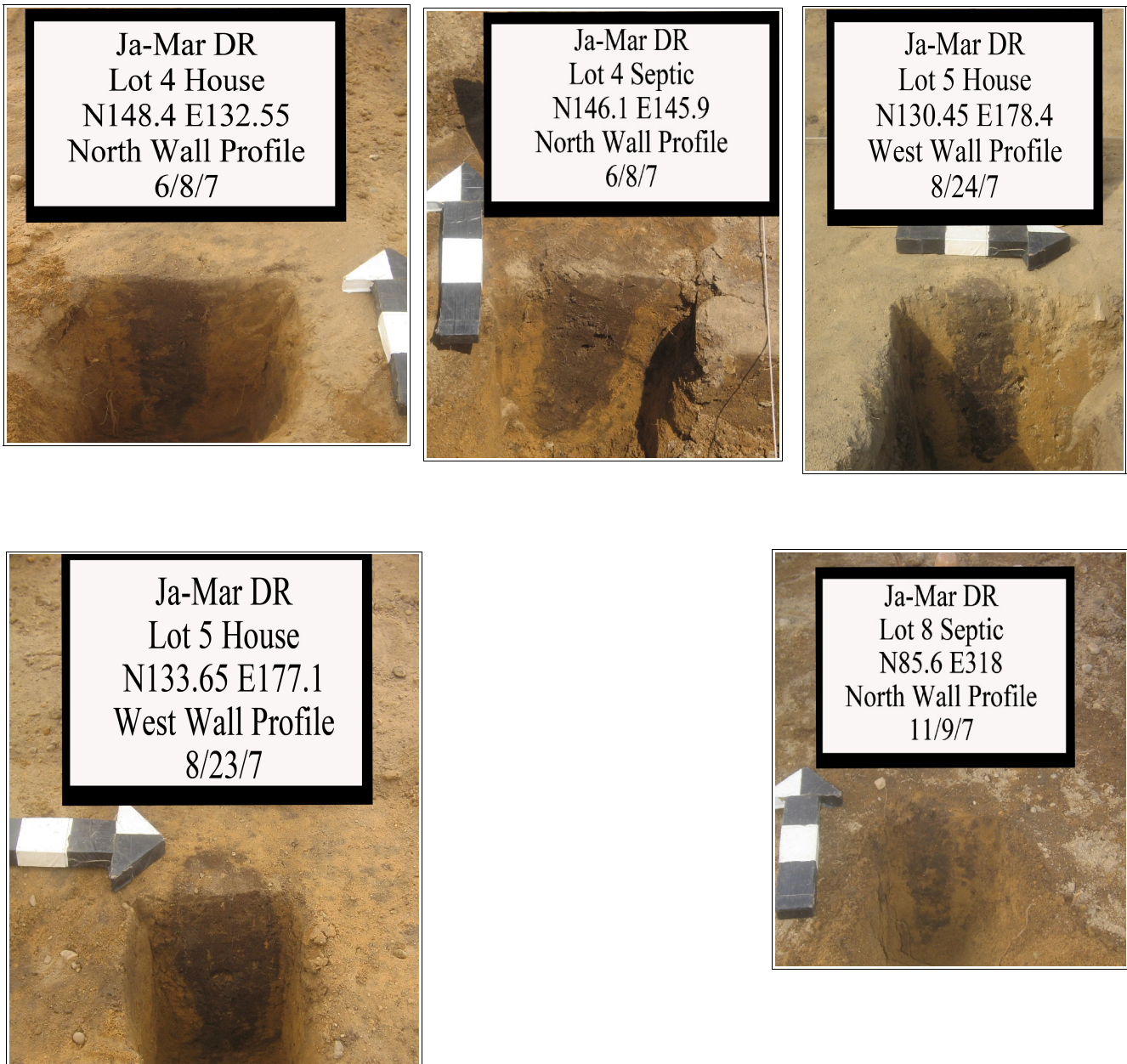


Figure 1. Representative post mold examples



Roger Williams stated that there was a definite division of labor to house construction where men gathered the poles and the women covered them with mats (Williams 1971: 60, 75). Later in the century, it appears that Native people continued to make houses in the same manner as Verrazanno observed in the 1520s. Daniel Gookin in 1675 stated that people made the house frames from poles set in the ground, bent and tied with tree bark and that

“The best sort of their houses are covered very neatly, tight, and warm, with barks of trees, slipped from their bodies, at such seasons when the sap is up; and made into great flakes with pressures of weighty timber, when they are green; and so becoming dry, they will retain a form suitable for the use they prepare them for. The meaner sort of wigwams are covered with mats, they make of a kind of bulrush, which are also indifferent tight and warm, but not so good as the former” (Gookin 1972: 9-10).

The poles of the house were likely made of strong but flexible saplings such as Gladys Tantaquidgeon reported. She stated that people used long young maple (*Acer saccharinum*), pignut hickory (*Carya glabra*), and red cedar (*Juniperus virginiana*) (Tantaquidgeon 1977: 80). Native people placed the poles in the ground so that they slanted slightly outward and they spaced them about two feet apart, presumably closer together if they were smaller saplings. The lashings mentioned in the historical record were probably the bark of walnut, pignut hickory, red cedar, tulip polar, basswood, or cordage made from dogbane, or spruce root, or grapevine. The roofs of the houses could be covered with mats made from cattail reeds on the outside with finer mats made from sedge, flags, reeds, bullrush, beach grass, corn husks and stalks on the interior. An alternate roofing material was bark that people peeled in the spring to early summer. English forces attacking the Natives in the Pocasset swamps during King Philip's War encountered bark covered houses. In July 1675, they found people living in about 100 houses that were newly made of green bark, so as they would not burn (Hubbard 1803: 85)

### 3. Archaeological Evidence of House Forms

Archaeologists have identified few architectural remains in southeastern Massachusetts and even fewer have been the result of controlled professional excavations. Members of the Massachusetts Archaeological Society reported numerous post molds in the 1950s from the Wapanucket site on the shores of Assawompsett Pond in Middleborough (Robbins 1981). Robbins interpreted these post molds as predominantly the remains of unique “snail-shaped” houses, a form that has been only identified at sites interpreted by Robbins. Avocational archaeologists excavated the site and unfortunately the report and the collection in general suffer from many deficiencies in data collection, recording, curation and interpretation. Apparently people did not save debitage and artifacts that they recovered were kept by the excavators themselves, a practice that effectively scattered the collection to numerous unknown locales. It also appears that once the “snail-shaped” form was “identified” by Robbins, subsequent excavations focused on inductively locating these structures, effectively ignoring and subsequently not recording post molds that did not “fit into” that form. Because much of the excavator's findings can not presently be reviewed and verified, this site unfortunately has limited archaeological value.

Stockley excavated at the Car Tracks Site (a.k.a. The Agawam Site) in Wareham, Massachusetts in the 1950s. Stockley, over the course of two days excavation, uncovered one stone lined hearth and 26 features that he identified as refuse and fire pits. He encountered the stone-lined hearth six inches below the ground surface and three inches above the topsoil/ B1 horizon junction. It had been slightly disturbed by previous "relic hunters" as he identifies them, but estimated the original site at 21 x 45" (**Figure 2**). Charcoal, flakes, shell and bone, as well as seven shards of Native pottery were found

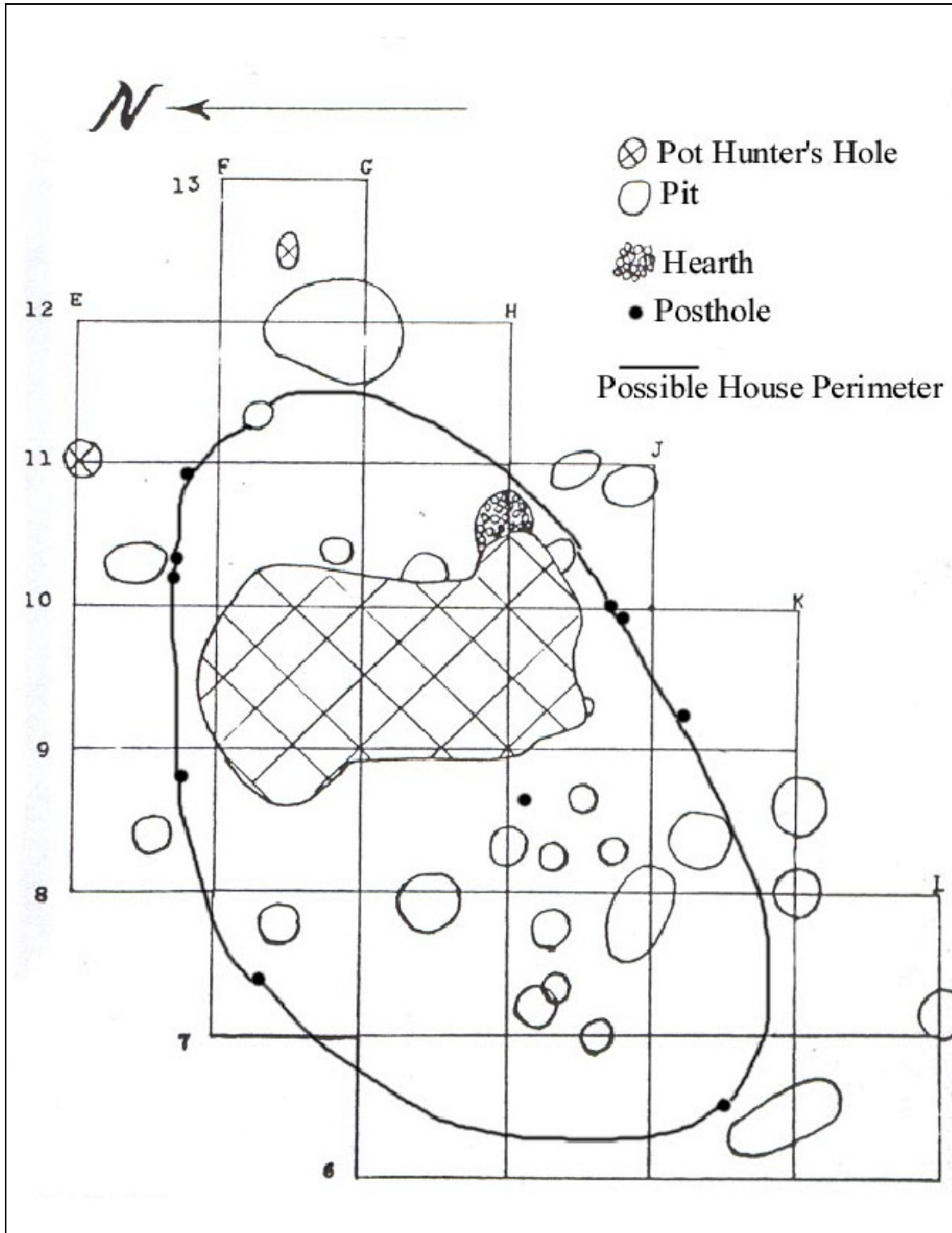


Figure 2. Bernard Stockley's findings from the Car-Tracks site

within this hearth. The "fire and refuse pits" contained some faunal remains, consisting mostly of deer with some beaver or muskrat and other small mammals, turtle and birds. The deer elements that Stockley identified consisted of antlers and jaw bones. Stockley found thick layers of fish bones and scales in several of the pits. He found Native pottery fragments in seven of the pits while stone artifacts were found in six of them. Most of these pits were small and round, but several appeared larger and oval in shape. These ranged in size from 11 to 69" (28-175 cm) in diameter and in depth from six to 38" (15-96.5 cm). Eleven post molds were also identified which to outline a roughly oval-shaped structure measuring approximately 27 feet northwest to southeast by 17 feet northeast to southwest (8.2 x 5.1 m) (Stockley 1962).

Excavations at the Sandy's Point site in Yarmouth, Massachusetts yielded the structural remains of two overlapping oval-shaped house forms associated with an intact cornfield (Mrozowski 1994) (**Figure 3**). The house forms at this site measured six by seven meters and oriented north to south and southeast to northwest. The interior surface area of the houses would have been 33 square meters. Post molds varied in size from 10 to 15 cm in diameter and extended up to 20 cm below the ground surface. Spacing between the post molds was about one meter on average. Archaeologists located several larger post molds, measuring 30 cm in diameter and up to 70 cm below the ground surface, within the house form and they interpreted these to possibly be supports for bed platforms.

Looking slightly farther afield, archaeological investigations at the Miller Field Site in New Jersey, yielded three clearly defined house forms that dated to the Late Woodland Period (Kraft 1975: 74). Archaeologists interpreted the longest of these as a longhouse that measured 60 x 22 feet (18.3 x 6.7 meters), being defined by a total of 220 post molds with an interior living area of 96.3 square meters. Post molds ranged in size from two and one half to three inches in diameter (6.3 to 7.6 cm), extended six to 14 inches (15-33 cm) into the subsoil, set six to 12 inches (15-30 cm) apart (Kraft 1975: 74). Inhabitants entered this building through a single door way on one of the long sides and had partitioned the interior into four sections by three walls that connected with one of the long side exterior walls. The partitioning walls extended to within four feet (1.2 m) of the opposite wall. Features located within the house consisted of deep-sided storage pits in the partitioned rooms at each end of the longhouse with additional storage pits located outside but close to the house. People located their hearths in shallow basins inside the house with other hearths being located outside as well (Kraft 1975:74). Archaeologists identified the second house form as a round house measuring 22 feet (6.7 m) in diameter that was subsequently enlarged to a longhouse measuring 32 feet (9.8 m) long by 22 feet (6.7 m) wide (Kraft 1975: 74). originally the interior floor space would have been 35.3 square meters, which inhabitants had expanded to 51.6 square meters. The third house form was only partially recovered. It consisted of a 20 foot (6.1 m) wide round ended house that was at least 28 feet (8.5 m) long. Excavations carried out at Tocks Island, also in New Jersey, identified five house forms (Kraft 1975: 75). House form 1 pattern was a single row of closely spaced post molds that were two and one half to three inches in diameter (6.3 to 7.6 cm), delineating a rectangular floor plan measuring 32 x 15 feet (9.7 x 4.6 m) and having an interior floor area of 35 square meters (Kraft 1975: 75). The doorway was on the long side of the house facing away from the prevailing winds. Archaeologists interpreted an irregular line of post molds located three feet in from the outer edge of the house as bed platforms and another row of posts aligned down the center of the southeastern half of the house were either roof supports or room partitions. They found three deep storage pits, ranging in size from 38 to 50 inches (96-127 cm) in diameter and from 48 to 51 inches (122 to 129.5 cm) in depth, and three shallow bowl-



\ Figure 3. Mrozowski's findings from the Sandy's Point site, Yarmouth, Ma

shaped basins within the house (Kraft 1975: 75). They also found a shallow depression that was heavily stained with charcoal and ash in the center of the house, apparently being a single hearth used by all occupants. Archaeologists found three additional storage pits outside of the house.

The pattern of house form 2 was a small oval structure measuring 18 feet long by 14 feet wide (5.4 x 4.3 m) with post measuring two and one half to three inches in diameter (6.3 to 7.6 cm) (Kraft 1975: 75). One storage pit measuring 45 inches (114.3 cm) in diameter and 33 inches (83.8 cm) in depth was inside on the western side of the doorway while a small area of fire-reddened soil, possibly predating the erection of the house, was against the inner wall (Kraft 1975:78). Post molds associated with possible sleeping platforms were two and one half to three feet (76 cm to 91 cm) away from the wall. The total living area within the dwelling was 18.2 square meters, which archaeologists interpreted as accommodating a single family.

House form 3 was the largest of the houses identified measuring 45 x 17 feet (13.7 x 5.1 m), being round ended and having 54.9 square meters of interior space. A doorway was on the long side, being located by a four-foot (1.2 m) gap between post molds with possible sleeping platform posts along the east end about four feet (1.2 m) from the rear wall. Archaeologists identified a possible room divider by a series of irregularly aligned posts that transversed the center of the house six to seven feet (1.8-2.1 m) from the rear wall. Five shallow basins, one deep storage pit, and 15 medium-sized pits were within this house form (Kraft 1975: 78).

House form 4 was the least symmetrical of the houses, being somewhat pear-shaped. Archaeologists interpreted it as a single family house measuring 15 x 12 feet (4.6 x 3.6 m) having 13 square meters of interior living space. One large, bowl-shaped storage pit measuring 58" (147 cm) in diameter and being 42" (107 cm) deep was present within the house (Kraft 1975: 80). Plowing and erosion had eliminated many of the post molds on one side of House Form 5 but enough remained for the size of the house to be estimated as 28 feet (8.5 m) long by 13 feet (4 m) wide with several fire pits inside (Kraft 1975: 82).

The work at Tocks Island highlights several important research issues regarding Native homes in the Eastern Woodlands. These include:

- Were prehistoric Indian houses clustered or dispersed?
- Did they shelter small nuclear families or extended families?
- Were they occupied year round or only seasonally?
- Did the shape of the houses change over time like in New York?

New Jersey houses appear similar to Iroquois houses, being round ended with the size of the post molds and their spacing of 6-10" (15-25 cm) apart. The position of the hearths appears dissimilar between the two though, with hearths located in small basin-shaped depressions on one side of the house rather than down the center as occurs on Iroquois sites (Kraft 1975: 82). Another difference is that the doorways in the Iroquois houses were at the ends of the houses with a walkway down the center with living quarters on either side. Inhabitants positioned hearths at intervals down the center with families on either side sharing one hearth (Kraft 1975:84).

