

ARCHEOLOGY
IN THE
UPPER SUSITNA RIVER BASIN
1978

A Report
Prepared by
Glenn Bacon
Archeologist

for
The Alaska District,
Corps of Engineers

November 1978

under
Contract DACW85-78-C-0017
BLM Reference Number AG-AK 910-297

HARZA-EBASCO

Susitna Joint Venture
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A Report



CONSULTANT ARCHEOLOGISTS • CULTURAL RESOURCE SPECIALISTS

P.O. BOX 397

FAIRBANKS, ALASKA 99707

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ALASKARCTIC

CONSULTANT ARCHEOLOGISTS • CULTURAL RESOURCE SPECIALISTS

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November 10, 1978

George R. Robertson
Colonel, Corps of Engineers
Alaska District, Corps of
Engineers
P.O. Box 7002
Anchorage, Alaska 99510

Reference: Contract DACW85-78-C-0017; Archeological
Services Associated with Exploration & Survey Program,
Upper Susitna River Basin, southcentral Alaska

Dear Colonel Robertson;

It is with great pleasure that we present this final report on our 1978 archeological effort in the upper Susitna River basin. We are also pleased to report the discovery of four prehistoric archeological sites, all located in the Watana project area. These discoveries represent the first building blocks in the foundation of the cultural history of the Upper Susitna Basin.

A discussion of these archeological sites constitutes the core of our report. The report also includes a brief analysis of the archeology done to date.

We hope that each of the archeological sites identified during our 1978 survey will be fully protected. It has been our experience that archeological sites in construction areas are best protected through excavation. Excavation, in any event, is recommended at least to a level sufficient to determine whether or not each site is eligible for inclusion on the National Register of Historic Places.

Looking toward the future, we feel that a greater effort must be made to insure that archeological survey precedes other ground altering activity. This was not always the

case in 1978. Archeological site TLM 016 may have been damaged by the placement of a benchmark. Last minute changes in exploration scheduling and programing also resulted in ground being altered without prior archeological survey. Apparently no significant damage to cultural resources resulted this summer, but we cannot rule out that possibility in the future. This is especially true in view of the high archeological site density projected for the Upper Susitna Basin.

With respect to future activity in the Watana and Devil Canyon damsites, we offer the following observations. We recognize the level of activity forecast for the next phase in the feasibility studies. Because of the widespread nature of the projected studies, it will be necessary to plan an appropriate level of archeology. This archeology will have two general objectives. One will be to insure that no other part of the feasibility study program will jeopardize significant cultural resources. The objective will be much the same as that for this past summer. A second objective will be an aspect of the general feasibility study, and it probably will focus on the need for a sample survey of the entire region of potential impact from hydro-electric development.

We hope that when the time comes the archeologists in the field will enjoy the same comfortable working relationship we enjoyed this summer with Corps personnel. We would particularly like to thank Weldon Opp and Phil Brna, both of whom greatly aided our cause and thus made our work so much more efficient.

Sincerely,

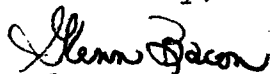

Glenn Bacon

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INTRODUCTION

During the years following the discovery of the Cape Krusenstern beach ridges and the deeply stratified archaeological site at the Onion Portage (Giddings 1962), an increasingly clear picture has developed of the prehistory of the western portion of the North American arctic. To date the most fruitful studies have been conducted in the northwestern region of Alaska (see Anderson 1968; Giddings 1967; Larsen & Rainey 1948; etc.) where techno-environmental analysis is apparently demonstrating a correlation between the rate of climatic change and the rate of technological change.

Techno-environmental analysis is also being applied to interior Alaska data. No full discussion is as yet available, due in large part to a relative paucity of archaeological data for interior Alaska. However, a partial analysis is available through the research efforts of Frederick Hadleigh-West who has concentrated his studies on the Denali Complex (eg. West 1975) revealed through archeology of the southern flanks of the Alaska Range. Still, historically, fewer archeologists have concentrated on interior Alaska than on coastal Alaska.

Archeological sites are difficult to locate within the

taiga forests of the interior and, when they are located, generally yield few artifacts. This situation makes each site potentially very valuable to prehistorians. Until the recent availability of the helicopter, travel in the interior was largely limited to the river highways. The archeological literature reflects this situation.

Two of the more useful monographs on interior Alaskan prehistory discuss river based archeological surveys. Both of these surveys were conducted over thirty years ago (deLaguna 1947; Rainey 1939). Much of the more recent archeological data for the interior of Alaska are site specific and are available only in unpublished form.

It is, therefore, with great interest that archeologists have followed recent events in Alaska which have led to the proposed construction of hydro-electric facilities along the Susitna River. This huge undertaking potentially threatens cultural resources, namely numerous archeological and historical sites presumed to lie within the impact area.

The Alaska District, Corps of Engineers, recognized the need for additional cultural resource information early on. Consequently, a contractual agreement was signed between the Corps and the Office of History and Archaeology, Alaska Division of Parks. The result was a litera-

ture based study designed to predict those areas of highest archeological potential within the potential construction zone, which at the time included a four dam system (Alaska Division of Parks 1975).

Since the State archeological study, plan revisions have reduced the number of dams under consideration to two, namely the Devil Canyon and Watana dams. Additional geologic studies were desired for these two damsites. Since some of the planned geologic studies included rock drilling machinery and necessitated other ground surface altering activities, the Corps of Engineers recognized the need for additional archeological evaluations based on on-the-ground observations.

Specifically, the Corps required archeological clearance of specific sites within the project areas. These specific sites were defined and formed the basis for a Scope of Work in a contract ultimately awarded to Alaskarctic. Archeological clearance work began in the spring of 1978 and was concluded in the autumn of the same year. This is the report.

This report is organized in the following manner. The introductory material is followed by a detailed summary of the 1978 field work at the Watana and Devil Canyon

damsites. This, in turn, is followed by an evaluation of those cultural resources located during the 1978 study. The body of the report concludes with an evaluation of the archeological survey itself.

THE SETTING

The Watana and Devil Canyon damsites lie 62 miles and 44 miles, respectively, northeast of the community of Talkeetna (latitude 62 19'30" N, longitude 150 06'00" W). Both damsites, on the Susitna River, are in an uplands region characterized by glacier formed topography. At both sites kettle lakes and kame knolls occur in areas adjacent to the Susitna River which shoulders through steep rock walled gorges as it hurries to the gulf coast. The silt-laden Susitna is joined by dozens of clearwater tributaries which themselves have cut deep V-shaped valleys into the soft glacial till of the region.

Vegetation of the two damsites ranges from spruce dominated taiga boreal forest in the lower elevations to alpine shrub-tundra beginning at about 2500 feet in elevation. This range in vegetation supports diverse faunal resources including moose, caribou, brown and black bears as well as a number of smaller mammals such as wolves and muskrats.

Anadromous fish resources are limited to the river below Devil Canyon, but many of the region's trout and greyling populate the streams and lakes above the canyon. Lakes and ponds also experience seasonal inflights of migratory waterfowl.

Climate for the Upper Susitna Basin could be considered continental, but it is tempered greatly by moderating influences from the Pacific Gulf coast of Alaska.

SUMMARY OF REGIONAL PREHISTORY

One interpretive scheme characterizes the archeology of central Alaska in terms of five major periods: (1) an early Tundra Period, ending circa 8000 BP; (2) an Early Taiga Period, circa 8000 to 4500 BP; (3) a Late Taiga Period, circa 4500 years ago to approximately AD 500; (4) an Athapaskan Period, from approximately AD 500 to about AD 1900; and (5) a Recent Period from about AD 1900 to the present time.

The Tundra Period in Alaska is still poorly understood, but it likely represents a time of early postglacial adaptations. A changeover from steppe (grassland) to shrub tundra must have had dramatic consequences for early man's faunal food resources. Precious few archeological sites are known from this early period in Alaska.

Direct evidence of the people of the Tundra Period comes from three locales in interior Alaska. One of the locales referred to is the Tangle Lakes region of the Alaska Range where Frederick Hadleigh-West has defined an early complex on the basis of evidence from several small archeological sites (1967; 1974; 1975). West has argued that the locations of many of these archeological sites suggest a primary dependence upon caribou for the people who

occupied them. Many of the sites are located on the shores of lakes which are in turn located in the vicinity of one of interior Alaska's major caribou herds (Nelchina). In more recent times caribou were often hunted by chasing them into the water where they were more easily killed. The Healy Lake Village site (Cook 1968; Cook & McKennan 1970) contained tools which possibly date back 11000 years. These tools exhibit similarities to tools from the recently discovered Dry Creek site near Healy, Alaska. The Dry Creek site also dates in excess of 10000 years ago (Holmes 1974). The tools from all three of these areas are reminiscent of tools found in Siberia and dated to an equivalent age (Chard 1974).

Forests began postglacial invasion of eastern interior Alaska perhaps as early as 10000 years ago; and by 6000 years ago spruce was present at the Onion Portage site in western interior Alaska (Anderson 1971). During this period a series of boreal adaptations were evident across northern North America. Many of these adaptations were expressed in technologies which were characterized, in part, by side-notched projectile points.

