

ARCHAEOLOGICAL SURVEY IN ALASKA 1981

Final Report on the 1981 Archaeological Survey Along the  
Northwest Alaskan Pipeline Company Natural Gas Pipeline  
Corridor from Prudhoe Bay, Alaska to Delta Junction, Alaska

Submitted to Fluor Northwest, Inc.  
Contract Number 4780-9-K217

By

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Alaska Archaeology Permit 81-13, State MLUP/NC 81-6, Federal TUP F-72736,  
Federal Antiquities Permit 79-AK-137 (BLM Case File F-37488) and Federal  
Right-of-Way Grant F-24538

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## MANAGEMENT SUMMARY

### Background

From July 18 to September 6, 1981, an on-the-ground archaeological survey from Prudhoe Bay to Delta Junction was undertaken by the University of Alaska, Fairbanks. The work was mandated by the National Historic Preservation Act of 1966 (PL. 89-665), the National Environmental Policy Act of 1969 (PL. 91-190), the Advisory Council's Procedures for the Protection of Historic and Cultural Properties (36 CFR 800), Federal Executive Order 11593, PL. 93-291 (the Moss-Bennett Act of 1974) and the Alaska Historic Preservation Act of 1975.

Research was conducted under the sponsorship of Northwest Alaskan Pipeline (NWA) Company acting through Fluor Northwest, Inc. (Contract No. 4780-9-K217). Work was undertaken with Alaska Field Archaeology permit 81-13, State Multiple Land Use Permit (MLUP)/NC 81-6, Federal Temporary Use Permit (TUP) F-72736 (Bureau of Land Management case file), and Heritage Conservation and Recreational Service Antiquities Permit 79-AK-137, BLM case file F-37488. Principal investigator responsible for the work and in charge is Dr. Jean S. Aigner, Anthropology Program and Institute of Arctic Biology, University of Alaska, Fairbanks.

### Work Undertaken

Work completed includes the survey of 177.3 miles of NWA (proposed) project corridor (discontinuous segments), 12 exploratory material sites (EMS's) totalling 747 acres, one ancillary site of 13.8 acres (an airport facility), plus the field check of two anomolous locations and testing of three cultural resource sites. In addition, visual inspection or aerial photographic examination of a number of cultural resources was undertaken in preparation of National Register Nomination forms. Three crews of five to six archaeologists completed the field work between July 18 and September 6, 1981.

Nearly one hundred percent coverage of foot surveyed centerline survey and EMS's was completed with an average intensity of 34 worker days per square mile. Intensity was lower on centerline since some areas which were boggy or on extreme slopes were eliminated from foot survey, and higher on EMS's, which are largely on tundra. Intensity in forested areas in previous years was 43-46 worker days per square mile and intensity in 1980 averaged 40 worker days per square mile with one hundred percent coverage. Systematic shovel clearing of vegetation and more intensive probing (shovel clearing, testing) in high probability areas was part of the field methodology.

### Cultural Resources Identified

Some 55 potential cultural resources were identified during the course of the field season. These include newly identified cultural resources, several of which are less than 50 years old, finds with dubious

or no context, previously reported archaeological sites and several other loci with modern materials or of unknown cultural status. Each of the potential cultural resources was assessed in terms of eligibility for inclusion on the National Register, based upon potential for revealing pertinent scientific information, historic importance and other established criteria.\* Based upon this assessment and the potential for adverse impact, as a result of proposed construction and operational activities, recommendations are provided to the sponsor and pertinent agencies. These include requesting a determination of eligibility, further testing and no further action (see Site Reports). Each resource with pertinent management parameters is shown in Table 1.

### Recommendations

Proposed construction activities (as of December 1981) will directly impact 30 of the new and previously reported cultural resources as these lie directly on the NWA route, its proposed EMS's and other ancillary localities. Of these, 6 resources appear to have significant scientific information associated with them within the concept of an archaeological district and therefore may be potentially eligible for inclusion on the National Register of Historic Places. It is our recommendation that these resources be considered for a determination of eligibility. In 11 cases we believe additional testing is required before the resource can be assessed for eligibility for inclusion on the National Register of Historic Places.

Thirteen of the potential resources identified are directly impacted but are not considered to contain sufficient information potential to warrant inclusion on the National Register. In these cases, it is recommended that no further action regarding (remaining) archaeological materials need be taken prior to construction activities (Table 1).

Indirect impacts will affect 25 cultural resources. These may adversely affect several resources with useful extant information owing to increased foot and vehicular traffic in the area. In eight of 11 cases where the resource lies within 200 feet of the proposed project area, we recommend that the resource be tested to determine eligibility for inclusion on the National Register. We recommend in one additional case that further testing be undertaken.

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\*Criteria "to guide the States, Federal agencies, and the Secretary of the Interior in evaluating potential entries...for the National Register." 36 CFR 800.10, 36 CFR 1202, formerly 36 CFR 60 (see King et al. 1977:235 ff.).

TABLE 1

## 1981 CULTURAL RESOURCES IDENTIFIED

SITE*	LOCATION**	POTENTIAL EFFECT BY PROJECT		EVIDENCE & CONDITION							RECOMMENDED ACTION	REASON (NOTES)	YEAR DESCRIBED
		On	Close <200 ft.	Off >200 ft.	Undisturbed	Partially Undisturbed	No Data Remains	Find Without Context	Insufficient Data	Recommended Eli- gibility Status			
SAG-Find 1	AS 012			X				X		-	No action	Off project area, proximity to SAG-005, S-29	81
SAG-006	AS 016	X					X			-	No action	No further data remain	Aly***,80,81
PSM-Find 3	AS 019			X				X		-	No action	Off project area, no further data remain	81
PSM-196	AS 019	X							X	?	Test	Data remain, data to be directly affected	81
PSM-Find 4	AS 019		X					X		-	No action	No further data remain	81
PSM-Find 8	AS 019			X				X		-	No action	Off project area, no data remain	81
PSM-Find 5	AS 020	X						X		-	No action	No further data remain (some possibility of an undisclosed focus)	81
PSM-197	AS 021	X							X	?	Test	Data to be directly affected	81
PSM-001	AS 021			X		X				-	No action	Off project area, data remain, area frequented by tourists	Aly,81
PSM-201	AS 024			X	X					-	No action	Off project area, data remain	81
PSM-Find 9	AS 025			X				X		-	No action	Off project area, no further data remain	81
PSM-074 east	AS 027	X							X	?	Test new loci	Data remain, data to be directly affected	69,Aly,81
PSM-049	AS 027	X							X	?	Test new loci	Data remain, data to be directly affected	69,Aly,81
PSM-112	AS 027		X						X	?	Test	Data remain, indirect impact likely during construction	Aly,81



TABLE 1 (Continued)

SITE*	LOCATION**	POTENTIAL EFFECT BY PROJECT		EVIDENCE & CONDITION							RECOMMENDED ACTION	REASON (NOTES)	YEAR DESCRIBED
		On	Close <200 ft.	Off >200 ft.	Undisturbed	Partially Undisturbed	No Data Remains	Find Without Context	Insufficient Data	Recommended Eli- gibility Status			
PSM-113	AS 027		X						X	?	Test	Data remain, indirect impact likely during construction	Aly,81
PSM-198	AS 027			X	X					+	No action	Off project area, data remain	81
PSM-Find 7	AS 027	X						X		-	No action	No further data remain	81
PSM-199	AS 027	X							X	?	Test	Data remain, data to be directly affected	81
PSM-200	AS 027		X						X	?	Test	Data remain, indirect impact possible during construction	81
PSM-Find 6	AS 027		X					X		-	No action	No data apparently remain	81
CHN-016	EMS 37-3B		X						X	?	Test	Data remain, indirect impact likely during construction	81
BET-123	EMS 48-0	X					X			-	No action	No further data remain	Aly,80,81
BET-122	EMS 48-0	X					X			-	No action	No further data remain	Aly,80,81
BET-125	EMS 51-3	X					X			-	No action	No further data remain	Aly,80,81
BET-126	EMS 51-3	X					X			-	No action	No further data remain	Aly,80,81
LIV-Find 3	EMS 63-3A	X						X		-	No action	No further data remain	81
LIV-055	EMS 69-3B	X					X			-	No action	No further data remain	Aly,80,81

THE FOLLOWING SEVENTEEN "LIV" SITES ON OR ADJACENT TO EMS 71-3A AND B ARE CONSIDERED AS PART OF THE PROPOSED "ROSEBUD KNOB ARCHAEOLOGICAL DISTRICT" FOR WHICH A DETERMINATION OF ELIGIBILITY STATUS IS REQUESTED.

LIV-103	EMS 71-3A	X			X					+	Request determination of eligibility	Data remain, data to be directly affected	80,81
LIV-107	EMS 71-3A	X			X					+	Request determination of eligibility	Data remain, data to be directly affected	80,81

TABLE 1 (CONTINUED)

SITE*	LOCATION**	POTENTIAL EFFECT BY PROJECT		EVIDENCE & CONDITION							RECOMMENDED ACTION	REASON (NOTES)	YEAR DESCRIBED
		On	Close <200 ft.	Off >200 ft.	Undisturbed	Partially Undisturbed	No Data Remains	Find Without Context	Insufficient Data	Recommended Eli- gibility Status			
LIV-108	EMS 71-3A	X			X					+	Request determination of eligibility	Data remain, data to be directly affected	80,81
LIV-104	EMS 71-3B	X						X		-	No action	May be part of LIV-047 or other unspecified site	80,81
LIV-047	EMS 71-3B	X				X				+	Request determination of eligibility	Data remain, data to be directly affected	Aly,80,81
LIV-106	EMS 71-3B	X			X					+	Request determination of eligibility	Data remain, data to be directly affected	80,81
LIV-050	EMS 71-3A	X						X		-	No action	Site location questioned; no data remain	Aly,80,81
LIV-030	EMS 71-3B	X				X				+	Request determination	Data remain, data to be directly affected	Aly,80,81
LIV-040	EMS 71-3B	X				X						Few data remain, data to be directly affected	Aly,80,81
LIV-046	EMS 71-3A		X			X				?	Test	Near project area, data remain, indirect impact likely during construction	Aly,80,81
LIV-105	EMS 71-3A		X		X					?	Test	Near/off project area, data remain, indirect impact possible during construction	80,81
LIV-043	EMS 71-3B	X				X				-	No action	Few data remain, data to be directly affected by gasline construction	Aly,80,81
LIV-048	AS 071			X		X				-	No action	Off project area, some data remain	Aly,81
LIV-045	AS 071			X	X					-	No action	Off project area, some data remain	Aly,81
LIV-044	AS 071			X	X					-	No action	Off project area, some data remain	Aly,81
LIV-042	AS 071			X		X				-	No action	Off project area, some data remain	Aly,81
LIV-041	AS 071			X		X				+		Off project area, data remain, looting has occurred	Aly,81

TABLE 1 (Continued)

SITE*	LOCATION**	POTENTIAL EFFECT BY PROJECT		EVIDENCE & CONDITION							RECOMMENDED ACTION	REASON (NOTES)	YEAR DESCRIBED
		On	Close <200 ft.	Off >200 ft.	Undisturbed	Partially Undisturbed	No Data Remains	Find Without Context	Insufficient Data	Recommended Eli- gibility Status			
LIV-073/ CIR-010	AS 080	X							X	?	Test	Historical, needs archival re- search, data to be directly affected, partly Register accepted	AHRS 77,81
FAI-208	AS 080	X							X	?	Test	Historical, needs archival re- search, data to be directly affected	81
FAI-209	AS 080	X							X	?	Test	Historical, needs archival re- search, data to be directly affected	81
FAI-210	AS 081	X							X	?	Test	Historical, needs archival re- search, data to be directly affected	81
FAI-211	AS 082	X							X	?	Test	Historical, needs archival re- search, data to be directly affected	81
FAI-212	AS 084			X					X	?	No action	Off project area, data remain, impact by erosion and flooding	81
XBD-053	AS 093			X					X	?	Test	Off/near project area, data remain, 81 indirect impact likely during construction	
XMH-251	AS 101		X						X	?	Test	Data remain, indirect impact likely	AHRS, Cook 81 (BLM) 78,79
NAB-022	AS 128			X		X				+	No action	Off project area, data remain	Cook 81 (BLM)
NAB-021	AS 129	X							X	?	Test	Insufficient data to evaluate	Cook 81 (BLM)
NAB-020	AS 130		X						X	?	Test	Data remain, indirect impact likely during construction	Cook 81 (BLM)

\* Sites are placed north to south.

\*\* refers to NW designations sheets March 19...

## INTRODUCTION

Archaeological survey was conducted from July 18 to September 6, 1981, by the University of Alaska along the Northwest Alaskan Pipeline Company (NWA) proposed route from Prudhoe Bay, Alaska to Delta Junction, Alaska. The work was executed under contract between the University of Alaska with NWA acting through Fluor Northwest, Inc. (Contract No. 4780-9-K217), and in accordance with Federal Temporary Use Permit (TUP) F-72736, Antiquities Permit 79-AK-137 (Heritage Conservation and Recreational Service; BLM case file F-37488), Federal Right-of-Way Grant F-24538, Alaska State Multiple Land Use Permit (MLUP) NC/81-6, and Alaska Field Archaeology Permit 81-13.

The 1981 field investigations included the survey of 177.3 miles of corridor, 12 EMS's totalling 747 acres, and one ancillary site (an airport facility) of 13.8 acres, plus the field check of two anomolous locations and testing of three cultural resource sites.

The 1981 field investigations are part of an on-going cultural resources program that began in 1978.

### Project Premise

The field research in 1981 as well as previous seasons was undertaken with a basic premise in mind. While the area of survey was defined by management needs of Northwest Alaskan Pipeline Company, namely to comply with federal and state stipulations which set forth the limits of the investigations, it is still possible to gather and analyze data which will contribute to our knowledge of human habitation and land use in the area, thereby contributing to the field of archaeology. The concerns of the sponsor, mandated by the National Environmental Policy Act of 1969 (PL 91-190), the National Historic Preservation Act of 1966 (PL 89-665) as amended, the Advisory Council's Procedures for the Protection of Historic and Cultural Properties (36 CFR 800), and the Alaska Historic Preservation Act of 1975, can be met and the data can contribute to Alaska's inventory of cultural resources, required by the Federal Preservation Act of 1966, as amended (cited above), and Federal Executive Order 11593. This premise reflects the philosophy of conservation archaeology and applies not only to work traditionally classified as salvage archaeology but to archaeology in general.

Conservation archaeology as a label underscores that the emphasis is not on simply excavating [or surveying] to "save" sites, but rather on protecting and utilizing the cultural remains to their fullest scientific and historic extent. (Schiffer and Gumerman 1977:xix)

This implies that all archeological work should be problem oriented and focus on gathering data from potentially threatened sites in attempts to answer scientific questions. At the same time, non-threatened sites should be avoided in the collection of data. Lipe (1974) has noted that

the health of the discipline of archaeology today depends very much on contributions resulting from contract projects since so much research is being conducted in connection with construction work. Data gathered which are not reported represent data which may as well have not been collected. We consider this to be a serious ethical responsibility and the sponsor has been most supportive in an awareness of this obligation.

### Content of the Report

The following report begins with Theoretical and Practical Perspectives in Archaeological Assessments. This section discusses the theoretical aspects of the cultural resources investigations as they pertain to the regulatory process.

The first section is followed by Background Review. In this, the inventory and assessment as well as field work conducted in 1980 are discussed.

The subsequent three chapters are Scope of Services in 1981, Field Methodology in 1981 and Results of the Investigations in 1981.

To present a compilation of work completed since the project began in 1978 a final summary chapter "Scope of Work Completed 1978-1981" is included. A bibliography of the literature cited completes the body of the report.

Appendices are included which provide pertinent detail. These are:

- Appendix 1: Field Personnel 1981;
- Appendix 2: Site Reports 1981;
- Appendix 3: Artifact Catalog 1981;
- Appendix 4: Work Completed 1978-1981: Centerline Segments;
- Appendix 5: Work Completed 1978-1981: EMS's;
- Appendix 6: Miscellaneous Work Completed 1978-1981;
- Appendix 7: Update on Cultural Resources in Beechy Point Quadrangle.

## THEORETICAL AND PRACTICAL PERSPECTIVES IN ARCHAEOLOGICAL ASSESSMENTS

### Introduction

As previously reported, the major regulations and legislation influencing cultural resource management are NHPA of 1966, as amended, and its implementing regulation 36 CFR 800, NEPA of 1969, and E.O. 11593 of 1971. E.O. 11593 requires, as a condition of the NWA undertaking, an inventory of sites in the project area and an evaluation of them for National Register eligibility. If sites listed on or sites eligible for listing on the National Register, based upon an evaluation of significance (36 CFR [formerly 36 CFR 60] 1202 lists criteria), are subject to (potential) impact, then the Advisory Council on Historic Preservation has time to comment on the proposed action before the federal agency adopts the course of action it feels appropriate.

In this report we are advising the sponsor about (1) the cultural resources identified in the project area which may be subject to direct and indirect impacts, (2) the presence of information important in prehistory or history which a cultural resource may reveal (thereby being potentially eligible for inclusion on the Register), and (3) possible management decisions which might be made regarding the cultural resource, depending upon its level of significance. Determination of eligibility requires preparation of documentation by the Federal agency involved. The State Historic Preservation Office of Alaska will evaluate and comment. The ultimate determination is made by the Keeper of the Register. The Advisory Council on Historic Preservation becomes involved only with sites on or eligible for listing on the Register. Similarly, prescribed agencies are responsible for documenting adverse effects and no effects (cf. 36 CFR 800).

Assessments of impacts and recommendations for management require an evaluation of the significance of the endangered cultural resource (site). This is somewhat apart from a determination of eligibility for the National Register. Thus Register eligibility and significance are not strictly synonymous. The appropriate management decision is geared to the level of significance (national, state, local) and its value, not simply to National Register eligibility or listing of the resource. good?

### Site Definition

The basic definition of a site used in this project for purposes of reporting to the state is "a locality with any evidence of past human activity" (Shinkwin and Aigner 1979:90). Thus, a site may be found in primary or in secondary deposits; it may consist of a feature without artifacts or of a cluster of artifacts alone. Operational problems arise in the field with such a general site definition. Indeed, during the 1979 field survey we identified one locality which consisted of a depression with a (probable) hearth and one find of an obsidian artifact in a recent and disturbed context.

During the past several years archaeologists have come to rethink the concept of "site" and some have introduced "non-site" as a unit of consideration, particularly in the context of site survey (c.f. Shinkwin and Aigner 1979:90-91). Plog et al. (1979) note that professionals working in areas like interior Alaska, where humans leave a diffuse trail of past activities for us to follow, are increasingly cognizant of the value of loci of cultural material which are both sparse and diffuse. Furthermore, they argue for the retention of both the concept of "site" and of "non-site" (p. 388). In order to avoid confusion (Sharrock 1980) regarding our definition of "site," we eschew further use of the term "non-site" in this study.

In this project the site concept has been operationalized for analytical purposes as a potentially interpretable locus of cultural materials. Following Plog et al. (1979) interpretable means materials of sufficient quality and/or quantity to permit behavioral inferences. Cultural materials include artifacts, ecofacts and features. The materials may be discrete (spatially bounded with those boundaries marked by at least relative changes in artifact densities) or diffuse.

### Determining Effects and Impacts

Information about impacts is extremely important for management purposes. Responsible proposals for management rest upon the reliable predictions of impacts. Impacts may be direct or indirect: "Direct impacts occur from the immediate physical consequences of a project's planning, construction, or use, while indirect impacts are those that are not directly caused by the project's activities but that would not occur otherwise" (Schiffer and Gumerman 1977:291; McGimsey and Davis 1977:111; Lipe and Lindsay 1974). It is not the concern of this report to draw a strict distinction between direct and indirect impact. Advisory regulations suggest that because an impact is indirect does not relieve the sponsor of developing a viable mitigation plan.