#### 4. Occupancy and Family Size

There is very little direct information regarding the number of people who would live in one Wampanoag house, but the present study assumes that people created a house whose size related to the number of people it was expected to house. Verrazano (1524) recorded that “The father and the whole family dwell together in one house in great numbers; in some we saw 25 or 30 persons.” (Parker 1968: 19). These people were living in a house that Verrazano recorded were of circular form 10-12 paces (50-60' at a pace being 5') in circumference. A house with a 50-foot perimeter would measure about five meters long by four and one half meters wide with an interior floor area of 14.9 meters, while a house with a 60 foot perimeter would measure approximately six meters long by five meters wide with a floor area of 17.3 square meters with .7 square meter per inhabitant if in fact 25 people lived in such a house. Verrazano's account appears to make the houses very cramped, possibly a result of Verrazano stating that 25-30 people could fit in a house, but not being specific that they all dwelt in that house. Roger Williams recorded that “Two families will live comfortably and lovingly in a little round house of some 14 or 16 foot over, and so more and more families in proportion.” (Williams 1971: 61). It is unknown what Williams meant by “some 14 or 16 foot over”, whether he literally meant “over”, as in over the top of the house, making 14 or 16 foot being the hemispherical measurement, or whether he meant over in the sense of the diameter of the house, giving a diameter of 4.2 to 4.9 meters with a floor area of 16.2 square meters. The later seems more likely, as 14-16 feet is excessively high for a Native house. A house with a diameter of about 4.9 meters would measure the same as Verrazano's measure of 50 paces in perimeter or five by four and one half meters with a floor area of 17.7 square meters.

Multi-family houses seem to have been more common in the winter “In winter they make some fifty or threescore foot long, forty or fifty men being inmates under one roof.” (Wood 1977: 113). A 50 foot (15 meters) long house that was 20 feet (6 m) wide would have an internal floor area of 70.7 square meters giving 1.4 square meters to each inhabitant. Gookin confirmed the presence of these “longhouses”

“In greater houses they make two, three, or four fires, at a distance one from another, for better accommodation of the people belonging to it of several sizes, according to their activity and ability; some twenty, some forty feet long, and broad. Some I have seen of sixty or a hundred feet long, and thirty feet broad” (Gookin 1972: 10).

Other references to longhouses include one belonging to the Massachuseuk that seated 200 people who had come in 1647 to hear John Eliot preach (Winthrop 1946: 319) while Roger Williams states that at harvest time the “set up a longhouse called a Qunnekamuck. Which signifies long house...where many thousands, men and women meet.” (Williams 1971: 163). Mary Rowlandson observed one of these ceremonial longhouses during her captivity, stating that it was large enough to hold a hundred Natives, the house having been built in preparation to a great day of dancing (Slotkin and Folsom 1978: 354-355). Longer houses could also be occupied by sachems or their children “A Princes house, which according to their condition, is farre different from the other house, both in capacity and receipt, and also in the finesse and quality of their mats.” (Williams 1971: 163).

The Reverend Ezra Stiles visited a Native community in Niantic, Connecticut in 1761 and recorded details of the material culture of the inhabitants, including a drawing of the house of Phebe and Eliza Mohege (Stiles 1761) (**Figures 139 and 140**). His notes record that most of the houses were ten feet



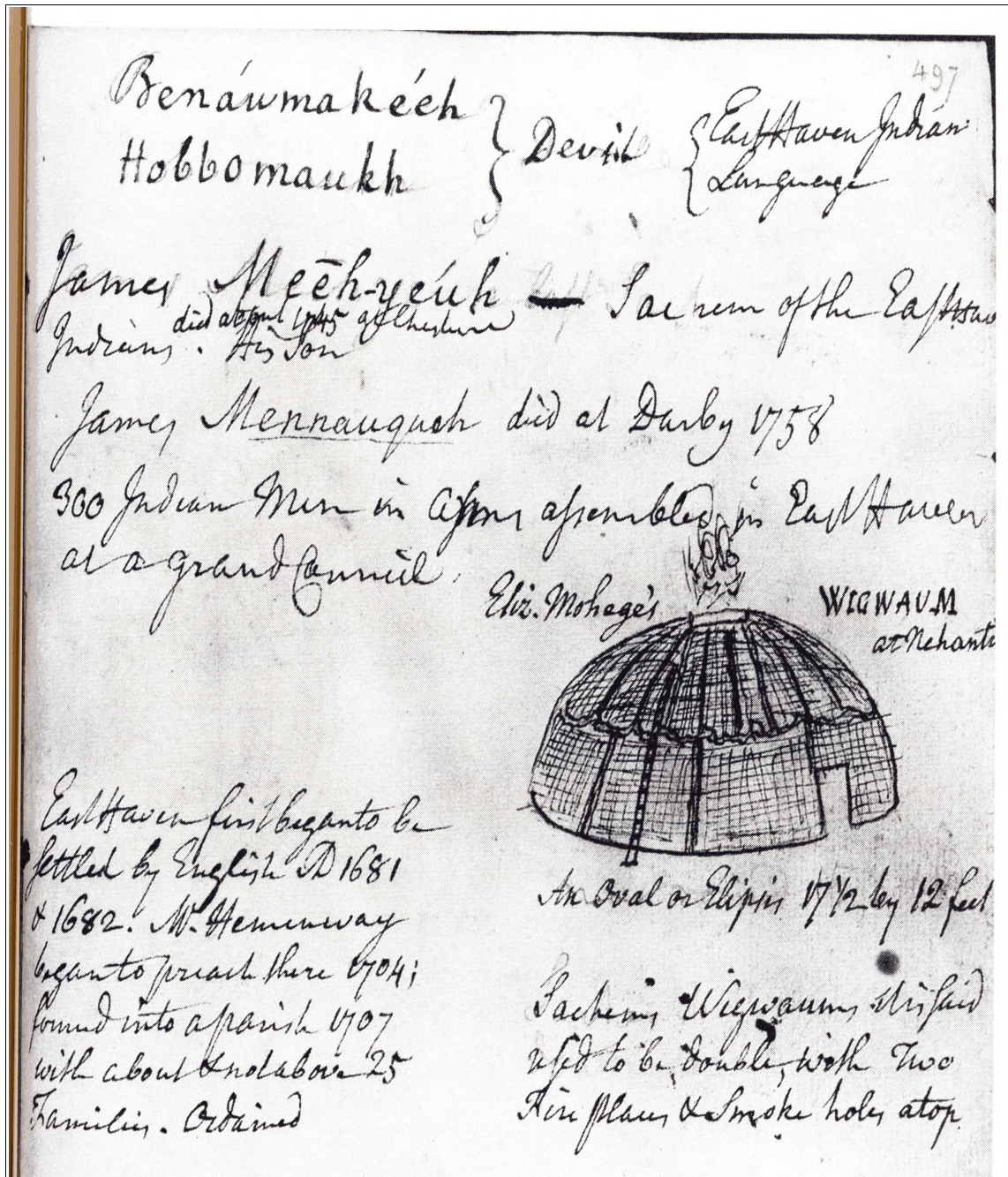


Figure 4. Stiles recording of the house of Niantic home of Phebe and Eliza Mohege



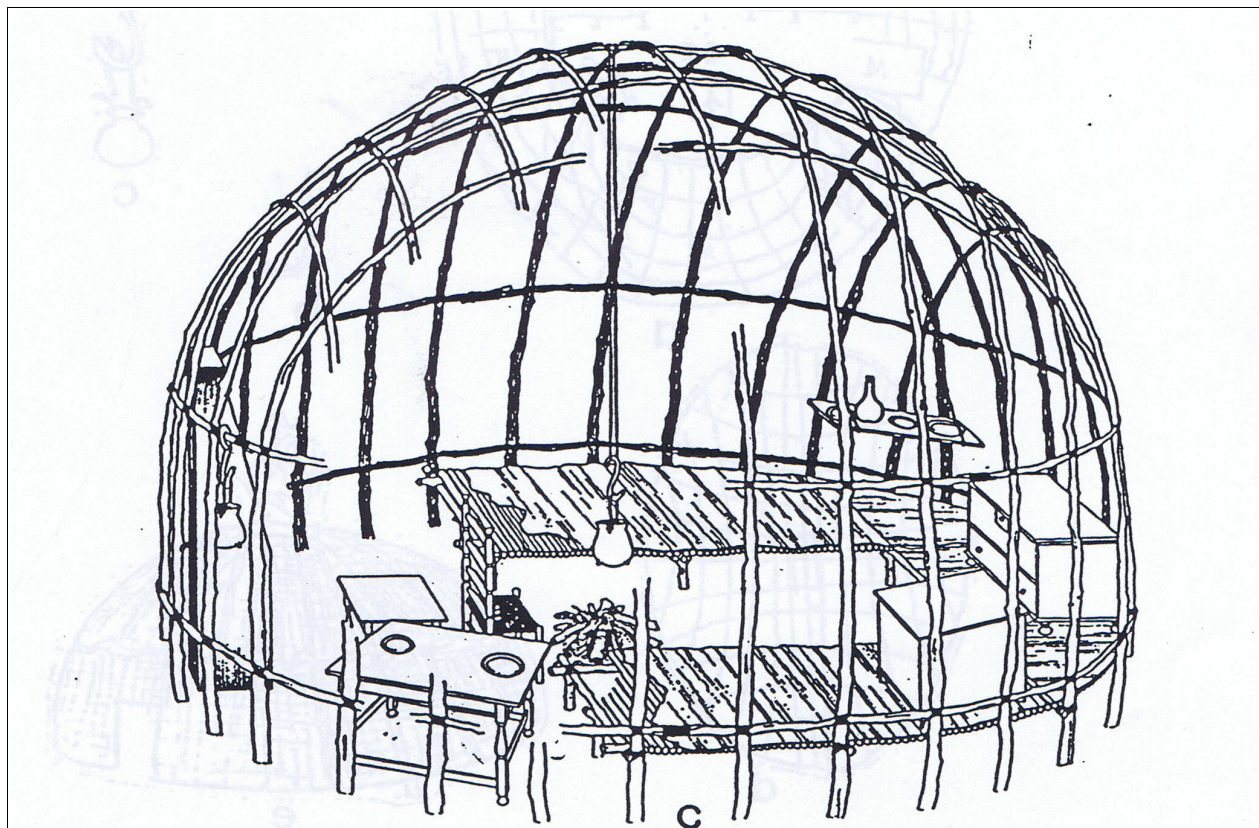


Figure 5. Drawing based on Stiles' 1761 recording of Niantic houses

five inches high and were ovals measuring 17.5 by 12 feet (5.3 x 3.7 meters) on average within which 12 persons (five men and eight women) stayed on October 28, 1761 (Stiles 1761). A house this size would have an interior floor area of 14.36 square meters with 1.2 square meters afforded each person. He noted that sachem's houses were double that size with two fireplaces (Stiles 1761).

The basic assumption when study floor area is that people create a floor area that is appropriate size for specific activities and for the number of people who will use that area (Cameron 1999: 201). Archaeologists interpret smaller houses, with between 14.2 and 19.3 square meters of floor space as one economic unit consisting of a nuclear family while larger houses, those with floor spaces between 38.2 and 61.7 square meters, representing homes of two to three family units (Kraft 1975:84). As a corollary, archaeologists assume that very small spaces were for only a limited number of activities. Because the size of the architectural space (floor area) is a variable that is readily preserved in the archaeological record and that is easy to measure, archaeologist used it to study a number of different research topics relating to prehistoric households (Cameron 1999: 201). These include population calculation, investigating the function of prehistoric architectural space, as an indicator of changes in social organization over time, as a measure of social status, and as an ethnic group marker (Cameron 1999: 201). It has also been observed in cross-cultural studies that cultures that practiced matrilineal residency had houses with a floor area that ranges from 80 to 270 square meters while those that practice patrilineal residency have floor areas measuring under 43 square meters (44 to 79 square meters is an intermediate zone that could go either way) (Cameron 1999: 217).

As a way of studying prehistoric population numbers, Naroll (1962) presented an average of 10 square meters as the average amount of average amount of area needed per person in a household. This number, termed the "Naroll Constant" has been subsequently revised and debated with other per person number ranging from one to six square meters per person (Cameron 1999: 210). The use a square meter per person number is that if you have calculated a floor area for an excavated house form, by applying a number like Naroll's Constant allows you to estimate the number of people who lived in that house form. This household occupancy estimate can then be used to examine community size, refuse disposal, and subsistence practices.

It was found for this study that the Naroll Constant and the other previously reported estimates, were relatively too high for the ethnohistorically recorded occupancy of Native Homes in New England. Table 2 shows the estimated house sizes, floor area, and estimated space per person for the ethnohistorically recorded New England Natives homes.

Table 2. Estimated house sizes, floor area, and estimated space per person for the ethnohistorically recorded New England Natives homes

Observer	House Size	Floor Area	Recorded Occupancy	Area per Individual
Verrazano	5 x 4.5 m*	17.7	25-30	.7
Williams	4.2 x 4.9*	16.2	2 families (14 people?)	1.2
Gookin	15 x 6*	70.7	40-50	1.4-1.8
Stiles	5.2 x 3.7	15.4	12	1.3

\* estimated house size

Verrazano's area per person seems very low, possibly representing a mixture of Verrazano's observations, one observation for average house size and another unrelated one for the number of people he once observed in a house of unknown size. Gookin and Stiles appear the best references for estimating area per person with the range being 1.3, 1.4 and 1.8 with the average being 1.5 square meters per person. When looking at what we assume is the typical interior arrangement of a Native home, as presented by Stiles in 1761 and re-imagined by Snow 1980 (**Figure 5**), half of the interior area is sitting and sleeping platforms. The remainder of the space is the hearth and its associated work area, and possible storage space opposite the platforms. By combing the ethnohistorical record, the archaeological record and personal experience in reconstructed Native houses, the author has chosen 3 square meters to represent the amount of area estimated that each person had in the typical Native house. This number, while still somewhat arbitrary, is conservative and is based on real ethnohistorical data from the New England area. It was the number chosen to use when estimating house occupancy at the Ja-Mar site.

Archaeologists identified 68 potential house forms of four types: small round houses, round houses, long houses and narrow long houses. At the Ja-Mar farm project area. Lots 1 and 2 contained only round houses, Lot 4H contained longhouses and round house, L4S contained long and narrow longhouses, L5H contained longhouses, L6H a longhouse and a small round house, L6H contained one narrow longhouse, L7 contained both round and longhouses, and L8 contained round and longhouses (Table 3).

Table 3. House form data derived from the Ja-Mar data recovery excavations

\*Measurement in meters      \*\*Area in in square meters      \*\*\* Based on 3 square meters per person

Lot/ House	Length*	Width*	Area**	Angle	Persons***	Width:Length	House Shape
1/1	8.5	6.5	43.4	120°	14.5	1:1.3	Round
1/2	7.5	5.25	30.9	130°	10.3	1:1.4	Round
2/1	6.25	4.25	20.9	110°	7	1:1.5	Round
2/2	6	4.5	21.2	40°	7.1	1:1.3	Round
2/3	5.5	4	17.3	140°	5.7	1:1.7	Round
2/4	4.5	3	10.6	62°	3.5	1:1.5	Small Round
2/5	5	3.75	14.7	10°	4.9	1:1.4	Round
4/1	10	8	62.8	114°	20.9	1:1.25	Round
4/2	20	9	141.4	150°	47.1	1:2.2	Long
4/3	10	8	62.8	10°	20.9	1:1.25	Round
4/4	8	6	37.7	84°	12.6	1:1.2	Round
4/5	10	8	62.8	54°	20.9	1:1.25	Long
4/6	8	6	37.7	84°	12.6	1:1.2	Round
4/7	12	2.5	23.6	84°	7.9	1:4.8	Narrow Long
4/8	8	2.75	17.3	104°	5.7	1:2.9	Narrow Long
4/9	8	2.5	15.7	40°	5.2	1:3.2	Narrow Long
5/1	18	4.5	63.6	78°	21.2	1:4	Long

Table 3. (Cont.)

Lot/ House	Length*	Width*	Area**	Angle	Persons***	Width:Length	House Shape
5/2	18	4.5	63.6	110°	21.2	1:4	Long
5/3	18	4	56.5	94°	18.8	1:4.5	Long
5/4	8	4.25	26.7	50°	8.9	1:1.9	Long
5/5	18	4	56.4	110°	18.8	1:4.5	Long
5/6	6	4.25	20	36°	6.6	1:1.4	Round
5/7	?	4		36°	?	?	Long
5/8	12	4	37.7	130°	12.6	1:3	Long
5/9	?	4.25		40°	?	?	Long?
6/1	8	2.5	15.7	24°	5.2	1:3.2	Narrow Long
6/2	7	2.5	13.7	20°	4.6	1:2.8	Narrow Long
6/3	3	3	4.4	20°	2.4	1:1	Small Round
7/1	5	5	19.6	30°	6.5	1:1	Round
7/2	5	5	19.6	30°	6.5	1:1	Round
7/3	6	4	18.9	74°	6.3	1:1.5	Round
7/4	7	5	27.5	70°	9.2	1:1.4	Round
7/5	7.5	4.5	26.5	132°	8.8	1:1.7	Round
7/6	5.5	4	17.3	42°	5.7	1:3.8	Round
7/7	6.25	5	24.5	20°	8.2	1:1.25	Round
7/8	7	5	27.5	12°	9.2	1:1.4	Round
7/9	?	2.25		54°	?	?	Round
7/10	7	5	27.5	134°	9.2	1:1.4	Round
7/11	7	5	27.5	14°	9.2	1:1.4	Long
7/12	6	4	18.9	152°	6.3	1:1.5	Round
7/13	5	4	15.7	54°	5.2	1:1.25	Round
7/14	7	5	27.5	0°	9.2	1:1.4	Round
7/15	7	6	33	110°	11	1:1.2	Round
7/16	6	5	23.6	124°	7.9	1:1.2	Round
7/17	5	4	15.7	164°	5.2	1:1.25	Round
7/18	3.75	3	8.8	124°	2.9	1:1.25	Small Round
7/19	7	5	27.5	150°	9.2	1:1.4	Round
7/20	9	6	42.4	56°	14.1	1:1.5	Round
7/21	19	8	119.4	100°	39.8	1:2.4	Long
7/22	16	7	88	110°	29.3	1:2.3	Long
7/23	5	5	19.6	164°	6.5	1:1	Round

Table 3 (Cont.)