Presently available evidence indicates that, with the postglacial warming trend, forests replaced the earlier shrub-tundra in central Alaska by about 8000 years ago

(Ager 1974; Matthews 1974; Schweger n.d.). Scanty archeological data from this period suggest that for the next 4000 years a series of forest adapted archaic cultures inhabited central Alaska (Anderson 1968; MacNeish 1964). These people probably lived primarily on caribou, moose and fish since these food resources would have been the most abundant.

As the effects of the thermal maximum began to diminish, interior Alaska likely felt the slight retreat of forest margins. More importantly, conditions for the slight expansion of shrub-tundra might have improved. This is a particularly important point when considering the Upper Susitna River Basin since much of the region is presently near treeline.

The Late Taiga Period saw the development of Arctic Small Tool on the western coasts of Alaska. During middle Arctic Small Tool times, Boreal Choris continued to be widespread as indicated by the existence of the later (?) Kayuk and Nimiuktuk sites as well as assemblages similar to that found at the Gallagher Flint Station (north of the Brooks Range). Data are limited for central Alaska, but the Healy Lake and Minchumina (Holmes 1972) and other sites indicate that the late Denali Tradition technology were also widespread (see Bacon 1977).

The Late Taiga Period terminated coincident with a surge of influence to Alaska from the region of the Bering Sea. Western Thule appears as suddenly on the Alaska mainland as did Arctic Small Tool earlier. The appearance of Western Thule, at roughly AD 500, is remarkably near in time to the appearance of the Itkilik intrusion in the Onion Portage sequence (Anderson 1970) and also to the finale of the Denali Tradition, which after a brief hiatus was replaced by a technology similar in many respects to that of the early historic Alaskan Athapaskan. Occuring as these events did, near in time to both the Viking expansion in the North Atlantic and the Polynesian expansion throughout the Pacific, they suggest the possibility of global climatic change.

The earliest evidence of Athapaskan occupation of interior Alaska dates several centuries ago to just prior to about AD 500. The relationship between these early Athapaskans and the people known to have occupied central Alaska at an even earlier time is poorly understood (Cook 1975). The data are inconclusive as to whether Athapaskan culture originate in central Alaska (Cook 1968) or elsewhere -- perhaps to the east and south (Bacon 1977). Whatever the case, by AD 500 Athapaskan people occupied interior Alaska and utilized a subsistence strategy similar to that hypothesized for the earlier Taiga periods.

It is into this very tenuous framework that we can place the archeological data retrieved during the 1978 Susitna Basin survey. We know little more than when we started regarding Susitna region cultural chronologies. We can, however, for the first time now document that the Susitna region was utilized by prehistoric man -- at least during Holocene (that period following the last ice age, approximately the last 10000 years) times. Beyond this we can add little.

RESEARCH DESIGN

It is assumed, on the basis of previous studies (eg. Boas 1964; Helm 1969; McKennan 1969; Spencer 1959; Watanabe 1968) that for northern hunting/fishing groups there is a clear correlation between areas of high biomass concentration and settlement locales. These locales are patterned (Campbell 1968; Helm 1965; many others) and, due to a paucity of floral resources in central Alaska, settlement patterns can be expected to reflect shifting availability of faunal resources. Thus, it can generally be stated that regions of high archeological probability will be coincident with regions of high present and/or past biomass concentration. We will consider that regions which exhibit the characteristic elements of ethnographically observed exploitative patterns will also exhibit the characteristic elements of Holocene exploitative patterns in general. We also must consider evidence of environmental shifts during Holocene times with the awareness that these shifts might be reflected in changed settlement patterns.

Thus the archeological research was conducted within the general framework of cultural ecology advanced by Julian Steward (1955) and Leslie White (1949), who recognized culture as man's extrasomatic means of adaptation. We expect that man's adaptation to a changing environment will be patterned and therefore, within limits, predictable.

FIELD PLAN

The field plan was based on two recognized needs. The first, of course, was to accomplish the goals outlined in the Scope of Work. Specifically there was a need to identify, and thereby offer a measure of protection to, those cultural resource sites potentially threatened by Corps directed exploration activities. In order to fully accomplish the first goal it was necessary to begin essential baseline archeological studies of the project area. For this reason part of the archeological survey effort concentrated on areas not thought to be immediately threatened, but thought likely to produce data critical to understanding the prehistory of the project area.

The archeological field work was conducted on three separate occasions. A pre-survey aerial reconnaissance of the project area was completed on April 13, 1978 (Phase I). Glenn Bacon, lead archeologist for Alaskarctic, was accompanied by Mr. Weldon Opp (Chief, Planning Branch, Alaska District, Corps of Engineers) who was Acting Susitna Project Coordinator.

Later, during the period from June 8 through June 12, Lt. Phil Brna (Environmental Officer, Alaska District, Corps of Engineers) became Corps field representative and liaison.

Lt. Brna also participated during the Phase III aspect of the archeological survey which occurred during the period from August 11 through August 13, 1978.

The on-the-ground archeological survey focused on an area south of Tsusena Butte and bordered on the west by Tsusena Creek, to the east by Deadman Creek, and on the south by the Susitna River. In addition, brief surveys were made of a potential gravel source north of Tsusena Butte, of the south bank abutment of the Watana dam (plus an associated material site there) and portions of the Devil Canyon damsite.

Five specific areas were slated for examination during the 1978 preliminary archeological field investigation. These were: (1) the left and right abutments of the Watana damsite, (2) the spillway area for the Watana dam, (3) test pitting loci within borrow areas identified at the time of field investigation, (4) all vehicular traffic routes within and between areas of activity during the 1978 exploration program, and (5) a portion of the Devil Canyon damsite. None of these areas produced evidence of cultural resources, except as noted in this report.

The areas surveyed were traversed on foot. Natural exposures, such as blowouts and erosion cuts were inspected

for evidence of prior human activity. Additional small "test" excavations were conducted as necessary to provide more complete coverage. These excavations were accomplished with the use of a small entrenching tool and hand trowel. All test excavations were backfilled after inspection. They were not mapped.

METHODOLOGY

Project methodology was linked to the three phase field plan. Phase I consisted of an aerial reconnaissance of the Watana Damsite area; Phase II was an archeological survey of those areas threatened by activities planned under the Operation Plan for Susitna Explorations (1978). Additional locales within the damsite area, thought likely to contain archeological resources, were also to be examined under Phase II. Phase III was designed to allow on-site evaluation of subsurface materials exposed during borrow area testing operations.

Within this operational framework the remaining portion of the Scope of Work was defined in terms of a series of tasks. These tasks were: (1) a map study and archeological assessment, (2) aerial reconnaissance and refinement of the map based archeological assessment (Phase I in the Scope of Work), (3) ground truth and limited archeological survey (Phase II in the Scope of Work), (4) observation of material site testing (Phase III in the Scope of Work), and (5) report writing.

Available United States Geological Survey maps of the project area were secured and compared with sets of aerial photographs supplied by the Corps of Engineers. The

Operation Plan for Susitna Explorations was then scrutinized in order to best determine the probable impact loci of exploration activities. These projected impact loci were then compared with loci predicted likely to contain archeological materials. Since very little ethnographic material exists which references the Upper Susitna River Basin, and since no archeologists have ever studied the project area, the task of predicting archeological site occurrence is even more difficult than usual. The results were considered tenuous at best. An aerial reconnaissance of the project area was completed in the early spring, and was used to augment the map based study.

The helicopter borne reconnaissance (Phase I) yielded little in the way of detailed topographic data since all but the tops of hills was still buried under seasonal snow cover. A surprise bonus, however, became evident as a multitude of game trails were noted in the snow. Time did not permit detailed mapping of these trails, but later comparison of their general locations with U.S.G.S. maps indicated that their distribution conformed to the distribution of areas of highest topographic relief in the project area.

After spring breakup, the Phase II archeological survey began. Areas initially surveyed were those where conflicts

were thought likely to occur because of exploration activities threatening projected archeological site loci. The Phase II archeological survey consisted of a single archeologist field effort. The archeologist was airlifted in to the project site and retrieved daily. The Phase III archeological survey proceeded essentially along the same lines as Phase II. The difference was in the specific areas examined. Also, late changes in the exploration plan necessitated changes in the Phase III survey plan as originally outlined under the formal Scope of Work.

These changes included the addition of several new seismic lines as well as the rescheduling of borrow source testing operations. Consequently not all borrow areas were examined coincident with borrow testing activities.

The Phase II and Phase III archeological surveys consisted of on-the-ground examination of selected portions of the Watana and Devil Canyon damsites. Surficial features were interpreted, as conditions allowed, for clues to aid in the location of cultural resources. Occassionally, with the aid of shovel and trowel testing, sub-surface deposits were exposed. These man-made exposures augmented the relatively small number of naturally occurring exposures and helped to piece together a small part of the area geologic history.

SURVEY RESULTS

In all, five archeological sites were discovered during the 1978 survey. Four of these sites likely date to a prehistoric period and one of the sites dates to the historic period (see maps for locations). Each of these sites is referred to in this report by its Alaska Heritage Resource Survey (AHRS) file designator.