Assessment of impacts is predicated upon evidence which indicates that damage to the archaeological resource base can "reasonably be predicted as a result of some activity or process set in motion or accelerated by the land modification project being considered" (Schiffer and Gumerman 1977: 291-292). In order to assess impacts, it is necessary to delineate the effects of all activities that occur during a project's planning, construction, and operation, to have knowledge of the nature and significance of the archaeological resources in the affected area, and to understand the relationships between the resources and expected effects.

Since it is agreed that archaeological clearance is required preparatory to engineering studies which may impinge upon archaeological resources (such as tree clearance, core drilling, track vehicles on the tundra), planning stage effects upon the archaeological resource base are being taken into account by project management. The analysis of effects may, therefore, be considered within the same framework as that occurring in the construction stage of the project.

Primary, secondary, and tertiary effects (not to be confused with impacts) are recognized as potentially having adverse impacts on archaeological resources. Primary effects include obvious activities such as bulldozing, coring, digging, operation of track vehicles over the land surface, and removal of material from a borrow area. Secondary effects are associated with support activities such as construction of access roads, establishment of control centers, and the like. Both directly impact the cultural resource. Tertiary effects are not the direct result of construction or support activities; for example, artifact collecting by construction personnel would constitute an indirect impact (Schiffer and Gumerman 1977:294). Direct and indirect impacts also must be considered when the construction is completed and the operational phase of the pipeline is begun. Additional indirect impacts would include project-induced changes in demography and land use, including opening the haul road to commercial traffic.

### Significance

Assessment of impacts and recommendations for scientific data recovery or mitigation require an evaluation of the significance of the endangered archaeological resource. This is somewhat apart from a determination of eligibility for the National Register. Under 36 CFR 1202 (formerly 36 CFR 60) criteria for evaluation for possible inclusion in the National Register state that the quality of significance:

"...is present in districts, sites, buildings, structures, and objects of State and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and (a) that they are associated with events that have made a significant contribution to the broad patterns of our history; or (b) that they are associated with the lives of persons significant in our past; or (c) that they embody the distinctive characteristics of a type, period, or method of construction, or that they represent the work of a master, or that they possess high artistic values, or that they represent a significant and distinguishable entity whose components may lack individual distinction; or (d) that they yield, or may be likely to yield, information important in prehistory or history."

"Criteria considerations. Ordinarily cemeteries, birthplaces, or graves of historical figures...properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years shall not be considered eligible for the National Register [unless] they are integral parts of districts that do meet the criteria..."

Register eligibility and significance are not strictly synonymous:

"Adverse impacts to the archaeological resource base are not simply land disturbance or even modifications of cultural deposits; instead they are losses of values related to significance" (Schiffer and Gumerman 1977:299).



With regard to kinds of significance which relate to Register eligibility, "the assessment of significance is central to archaeological research and management planning" (Moratto and Kelly 1979:1). Significance may be arrayed within a hierarchy of cultural phenomena (intrasite, site and intersite levels are commonly recognized). But it may be interpreted only in relation to a frame of reference. The types of significance commonly recognized include scientific, historical, ethnic, public and legal (Schiffer and Gumerman 1977:249-257; King, Hickman and Berg 1977:95-104; Moratto and Kelly 1979:1-24).

In 1976 the Society for American Archaeology prepared an informational paper on determinations of eligibility to the National Register of Historic Places: "Any archaeological resource is potentially eligible if it can legitimately be argued that it is associated with a cultural pattern, process, or activity important to the history or prehistory of its locality, the United States, or humanity as a whole, provided its study can contribute to the understanding of that pattern, process, or activity" (Society for American Archaeology 1976:1). Furthermore, some properties which cannot be shown to be significant individually "may be eligible as segments of archaeological districts" (Ibid.).

Resources should be evaluated in relation to a regional or areal research design. It is not a priori acceptable to judge a small, surface site insignificant - it must be a decision made in light of the regional, cultural historical frameworks. At the same time, the Society suggests that "properties that have lost their integrity by being completely excavated or otherwise totally disturbed do not normally qualify[sic], unless they are of particularly noteworthy historical significance for the data they have yielded" (Ibid.). They are not excluded categorically. A statement of significance must be based upon adequate data from and information about a site. "It is not sufficient to simply assert one's professional opinion that the property does or does not contain information important to history or prehistory" (Ibid., p. 3).

### Mitigation

For each cultural resource in or eligible for inclusion in the National Register, we assess the effect of the project upon it. The effect may be adverse or not. Adverse effect, as discussed earlier, is any non-beneficial change in the quality of the resource that qualifies it under National Register criteria. "The Agency Official, in consultation with the State Historic Preservation Officer, shall apply the Criteria of Effect, set forth in Section 800.8, to determine whether the undertaking has an effect upon the property. Upon applying the criteria and finding no effect, the undertaking may proceed" (36 CFR 800.4). Upon finding an adverse effect, the Agency Official will obtain the information required for properly evaluating alternative courses of action.

Mitigation is the alleviation of adverse impacts (McGimsey and Davis 1977:111; Schiffer and Gumerman 1977:321). The aim of conservation archaeology

is to explore possible ways to preserve or avoid destruction of archaeological resources deemed eligible for nomination to the National Register. This will depend upon the scope of the project, its current stage, and predicted impacts on and significance of the archaeological resource. However, as Schiffer and Gumerman note, when factors of significance and on-going destructive processes (including impacts) are considered, the conservation model becomes complicated. Planned data recovery (excavation) is a mitigation alternative which may be most viable in some cases.

It should be emphasized that care alone, or negative sanctions against off-road activities, do not protect eligible sites. Active preservation of sites along the gasline is also another possible mitigative alternative. However, it should be noted that most arctic sites lack the materials which mark them for "public use" (through development of parks and the like). Stockpiling sites by burying them under fill, similarly, is sometimes recommended. In the arctic, however, burial under yards of gravel (to make sites inaccessible) will change the environment of the sites and thus the geomorphic processes affecting them. The potential impact of these newly created effects may be highly adverse in themselves. Altering the landscape may damage the integrity of the site as well as the environmental context.

Movement of the centerline to avoid impact of a known archaeological resource may result in greater site destruction than some other mitigation alternative. This is because impacts include those resulting from secondary and tertiary effects and because in avoiding one known site there is no guarantee that two new sites will not be potentially impacted. On the other hand, while mitigation of adverse impacts by excavation may be advised, it will require not only money, but more important from a sponsor's management consideration, time. The management decision must be based on a consideration of both the cost of moving the line (far more expensive than excavation) versus the time lost in construction along the preferred route while mitigation is carried out.

This brings us finally to excavation as an alternative. If and only if avoidance and active preservation alternatives cannot guarantee the integrity of the eligible archaeological resource, then scientific archaeological data recovery, that is, multistage research, problem oriented research design, rigorous sampling programs, multidisciplinary cooperation, rapid publication and wide dissemination of results, may be a viable alternative for mitigating adverse impacts. Excavation is justifiable, however, only if it makes a solid research contribution: salvage work as formerly undertaken does not constitute a viable mitigation alternative. Thus, when we suggest multistage mitigative excavation, we have in mind exploratory testing, literature review, and the like first, then development of the research program which warrants intensive excavation. Where cultural resources do not meet the criteria of eligibility or there is no adverse impact, the undertaking may proceed.

## BACKGROUND REVIEW

In 1980, an extensive literature search (Aigner and Gannon 1980) produced an inventory and analysis of known resources along part of the corridor. This was followed in the survey of 1980 by an archaeological survey along portions of the area covered by the inventory and analysis study. The archaeological survey was reported in 1981 (Aigner and Gannon 1981).

The 1981 survey (the subject of this report) is located within the area covered by the 1980 background and field studies. Thus, the context and implications of the 1980 investigations are briefly summarized in the following sections.

### Study Area\*

The general study area of the 1980 archaeological investigations extends from Prudhoe Bay south to the Tanana River. Map quadrangles included are Beaver, Beechy Point, Bettles, Chandalar, Circle, Fairbanks, Livengood, Philip Smith Mountains, Sagavanirktok, Tanana and Wiseman (Fig. 1). Additional work was done in Big Delta, Fairbanks, Nabesna and Tanacross quadrangles (see Shinkwin and Aigner 1979; Aigner 1979).

The proposed alignment lies at the margins of the larger regional band areas of the Tuluqmiut band of the Nunamiut Eskimos, the Chandalar or Netsi Kutchin and the Dihai Kutchin bands of the Kutchin Athapaskans, the Todadonten-Kanutl and South Fork bands of the Koyukon Athapaskans, and the Salcha and Minto bands of the Tanana Athapaskans (Fig. 2).

Cultural resource information is provided within an evolutionary and ecological framework. Key are extrapolations from traditional land use models to the past. Parameters affecting site location, resource scheduling and seasonality are related to the settlement/subsistence system of native peoples of the interior and tundra. The focus at the local level is upon the local band and its annual subsistence cycle which involved a central node (village) and outlayers (camps) as well as other functional loci (lookouts, caches). The location of components of the system were controlled by topographic features, resource concentrations and seasonality, and multiple resources in combination. The settlement/subsistence systems of Eskimos and Athapaskans in the study area were those of logistically organized task groups whose annual movements are systematic and planned.

Cultural resources are viewed in terms of their relationships to ecosystems (primary location and distance to adjacent ecosystems), resources (sheep, moose, caribou, migratory waterfowl, whitefish and salmon) and seasonal availability (or relative concentration), and topographic features (rivers, river confluences, lake inlets, lake outlets, lakes, wetlands, coasts, promontories). The age of the cultural resource (prehistoric, historic native, historic non-native) may have

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\*From Aigner and Gannon (1981) with slight changes.

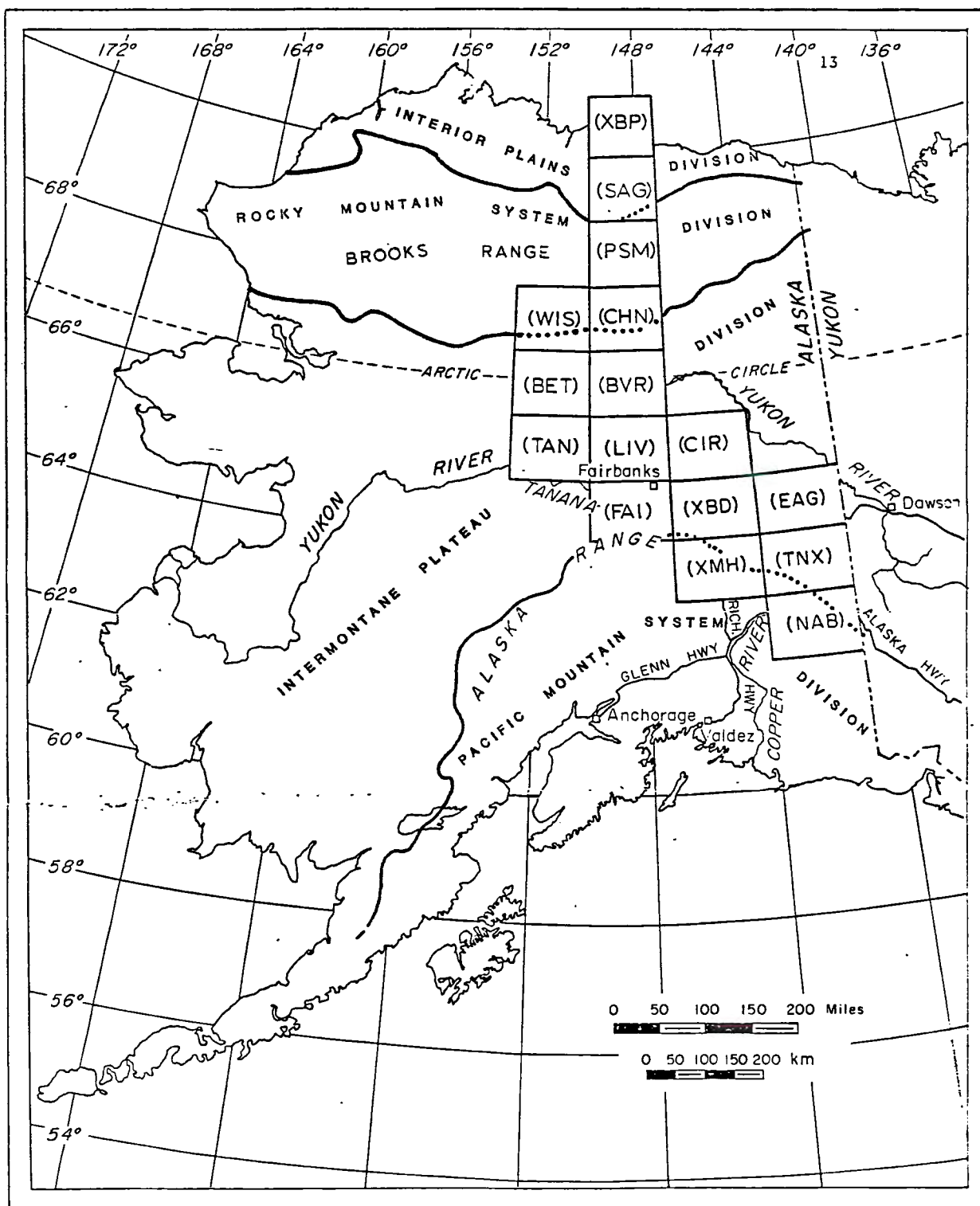


Figure 1. Study area.

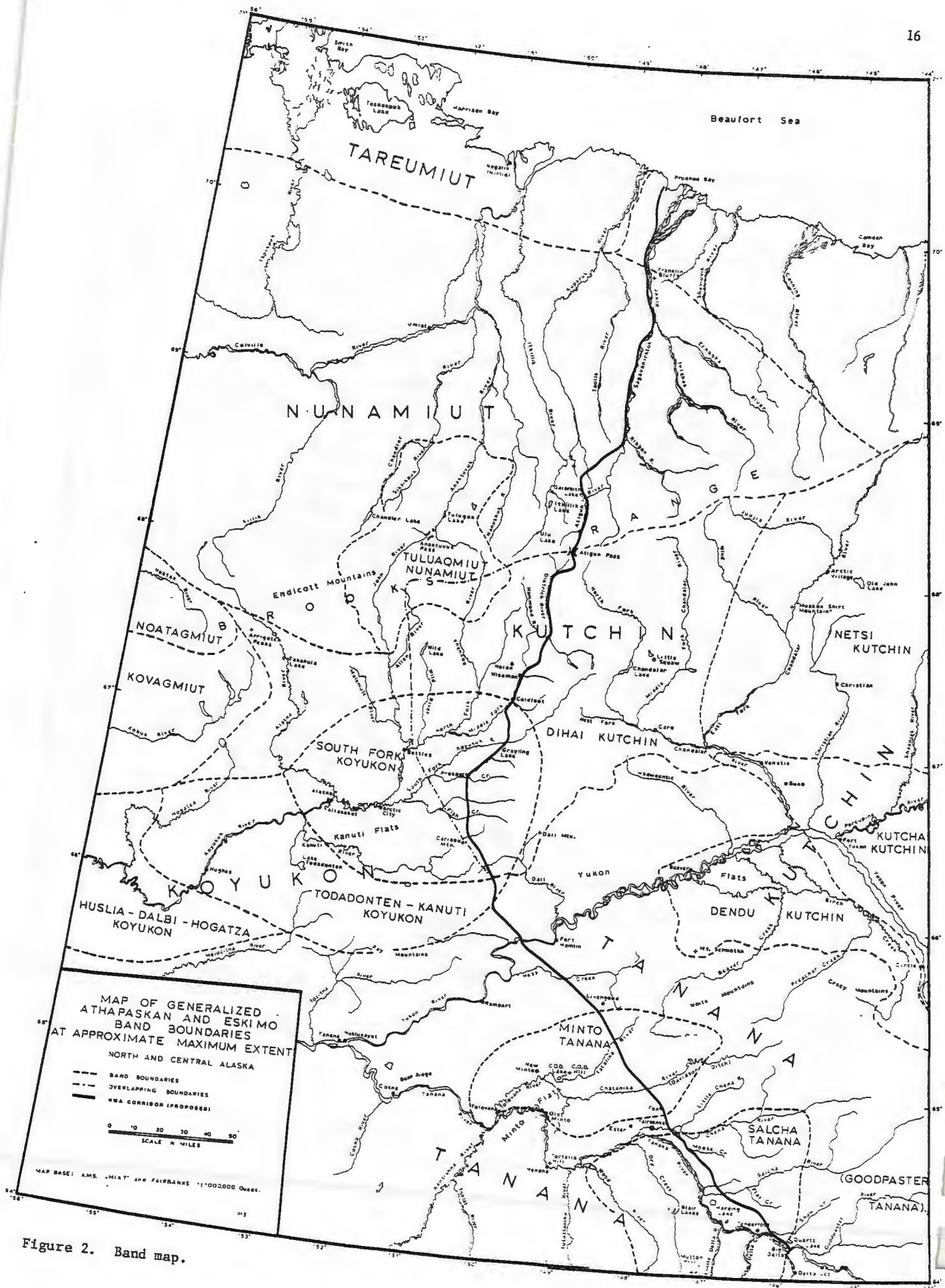


Figure 2. Band map.

some relationship to site location, as well; the resource focus of traditional natives was altered somewhat by involvements in the fur trade and mining activities. The focus of non-natives was not upon the animal resources but upon the mineral resources of Alaska and access to them.

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## Physiography and Climate

The study area encompasses parts of the Interior Plains physiographic division, the Rocky Mountain System physiographic division, and the Intermontane Plateau physiographic division (Fig. 1).

The northernmost Arctic Coastal Plain province of the Interior Plains Division is primarily an area of low relief including in some places scattered clusters of low hills. The Plain is 1-600 feet above sea level, wet and marshy. It is underlain by permafrost, with a surficial network of ice-wedge polygons.

The provinces of the Rocky Mountain System Division begin with the Arctic Foothills in the north, an area up to 3,500 feet above sea level characterized by irregular buttes, knobs, east-trending ridges and intervening tundra plains. The NWA Route follows the Sagavanirktok River through this province. To the south the alignment runs through the Central and Eastern Brooks Range section of the Arctic Mountains province. This wilderness of rugged east-trending ridges rises to 8,000 feet. The NWA route runs along the Dietrich River, crosses the Continental Divide at Atigun Pass, and then to the Galbraith Lake area. To the south the Ambler-Chandalar Ridge and Lowland Section is drained by rivers originating in the Brooks Range, to the west by tributaries of the Kobuk, in the center by the Koyukuk and its tributaries, and in the east by the Chandalar River. The NWA Route here runs along the Middle Fork of the Koyukuk.

The Kokrine-Hodzana Highlands section of the Intermontane Plateau Division consists of rounded ridges 2,000-4,000 feet with local areas of more rugged mountains. This area includes the drainage between the Yukon and Koyukuk Rivers. The Rampart Trough section is 500-2,500 feet below the highlands on either side (Kokrine-Hodzana Highlands to the north, Yukon Flats to the east, Yukon-Tanana Upland to the south, Nawitna Lowland to the west) and is a gently rolling area. The NWA Route runs across the northeastern part of the trough.

Two climatic zones are represented, the Arctic Zone and the Continental Zone. Climatically, the Arctic Zone extends from the north coast to the central ridgeline of the Brooks Range. Temperature, wind, and precipitation vary somewhat, owing to the ocean in the north and mountains to the south. Extremes are more common in the south while the north tends to more moderate temperatures. Nonetheless, in summer minimum temperatures are often below freezing, and the wind chill factor reduces considerably the effective temperature. Precipitation also varies - it is heaviest high in the Brooks Range but there are also very arid parts; the coast is considered a desert.

The interior, south of the crest of the Brooks Range, is the Continental Zone. The annual range here is over 100°F. The variation in precipitation is comparable to the Arctic Zone but most falls as rain in late summer and early fall. Winter is dry and winds are nearly calm (in marked contrast to the north).

## Vegetation and Resources

The region north of the mountains and the mountains themselves are dominated by alpine, moist and wet tundra. High brush also occurs along watercourses flowing from the Brooks Range to the coast. South of the Brooks Range vegetation is dominated by bottomland spruce-poplar forest, upland spruce-hardwood forest, and lowland spruce-hardwood forest (Fig. 3).