Lot/ House	Length*	Width*	Area**	Angle	Persons***	Width:Length
8/1	13	5	51.1	30°	17	1:2.6
8/2	13	5	51.1	40°	17	1:2.6
8/3	4	3	9.4	100°	3.1	1:1.3
8/4	6	4	18.9	62°	6.3	1:1.5
8/5	6	4	18.9	30°	6.3	1:1.5
8/6	6	4	18.9	30°	6.3	1:1.5
8/7	14.5	6	68.3	100°	22.8	1:2.4
8/8	12	6	56.5	120°	18.8	1:2
8/9	6	5	23.6	104°	7.9	1:1.2
8/10	13.5	5	53	150°	17.7	1:2.7
8/11	6	5	23.6	56°	7.9	1:1.2
8/12	6	4	18.9	32°	6.3	1:1.5
8/13	19	5.5	82.1	97°	27.4	1:3.5
8/14	11	5.5	47.5	78°	15.8	1:2
8/15	14	6	66	108°	22	1:2.3
8/16	14	7	77	36°	25.7	1:2
8/17	14	6.5	71.5	36°	23.8	1:2.2

**Lot 1 (Figure 6)**

House Form 1, located in the western quarter of the impact area, included 12 post molds that outlined a house that estimated to have measured about 7.5 x 5.5 m (24.6 x 18 feet). The builders oriented the house northwest to southeast with posts spaced at about one to one and one half meters apart. The post molds were all identified beneath shallow basins that may represent holes dug to set the posts deeply in the ground, holes dug around erected posts to facilitate the removal of deeply set posts, or possibly post occupation colonization of the post mold location by floral agents such as shrubs or bushes. This last scenario could have resulted in the creation of a basin shaped root stain over the post location as the colonizer extracted nutrients from the decomposing post location. Excavation identified three anomalies within this house form: two medium size medium depth pits and one large size shallow basin. The pits and basin were probably contemporaneous and were probably filled during the actual house occupation. One of the medium size pits (N315.1 E170.6) contained debitage, Late Woodland pottery with incised decoration and carbonized maize kernels and cob fragments, while the other pit contained only debitage. The shallow basin within the house contained debitage. Two artifact concentrations, Concentrations 1 and 2, were within the house form, the former near the center of the house and associated with the anomalies located there, and the second located parallel to the south wall of the house, possibly representing refuse discarded along the interior house wall. Only one piece of fire-cracked rock was found within the house and it does not appear that a fire was inside the house. One additional concentration (Concentration 3) was to the immediate east of House Form 1 and may represent a refuse disposal area associated with this house. Tools found within and around this house



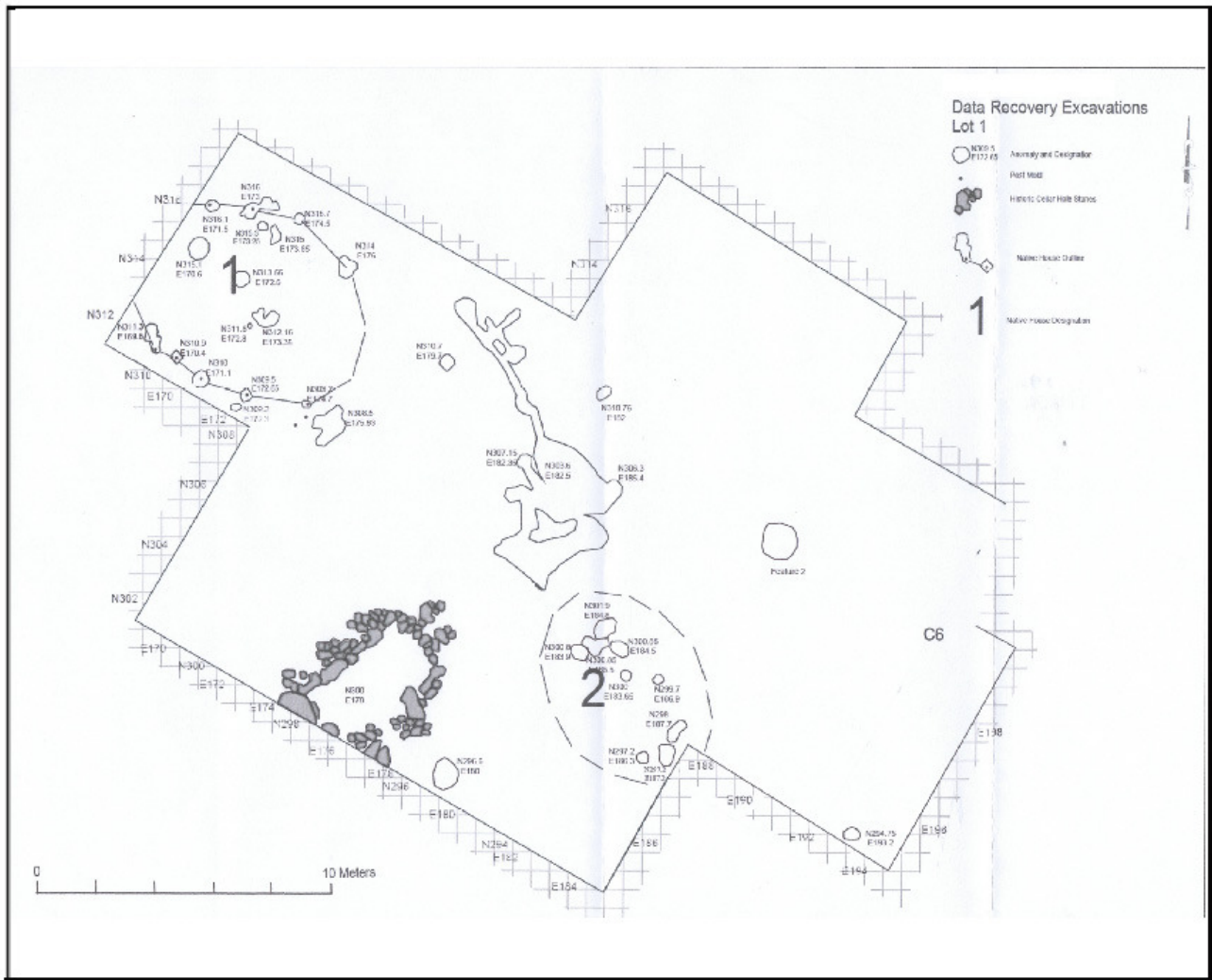


Figure 6. Lot 1 House forms



included five bifaces, two point tip and midsections, two possible Rossvilles or Small Stemmed points, one Brewerton point, one Levanna, one uniface, and one flake scraper.

House Form 2 was of an unknown size and archaeologists identified it based on the concentration of anomalies in the N297 to N302 and E184 to E188 area, located about 11 meters to the southeast of House Form 1. It is estimated to have been at least 6 x 4 meters (19.7 x 13 feet) in size (an oval that would encompass all anomalies in this area) and contained nine anomalies: six medium size and two large size shallow basins and one medium size medium depth pit. Stripping and scraping failed to identify any associated post molds and this may have been a result of deeper plowing and more intense historic occupation in this portion of the impact area. The shallow basins contained debitage, Late Woodland shell-tempered pottery with incised decoration, and calcined bone. The medium-sized pit (N301.9 E184.8) contained debitage and Late Woodland shell-tempered pottery with incised decoration and debitage. Tools associated with this possible house form include three Levanna points, one pestle fragment and two bifaces.

### **Lot 2 House (Figure 7)**

Stripping and scraping identified three overlapping house forms in the southeastern corner of the impact area. Archaeologists estimated the largest of these to measure over five meters long and over two meter wide with posts spaced about one meter apart. They also identified two other house forms as arcs within the first form that continued outside of the impact area to the east and south. The post for these house forms were also about one meter apart. A fourth conjectured house form was to the north of anomaly N269.5 E215.4 and separated from the house forms in the southeast corner by this anomaly. While excavation failed to identify any post molds associated with this house form, based on the concentration of anomalies, it can be estimated to measure at least five meters north to south by four meters east to west. If the three anomalies in the western half of the house impact area are also associated with a house, this one may have measured at least the same as House Form 4, five by four meters. This possible house form is about 11 meters away from the house forms in the southeast corner of the impact area, a spacing that was the same as identified in Lot 1. A large concentration of artifacts (Concentration 7) was found around these house forms and the anomalies. This concentration probably represents several overlapping concentrations associated with the occupation in this area. A second smaller concentration (Concentration 8) was found to the west of the main concentration of anomalies and artifacts. This concentration was found to represent a range of activities probably created by a larger number of people over an extended period.

Excavation identified three larger post molds near the center of the Lot 2 House impact area. Each of these posts were between one and one and one half meters apart from each other spaced in a triangular arrangement between one and one and one-half meters apart in the Lot 2H impact area. Archaeologists found the post molds in a relatively clear portion of the impact area, possibly between two households. We believe that they represent a three-post watch tower erected in a field to keep birds away. Watch houses were often erected in the fields where women or older children would sit and scare away the birds, especially blackbirds which could flatten a field and make it look like “cattle had lain there” (Williams 1971: 114). The structure may have looked similar to Iroquoian examples (**Figure 8**).

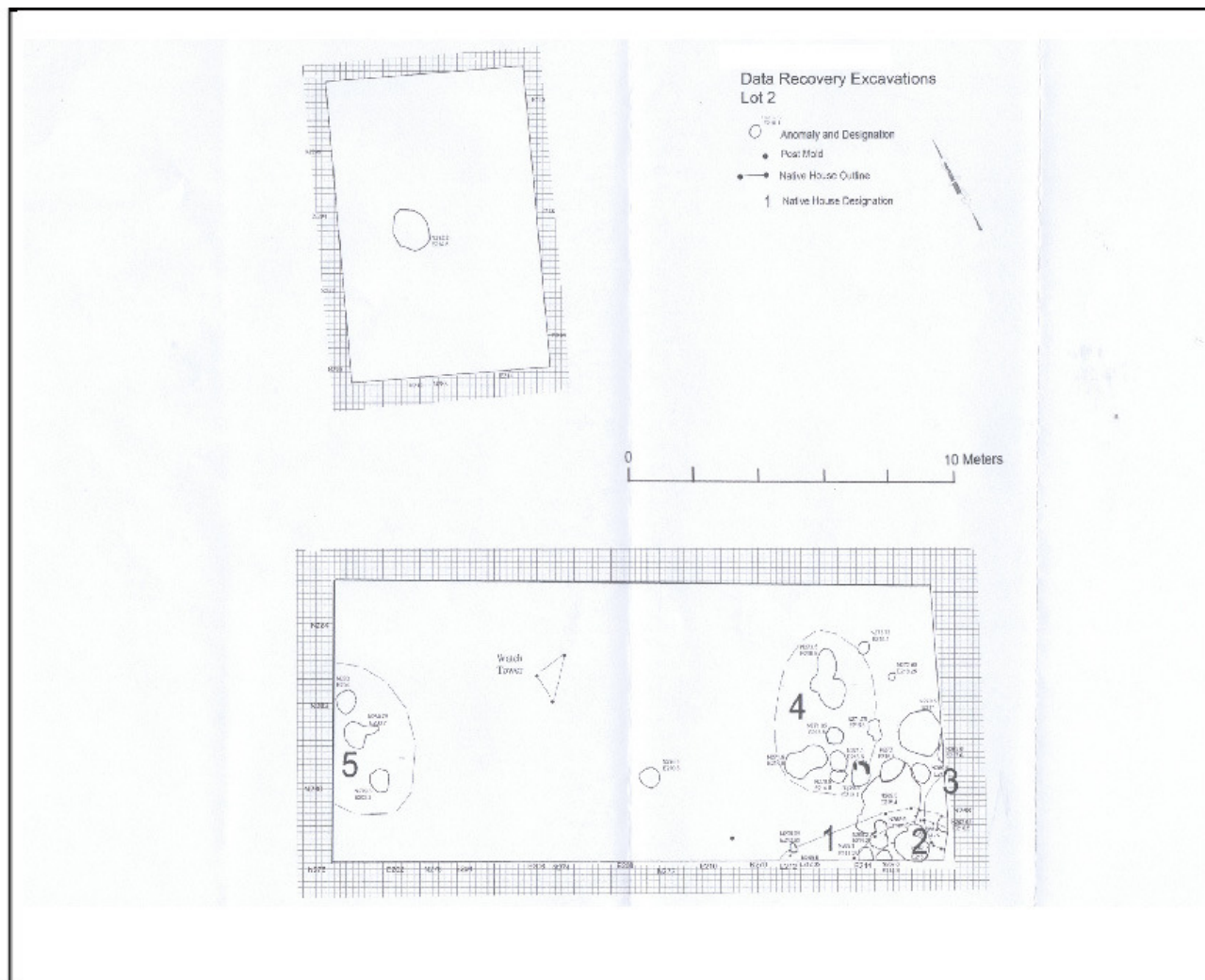


Figure 7. Lot 2 House Forms

**Lot 4 House (Figure 9)**

Stripping and scraping resulted in the identification of a minimum of five house forms within the Lot 4 House impact area. House Form 1 was the largest, measuring 21 m long by about 7 meters wide (although only 3.5 m were present within the impact area). The builders oriented this house northwest to southeast and the structure was made up of post molds spaced, on average, 30 cm apart. The close spacing of the post molds may have been necessary if the builders had relied on smaller saplings for the frame versus larger ones that could be spaced further apart. Excavation identified two feature complexes, one at the north end and one at the south. The complexes consisted of a fire-cracked rock concentration, believed to represent the hearth, although no reddening of the soil was visible, and a medium-sized medium depth pit. The northern complex had a large size deep pit associated with it as well. The presence of a large size deep pit and the presence of hearths within the house may be indicative of winter occupation of this structure. Post molds located about 75 cm in from the edge of the wall may represent supports for sleeping/ sitting platforms and posts located near the center of the structure may represent a dividing wall between the two households within the house. Post molds within House Form 1 that run perpendicular to the long axis of the house (just south of anomaly N150.6 E128.8) may represent a dividing wall between the families who may have shared the house, essentially splitting a 20 m long house into two 10 m wide households. Additional feature complexes may have existed on the portion of the house that extended outside of the impact area, possibly indicating that four households shared the space within this house. Archaeologists found a concentration of quartz chipping debris on the interior of the house against the west wall, probably indicating a debitage dump beneath a sleeping platform. Excavation also found a calcined bone concentration near the southern feature complex and a pottery concentration was identifiable near each feature complex (**Figures 145 and 146**). A possible doorway was located on the southwestern side of the house where a gap was present in the post mold pattern.

House Form 2 overlapped House Form 1 and extended outside of the east wall of the impact area. Post molds appeared to be similarly spaced to House Form 1 and the same people who had built House Form 1 may have built this second house. The builders oriented the house northwest to southeast. Excavation identified one medium size medium depth pit within this house form that may be associated with it (although it could also be associated with House Form 1 as well). Excavation also found two calcined bone concentrations in the southwestern portion of the house form, just south of a fire cracked rock concentration encountered in the plowzone (**Figures 145 and 147**). A pottery concentration is also apparently associated with one of the calcined bone concentrations (**Figure 11**).

House Form 3 overlapped House Form 1 and House Form 2 and was in the southern portion of the impact area. It appeared as a complete oval measuring 10 m northeast to southwest by 7.75 m wide (32.8 x 25.4 feet), or almost exactly half the size of House Form 1. The house orientation was northeast to southwest. The posts composing this house were farther apart than the other houses, between 50 cm and one meter on average. One medium size medium depth pit was within this house form.

House Form 4 was in the western half of the impact area and extended further to the west, outside of it. The house orientation was northwest to southeast and this house form measured about 10-11.75 m x over 2.5 m wide. Excavation did not find any anomalies within this house form. One calcined bone concentration was near the northern edge of this house form (**Figure 45**).