Historic Period Site.

TLM 019. The only historic period site discovered during the survey, other than an occasional scatter of tin cans, was a site located just north of Tsusena Butte. TLM 019 consists of a small (approximately four by three meter rectangle) corral-like enclosure which exhibits no gate or entranceway. The feature is constructed of four courses of 20-25 cm diameter spruce logs. The logs exhibit metal axe and saw cuts, and thus are definitely of the historic period even though no specifically historic artifacts were noticed at the site.

The original purpose for the structure is not obvious. It is not likely that it represents the remains of a log cabin since no floor, foundation or roof parts are present. No caulking is apparent in the walls. A tent frame also would appear unlikely. A fifth course of logs were found

leaning against the structure, and this may indicate that the structure was uncompleted at the time of its abandonment. Site TLM 019 lies nestled among uneven terrain features (remnant glacial till resulting from wasting of the Tsusena Valley glacier) marking the eastern limites of the active Tsusena Creek flood plain.

Prehistoric Period Sites.

TLM 015. The first site discovered during the 1978 survey was also the first of the prehistoric sites discovered in the project area. Soil profile sections revealed during previous testing were again revealed atop the kame knoll upon which the TLM 015 site was discovered. The sections observed at the site are redrawn here in schematic (see next page). The total section appears to be divided in to two major units. The uppermost of these two consists basically of loess or silt, while the lowermost of the two is composed of courser material. It does not appear unreasonable to interpret the courser lower material as being colluvium and probably associated with the rapid wasting of the local valley glaciers. It would seem equally likely that the upper silt/loess levels represent sediments deposited since late Wisconsin times. Based on these assumptions, it would seem logical to view the upper silt/loess deposit as spanning the time from late Wisconsin

SCHEMATIC SOIL PROFILE TLM 015

level
thickness
(cm)

shrub-tundra surface

10	vegetation mat	
3	leached zone	-- loess/clay
3	oxidized	-- loess
15	light brown/tan	-- loess
1	charcoal present	-- loess
1	leached zone	-- loess/clay
1	cultural level	-- dark brown/black loess
15	grades orange to grey	-- sandy silt w/ pebble intrusions -- silty sand w/ pebble intrusions
	sand w/ rounded and angular pebbles & cobbles	flake found at this level

deglaciation to the present. The orange silty sand may represent an oxidized original surface following deglaciation.

With this in mind it is interesting to note that one cultural level is located at the base of the silt/loess deposit. The lower cultural level is located within the silty sand deposit. If our geologic assumptions are correct, or even close, we can conclude that this human occupation of site TLM 015 was during late Pleistocene or early Holocene times. Thus an approximate date for site occupation of approximately 8000 to 10000 years ago does not seem out of the question.

Site TLM 015 technically is a multicomponent archeological site. Unfortunately each of the two components yielded only one stone flake. Additional test pits were dug in order to better estimate the spatial limits of the site. Frozen ground, encountered within approximately 20-25 cm of the surface, inhibited further testing in the short time available.

TLM 016. The second of the prehistoric sites discovered was found on top of another kame knoll some 1750 meters east of TLM 015. The site, initially revealed by the

presence of stone flakes in a wind erosion blowout, is marked by the presence of a Corps of Engineers benchmark (WA-16/1978).

Test pit excavation revealed a soil section similar to that found at site TLM 015, but there were subtle differences. The similarity was expressed largely in the nature of the major units of deposition. At site TLM 016, again a silt/loess unit was found to overlie a sandy and generally courser unit. And a buried charcoal-stained loess also appeared to rest just above the course lower unit. In contrast to the section from TLM 015, the section from TLM 016 appeared to be less complex in that it lacked the buried paleosol (see next page).

Testing at TLM 016 also produced bone fragments of a possible hearth. A charcoal sample was obtained and was submitted to Geochron Laboratories for radiometric dating. The sample yielded a radiocarbon date of 3675 ± 160 C-14 years B.P. (GX-5630). The bone fragments, although too crushed to identify, are apparently from a medium to large sized mammal.

Stone chips were found associated with the charcoal stained level as well as with the overlying grey/brown loess level. This and the recency of the date suggest that the hearth

SCHEMATIC SOIL PROFILE TLM 016

level
thickness
(cm)

shrub-tundra surface

5	vegetation mat	
1.5	leached zone	-- loess/clay
1	oxidized	-- loess
9	grey/brown	-- loess
1	charcoal present	-- dark brown / black loess
	grades orange ↓ to grey	-- silty sand w/ pebbles and cobbles

may be intrusive to the geological deposit upon which it rests, but this is not certain. In all, nineteen stone flakes were recovered along with forty bone fragments and three radiocarbon samples. (Only one of the carbon samples was submitted for dating, so two remain.) Of the stone chips, only one appears to have been used as a tool. One flake is unifacially retouched (sharpened), and may have been used as a knife or a scraper.

TLM 017. Site TLM 017 was discovered while test pitting a small bench-like terrain feature which overlooks a terrace above lower Tsusena Creek. The soil section at TLM 017 was again similar to those exposed at TLM 015 and TLM 016. There was, however, a slight difference. A schematic of the section at TLM 017 is shown on the next page. The section appears to contain two sandwiched paleosols. But, again, this is not certain.

Site testing yielded only stone artifacts. All 372 of these artifacts were stone chips or waste flakes. No tools were found. All of the flakes recovered were from a single test pit and were found in a single heap, only a portion of which was excavated. This indicates either long term site occupation or, more likely, intensive tool manufacturing activities.

SCHEMATIC SOIL PROFILE TLM 017

level
thickness
(cm)

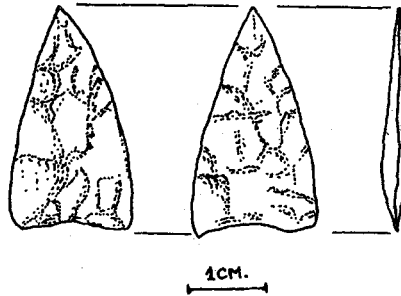
	shrub-tundra surface	
9	vegetation mat	
1	leached zone	-- loess/clay
1	oxidized	-- brown loess
10	light brown	-- loess
1	dark brown/black	-- loess
1	leached zone	-- loess/clay
1	dark brown/black	-- loess (cultural level)
1	leached zone	-- loess/clay
	grades orange ↓ to grey	-- sandy silt w/ pebbles
		-- silty sand w/ pebbles and cobbles

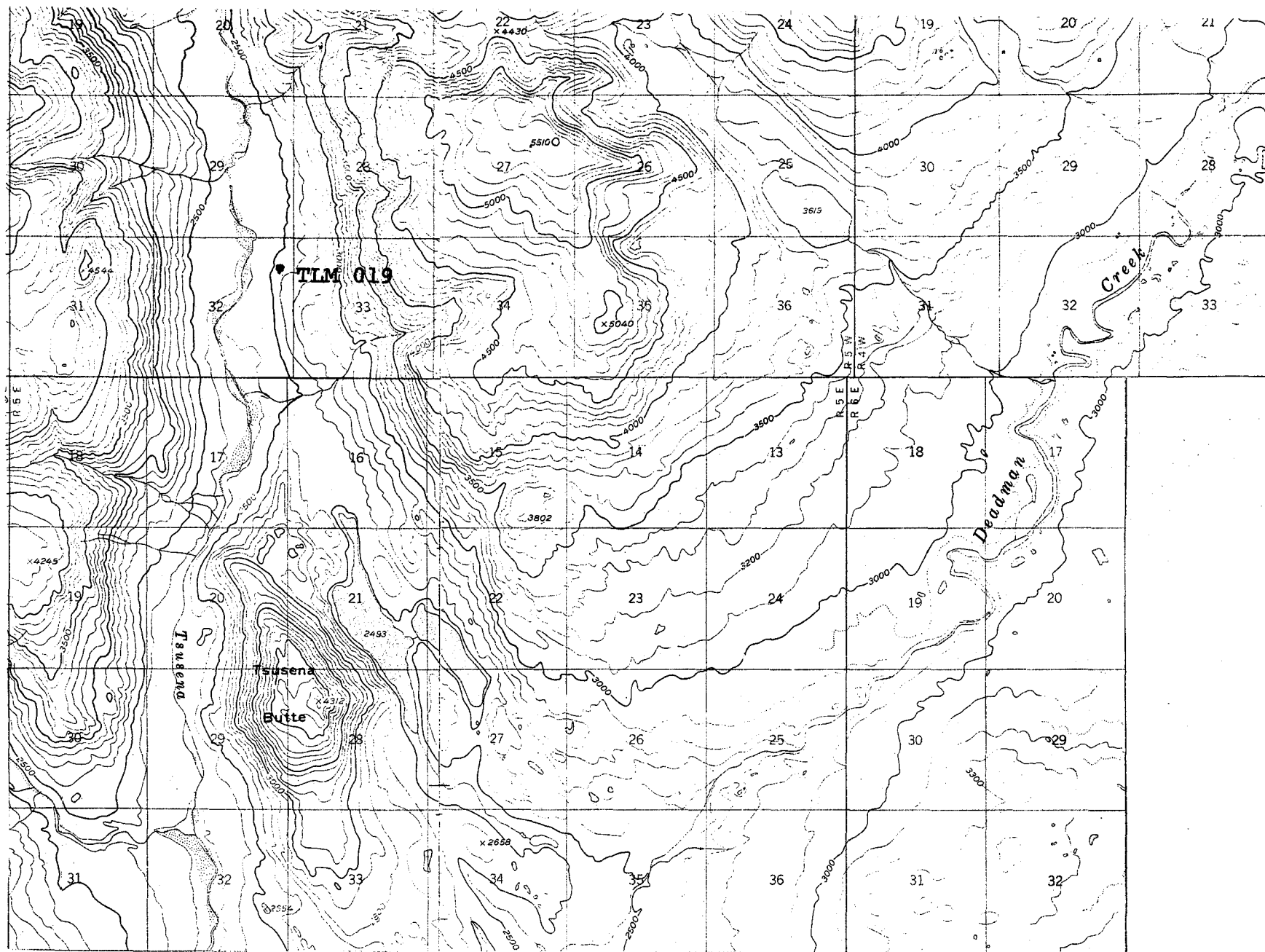
TLM 018. As usually seems to be the case, the last of the prehistoric sites discovered during the 1978 survey seems to be the most spectacular. It is without doubt the largest of the prehistoric sites encountered. It also produced the only diagnostic tool, a stone endblade.