Wet tundra covers the arctic coastal plain. Associated freshwater and brackish habitats support migratory waterfowl. Moist tundra, widespread in the northern part of the study area, is commonly associated with waterfowl and fur bearer habitat. Caribou may also find favorable forage. Alpine tundra in the mountains provides food for caribou. Other animals of interest to humans are Dall sheep, ptarmigan, snowshoe hare, pika, arctic ground squirrel, and bear (Table 2).

High brush along the rivers running north from the Brooks Range provides browse for moose. Low brush is common in the Minto area and along the Tolovana River and Hess Creek. Caribou and rich waterfowl resources are available to humans in this ecosystem.

The upland spruce-hardwood forest predominates in the southern half of the study area. Caribou, fur bearers, bear, snowshoe hare, waterfowl, spruce grouse and willow ptarmigan are resources of interest to humans. Lowland spruce-hardwood forest is more common in intermontane basins. Poor drainage accounts for the many small lakes associated with this ecosystem. Migratory waterfowl are seasonally prominent while moose, fur bearers, small carnivores, bears, whitefish, grayling, and northern pike are present and of interest to human exploiters. Bottomland spruce-poplar forest is associated with major salmon rivers of the interior. Also present are certain fur bearers, bear, moose, snowshoe hare, porcupine, grouse and several migratory duck species.

## Archaeological Background

Systematic archaeological investigations have been rare in the interior of Alaska. Indeed, until recently, despite the fact that the discovery of the Campus Site (College, Alaska) focused attention upon possible early relationships with Siberia, interior Alaska received little serious archaeological attention. Most recently, with the construction of the oil pipeline and haul road, a survey did focus upon a narrow strip running from Delta Junction north to Prudhoe Bay. Several hundred archaeological sites from the early Holocene to modern times were recorded (Cook 1970, 1971, 1976, 1977).

In the late 1950's and early 1960's the southern part of the study area received archaeological attention from D. W. Clark, A. McF. Clark, and F. West, while in the 1970's work was done by E. Hall, R. McKennan and by C. Holmes (Andrews 1977). In the north Campbell (1968a) collected and excavated at Anaktuvuk Pass. Giddings and Irving preceded Hoffman and colleagues in the area of the lower Colville River (Hoffman et al.



Figure 3. MAP OF MAJOR ECOSYSTEMS: NORTH-CENTRAL ALASKA

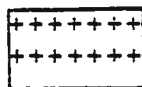
EXPLANATION



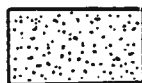
Wet Tundra



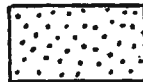
Moist Tundra



Alpine Tundra



High Brush



Low Brush, Muskeg-Bog



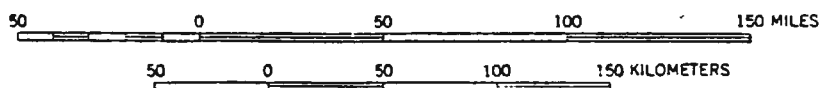
Upland Spruce-Hardwood Forest



Lowland Spruce-Hardwood Forest



Bottomland Spruce-Poplar Forest



BASE MAP FROM UNITED STATES DEPARTMENT OF THE INTERIOR, GEOLOGICAL SURVEY, ALASKA MAP E, 1954

From Major Ecosystems of Alaska (map), Joint Federal-State  
Land Use Planning Commission for Alaska, July 1973.

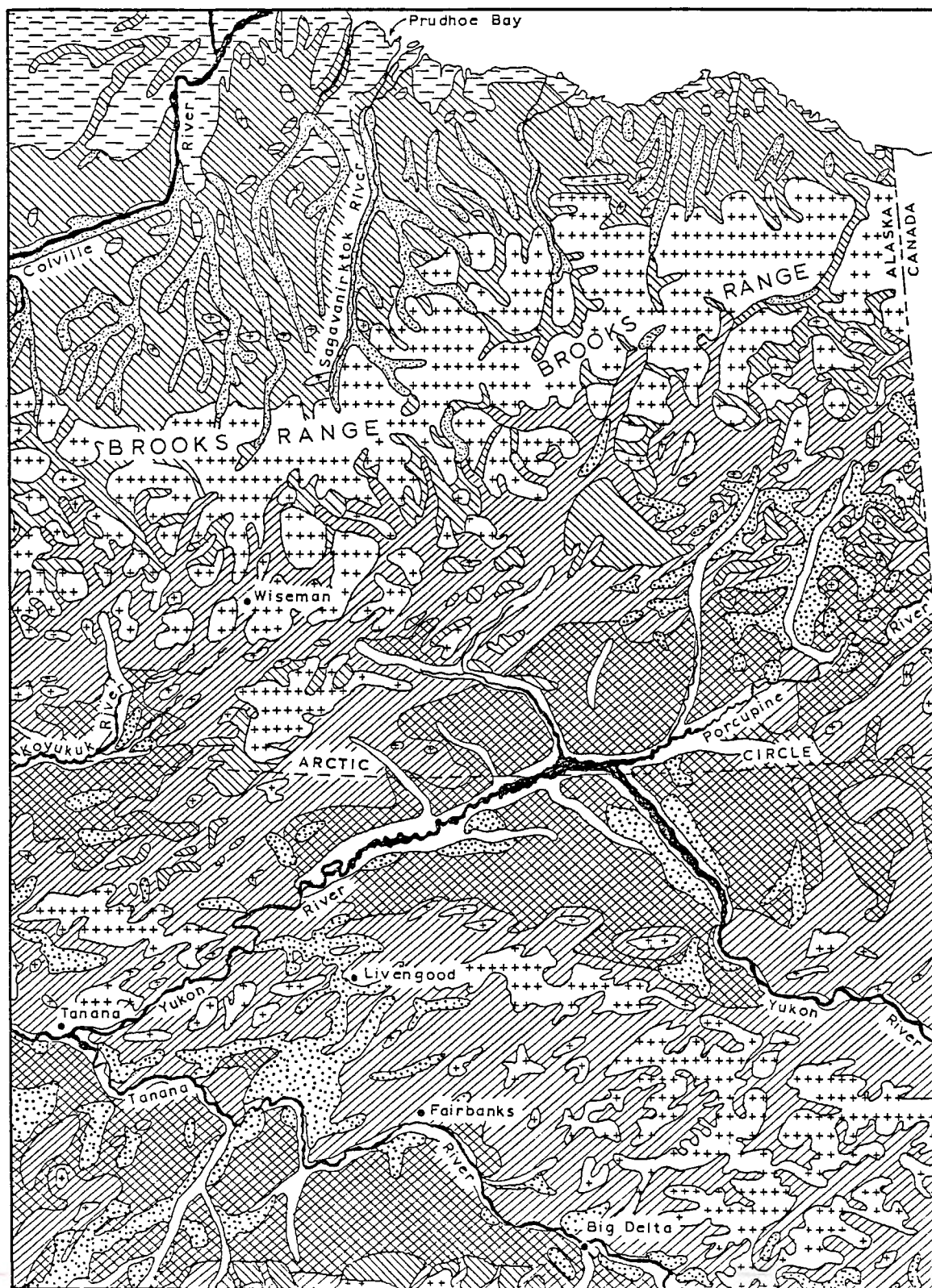


Figure 3. Map of Major Ecosystems: North-Central Alaska

TABLE 2. IMPORTANT ANIMALS BY VEGETATION COMMUNITY.

Animal	BS-PF	US-HF	LS-HF	AT	LB-MB	MT	HB	WT	Animal	M	F
Tundra hare						X	X		Chum salmon	X	X
Snowshoe hare	X	X	X		X		X		Pink salmon	X	X
Pika				X					King salmon		X
Hoary marmot				X					Capelin	X	
Arctic ground squirrel				X		X			Arctic cod	X	
Porcupine	X	X	X						Arctic char		X
Coyote	X	X	X		X		X		Lake trout		X
Gray wolf	X	X	X	X	X	X	X	X	Arctic grayling		X
Red fox	X	X	X			X	X	X	Northern pike		X
Black bear	X	X	X	X	X		X		Whitefish		X
Grizzly bear	X	X	X	X	X	X	X	X	Burbot		X
Pine marten	X	X	X						Polar bear	X	
Ermine	X	X	X	X	X	X	X		Walrus	X	
Least weasel		X				X	X	X	Ringed seal	X	
Wolverine	X	X	X	X	X	X	X	X	Bearded seal	X	
Lynx	X	X	X		X		X		Whales	X	
Moose	X	X	X	X		X	X				
Caribou		X		X	X	X		X			
Dall sheep				X							
<hr/>											
Whistling Swan			X	X	X			X			X
Trumpeter Swan			X		X						
Canada Goose			X		X	X					X
Mallard			X		X	X					
Pintail			X		X	X		X			X
American Widgeon			X		X	X					
Shoveler			X		X	X					
Green-winged Teal			X		X	X					X
Canvasback			X		X						
Lesser Scaup			X		X	X					
Greater Scaup						X					
Common Goldeneye	X	X	X								
Barrow's Goldeneye	X	X									
Oldsquaw			X		X	X		X		X	
White-winged Scoter			X		X						
Common Scoter			X			X					
Bufflehead	X	X									
Harlequin Duck		X									
Red-breasted Merganser						X					
Spruce Grouse	X	X	X								
Ruffed Grouse	X										
Willow Ptarmigan		X				X					
Rock Ptarmigan				X		X					
Lesser Sandhill Crane			X			X					
White-fronted Goose						X					X
Eider Ducks										X	

Adapted from Alaska Regional Profiles: Yukon Region n.d.

BS-PF: Bottomland spruce-poplar forest

US-HF: Upland spruce-hardwood forest

LS-HF: Lowland spruce-hardwood forest

AT: Alpine tundra

LB-MB: Low brush, muskeg-bog

MT: Moist tundra

HB: High brush; Arctic region n.d.

WT: Wet-tundra

M: Marine

F: Freshwater

n.d.). The land use study of the Nuiqsut area by Hoffman, Libbey and Spearman included excavation of several localities. Most were historic (or late prehistoric) and it seems clear that erosion by the Colville is destroying sites rapidly (just as erosion of the Beaufort Sea is destroying older coastal sites) (Hoffman et al. n.d.).

Ethnographic information, offering excellent data on traditional and post contact native land use is also provided by Amsden (1977) and Binford (1978, 1980) for the Anaktuvik Pass and Nuiqsut areas. Andrews (1977) has compiled the most useful synthesis and listing for the Doyon Region. For non-native land use, Smith (1974) reviews roadhouses and related structures, trails, etc. Heiner (1977) focuses upon locations related to mining activities, principally early camps, but also supply points and trading posts. Orth (1967) remains a valuable source for the background of the state in terms of historic place names; his work has contributed valuably to the AHRS files of cultural resources in the state.

Despite the very large listing of cultural resources pertaining to the study area, except for some non-native sites, historic and prehistoric sites are known only in terms of their time-space coordinates and "diagnostic" (for taxonomic purposes) traits. We know little empirically about the human adaptations they represent through time in Alaska. Only with difficulty may we relate the myriad of sites used by a generation of band members to a land use model (Shinkwin and Aigner 1979:86-7).

#### Mid-Holocene Interior Extensions of Coastal Groups

In the modern Brooks Range and coastal tundra plain of the northern part of the study area, there are taxa represented which pertain to "Eskimo" traditions. References appear to Denbigh or Arctic Small Tool tradition (ASTt), Choris, Norton and Ipiutak. Other terms in use are Natvarkruak, Kayuk and Kavik (the last is generally considered to be late prehistoric Athapaskan). Numamiut refers to proto-historic and later Eskimos of the northern part of the study region.

Denbigh on the west coast was the type-site for the so-called Arctic Small Tool tradition. The tradition is defined by the presence of a weapons system which focuses upon tiny bifacial insets. Common tools include end blades, (often bipointed) side blades, burins on small bifaces, microblades, shaped scrapers and occasional bifacial knives. Interior facies of ASTt are commonly found along streams and suggest ephemeral tent camps (Dumond 1977: 82-3). Constructed houses, probably reflecting different seasonal and/or exploitational aspects of the adaptations of people bearing this technological system, are also known from a few areas, including the Colville drainage. Typologically speaking, ASTt remains are sometimes found in the same northern areas as notched points. A common interpretation sees ASTt as an Eskimo variant which displaces an Indian variant (identified by notched points) completely back into the boreal forest. Hence, a priori notched points in these circumstances are judged to be at least several millennia old. In the absence of controlled dating and an understanding of the full range of variation within and between assemblages in the interior, such a facile dichotomy and dating is premature.

Choris is considered by some to post-date ASTt and derive from it; therefore, it is commonly viewed as an Eskimo variant (Dumond 1977). The age is cited as first millennium B.C. based on rather few dated sites. Choris is best known from north of Bering Strait. At the type site on the coast large elliptical houses, fiber tempered pottery with linear stamping, lack of microblades, large projectile points, chipped adze blades and the oil lamp are found. Elsewhere, remains are less rich. Campsites may be identified by workers on the basis of rather fewer diagnostics; pottery is prominent among these. One camp reportedly produced a large cache of lanceolate points (Dumond 1977: 104-5). Sites which are clearly Choris are "few" (Ibid). The Kayuk materials from Anaktuvuk Pass are sometimes classified with Choris on the basis of similarities to some Choris points. Inferences drawn from statements that materials in the study area are Choris or Choris-like should be considered in this light.

Norton is thought by some, on the basis of pottery and oil lamps, to derive from Choris; similarly, some areas produced points similar to some from sites considered Choris (Dumond 1977: 110-114). Norton is very widespread geographically, as defined by a few diagnostic traits. With north coast, southwest coast and northern interior facies represented, the taxon should be considered as highly heterogenous in terms of actual human adaptations. Sites considered Norton typologically are dated from the late first millennium B.C. to 1000 A.D. in some (but not all) areas.

Finally, the term Ipiutak has been used for some remains in the study area, including some adjacent to the haul road and oil pipeline. This is understood by some workers to refer to a derivative of Norton; it shares some types of stone tools although pottery and oil lamps are absent. At Point Hope, Ipiutak is highly developed in terms of social organization and crafts; inland facies (from the Koyukuk and north slope) are indicative of generally simpler adaptations to poorer resource areas. Again, adaptational variability subsumed under the name Ipiutak is considerable.

#### Pleistocene-Early Holocene Remains of the Interior

On the basis of diagnostic traits, a portion of the native cultural resources listed are attributed to taxonomic categories in several different systems of culture-historic reconstruction. These categories are reviewed briefly here for informational purposes only; their use in the discipline does not necessarily mean that they are endorsed by us as useful or even as valid. We begin our survey with a consideration of the Dry Creek site, outstanding in the state from the point of view of problem oriented research. The site lies to the south and west of Fairbanks, just outside the southern part of the study area. Powers and Guthrie (1979) treat Dry Creek, a multicomponent site, in terms of the human adaptation to a deteriorating terminal Pleistocene steppe-tundra. Thus, the economic focus of the early components I and II and the weapons systems which characterize each are considered. Guthrie has cogently argued that Dry Creek offers a basis for generalizing to Beringia at this time, and offers insights into earlier late Pleistocene economic systems in Beringia.



Guthrie has determined that Dry Creek components I and II, based upon remains of mammal bones and teeth, avian gastroliths and fossilized ground squirrel nests, represent fall-early winter camps. Fowl were sought but the principal game species sought include bison, wapiti and sheep. Both components are seen as "spike camps" (field camps) for local bands of terminal Pleistocene people.

Powers interprets the technological remains in terms of the weapons systems employed by these people. Importantly, materials at Dry Creek have not been subjected to creep or cryoturbation (as is the case for Healy Lake, for example). Both the "composite microblade inset" and "bifacial stone projectile point" technologies are represented at Dry Creek. Component I, as presently understood, is characterized solely by the bifacial projectile point technology. Component II contains both technologies. They are spatially distinct at the site; however, it is not clear that they are not directly associated (Müller-Beck, oral communication, 1980).

In a typological sense, component I is represented by bifacial knives and projectile points, side, transverse and end scrapers, burins, flake tools, cobble tools and cobble cores. Butchering was the main activity represented, with some weapons maintenance as well. One cluster of materials in component II contains crude bifacial implements, shaped scrapers and projectile point bases; microblades are absent. The second cluster is characterized by microblades, microcores, spalls, etc., by bifacial knives (but not points), core scrapers, burins, etc.

Powers interprets component I as pre-microblade inset technology, noting the similar absence of microblades at the newly discovered Moose Creek site in the Nenana Valley dating to  $11,730 \pm 250$  years ago. (The microblade aspect of the total system, may, of course, simply not be represented). Moose Creek in the Nenana Valley contains bifacial projectile points and/or knives and an associated flake industry. Elsewhere in the interior, only the basal levels at Healy Lake in the Tanana Valley may be comparable temporally and formally (Shinkwin and Aigner 1979); however, points in this Chindadn complex may be associated with a microblade inset technology. Powers suggests that the finds of fluted points in Alaska, while not chronometrically dated, may similarly represent this pre-microblade manifestation. If so, he notes, there would be two point styles in the interior in terminal Pleistocene times, fluted north of the Yukon primarily, and small, triangular south.

Component II of Dry Creek is dominated by the composite microblade inset technology and dated 10,690 years ago; the bifacial points here occur in a mutually exclusive cluster from that with microblades. It is in essence a Denali Complex as defined by West (1967), according to Powers. Denali has not, however, been securely dated (some accept dates as late as 2000 years ago but many, including West, opt for an early Holocene dating). The Dry Creek date is highly suggestive. Contemporary, and possibly related to the Denali Complex are materials from Carlo Creek

which Powers cites as 8400-8600 years old. Denali remains are also present in tests at Little Panguingue Creek and at Panguingue Creek. Both are undated although the latter has a minimum age of 5600 according to Powers (oral communication).

Dry Creek component III is dated between 8000 and 9000 years ago and as presently known lacks a microblade inset technology. This absence is surprising since there are a number of shallow sites in the interior with microblades dated to the late Holocene. Furthermore, microblades evidently associated with Tuktuk points (notched) are dated 6000-7000 years ago from Anaktuvuk Pass and greater antiquity is presumed for the Campus site which apparently has several point forms as well as typical Denali Complex material. (Sites with notched points and lacking Denali Complex material also occur at this time level, e.g. Onion Portage 'Palisades,' Krusenstern Palisades, etc.) A number of sites with Denali-like remains (cores, microblades) occur with notched points during the period 1000-3000 years ago. These variations in the archaeological record suggest that statements in the literature which refer to scanty interior remains as Denali or Denali-like must be taken in the broadest technological/typological sense only and not in any chronological sense other than "prehistoric" time (Shinkwin and Aigner 1979).

#### Mid-Late Holocene Interior

This brings us to the late microblade materials from the interior. Reference to materials as Denali-like cannot, at this stage of our knowledge of interior technological developments and variations during the Holocene, be taken to mean 8000-10,000 years. Microblades are dated at Dixthada at 2500 years ago and at Gerstle River Quarry 4000 years ago (Shinkwin and Aigner 1979). A date of 1200 years old was obtained on the Koyukuk River Batza tena Tuktuk complex with notched points and microblades. Typological dating, however, suggested an age of 6000 years, since the Tuktuk site in the Brooks Range was evidently old. Notched points and microblades are accepted as associated by some and denied by others, usually based upon their associations at a single site from which an entire culture-historic scheme is generalized (see Anderson 1970, Dumond 1977, Cook 1969). At this point, it would appear archaeologists have underestimated the typological and adaptational variability in the north during the late Pleistocene and Holocene.

An obvious question raised by variations among assemblages and their use as normative expressions of interior lithic assemblages is the utility of existing taxonomies to effectively organize the data. It would appear that variation in weapons systems occurs in the interior, at least from the time of Dry Creek component II. Powers (Powers and Guthrie 1979) has noted, for example, that bifacial projectile points are not diagnostic of assemblages considered related to Denali Complex, such as Akmak; however, there is codominance in these examples of wedge-shape microblade core (microlithic inset) and bifacial (knife) technology. Distinct, in the absence of both a bifacial (knife) component and a microlithic component is Gallagher Flint Station (locality 1) in the

northern part of the study area. While a chronometric date of 10,540  $\pm$  150 has been obtained, Roger Powers (oral communication, March 1980) notes that this is largely a surface site. Furthermore, a date of only 2000 years also comes from the "intruded" locality A. The absence of bifaces may be a matter of site function (quarry).