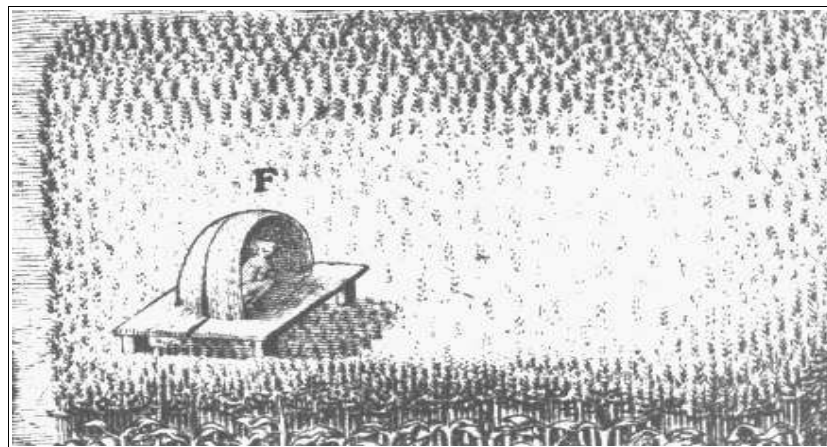


Figure 8. Examples of Native watch houses. Top to Bottom: New York State Museum Diorama, 19<sup>th</sup> century engraving of Dakota fields, Listening post from DeBry engraving

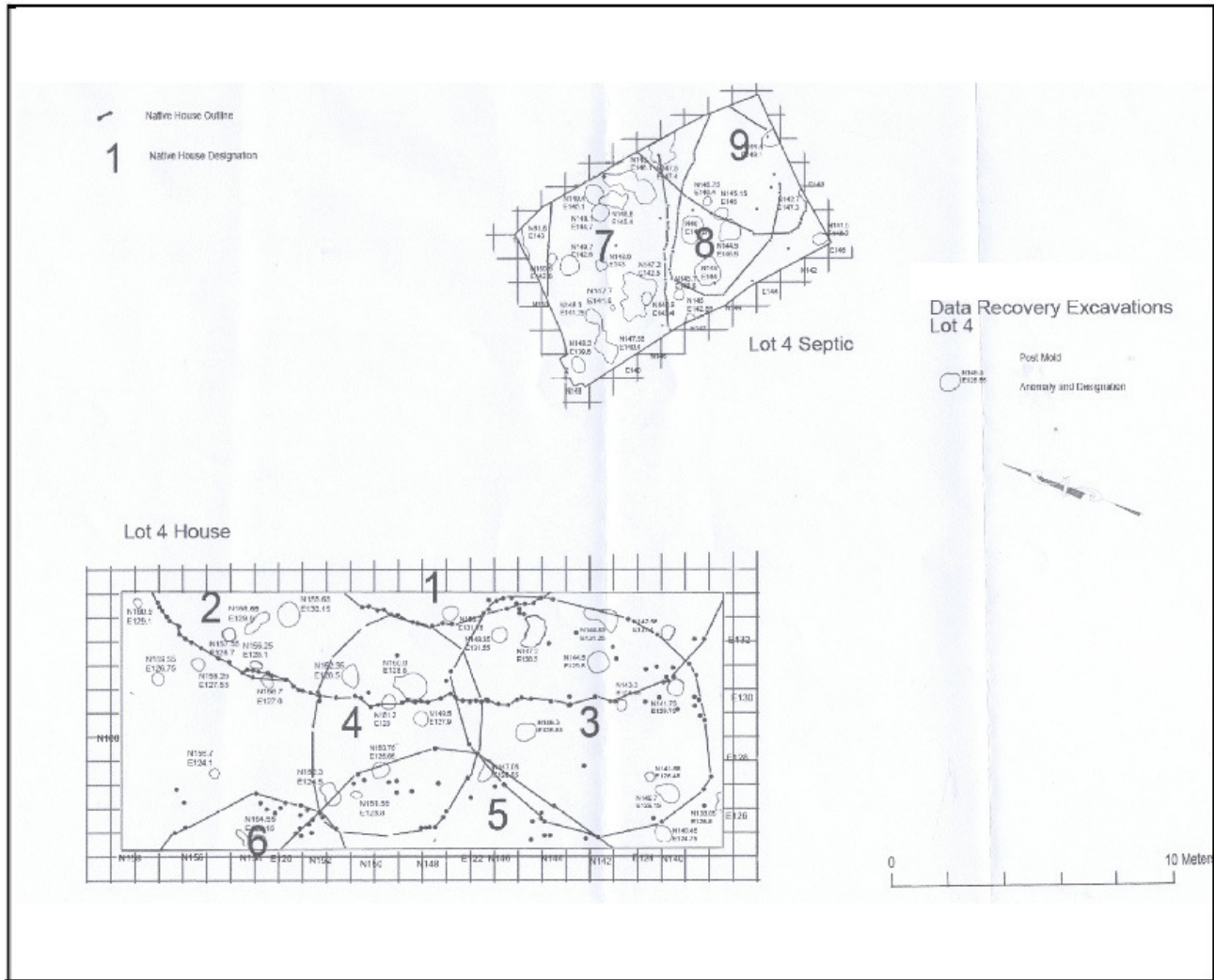


Figure 9. Lot 4 House forms





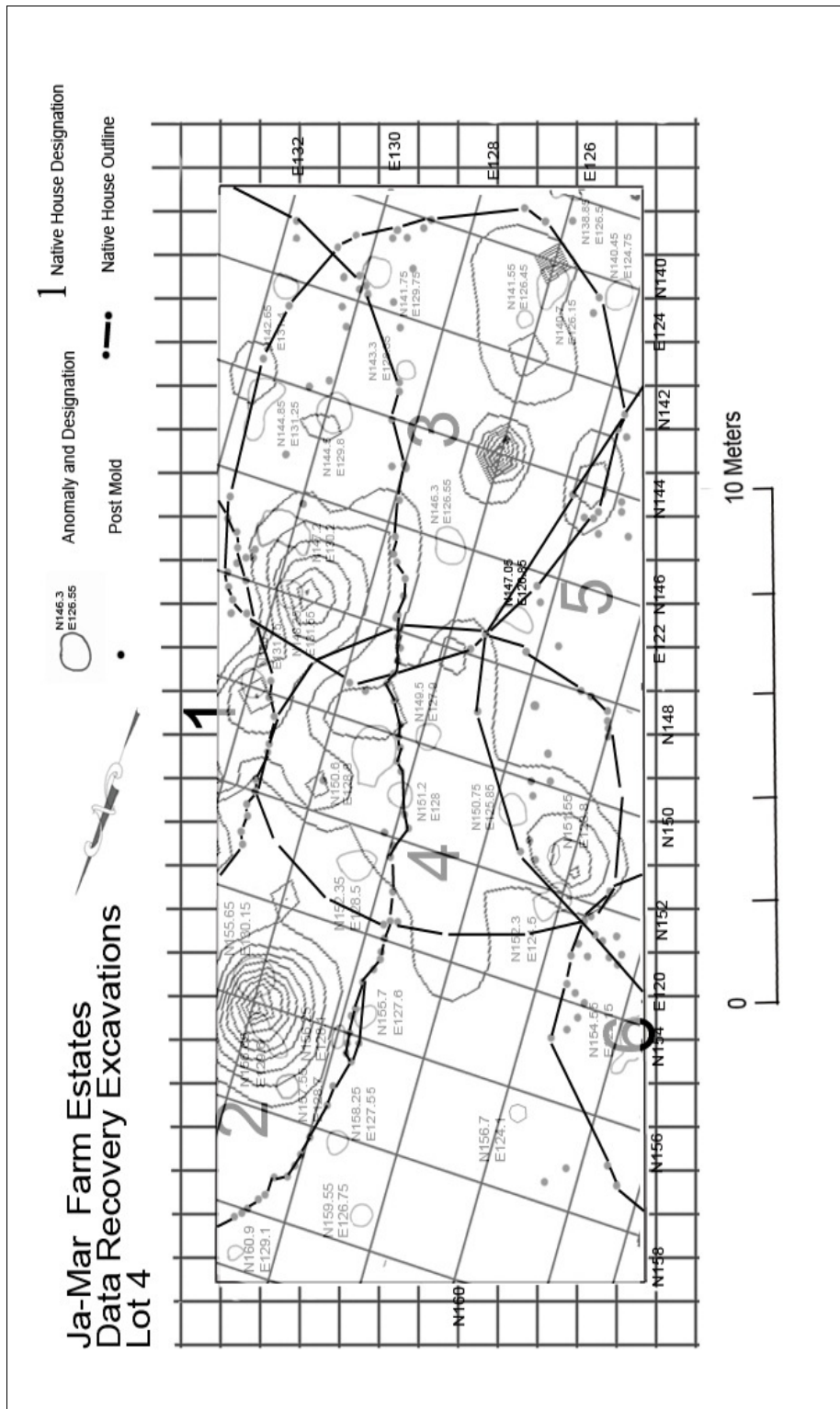


Figure 11. Lot 4H pottery distribution



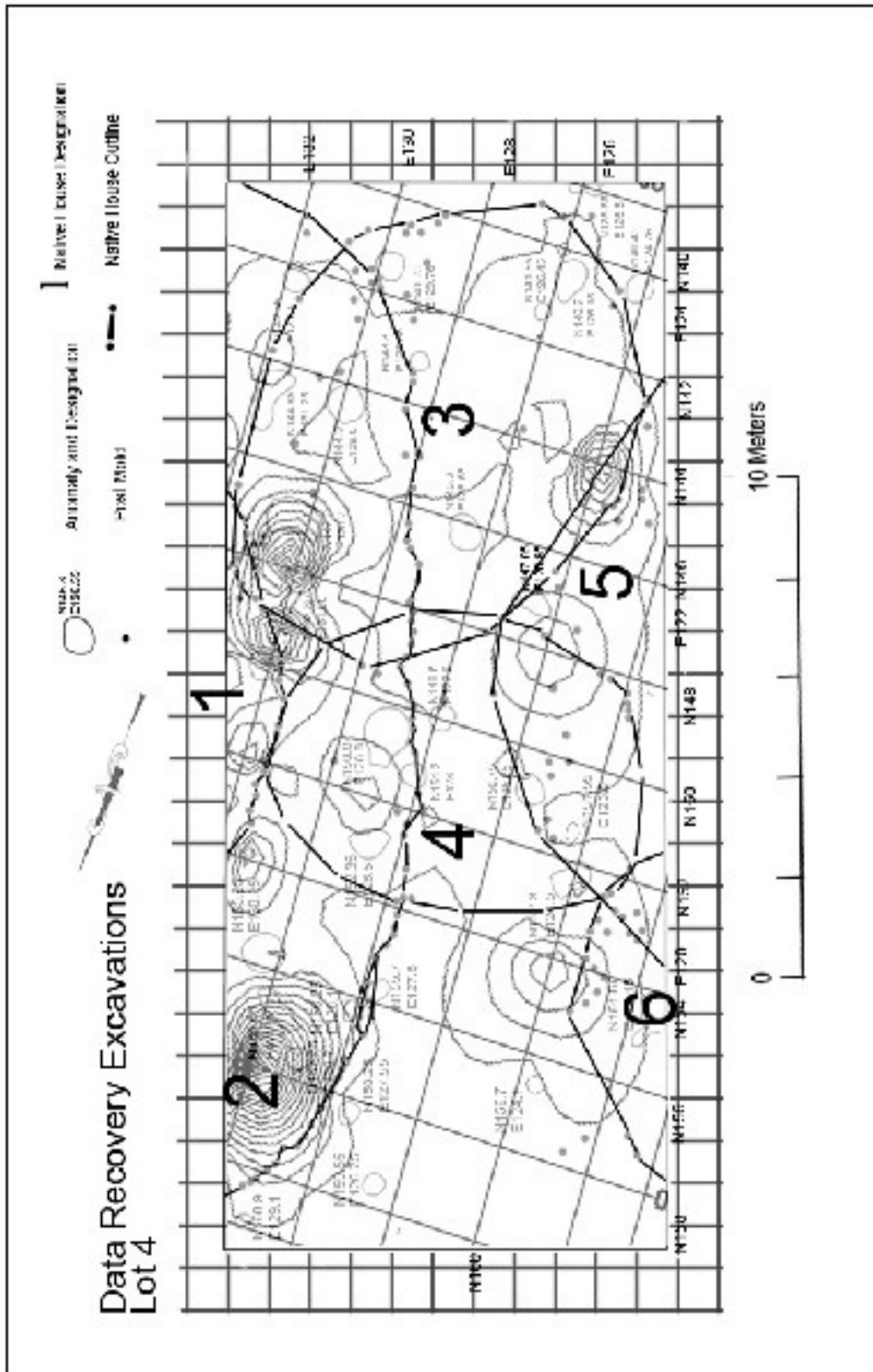


Figure 12. Fire-cracked rock concentrations

House Form 5 was to the immediate north of House Form 4 and slightly overlapped it. The orientation of this house could not be determined. This house was about 6.5 m long by over 2.5 m wide, extending to the west outside of the impact area. One anomaly, identified as being natural in origin, was within this house form.

House Form 6, located in the center of the impact area, appeared to overlap House Forms 1, 3, 4 and possibly 5. This house measured about 7 x 6 m (25.4 x 20 feet) and the orientation was east to west. One fire cracked rock concentration and one medium size medium depth pit were within this house form. Four anomalies that were probably being natural in origin were within this house form.

#### **Lot 4 Septic (Figure 9)**

House Form 1 measured at least 5.5 m wide by over 8 m long, extending out of the impact area to the west and east. Post molds were about 50 cm apart and a possible doorway was on the southeast side of the house. The house orientation was southwest to northeast. The interior space of the house may have been subdivided into an eastern and a western section for the use of separate families.

House Form 2 measured 5.5 m wide by over 8 m long, extending outside of the impact area to the east. A possible doorway was on the south side of the house. The house orientation was east to west.

Excavation found House Form 3 represented by a single line of post molds running southwest to northeast across the impact area. One medium size pit may have been within this house form.

#### **Lot 5 House (Figure 13)**

Plowzone stripping and scraping identified a minimum of 10 house forms, most appearing as potential longhouses versus round or oval-shaped houses. Compared with the number of anomalies present versus the number of potential house forms, there is evidence of only limited reuse of the site on a recurring seasonal basis. In other lots, especially in the Lot 2 House and Lot 4 Septic impact areas, there was evidence of reuse of the same house form over the course of potentially successive years. This was not the case in Lot 5. In this lot, and those further to the east, there is evidence of only limited reuse of the same house form year after year. House Form 1 was the most complete house form, measuring 18 x 5 m (59 x 16.4') and being oriented southwest to northeast. Fire-cracked rock concentrations were at the east and west ends of the house, possibly representing the locations of hearths. The occurrence of pottery at the east end of the house also corresponds with the location of fire-cracked rock, supporting the co-occurrence of the two. Post molds for this house form averaged between 50 and 75 cm apart. A possible line of post molds that ran perpendicular to the north and south walls may represent a dividing wall between the east and west sections, effectively dividing the house in half into two 9 x 5 m households.

House Form 2 was over 16.2 m long and 5.7 m wide (>53 x 18.7 feet) and oriented northwest to southeast. Post molds may have been spaced as far as one and one half meters apart. Because of the overlap of house forms it is difficult to determine what anomalies are associated with this house. Post molds at the end of the house appear to have been spaced closer together than those along the parallel walls.

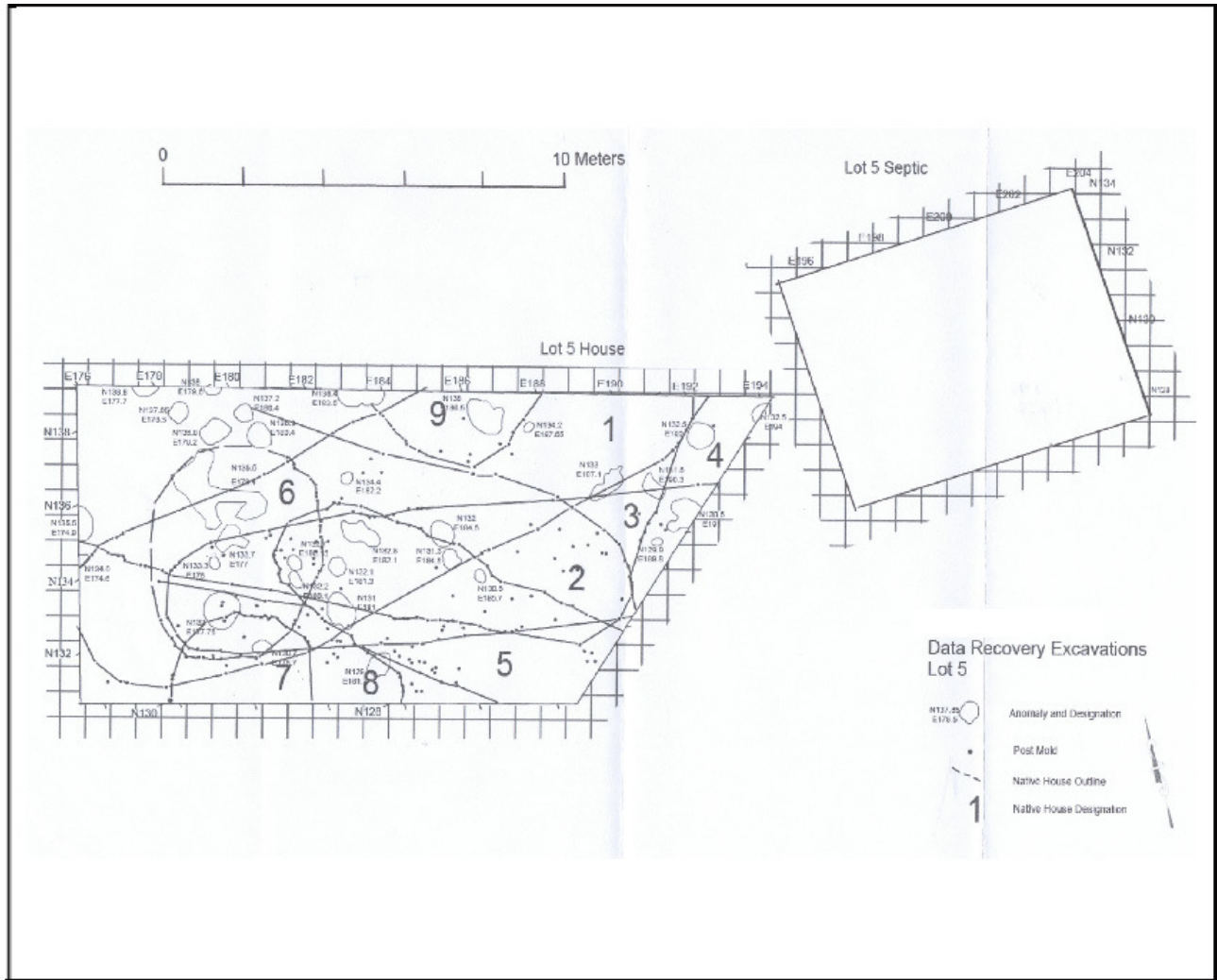


Figure 13. Lot 5 house forms

House Form 3 was over 15.2 m long and 5 m wide (>49.9 x 16.4 feet), oriented northwest to southeast. Post molds along the side walls appear to have been spaced at 50 to 75 cm apart. Because of the overlap of house forms it is difficult to determine what anomalies may be associated with this house. The grouping of basins, pits and a hearth located in the northwest corner of the impact area may have been located within this house form. Post molds at the end of the house appear to have been spaced closer together than those along the parallel walls. House Form 4 was over 9 m x 4 m wide (29.5 x 13'), oriented northwest to southeast. Because of the overlap of house forms it is difficult to determine what anomalies may be associated with this house. Post molds at the end of the house appear to have been spaced closer together than those along the parallel walls.