Credit for the discovery of the site should technically go to Lt. Phil Brna, who spotted surface flakes seconds prior to the archeologist. The site is revealed in an extensive blowout some 1700 meters east of the 1978 Corps of Engineers base camp. Several hundred stone flakes were observed in a surface scatter. Two material types were noted; one of these was a low-grade blue-grey chert (similar to that found in TLM 015, TLM 016 and TLM 017), and the other was a fine-grained basalt like stone.

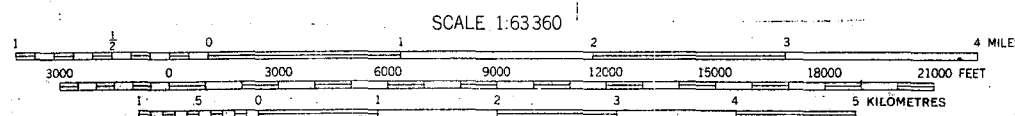
A test pit was excavated at the northern edge of the blow-out, and it revealed a buried artifact level some twenty centimeters below the surface. This artifact level appeared to be associated with a buried paleosol. The small 20 cm by 20 cm test pit yielded 138 stone flakes. An additional 29 stone flakes were surface collected in an attempt to secure a representative sample of material types. In addition to the stone flakes, one stone tool was also surface collected. This tool is a triangular endblade. It exhibits a ground concave base and it is flaked over

both faces. It measures almost exactly three centimeters long and approximately 1.7 centimeters in width.

