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A. Joachim McGraw

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Center for Archaeological Research
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INTRODUCTION

During late February and early March of 1978, personnel from the Center for Archaeological Research, The University of Texas at San Antonio, conducted intensive mapping and limited subsurface testing of the prehistoric quarry-workshop site of 41 BX 68. Investigations of the site, located near the intersection of FM 1604 and Elm Creek in northern Bexar County (see Fig. 1), were conducted under the terms of a contract (Purchase Order No. 40-7442-8-426) with the Soil Conservation Service. Located near proposed Floodwater Retarding Structure 11, portions of the extensive site will soon be altered or critically damaged by modification.

Preliminary observations of the site indicated large areas were relatively undisturbed since the original aboriginal activity had taken place (Brown *et al.* 1977). Intact, relatively undisturbed concentrations of lithic debris were noted (see Fig. 2). The frequency, distribution and association of these materials were considered to be of unusual value in identifying intra-site activity areas. The intent of the current investigation was to formulate a preliminary description of the site and identify various aspects of lithic technological processes and their intra-site relationships in a prehistoric south central Texas quarry-workshop area.

PREVIOUS RESEARCH

As one of the most archaeologically studied counties in Texas, Bexar County has over 500 identified and recorded sites, to date, although many of these sites have been investigated at only a preliminary survey level with little sustained research. The identification, recording and analysis of these sites has been the direct result of an intensive program of public service archaeology initiated by the Center for Archaeological Research, The University of Texas at San Antonio.

The work surrounding 41 BX 68 is part of a major focus of study in northern Bexar County centered along Salado Creek and its tributaries in the area. Fawcett (1972) discusses the prehistoric significance of the locality in terms of areal inter-relationships while more recent reports have concentrated on site specificity. Recent investigations include Hester *et al.* (1974), Smith and McDonald (1975), Brown *et al.* (1977), Fox (1977), Jaquier *et al.* (1978), McGraw *et al.* (1977), McGraw and Valdez (1977a, 1977b), Gerstle *et al.* (1978) and Assad (1978).

Contrasted to the general interest in prehistoric sites within the study area generally, quarry-workshop sites in central and south Texas have been largely ignored, although they have been briefly discussed by Patterson (1975) and Kelly and Hester (1975a, 1975b). Quarry-workshop sites have received considerable attention in other parts of North America (e.g. Holmes 1894; Heizer and Treganza 1972; and see the bibliography in Hester and Heizer 1973).

There are several major archaeological sites in northern Bexar County, including 41 BX 17, the Granberg site; 41 BX 22, the Rogers site; 41 BX 228, Walker Ranch; 41 BX 229, the St. Mary's Hall site; 41 BX 271, the Granberg II site; and 41 BX 300, a large burned rock accumulation/occupation site. The importance of this area during prehistoric times has become evident through the analysis and identi-

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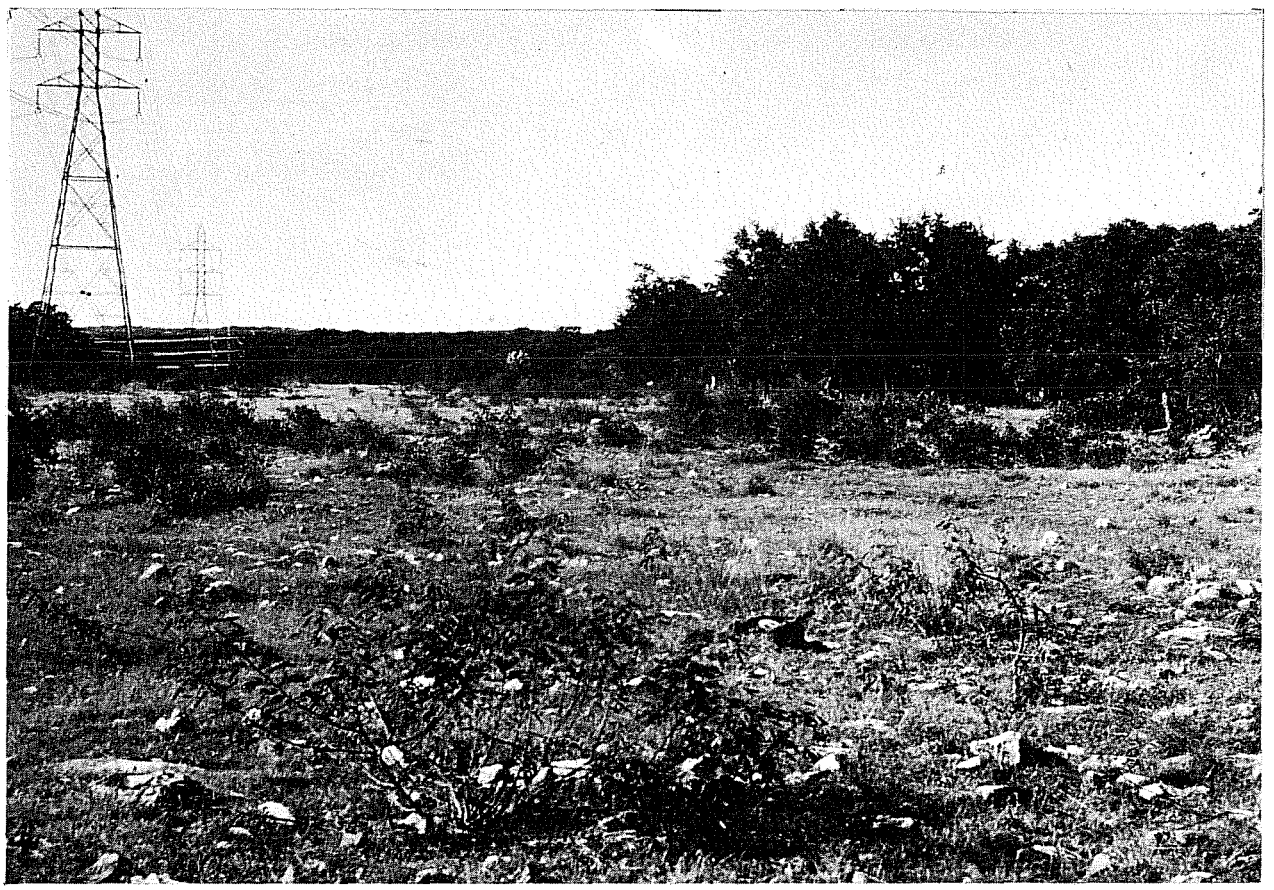

Figure 2. *View of Site.*

fication of a large number and variety of aboriginal artifacts. The entire chronological sequence of south central Texas, from the Paleo-Indian tradition through the more recent Historic Indian periods, is represented within the general study area.

ENVIRONMENTAL SETTING

An elementary review of the more important environmental conditions within the study area will be discussed. For additional information the reader is referred to Fawcett (1972), Scurlock and Hudson (1973), Hudson *et al.* (1974), Gerstle *et al.* (1978) and McGraw *et al.* (1977).

Topography

Bexar County lies in the transition zone between the southern limits of the Edwards Plateau Escarpment and the northern rim of the South Texas Plains portion of the Gulf Coastal Plain. The drainage patterns for Bexar County run southward and southeastward. The major streams of the county are Cibolo Creek, Leon Creek, Medina River, Salado Creek and San Antonio River (Environmental Impact Statement-San Antonio 1977 [EIS-SA]). Characterized by prominent eroding limestone uplifts and light, calcareous, soil cover, the northern area of the county is reflective of the Texas Hill Country. Elevations in northern Bexar County range from ca. 1250 feet above mean sea level on hilltops to below 700 feet (msl) along drainage channels (McGraw and Valdez 1977b). 41 BX 68 is located in the general northern transition zone and the site environs are characteristic of the features mentioned above.

Geology

There are three distinct soil associations within the study area. However, not reflected in these soil types are complications resulting from local drainages in the form of redepositions, erosion, alluviums, etc. The three major soil associations are: Crawford-Bexar soils (moderately deep, stony soils over limestone); Tarrant-Brackett soils (shallow and very shallow soils over limestone); and Lewisville-Houston Black (terrace-associated, deep, calcareous soils in old alluvium (see Taylor *et al.* 1966). Six major rock types can be found in the Bexar County area. These include: hard limestone, mixed hard and soft limestones, clay, unconsolidated to consolidated sand, mixed sand and clay, and alluvium and terrace deposits (EIS-SA 1977). The alluvium and terrace deposits consist of a variety of lithologies which include consolidated and unconsolidated clay, silt, sand and gravel (*ibid.*). In the southern part of the county, the gravel deposits provide a basic source of chert. The northern section of Bexar County has numerous exposures of chert in the Edwards Limestone Formation. For the purposes of this report, chert refers to a wide range of materials in which are sometimes included "flint", "jasper" and similar crytocrystalline rocks. These rocks are fine-medium grained, semitransluscent, or opaque, with conchoidal fracturing properties (Wilmsen 1970). Hamilton *et al.* (1974) define chert as an opaque, bedded, massive chalcedony, usually dull grey to black in color. Chalcedony is the name given to compact varieties of silica comprised of minute quartz crystals with sub-microscopic pores. It should be noted the term "flint" is reserved for the black nodular variety of chalcedony commonly found in chalk (vs. the perculation-formed chert of limestone).

Climate

Bexar County, with mild winters and moderately hot summers, can be described as subtropical. High and low record temperatures vary respectively from 106° to 0° F., while daily maximum and minimum temperature averages are 79.2° and 53.1° respectively (Taylor *et al.* 1966). Precipitation is usually evenly distributed throughout the year, averaging 27.84 inches per year. Record precipitation for Bexar County (maximum and minimum) is 52.28 and 13.70 inches, respectively. Rain in the form of thunderstorms falls in all seasons except winter and quite often results in flooding of local waterways and low water areas (McGraw *et al.* 1977). Snowfall in the Bexar County study area is rare. The winter season is dominated by northern winds while southeasterly Gulf winds predominate during the summer. The period from the last spring freeze to the first freeze in fall averages 245 days (Taylor *et al.* 1966).

Flora and Fauna

The study area of Bexar County falls within portions of three biotic provinces as discussed by Blair (1950). These are the Balconian, Texan and Tamaulipan. A detailed study of the flora and fauna of Bexar County is beyond the scope and intent of this report. Additional information can be obtained from the following sources: Blair (1950), Davis (1974), Fawcett (1972), Gould (1969), McGraw and Valdez (1977b) and Taylor *et al.* (1966).

CHRONOLOGY OF PREHISTORIC HABITATION

The archaeology of south central Texas generally and of the study specifically is only broadly defined. Sites located near 41 BX 68 are usually near past or present water resources, the now-intermittent drainages that flow southward through the rocky limestone elevations characteristic of northern Bexar County. Hester (1976) discusses the characteristics of these sites in detail although his emphasis is on occupation rather than quarry-workshop sites. The latter, in the same area, have been mostly ignored and poorly studied. Reflecting the technological leavings of the early inhabitants of south Texas, quarry-workshop sites in northern Bexar County are scattered over large areas where outcroppings of chert cobbles occur along the exposed Edwards Limestone Formation.

A detailed discussion of aboriginal activities in this region is beyond the scope of this report and this study will identify only highlights of the prehistoric chronology. While artifact evidence in the region suggests activity dating to 9200 B.C., very little is known of the varied and complex cultures that once inhabited the area for millennia in the past. Four major time periods are represented by sites near the study area and they are defined as the Paleo-Indian, the Archaic, Late Prehistoric and the Historic.

Paleo-Indian projectile points are found scattered in localities throughout south Texas. This presumably represents a Plains-derived lithic phenomenon with distinct cultural systems. Hester (1968, 1974 and 1977) discusses and presents distributional data on this period. Throughout most of south Texas, *Plainview* and *Golondrina* points are the dominant forms and are reflected in the occupations of such major sites as 41 BX 229, the St. Mary's Hall site and 41 VT 15, the Johnston-Heller site along the Guadalupe River drainage (see Hester 1977).

Following the Paleo-Indian period and preceding the Archaic, there now appears evidence of a transitional phase occuring in south and central Texas. Lithic traits include corner notched and triangular dart points and stemmed points termed *Gower* (Sollberger and Hester 1972).

Although Archaic sites comprise the majority of prehistoric remains in the region, the long span of time that is associated with the Archaic period is poorly understood. Recent investigations suggest vast diversities once existed in south central and south Texas cultures identified with the Archaic. Heterogeneous settlement patterns and areally unique lithic tool kits indicate the Archaic may have been composed of numerous bands of hunters and gatherers with specific territorial limits. Hester (1976) suggests these bands were characterized by specific adaptations to various ecosystems and localized environments. Archaic sites are assumed to reflect the technological leavings of small groups who used a highly mobile broad spectrum foraging strategy in response to seasonal scheduling in the availability of numerous floral and faunal resources (Reher 1977).

The Archaic in south central and south Texas is still poorly understood although major inroads have been made in the last decade. A status report of specific aspects of the Archaic lifeway has been presented by Hester (1976), and this not only provides an up-to-date interpretation of Archaic features but also discusses the problems and complexities of the study. However, one facet of the Archaic lifeway that remains poorly known is the lithic procurement system. Large Archaic period quarry-workshops, such as 41 BX 68, are known along the edge of the Edwards Plateau, but few have been adequately studied (e.g. Katz 1978).