### Summary

For reasons discussed in preceding sections, this general review deliberately excludes a consideration of the cultural-historical schemes, internally contradictory in some cases and certainly divergent in significant ways from each other. Table 3 suggests the chronologic relations among the taxa (in cases the taxon is a component with a date, in others it is a more inclusive construct on the order "phase" and higher levels of abstraction current in archaeologic use).

### Review of the Evidence

#### Intent and Data Sources

The questions arise here as to what kinds of cultural resources may be generally expected to occur along the NWA corridor, and what can be stated about their probable distribution. A third concern involves the 'visibility' of these various sites (i.e., what is preserved). Previously (Aigner and Gannon 1980), three broad categories of cultural resources have been recognized: prehistoric; native historic; and non-native historic.

Any success in attempting to generate predictive models of cultural resource potential for given areas is contingent upon how well particular cultural systems and environmental dynamics (including physical processes, and resource availability and fluctuations) - past and present - are understood. For the purposes of this report, such understanding has been strived for by examining available existing data on pertinent traditional and prehistoric Eskimo and Athapaskan, and historic Euro-American and native sites and cultural patterns.

Information was obtained from four main sources, comprising archaeological studies, ethnographic studies, early incidental historical accounts and ethnoarchaeological studies. Data on historic period sites, both native and non-native, were obtained chiefly through written accounts. By necessity, much of this information has been distilled, but is sufficient to begin formulating a theoretical framework for future study and a stratified sampling methodology for field reconnaissance. As seen in Figure 2, the proposed NWA route passes through areas whose former occupancy is uncertain, or whose known occupants and settlement patterns are not well-documented. By extrapolation from the more well-documented areas, however, the predictive scheme considered below should be equally applicable to both cases.



TABLE 3. SUMMARY OF DATED INTERIOR PREHISTORIC SITES AND RELATED COMPONENTS\*

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2000	Athapaskan, Nunamiut, non-native
	Kavik, Dixthada Upper Component, Dakah de'nin's site, Klokut
1000	Koyukuk River Batza tena Tuktu complex, Onion Portage Itkillik, Ipiutak, Norton
A.D.	
B.C.	Dixthada Lower Component, Healy Lake "Campus" (Denali-like), Norton, Choris
1000	Dry Creek Component IV, Gerstle River Quarry, Fort Greeley Entrance?
	Arctic Small Tool tradition
2000	Onion Portage Portage Complex, Arctic Small Tool tradition
3000	Healy Lake "Tuktu", Onion Portage Palisades Complex Panguingue Creek (post-dates the occupation)
4000	Anaktuvuk Tuktu
5000	
6000	Healy Lake Quartz Horizon, Dry Creek Component III, Denali?, Carlo Creek
7000	Denali?, Akmak?
8000	Gallagher Flint Station locality 1?, Denali Dry Creek Component II, Healy Lake Chindadn Complex
9000	Dry Creek Component I, Moose Creek.

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\*From Aigner and Gannon 1980. Note that in the text some carbon-14 dates are given as B.C. and others as B.P. (before present) or "years ago." B.P. projects dates back from A.D. 1950. Given recent recalibrations of C-14 dates, it is known that radiocarbon years are not strictly equivalent to calendrical years. A date accompanied by a + factor is a C-14 date (with its counting error). Others are extrapolations (e.g., 4000 B.P.) and guess dates.

### Summary of Traditional Native Subsistence and Settlement Pattern

Critical aspects of traditional Eskimo and Athapaskan subsistence and settlement patterns have been presented in Aigner and Gannon (1980) and are overviewed briefly here. Except for certain inter-ethnic variability and variances of region and resources (ecosystem), all the native peoples and cultures described, apart from the Tareumiut, have traditionally (and probably prehistorically as well) followed a semi-nomadic existence, subsisting primarily through the hunting of caribou and salmon fishing. Secondary or alternative subsistence resources comprised chiefly various other fish species, waterfowl and game birds, and various other mammals including Dall sheep, bear, hare, and in later times, moose. Availability of all these resources depended mainly upon locality and seasonality, and as Amsden (1979) has pointed out for the Nunamiut - essentially applicable to the Athapaskans as well - periodic major fluctuations in critical resources also occurred with concomitant changes in aboriginal hunting and settlement patterns. Accordingly, band territories were necessarily large and the human population density low, but territorial boundaries were also 'fluid' and the people highly mobile throughout the year, and time in general.

Some aspects of traditional interior Eskimo and Athapaskan subsistence in Alaska differed in details but a basic strategy of logistical deployment of task groups around predicted resource availability and concentration characterized both. All interior groups were highly mobile; those with access to salmon resources (some of the Athapaskans in the study area) less so than those without. All were mobile over large territories, organized into small bands which deployed in family and other units over the year as conditions dictated. Caribou hunting (and, where they were present, salmon fishing) was a significant aspect of all interior peoples' economic systems. Caribou camps, which often brought together one or more bands, were a key settlement type as were the summer fish camps and the winter camp/village where food was cached. Other resource components included fishing for whitefish (and other varieties), hunting/collecting waterfowl (some areas were seasonally heavily inundated by migratory birds) and other birds, hunting sheep, collecting berries, moose hunting, and trapping fur bearing animals, especially muskrat (particularly important after Euro-American contact).

Several types of settlement were in use. Residential bases (villages, winter settlements) were used over the winter by several families which constituted the band. Food was cached at these places which tended in some areas to coincide with a summer salmon camp. Summer fish camps, camps near caribou fences, and other locations where resources were extracted or processed over the course of a week or more were more common (numerically speaking) types of settlements. These nodes were preferentially placed within reasonable time/distance from each other and from the winter settlements. Field camps (kill sites, camps for temporary maintenance of one or several people for a day or so) were more common still, and more ephemeral - most were probably not used a second time. Stations where game was observed or hunting strategies planned were even more ephemeral and more

common. There were also caches at strategic places in the band territory, sometimes but not necessarily always, associated with other site types.

The maximal socio-political unit was the local band. Low population density and the structure (seasonality and distribution) of resources made highly fluid units of small size maximally adaptive. Maintenance of ties with adjacent bands permitted changing band composition and membership over the years (and accounts in part for extreme archaeological heterogeneity of material remains at the settlements). Modern linguistic/regional bands would not have been effective social units as they were too small and/or the distance among local bands was too great to have permitted regional bands to have served as the effective mating group.

Fluidity of local bands insured viability over time and ability to adjust to resource availability. A logistical system (deployment of task groups) was adapted to the low density but seasonally concentrated resources. The archaeological implications of traditional land use systems are lack of continuity in material culture traits so often used by archaeologists to define temporal cultural traditions. More significant for understanding prehistoric cultural resources is knowledge of human adaptation, specifically the subsistence/settlement system and its components.

Binford (1980:10) characterized the Nunamiut as "logistically organized collectors [who] supply themselves with specific resources through specially organized task groups...in specific contexts." Again, while no comprehensive ethnoarchaeological studies have been conducted among the Alaskan Athapaskans, this subsistence strategy appears to generally hold for them too. The distinguishing aspects of this system are 1) "the storage of food for at least part of the year", and 2) "logistically organized food-procurement parties", as opposed to a "foraging" approach where food and other resources are obtained on an encounter basis.

As outlined in Aigner and Gannon (1980), Campbell (1968) defined six basic settlement types for the Tuluqmiut Nunamiut, varying as to complexity, location, time and period of occupation, number of occupants and function throughout the annual cycle. Binford (1980), through his extensive ethnoarchaeological studies among the Nunamiut (Anaktuvuk Pass), improved upon this model, defining five settlement or site types based on logistically organized procurement strategies and function-specificity. These comprise the "residential base", "location" (extractive/processing sites), "field camp" (temporary maintenance camp), "station" (observation/strategy planning site), and "cache." A detailed distribution of these site types is shown in Aigner and Gannon (1980: Fig. 21).

#### Historical Native Patterns

The impact of the historic period on the native inhabitants has been discussed (Ibid.: 75-82), but certain notable imposed changes bear reiterating. Despite massive reductions in native populations due to disease, and steadily diminishing territories, the Eskimos and Athapaskans

# ABSTRACT

From July 18 to September 6, 1981, an on-the-ground archaeological survey from Prudhoe Bay to Delta Junction, Alaska was undertaken under the direction of Dr. Jean S. Aigner, Anthropology Program and Institute of Arctic Biology, University of Alaska, Fairbanks. Research was conducted under the sponsorship of Northwest Alaskan Pipeline (NWA) Company acting through Fluor Northwest, Inc. (Contract No. 4780-9-K217).

The 1981 field program included intensive survey of 177.3 miles of proposed centerline (corridor mainly 500 ft wide), 747 acres of EMS's, 13.8 acres of one ancillary location, field checks of two anomalies, and archaeological testing of three cultural resources. During the course of the 1981 survey a total of 55 potential cultural resources was identified. These sites are described and recommendations pertaining to management and eligibility for inclusion on the National Register to Historic Place are made.

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attempted to maintain their traditional subsistence and settlement patterns as best they could, even to present times. Modifications, however, were unavoidable.

Early changes came about during the fur trade period as the natives sought and competed for Euro-American trade goods largely through an encouraged increased emphasis on trapping. This eventually led to significant shifts in the economic bases and settlement patterns, decreasing mobility, and changes in inter-ethnic relationships (VanStone 1974:102). Further changes in the economic base occurred as the natives, especially the Nunamiut, began supplying fresh meat to the traders, whalers and other newcomers. No doubt the acquisition of firearms increased hunting efficiency, but as Campbell (1968:19) has suggested, efficient means of hunting were already well established, and probably no more animals were taken by the use of firearms than by the traditional ways. Although the added 'market' possibly did result in slight reductions of the caribou, it is unlikely that the herds were in any way decimated strictly through overhunting (Amsden 1979:402). Natural fluctuations, however, did occur among the caribou herds, forcing the natives (Nunamiut) to seek alternative food sources and settlement patterns (Amsden 1979). At such times one increasingly attractive alternative became food supplied by Euro-Americans. In short, both Eskimos and Athapaskans, with time, acquired, and became more dependent on Euro-American goods and services. The upshot was a reduction in territory size, and a gradual trend towards a somewhat more sedentary village life where, in most cases, trapping supplanted hunting to a high degree. With the onset of the gold rush era, especially, many natives found an additional means of subsistence through wage labor, which generated even more of a departure from the traditional ways, and more dependence upon Euro-American goods.

#### Historical Euro-American Patterns

'Historic' is defined here as generally older than 50 years (ca. 1930) and younger than first direct Euro-American/native contact, variable from place to place but between 1816 (Kotzebue's expedition to the west coast) and the late 1700's (contact in the Cook Inlet region).

Following the period of coastal exploration, Euro-American interests began gravitating towards the interior, chiefly in conjunction with fur trade activities. The principles in this large-scale enterprise were the Russian-American Company, and later (1847), the Hudson Bay Company. By 1867, with the sale of Alaska to the United States, the fur trade had largely waned in terms of major commercial importance, but was soon replaced by the discovery of gold and numerous ensuing stampedes which continued into the early twentieth century.

With Alaska suddenly thrust into a boom state, territorial needs for improved communications, transportation and protection of U.S. interests were soon realized. As a result, a brief but intense period of telegraph line, road and trail, and roadhouse construction was initiated in the late 1800's and early 1900's, and in some localities, persisted into the 1930's. Mercantile enterprises also flourished during this period, providing many needed items for the settlers and miners.

The material by-products of the formative part of the historic era tended to concentrate around certain 'target' areas for economic exploitation, along major transportation routes such as rivers, and later, roads and trails, or in settlements established as support bases. Resultant site types, therefore, include: various dwellings such as houses, cabins and roadhouses; supply buildings and task-oriented structures related to, for example, mining, telegraph system, mercantile and transportation activities; industrial equipment, again related largely to mining, road building and communication system activities; and accumulations of a wide variety of miscellaneous industrial and domestic paraphernalia, associated or not, with the aforementioned features.

#### Cultural Resources Identified in the Study Area from a Literature Review

While a number of cultural resources were identified in the course of the Alyeska archaeological survey, the available information on most was not collected toward the end of enhancing our understanding of prehistoric and historic land use patterns in the interior. Thus, the remains may be assigned a relative age and affiliation, but the resource is not understood in terms of its settlement/subsistence system.

Along the Alyeska TAPS line most of the reported cultural resources are identified as (lookout) stations, functionally speaking, and field camps. Few examples of locations and residential bases are identified for either the prehistoric or historic period near the alignment. However, in the wider study area a number of historic period locations (camps of various kinds) and residential bases are identified along the major rivers and tributaries of the interior and on lakes with good fishing and trapping potential.

The alignment sample previously known (and correctly anticipated for our 1980-surveys), is heavily biased toward the numerous, simple (behaviorally speaking) overnight camps, lookouts, and stop-over sites of peoples in the interior over the past millennia. Some 341 previously reported prehistoric cultural resources occur on bluffs, kames, promontories, high terraces and the like. They occur in areas with two or less resources available for one or perhaps two seasons during the year. The resources are mainly caribou and moose although sheep and waterfowl, and less commonly salmon, occur in the inventories. For the prehistoric sites which are probably field camps (and, less commonly, locations) we note associations with rivers, river confluences and lakes. Resources more often number three and seasons two for these sites. Most prehistoric sites were identified in the surveys along the Trans Alaska Pipeline from 1970-1975.

In marked contrast with respect to site location, resource availability and site complexity are the historic native sites. These are primarily known through native informants and the bias is heavily toward residential bases and field camps (especially summer fish camps) which were often

used several times and figured prominently in the memory culture of informants.

Some 218 previously reported historic cultural resources may be considered in light of locational and resource data. The majority are on rivers in areas with three or four resources available for two or more seasons of the year. Waterfowl and salmon occur frequently in the resource inventories of these identified fish camps, locations for hunting sheep, etc. Only a few of the sites are identified as lookouts and these are simple in terms of resources.

In the Nunamiut area many or most of the sites relate to late 19th century movements east and north in the study area as a result of involvement with non-native traders and as a result of a decline in the caribou populations. Tent ring and sod house sites are reported. Ephemeral camps, a few lookouts, isolated graves and cellars are listed by informants. A number of coastal locations were utilized during this 1890-1910 period of movement into the study area.

Athapaskan informants list a number of villages and camps (residential bases and locations) for the historic period. Villages are located on rivers, river confluences and lake inlets where salmon are a key resource. Seasonal camps for various resources are reported; a number comprise muskrat trapping localities on lakes. More common are the listed fish camps and trapper's cabins. In addition there are grave sites, wood cutting stations (supplying wood to steamboats), caches and fishing and portage locations.

Previously reported historic non-native cultural resources number 174. Many occur along rivers which were avenues of travel and supply; a number are along established trails to gold fields. Buildings in Fairbanks and at Chatanika Gold Camp, miner's cabins, railroad stations and bridges, and road-houses account for more than half of the sites. A number of former locations of mining camps appear in the inventory; several of these are in the area of the alignment.

#### Sites on the National Register of Historic Places

While there are a number of sites already previously reported to be Register nominated or eligible in the study area, only three previously reported locations are in danger of being impacted by the NWA route. All three sites are on the National Register of Historic Places. Gallagher Flint Station (PSM-050) lies at the north end of the alignment immediately adjacent to the haul road but at some distance from the NWA route. Chugwater (FAI-035) lies on Moose Creek bluff south of Fairbanks and away from the NWA centerline. Both sites are prehistoric, multi-component archaeological sites with extant materials in situ. If indirect impacts are anticipated at PSM-050 and FAI-035, some measures to lessen them should be undertaken by the sponsor. At the least, an informational program regarding cultural resource management should be initiated and

personnel should avoid any activities on the site. LIV-074, Davidson's Ditch, is crossed by the proposed centerline. The ditch is an historic construction associated with mining activities.

### Archaeological Implications

#### Archaeological Visibility

Campbell (1968b), Amsden (1977, 1979), and Binford (1978, 1980), through their studies of the Nunamiut, have shed considerable light on the dynamics underlying the traditional subsistence and settlement patterns of arctic hunters and gatherers. If differences in traditional inter-ethnic patterns and technologies for Alaska native societies can be considered more a matter of degree rather than fundamentally dissimilar, then tentative applicability of the Nunamiut models (discussed below) can be assumed for other inland Eskimo groups and interior Athapaskans as well for purposes of cultural resource location and preliminary evaluation.

Campbell (1968b) and Binford (1980) each recognized and defined several discrete settlement or site types traditionally established by the Nunamiut (centering around Anaktuvuk Pass) throughout their annual cycle. While some overlap as well as divergence exists in the two schemes, they are generally comparable. The relevant points to consider with respect to these models are size, density, location and distribution, function specificity, and assemblage contents and variability.

The network of Tuluqmiut settlement types described by Campbell (1968b:6) is dense and complex, both within and without the traditional band territory. It should be stressed, however, that this reconstruction is based on an unspecified five-year period prior to 1875, and the actual number of sites used is probably far greater than shown - not only within the specified time frame, but outside it as well (Ibid.:15). This complexity is depicted by Binford (1980:11) to be even greater when viewed in a more abstract manner. The patterns are, however, logistically ordered around strategic resource localities. Of course, through time almost any particular settlement type can evolve into another generally more complex type. For example, a 'station' can become a 'location' depending on circumstances, and a 'cache' may be isolated or occur in association with any other settlement type. The calculated percentages of Campbell's 131 settlements shown in Aigner and Gannon (1980: Fig. 20) are presented here only as an indication of relative abundance of functional types within the system. Certainly, type I sites (headquarters localities) constitute the least frequent settlement mode (1%) for a given group, and a high value (45%) for type III (hunting/fishing camps) also seems reasonably acceptable. In contrast, the lower value (28%) for type IV (overnight camps) is far too conservative, and this type should (along with stations) constitute the majority of all settlement/site types.

The archaeological visibility of these various site types, i.e., where and to what extent is a particular site at a given location manifested, is governed by two main factors: its 'assemblage status' and 'physical integrity.'



An assemblage is a "derivative of some organized series of events characteristic of a system" (Binford 1980:17); i.e., the accumulated products generated through serially differential events, where each event in turn is reflected by assemblage composition. The greater the mobility of a people, the more concisely limited an assemblage will be at a given site, and therefore, the more evident the resolution between material by-products and events. The converse of this also holds: the greater the sedentism of a people (longer residence at a given location), the greater (denser and more variable) will be the resultant assemblage (but also the less resolution between events and associated material by-products). For example, residential base camps/headquarters localities and "trading camps" will generally exhibit fairly rich assemblages whereas those of field/overnight camps will be relatively meager. The other settlement types can vary in their assemblage densities depending upon their functions, duration of occupancy, and the number of occupants (Aigner and Gannon 1980: Table 6).

The physical integrity of a site involves two primary considerations, both related to the preservation status of the site itself and its assemblage. These are 1) what part and to what degree is an assemblage preserved, and 2) to what degree is an assemblage contextually preserved intact with respect to the host site and, in turn, with the surrounding terrain. It should be noted that neither of these points is mutually exclusive from one another.

Content preservation involves consideration of what kinds of materials endure through time and what kind do not. As a general rule, inorganic materials (e.g. stone and metal) endure better and longer than organic materials (e.g., wood, bone and fiber) against mechanical and biochemical degeneration, especially in the generally acidic soils of Alaska.

The second point involves mainly physical erosion generated by running water, wind, periglacial processes such as cryoturbation and solifluction. Any or all of these agencies can displace assemblages (both buried and surficially exposed) thereby disrupting the integrity and contextual aspects of a site. Fire and the activities of animals (bioturbation) - including humans themselves, especially in conjunction with their mechanized activities - also play active roles in the impact of sites. Of course, the more any site undergoes disruption, the greater will be the loss of contextual associations with a comensurate diminishing potential for accurately reconstructing cultural events.