House Form 5 was an oval-shaped house measuring 4.8 x 4.3 m (15.7 x 14.1 feet) and oriented southwest to northeast. The builders spaced the post molds 30 to 50 cm apart. Because of the overlap of house forms it is difficult to determine what anomalies may be associated with this house but anomaly N130.7 E178.7, a medium size medium depth pit, may have been situated within this house along the south wall. Posts paralleling the walls on the interior may represent posts for bed platforms. No fire-cracked rock concentration was identified as definitely be associated with this house form.

House Form 6 measured 4.4 m wide by over 2.6 m long, extending outside of the south wall of the impact area. No anomalies could be definitely associated with this house, but anomaly N130.7 E178.7, a medium size medium depth pit, may have been situated within this house in the north half.

House Form 7 measured over 14.6 m long by over 3.9 m wide and was oriented southeast to northwest, extending outside of the west wall of the impact area. No anomalies could be definitely associated with this house.

House Form 8 measured over 12 m long by over 4 m wide, extending outside of the south and west walls of the impact area and oriented southeast to northwest. Medium size medium depth pit N129 E181.7 may be associated with this house form.

House Form 9 measured 4.5 m wide by over 2 m long, extending outside of the north wall of the impact area and oriented southwest to northeast. Large size deep pit N135 E186.5 appears to have been located within the southern end of this house.

House Form 10 measured over 6 m long by over 2 m wide, extending outside of the north and east walls of the impact area. Shallow basin N132.5 E192 and medium size medium depth pits N132.5 E194 and N130.5 E191 appear to have been located within this house form.

### **Lot 6 House (Figure 14)**

Two house forms were present in this impact area. House Form 1 was over 4.2 m long by over 2 m wide and oriented southwest to northeast. It extended to the west and north outside of the impact area. House Form 2 overlapped House Form 1 and contained one a medium size medium depth anomaly within it. This house form measured over 5.5 m long by over 4.5 m wide and oriented east to west and extended outside of the impact area to the north and west. Additional post molds along the wall of House Form 1 may reflect replacement of existing posts or the rebuilding of the house at some point.

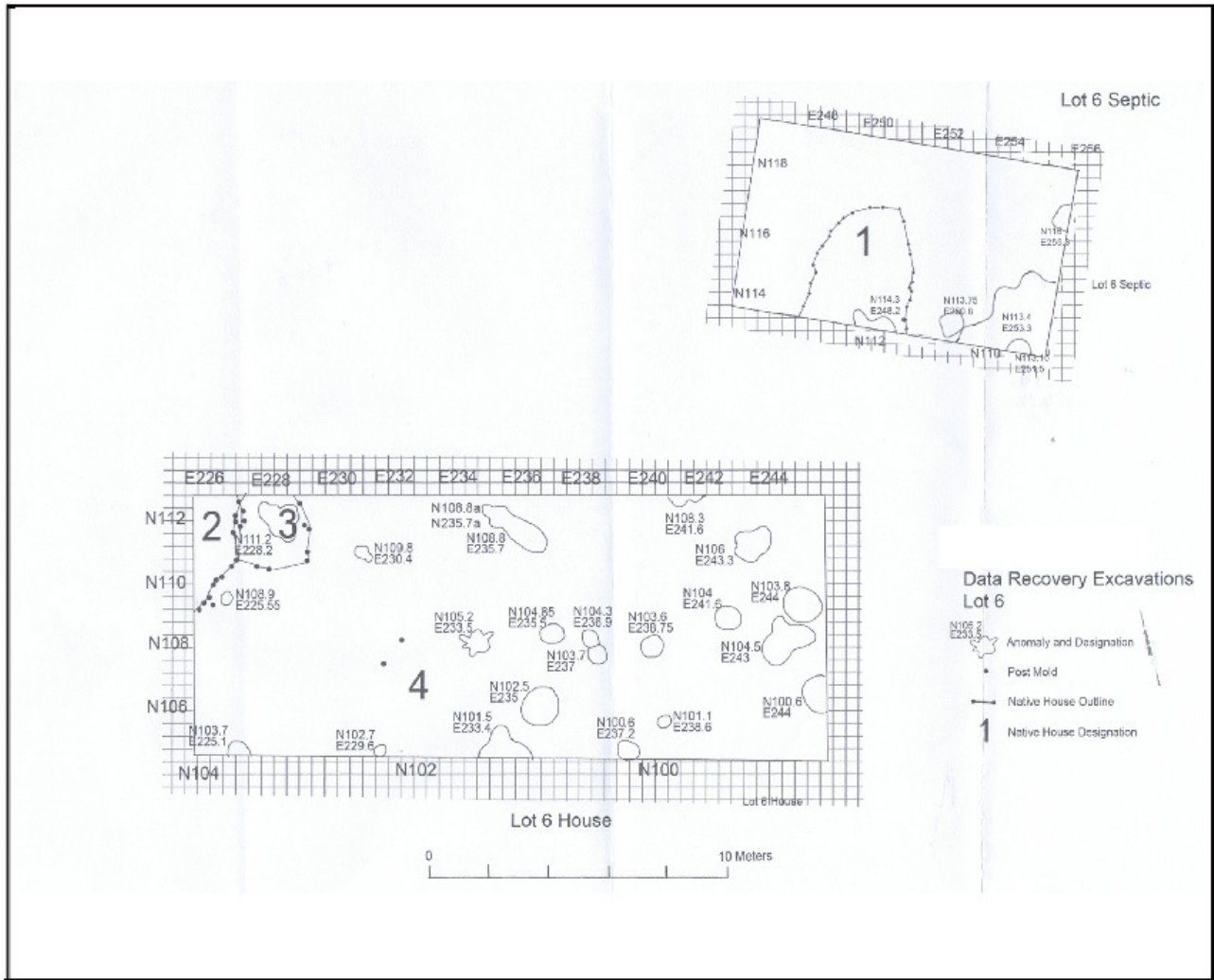


Figure 14. Lot 6 House Forms

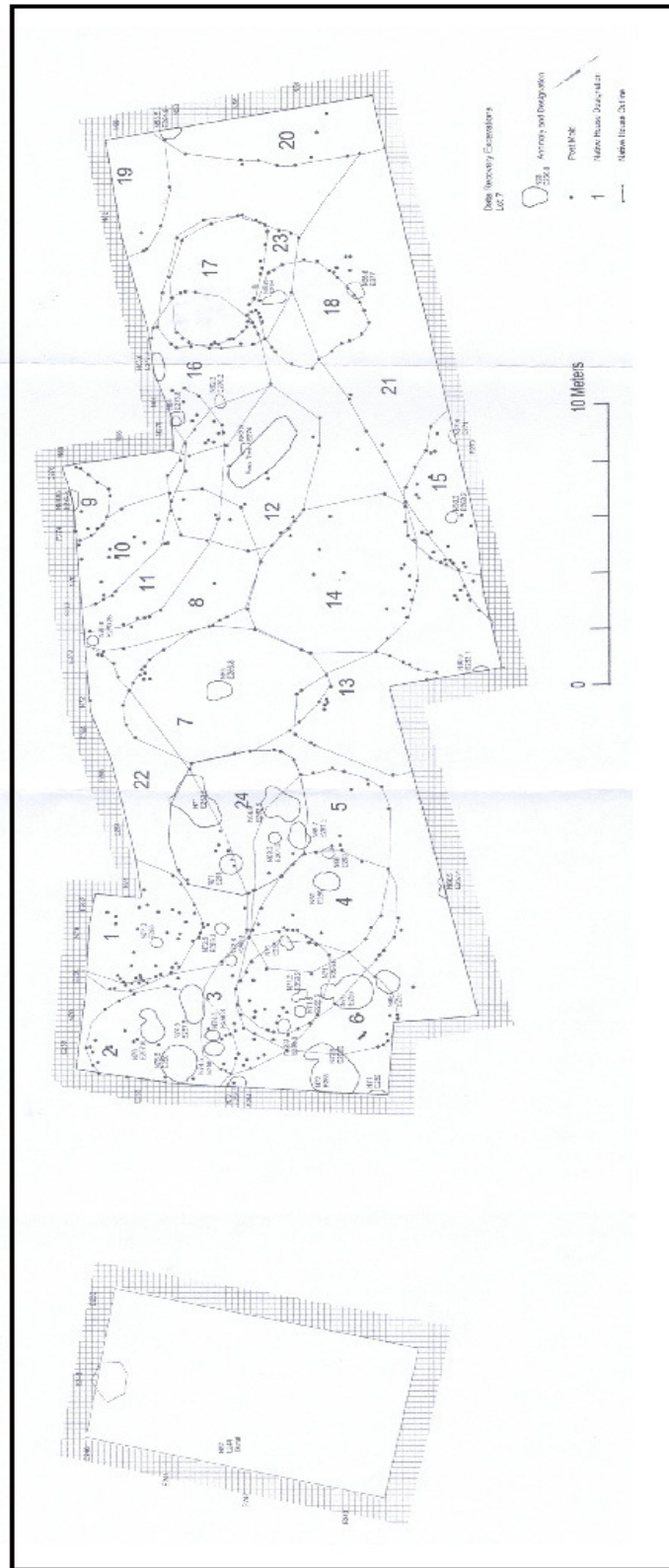


Figure 15. Lot 7 House Forms

**Lot 6 Septic (Figure 14)**

House form 1 was over four meter long and three meters wide. It is conjectured that this house extended up to six meters long originally. Post molds were about 50 cm apart with a possible doorway on the northeast corner. Artifact distributions were located near this gap in the post mold pattern and just outside of it to the southeast. The artifact concentration extended south towards the fire-cracked rock concentration.

**Lot 7 House, House New, Septic New (Figure 15)**

Plowzone stripping and subsoil scraping identified 23 house forms. All but three appear to represent oval-shaped house forms ranging in size (for complete forms) from 4 x 3.6 to 7 x 4.6 m. The other three house forms appear to represent longhouses measuring 4.6 m wide by over 14.6 m long, over 17 m long by over 4.5 m wide, and over 8 m long by over 4.4 m wide. The oval houses were generally oriented northwest to southeast and southwest to northeast in the Lot 7 Septic New impact area and north to south and southeast to northwest in the Lot 7 House impact area. Applying the spacing between houses identified in Lots and 2 (that being 11 meters) to these house forms, a maximum of three house forms could have existed in this impact area at one time leaving 11 m between each. Excavation found the L7SN the area with the most concentrated, repeated, occupation. Other areas of intense reoccupation and overlapping house forms were the northeast corner of L7H to the north central portion of L7HN and the southwest corner of L7HN. These three areas, each spaced eight meters from each other, may represent three separate households that people repeatedly occupied. Most of the anomalies that were identified came from the L7SN area, possibly indicating more intense occupation or reoccupation.

House Form 1, a round house form, measured over 5 m long by 5 m wide, oriented southwest to northeast and extending outside of the north wall of the L7SN impact area. Excavation found shallow basin N74.3 E260 within this house form. Post mold spacing was between 50 cm and 1 meter apart. Scraping of the subsoil identified many post molds within this house form, interpreted as representing overlapping house forms and possibly bed platforms.

House Form 2, a round house form, measured 5 m long by 5 m wide, extending slightly outside of the west wall of the L7SN impact area. The orientation for this house was southwest to northeast. Excavation found five anomalies either completely or partially within this house form. These anomalies were three shallow basins (N74.5 E256.3, N74.5 E256, and N76 E257.8), one medium depth medium size pit (N74.5 E257.5), and one large size medium depth pit (N75.6 E256). Anomaly N74.5 E257.5 extended outside of the southeast wall of the house, possibly indicating its association with another house form or the possibility that rodent activity or erosion impacted it. Anomaly N75.6 E256 was just west of the center of the house form and anomaly N76 E257.8 was just east of it. The remaining two shallow pits were just inside the southern wall of the house form, but could be associated with House Form 3 that overlapped Form 2 on the southern side. Post molds associated with this house form were between 30 and 75 cm apart.

House Form 3, a round house form, measured 6 m long by 4 m wide, being completely contained within the L7SN impact area. The orientation for this house was southeast to northwest. Subsoil scraping found seven anomalies located around the inside circumference of this house form. Not all of



them may be associated with this house as at least three other house forms overlap House Form 3. Five of these anomalies (N71 E258, N71.8 E255.6, N72.8 E258.3, N74.5 E256.3, and N74.5 E256), were shallow basins, one (N71.5 E256.2) was a rodent burrow, and one (N72.3 E255.5) was a large size medium depth pit. The shallow basins may be natural as a result of erosion and rodent activity, or may be associated with former post mold locations as they appeared to be in Lot 1. Post molds associated with this house form were between 30 cm and one meter apart.

House Form 4, an oval to round-shaped house, measured 7 m long by 5 m wide, being completely contained within the L7SN and L7H impact areas. The orientation for this house was southeast to northwest. Subsoil scraping found six anomalies located inside this house form. Not all of them may be associated with this house as at least three other house forms overlap House Form 4. Three of these anomalies (N69 E259, N71 E258, N71.8 E255.6), were shallow basins, one (N71.5 E256.2) was a rodent burrow, one was a medium size medium depth pit (N68 E260), and one (N72.3 E255.5) was a large size medium depth pit. The shallow basins may be natural as a result of erosion and rodent activity, or may be associated with former post mold locations as they appeared to be in Lot 1. Medium size medium depth pit N68 E260 is more probably associated with House Form 5. Post molds associated with this house form were between 30 cm and one meter apart.

House Form 5, an oval to round-shaped house, measured 7.5m long by 4.5 m wide, being completely contained within the L7SN and L7H impact areas. The orientation for this house was southeast to northwest. Subsoil scraping found six anomalies located inside this house form. Three of these anomalies (N69 E259, N71 E258, N69.3 E261.3), were shallow basins, two were medium size medium depth pits (N68 E260, N69.2 E261.5), and one (N68.9 E262.8) was a large size medium depth pit. The two medium depth pits appear to be within this house form while the large size medium depth pit extends to the east outside of the form, indicating that it is probably associated with House Form 24 that overlaps House Form 5. Post molds associated with this house form were between 30 cm and one meter apart.

House Form 6, an oval to round-shaped house, measured 5.5 m long by 4 m wide being wholly located within the L7SN impact area. The orientation for this house was southwest to northeast. Subsoil scraping found five anomalies located inside this house form. Four of these were shallow basins (N70 E255, N71 E255.8, N71.5 E256.2, N71.8 E255.6) and one was a large medium depth pit (N72.3 E255.5). Some of these anomalies may be associated with other overlapping house forms. Post molds associated with this house form were between 30 cm and one meter apart.

House Form 7, an oval to round-shaped house, measured 6.25 m long by 5 m wide, being contained within the L7H impact area. The orientation for this house was southwest to northeast. Subsoil scraping found one anomaly located inside this house form. This anomaly (N68 E266.8) was a medium depth medium size pit that was capped with a concentration of fire-cracked rock, within which was a reworked Transitional Archaic beveled cobble abradar. Post molds associated with this house form were between 30 cm to 75 cm apart.

House Form 8, an oval to round-shaped house, estimated to measure 7 m long by 5 m wide, extended outside of the north wall of the L7H impact area. The orientation for this house was southwest to

northeast. Subsoil scraping found one anomaly, a shallow basin (N70.6 E270.25) was located within this form. Post molds associated with this house form were between 30 cm and 75 cm apart.

House Form 9, an oval to round-shaped house, estimated to measure over one m long by over 2.25 m wide, extended outside of the north and east walls of the L7H impact area. The orientation for this house was southwest to northeast. Subsoil scraping found one anomaly, a natural basin (N68.85 E274.8) was within this house form. Post molds associated with this house form were between 30 cm and one meter apart. Post molds associated with this house form were between 30 cm and 50 cm apart.

House Form 10, an oval to round-shaped house, estimated to measure 7 m long by 5 m wide, extended outside of the north and east walls of the L7H impact area. The orientation for this house was southeast to northwest. Subsoil scraping found no anomalies located inside this house form. Post molds associated with this house form were between 30 cm and one meter apart.

House Form 11, a longhouse, estimated to measure 7 m long by 5 m wide, extended outside of the north and east walls of the L7H impact area. The orientation for this house was southeast to northwest. Subsoil scraping found no anomalies located inside this house form. Post molds associated with this house form were between 30 cm and one meter apart.

House Form 12, an oval to round-shaped house, measured 6 m long by 4 m wide, being completely within the L7H/ L7HN impact area. The orientation for this house was southeast to northwest. Subsoil scraping found one anomaly, a medium size medium depth pit (N62.8 E274) was identified in the center of this house form. Post molds associated with this house form were between 30 cm and one meter apart.

House Form 13, an oval to round-shaped house, estimated to measure 5 m long by 4 m wide, extended outside of the south wall of the L7H impact area. The orientation for this house was southwest to northeast. Subsoil scraping found no anomalies located inside this house form. Post molds associated with this house form were between 30 cm and 50 cm apart.

House Form 14, an oval to round-shaped house, measured 7 m long by 5 m wide, being wholly located within the L7HN impact area. The orientation for this house was north to south. Subsoil scraping found no anomalies located inside this house form. Post molds associated with this house form were between 50 cm and 75 cm apart.

House Form 15, an oval to round-shaped house, estimated to measure 7 m long by 6 m wide, extended outside of the south wall of the L7HN impact area. The orientation for this house was southwest to northeast. Subsoil scraping found two anomalies, both medium size medium depth pits (N57.4 E271, N58.3 E268.2), inside this house form. Post molds associated with this house form were between 50 cm and 75 cm apart.

House Form 16, an oval to round-shaped house, estimated to measure 6 m long by 5 m wide, extended outside of the north wall of the L7HN impact area. The orientation for this house was southeast to northwest. Subsoil scraping found two anomalies, a shallow basin and a shallow basin with a fire-

cracked rock concentration (N62.3 E276.2, N63.6 E277.7), within this house form. Post molds associated with this house form were between 30 cm and 50 cm apart.