The best known chronological unit in south Texas is the Late Prehistoric, ca. A.D. 500/1000-A.D. 1500. The Late Prehistoric reflects a number of cultural modifications which often abruptly modified artifact assemblages. The bow and arrow, pottery, and in some localities, agriculture, were primary characteristics of the period. Fawcett (1974) suggests that *Edwards* points were the predominant type of projectile point from the Edwards Plateau Region to the north and west of the south central Texas region. For a more detailed synthesis of the Late Prehistoric, see Hester and Hill (1975) and Hester (1975).

The Historic period of south Texas archaeology (A.D. 1500) is generally defined as the period of post-European contact. The time span saw the decline of indigenous groups who were decimated by disease, missionization or assimilation. Intrusive Plains Indians such as the Comanche and Apache temporarily filled the void left by earlier groups. For an elaboration and a detailed discussion of these and other groups, the reader is referred to Newcomb (1961).

METHODOLOGY

The investigation of 41 BX 68 was based upon a systematic analysis directed toward: (1) the location and identification of intra-site activities; (2) a preliminary assessment primarily through surface examination of the site's content and importance; (3) the detailed recording of such information for future research; and (4) recommendations for any further work at the site (see Fig. 3). The observation of lithic materials such as debris concentrations was noted not

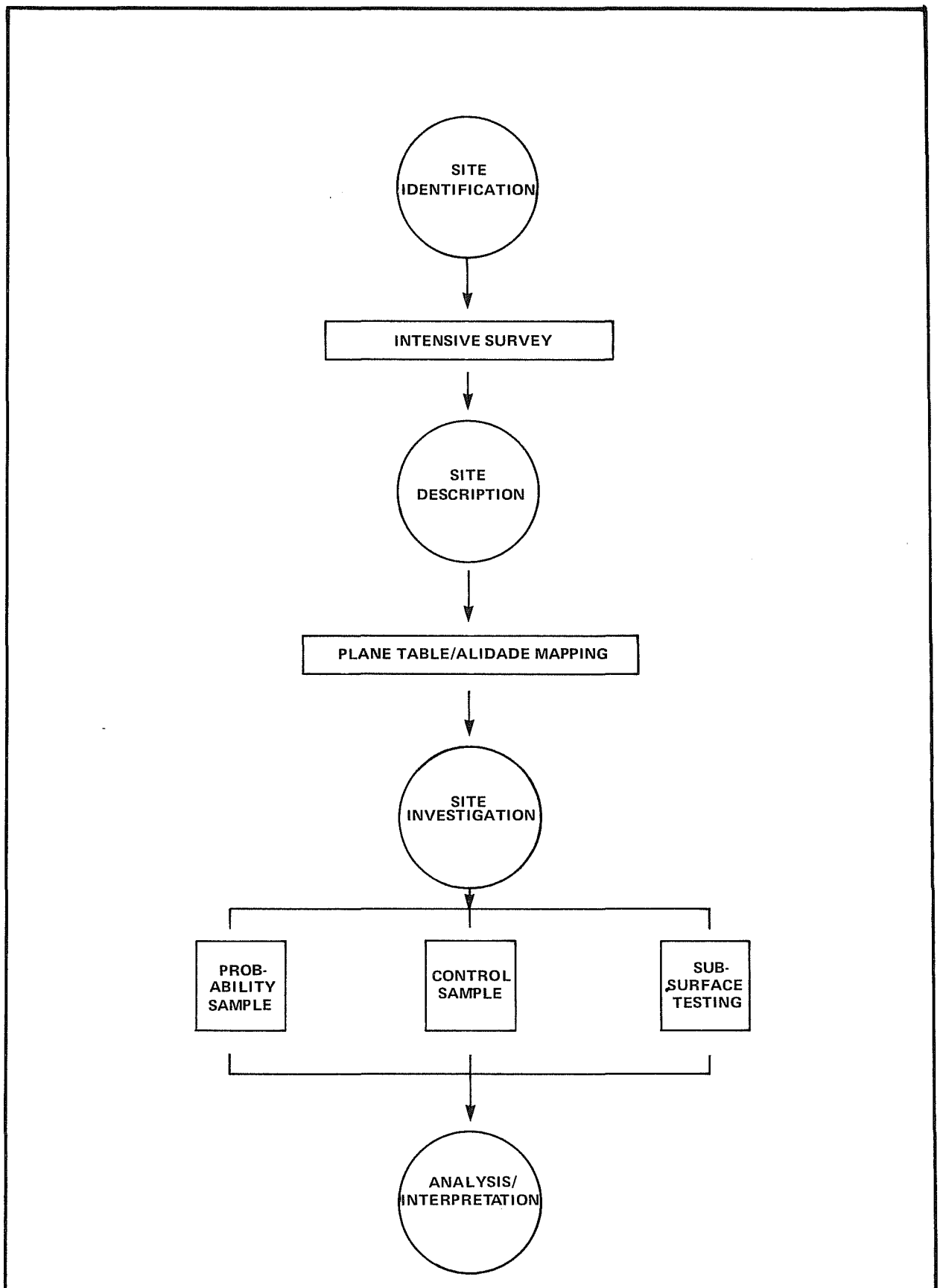

Figure 3. *Research Design.*

only to define boundaries but to locate areas of specific activity. The presence or absence of particular cultural materials as well as elevations and distances from a water source were also particular considerations (McGraw 1977).

Data from 41 BX 68 has been recorded on standard field forms used by the Center for Archaeological Research. Black and white photographs and color slides were taken as a visual record of operations. All collected materials were placed in plastic or paper bags and labeled as to collected area, site number, date, type of collection and collector's name. All artifacts were processed at the UTSA Archaeology Laboratory. The assessments presented in this report are based upon an analysis of field maps, artifacts, photographs, field forms and notes. Detailed data is on file with the Center for Archaeological Research.

Site investigations were divided into three distinct phases during the two weeks of field operations: (1) the completion of an accurate site map utilizing an alidade and plane table; (2) the detailed and intensive mapping of materials in selected areas; and (3) limited subsurface testing to supplement surface information. An intensive survey prior to the commencement of testing operations suggested the site extended along the eastern terrace of Elm Creek in excess of 450 m and eastward, away from the drainage, at least 400 m (see Fig. 4). Because of time limitations and the large site area (in excess of 400 m^2) an entire map of the site area was considered unfeasible. Surface observations suggested that a detailed contour map could be made of the lithic debris representing a distinctive concentration of chert materials within the large scatter. This concentration presumably represents the densest activity area of the lithic scatter and occupies the higher elevations of the terrace. The site maps as presented in Figs. 4 and 5 thus indicate an area of ca. 200 m^2 and represent the most identifiably intense activity locality at the site. A north-south grid line designated N1000 E1000 was established in this area to facilitate mapping.

The second phase of site investigations revolved around the problem of obtaining a clear perspective of intra-site activities and lithic debris distributions when confronted with finite temporal limitations and the generally unworkable, large site dimensions.

Because of these factors, the researchers concluded a 10% random probability sample through detailed mapping of selected areas would present a relatively undistorted view of surface material distribution during the time allowed. To complement the collected data, two separate judgment (control) samples were also taken; one 25 m^2 grid system based on 25 m intervals was imposed over the area previously chosen for detailed plane table/alidade mapping. Each 25 m^2 was assigned a sequential number ranging from 1 to 64. Six numbers (a 10% sample) were chosen using a Random Numbers Table (Redman 1974) and the associated units were then intensively mapped to record any identifiable cultural materials within their boundaries. The actual mapping of each square was done with the aid of a 30 m tape and the use of a surveyor's compass established on diagonal corners of each unit to facilitate recording.

To supplement the present site investigations, limited subsurface examination in the form of a 1 m^2 was excavated in the immediate vicinity of the earlier excavated Shovel Test 5 (Brown *et al.* 1977). This area was the only identified locality within the site that reflected any soil depth. Subsurface frequency