In attempting to locate sites via some sort of survey strategy, and during the later interpretation of the findings, several forms of bias can arise. Primarily, certain settlement site types (such as base camps) will be potentially easier to detect than others insofar as they are larger, have a longer period of occupancy, and a larger variable assemblage. However, these may not always be the most abundantly occurring types, so a fairly high probability exists that they may be missed in the field. On the other hand, site types such as overnight/maintenance camps, which have a greater frequency of occurrence, may



likewise go undetected by virtue of their small size and few or ephemeral cultural remains. As Campbell (1968b:18) points out, types III (stations; camps), IV (locations; extraction sites) and VI (field/overnight camps) settlements with known locations were difficult to recognize five years after their abandonment, and one type II (base or location; favored locality) settlement was difficult to relocate after only thirteen years, despite the presence of "durable" metal artifacts and moss-covered houses. Campbell (Ibid.) rightly stresses that any cultural reconstruction based only on sites with large assemblages will be skewed and incomplete.

Factors other than sheer assemblage size which affect site visibility partly relate back to differential preservation of material items and site disruption. Spearman (1979:90) notes that wooden drying racks and dog tethering stakes at a recent traditional campsite in the Anaktuvuk Pass area remain as little more than "badly weathered stumps barely protruding above the ground surface." In other cases, sites and assemblages become obscured by earth burial or vegetative cover. The same site described above by Spearman (Ibid.) was partially covered with dwarf willow, making location and identification of material remains difficult.

Differential cultural practices can also affect site visibility, and perhaps lead one astray at the interpretive level if not considered. For example, certain structural remains such as rings of stones used to anchor tent bases in the warm months would be substituted by piled snow in the winter (Ibid.:89). Only the stones in the former case would be preserved, bringing about totally disparate configurations in these two seasonally dictated but functionally similar camp types.

#### Predictive Site Location Potential

From the foregoing discussion, it becomes evident that the location potential of any cultural resource depends on its visibility; a condition involving several variables. The issue to be addressed at this point is the means whereby the detectability potential for cultural resources can be enhanced.

Due to the nomadic settlement patterns of the Alaskan Eskimos and Athapaskans, it might seem as if sites would have a haphazard or ubiquitous distribution. Indeed, such settlements as field/overnight camps may have an unpremeditated distribution, but the vast majority of site types are strategically situated in areas close to extractable critical resources. These largely comprise: fresh/clearwater lakes and streams harboring favored fish species; caribou migration routes; habitats favorable to moose, sheep, waterfowl and other key animals; lithic resource localities; and critical wood resource localities such as willow stands for fuel and structures. Many sites, no doubt, were situated around multiple adjacent habitats. To simply search for archaeological resources without regard to these catchment areas is neither the most efficient way to achieve success nor the best use of labor.

In the event of such areas being identified, the problem then becomes one of identifying high potential areas, suitable for some form of settlement or activity area. Aside from function-specific localities

such as lithic quarries, prime geomorphic settings include: relatively flat areas along or near freshwater lakes, especially at inlets or outlets; along clearwater streams, particularly at confluences; areas bordering marshland; and promontories suitable as vantage points. Not forgetting that certain settlement types (or any type for that matter) can possibly occur in other localities, the greatest potential for site presence will be in these settings. However, landscapes and vegetative regimes change through time; streams change their courses, landforms become eroded, and streams and lakes become encroached upon by colluvium and vegetation. Any existing cultural resource will, in accord, be affected in terms of its integrity and context. Any cultural materials present in such environments, unless visibly modern, may therefore be allochthonous, and the likelihood of discovery remote. Also, hardship and potential hazard can be imposed upon field crews in surveying certain terrains such as the interiors of tussock bogs. ?

Another important consideration in cultural resource location involves the containment/preservation potential of sites within (or on) geologic units, respective to their mutual ages. Such a preservation potential model was devised by James Dixon and George Smith in their cultural resource survey/study of the Fort Wainwright lands. Dixon and Smith divided the archaeological resources into an historic and four prehistoric periods, and categorized the geologic units chiefly (Aigner and Gannon 1980: Table 7; G. Smith 1980, oral communication).

Aside from the advantages of mutual dating, the obvious implication of this model is that no cultural materials can (unless redeposited) occur in a sedimentary geologic unit that is younger in age than the materials themselves.

The basic plan adopted here for locating cultural resources is in keeping with the aforementioned considerations. In summary, these consist of 1) identification of key resource (catchment) areas, 2) identification of stratigraphically placed localities with high settlement potential within these areas, 3) consideration and inspection of geologic units, and 4) detailed field inspection within these identified areas for cultural resources. The last point (4) is partially attendant upon inspection of certain 'anomalies' which can be subdivided into two categories, 'surficial' and 'stratigraphic.' Those surficially manifested include localized irregularities in the ground surface (e.g., benches, depressions, mounds, ridges, breaks-in-slope), atypical lithic accumulations, vegetational changes, and suspicious arboreal configurations. Stratigraphic anomalies apply to atypical features below ground surface such as paleosols, disparate clast sizes (possible manuports), and disrupted stratigraphic units.

One significant outcome of the Fort Wainwright study, attesting to the low visibility of cultural resources, was that, of all the sites located within designated high potential areas, approximately 37% of

them were located by means of systematic sub-surface prospecting techniques (G. Smith, personal communication). It is not known what kind of recovery rate would have been achieved in sampling 'low potential areas.'

### Geomorphic Setting of Archaeological Sites

To present an analytical summary of the relationships between archaeological site locations and their geomorphic settings, 173 previously identified sites located along or near the proposed NWA route were considered. Primary information was gathered from the data supplied by Aigner for the 1980 Level I Environmental Master Guide, of the Alaskan Northwest Natural Gas Transportation Company, Alignment Segments 1-96 (Table 4, from Aigner and Gannon 1980). Additional location data were obtained from various other reports and documents, and are abstracted in Aigner and Gannon 1980: Appendices 1-4. The predominant geomorphic settings noted comprise: stream margins and confluence areas; lake and/or marsh margins; and hilltops and promontories with vantage.

Significant resultant patterns are that the greatest percentage of sites evidently do lie along or near streams and at locations affording some degree of vantage. It is questionable, however, whether the indicated distributions are truly representative or largely reflect a bias in survey methodology (i.e., conjured "high potential" areas are automatically surveyed more intensively, thereby revealing more sites). Other notable patterns which beg the same question are the significant site clusters within certain areas (e.g., Galbraith Lake, Minnie Creek, Grayling Lake-Jim River, Prospect-Nasty Creek, Old Man Camp, and Livengood) as well as several hiatal stretches (no recorded sites) (Ibid.).

Campbell (1968b) and Binford (1980), however, have shown that settlement patterns are indeed logistically dictated. For example, the large site cluster at the northern entrance to the Brooks Range coincides with a major caribou migration route, and individually as well, settlements are likely to be situated near one or more resource areas. The hiatal areas, too, may be a reflection of resource availability and settlement patterning, but only future survey work will confirm this.

Although the sample of 173 sites represents only a fraction of the total number of sites occurring within the study area, it serves to demonstrate certain environmental conditions sought by early Eskimos and Athapaskans. As such, the patterns indicated are helpful in developing models of archaeological potential and conducting cultural resource surveys.

### 1980 and Subsequent Surveys

As a result of our background study, we recommended that in 1980 and future land surveys for cultural resources, a systematic shovel testing/surface clearing method should be adopted at a greater level of intensity than had been formerly practiced. While it was confidently felt that much of the proposed NWA route from Delta Junction, south, passed through areas of relatively low cultural resources potential (prehistoric), and that former (1978-1979) surveys have

TABLE 4. ALIGNMENT SHEET SITE TALLY.

Alignment Sheet	Number of Sites	
1. . . . .	0	
2. . . . .	0	
3. . . . .	0	
4. . . . .	0	
5. . . . .	1	
6. . . . .	0	
7. . . . .	1	
8. . . . .	1	
9. . . . .	1	
10. . . . .	1	
11. . . . .	1	
12. . . . .	3	Pump Station 2 area
13. . . . .	0	
14. . . . .	0	
15. . . . .	0	
16. . . . .	1	
17. . . . .	0	
18. . . . .	0	
19. . . . .	0	
20. . . . .	1	
21. . . . .	5	Gallagher Flint Station area
22. . . . .	4	
23. . . . .	0	
24. . . . .	0	
25. . . . .	0	
26. . . . .	2	Galbraith Lake area
27. . . . .	15	Entering Brooks Range
28. . . . .	2	
29. . . . .	1	
30. . . . .	0	
31. . . . .	0	
32. . . . .	1	
33. . . . .	1	
34. . . . .	0	
35. . . . .	0	
36. . . . .	0	
37. . . . .	0	
38. . . . .	0	
39. . . . .	4	Linda Creek area
40. . . . .	1	
41. . . . .	15	Minnie Creek area
42. . . . .	4	Sawyer Creek area
43. . . . .	1	
44. . . . .	1	

TABLE 4. CONTINUED

Alignment Sheet	Number of Sites	
45. . . . .	5	Lakes 1032, 1068 area
46. . . . .	8	Chapman Creek
47. . . . .	6	Grayling Lake area
48. . . . .	10	Jim River area
49. . . . .	2	
50. . . . .	3	Prospect/Pump Station 5 area
51. . . . .	15	Nasty Creek area
52. . . . .	1	
53. . . . .	0	
54. . . . .	23	Old Man Camp area
55. . . . .	7	Old Man Camp area
56. . . . .	0	
57. . . . .	0	
58. . . . .	0	
59. . . . .	0	
60. . . . .	3	
61. . . . .	0	
62. . . . .	0	
63. . . . .	0	
64. . . . .	2	Yukon River
65. . . . .	0	
66. . . . .	0	
67. . . . .	0	
68. . . . .	2	Hess/Fish Creeks area
69. . . . .	3	Erickson Creek area
70. . . . .	0	
71. . . . .	16	Livengood area
72. . . . .	0	
73. . . . .	1	
74. . . . .	0	
75. . . . .	0	
76. . . . .	0	
77. . . . .	0	
78. . . . .	0	
79. . . . .	1	Treasure Creek area
80. . . . .	0	
81. . . . .	0	
82. . . . .	0	
83. . . . .	0	
84. . . . .	1	Moose Creek Bluff area
85. . . . .	1	Moose Creek Bluff area
86. . . . .	0	
87. . . . .	0	
88. . . . .	0	

TABLE 4. CONTINUED

Alignment Sheet	Number of Sites	
89. . . . .	0	
90. . . . .	0	
91. . . . .	0	
92. . . . .	0	
93. . . . .	3	Keystone Creek area
94. . . . .	1	
95. . . . .	1	Delta Camp area
96. . . . .	0	
<hr/>		
N=173		

Number of sites on or in close proximity to NWA route = 47 (24%)

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been sufficiently intense, the more northerly segments pass through certain higher potential areas. We felt that the planned intensive survey techniques, therefore, should prove fruitful. Testing should be oriented towards the considerations discussed above, in some incremented manner to be determined. In each crew of five proposed surveyors, three to four persons should be responsible for subsurface testing at practicable dimensions limited by ground conditions. The remaining crew member(s) should be responsible for compass navigation. In areas determined in the field to be high potential for revealing cultural remains, more intensive shovel clearing was called for. Each crew member walking the centerline and EMS transects would shovel-clear in high potential areas. In other areas, as the crew chief determined, minimal systematic clearing would be accomplished by at least one person. This exploratory testing is designated here as 'phase I'. 'Phase II' excavations should consist of intensive testing to establish the limits of identified sites and the gathering of preliminary data sufficient to determine Register eligibility. 'Phase III' excavations should constitute scientific data recovery and be oriented towards solving specific problems in a scientific manner on significant sites to be potentially adversely affected by construction activities.

### Summary

Based upon our review of the literature pertaining to traditional land use and post-contact activities along the centerline and areas adjacent, we determined that numerous, small, highly ephemeral to highly productive (workshop) native sites were to be expected in the 1980 survey. Functionally these would include primarily field camps and stations although several locations (major seasonal camps) might also occur. Historic non-native resources would be less common along the corridor but cabins and even substantial (abandoned) mining camps with building remains were expected.

The centerline and material sites south of Prudhoe Bay to Fairbanks were likely to produce large numbers of small prehistoric and historic native sites. Certain areas previously proved particularly productive - those with chert outcrops, isolated promontories in low plains, lake perimeters and river confluences. Alignment sheets with more than 10 listed cultural resources included 27, 41, 48, 51, 54, and 71. In addition, multiple loci were present at a number of locations including the Gallagher Flint Station.

The centerline and material sites south of the Brooks Range and north of Fairbanks were expected to reveal several non-native settlements of considerable extent including the remains of cabins and tents (West Fork, Nolan, Wiseman, etc. may have peripheral buildings involved).

The centerline and material sites from Fairbanks south to Delta Junction were not expected to reveal many or complex sites from the prehistoric and historic periods. Nonetheless, multiple loci were known on AS-85 on Moose Creek Bluff and several roadhouses had been reported.



### Cultural Resources Identified in 1980

Some 81 potential cultural resources were identified during the course of the field season. These include newly identified cultural resources, several of which are less than 50 years old, finds with dubious or no context, previously reported archaeological sites and several other loci with modern materials or of unknown cultural status. Each of the potential cultural resources was assessed in terms of eligibility for inclusion on the National Register, based upon potential for revealing pertinent scientific information, historic importance and other established criteria.\* Based upon this assessment and the potential for adverse impact, as a result of proposed construction and operational activities, recommendations were provided to the sponsor and pertinent agencies. These included requesting a determination of eligibility, further testing and no further action (see Table 5).

### Recommendations

Proposed construction activities (as of March 1981) will directly impact 54 of the 1980 and previously reported cultural resources as these lie directly on the NWA route, its proposed EMS's and other ancillary localities. Of these, eight resources appear to have significant scientific information associated with them\*\* and therefore may be potentially eligible for inclusion on the National Register of Historic Places. It was our recommendation that these resources be considered for a determination of eligibility (Table 5). In nine cases we recommended testing before the resource was assessed, if it is determined that the sites lie within potential impact areas.

A number (37) of the potential resources identified are directly impacted but are not considered to contain sufficient information potential to warrant inclusion on the National Register. In these cases, it is recommended that no further action regarding (remaining) archaeological materials need to undertaken prior to commencement of construction activities (Table 5 and footnote below).

Indirect impacts will affect 27 cultural resources. These may adversely affect several resources with useful extant information owing to increased foot and vehicular traffic in the area. In seven of 15 cases where the resource lies within 200 feet of the proposed project area, we recommended that the sponsor take responsibility for the resource. We recommended in pertinent cases that a request for determination of eligibility be made (Table 5).

\*Criteria "to guide the States, Federal agencies, and the Secretary of the Interior in evaluating potential entries...for the National Register." 36 CFR 800.10, 36 CFR 1202, formerly 36 CFR 60 (see King et al. 1977:235 ff.)

\*\*A recommendation to establish an archaeological district is pending. It would include 12 of the Livengood sites listed: 103, 107, 108, 047, 104, 106, 050, 046, 105, 030, 040, 043.

TABLE 5

## CULTURAL RESOURCES IDENTIFIED IN 1980

		POTENTIAL EFFECT BY PROJECT		EVIDENCE & CONDITION												
SITE*	LOCATION**	On	Close <200 ft.	Off >200 ft.	Undisturbed	Partially Undisturbed	No Data Remains	Find Without Context	Insufficient Data	Recommended Eli- gibility Status	RECOMMENDED ACTION	REASON (NOTES)	YEAR DESCRIBED			
SAG-006	AS 016	X					X			-	No action	No further data remain	Aly***,80,81			
SAG-011	AS 016			X	X					+	No action	Off project area, data remain	80			
PSM-060	EMS 20-3A	X				X				+	Request determination of eligibility	Data remain, data to be directly affected	Aly,80			
PSM-189	EMS 21-1	X							X	?	Test	Data may be present, data to be directly affected	Aly,80			
PSM-057	EMS 21-2		X				X			-	No action	No further data remain	Aly,80			
PSM-181	EMS 26-1		X						X	?	Test	Data remain, indirect impact likely during construction	80			
PSM-182	EMS 26-1		X						X	?	Test	Data remain, indirect impact likely during construction	80			
PSM-183	EMS 26-1		X						X	?	Test	Data remain, indirect impact likely during construction	80			
PSM-184	EMS 26-1		X						X	?	Test	Data remain, indirect impact likely during construction	80			
PSM-193	AS 027			X	X					+	No action	Off project area, data remain	80			
PSM-192	AS 027	X			X					(+)	Request determination of eligibility if data analysis warrants	Data remain, data to be directly affected	80			
PSM-191	AS 027			X	X					+	No action	Off project area, data remain	80			
PSM-190/066?	EMS 27-1B/ AS 027	X				X				(+)	Request determination of eligibility or recommend testing fur- ther if data analysis warrants and if PSM -	Data remain, data to be directly affected, looting and erosion have caused some impact	69,Aly?,80			

44

190 ≠ 066

TABLE 5 (Continued)

SITE*	LOCATION**	POTENTIAL EFFECT BY PROJECT		EVIDENCE & CONDITION							RECOMMENDED ACTION	REASON (NOTES)	YEAR DESCRIBED
		On	Close <200 ft.	Off >200 ft.	Undisturbed	Partially Undisturbed	No Data Remains	Find Without Context	Insufficient Data	Recommended Eli- gibility Status			
PSM-069	AS 028		X						X	?	Test	Data remain, indirect impact likely during construction	Aly,80
PSM-092	AS 028	Unknown					X			-	No action	No further data remain (site not located)	Aly,80
PSM-Find 2	EMS 28-1A	X						X		-	No action	No further data remain	80
PSM-194	AS 029			X	X					+	No action	Off project area, data remain	80
PSM-185	AS 029		X				X			-	No action	No further data remain	80
PSM-Find 1	EMS 30-1	X						X		-	No action	No context, unlikely artifact	80
PSM-186	AS 033	X			X		X			-	No action	Historic shack documented	80
PSM-187A	AS 033	X			X					-	No action	Modern lean-to documented	80
PSM-187B	AS 033		X		X		X			-	No action	Historic ? site documented, indirect impact likely during construction	80
PSM-188	AS 033	X			X					-	No action	Modern structure documented	80
PSM-061	EMS 33-1	Unknown					X			-	No action	No further data remain (no trace of site remains)	Aly,80
CHN-011	EMS 35-4	X					X			-	No action	Deadfall has been documented	80
CHN-012	EMS 36-3	X							X	?	Test	Data remain	80
CHN-010	EMS 39-3	X								-	No action	Data collected	80
CHN-005	EMS 39-3	X						X		-	No action	No further data remain	Aly,80
CHN-006	EMS 39-3	X						X		-	No action	No further data remain	Aly,80
CHN-008	EMS 39-3	X					X			-	No action	No further data remain	80
CHN-007	AS 039		X				X			-	No action	Cabin has been documented	80

TABLE 5 (Continued)

SITE*	LOCATION**	POTENTIAL EFFECT BY PROJECT		EVIDENCE & CONDITION							RECOMMENDED ACTION	REASON (NOTES)	YEAR DESCRIBED
		On	Close <200 ft.	Off >200 ft.	Undisturbed	Partially Undisturbed	No Data Remains	Find Without Context	Insufficient Data	Recommended Eli- gibility Status			
CHN-009	EMS 39-3	X			X		X			-	No action	Cabin has been documented	80
CHN-015	AS 040			X	X					+	No action	Off project area, private property, indirect impact likely during construction	80
CHN-014	AS 040			X	X					+	No action	Off project area	80
CHN-013	AS 040			X	X					-	No action	Off project area, modern	80
WIS-050	EMS 41-3			X	X					+	No action	Off project area, associated with historic cabin	80
WIS-012	AS 044		X				X			-	No action	No further data remain	Aly,80
WIS-006	EMS 45-2A	X					X			-	No action	No further data remain	Aly,80
WIS-010	EMS 45-2A	X					X			-	No action	No further data remain	Aly,80
WIS-011	EMS 45-2A	X					X			-	No action	No further data remain	Aly,80
WIS-Find 2	EMS 45-2A	X						X		-	No action	No further data remain	80
WIS-051	EMS 45-3	X							X	?	Test	Data remain, data to be directly affected	80
WIS-019	EMS 46-1	X							X	?	Test	Data remain, data to be directly affected	Aly,80
WIS-003	EMS 46-1	X					X			-	No action	No further data remain	Aly,80
WIS-Find 1	EMS 46-1	X						X		-	No action	No further data remain	80
WIS-001	EMS 46-1			X		X				+	No action	Off project area, data remain	Aly,80
BET-055	EMS 48-0	X			X					+	Request determination of eligibility	Data remain, data to be directly affected	Aly,80
BET-123	EMS 48-0	X					X			-	No action	No further data remain	Aly,80,81
BET-122	EMS 48-0	X					X			-	No action	No further data remain	Aly,80,81