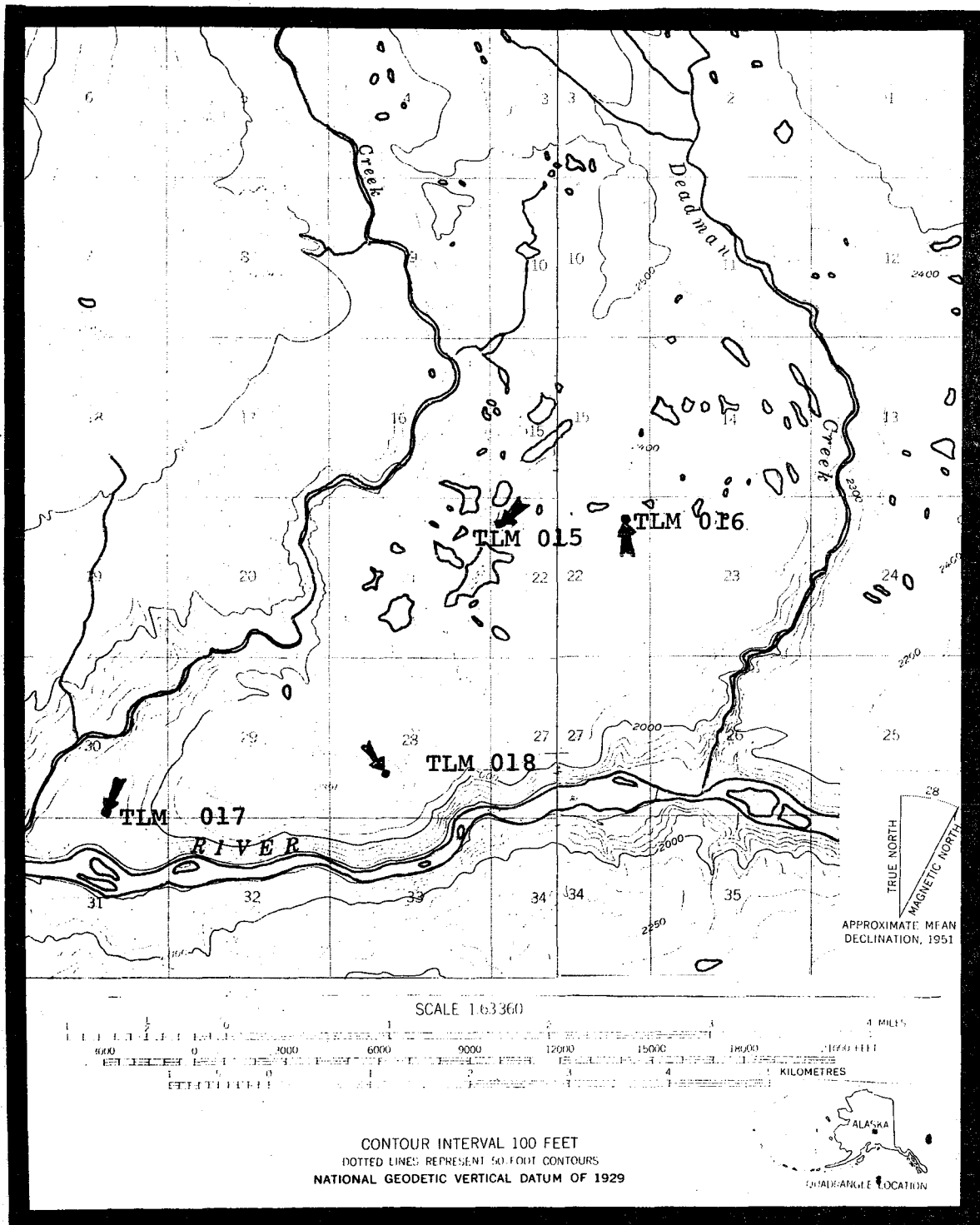


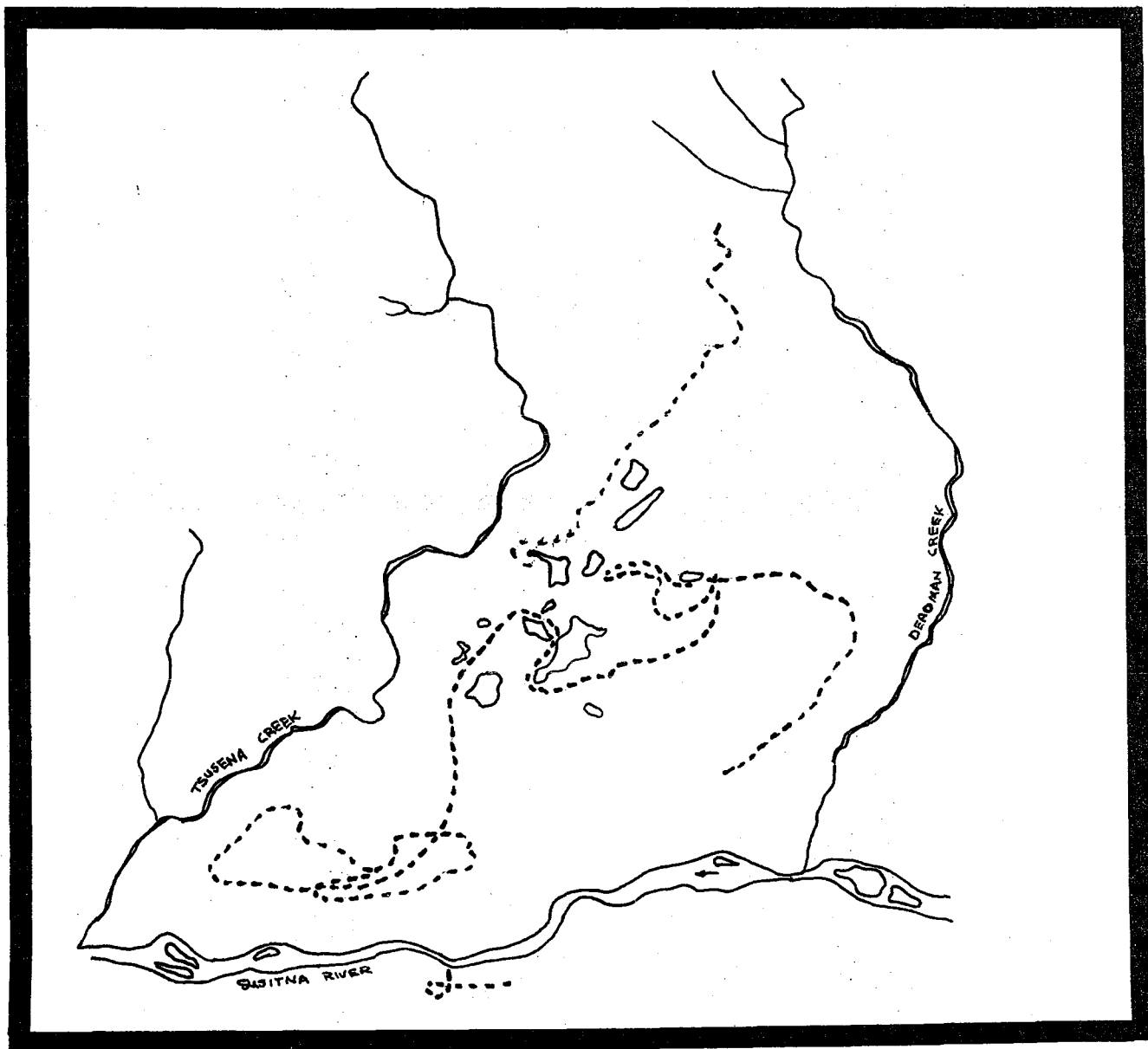


CONTOUR INTERVAL 100 FEET
 DOTTED LINES REPRESENT 50-FOOT CONTOURS
 NATIONAL GEODETIC VERTICAL DATUM OF 1929

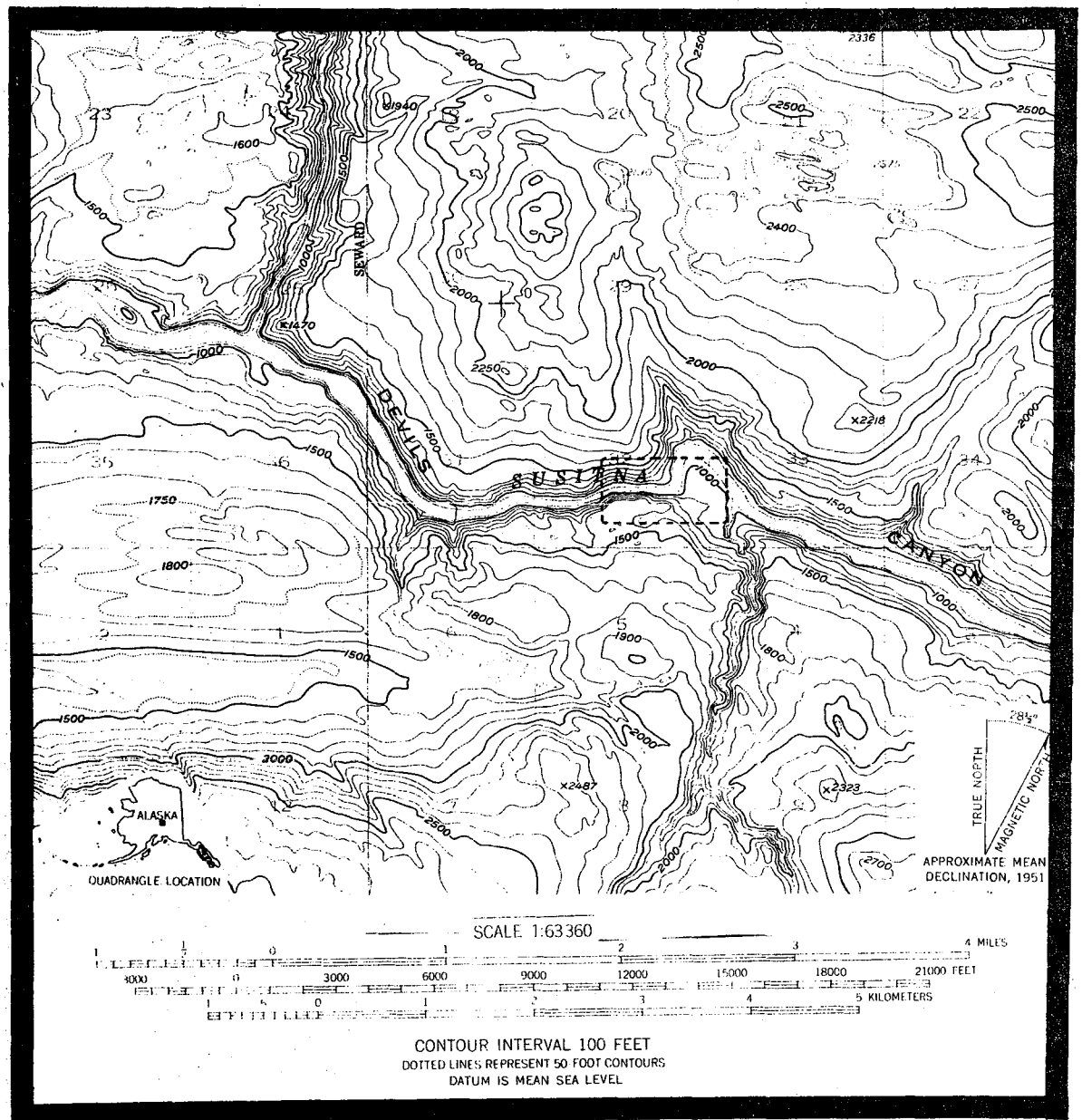


TALKEETNA MOUNTAINS (D-4) QUADRANGLE





WATANA DAMSITE PROJECT AREA - Dashed lines represent routes of 1978 archeological survey



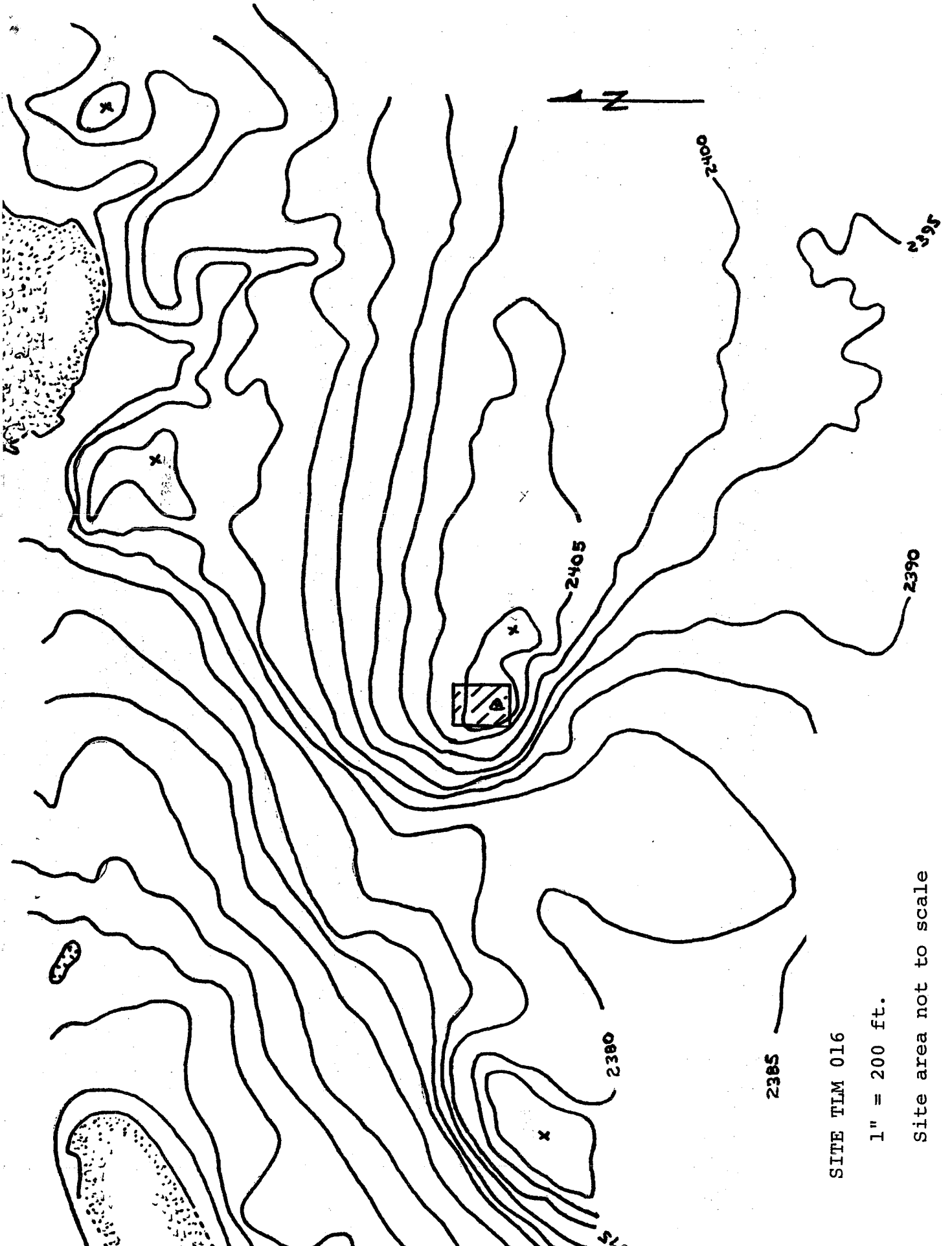


SITE TLM 015

1" = 200 ft.