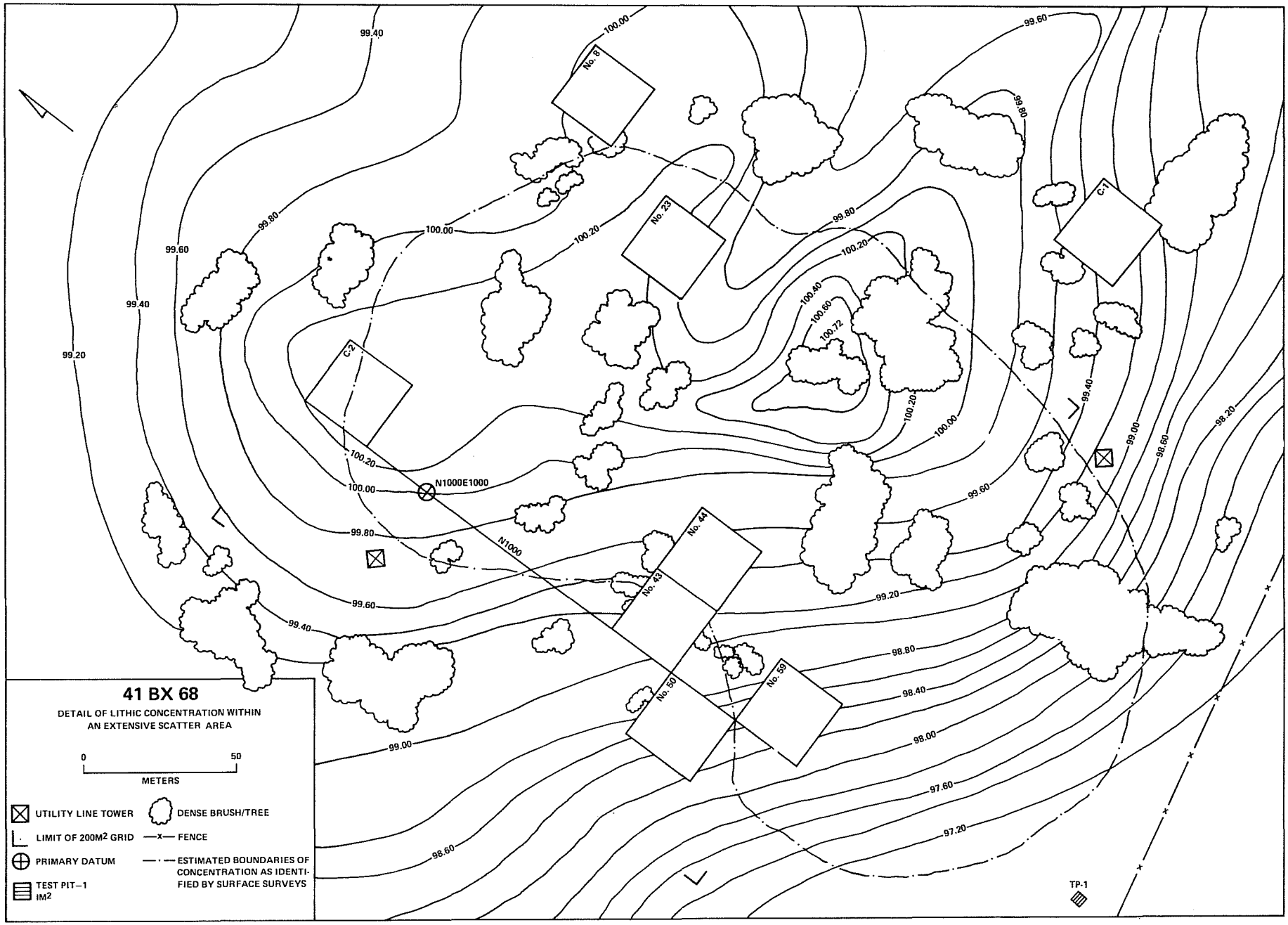

Figure 4. *Contour Map of 41 BX 68.*

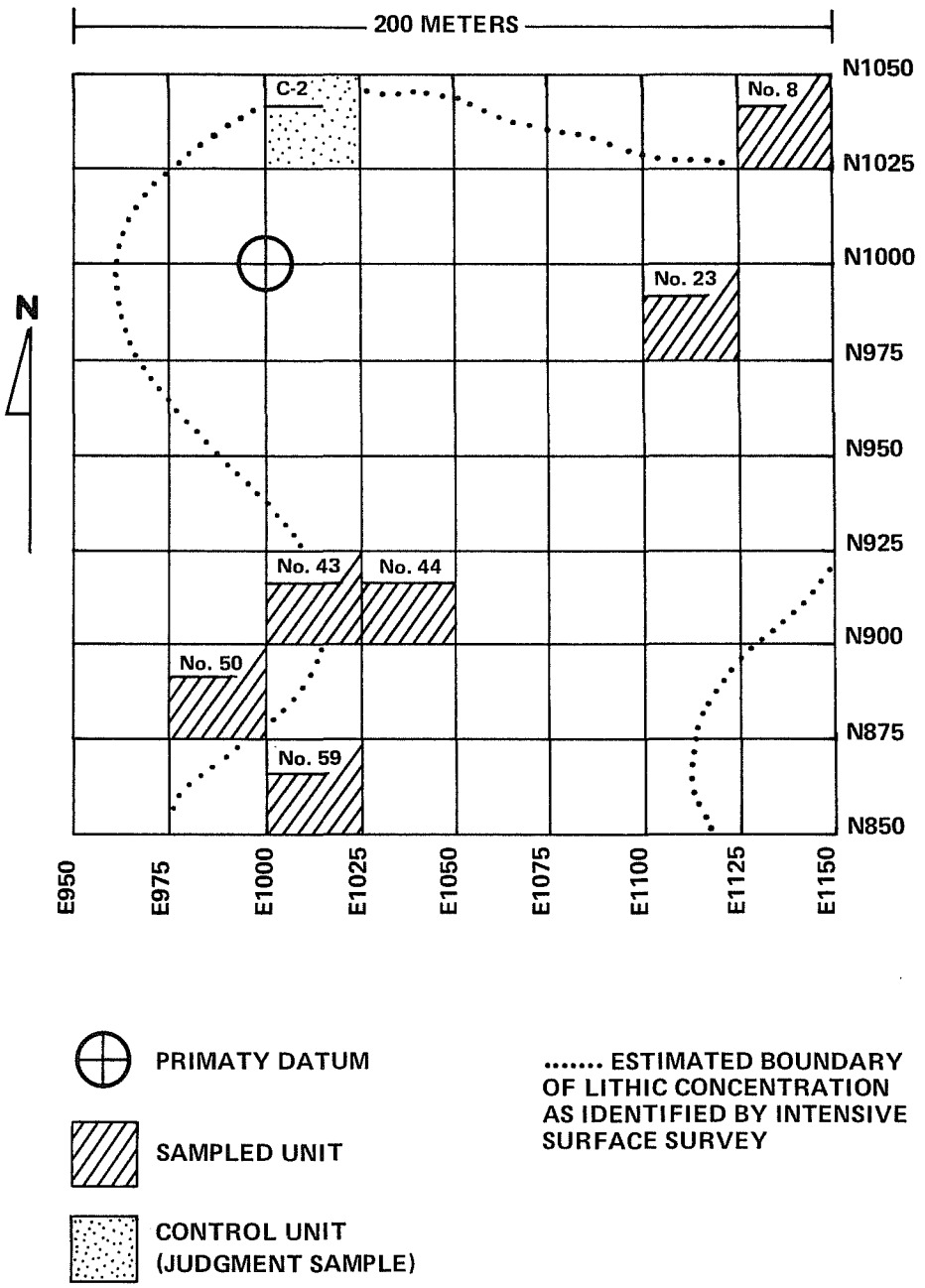

Figure 5. *200 m^2 Grid/Selected Units.*

of artifacts, their horizontal and vertical distribution, and soil characteristics were primary considerations during the examination.

SITE INVESTIGATIONS

Preliminary reports (Hester *et al.* 1974; Brown *et al.* 1977) described the site as lying atop a large, flat ridge high above the east bank of Elm Creek. Recent alteration in the form of a utility/powerline right-of-way has cut through one of the heaviest concentrations of lithic debris in the area. The site has also presumably been further damaged through the efforts of local relic collectors.

An interior survey to establish concentrations and general site boundaries found the prehistoric quarry-workshop area to extend more than 450 m east and north away from the main concentration area near the powerline right-of-way and also over 400 m south. Lithic debris in the form of chips, flakes and cores littered the surface throughout the locality. Occasional unifaces, crude biface fragments and a surprising number of trimmed and/or utilized flakes were also observed. Similar materials have been noted elsewhere and not limited to this locality (Holmes 1894:9-13; Patterson 1975:19-20; Assad 1978).

As noted earlier, the large physical dimensions of the site combined with dense brush, limited manpower and lack of investigative time precluded a detailed examination of the entire lithic scatter. Preliminary reports, substantiated by current intensive operations, indicated a more intense concentration of lithic materials covering an area ca. 200 m^2 atop the higher elevations of the site. This area was chosen as a feasible area from which to approach further field studies of the chert workshop activity area.

Mapping of the concentration was accomplished by a plane table and alidade and a series of 10 mapping stations. A permanent datum was established at an arbitrary point designated N1000 E1000 and all calculations were based on a metric scale. Following the reading of 72 elevation points in this area, the N1000 E1000 point was used to establish a north-south axis which was incorporated into a 200 m^2 arbitrarily divided into 64 manageable 25 m^2 units. To save time, each point of the 200 m^2 was not laid out on the surface; instead, a 10% random probability sample was chosen as described earlier in *methodology* and these individual units (numbers 8, 23, 43, 44, 50 and 59) were established with the help of a plane table and alidade, a 30 m tape, a surveyor's compass, string and flagging tape. While a slight degree of inaccuracy was noted between the surveyor's compass and the alidade, the error was not sufficient to affect the overall analysis. All lithic debris, burned rocks and lithic tools were recorded in these units.

It was recognized that due to the small sample size, a biased view of the site might be obtained. For a comparison of the overall distribution and frequency of materials at the site, two control samples, also 25 m^2 units, were recorded. These judgment samples (C-1 and C-2) were located in a previously unsampled portion of the 200 m grid and also outside of the identified concentration. The results of these efforts are presented in Figures 8 through 15 and corresponding Tables 1 through 8. Figure 16 presents histograms of frequencies and distributions of selected materials from sampled units.

To complement the surface information, a 1 m^2 subsurface examination was conducted adjacent to Shovel Test 5, excavated during the earlier preliminary survey. Although Brown *et al.* (1977) had excavated a series of 50 cm^2 shovel tests, only Shovel Test 5 revealed any soil or cultural depth.

Designated Test Pit 1 (TP-1), the 1 m^2 was excavated by trowels and all materials were screened through 1/4-inch wire mesh. Vertical levels were dug in 10 cm increments and all materials were placed in plastic or paper bags for further laboratory analysis. The unit was excavated to a depth of 40 cm and four soil strata were observed. From the surface to a depth of 3 to 4 cm, an unconsolidated medium brown surface fill was noted. Beneath this and lying atop a heavily compacted dark brown soil was a cultural layer of lithic debris composed of numerous primary, secondary and tertiary flakes, chips and cores. While the cores and core fragments were scattered between 6 and 26 cm, an extensive debris layer was noted between 2 and 5 cm. Beneath the heavily compacted dark brown soil was a less compacted, medium brown clayey soil, unusually moist. Several cores, patinated flakes and other lithic fragments were overlain by large limestone rocks. Between 24 and 28 cm, a transition occurred with a reddish-brown soil overlaying calcareous limestone gravels, the latter ranging in size from .5 to 1.5 cm. Large limestone slabs and deteriorating limestone rocks were found beneath this soil layer to a depth of 40 cm. The limit of artifact depth was reached through the test unit at ca. 28 cm (see Fig. 6).

Definition of Materials

The description and definition of lithic materials and reduction processes are beyond the capabilities of this limited study and this brief section cannot hope to discuss all of these various aspects in depth. For the purposes of this report, only elements which pertain to 41 BX 68 will be discussed. Distinguishing attributes of major artifact and debris categories will be noted and various characteristics discussed as to their significance. Selected artifacts are illustrated in Fig. 7.

For the practical use of this study, many artifact and debris categories will be described based on the degree and type of retouch. Modification of debris material generally takes the form of trimming, or retouch, referring to modification of debris for the purposes of edge alteration, strengthening or sharpening. The result of this action is small flake scars on dorsal and/or ventral sides and ends. The extent of these scars across the width of the debris can be termed marginal, semi-invasive or invasive. Invasive, in this report, is defined as retouch scars extending more than 1/3 of the length across the material's surface. For definitions of general lithic categories identified at 41 BX 68, this section has divided lithic materials into two general categories: (1) cores and lithic debris and (2) unifacial and bifacial artifacts.

Cores and Lithic Debris

Cores may briefly be defined as a piece of siliceous stone used as raw material for a variety of lithic reduction processes; they exhibit at least one flat surface from which one or more pieces of lithic debris have been detached and do not exhibit any bulbs of percussion. Core tools describe cores which reflect marginal or invasive retouch and/or wear (observable alteration of an edge caused by utilization).