TABLE 5 (Continued)

SITE*	LOCATION**	POTENTIAL EFFECT BY PROJECT		EVIDENCE & CONDITION							RECOMMENDED ACTION	REASON (NOTES)	YEAR DESCRIBED
		On	Close <200 ft.	Off >200 ft.	Undisturbed	Partially Undisturbed	No Data Remains	Find Without Context	Insufficient Data	Recommended Eli- gibility Status			
BET-054	EMS 48-0	X					X			-	No action	No further data remain	Aly,80
BET-042	EMS 48-2A		X				X			-	No action	No further data remain	Aly,80
BET-125	EMS 51-3	X					X			-	No action	No further data remain	Aly,80,81
BET-126	EMS 51-3	X					X			-	No action	No further data remain	Aly,80,81
BET-Find 1 (BET-082?)	EMS 51-3	X						X		-	No action	No further data remain	(Aly),80
BET-018	EMS 51-3	X					X			-	No action	No further data remain	Aly,80
BET-083	EMS 51-3	X					X			-	No action	No further data remain	Aly,80
BET-006(?)	EMS 54-1	X					X			-	No action	No further data remain	Aly,80
BET-124	EMS 60-1		X					X		-	No action	No further data remain, associ- ated with BET-058, 068, 073	80
BET-058	EMS 60-1	X					X			-	No action	No further data remain	Aly,80
BET-068	EMS 60-1	X					X			-	No action	No further data remain	Aly,80
BET-073	EMS 60-1	X					X			-	No action	No further data remain	Aly,80
LIV-055	EMS 69-3B	X					X			-	No action	No further data remain	Aly,80,81
LIV-Find 1	EMS 71-0A	X						X		-	No action	No further data remain	80
LIV-Find 2	EMS 71-0A	X						X		-	No action	No further data remain	80
LIV-032	EMS 71-0A			X					X	-	No action	Off project area	Aly,80
LIV-039	AS 071			X	X					-	No action	Off project area, historic cabin	80

TABLE 5 (Continued)

		POTENTIAL EFFECT BY PROJECT		EVIDENCE & CONDITION										
SITE*	LOCATION**	On	Close <200 ft.	Off >200 ft.	Undisturbed	Partially Undisturbed	No Data Remains	Find Without Context	Insufficient Data	Recommended Eli- gibility Status	RECOMMENDED ACTION	REASON (NOTES)	YEAR DESCRIBED	
THE FOLLOWING SEVENTEEN "LIV" SITES ON OR ADJACENT TO EMS 71-3A AND B ARE CONSIDERED AS PART OF THE PROPOSED "ROSEBUD KNOB ARCHAEOLOGICAL DISTRICT" FOR WHICH A DETERMINATION OF ELIGIBILITY STATUS IS REQUESTED.														
LIV-103	EMS 71-3A	X			X					+	Request determination of eligibility	Data remain, data to be directly affected	80,81	
LIV-107	EMS 71-3A	X			X					+	Request determination of eligibility	Data remain, data to be directly affected	80,81	
LIV-108	EMS 71-3A	X			X					+	Request determination of eligibility	Data remain, data to be directly affected	80,81	
LIV-104	EMS 71-3B	X						X		-	No action	May be part of LIV-047 or other unspecified site	80,81	
LIV-047	EMS 71-3B	X				X				+	Request determination of eligibility	Data remain, data to be directly affected	Aly,80,81	
LIV-106	EMS 71-3B	X			X					+	Request determination of eligibility	Data remain, data to be directly affected	80,81	
LIV-050	EMS 71-3A	X						X		-	No action	Site location questioned; no data remain	Aly,80,81	
LIV-030	EMS 71-3B	X				X				+	Request determination	Data remain, data to be directly affected	Aly,80,81	
LIV-040	EMS 71-3B	X				X						Few data remain, data to be directly affected	Aly,80,81	
LIV-046	EMS 71-3A		X			X				?		Near project area, data remain, indirect impact likely during construction	Aly,80,81	
LIV-105	EMS 71-3A		X		X					?		Near/off project area, data remain, indirect impact possible during construction	80,81	
LIV-043	EMS 71-3B	X				X				-	No action	Few data remain, data to be directly affected by gasline construction	Aly,80,81	

TABLE 5 (Continued)

SITE*	LOCATION**	POTENTIAL EFFECT BY PROJECT		EVIDENCE & CONDITION							RECOMMENDED ACTION	REASON (NOTES)	YEAR DESCRIBED
		On	Close <200 ft.	Off >200 ft.	Undisturbed	Partially Undisturbed	No Data Remains	Find Without Context	Insufficient Data	Recommended Eli- gibility Status			
XBD-042	AS 092	X					X			-	No action	Site has been documented	80
TNX-Find	AS 118(T-8)	X					X			-	No action	No further data remain	80

\*Sites are placed north to south.

\*\*"AS" refers to NWA Alignment Sheets (March 1981).

\*\*\*"Aly" indicates years associated with Alyeska pipeline project.



## SCOPE OF SERVICES IN 1981

✓ Intensive archaeological survey of approximately 177.3 miles of alignment was scheduled (Table 6). The segments were discontinuous and most were through open terrain (not adjacent to the Alaska or Dalton (haul road) highways). The corridor surveyed in open terrain was 500 feet wide. Some 20% of the segments were accessible only with helicopter support.

Intensive archaeological survey was scheduled on some 12 Exploration Material Sites (EMS's) covering some 747 acres (Table 6). The access routes were also examined as a 30 foot wide corridor.

A plan for modification of the Livengood Airport required the intensive survey of 13.8 acres. In addition Fault Zone Test Site No. 8 was to be monitored and a "lithic anomaly" investigated.

Particular attention was to be paid to areas with cultural resources reported in previous surveys in order to document the extent of their disturbance as well as to assess their significance.

✓ The scope of work for 1981 included also archaeological testing of three cultural resource sites, BET-122, BET-123 and LIV-050. The objective of the testing program was to gather data sufficient so that a determination of eligibility for inclusion on the National Register of Historic Places can be made for each of the three sites.

During the testing program sites were to be classified as eligible for inclusion on the National Register and as ineligible. Site or resources identified during the survey (or relocated) were also classified as eligible, ineligible or needing additional testing to determine eligibility for inclusion on the National Register.

Both the direct and indirect impact of the proposed pipeline construction, or ancillary activities, on each cultural resource were to be addressed, regardless of the determination of significance.

TABLE 6. 1981 ALIGNMENT SEGMENTS AND EMS'S.

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1981 ALIGNMENT SEGMENTS	
<u>Beginning Milepost</u>	<u>Ending Milepost</u>
56	61
62	63.5
87.5	87.8
94	125
132	150.7
339	404
404.3	405.3
452.5	499
502	504
522	528.3

## 1981 EMS'S

<u>EMS Number</u>	<u>Total Acres</u>
32-1	42
37-3	46
43-4	108
49-1	50
49-2	29
50-1A,B	151
54-2	36
62-3	31
63-3A,B	56
71-3A,B	40
71-4	14
96-1	75

## FIELD METHODOLOGY IN 1981

Introduction

The summer 1981 NWA archaeological survey was accomplished by three field crews, each comprising (basically) five persons, including a crew chief (Appendix 1). Crews worked six to seven field days per week, with (or without) occasional note days and mapping days. Work days usually spanned 10 hours away from camp in survey and travel to the survey area; occasionally there were longer days. Details of work completed are provided in appendices as is a listing of 1981 field personnel (Appendices 1-4).

The search for cultural resources occurred in three principal modes: 1) intensive (100%) systematic coverage of selected potential exploratory material sites (EMS's); 2) visual inspection of certain center-line segments in marginal environments and with anticipated negligible cultural resource potential; and 3) intensive (100%) coverage of selected segments of proposed NWA gasline corridor.

Survey methodology was consistent with that employed in previous seasons but modified on the basis of past experience in order to ensure maximum results. Variables dictating these modifications comprised general terrain character, geomorphic features, stratigraphic units, potential subsistence/commercial resource availability and the knowledge of prehistoric and historic land use gleaned through an extensive review of the literature (Aigner and Gannon 1980). The aspect of the survey which varied most in response to these environmental variables was intensity of shovel testing and surface clearing.

The work order for 1981, as in prior years, called for periodic clearing of the ground surface possessing any appreciable vegetative mat. Previous surveys where surface clearing has been conducted have resulted in marked increases in located cultural resources. During the 1981 field season a systematic program of clearing/testing involved removing the vegetative mat (typically 1 ft<sup>2</sup>), probing several inches to a foot (or more when warranted by circumstances), examining the mat and soil for anomalies (e.g., charcoal, flakes, bone), noting soil characteristics, refilling the hole and replacing the mat. No fewer than three persons were engaged in this activity in areas with considered moderate and high cultural resource potential. The remaining crew members simultaneously scanned the immediate vicinity for surficial anomalies (e.g., structures). Between surface tests, tasks consisted of navigating, visual examination of the ground surface and vicinity and note keeping. In addition to documenting cultural resources, notes were taken regarding such items as the amount of standing water, terrain, and flora and fauna. All crew members maintained independent notes. Despite the fact that 'environment' guided such testing, test pitting and surface clearing were conducted in certain areas considered to be of low site potential, in order to gauge the efficacy of the technique and allow for better evaluation of survey results.

All cultural resources (including evidence of modern activity) encountered during the 1981 field survey were thoroughly photographed, mapped and described in notes and on pre-printed forms. This approach applied to relocated sites formerly worked by Alyeska archaeologists as well. In the case of prehistoric and historic sites, subsurface testing delimited the extent of the activity area within constraints of time, and aimed to provide data adequate for assessment of potential eligibility for inclusion on the National Register of Historic Places. This was not frequently possible owing to the tight schedule of work.

### Alignment Segments

The bulk of scheduled proposed alignment segments surveyed were not adjacent to the Alyeska oil pipeline or the Prudhoe Bay Haul Road, thereby hampering navigation. Those segments passing 'overland' or adjacent to the Alyeska pipeline were surveyed by transects 500 feet wide, and segments adjacent to the haul road by transects 150 feet wide. Spacing between crew members (five) averaged 30 feet on 150 foot transects and 100 feet on the 500 foot transects. Shovel testing and surface clearing were normally conducted at 100 or 150 foot increments, more rarely at 200 foot increments, or less than 100 feet when cultural resource potential was considered high. In other aspects, survey methodology and documentation were comparable to that employed on the material sites. In both cases, certain settings known to have a higher potential for harboring archaeological materials (e.g., promontories and river confluences) were examined more intensively. For the northern (tundra) segments, three miles of alignment per day per crew was found to be the practical maximum to achieve thorough examination of those segments with even moderate potential. This does not include the time required to document cultural resources any more than minimally. Extremes of elevation and slope in wooded areas (especially north of the Yukon River and near the Salcha River) reduced survey distance per day significantly; however, certain marginal environments were visually surveyed by helicopter only. These included several miles with slopes greater than 30° and areas under water.

### EMS Survey

For exploratory material sites requiring intensive coverage, transects were made with an average spacing of 60 feet between surveyors. In most cases each EMS was surveyed by way of a compass-oriented rectilinear grid system superimposed on the locality, using maps prepared by Michael Baker, Jr. as a base. This allowed for controlled 100% coverage of each EMS and its periphery as well. This method was adopted in 1979 as it was found easier to follow compass bearings on large or heavily forested EMS's than to follow the commonly irregular and unmarked boundaries.

Each EMS was entered at and along a specific bearing (using Brunton-style compasses) with appropriate spacing of crew members. Passes and turns were then made within the EMS using the 'pace and compass' technique. Paced distances were incremented normally at 100 foot intervals with pacing determined by from one to all crew members, depending on the crew chief's decision. At each 100 foot interval surface testing was conducted. A variation on the pacing and testing routine was employed by some crews and consisted of pacing the specified distance, dropping a marker, then wandering back over the area previously covered up to the last station, testing at the individual's discretion. This technique was advantageous for maintaining navigation control yet allowing each crew member to be more attentive to the surroundings than preoccupied with pace counting. Variations also occurred on some large EMS's which were not amenable to gridding by surveying in a spiral manner. In high potential areas, surface

testing was catagorically done at less than 100 foot intervals and commonly left to individual discretion (testing at will). In all cases, bedrock exposures, rodent burrow throwout, frost boils, channel banks, uprooted tree root balls and other areas void of vegetation were examined.

#### Livengood Airport Survey

The methodology was similar to that for EMS's.

#### Testing

Three sites for which testing was scheduled were mapped. The margins of each site were determined by shovel tests which aimed to delimit all features and concentratoins of cultural remains. Where feasible materials were screened through 1/4 inch mesh and window screen in order to locate macrobotanitical and bone remains. As indicated, radiocarbon, pollen and other samples were collected.

## RESULTS OF THE INVESTIGATION IN 1981

### Cultural Resources Identified in 1981

Some 55 potential cultural resources were identified during course of the field season (Fig. 4). Selected diagnostic artifacts from these sites are shown in Figure 5. These include newly identified cultural resources, several of which are less than 50 years old, finds with dubious or no context, previously reported archaeological sites and several other loci with modern materials or of unknown cultural status. Each of the potential cultural resources was assessed in terms of eligibility for inclusion on the National Register, based upon potential for revealing pertinent scientific information, historic importance and other established criteria.\* Based upon this assessment and the potential for adverse impact, as a result of proposed construction and operational activities, recommendations are provided to the sponsor and pertinent agencies.

### Site Reports

In the reports in Appendix 2, cultural resources (archaeological sites from the prehistoric and historic periods, including structures and isolated finds) are discussed in detail.

The reports describe cultural resources newly identified in 1981 and resources previously identified which were discovered and assessed with respect to their condition and amount of material, if any, remaining. Detailed locational information, environmental settings, and survey methodology are given along with specific details of site character (e.g., topography, cultural materials, previous investigations, and stratigraphy). Where certain sites were sampled for representative artifact collections, University of Alaska Museum accession numbers have been assigned. Accession numbers from former investigations are included as well whenever possible. In several cases where former site designations are uncertain due to poor documentation, the site numbers are queried.

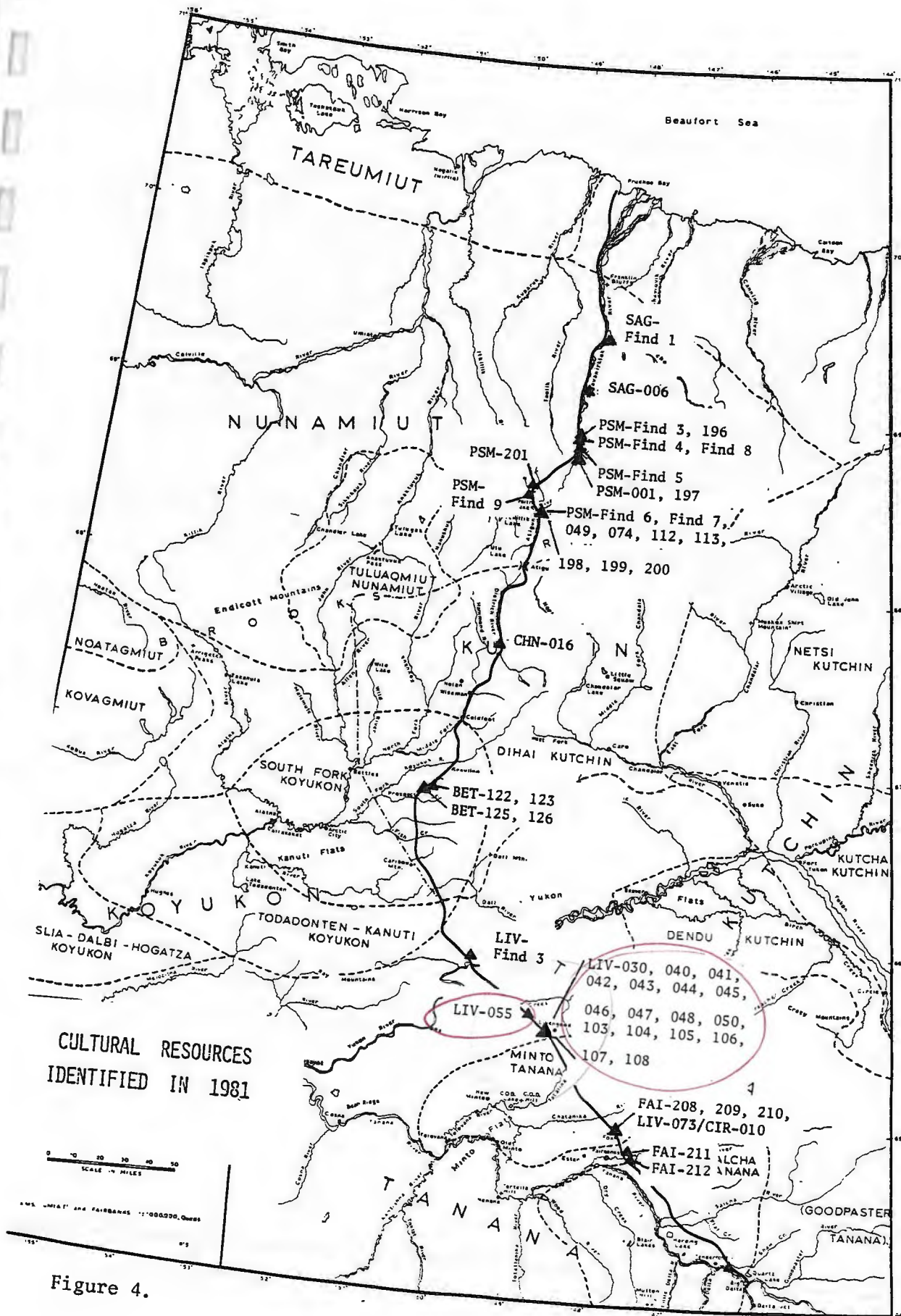
Factors which have affected or may affect the cultural resources are addressed under Impact. This includes remarks on previous excavations and testing, erosion and proposed NWA project activities. Impact is evaluated as: direct and adverse; indirect but likely to be adverse; and indirect with unlikely adverse effects.

In the section titled Significance, an assessment of cultural value is provided. Finally, professional recommendations to the sponsor and permitting agencies regarding the cultural resources in question are given under Recommendations. These recommendations are based upon current or likely impact and the nature of the resource with respect to its potential for yielding useful information on interior history and prehistory.

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\*Criteria "to guide the States, Federal agencies, and the Secretary of the Interior in evaluating potential entries...for the National Register."  
36 CFR 800.10, 36 CFR 1202, formerly 36 CFR 60 (see King et al. 1977:235 ff.).





In cases where sites are felt to have such value, suggestions are given regarding their National Register eligibility, and requests made for eligibility determination.

In cases where insufficient data exist to evaluate certain cultural resources, a recommendation for 'further testing' is given. In cases where a site has been properly mitigated previously, destroyed, or lies well away from the project area, a recommendation for 'no action' is usually given.

Field sampling procedures for cultural materials were not rigidly fixed. Artifacts from most sites were collected insofar as to yield a representative sample, both above and below surface, suitable for analysis, and to determine the limits of the sites. However, a general rule for sampling was to collect conservatively under the assumption that further, more controlled work would follow. In many cases, it would have been possible, if not easy, to inadvertently exhaust a site of its cultural materials through sampling.

In all cases, proveniences of lithic, faunal and other samples were carefully noted and mapped so that they could be fitted into future investigative activities.