Site area not to scale

Contours in feet above
sea level

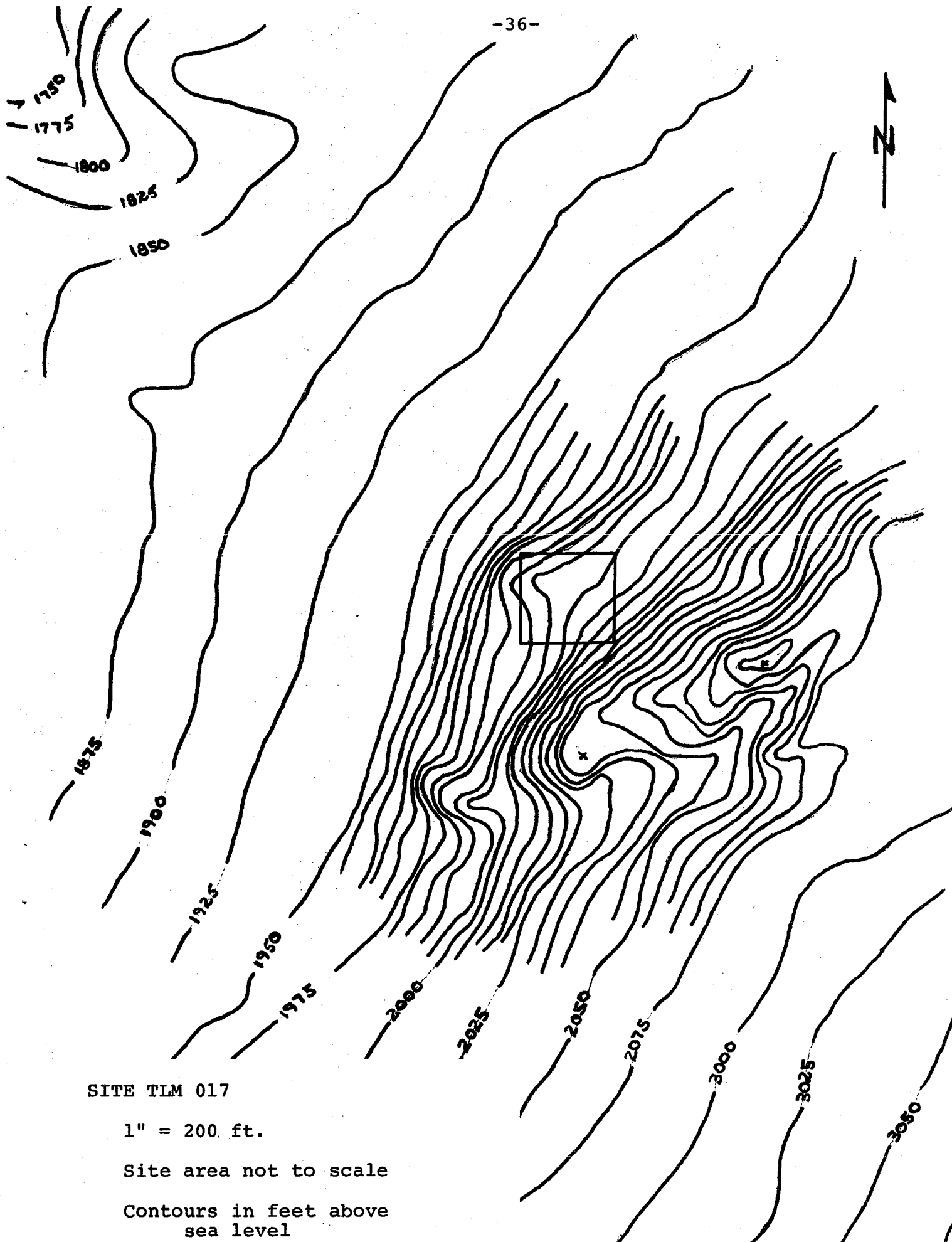


SITE TLM 016

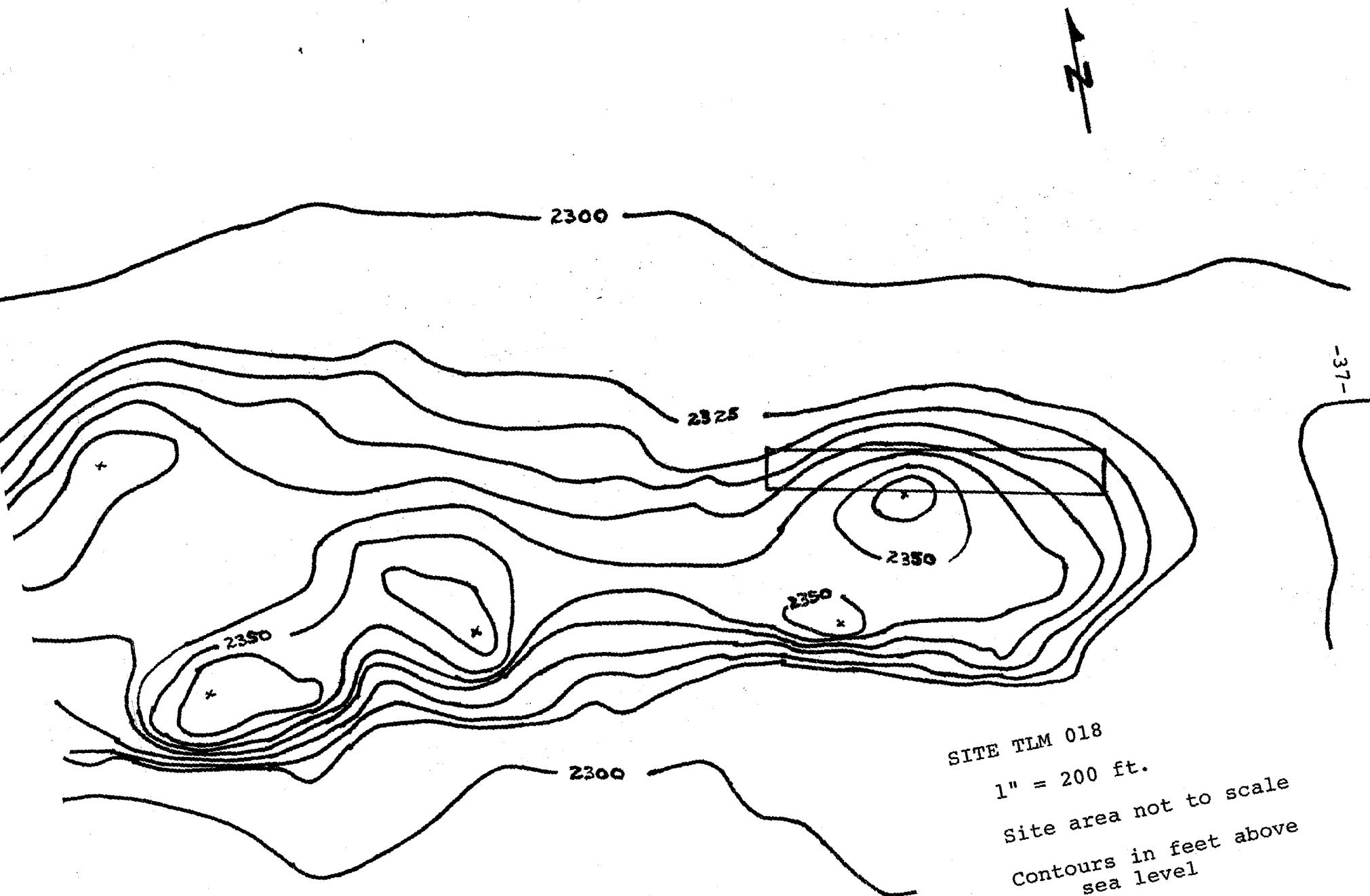
1" = 200 ft.