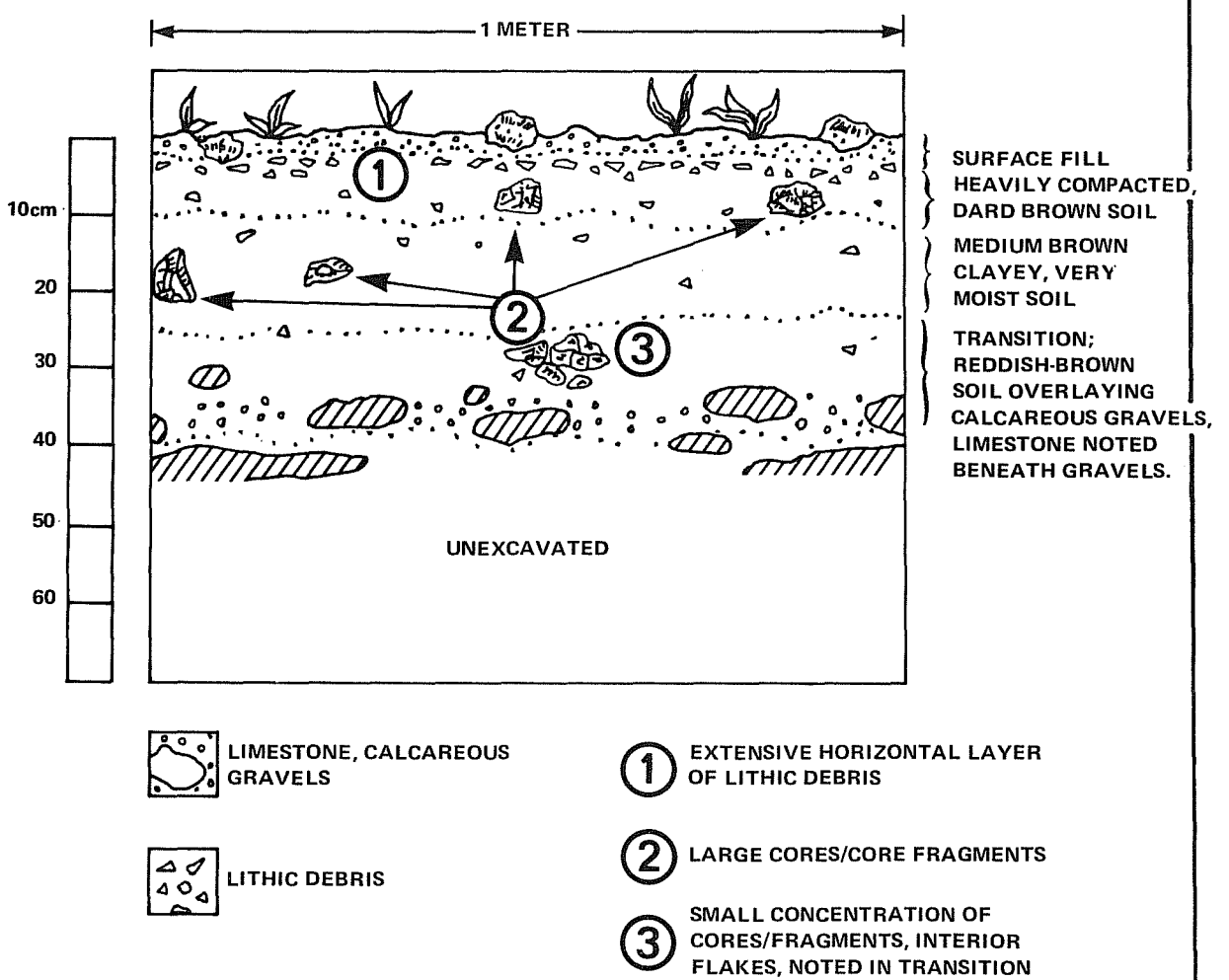

Figure 6. *Profile of TP-1, East Wall.*

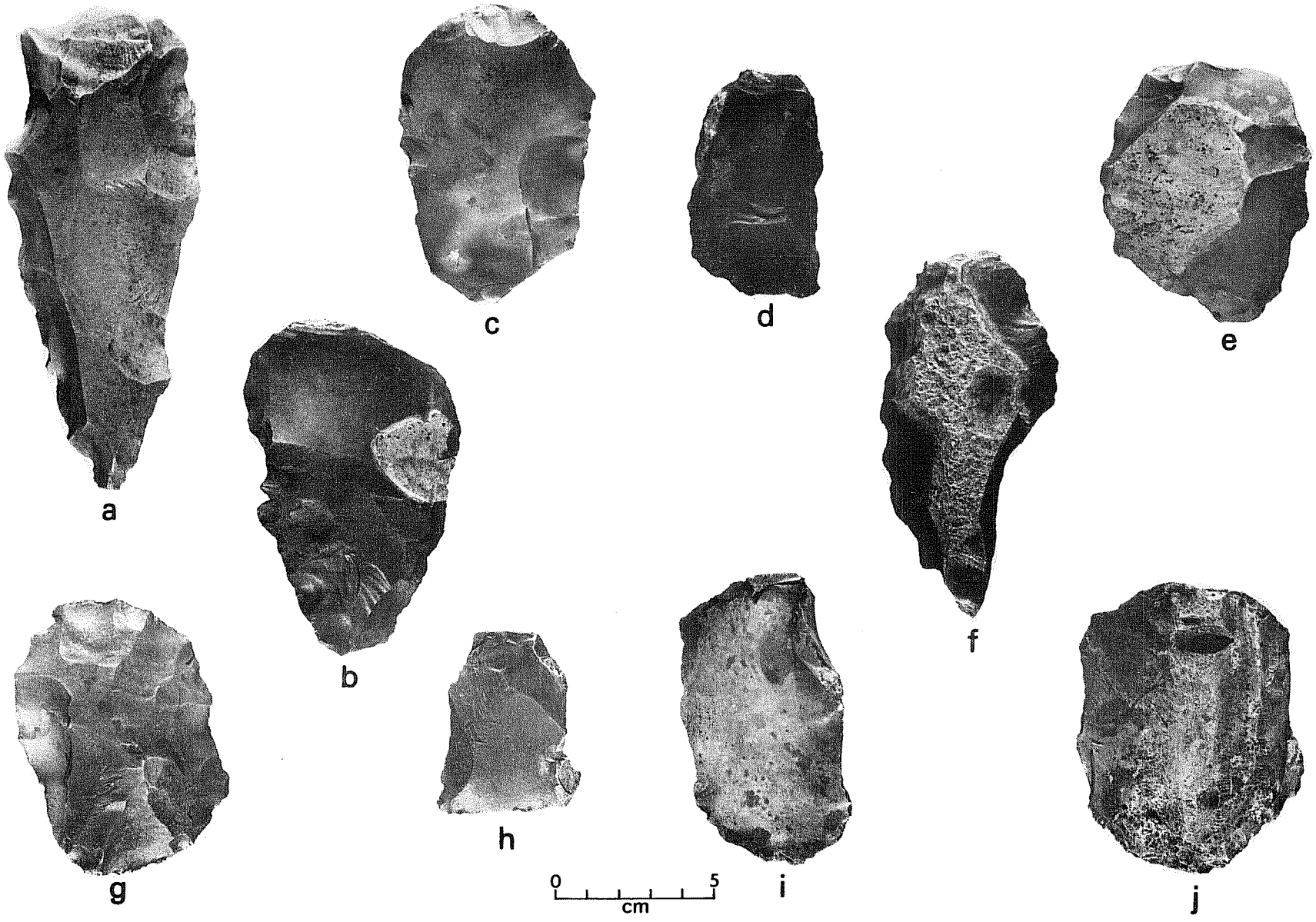

Figure 7. *Illustrations of Selected Artifacts.* a, crude biface, possible quarry blank; b, partially finished thick biface with side and end trimming; c, partially bifaced scraper, extensive end retouch; d, rectanguloid uniface with extensive end modification; e, ovoid biface trimmed along dorsal and ventral sides; f, thick biface fragment; g, ovoid uniface, extensive retouch along dorsal and ventral sides; h, rectanguloid uniface, extensive end modification; i, uniface with steep retouch along dorsal edges; j, uniface with extensive end modification of dorsal edge.

Lithic Debris

Lithic debris is briefly defined as the collection of smaller pieces of stone, flakes and chips detached from a core during reduction processes. Through high-resolution examination of various attributes, a single flake can often be associated to one of a series of sequential stages of manufacture, which often reflects the technique formerly employed.

Three general categories of flakes are identified in this report, dependent upon the amount of cortex on the exterior surface: (1) primary flakes, with cortex completely covering the exterior, or dorsal, surface; (2) secondary flakes, with some cortex and (3) tertiary, or interior, flakes having no cortex on their dorsal surfaces. Flakes include a variety of types and sizes of platforms, or remnants of the original striking platform on the core. Flake platforms identified in this study are usually single-faceted, reflecting no prior retouch in the form of abrasion to build a prepared platform.

For the purposes of this report, the categories of chips and chunks are defined as shatter fragments distinguished by size, less than 1 cm and more than 1 cm, respectively.

Unifacial and Bifacial Artifacts

These artifacts reflect trimming (retouch) on dorsal and/or ventral surfaces and may be grouped into such categories as gouge-like tools, scrapers, projectile points and other more crudely made, larger bifaces including preforms, quarry blanks and knife-like bifaces. The term uniface in this report refers only to extensively modified implements distinctly altered on one surface from the original shape of the debitage. For a more complete description of terms and a discussion of lithic reduction processes, the reader is referred to Crabtree (1972).

DISTRIBUTIONAL ANALYSIS OF LITHIC MATERIALS

Site Characteristics

It has been fairly well established that quarry sites can be recognized by decortification flakes and occupation sites by secondary flakes (Kelly and Hester 1975b:13). What has not been established are the distributional phases presumed to have occurred in prehistoric quarry-workshops during: (1) decortification and preforming, (2) thinning and shaping and (3) sharpening and retouch. Gunn and Mahula (1977) have approached this problem through functional site analysis based on Sollberger Distributions (Gunn *et al.* 1976). This final report, based on biased data and often dealing with missing information, cannot define functional areas of 41 BX 68 but will instead make only general observations based on artifact identification in 25 m^2 units. Gunn and Mahula (1977) suggest that specific phases of reduction processes can be isolated because flakes of each successive phase will be progressively smaller. Assuming this to be true and noting the skewed data based primarily on surface materials, it would appear 41 BX 68 is an indiscriminately littered lithic scatter with flakes of the phase three variety mixed among clusters of cores, core fragments and tertiary flakes. The extensive materials recovered in subsurface tests of TP-1 support this observation.

Data from the site indicates a broad spectrum of workshop activity, involving not only core reduction but presumed proximity-related tertiary activities as reflected by the distribution of trimmed and/or utilized flakes within artifact clusters. Cores were often found in debitage clusters adjacent to trimmed flakes, suggesting related activities occurring at the same time in the same area. Reworked flakes in these clusters usually reflected dorsal (less often ventral) trimming or utilization, most often in the form of marginal or semi-invasive retouch along the flake sides. Clusters of flakes were often composed of distal secondary or tertiary flake fragments. Very few triangular or lipped flake platforms were observed, and the most common platform throughout was a single-faceted, flat, unabraded platform. Few irregular blade fragments were noted. Cores scattered throughout the site were often fragmentary or expended but in all cases reflected multiplatformed reduction. No projectile points were noted during the investigation, although this statement is based on biased negative evidence; the site has been known to relic collectors for years. Large, crude biface fragments constituted less than five percent of the collection samples, and the general ratio of debitage to completed tools was low.

The most intense horizontal level of artifact debris, as reflected by subsurface testing and local erosion, appears buried between 8 to 11 cm across the length of the site. Subsurface examination of TP-1 revealed an almost solid layer of debitage at ca. 10 cm. The profile of TP-1 reflected surface fill and two distinct soil layers above a calcareous transition zone at ca. 25 cm. The largest frequency of flakes was concentrated within the upper 10 cm, although a small concentration of cores and patinated flakes were recovered within a reddish-brown transition zone at ca. 32 cm. Data from all surface mapped 25 m^2 units is presented in Figures 8 through 15. It should be noted that to conserve space, various abbreviations were used, and a brief key is presented below. Each artifact was numbered consecutively in each square as it was identified, and further supplementary information on individual materials can be found on adjacent Tables 1 through 8.

Key to Abbreviations Used in Mapping 25 m^2 Units

CF - Core fragment

U - Uniface

CH - Chunk/chip

BR - Burned rock

C - Core

XC - Expended core

B - Biface

 - Bush, tree

BC - Battered cobble

CT - Core tool

F - Flake

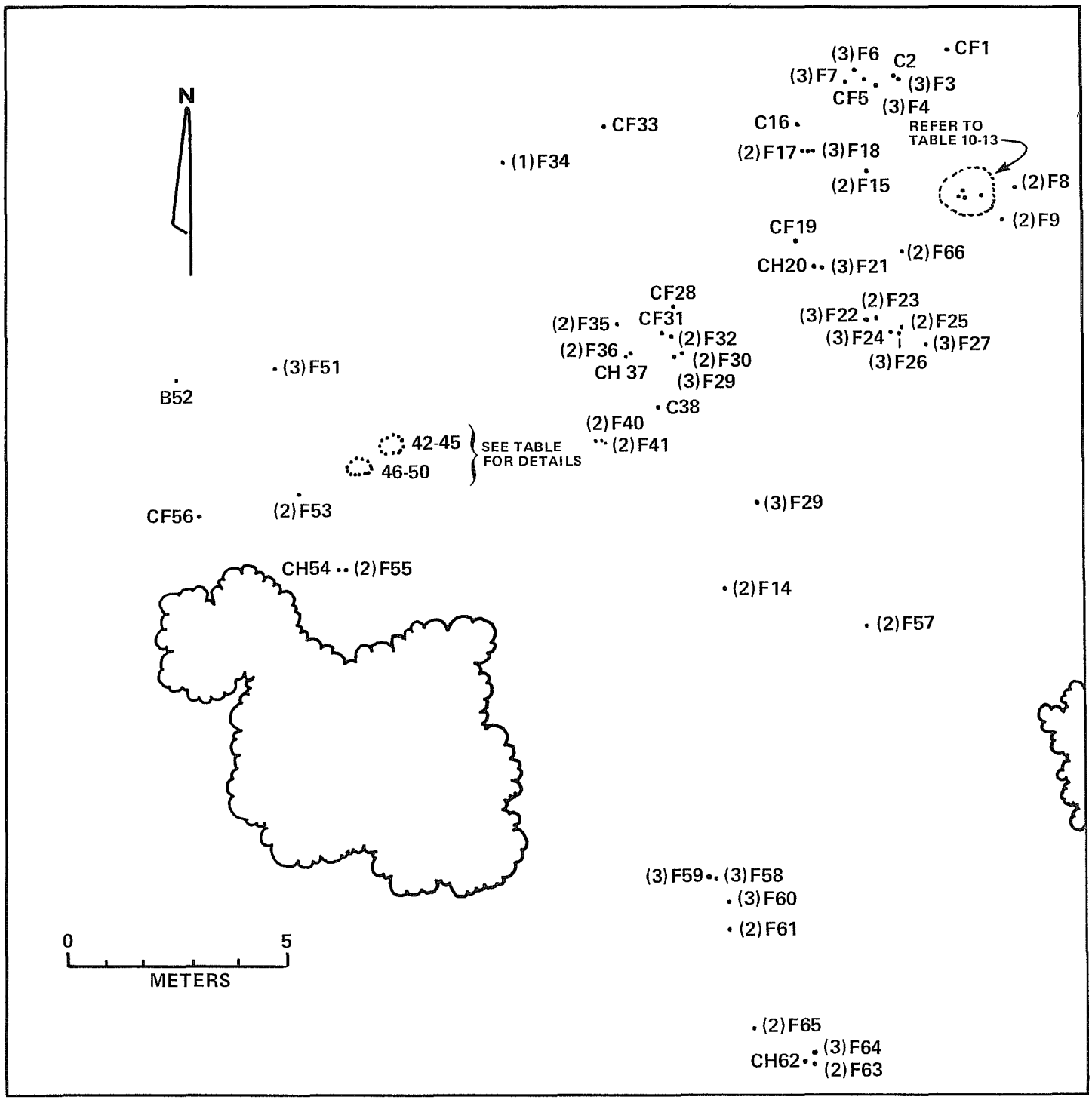

Figure 8. *Map of 25 m², No. 8.* Distribution of cultural materials in random probability sample. Refer to page 16 and Table 1 for explanation of artifact designations.