House Form 17, an oval to round-shaped house, measured 5 m long by 4 m wide, being wholly located within the L7HN impact area. The orientation for this house was southeast to northwest. Subsoil scraping found no anomalies located inside this house form. Post molds associated with this house form were between 30 cm and one meter apart.

House Form 18, a small round-shaped house, measured 3.75 m long by 3 m wide, being wholly located within the L7HN impact area. The orientation for this house was southwest to northeast. Subsoil scraping found one anomaly, a large size deep pit (N58.75 E278.4), inside this house form. Post molds associated with this house form were between 30 cm and 50 cm apart.

House Form 19, an oval to round-shaped house, estimated to measure 7 m long by 5 m wide, extended outside of the north and east walls of the L7HN impact area. The orientation for this house was southeast to northwest. Subsoil scraping found no anomalies located inside this house form. Post molds associated with this house form were between 20 cm and one meter apart.

House Form 20, an oval to round-shaped house, estimated to measure 9 m long by 6 m wide, extended outside of the south and east walls of the L7HN impact area. The orientation for this house was southwest to northeast. Subsoil scraping found one anomaly, a medium size medium depth pit (N58.5 E284.9), within this house form. Post molds associated with this house form were between 50 cm and one meter apart.

House Form 21, a longhouse, estimated to measure 19 m long by 8 m wide, extended outside of the south wall of the impact area. The orientation for this house was southwest to northeast. Subsoil scraping found three anomalies a shallow basin with a fire-cracked rock concentration and two medium size medium depth pits (N56.6 E277, N57.4, E271, N58.3 E268.2), within the house form. Post molds associated with this house form were between 30 cm and one meter apart.

House Form 22, a longhouse, estimated to measure 16 m long by 7 m wide, extended outside of the north walls of the L7SN and L7H impact areas. The orientation for this house was southwest to northeast. Subsoil scraping found four anomalies, 2 shallow basins and two natural anomalies (N71 E263.5, N68.9 E262.8, N72.5 E259.3, N74.3 E260), inside this house form. Post molds associated with this house form were between 30 cm and one meter apart.

House Form 23, an oval to round-shaped house, measured 5 m long by 5 m wide, being wholly located within the L7HN impact area. The orientation for this house was southeast to northwest. Subsoil scraping found one anomaly, a large size deep pit (N58.75 E278.4), inside this house form. Post molds associated with this house form were between 30 cm and 50 cm apart.

House Form 24, an oval to round-shaped house, measured 4 m long by 6 m wide, being wholly located within the L7H impact area. The orientation for this house was southwest to northeast. Subsoil scraping found five anomalies, a large size medium depth pit (N68.9 E162.8), a medium size medium depth pit (N69.2 E261.5), a shallow basin (N69.3 E261.3), and two natural stains (N71 E263.5, N68.9 E262.8)

inside this house form. Post molds associated with this house form were between 30 cm and 50 cm apart.

### **Lot 8 (Figure 16)**

Stripping of the plowzone and scraping of the subsoil resulted in the identification of 17 house forms in the Lot 8 impact area. House forms were found to overlap between all the impact areas here. The north corner of L8H and the east corner of L8HN showed the most intense concentration of post molds, indicating the most intense reoccupation of these areas. Anomalies were concentrated in house forms in L8H and in the southeast corner of L8HN. The distribution of house forms and anomalies follows a pattern similar to that observed in Lot 7 with limited temporally close reoccupation of house forms. This conclusion assumes that when people reoccupied a site from the previous year, they did so on or close to the previous house form that they had inhabited. Most of the house forms identified were longhouses.

House Form 1, a longhouse, measured 13 m long by 5 m wide and was located close to the center of the L8H, L8HN impact areas. The orientation was southeast to northwest. Natural anomaly N79.5 E315.9 appears to be located within this house form. Post molds associated with this house form were between 30 and 70 cm apart.

House Form 2, a longhouse, measured 13 m long by 5 m wide, being located in the southwest portion of the L8/ L8HN impact area. The orientation for this house was southwest to northeast. Excavation found four anomalies within this house form. These anomalies were three shallow basins (N67.8 E312.6, N67.8 E314.8, N70.6 E310.9) and one medium depth medium size pit (N69.1 E312.6). Anomaly N70.6 E310.9 was located just north of the center of this house form. The remaining anomalies were located at the southeastern end of the house. This house is overlapped by House Form 8 and these anomalies may also be associated with that house form. Post molds associated with this house form were 150 cm apart.

House Form 3, a small-round house form, measured 4 m long by 3 m wide, being completely contained within the L8H/ L8HN impact area. The orientation for this house was southwest to northeast. Subsoil scraping found one anomaly, N69.1 E308.6 a shallow basin, in the southwest portion of the house form. One other possible house form was located just southwest of the southwest wall of this house form. It was not given a form number but is represented by an arc of post molds extending equidistantly around the circumference of part of House form 3. Post molds associated with this house form were 50 cm apart.

House Form 4, an oval to round-shaped house, estimated to measure 6 m long by 4 m wide, extending outside of the western corner of the L8H impact areas. The orientation for this house was southeast to northwest. Subsoil scraping found no anomalies located inside this house form. Post molds associated with this house form were between 30 cm and one meter apart.

House Form 5, an oval to round-shaped house, estimated to measure 6 m long by 4 m wide, extending outside of the western corner of the L8H impact areas. The orientation for this house was southeast to northwest. Subsoil scraping found no anomalies located inside this house form. Post molds associated with this house form were 50 cm apart.

House Form 6, an oval to round-shaped house, estimated to measure 6 m long by 4 m wide, extending outside of the western corner of the L8H impact areas. The orientation for this house was southeast to northwest. Subsoil scraping found no anomalies located inside this house form. Post molds associated with this house form were between 30 cm and one meter apart.

House Form 7, a longhouse, estimated to measure 14.5 m long by 6 m wide, extending outside of the southwest wall of the L8H impact area. The orientation for this house was southwest to northeast. Subsoil scraping found 11 anomalies located inside this house form. None of these anomalies were excavated so it is not possible to say what type they were. The one human burial identified in this impact area was located just outside of the northeast end of the house. Post molds associated with this house form were 150 cm apart. House Form 8, a longhouse, estimated to measure 12 m long by 6 m wide, extended outside of the south wall of the L8HN impact area. The orientation for this house was southwest to northeast. Subsoil scraping found four anomalies, two shallow basins (N67.8 E311.8, N67.8 E312.6) and two medium size medium depth pits (N68.8 E315.1, N69.1 E312.6) within this form. All the anomalies appear located at the northeast end of the house. This house is overlapped by House Form 2 and these anomalies may also be associated with that house form. Post molds associated with this house form were 150 cm apart.

House Form 9, an oval to round-shaped house, measured 6 m long by 5 m wide, being contained within the L8HN impact area. The orientation for this house was southwest to northeast. Subsoil scraping found one anomaly, a natural stain (N79.5 E315.9) at the northern end of the house in a location where a post mold would be expected. Post molds associated with this house form were between 30 cm and 150 cm apart.

House Form 10, a longhouse, estimated to measure 13.5 m long by 5 m wide, extended between the L8H and L8S impact areas. The orientation for this house was southwest to northeast. Subsoil scraping found six anomalies located inside this house form. None of these anomalies were excavated so it is not possible to say what type they were. Post molds associated with this house form were between 50 cm and 70 cm apart.

House Form 11, an oval to round-shaped house, estimated to measure 6 m long by 5 m wide, extended northwest outside of the L8H impact area. The orientation for this house was southeast to northwest. Subsoil scraping found no anomalies located inside this house form. Post molds associated with this house form were 50 cm apart.

House Form 12, an oval to round-shaped house, estimated to measure 6 m long by 4 m wide, extended northwest outside of the L8H impact area. The orientation for this house was southeast to northwest. Subsoil scraping found no anomalies in this house form. Post molds associated with this house form were 50 cm apart.

House Form 13, a longhouse, measured 19 m long by 5.5 m wide, extended between the L8H and L8S impact areas. The orientation for this house was close to north to south. Subsoil scraping found five anomalies located inside this house form. Four were located in L8H and were not excavated. One (N79.5 E315.9) was located at the southwest end of the house. This house form overlaps with House

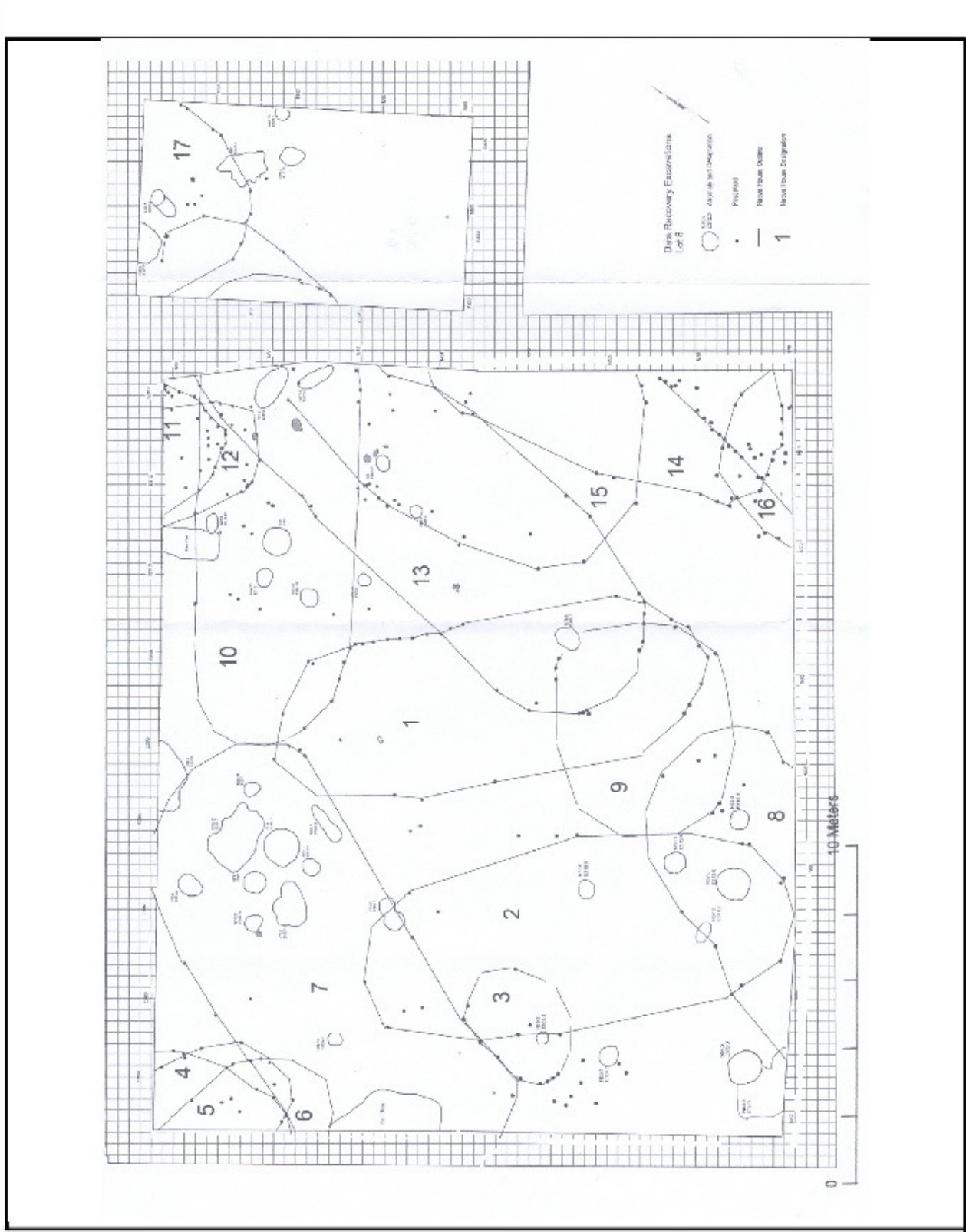


Figure 16. Lot 8 House forms

Forms 10, 15, 9, and 1 and these anomalies may be associated with them as well. Post molds associated with this house form were between 30 cm and one meter apart.

House Form 14, a longhouse, estimated to measure 11 m long by 5.5 m wide, extended to the north outside of the L8HN impact area. The orientation for this house was southeast to northwest. Subsoil scraping found no anomalies located inside this house form. Post molds associated with this house form were 50 cm apart.

House Form 15, a longhouse, estimated to measure 14 m long by 6 m wide, extended north outside of the L8H and L8HN impact areas into the I8S impact area. The orientation for this house was close to north to south. Subsoil scraping found three anomalies inside this house form. These anomalies were in the L8H impact area and were not excavated. Post molds associated with this house form were 150 cm apart.

House Form 16, a longhouse, estimated to measure 14 m long by 7 m wide, extended outside of the southeast wall of the L8HN impact area. The orientation for this house was southeast to northwest. Subsoil scraping found no anomalies in this house form. Post molds associated with this house form were between 50 cm and one meter apart.

House Form 17, a longhouse, estimated to measure 14 m long by 6.5 m wide, extended to the northwest outside of the L8S impact area. The orientation for this house was southeast to northwest. Subsoil scraping found two anomalies, one large medium depth pit (N92.9 E317.7) and one medium depth pit (N92.6 E314.9) inside this house form. Post molds associated with this house form were 50 cm apart.

Archaeologists identified four basic types of houses within the Ja-Mar project area: 1) small round to oval-shaped houses (wetuomemese), 2) round-shaped houses (puttickacaukon) 3) elongated oval-shaped houses (longhouses-qunneckamuck), and 4) narrow elongated oval-shaped houses (Table 3 and 184).

Table 4. House form counts by lot

Lot	Small Round	Round	Long	Narrow Long	Totals
1		2			2
2	1	4			5
4		4	2	3	9
5		1	8		9
6	1			2	3
7	1	19	3		23
8	1	6	10		19
<b>Totals</b>	<b>4</b>	<b>36</b>	<b>23</b>	<b>5</b>	<b>68</b>

Small round houses ranged in size from 3 x 3 m to 4.5 x 3 meters. The present study interprets these house forms as representing examples of wetuomemese (memese-little wetu-house) "which their



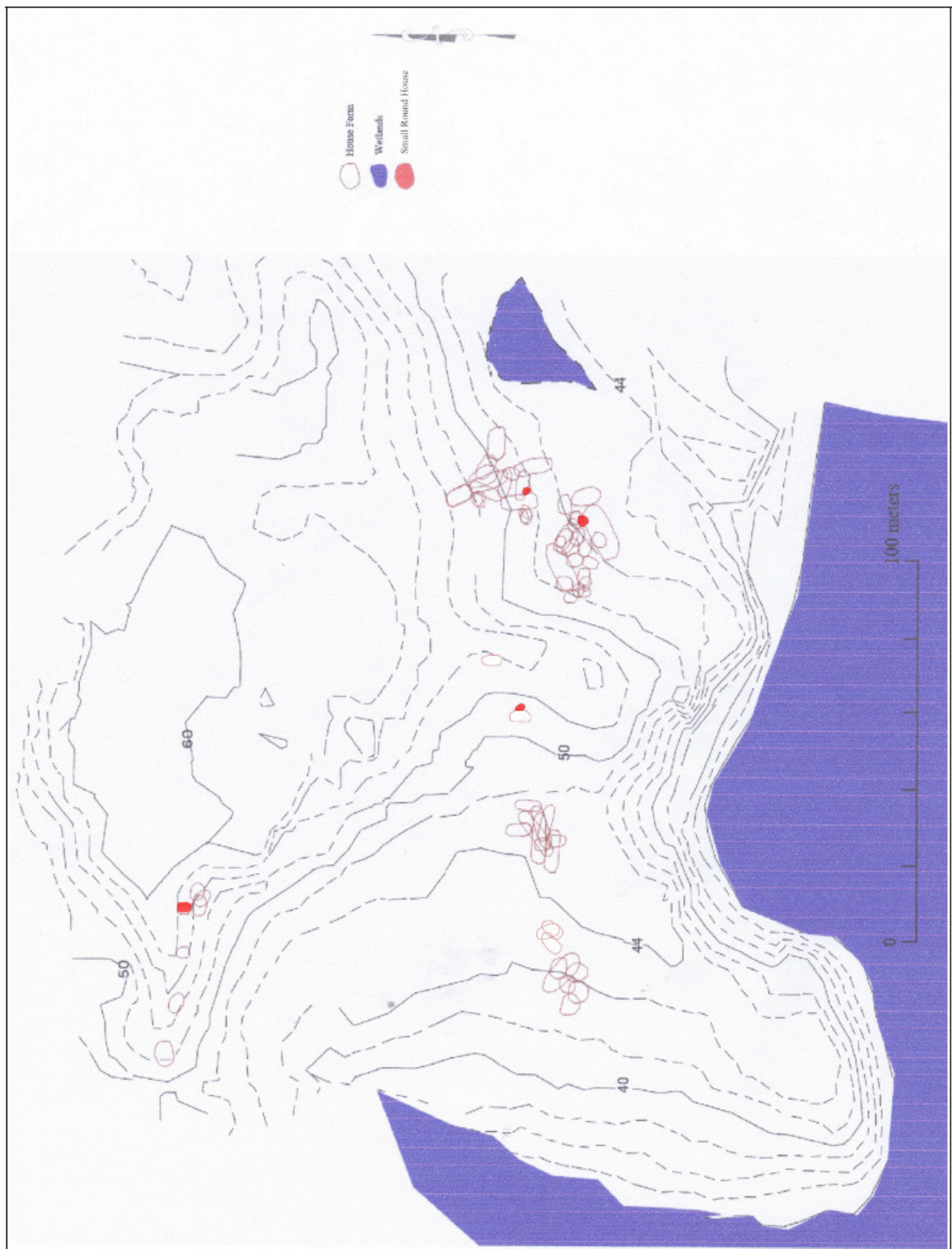


Figure 17. Distribution of small round houses



women and maids live apart in, four, five, or six dayes, in the time of their monthly sicknesse, which custome in all parts of the Countrey they stricklty observe, and no male may come into that house" (Williams 1971: 31). Native women used these lodges during their menstrual periods and just before, during, and just after childbirth. Nomadic tribes erected temporary structures for this purpose on an as needed basis at transitory camps, fairly substantial structures that would leave traces in the archaeological record indicate more sedentary communities. Lewis and Clark recorded, that among the Nez Perce on the lower Columbia River in the Pacific Northwest, these structures were about 20 feet in diameter and were "usual appendages to a solitary lodge" possibly indicating that each house may have had one (Spinden 1908: 198). Robert Lowie reported that among the Shoshone of the Idaho, Wyoming, and Utah area, people located these structures within 20 feet of the women's home and that they could be as small as a one person structure (Lowie 1980: 183). Paul Radin reported that among the Winnebago of the Green Bay, Wisconsin area located their women's lodges close enough to a woman's house so that people could easily converse with them while they were in the lodge and that they were not allowed to see the sky while they inside for fear that it would cause the weather to become stormy (Radin 1923: 89). Several facts related to the use of these lodges and the rules followed at this time of a woman's cycle appear widespread in Native cultures across North America: men were not allowed to enter this lodge, during their menstrual period, women were not allowed to touch items belonging to anyone else, and the culture expected women to fast or eat a specific vegetarian diet of certain roots, seeds and bread (Spinden 1908: 198; Lowie 1980: 214; Radin 1923: 89; Williams 1971: 31).