Site area not to scale

Contours in feet above
sea level



Contours in feet above
sea level



ARTIFACT CATALOG

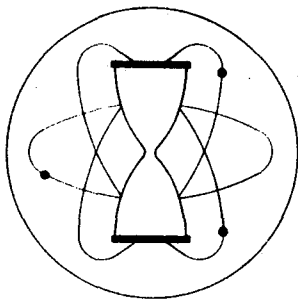
<u>Site</u>	<u>Accession Number</u>	<u>Description</u>
TLM 015	UA-78-65-1	flake (upper component)
	UA-78-65-2	flake (lower component)

TLM 016	UA-78-66-1	flakes (6) (surface blowout)
	UA-78-66-2	flakes (6) (test pit #1)
		bone fragments (40)
	UA-78-66-3	flaked pebble (test pit #2)
	UA-78-66-4	flakes (6) (test pit #5)
	UA-78-66-5	hearth sample (test pit #1)
	UA-78-66-6	hearth sample (test pit #1)

TLM 017	UA-78-67-1	flakes (372) (test pit)

TLM 018	UA-78-60-1	stone endblade (blowout)
	UA-78-60-2	flakes (29) (blowout)
	UA-78-60-3	flakes (138) (test pit #1)

All artifacts have been accessioned to the University of
Alaska Museum, Fairbanks.



KRUEGER ENTERPRISES, INC.

GEOCHRON LABORATORIES DIVISION

24 BLACKSTONE STREET • CAMBRIDGE, MA. 02139 • (617) - 876 - 3691

RADIOCARBON AGE DETERMINATION

REPORT OF ANALYTICAL WORK

Our Sample No. GX-5630

Date Received: 19 June 1978

Your Reference: letter of 16 June 1978

Date Reported: 26 September 1978

Submitted by: Glenn Bacon
Alaskarctic
P.O. Box 397
Fairbanks, ALASKA 99707

Sample Name: Upper Susitna River Basin, Alaska. 35cm.

AGE = 3675 \pm 160 C-14 years B.P.

Description: Sample of charcoal.

Pretreatment: The charcoal fragments were separated from any dirt or sand, and all apparent rootlets or other impurities were picked out. The sample was then treated with hot dilute HCl to remove any carbonates, and with hot dilute NaOH to remove secondary organic contaminants. It was then filtered, washed, dried, and combusted to recover carbon dioxide for the analysis.

Comment:

$\delta C_{PDB}^{13} =$ ‰

Notes: This date is based upon the Libby half life (5570 years) for C^{14} . The error stated is $\pm 1 \sigma$ as judged by the analytical data alone. Our modern standard is 95% of the activity of N.B.S. Oxalic Acid.

The age is referenced to the year A.D. 1950.

EVALUATION OF CULTURAL RESOURCES LOCATED

In order to fully evaluate the significance of the cultural resources located during the 1978 archeological survey we must better understand the nature of regional history and prehistory. We must learn more about the five specific sites located. As yet our 1978 survey has produced the only baseline archeological data available for the project area. Because these data are so limited, it is necessary to rely on the data base already established for areas contiguous to the project area. This situation must temper any conclusions we may draw, since, as we discussed under the section of this report entitled Summary of Regional Prehistory, the framework we have created to interpret interior Alaskan prehistory must be considered tenuous at best.

Alternatively, because each of the sites encountered during the 1978 survey is one of the very first to be reported from the project area, each of the discovered sites must be considered extremely important. Just how each of these sites may ultimately fit into the framework of area history and prehistory is not known; but we do know that for the moment they represent the only known framework.

Because of this peculiar situation, we are reluctant to recommend the nomination of any of these sites to the National Register of Historic Places at this time. Yet we cannot rule out that each of these sites may yield information important in prehistory or history. In fact their mere presence may be considered as important information. Thus each of these sites may be eligible for nomination to the National Register under criterion "d" of Appendix C, 36 CFR 800, Procedures for the Protection of Cultural Properties (Federal Register, vol. 39, no. 34, February 19, 1974).

We would rather recommend that additional and detailed studies be made of each of the sites discovered during the survey. The specific goal of each study would be to determine whether or not each site should be considered eligible for inclusion on the National Register of Historic Places. With this in mind it seems appropriate to review what we have learned of the cultural resources in the project area.

TLM 019. The purpose of this obviously historic site is not immediately known. Its excellent preservation suggests that it may be associated with the nearby Tsusena Lodge, which stands at the base of Tsusena Butte. Interviews with lodge personnel as well as test excavation at the site may yield information which will enable investigators to better

understand and thereby evaluate the site. A dendrochronological (tree-ring dating) study could furnish a date for the structure.

TLM 015. Frozen ground conditions inhibited our ability to adequately test this site. Consequently we recovered only two flakes. We may speculate that the site is both old and limited spatially by the contour of the knoll upon which it rests. The location of the site atop the knoll may indicate that the site is a look-out chipping station, but the meager artifact inventory does not necessarily support this conclusion. Additional systematic excavation should increase the artifact inventory as well as provide an opportunity to secure material with which the site might better be dated.

TLM 016. The hearth found at this site has allowed us to date it, but we know little about the technology of the people who occupied this site some 3700 years ago. Additional controlled excavation would allow a more complete evaluation of the site. Again, because the site is situated atop a kame knoll, we can reasonably speculate that the site represents an aspect of hunting activity.

TLM 017. We assume that the density of the flakes recovered from this site indicates that the site was exposed to

intensive manufacturing activities. Preliminary lithic analysis supports this conclusion. A relatively high amount of cortex flakes suggests that cobbles were brought from an as yet unidentified source to the site and then reduced.

This site too is likely very ancient judging from the soil depth at which it was discovered. Additional excavation of this site is necessary. Site limits are less confidently established for this site because of the lack of terrain limits due to the situation of the site on a bench-like feature rather than a knoll. The general setting of the site, however, suggests that the site likely does not extend more than a few meters in any direction.

TLM 018. This site shares the same possibilities as sites TLM 015, TLM 016 and TLM 017. It is known to be a large site extending at least several meters from east to west. It also produced the only diagnostic artifact found during the survey. This artifact, a stone endblade, probably was at one time fixed to the end of a bone or antler point. While the use of bone points was observed ethnographically in Alaska until historic times, the use of stone tipped bone points tends to be associated with some degree of antiquity. This particular technology is often associated with the earliest of the tundra adapted cultures which developed in Eurasia millenia ago.

Many large flakes and cortex flakes suggest that here, as at TLM 017, a workshop was located. The stone material types present appear to suggest that the raw materials were both secured locally and not of high quality. The density and variety of material present at this site indicate that additional excavation should prove very fruitful.

In summary we can make the following general observations. Recent historic utilization of the area appears to be very limited and probably insignificant. Prehistoric use of the area appears to have been considerable.

If our speculation is close to the mark, as to the nature of the prehistoric sites located, then we have located four sites associated with hunting activity. This would mean that we have yet to detect the presence of sites associated with other aspects of aboriginal exploitative patterns. We therefore must conclude that we have located only one kind, or at best a very small percentage of the kinds, of prehistoric activity sites that must exist. There must, for example, be larger base camps and certainly kill sites nearby.

Yet, even though the survey failed to detect all these other kinds of sites, the survey did discover sites at a rate of almost one site for each full day of survey. This

by Alaska standards must be considered an extremely high yield, and it most likely reflects the density of the sites present.

EVALUATION OF THE ARCHEOLOGICAL SURVEY

The Watana damsite portion of the Upper Susitna River Basin is a difficult area in which to conduct an archeological survey. There are relatively few natural erosion exposures, and standing water caused by high level permafrost makes test pitting difficult in many areas.

On the other hand, the specific nature of the goals of the survey described in this report made it a relatively easy one to complete. That is, the areas to be surveyed were so precisely located and small in spatial extent that immediate survey objectives were both clearly defined and obtainable. Field problems were unique to Phase III when scheduling conflicts prevented full compliance to the objective outlined under the Scope of Work. This scheduling conflict tended to increase rather than decrease the scope of work, and it thereby tended to assure a greater degree of protection for area cultural resources by providing a better opportunity to locate them.

Because the basic survey goals were so well identified, it became possible for Alaskarctic to assume a wider archeological role than might otherwise have been possible.

We maximized on our logistic opportunity to increase the area of survey and to initiate baseline archeological studies for the Watana area. These initial baseline studies, we hoped, would yield data helpful to the interpretation of any cultural resources which might be discovered in areas threatened by exploration activities.

We are confident, within limits imposed by currently acceptable archeological survey procedure, that our survey detected all sites threatened by the 1978 exploration program. We are pleased to be able to report that our extra survey effort produced additional evidence of the prehistoric utilization of the project area.

Our survey of areas not known to be immediately threatened by 1978 exploration activities, was both biased and incomplete. These areas, although briefly examined, must not be considered fully inventoried archeologically. Our first objective was to produce hard evidence that archeological sites do exist in the Watana damsite area. In so doing we pointed our trowels where previous experience told us we were most likely to encounter sites, specifically on tops of small hills and knolls. This portion of our survey effort was necessarily a fast moving one and consequently not all areas covered were adequately tested.

The archeological survey of a portion of the Devil Canyon damsite was limited in spatial extent and did not yield evidence of cultural resources. Consequently evaluation of this part of the total survey is difficult.

The survey at the Devil Canyon damsite consisted of two parts. The first part was an examination of an alluvial fan upon which rests an old airstrip, originally constructed by the Bureau of Reclamation. The second part of the survey consisted of an inspection of two proposed seismic lines. These were to be placed on the south bank of the Susitna and near a building also built for the Bureau of Reclamation. These seismic lines were to have been located some 500 feet above the river surface and just off the end of a lake almost directly above the airstrip.