TABLE 1. 41 BX 68; ARTIFACT DESCRIPTION IN COLLECTION SQUARE 8

Artifact No.	Description	Comments
1	core fragment	
2	core	
3	tertiary flake	single faceted platform
4	tertiary flake	no platform, ventral side trimming/utilization
5	core fragment	
6	tertiary flake	no platform
7	tertiary flake	single faceted platform
8	secondary flake	no platform
9	secondary flake	no platform
10	secondary flake	no platform, dorsal side trimming/utilization
11	3 tertiary flakes	no platform
12	secondary flake	single faceted platform, dorsal trimming on side
13	2 chunks	
14	secondary flake	no platform
15	secondary flake	no platform
16	core	
17	secondary flake	no platform
18	2 tertiary flakes	no platforms, one has dorsal side, end trimming/utilization
19	core fragment	
20	chunk	
21	4 tertiary flakes	no platforms
22	2 tertiary flakes	no platforms
23	secondary flake	crushed platform
24	tertiary flake	multi-faceted platform, dorsal notching, trimming/utilization
25	secondary flake	no platform
26	2 tertiary flakes	no platforms
27	tertiary flake	no platform
28	core fragment	
29	tertiary flake	no platform, dorsal side trimming/utilization
30	secondary flake	no platform
31	core fragment	
32	secondary flake	no platform
33	core fragment	
34	primary flake	no platform
35	secondary flake	no platform
36	secondary flake	no platform, dorsal, ventral, side, end trimming/utilization
37	chunks	
38	core	
39	tertiary flake	single faceted platform
40	2 secondary flakes	no platforms
41	secondary flake	single faceted platform, ventral end, side trimming/utilization
42	3 chunks	
43	2 chips	

TABLE 1. (continued)

Artifact No.	Description	Comments
44	core fragment	
45	secondary flake	no platform
46	chip	
47	2 tertiary flakes	no platform
48	secondary flake	single faceted platform
49	secondary flake	no platform
50	chunk	
	secondary flake	no platform
51	tertiary flake	no platform
52	biface	marginally retouched, crude
53	secondary flake	no platform
54	chunk	
55	secondary flake	single faceted platform, dorsal side trimming/ utilization
56	core fragment	
57	secondary flake	no platform
58	tertiary flake	lipped, single faceted platform
59	tertiary flake	no platform
60	tertiary flake	single faceted platform, ventral trimming/ utilization
61	secondary flake	no platform, extensive ventral side, end trimming/utilization
62	2 chunks	
63	secondary flake	no platform
64	tertiary flake	single faceted platform
65	secondary flake	no platform
66	2 secondary flakes	no platforms

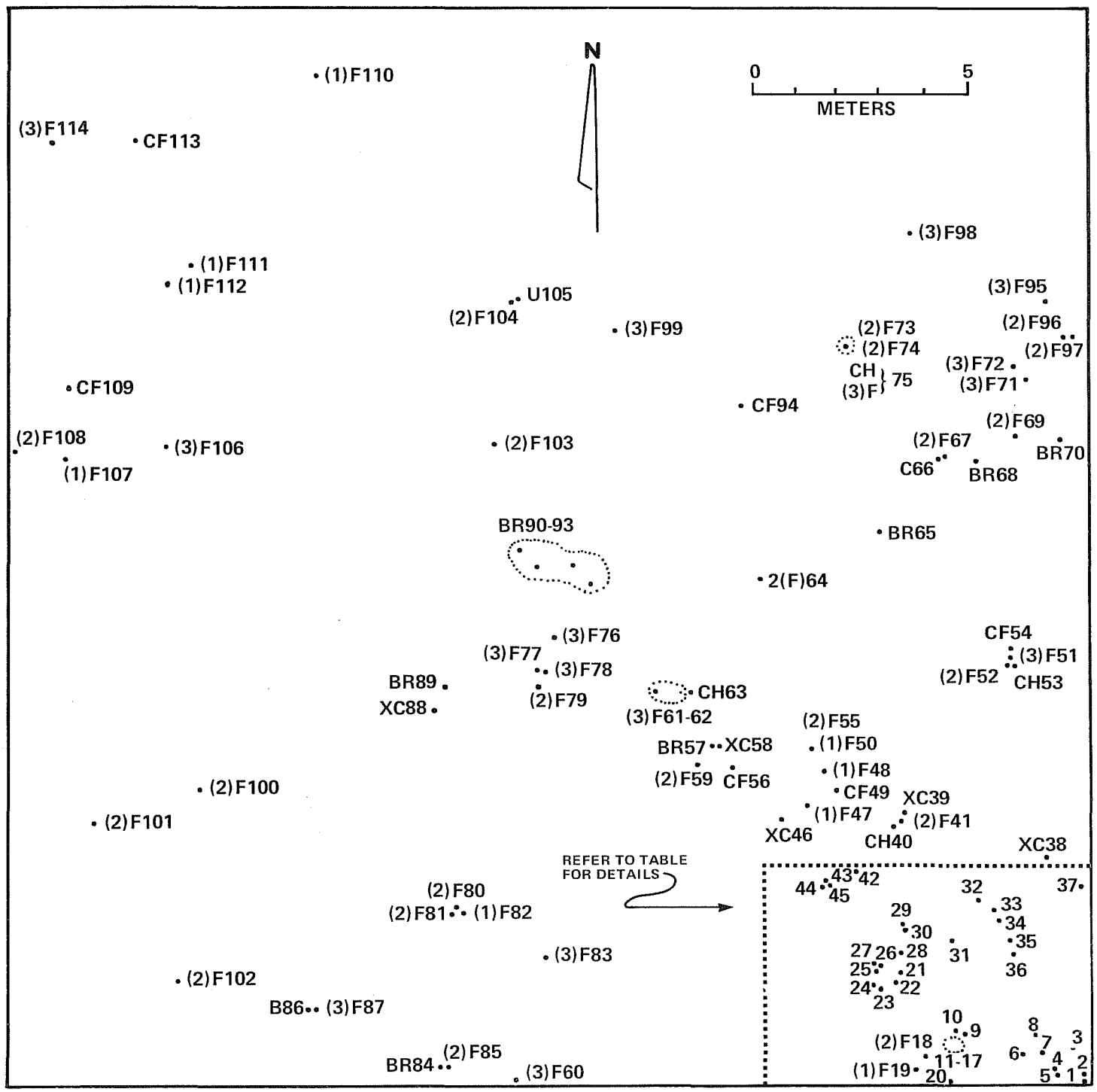

Figure 9. *Map of 25 m², No. 23.* Distribution of cultural materials in random probability sample. Refer to page 16 and Table 2 for explanation of artifact designations.

TABLE 2. 41 BX 68; ARTIFACT DESCRIPTION IN COLLECTION SQUARE 23

Artifact No.	Description	Comments
1	secondary flake	no platform
2	tertiary flake	single faceted platform
3	core fragment	
4	secondary flake	no platform
5	secondary flake	no platform
6	tertiary flake	no platform
7	secondary flake	no platform
8	secondary flake	no platform
9	secondary flake	no platform
10	tertiary flake	single faceted platform
11	3 secondary flakes	no platforms
12	primary flake	no platform
13	4 tertiary flakes	no platforms
14	secondary flake	crushed platform
15	secondary flake	single faceted platform, lipped
16	tertiary flake	single faceted platform, dorsal end trimming/utilization
17	2 chips	crushed platform, ventral
18	secondary flake	crushed platform, ventral trimming/utilization
19	primary flake	no platform
20	primary flake	single faceted platform, ventral side trimming/utilization
21	tertiary flake	no platform
22	core fragment	
23	secondary flake	no platform
24	burned rock	
25	tertiary flake	single faceted platform, dorsal, ventral trimming/utilization along sides
26	chunk	
27	tertiary flake	no platform, ventral side trimming/utilization
28	core	
29	burned rock	
30	primary flake	single faceted platform
31	tertiary flake	no platform
32	secondary flake	no platform, dorsal, ventral trimming (extensive) on all surfaces
33	2 chunks	
34	2 expended cores	possible core tools
35	chunk	
36	chunk	
37	core	
38	expended core	
39	expended core	
40	3 chunks	
41	secondary flake	single faceted platform
42	tertiary flake	single faceted platform
43	tertiary flake	single faceted platform
44	primary flake	no platform

TABLE 2. (continued)

Artifact No.	Description	Comments
45	primary flake	single faceted platform
46	expended core	marginal retouch
47	primary flake	no platform
48	primary flake	single faceted platform, dorsal, ventral trimming/utilization, extensive end modification
49	core fragment	
50	primary flake	no platform
51	tertiary flake	single faceted platform
52	secondary flake	no platform
53	chunk	
54	core fragment	
55	secondary flake	no platform
56	core fragment	
57	burned rock	
58	2 expended cores	
59	secondary flake	no platform
60	2 tertiary flakes	no platform
61	tertiary flake	no platform
62	tertiary flake	no platform
63	chunk	
64	secondary flake	no platform, dorsal, ventral side trimming/utilization
65	burned rock	
66	core	
67	secondary flake	single faceted platform, dorsal notching
68	2 burned rocks	
69	secondary flake	single faceted platform
70	burned rock	
71	tertiary flake	no platform
72	tertiary flake	no platform
73	secondary flake	single faceted platform, ventral trimming/utilization on sides
74	secondary flake	single faceted platform, ventral trimming
75	8 chunks, 2 chips	
	tertiary flake	no platform
76	tertiary flake	single faceted platform, ventral side trimming/utilization
77	tertiary flake	no platform
78	tertiary flake	single faceted platform, ventral side trimming/utilization
79	2 secondary flakes	no platforms
80	2 secondary flakes	no platforms
81	secondary flake	single faceted platform
82	primary flake	single faceted platform
83	tertiary flake	single faceted platform, ventral side trimming/utilization
84	burned rock	
85	secondary flake	single faceted platform

TABLE 2. (continued)

Artifact No.	Description	Comments
86	biface fragment	ovate, marginal edge retouch
87	tertiary flake	no platform
88	expended core	
89	2 burned rocks	
90-93	burned rocks	
94	core fragment	
95	tertiary flake	no platform
96	secondary flake	no platform, dorsal side trimming
97	secondary flake	no platform
98	tertiary flake	single faceted platform
99	tertiary flake	single faceted platform, ventral trimming/ utilization, side notching
100	secondary flake	single faceted platform, dorsal trimming, side notching
101	secondary flake	dorsal trimming/utilization all edges, single faceted platform
102	secondary flake	no platform
103	secondary flake	no platform, ventral side trimming
104	secondary flake	single faceted platform
105	uniface	ovate, 8 cm in length
106	tertiary flake	no platform
107	primary flake	no platform
108	secondary flake	no platform
109	core fragment	
110	primary flake	single faceted platform, dorsal end trimming/ utilization
111	tertiary flake	no platform
112	primary flake	no platform
113	core fragment	
114	tertiary flake	single faceted platform, dorsal trimming/ utilization on sides

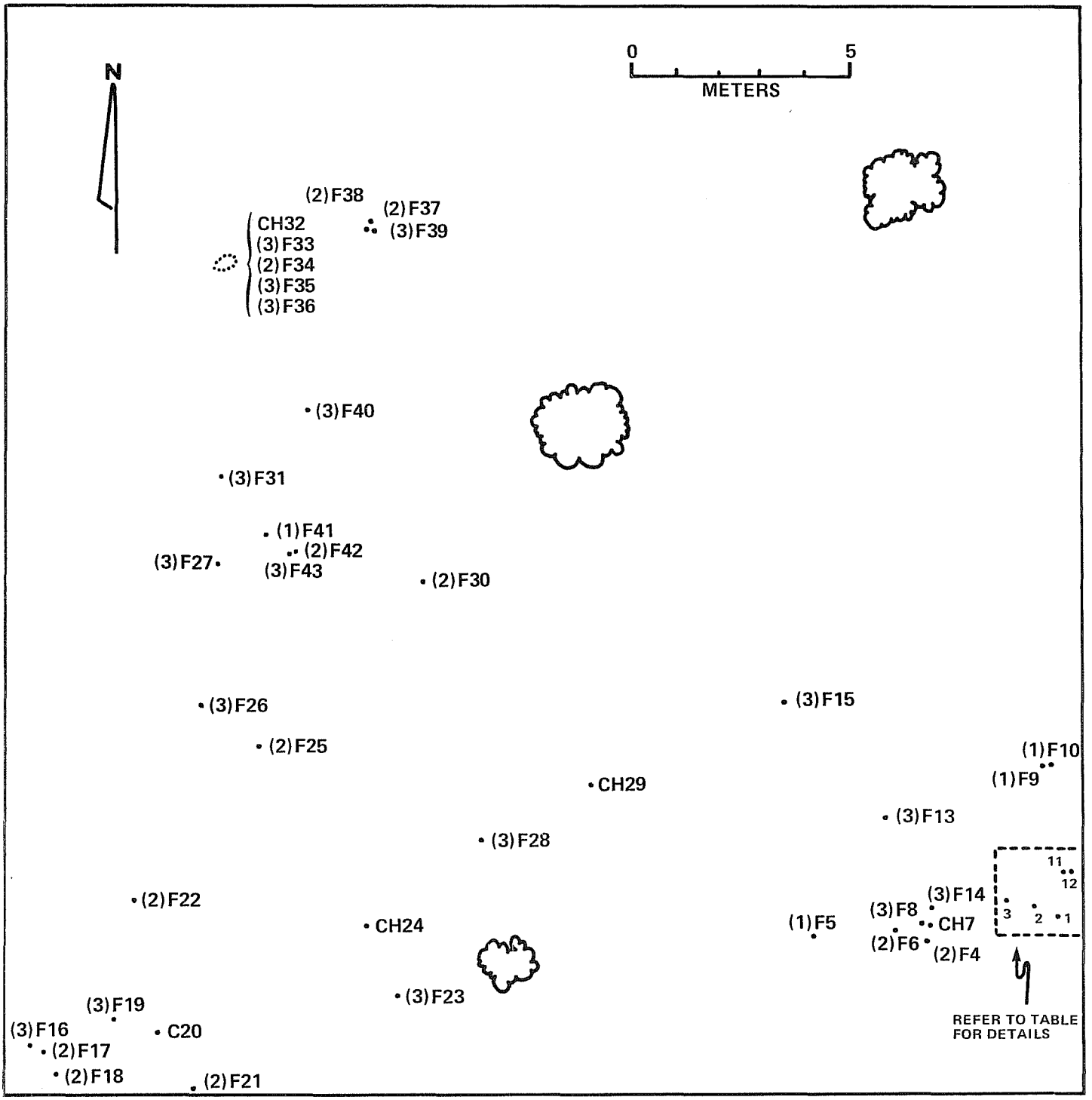

Figure 10. *Map of 25 m², No. 43.* Distribution of cultural materials in random probability sample. Refer to page 16 and Table 3 for explanation of artifact designations.