Archaeological testing identified four of these structures across the project area, one each in Lots 2, 6, 7, and 8, each large enough to hold two to four people, possibly indicating that all the women in the community used them communally (**Figure 17**). Archaeologists found the lodge in Lot 2 slightly separate (~two meters) from House Form 4 and overlapping House Forms 1 and 2. The lodge in Lot 6 was adjacent to, and slightly overlapping, House Form 2 and was 17 meters from House Form 1. This structure may have been associated either with these house forms or with a house form in the unexcavated area around the impact area. The lodge in Lot 7 overlapped house forms 21 and 23 and was almost next to House Form 16. The lodge in Lot 8 was next to House Form 7 and overlapped House Form 2. All four of the lodges have several characteristics in common: they are small with enough floor space for a limited number of people, most commonly next to another, larger house, and they all had some type of pit or basin within them (medium size medium depth pit in Lot 2, large size medium depth pit in Lot 6, large size deep pit in Lot 7, and shallow basin in Lot 8). The inhabitants oriented half of the small round lodges on a southeast to northwest axis (those in lots 7 and 8) while the remaining two (Lots 2 and 6) were at 62 and 20 degrees off north, northeast to southwest respectively) (Tables 185 and 186). The builders of the houses spaced the post molds for small round houses

Table 5. House orientation by house form

Angle	Small Round	Round	Long	Narrow Long	% of total House Forms
<b>0-45°</b>	25%	36%	30%	60%	37.75%
<b>46-90°</b>	25%	25%	17%	20%	21.75%
<b>91-135°</b>	50%	25%	44%	20%	34.75%
<b>136-180°</b>	0%	14%	9%	0%	5.75%

Table 6. House orientation by house form and by lot

	Lot 1	Lot 2	Lot 4	Lot 5	Lot 6	Lot 7	Lot 8	Totals
<b>Long</b>								
0-45°				2		1	4	7
46-90°			1	2			1	4
91-135°				4		2	4	9
136-180°			1				1	2
<b>Round</b>								
0-45°		2	1	1		6	3	13
46-90°			2			5	2	9
91-135°	2	1	1			4	1	12
136-180°		1				4		5
<b>Small Round</b>								
0-45°					1			1
46-90°		1						1
91-135°						1	1	2
136-180°								
<b>Narrow Long</b>								
0-45°			1		2			3
46-90°			1					1
91-135°			1					1
136-180°								
<b>Totals</b>	<b>2</b>	<b>5</b>	<b>9</b>	<b>9</b>	<b>3</b>	<b>23</b>	<b>17</b>	<b>68</b>

between 30 and 120 cm apart with the average being 66 cm for Lot 6 House Form 3 and 48.8 cm for Lot 8 House Form 3 (Table 7).

Table 7. Post mold spacing for small round houses

House	Type	Range	Average distance apart
L6-3	Small Round	30-120 cm	66 cm
L8-3	Small Round	30-70 cm	48.8 cm

Archaeologists identified 36 round to oval-shaped houses across the project area with a concentration of them in Lots 1, 2, 4, 7 and to a lesser degree, Lot 8 (**Figure 18**). These houses ranged in size from 5 x 3.75 m to 10 x 8 meters with interior areas of 14.7 to 62.8 square meters. Analysis estimated that the number of people who may have lived in these houses would have ranged between five and twenty-

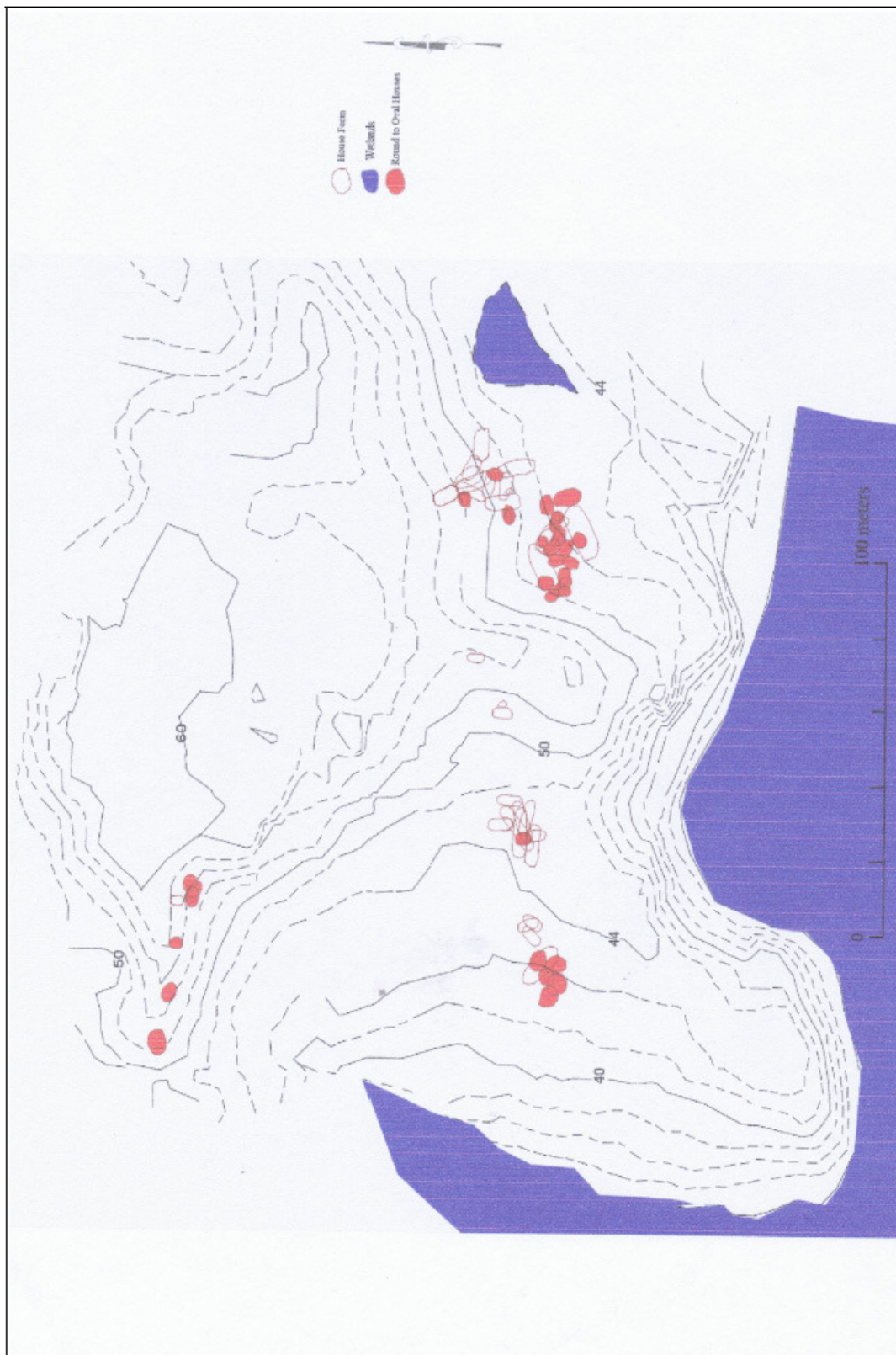


Figure 18. Round to oval house form distributions across the project area

one persons, essentially one to two families. Archaeologists encountered houses with smaller floor areas in all lots except lot s and 4 (Table 8). The builders oriented most of the round houses from 0

Table 8. Round house floor area comparisons

Floor Area	Lot 1	Lot 2	Lot 4	Lot 5	Lot 6	Lot 7	Lot 8	% of total House Forms
14-20 sq m		80%		100%		44.4%	66.7%	47.2%
21-30 sq m	50%	20%				44.4%	33.3%	33.3%
31-43 sq m	50%		50%			11.1%		13.8%
62.8 sq m			50%					5.3%

(north-south) to 45° (northeast to southwest) orientation (36% of total). Twenty-five percent of the round houses were oriented from 46° (northeast to southwest) to an east to west orientation and 25% were oriented from east to west (90°) to 135° (northwest to southeast) orientation. Only 14% were at an angle greater than 135° off north. Comparison between lots (Table 6), shows that the house in lot 1 were oriented from southeast to northwest where in the other lots, this orientation was in the minority with most house being closer to north to south or northeast to southwest. Round houses commonly contained one or more medium-size medium depth pits that the present study interprets as cache pits. These pits often occurred in paired or slightly overlapping groups, interpreted as representing the excavation of a new pit in the fall when people abandoned the site, near the same area of the house where they had previously filled the previously excavated pit in the spring. Evidence for rebuilding of houses, probably by the same family, on the same location, was evident in Lot 2, Lot 7, Lot 8, and possibly Lot 4. People spaced the post molds for round houses between 15 and 170 cm apart with the average ranging between 41.7 and 150 cm (Table 9). The house form with the widest spacing was

Table 9. Post mold spacing for round to oval shaped houses

House	Type	Range	Average distance apart
L1-1	Round	1.5 m	1.5m
L2-2	Round	20-100 cm	68 cm
L4-1	Round	15-80 cm	41.7 cm
L7-1	Round	20-100 cm	56 cm
L7-2	Round	50-120 cm	71.6 cm
L7-3	Round	20-120 cm	58.7 cm
L7-4	Round	30-120 cm	57.7 cm
L7-5	Round	50-170 cm	100 cm
L7-6	Round	30-130 cm	56 cm
L7-7	Round	30-150 cm	65 cm
L7-8	Round	50-150 cm	85.7 cm
L7-9	Round	30-70 cm	45.6 cm
L7-10	Round	30-120 cm	67.5 cm
L7-11	Round	20-120 cm	59 cm

Table 9. (Cont.)

House	Type	Range	Average distance apart
L7-12	Round	30-100 cm	57.6 cm
L7-13	Round	30-100 cm	49 cm
L7-14	Round	50-100 cm	61.8 cm
L7-15	Round	30-70 cm	56 cm
L7-17	Round	30-100 cm	50.4 cm
L7-18	Round	30-100 cm	48 cm
L7-19	Round	30-150 cm	107.5 cm
L7-20	Round	50-70 cm	60 cm
L7-23	Round	50-100 cm	80.8 cm
L8-4	Round	50 cm	50 cm
L8-5	Round	50 cm	50 cm
L8-6	Round	50 cm	50 cm
L8-9	Round	30-150 cm	68 cm
L8-11	Round	50 cm	50 cm
L8-12	Round	50 cm	50 cm
L8-17	Round?	50 cm	50 cm

Lot 1 House Form 1 where they were spaced 150 cm apart. Most of the post molds appear to have averaged between 40 and 70 cm apart.

Longhouse forms concentrated in the southern portion of the project area on the flat terrace overlooking the Nemasket River. Archaeologists identified 23 longhouse forms with most being in lots 5 and 8 (**Figure 19**). These houses ranged in size from 7 x 5 m to 20 x 9 m with the largest in Lot 4. Interior floor areas ranged from 27.5 to 141.4 square meters. Analysis estimated that the number of people who may have lived in these houses would have ranged between nine and 47, one to perhaps five or six families. The longest and largest house was in Lot 4 and may represent either a ceremonial house or the house of a sachem associated with the community. People built ceremonial houses at certain times of the year and used them for gatherings of all the people in the host community and its neighbors. Most of the longhouses ranged in size from 47 to 63 square meters in size except in Lot 7 where 66.6% of the houses were over 63 square meters in size (Table 10).

Table 10. Comparison of round house floor areas between lots

Floor Area	Lot 4	Lot 5	Lot 7	Lot 8	Totals
26-37 sq m		33.3%	33.3%		3
47-63 sq m	50%	66.6%		50%	10
66-88 sq m			33.3%	50%	6
119-141 sq m	50%		33.3%		2
<b>Totals</b>	<b>2</b>	<b>6</b>	<b>3</b>	<b>10</b>	<b>21</b>



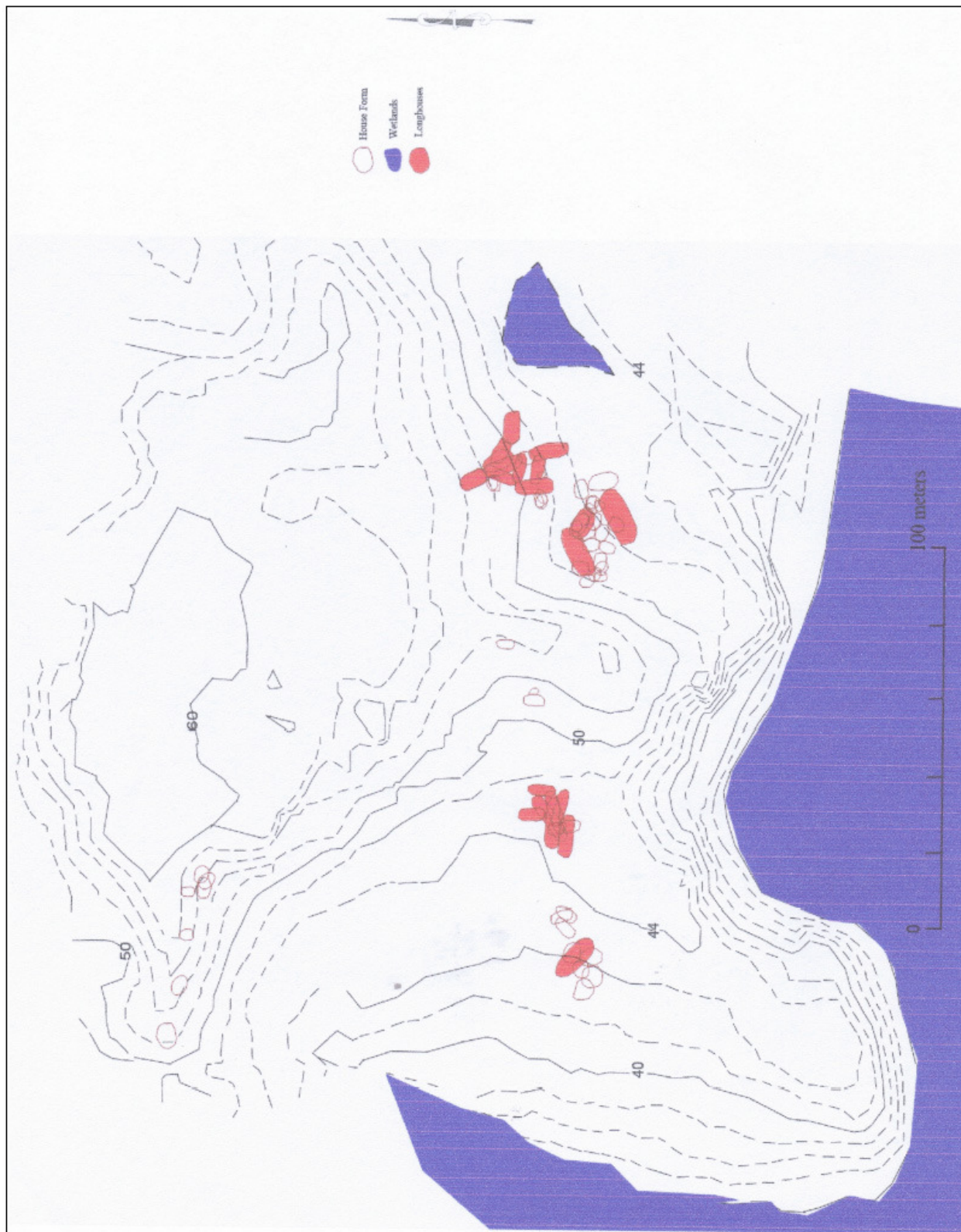


Figure 19. Longhouse forms



Unlike the round house forms, most of which were oriented northeast to southwest, most of the longhouses (44%) were oriented southeast to northwest (Table 11). Lot 4 houses were oriented from northeast to southwest and from southeast to northwest, the majority in lots 5 and 7 were oriented from southeast to northwest and those from Lot 8 were split in their orientations between northeast to southwest and northwest to southeast with one other house being oriented almost east to west at 94°. People spaced the post molds for longhouses between 10 and 170 cm apart with the average ranging from 36 to 150 cm (Table 11). Several of the Lot 7 and Lot 8

Table 11. Post mold spacing for longhouses

House	Type	Range	Average distance apart
L4-2	Long	10-120 cm	36 cm
L5-1	Long	20-170 cm	67.2 cm
L5-2	Long	8-120 cm	37.8 cm
L7-21	Long	150 cm	150 cm
L7-22	Long	150 cm	150 cm
L8-1	Long	30-70 cm	57.3 cm
L8-2	Long	150 cm	150 cm
L8-7	Long	150 cm	150 cm
L8-8	Long	150 cm	150 cm
L8-10	Long	50-70 cm	58 cm
L8-13	Long	30-100 cm	55.5 cm
L8-14	Long	50 cm	50 cm
L8-15	Long	150 cm	150 cm
L8-16	Long	50-100 cm	73.3 cm

House Forms had definite post mold spacing of 150 cm. Wider spacing may indicate either the use of lighter covering material or the consistent use of larger posts in the construction. The low artifact density that was the general trend in Lots 7 and 8 may support the hypothesis that occupation in these lots was of a shorter duration than in the some of the other lots, which would require less substantial houses that erected in a shorter period of time. The five narrow longhouses were in Lots 4, 5 and 6 and ranged in size from 7 x 2.5 to 12 x 2.5 m with floor areas from 13.7 to 23.6 square meters (**Figure 20**). Analysis estimated that these houses could house 4.6 to 7.9 persons, essentially one family. Houses in Lot 4 were generally larger than those in Lot 6. The majority (60%) were oriented at northeast to southwest while the remaining two were close to east to west (lot 4 houses 7 and 8, 84 and 104° respectively). It is unknown why people would have chosen this house over the round house for a single family. Post molds for longhouses were between 20 and 170 cm apart with the average ranging from 30 to 57.5 cm (Table 12).