## FIGURE 5.

## SELECTED DIAGNOSTIC ARTIFACTS - 1981

All figures actual size unless otherwise noted

1. UA81-130.1 (SAG-Find 1): Grey chalcedony end-blade (projectile point with fine colateral and transverse diagonal flaking).
  2. UA81-134.1 (PSM-Find 5): Black chert polyhedral core.
  3. UA81-135.1 (PSM-197): Black chert side-utilized microblade midsection
  4. UA81-135.2: Greenish-grey chert, side-utilized blade-like flake.
  5. UA81-136.1 (PSM-001): Saw-cut and axe-tapered wood fragment with notch. Possible tent peg.
  6. UA81-136.4: Lead bullet (.45? caliber).
  7. UA81-137.6 (PSM-074): Greenish-grey chert, edge-retouched and utilized biface fragment.
  8. UA81-137.14: Veined, blue-grey chert chunk (possible core)
  9. UA81-137.29: Dall sheep horn sheath.
  10. UA81-137.33: Dall sheep horn sheath.
- 
11. UA81-137.30 (PSM-074): Bird long bone (swan?).
  12. UA81-137.34: Bird long-bone, diseased (swan?).
  13. UA81-138.1 (PSM-049): Veined, blue-grey chert burin, truncated on proximal end. Bifacially thinned.
  14. UA81-138.2: Banded grey chert flake 'scraper'.
  15. UA81-138.4: Dark grey chert burin with edge-grinding, and transverse and collateral, diagonal bifacial flaking. At least two burin blows are exhibited.
  16. UA81-139.1 (PSM-112): Banded grey chert keeled scraper on a flake and truncated (broken) on end.
  17. UA81-139.3: Grey chert, unifacially flaked fragment.
  18. UA81-139.4: Banded grey chert biface fragment.
  19. UA81-139.5: Grey chert biface (end-blade or drill midsection).
  20. UA81-139.6: Grey chert end-blade stem fragment with fine bifacial flaking.

21. UA81-139.7: Grey chert burin fragment with bifacial flaking (transverse) on proximal end.
22. UA81-139.8: Black chert end-blade? fragment with diagonal collateral flaking and thinning on one side and edge-retouch on obverse. Some bifacial basal thinning is present.
23. UA81-140.1 (PSM-Find 6): Black chert flake (knife?) with lateral retouch and utilization scars.
24. UA81-125.1 (CHN-016): Ladle made of Dall sheep horn with a thong hole in handle and repair holes adjacent to split in ladle portion.
25. UA81-128.1 (LIV-041): Tan chert, edge-utilized blade-like flake.

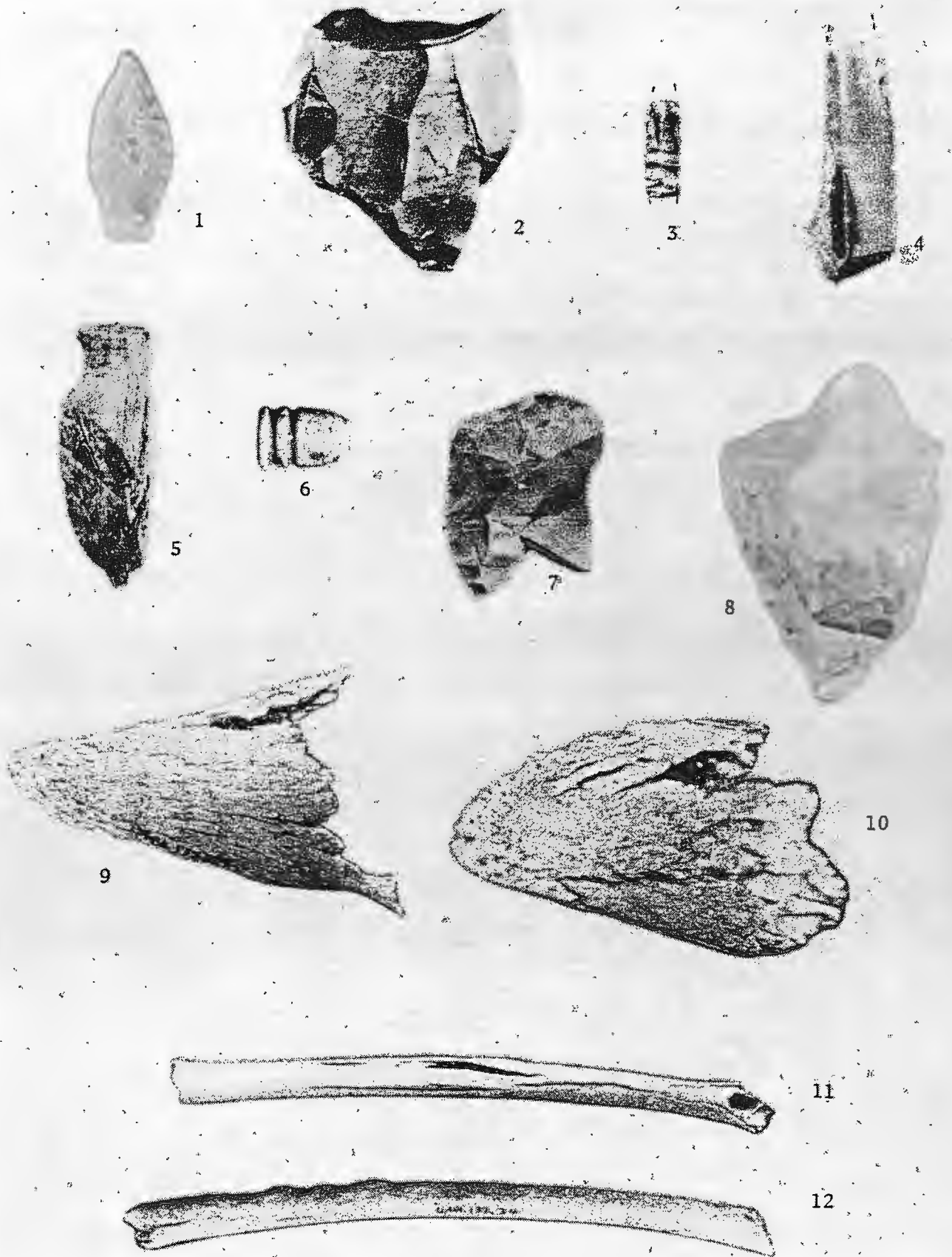


Figure 5.

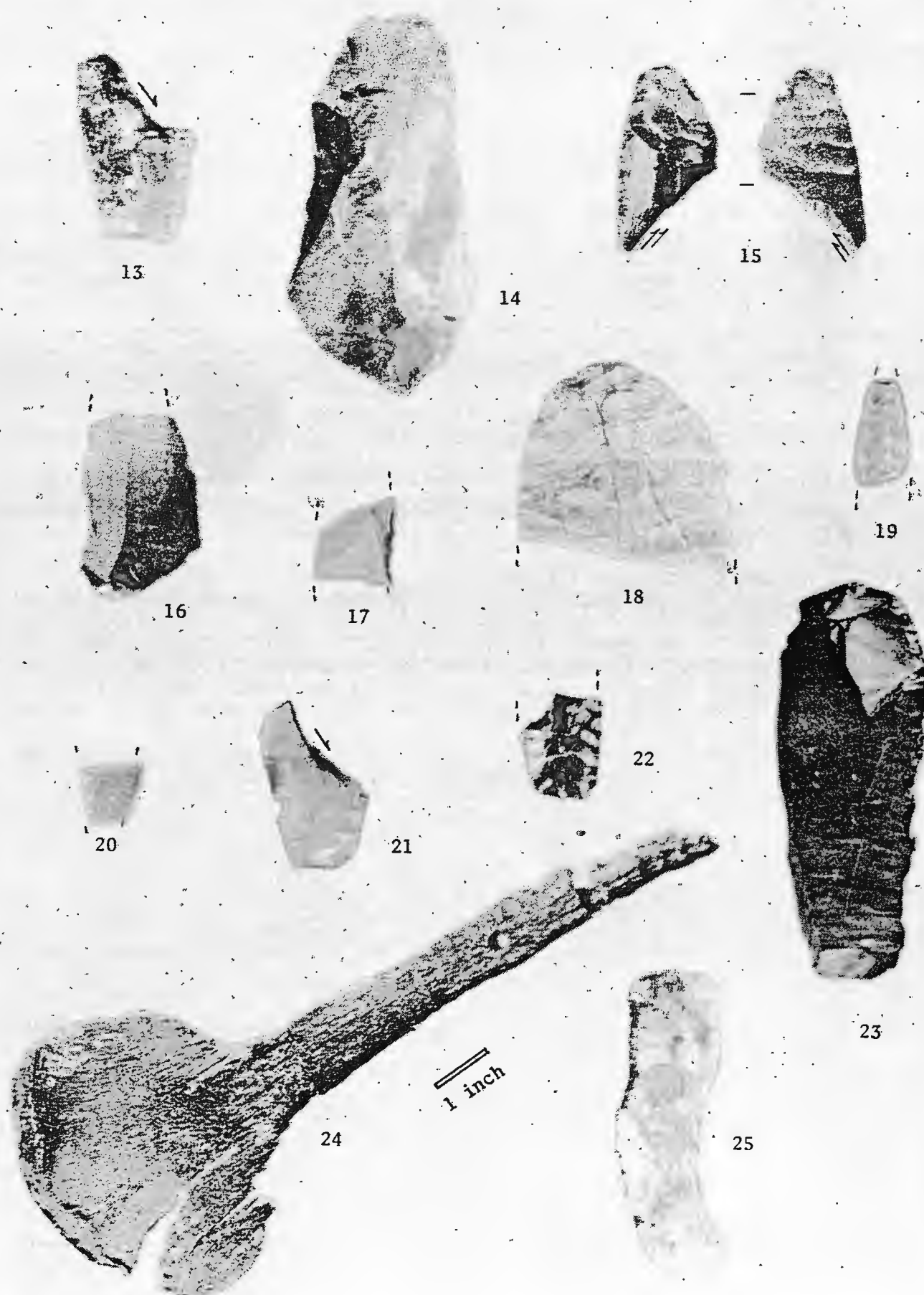


Figure 5 (continued).

### The 1981 Findings

Proposed construction activities (as of March 1981) will directly impact 30 of the new and previously reported cultural resources as these lie directly on the NWA route, its proposed EMS's and other ancillary localities. Of these, six resources potentially have significant scientific information associated with them and therefore may be potentially eligible for inclusion on the National Register of Historic Places under the Rosebud District (see Aigner and Gannon 1981). It is our recommendation that these resources be considered for a determination of eligibility (see individual discussions and Table 7). In all cases we believe additional testing is required before the resource can be assessed.

Thirteen of the potential resources identified are directly impacted but are not considered to contain sufficient information potential to warrant inclusion on the National Register or additional testing. In these cases, it is recommended that no further action regarding (remaining) archaeological materials need to undertaken prior to commencement of construction activities (Table 7).

Indirect impacts will affect 25 cultural resources. These may adversely affect several resources with useful extant information owing to increased foot and vehicular traffic in the area. In eight of 11 cases where the resource lies within 200 feet of the proposed project area, we recommend that the sponsor take responsibility for further testing the resource. We recommend in one case just beyond 200 feet from the project area that testing also be done if potential impact is determined. There are 13 other cases in which the resource lies more than 200 feet from the project area. Except in those five examples proposed as part of the Rosebud District, no further action is deemed necessary by the sponsor.



TABLE 7

## 1981 CULTURAL RESOURCES IDENTIFIED

SITE*	LOCATION**	POTENTIAL EFFECT BY PROJECT		EVIDENCE & CONDITION							RECOMMENDED ACTION	REASON (NOTES)	YEAR DESCRIBED
		On	Close <200 ft.	Off >200 ft.	Undisturbed	Partially Undisturbed	No Data Remains	Find Without Context	Insufficient Data	Recommended Eli- gibility Status			
SAG-Find 1	AS 012			X				X		-	No action	Off project area, proximity to SAG-005, S-29	81
SAG-006	AS 016	X					X			-	No action	No further data remain	Aly***,80,81
PSM-Find 3	AS 019			X				X		-	No action	Off project area, no further data remain	81
PSM-196	AS 019	X							X	?	Test	Data remain, data to be directly affected	81
PSM-Find 4	AS 019		X					X		-	No action	No further data remain	81
PSM-Find 8	AS 019			X				X		-	No action	Off project area, no data remain	81
PSM-Find 5	AS 020	X						X		-	No action	No further data remain (some possibility of an undisclosed focus)	81
PSM-197	AS 021	X							X	?	Test	Data to be directly affected	81
PSM-001	AS 021			X		X				-	No action	Off project area, data remain, area frequented by tourists	Aly,81
PSM-201	AS 024			X	X					-	No action	Off project area, data remain	81
PSM-Find 9	AS 025			X				X		-	No action	Off project area, no further data remain	81
PSM-074 east	AS 027	X							X	?	Test new loci	Data remain, data to be directly affected	69,Aly,81
PSM-049	AS 027	X							X	?	Test new loci	Data remain, data to be directly affected	69,Aly,81
PSM-112	AS 027		X						X	?	Test	Data remain, indirect impact likely during construction	Aly,81

TABLE 7 (Continued)

SITE*	LOCATION**	POTENTIAL EFFECT BY PROJECT		EVIDENCE & CONDITION							RECOMMENDED ACTION	REASON (NOTES)	YEAR DESCRIBED
		On	Close <200 ft.	Off >200 ft.	Undisturbed	Partially Undisturbed	No Data Remains	Find Without Context	Insufficient Data	Recommended Eli- gibility Status			
PSM-113	AS 027		X						X	?	Test	Data remain, indirect impact likely during construction	Aly,81
PSM-198	AS 027			X	X					+	No action	Off project area, data remain	81
PSM-Find 7	AS 027	X						X		-	No action	No further data remain	81
PSM-199	AS 027	X							X	?	Test	Data remain, data to be directly affected	81
PSM-200	AS 027		X						X	?	Test	Data remain, indirect impact possible during construction	81
PSM-Find 6	AS 027		X					X		-	No action	No data apparently remain	81
CHN-016	EMS 37-3B		X						X	?	Test	Data remain, indirect impact likely during construction	81
BET-123	EMS 48-0	X					X			-	No action	No further data remain	Aly,80,81
BET-122	EMS 48-0	X					X			-	No action	No further data remain	Aly,80,81
BET-125	EMS 51-3	X					X			-	No action	No further data remain	Aly,80,81
BET-126	EMS 51-3	X					X			-	No action	No further data remain	Aly,80,81
LIV-Find 3	EMS 63-3A	X						X		-	No action	No further data remain	81
LIV-055	EMS 69-3B	X					X			-	No action	No further data remain	Aly,80,81

THE FOLLOWING SEVENTEEN "LIV" SITES ON OR ADJACENT TO EMS 71-3A AND B ARE CONSIDERED AS PART OF THE PROPOSED "ROSEBUD KNOB ARCHAEOLOGICAL DISTRICT" FOR WHICH A DETERMINATION OF ELIGIBILITY STATUS IS REQUESTED.

LIV-103	EMS 71-3A	X			X					+	Request determination of eligibility	Data remain, data to be directly affected	80,81
LIV-107	EMS 71-3A	X			X					+	Request determination of eligibility	Data remain, data to be directly affected	80,81

TABLE 7 (CONTINUED)

SITE*	LOCATION**	POTENTIAL EFFECT BY PROJECT		EVIDENCE & CONDITION							RECOMMENDED ACTION	REASON (NOTES)	YEAR DESCRIBED
		On	Close <200 ft.	Off >200 ft.	Undisturbed	Partially Undisturbed	No Data Remains	Find Without Context	Insufficient Data	Recommended Eli- gibility Status			
LIV-108	EMS 71-3A	X			X					+	Request determination of eligibility	Data remain, data to be directly affected	80,81
LIV-104	EMS 71-3B	X						X		-	No action	May be part of LIV-047 or other unspecified site	80,81
LIV-047	EMS 71-3B	X				X				+	Request determination of eligibility	Data remain, data to be directly affected	Aly,80,81
LIV-106	EMS 71-3B	X			X					+	Request determination of eligibility	Data remain, data to be directly affected	80,81
LIV-050	EMS 71-3A	X						X		-	No action	Site location questioned; no data remain	Aly,80,81
LIV-030	EMS 71-3B	X				X				+	Request determination	Data remain, data to be directly affected	Aly,80,81
LIV-040	EMS 71-3B	X				X						Few data remain, data to be directly affected	Aly,80,81
LIV-046	EMS 71-3A		X			X				?	Test	Near project area, data remain, indirect impact likely during construction	Aly,80,81
LIV-105	EMS 71-3A		X		X					?	Test	Near/off project area, data remain, indirect impact possible during construction	80,81
LIV-043	EMS 71-3B	X				X				-	No action	Few data remain, data to be directly affected by gasline construction	Aly,80,81
LIV-048	AS 071			X		X				-	No action	Off project area, some data remain	Aly,81
LIV-045	AS 071			X	X					-	No action	Off project area, some data remain	Aly,81
LIV-044	AS 071			X	X					-	No action	Off project area, some data remain	Aly,81
LIV-042	AS 071			X		X				-	No action	Off project area, some data remain	Aly,81
LIV-041	AS 071			X		X				+		Off project area, data remain, looting has occurred	Aly,81

TABLE 7

(Continued)

SITE*	LOCATION**	POTENTIAL EFFECT BY PROJECT		EVIDENCE & CONDITION							RECOMMENDED ACTION	REASON (NOTES)	YEAR DESCRIBED
		On	Close <200 ft.	Off >200 ft.	Undisturbed	Partially Undisturbed	No Data Remains	Find Without Context	Insufficient Data	Recommended Eli- gibility Status			
LIV-073/ CIR-010	AS 080	X							X	?	Test	Historical, needs archival re- search, data to be directly affected, partly Register accepted	AHRS 77,81
FAI-208	AS 080	X							X	?	Test	Historical, needs archival re- search, data to be directly affected	81
FAI-209	AS 080	X							X	?	Test	Historical, needs archival re- search, data to be directly affected	81
FAI-210	AS 081	X							X	?	Test	Historical, needs archival re- search, data to be directly affected	81
FAI-211	AS 082	X							X	?	Test	Historical, needs archival re- search, data to be directly affected	81
FAI-212	AS 084			X					X	?	No action	Off project area, data remain, impact by erosion and flooding	81
XBD-053	AS 093			X					X	?	Test	Off/near project area, data remain, 81 indirect impact likely during construction	81
XMI-251	AS 101		X						X	?	Test	Data remain, indirect impact likely	AHRS, Cook 81 (BLM) 78,79
NAB-022	AS 128			X		X				+	No action	Off project area, data remain	Cook 81 (BLM)
NAB-021	AS 129	X							X	?	Test	Insufficient data to evaluate	Cook 81 (BLM)
NAB-020	AS 130		X						X	?	Test	Data remain, indirect impact likely during construction	Cook 81 (BLM)

\* Sites are placed north to south.

\*\* "AS" refers to NMA Alignment Sheets (March 1981).

Aly" indicates years associated with Alyeska pipeline project.

## Recommendations

The 1981 archaeological survey along the proposed NWA gasline corridor, EMS's and ancillary lands yielded 55 cultural resource locations comprising both newly identified sites and finds, and sites previously identified by Alyeska archaeologists.

### Centerline Segment

Some 177.3 miles of discontinuous centerline segments were foot surveyed. They were located between Prudhoe Bay in the north and Delta Junction in the south. We recommend no further action is needed prior to construction on any of the segments except those upon which cultural resources were located. The following Alignment Sheets contain cultural resources which require management\* (for exact locations, see Appendix 5), Site Reports).