TABLE 3. 41 BX 68; ARTIFACT DESCRIPTION IN COLLECTION SQUARE 43

Artifact No.	Description	Comments
1	primary flake	single faceted platform
2	2 chips	
3	tertiary flake	single faceted platform
4	secondary flake	single faceted platform, ventral trimming/ utilization
5	primary flake	no platform
6	secondary flake	no platform
7	3 chunks	
8	tertiary flake	single faceted platform
9	primary flake	single faceted platform
10	primary flake	no platform
11	tertiary flake	single faceted platform
12	secondary flake	no platform
13	tertiary flake	no platform
14	tertiary flake	no platform
15	tertiary flake	multi-faceted platform, dorsal trimming/ utilization along sides and end
16	tertiary flake	single faceted platform
17	2 secondary flakes	no platforms
18	secondary flake	no platform
19	tertiary flake	single faceted platform, ventral trimming/ utilization along sides
20	core	
21	secondary flake	no platform
22	secondary flake	single faceted platform
23	tertiary flake	no platform, ventral trimming/utilization all sides
24	2 chips	
25	secondary flake	single faceted platform
26	tertiary flake	no platform
27	tertiary flake	no platform
28	tertiary flake	single faceted platform, dorsal trimming/ utilization, all edges
29	chunk	
30	secondary flake	no platform
31	tertiary flake	no platform
32	chip	
33	tertiary flake	no platform
34	secondary flake	no platform
35-36	tertiary flake	no platform
37	secondary flake	single faceted platform
38	secondary flake	no platform
39	tertiary flake	no platform
40	2 tertiary flakes	no platforms
41	primary flake	single faceted platform
42	2 secondary flakes	no platforms
43	tertiary flake	single faceted platform

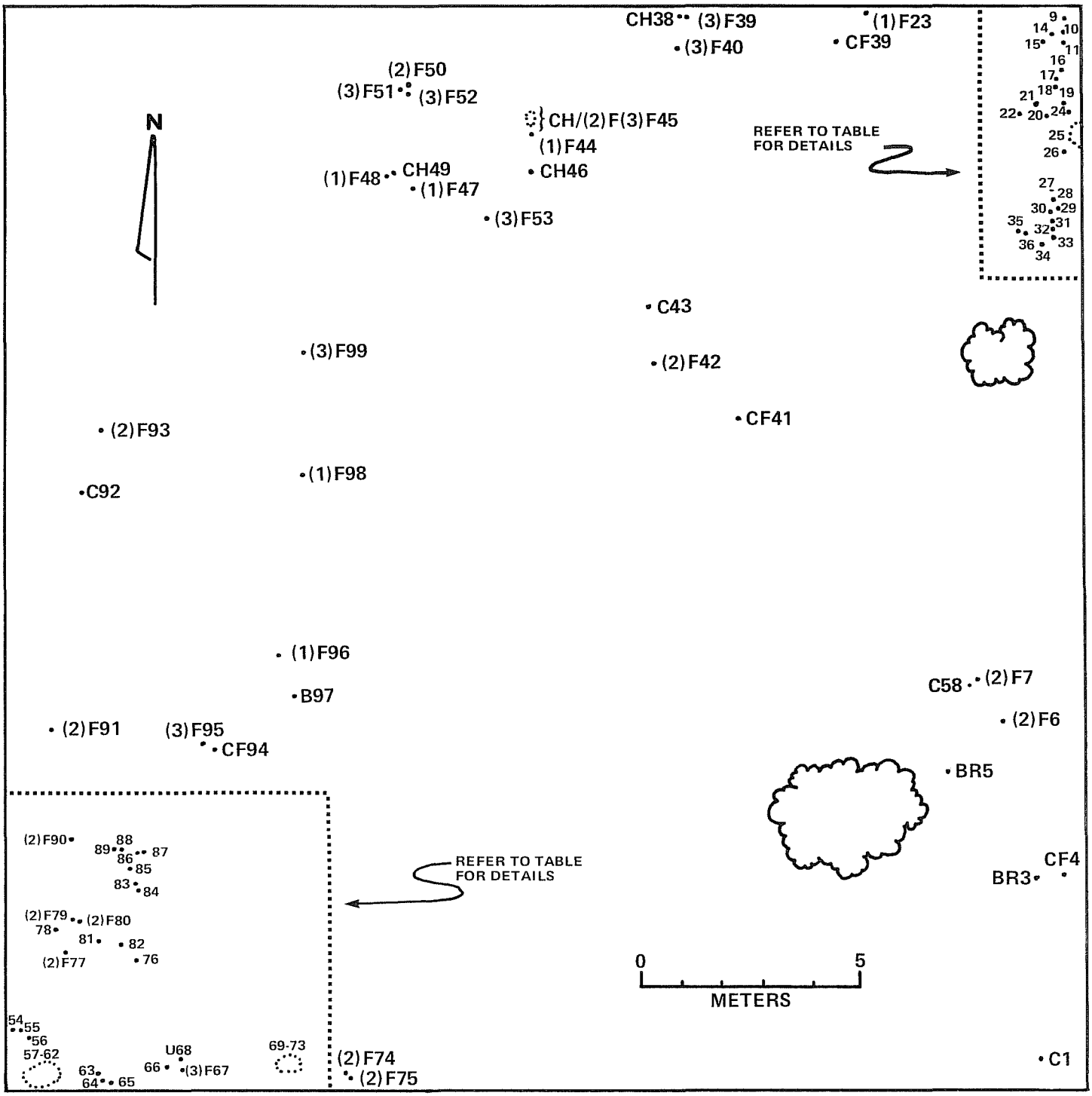

Figure 11. *Map of 25 m², No. 44.* Distribution of cultural materials in random probability sample. Refer to page 16 and Table 4 for explanation of artifact designations.

TABLE 4. 41 BX 68; ARTIFACT DESCRIPTION IN COLLECTION SQUARE 44

Artifact No.	Description	Comments
1	core	
2	core	
3	burned rock	
4	core fragment	
5	burned rock	
6	secondary flake	single faceted platform, marginal retouch on dorsal, ventral sides
7	secondary flake	single faceted platform, dorsal side trimming/utilization
8	core fragment	
9	lithic concentration:	
	primary flake	no platform
	3 secondary flakes	no platform
		multi-faceted platform, trimming/utilization of dorsal end
		single faceted platform, dorsal end trimming
	5 tertiary flakes	(3) no platforms
		no platform, dorsal trimming/utilization
		single faceted platform, ventral side trimming/utilization
	4 chips	
	3 chunks	
10	2 secondary flakes	no platforms
	2 tertiary flakes	no platforms
11	tertiary flake	single faceted platform, lipped, possibly pressure flakes
12	2 secondary flakes	no platforms
13	tertiary flake	single faceted platform
14	3 secondary flakes	no platforms
15	tertiary flake	single faceted platform
16	core fragment	
17	chunk	
18	primary flake	single faceted platform
19	primary flake	no platform
20	tertiary flake	no platform
21	tertiary flake	no platform
	3 chips	
22	core	
23	primary flake	no platform
24	core fragment	
25	lithic concentration:	
	2 secondary flakes	single faceted platforms
	4 tertiary flakes	no platforms
	tertiary flake	single faceted platform
	tertiary flake	multi-faceted platform
	chip	
	core	
	chunk	

TABLE 4. (continued)

Artifact No.	Description	Comments
26	secondary flake	no platform
27	core	
28	tertiary flake	no platform
29	tertiary flake	no platform, dorsal, ventral side trimming/ utilization
30	core fragment	
31	tertiary flake	no platform
32	primary flake	no platform
33	secondary flake	single faceted platform
34	secondary flake	no platform
35	uniface	ovoid, 9 cm in length, dorsal, ventral end, side trimming/utilization
36	core fragment	
37	core fragment	
38	chip	
39	tertiary flake	no platform
40	tertiary flake	no platform
41	core fragment	
42	secondary flake	single faceted platform, lipped
43	core	
44	primary flake	no platform
45	3 chips	
	secondary flake	single faceted platform
	tertiary flake	single faceted platform
46	chunk	
	2 chips	
47	primary flake	no platform
48	primary flake	single faceted platform
49	chunk	
50	secondary flake	no platform
51	tertiary flake	single faceted platform
52	tertiary flake	no platform
53	tertiary flake	no platform
54	secondary flake	single faceted platform, ventral end trimming/utilization
55	chunk	
56	secondary flake	multi-faceted platform, dorsal, ventral, trimming/utilization
57	tertiary flake	no platform
58	secondary flake	no platform, ventral side, end trimming/ utilization
59	chip	
60	2 chunks	
61	tertiary flake	single faceted platform
62	chip	
63	2 tertiary flakes	no platforms
64	primary flake	no platform
65	secondary flake	no platform, ventral end trimming

TABLE 4. (continued)

Artifact No.	Description	Comments
66	secondary flake chip	no platform, ventral end trimming
67	tertiary flake	ventral side trimming/utilization
68	uniface fragment	dorsal notching
69	burned rock	
70	burned rock	
71	tertiary flake	no platform
72	tertiary flake	single faceted platform, lipped
73	secondary flake	no platform
74	secondary flake	single faceted platform, ventral side trimming/utilization
75	secondary flake 4 chunks	single faceted platform
76	secondary flake	single faceted platform
77	secondary flake	no platform
78	primary flake	no platform
79	secondary flake	no platform
80	secondary flake	no platform
81	core fragment	
82	core fragment	
83	secondary flake	single faceted platform
84	tertiary flake	no platform
85	core fragment	
86	primary flake	no platform
87	secondary flake	no platform
88	core fragment	
89	tertiary flake	no platform
90	secondary flake	no platform
91	secondary flake	no platform
92	core	
93	secondary flake	no platform
94	2 core fragments	
95	tertiary flake	single faceted platform
96	primary flake chip	no platform
97	biface fragment	medial
98	primary flake	no platform
99	tertiary flake	single faceted platform, ventral side trimming/utilization

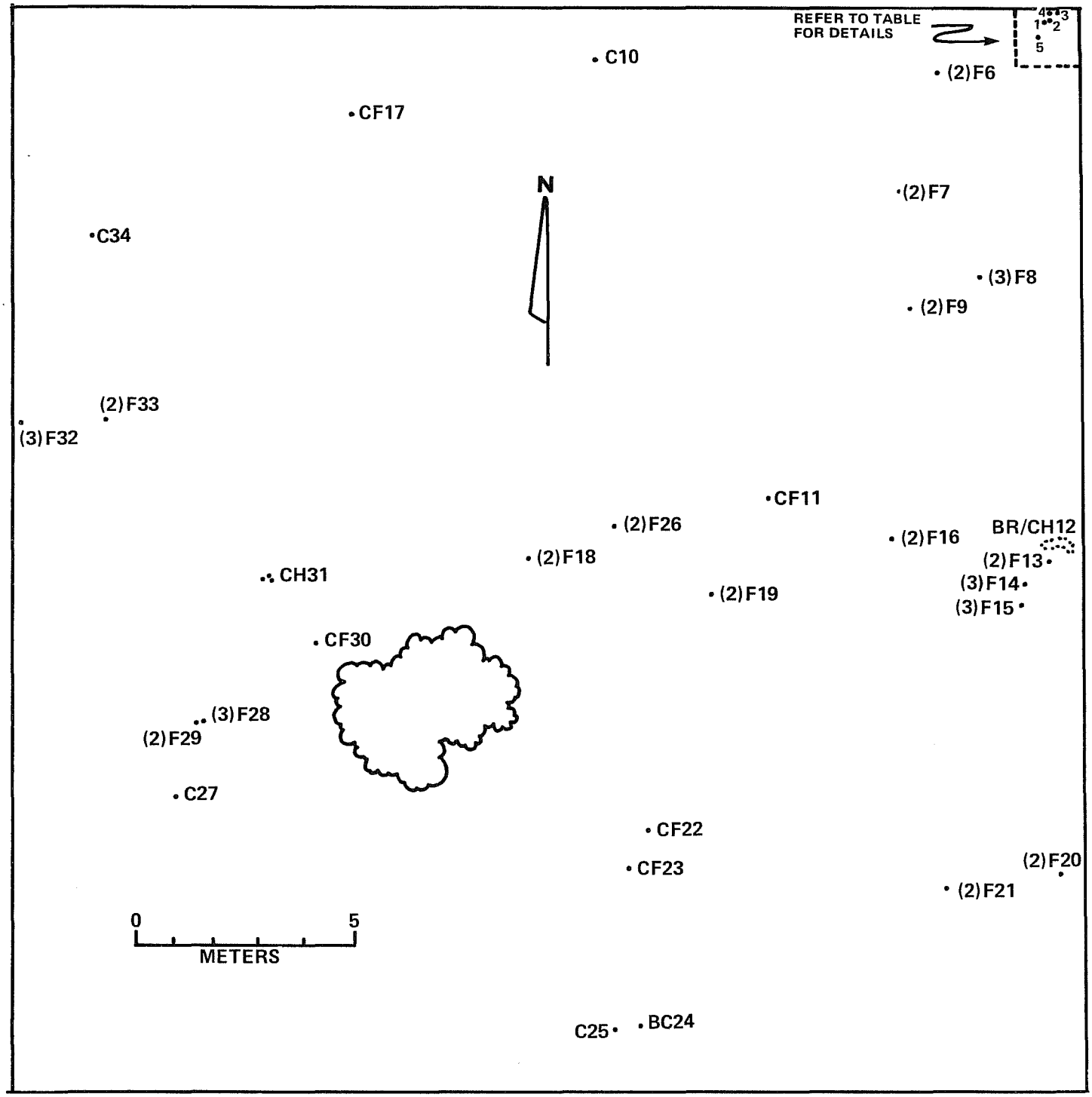

Figure 12. *Map of 25 m², No. 50.* Distribution of cultural materials in random probability sample. Refer to page 16 and Table 5 for explanation of artifact descriptions.