PROBABILITY OF ENCOUNTERING ADDITIONAL SITES

When it comes to archeology there is hardly anything more easily offered or less defensible than statements concerning the probability of encountering archeological sites. In the recent past this problem has received more and more attention in the professional literature.

In Alaska this problem is particularly acute because developers continue to ask the question while the archeological data base lags far behind the analogous one for the continental United States. Current professional estimates suggest that the Alaskan archeological data base may be as much as sixty or seventy years behind the rest of the country in its development.

Within Alaska, the Watana portion of the Upper Susitna Basin presents an almost impossible situation. Up until this summer we had no local data base with which to work. The four prehistoric sites located in 1978 do little to improve on the situation.

The statistical odds are that no two of the sites found in 1978 represent human activity in a single prehistoric year. We know almost nothing of the settlement patterns, part of which each of these sites reflects. Our under-

standing of these prehistoric settlement patterns relies totally on ethnographic and archeological analogy. That is, we must project from the known to the unknown. We do this by making certain logical inferences. We do not expect log cabins on the tundra, but we do expect to find base camps close to hunting camps. Of course neither of these is necessarily always going to be true. We must also assume that game behaviour patterns have not altered significantly over the past few thousand years. If they have, then projecting historically observed hunting behaviour on prehistoric populations may not be viable.

Additional problems are introduced in the Watana and Devil Canyon damsite areas because little detailed paleo-environmental data are available. We know little for certain about past vegetation regimes. We know little about recent geologic history which may have bearing on the creation of existing land forms. And we know little about past game populations.

We do know that our rate of site find per man-day in the field was on the high end of the experience scale. We are reasonably certain that the 1978 survey detected only a tiny part of the total range of task specific sites we expect were utilized by prehistoric populations. This indicates to us that the site density of both project

areas is going to be high. On reflection this should not be too surprising, since the Tangle Lakes Archeological District is not too far distant. The Tangle Lakes District was entered on the National Register, in part, because it is reported to exhibit one of the highest archeological site densities in North America.

KNOWN AND PROJECTED IMPACTS ON CULTURAL RESOURCES

We know that at least one archeological site has already been directly effected by exploration activities near the Watana damsite. Site TLM 016 apparently has been punctured by a Corps of Engineers benchmark.

We suspect that seismic testing must have some effect upon archeological sites nearby; but we do not know if the effects constitute a significant threat to the cultural resource. In attempting to further define the nature of projected impact, we offer the following observations.

All archeological sites, to greater and lesser degrees, represent delicate three-dimensional puzzles. The technical task of the archeologist is to record the precise position of all the pieces as he dismantles the site. If this is done well, a three-dimensional map of the site can be created and stored in perpetuity.

All of the cultural resource sites discovered during the 1978 survey of the project area were either on or within a few centimeters of the ground surface. If this pattern holds true for the majority of the area cultural resources, then we can expect that any alteration of the ground surface could alter the three-dimensional relationships between elements within sites and thereby produce a detrimental impact on a cultural resource.

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APPENDIX

SCOPE OF WORK

1.0 Project Title. Exploration and Survey Program, Upper Susitna River Basin, Alaska. Contract for Archeological Services.

2.0 Authorization Status. Conditionally authorized for Phase I Advanced Engineering and Design (AE&D) studies.

3.0 Purpose of U.S. Army Corps of Engineers Study. To reevaluate and verify the benefit-cost status of the project in response to the OMB letter of 9 September 1977 before the project proceeds to Phase I planning. In summary, OMB requires that the proposed exploration be conducted for the purpose of verifying the need for the engineering and design work authorized in PL 94-587.

4.0 Timing of Archeological Input. Field work will begin on or about 15 April 1978 and will continue periodically until about July 1978. Total field work is not expected to exceed 8 days. Prior to 15 October 1978 a final report will be submitted to the Contracting Officer, COE for approval.

5.0 Work Required.

5.1 A qualified archeologist, as defined by 36 CFR 66 (FR, Vol. 42, No. 19 - 28 Jan 1977), will, prior to the undertaking of COE exploration activities except within the river channel, examine all areas where exploration activities are planned (see maps) as far in advance of those activities as possible. The archeologist will make recommendations to COE for avoiding locations where the probability is high that archeological materials exist which might be adversely affected by the planned activities. Specific areas to be examined in the preliminary field investigation as depicted on the inclosed maps include:

- a. The left & right abutments
- b. The spillway area
- c. The borrow areas (test pitting)
- d. All vehicular traffic routes within and between areas of activity.
- e. The Devil Canyon site (although no major exploration activities are planned in Devil Canyon a brief archeological examination will be conducted in case funding permits increased exploration activities).

The preliminary field investigations will be accomplished in three phases beginning on or about 15 April 1978. Prior to initiation of field investigations, the contractor shall indicate on maps those areas within the project that would likely contain cultural resources and be highly probable areas of archeological potential.

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Phase I will be a complete aerial reconnaissance of the project area to help the archeologist to become familiar with the area and to provide direct visual basis for further refinement of high probability area identification with the exception of Devil Canyon. The activities for this phase are expected not to exceed 2 days. Investigation at Devil Canyon will be delayed until Phase II. This phase of resource mapping will make it possible to avoid areas of high potential in areas of exploration activities until the ground is free of snow and on-the-ground examinations can be made under Phase II.

Phase II will consist of on-the-ground examination of activity areas beginning on or about 15 May 1978. The areas of proposed activities will be visited to conduct an on-the-ground assessment of archeology potential verifying or revising the classification of areas identified during Phase I. An assessment of the highly probable areas of the cat-train route from the Denali Highway will also be completed at this time. Some subsurface testing may be necessary to fully evaluate the archeology potential of some activity areas. The activities for Phase II are expected not to exceed 5 days. This phase of resource identification will make it possible to avoid any identified resource.

Phase III will be conducted when the borrow areas are initially tested during test pit operations. Activity in both borrow areas will be initiated on the same day thus this phase is not expected to exceed 1 day. The contractor will be present to evaluate the subsurface materials as exposed, thus provide timely detection of any buried archeological materials and provide a stratigraphic profile of information needed for the interpretation of the pre-historic environment and its cultural content.

5.2 Transportation will be provided daily for the archeologist via helicopter from Talkeetna Airport to the project area. A helicopter will be available for onsite archeological investigations during periods when it is not being used for exploration activities. Helicopter turn-around time from Talkeetna to the project is a minimum of 12 hours.

5.3 If, in the course of any operations, evidence is found of cultural resources of prehistoric, historic, or contemporary esoteric nature that may be directly or indirectly affected by operations, the archeologist will immediately notify the Contracting Officer or his field representative. Any such discoveries shall be left intact and all work in that effective area will be discontinued until a notice to proceed is received. The archeologist will provide to the Contracting Officer, immediately, a preliminary description and evaluation of any cultural resources discovered in the course of operations under this contract. COE and BLM in cooperation with the archeologist will jointly evaluate any discoveries and determine what

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action will be followed with respect to such discoveries. Any mitigation of any potential effects on identified cultural resource under this contract will be accomplished through avoidance action. Excavation beyond limited testing accomplished under Phase II is not anticipated.

6.0 Report Required.

Prior to 15 October 1978 a full and comprehensive draft report will be submitted to the Contracting Officer for review. This draft shall be revised and resubmitted in final format and in quintuplet prior to 15 November 1978. The final report will be accepted or rejected by the Contracting Officer within 21 days after receipt of the documents. If the report is rejected, reasons for rejection will be submitted to the Contractor in writing.

The report shall include but not be limited to the following:

- a. Description of data review and field investigation methods used, intensity of field inventories, names of individuals employed in the work, and the commencement and termination dates of field investigations.
- b. Identification of the project and BLM reference Number AG-AK 910-297.
- c. A general background discussion of cultural resources of the area.
- d. Identification and description, including drawings and photographs, of specific cultural resource sites and values found; evaluation of their significance; and whether such sites might be eligible for placement in the National Register for Historic Places with specific citation to qualifying criteria under 36 CFR 800.10.
- e. Site inventory records (on approved forms) completed for each cultural property inventoried with appropriate maps indicating the location of each site.
- f. Suitable maps that clearly define all areas investigated and surveyed and intensity of survey in relation to identified cultural resources and the relationship of sites found to the project. Minimum acceptable base map should be USGS 15-minute series quadrangles or best available substitute maps showing the relationship of the cultural resources to the proposed activity areas are desirable.
- g. Catalog of all cultural resource objects collected and indication where they are stored.
- h. Identification of the probability of finding additional sites and their probable significance.
- i. Identification of the probable direct and indirect effects of the project upon known and unknown cultural resources.

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j. Summary of concussions and actions taken in consultation with BLM and COE field representatives in relation to probable areas.

k. Professional recommendations to realistically mitigate the direct and indirect adverse effects upon cultural resources which will result from exploration and related activities.

7.0 Standards. All applicable aspects of the archeological work should confirm to proposed standards for archeological data recovery in 36 CFR 66.