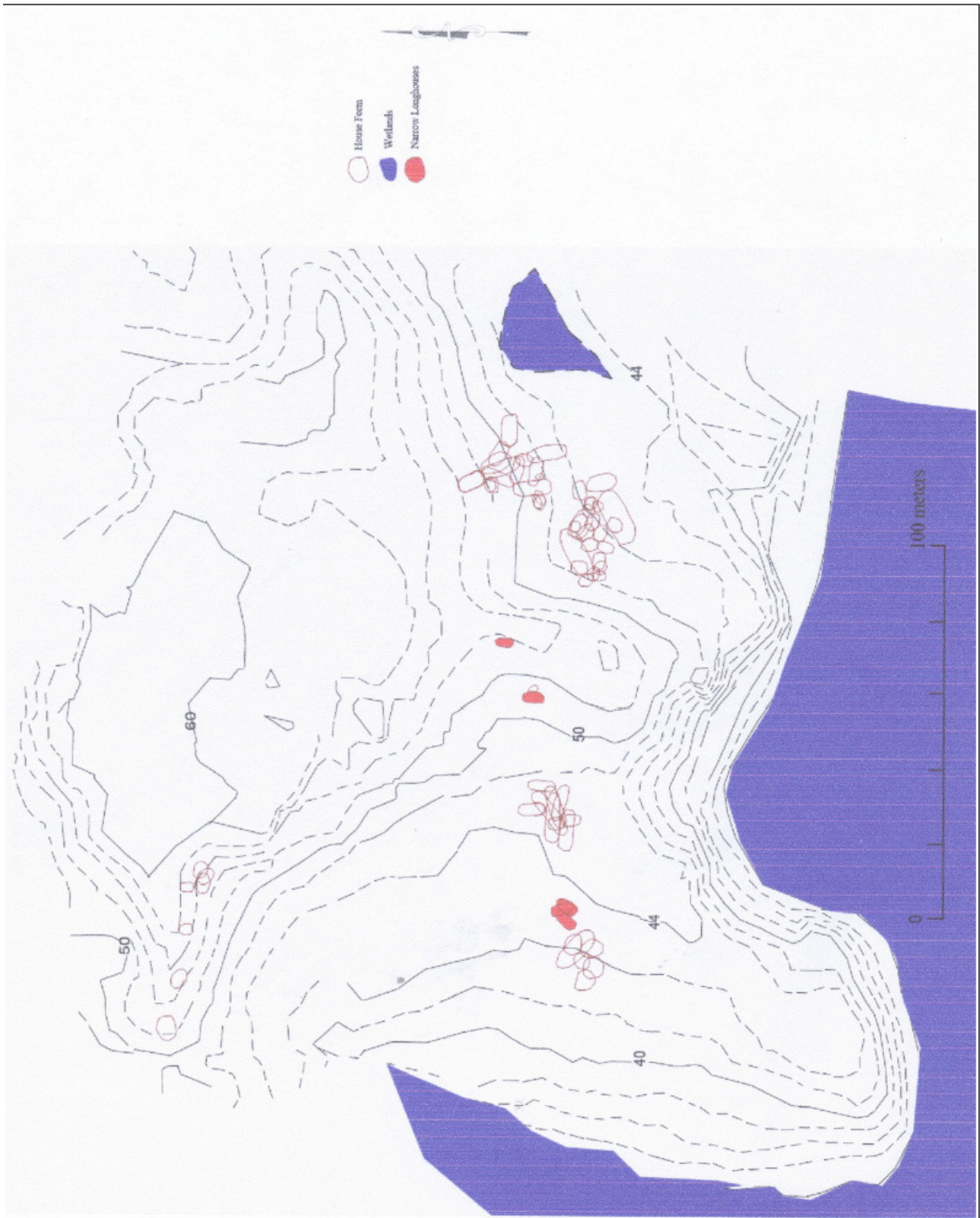


Figure 20. Narrow Longhouse form distributions across the project area

Table 12. Post mold spacing for narrow longhouses

House	Type	Range	Average distance apart
L4-7	Narrow Long	20-60 cm	38.75 cm
L4-9	Narrow Long	10-170 cm	57.5 cm
L6-1	Narrow Long	7-60 cm	30 cm
L6-2	Narrow Long	20-100 cm	40.8 cm

While many house forms were present across the project area, many also overlapped, indicating that they were not occupied at the same time. Houses had a higher likelihood of having been occupied at the same time if they were the same kind of house, if their long axis were oriented at similar axes, and if they were spaced apart at similar distances. If the overlapping forms are eliminated, a total of 17 round to oval-shaped house forms spaced between 3 and 16 meters are apparent, with the average distance being 10 meters (Table 13). Round house forms that archaeologists identified as being potentially

Table 13. Distances between potentially contemporaneous house forms

Lot	Houses	House Type	Distance
1	1-2	Round	11 m
2	4-5	Round	11 m
2	1-5	Round	11 m
4	1-5	Round	5 m
4	1-6	Round	8 m
5	6-9	Round	3 m
7	3-7	Round	7 m
7	3-15	Round	14 m
7	7-15	Round	6 m
7	7-17	Round	11 m
7	15-17	Round	7 m
8	4/5/6-9	Round	12 m
8	4/5/6-11/12	Round	16 m
8	9-17	Round	16 m
8	16-17	Round	15 m
8	9-16	Round	5 m
8	11/12-16	Round	14 m
4	7-9	Narrow Long	9 m
6	1-2	Narrow Long	18 m
7	21-22	Long	11 m
8	7-8	Long	8 m
8	7-13	Long	6 m
8	7-15	Long	8 m
8	1-2	Long	3 m

contemporaneous were the following: L1-1, L1-2, L2-5, L2-1 or 4, L4-1, L4-5 or 6, L5-6, L5-9, L7-3, L7-7, L7-15, L7-17, L8-4/5/6, L8-9, L8-11/12 or 17, and L8-16 (**Figure 21**). Analysis identified six potentially contemporaneous longhouse forms in Lots 4, 5, 7, and 8. Longhouse forms that could be contemporaneous were: L4-2, L5-1, both of which existed in isolation in their impact areas, Lot 7-21 and 22, and Lot 8 1 and 2 or 7 and 13 or 15 (**Figure 22**). Spacing between longhouse forms was between three and 11 meters apart with the average being 7.2 meters. Four narrow longhouse forms may have been contemporaneous: Lot 4-7, L4-9 and Lot 6-1 and L6-2 (**Figure 23**). These forms were between 9 and 18 meters apart with the average being 13.5 meters.

If people occupied all 16 round house forms contemporaneously, the potential number of people that they could house was 145. If people occupied all six longhouses at the same time the potential number of people that they could house was 190 persons. If they occupied all four narrow longhouses, the potential number of people that they could house was 20 persons.

### **Summary of Housing**

Archaeologists identified 68 potential house forms of four types: small round houses, round houses, long houses and narrow long houses. The Native inhabitants constructed these houses using saplings that measured between two to 30 cm in diameter placed between one and 40 cm into what is left of the subsoil. Historic plowing has reduced the measurable depth into the subsoil that these posts originally extended. Stripping of the plowzone and scraping of the subsoil resulted in the identification of 1601 post molds. Occupation estimates were made using a combination of ethnohistoric and comparative sources with the figure of three square meters per person arrived at. Analysis used this number to calculate the number of people that could comfortably live in each house form. Archaeologists estimated that the typical nuclear family size was between five and seven persons. Excavation identified four small round houses interpreted as representing women's menstrual and birthing lodges. Analysis estimated that between two and four people could fit in these lodges. Half of these lodges were oriented between 91 and 135° off north while the remaining two were between 0 and 90° off north.

Excavation identified 36 round to oval house forms with most being oriented between 0 and 45° off north. Analysis estimated that these houses could house between five and 21 people, essentially one to three families. Evidence of rebuilding of several of these house forms on locations close to the preceding house indicates that the same families were probably returning to the same house location year after year.

Archaeologists identified 23 long houses in the southern half of the project area in Lots 4, 5, 7 and 8. These houses ranged in size from 7 x 5 m to 20 x 9 meters with the ability to house between nine and 47 persons (one to six families). Archaeologists believe that the largest of these long houses (Lot 4 House Form 2) was the house of a sachem and/ or was a ceremonial and special occasion house. These houses were found to have been oriented predominantly between 91 and 135°. Testing found the five narrow long houses limited to lots 4 and 6. These were found to measure between 13.7 and 23.6 square meters and could potentially house between five and eight people, essentially one family. Most were oriented between 0 and 45° off north. It is unknown if there was a status or temporal difference between the various house forms.



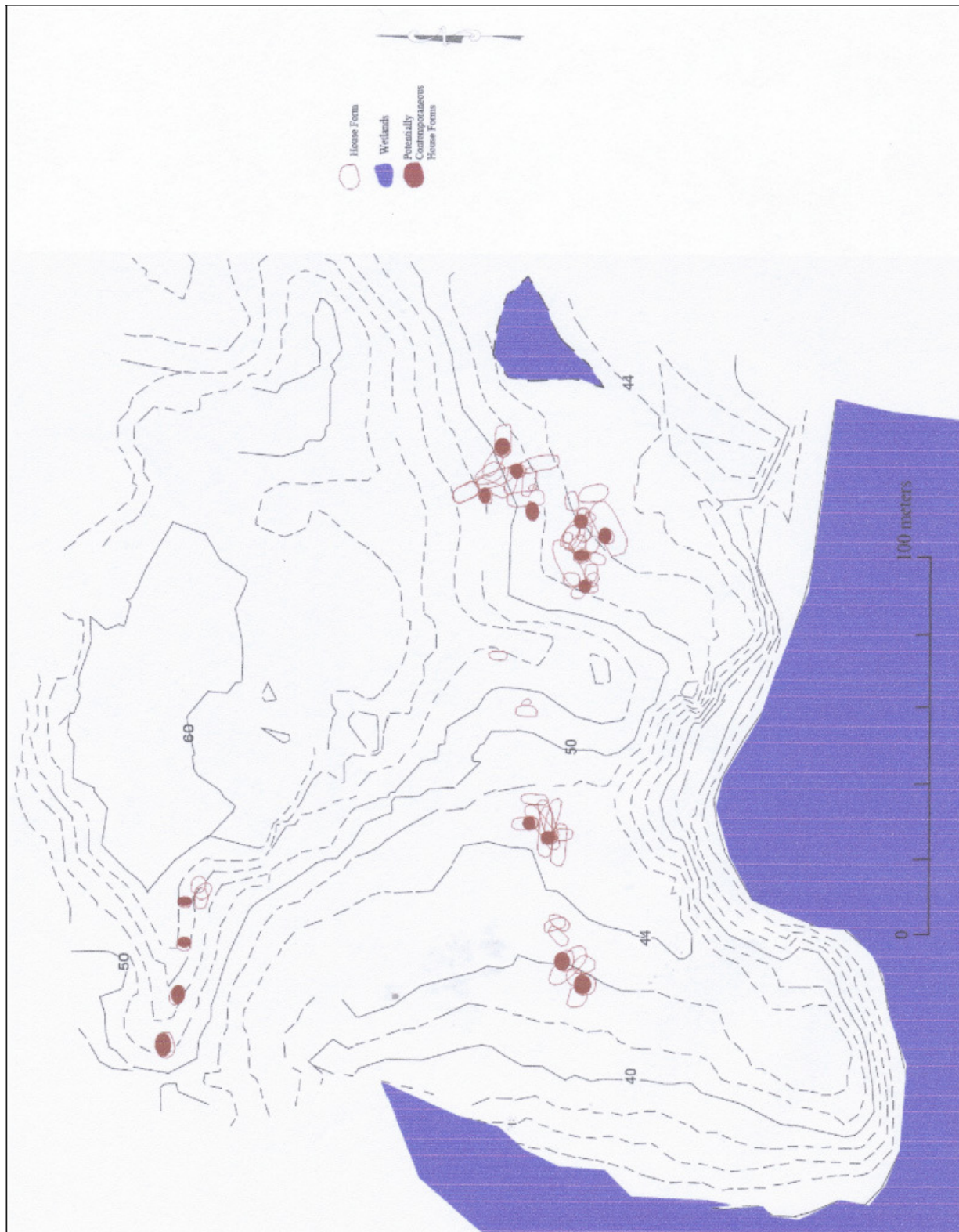


Figure 21. Potentially contemporaneous round house forms

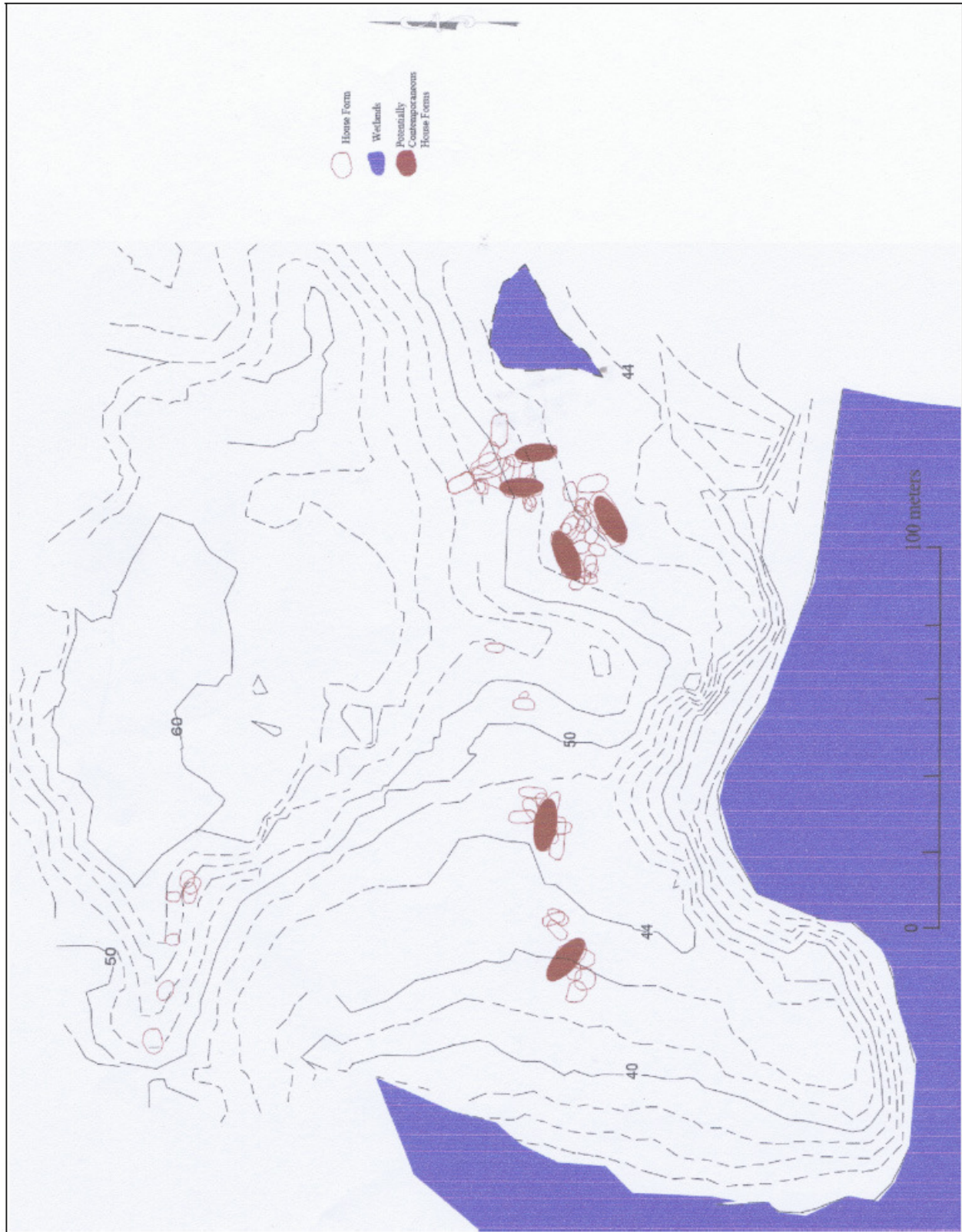


Figure 22. Potentially contemporaneous longhouse forms





Figure 23. Potentially contemporaneous narrow longhouse forms