TABLE 5. 41 BX 68; ARTIFACT DESCRIPTION IN COLLECTION SQUARE 50

Artifact No.	Description	Comments
1	primary flake	single faceted platform
2	secondary flake	no platform, dorsal end trimming/utilization
3	tertiary flake	single faceted platform, irregular blade flake
4	3 chunks	
5	chunk	
6	secondary flake	single faceted platform, dorsal side trimming/ utilization
7	secondary flake	single faceted platform
8	tertiary flake	single faceted platform, ventral side trimming/ utilization
9	secondary flake	no platform
10	core	
11	core fragment	
12	4 burned rocks	
13	secondary flake	no platform
14	tertiary flake	no platform, irregular distal blade fragment
15	tertiary flake	single faceted platform, dorsal trimming/ utilization, all edges
16	secondary flake	single faceted platform, dorsal/ventral trimming/utilization, all edges
17	core fragment	
18	secondary flake	no platform
19	secondary flake	no platform
20	secondary flake	multi-faceted platform, ventral trimming/ utilization, all edges
21	secondary flake	no platform, ventral side trimming/utilization
22	secondary flake	no platform
23	core fragment	
24	battered cobble	
25	core	
26	secondary flake	single faceted platform
27	core	
28	tertiary flake	no platform
29	secondary flake	no platform
30	core fragment	
31	3 chunks	
32	tertiary flake	single faceted platform
33	secondary flake	no platform
34	core	

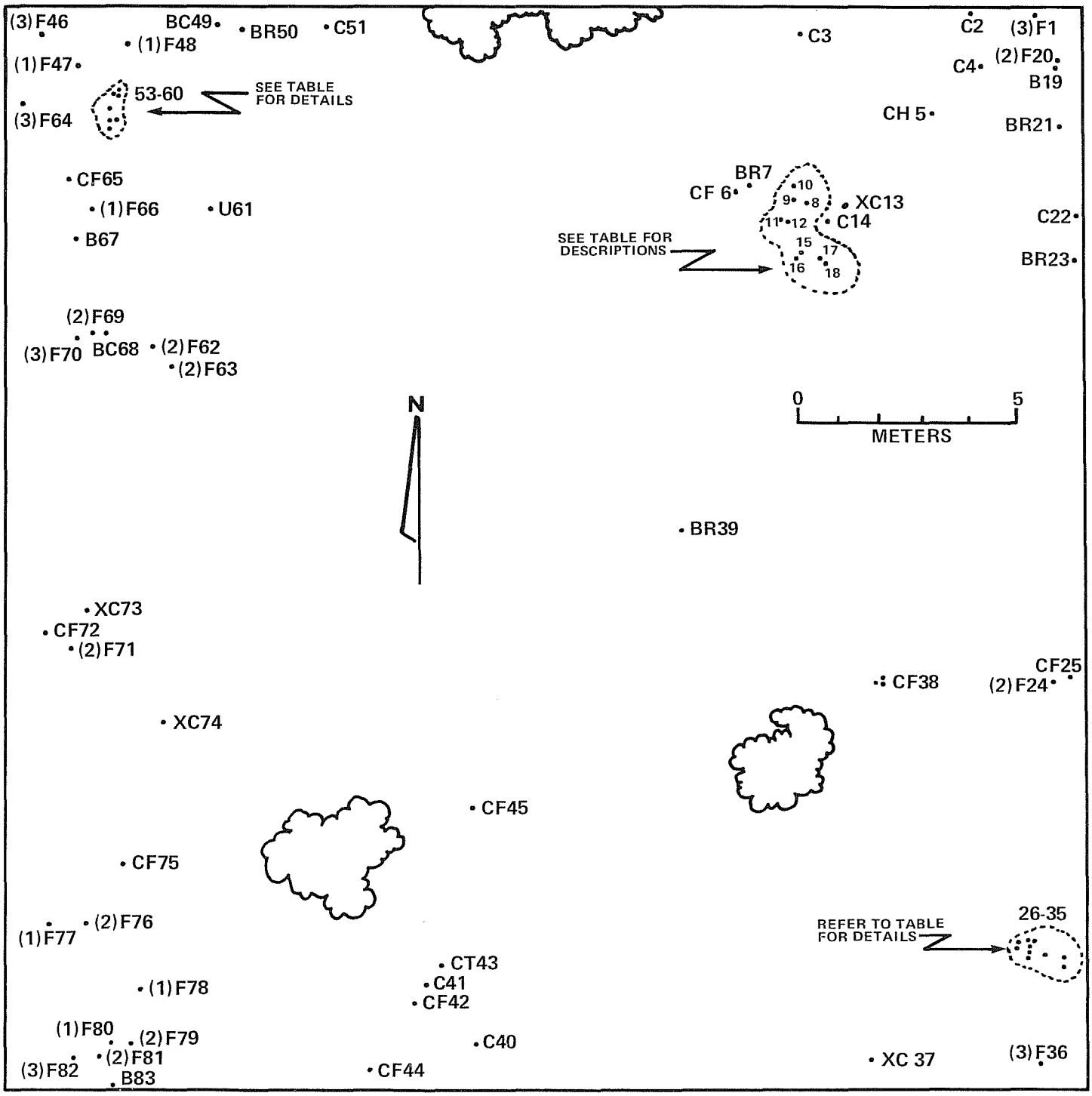

Figure 13. *Map of 25 m², No. 59.* Distribution of cultural materials in random probability sample. Refer to page 16 and Table 6 for explanation of artifact designations.

TABLE 6. 41 BX 68; ARTIFACT DESCRIPTION IN COLLECTION SQUARE 59

Artifact No.	Description	Comments
1	tertiary flake	no platform; ventral trimming/utilization along sides and end
2	core	
3	small core	battering, edge trimming/utilization noted
4	core	
5	chunk	
6	core fragment	
7	burned limestone rock	
8	core fragment	
9	burned limestone rock	
10	burned limestone rock	
11	core fragment	
12	burned limestone rock	
13	expended core	
14	core	
15	core fragment	
16	burned limestone rock	
17	expended core	
18	core fragment	heavily battered
19	biface	marginally trimmed, no edge wear noted
20	secondary flake	no platform
21	burned limestone rock	
22	core fragment	battered
23	burned limestone rock	
24	secondary flake	single faceted platform, ventral side and edge trimming/utilization
25	core fragment	battered
26	tertiary flake	single faceted platform, proximal end shows ventral trimming/utilization
27	3 chips	
28	secondary flake	no platform
29	secondary flake	no platform
30	5 chips	
31	tertiary flake	no platform
32	secondary flake	no platform
33	secondary flake	no platform, dorsal trimming/utilization noted
34	tertiary flake	no platform
35	2 secondary flakes	no platform
36	tertiary flake	no platform
37	expended core	
38	3 core fragments	battering noted
39	burned rock	
40	core	
41	core	
42	core fragment	
43	core tool	extensive end retouch
44	core fragment	

TABLE 6. (continued)

Artifact No.	Description	Comments
45	core fragment	battered
46	tertiary flake	no platform
47	primary flake	single faceted platform
48	primary flake	no platform
49	battered cobble	
50	burned rock	
51	small core	
52	2 core fragments	
53	biface fragment	medial portion, no trimming/utilization
54	secondary flake	single faceted platform
55	2 chunks	
56	secondary flake	single faceted platform, ventral side end trimming/utilization
57	secondary flake	no platform
58	secondary flake	no platform
59	tertiary flake	no platform
60	tertiary flake	ventral edge trimming/utilization
61	uniface	ovoid in shape, single faceted lipped platform, wear along ventral side
62	secondary flake	single faceted platform, dorsally notched, dorsal/ventral trimming/utilization along sides
63	secondary flake	no platform, ventral trimming/utilization
64	tertiary flake	no platform
65	core fragment	
66	primary flake	no platform
67	biface	ovate, percussion flaked, no marginal retouch noted
68	battered cobble	
69	secondary flake	extensive modification of distal end, side/end trimming/utilization
70	tertiary flake	ventral side, end trimming/utilization
71	secondary flake	no platform
72	core fragment	
73	expended core	
74	expended core	
75	core fragment	battered
76	secondary	no platform
77	primary flake	single faceted platform
78	primary flake	single faceted platform
79	secondary flake	single faceted platform, notching on ventral end
80	primary flake	no platform
81	secondary flake	no platform
82	tertiary flake	single faceted platform, dorsal edge trimming/utilization
83	biface	thick; percussion flaked, no marginal retouch noted

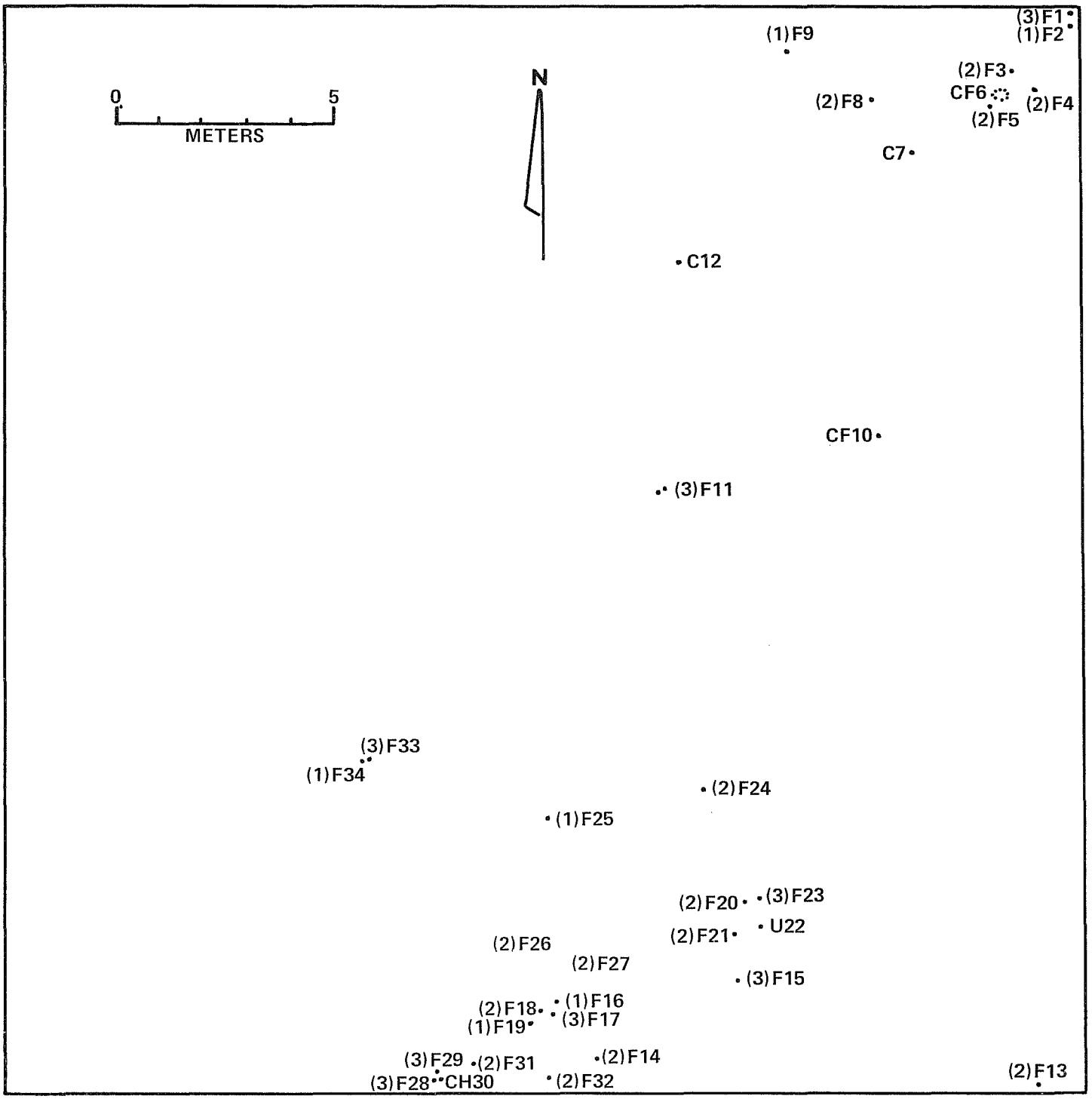

Figure 14. *Map of Control Square C-1.* Distribution of cultural materials in random probability sample. Refer to page 16 and Table 7 for explanation of artifact designations.

TABLE 7. 41 BX 68; ARTIFACT DESCRIPTION IN COLLECTION SQUARE C-1

Artifact No.	Description	Comments
1	tertiary flake	no platform
2	primary flake	no platform
3	secondary flake	no platform, dorsal end trimming/utilization
4	secondary flake	single faceted platform
5	secondary flake	single faceted platform
6	3 core fragments	
7	core	
8	secondary flake	multi-faceted platform, dorsal, ventral trimming/utilization
9	secondary flake	no platform
10	core fragment	
11	2 tertiary flakes	single faceted platforms
12	core	
13	secondary flake	single faceted platform, dorsal side trimming/utilization
14	secondary flake	dorsal side trimming/utilization
15	tertiary flake	no platform, dorsal trimming/utilization
16	2 primary flakes	no platforms
17	tertiary flake	no platform, patinated, dorsal end trimming/ utilization
18	secondary flake	no platform
19	primary flake	no platform, dorsal side trimming/utilization
20	secondary flake	single faceted platform, dorsal trimming/ utilization all edges
21	secondary flake	single faceted platform, dorsal, ventral trimming/utilization
22	uniface	rectangular in shape, no platform, extensive retouch on ventral surfaces
23	tertiary flake	single faceted platform, dorsal side trimming/utilization
24	secondary flake	no platform
25	primary flake	no platform
26	secondary flake	single faceted platform, dorsal side trimming/utilization
27	secondary flake	no platform
28	tertiary flake	no platform
29	tertiary flake	single faceted platform
30	chunk	
31	secondary flake	no platform
32	secondary flake	multi-faceted platform, dorsal side trimming/utilization
33	tertiary flake	no platform, dorsal side, end trimming/ utilization
34	primary flake	no platform

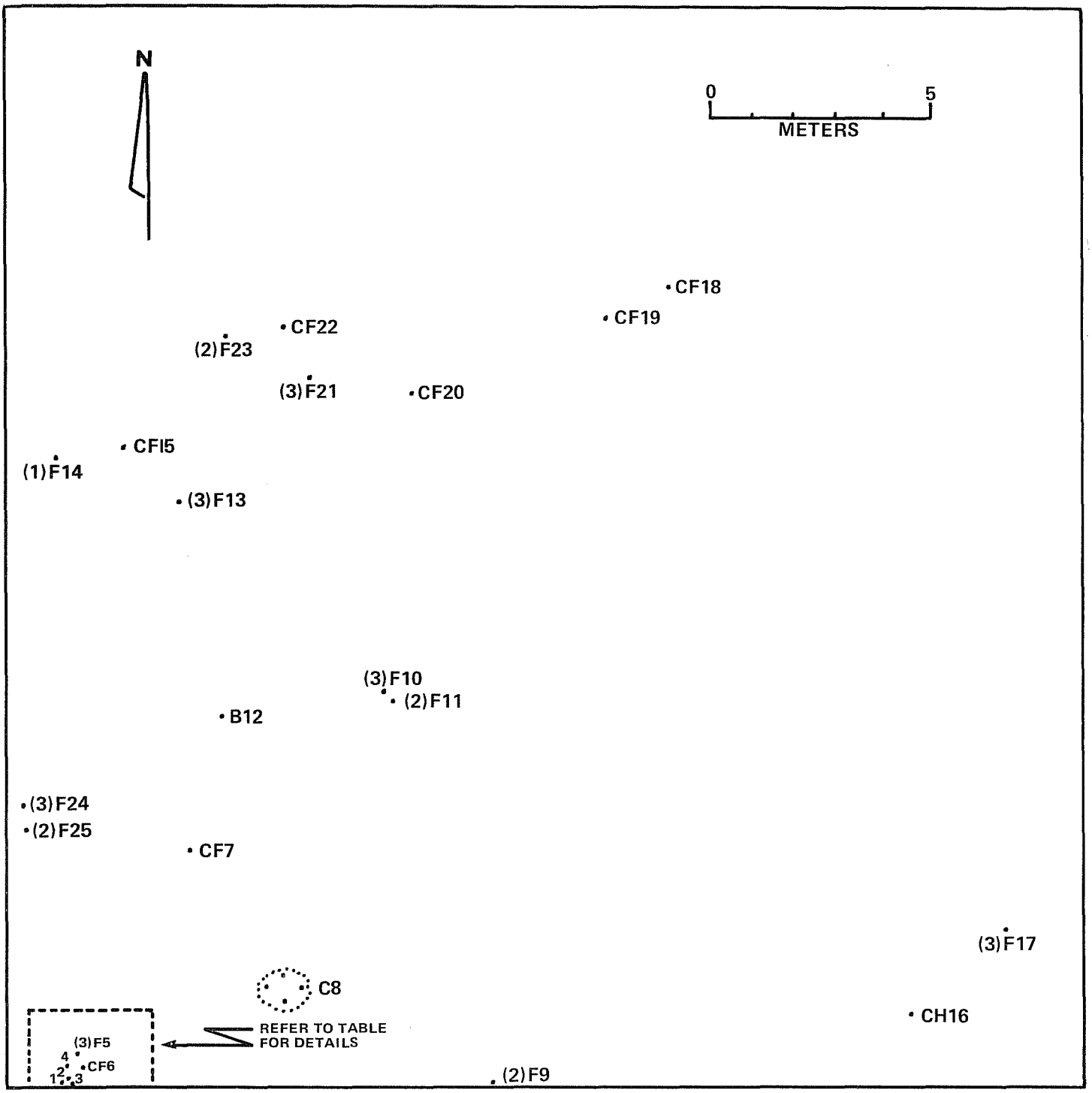

Figure 15. *Map of Control Square C-2.* Distribution of cultural materials in random probability sample. Refer to page 16 and Table 8 for explanation of artifact designations.

TABLE 8. 41 BX 68; ARTIFACT DESCRIPTION IN COLLECTION SQUARE C-2

Artifact No.	Description	Comments
1	secondary flake	single faceted platform, dorsal trimming/utilization
2	chunk	
3	secondary flake	no platform
4	tertiary flake	no platform
5	tertiary flake	no platform
6	core fragment	
7	core fragment	
8	4 cores	scattered in a 1 m diameter
9	secondary flake	single faceted platform, lipped, dorsal side trimming/utilization
10	tertiary flake	single faceted platform, ventral side trimming/utilization
11	secondary flake	no platform, dorsal/ventral trimming/utilization
12	biface	crude, no marginal retouch
13	tertiary flake	single faceted platform
14	primary flake	no platform
15	core fragment	
16	chunk	ventral trimming/utilization
17	tertiary flake	single faceted platform, ventral side, end trimming/utilization
18	core fragment	
19	core fragment	
20	core fragment	
21	tertiary flake	single faceted platform
22	core fragment	
23	secondary flake	no platform
24	tertiary flake	multi-faceted platform
25	secondary flake	multi-faceted platform

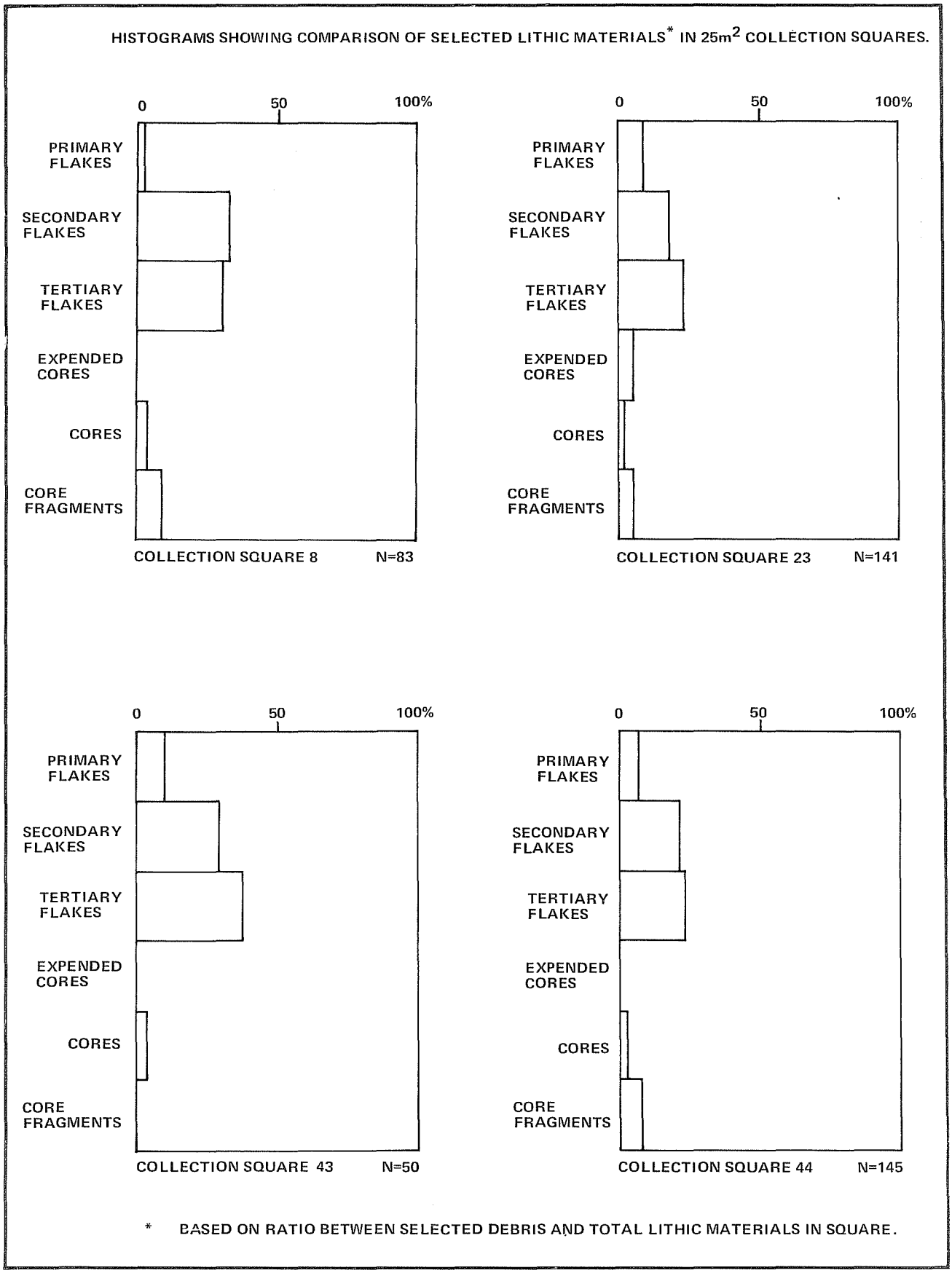

Figure 16. *Histograms Showing Comparisons of Selected Lithic Materials.*

SUMMARY AND CONCLUSIONS

The analysis of 41 BX 68 suggests an extensive prehistoric quarry-workshop area with an intense concentration of lithic debris on or near the higher elevations of the site. Limited subsurface testing and random probability sampling/mapping operations reflect a broad spectrum of quarry-workshop lithic reduction processes seemingly indiscriminately mixed throughout the site. Subsurface testing and observation of eroded materials throughout different areas of the site indicate an extensive and intense layer of lithic debris between 8 to 11 cm. The vicinity of TP-1, the only area with any soil depth, appears to have been a most intense activity locality. The significance of this locality is not yet fully understood although it may be that: (1) this area may have actually been a separate concentration, distinct from the larger concentration by distance and frequency of artifacts or (2) it may have existed as the most concentrated activity area within the larger concentration defined earlier. If the latter assumption were true, it cannot be established whether the vicinity of TP-1 was a possible occupation locality within the boundaries of the site. The high ratio of cores and core fragments implies the primary concern was lithic reduction, although TP-1's proximity to Elm Creek may reflect other aboriginal interests.

While this report has formed a brief description of 41 BX 68 and identified elements of material frequency and distributions, it should be noted these observations are only an assessment of sampled materials from an archaeological site that has been known to relic collectors for years. Any judgments made are somewhat compromised by lack of evidence, deficiencies of a newly formulated methodology or the lack of information, generally, on south central Texas quarry-workshop areas.

RECOMMENDATIONS

41 BX 68 represents an unusually extensive quarry-workshop area in northern Bexar County. Because of the lack of diagnostic artifacts, the absence of other major cultural features and the fact that the densest concentration of lithic materials is located on higher elevations presumably above a flood pool of the floodwater retarding structure, no further work is recommended at this site. It is recommended, however, that if surface alteration in the form of borrow pits or landmoving takes place in the vicinity of TP-1, an archaeologist should be present to identify previously unrecorded or unidentified buried features.

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