<u>Direct Impact</u>		<u>Indirect Impact</u>	
AS-109	PSM-196	AS-027	PSM-200
AS-021	PSM-197	AS-027	PSM-112
AS-027	PSM-074	AS-027	PSM-113
AS-027	PSM-049	AS-093	XBD-053
AS-027	PSM-199	AS-101	XMH-251
AS-080	LIV-073/CIR-010	AS-130	NAB-020
AS-080	FAI-208		
AS-080	FAI-209		
AS-080	FAI-210		
AS-082	FAI-211		
AS-129	NAB-021		

### Exploratory Material Sites: Survey

Some 747 acres were surveyed on 12 EMS's located between Prudhoe Bay in the north and Delta Junction in the south. Most lay north of the Yukon River and most north of tree line. The following EMS's which were foot surveyed revealed extant cultural resources:

#### Indirect Impact

EMS-37-3B      CHN-106

The remainder (see Appendix 3) do not, in our judgment, require further examination prior to construction.

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\*Additional testing is recommended.

Rosebud Knob District: EMS 71-3A, 71-3B, Segment 404.3-405.3\*

<u>Direct Impact</u>	<u>Indirect Impact</u>	<u>Off Project</u>
LIV-103	LIV-046	LIV-048
LIV-107	LIV-105	LIV-045
LIV-108		LIV-044
LIV-104		LIV-042
LIV-047		LIV-041
LIV-106		
LIV-030		
LIV-040		
LIV-043		
LIV-050		

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\*Determination of Register eligibility requested for LIV-103, LIV-107, LIV-108, LIV-047, LIV-106, and LIV-030; testing recommended for LIV-046 and LIV-105.

### Land Use Along the Survey Corridor

Intensive on-foot survey and visual inspection of contracted centerline segments and land parcels, despite their inferred cultural resource potential, substantiated the general site distribution patterns presented in Aigner and Gannon 1980. Prior to the 1980 field season, it remained uncertain whether this distribution had basis in reality or whether it reflected bias in earlier survey methodology (Ibid.:148). By walking and testing for cultural resources in all encountered terrain types with approximately equal intensity in 1980, a good quantifiable test of the presently employed land use and settlement pattern model (Ibid.:145-146) was accomplished. For example, it has long been 'known' that cultural resources are rare (or at least not haphazardly distributed) on the flat northern (arctic) tundra, but this contention has not been previously well documented. Indeed, most of the 'knowing' has apparently been generated by intuition rather than by any hard, systematic reconnaissance of this particular terrain type. Conversely, it is well established that arctic prehistoric sites do occur with predictable regularity in certain other terrain types such as on knolls and promontories. The 1981 work, like that in 1980, confirmed these findings.

Table 8 presents an itemization of 33 newly identified or examined cultural resource sites (both prehistoric and historic) with respect to geomorphic setting.\* As can be seen, most of the prehistoric/aboriginal sites are located in settings that provide vantage and water; in short, resource-providing localities (compare with Aigner and Gannon 1980: Table 9).

It is this orientation towards subsistence resources that ultimately determines all site settings, and in turn, gives rise to the observed areal clustering of sites such as, in regard to prehistoric sites, the Galbraith/Mosquito Lakes and Rosebud Knob areas. Such determinants included caribou and their migration routes, fish and various other key animal habitats (including Dall sheep), floral resources, and in the case of Rosebud Knob, lithic resources. While several such catchment areas are now documented, many more no doubt remain to be identified, and all need to be studied more in depth.

One problem that arises, particularly, it seems, in the arctic, is the tendency to over-simplify or gratuitously ascribe site function by superficial regard to geomorphic setting or artifact assemblage. All too often, for example, a site that is located on a knoll and manifested by scattered lithic 'waste' is casually dismissed/labelled as a 'lookout site' or 'flaking station.' While such a site may well have served such a function, it may not necessarily be the only function nor even the primary one. Furthermore, landscape change must be considered. Again, such situations as this plead for more careful studies in the future.

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\*Some have been previously reported, e.g. by Alyeska, etc.

TABLE 8. GEOMORPHIC SETTING OF 34 IDENTIFIED CULTURAL RESOURCE SITES\*

Geomorphic Setting	Number Prehistoric Sites**	%	Number Historic/ Modern Sites	%	Number Unknown Affiliation	%	Total Number Sites	Total Number Sites %	Setting Relative Frequency %: Pre- historic Sites***	Setting Relative Frequency %: Historic Sites***
Along or near streams	16	64	7	88	1	100	24	71	67	29
At or near stream confluences	6	24	1	12	0	0	7	21	86	14
Along or near lakes and/or marshland	16	64	2	25	0	0	18	53	89	11
On hilltops, hillsides or promontories	19	76	3	37	1	100	23	68	83	13
Vantage location	20	80	0	0	1	100	21	62	95	0
At or near streams and/or lakes with vantage potential	16	64	0	0	1	100	17	50	94	0

N = 34      25 prehistoric (74%)  
               8 historic/modern (23%)  
               1 unknown (3%)  
               [25:8:1]

\*Any one particular site may be represented repeatedly between the different geomorphic categories. Sites also include isolated finds.

\*\*"Prehistoric" also includes sites with early historic aboriginal affiliations.

\*\*\*These two columns indicate, e.g., of all the sites occurring along or near streams, 67% are prehistoric.



## SCOPE OF WORK AND WORK COMPLETED 1978-1981

Appendices 4-6 indicate all of the work completed to date as part of the archaeological survey of the proposed gas pipeline and ancillary facilities. Some 493 miles of centerline segments (based on Rev. 3, March 1981 mile markers only; additional segments no longer part of the Rev. 3. proposed route were completed in previous years and are indicated in earlier reports) have been surveyed. EMS's surveyed are listed by year of survey in Appendix 5. More than 6200 acres have been covered. In addition, miscellaneous work has involved the survey of several hundred additional acres, examination of boreholes, anomalies, etc., and archaeological testing of three cultural resource localities (Appendix 6). Appendix 7 is an update of cultural resources in the Beechy Point Quadrangle. This information completes background data for the project area.

### Summary of Cultural Resources Requiring Management Consideration 1978-1981

Table 9 lists cultural resources (sites, structures, isolated finds and accumulations of modern debris) identified in surveys from 1978 and 1981. Included are (124) newly identified and previously recorded sites (re-identified and field checked in 1981), as well as (six) localities reported by others in 1980 and 1981, not accessible to us, but for which we provide a recommendation.

Specifically, the inventory comprises newly identified and previously recorded cultural resources of which (75) are directly threatened with adverse impact by proposed project activities (i.e., potential destruction of cultural resources through centerline construction or EMS development). Twenty-eight require management. Keep in mind that management options include avoidance through project design changes. This is a management option and should negate the need for further consideration of all avoided resources. In addition, 12 of 22 resources which lie within 200 feet of the proposed project boundaries are, because of their conspicuous natures (e.g., structures and promontories), jeopardized by indirect, potentially adverse impacts. In the authors' judgment, all but one of the 27 resources which lie at distances greater than 200 feet (in most cases in excess of 400 feet) from the proposed construction areas, are unlikely to be adversely affected by project personnel or equipment. In these cases no further action is normally recommended.

A review of available information on the cultural resources included in the present report indicates that (8) resources directly and indirectly impacted by the project contain sufficient research potential to warrant a request for a determination of National Register eligibility at this time. These are PSM-060, BET-055 and LIV-103, 107, 108, 047, 106 and 030. The LIV sites are part of the Rosebud Knob area and should be considered under the district concept. Perhaps an additional (seven) which lie well off the project area are significant.

TABLE 9

## SUMMARY OF EVALUATIONS AND RECOMMENDATIONS FOR CULTURAL RESOURCES (1978-1981)

SITE*	LOCATION**	POTENTIAL EFFECT BY PROJECT		EVIDENCE & CONDITION							RECOMMENDED ACTION	REASON (NOTES)	YEAR DESCRIBED
		On	Close <200 ft.	Off >200 ft.	Undisturbed	Partially Undisturbed	No Data Remains	Find Without Context	Insufficient Data	Recommended Eli- gibility Status			
SAG-Find 1	AS 012			X				X		-	No action	Off project area, proximity to SAG-005, S-29	81
SAG-006	AS 016	X					X			-	No action	No further data remain	Aly***,80,81
SAG-011	AS 016			X	X					+	No action	Off project area, data remain	80
PSM-Find 3	AS 019			X				X		-	No action	Off project area, no further data remain	81
PSM-196	AS 019	X							X	?	Test	Data remain, data to be directly affected	81
PSM-Find 4	AS 019		X					X		-	No action	No further data remain	81
PSM-Find 8	AS 019			X				X		-	No action	Off project area, no data remain	81
PSM-Find 5	AS 020	X						X		-	No action	No further data remain (some possibility of an undisclosed focus)	81
PSM-060	EMS 20-3A	X				X				+	Request determination of eligibility	Data remain, data to be directly affected	Aly,80
PSM-189	EMS 21-1	X							X	?	Test	Data may be present, data to be directly affected	Aly,80
PSM-057	EMS 21-2		X				X			-	No action	No further data remain	Aly,80
PSM-197	AS 021	X							X	?	Test	Data to be directly affected	81
PSM-001	AS 021			X		X				-	No action	Off project area, data remain, area frequented by tourists	Aly,81
PSM-201	AS 024			X	X					-	No action	Off project area, data remain	81
PSM-Find 9	AS 025			X				X		-	No action	Off project area, no further data remain	81
PSM-181	EMS 26-1		X						X	?	Test	Data remain, indirect impact	80

TABLE 9 (Continued)

SITE*	LOCATION**	POTENTIAL EFFECT BY PROJECT		EVIDENCE & CONDITION							RECOMMENDED ACTION	REASON (NOTES)	YEAR DESCRIBED
		On	Close <200 ft.	Off >200 ft.	Undisturbed	Partially Undisturbed	No Data Remains	Find Without Context	Insufficient Data	Recommended Eli- gibility Status			
PSM-182	EMS 26-1		X						X	?	Test	Data remain, indirect impact likely during construction	80
PSM-183	EMS 26-1		X						X	?	Test	Data remain, indirect impact likely during construction	80
PSM-184	EMS 26-1		X						X	?	Test	Data remain, indirect impact likely during construction	80
PSM-074 east	AS 027	X							X	?	Test new loci	Data remain, data to be directly affected	69,Aly,81
PSM-049	AS 027	X							X	?	Test new loci	Data remain, data to be directly affected	69,Aly,81
PSM-112	AS 027		X						X	?	Test	Data remain, indirect impact likely during construction	Aly,81
PSM-113	AS 027		X						X	?	Test	Data remain, indirect impact likely during construction	Aly,81
PSM-198	AS 027			X	X					+	No action	Off project area, data remain	81
PSM-Find 7	AS 027	X						X		-	No action	No further data remain	81
PSM-193	AS 027			X	X					+	No action	Off project area, data remain	80
PSM-192	AS 027	X			X					(+)	Request determination of eligibility if data analysis warrants	Data remain, data to be directly affected	80
PSM-191	AS 027			X	X					+	No action	Off project area, data remain	80
PSM-199	AS 027	X							X	?	Test	Data remain, data to be directly affected	81
PSM-200	AS 027		X						X	?	Test	Data remain, indirect impact possible during construction	81

TABLE 9 .(Continued)

SITE*	LOCATION**	POTENTIAL EFFECT BY PROJECT		EVIDENCE & CONDITION							RECOMMENDED ACTION	REASON (NOTES)	YEAR DESCRIBED
		On	Close <200 ft.	Off >200 ft.	Undisturbed	Partially Undisturbed	No Data Remains	Find Without Context	Insufficient Data	Recommended Eli- gibility Status			
PSM-190/066?	EMS 27-1B/ AS 027	X				X				(+)	Request determination of eligibility or recommend testing further if data analysis warrants and if PSM 190 ≠ 066	Data remain, data to be directly affected, looting and erosion have caused some impact	69,Aly?,80
PSM-Find 6	AS 027		X					X		-	No action	No data apparently remain	81
PSM-069	AS 028		X						X	?	Test	Data remain, indirect impact likely during construction	Aly,80
PSM-092	AS 028	Unknown					X			-	No action	No further data remain (site not located)	Aly,80
PSM-Find 2	EMS 28-1A	X						X		-	No action	No further data remain	80
PSM-194	AS 029			X	X					+	No action	Off project area, data remain	80
PSM-185	AS 029		X				X			-	No action	No further data remain	80
PSM-Find 1	EMS 30-1	X						X		-	No action	No context, unlikely artifact	80
PSM-186	AS 033	X			X		X			-	No action	Historic shack documented	80
PSM-187A	AS 033	X			X					-	No action	Modern lean-to documented	80
PSM-187B	AS 033		X		X		X			-	No action	Historic ? site documented, indirect impact likely during construction	80
PSM-188	AS 033	X			X					-	No action	Modern structure documented	80
PSM-061	EMS 33-1	Unknown					X			-	No action	No further data remain (no trace of site remains)	Aly,80
CHN-011	EMS 35-4	X					X			-	No action	Deadfall has been documented	80
CHN-012	EMS 36-3	X							X	?	Test	Data remain	80
CHN-016	EMS 37-3B		X						X	?	Test	Data remain, indirect impact likely during construction	81

TABLE 9 (Continued)

		POTENTIAL EFFECT BY PROJECT		EVIDENCE & CONDITION													
SITE*	LOCATION**	On	Close <200 ft.	Off >200 ft.	Undisturbed	Partially Undisturbed	No Data Remains	Find Without Context	Insufficient Data	Recommended Eli- gibility Status	RECOMMENDED ACTION	REASON (NOTES)	YEAR DESCRIBED				
CHN-010	EMS 39-3	X								-	No action	Data collected	80				
CHN-005	EMS 39-3	X						X		-	No action	No further data remain	Aly,80				
CHN-006	EMS 39-3	X						X		-	No action	No further data remain	Aly,80				
CHN-008	EMS 39-3	X					X			-	No action	No further data remain	80				
CHN-007	AS 039		X				X			-	No action	Cabin has been documented	80				
CHN-009	EMS 39-3	X			X		X			-	No action	Cabin has been documented	80				
CHN-015	AS 040			X	X					+	No action	Off project area, private pro- perty, indirect impact likely during construction	80				
CHN-014	AS 040			X	X					+	No action	Off project area	80				
CHN-013	AS 040			X	X					-	No action	Off project area, modern	80				
WIS-050	EMS 41-3			X	X					+	No action	Off project area, associated with historic cabin	80				
WIS-012	AS 044		X				X			-	No action	No further data remain	Aly,80				
WIS-006	EMS 45-2A	X					X			-	No action	No further data remain	Aly,80				
WIS-010	EMS 45-2A	X					X			-	No action	No further data remain	Aly,80				
WIS-011	EMS 45-2A	X					X			-	No action	No further data remain	Aly,80				
WIS-Find 2	EMS 45-2A	X						X		-	No action	No further data remain	80				
WIS-051	EMS 45-3	X							X	?	Test	Data remain, data to be directly affected	80				
WIS-019	EMS 46-1	X							X	?	Test	Data remain, data to be directly affected	Aly,80				
WIS-003	EMS 46-1	X					X			-	No action	No further data remain	Aly,80				

TABLE 9 (Continued)

SITE*	LOCATION**	POTENTIAL EFFECT BY PROJECT		EVIDENCE & CONDITION							RECOMMENDED ACTION	REASON (NOTES)	YEAR DESCRIBED
		On	Close <200 ft.	Off >200 ft.	Undisturbed	Partially Undisturbed	No Data Remains	Find Without Context	Insufficient Data	Recommended Eli- gibility Status			
WIS-Find 1	EMS 46-1	X						X		-	No action	No further data remain	80
WIS-001	EMS 46-1			X		X				+	No action	Off project area, data remain	Aly,80
BET-055	EMS 48-0	X			X					+	Request determination of eligibility	Data remain, data to be directly affected	Aly,80
BET-123	EMS 48-0	X					X			-	No action	No further data remain	Aly,80,81
BET-122	EMS 48-0	X					X			-	No action	No further data remain	Aly,80,81
BET-054	EMS 48-0	X					X			-	No action	No further data remain	Aly,80
BET-042	EMS 48-2A		X				X			-	No action	No further data remain	Aly,80
BET-125	EMS 51-3	X					X			-	No action	No further data remain	Aly,80,81
BET-126	EMS 51-3	X					X			-	No action	No further data remain	Aly,80,81
BET-Find 1 (BET-082?)	EMS 51-3	X						X		-	No action	No further data remain	(Aly),80
BET-018	EMS 51-3	X					X			-	No action	No further data remain	Aly,80
BET-083	EMS 51-3	X					X			-	No action	No further data remain	Aly,80
BET-006(?)	EMS 54-1	X					X			-	No action	No further data remain	Aly,80
BET-124	EMS 60-1		X					X		-	No action	No further data remain, associ- ated with BET-058, 068, 073	80
BET-058	EMS 60-1	X					X			-	No action	No further data remain	Aly,80
BET-068	EMS 60-1	X					X			-	No action	No further data remain	Aly,80
BET-073	EMS 60-1	X					X			-	No action	No further data remain	Aly,80
LIV-Find 3	EMS 63-3A	X						X		-	No action	No further data remain	81
LIV-055	EMS 69-3B	X					X			-	No action	No further data remain	Aly,80,81
LIV-Find 1	EMS 71-1A	X					X			-	No action	No further data remain	81

TABLE 9 (Continued)

SITE*	LOCATION**	POTENTIAL EFFECT BY PROJECT		EVIDENCE & CONDITION							RECOMMENDED ACTION	REASON (NOTES)	YEAR DESCRIBED
		On	Close <200 ft.	Off >200 ft.	Undisturbed	Partially Undisturbed	No Data Remains	Find Without Context	Insufficient Data	Recommended Eli- gibility Status			
LIV-Find 2	EMS 71-0A	X						X		-	No action	No further data remain	80
LIV-032	EMS 71-0A			X					X	-	No action	Off project area	Aly,80
LIV-039	AS 071			X	X					-	No action	Off project area, historic cabin	80
LIV-103	EMS 71-3A	X			X					+	Request determination of eligibility	Data remain, data to be directly affected	80,81
LIV-107	EMS 71-3A	X			X					+	Request determination of eligibility	Data remain, data to be directly affected	80,81
LIV-108	EMS 71-3A	X			X					+	Request determination of eligibility	Data remain, data to be directly affected	80,81
LIV-104	EMS 71-3B	X						X		-	No action	May be part of LIV-047 or other unspecified site	80,81
LIV-047	EMS 71-3B	X				X				+	Request determination of eligibility	Data remain, data to be directly affected	Aly,80,81
LIV-106	EMS 71-3B	X			X					+	Request determination of eligibility	Data remain, data to be directly affected	80,81
LIV-050	EMS 71-3A	X						X		-	No action	Site location questioned; no data remain	Aly,80,81
LIV-030	EMS 71-3B	X				X				+	Request determination	Data remain, data to be directly affected	Aly,80,81
LIV-040	EMS 71-3B	X				X						Few data remain, data to be directly affected	Aly,80,81
LIV-046	EMS 71-3A		X		X					?		Near project area, data remain, indirect impact likely during con- struction	Aly,80,81

THE FOLLOWING SEVENTEEN "LIV" SITES ON OR ADJACENT TO EMS 71-3A AND B ARE CONSIDERED AS PART OF THE PROPOSED "ROSEBUD KNOB ARCHAEOLOGICAL DISTRICT" FOR WHICH A DETERMINATION OF ELIGIBILITY STATUS IS REQUESTED.

Table 9 continued

SITE*	LOCATION**	POTENTIAL EFFECT BY PROJECT		EVIDENCE & CONDITION							RECOMMENDED ACTION	REASON (NOTES)	YEAR DESCRIBED
		On	Close <200 ft.	Off >200 ft.	Undisturbed	Partially Undisturbed	No Data Remains	Find Without Context	Insufficient Data	Recommended Eli- gibility Status			
LIV-105	EMS 71-3A		X		X					?		Near/off project area, data remain, indirect impact possible during construction.	80,81
LIV-043	EMS 71-3B	X				X				-	No action	Few data remain, data to be directly affected by gasline construction	Aly,80,81
LIV-048	AS 071			X		X				-	No action	Off project area, some data remain	Aly,81
LIV-045	AS 071			X	X					-	No action	Off project area, some data remain	Aly,81
LIV-044	AS 071			X	X					-	No action	Off project area, some data remain	Aly,81
LIV-042	AS 071			X		X				-	No action	Off project area, some data remain	Aly,81
LIV-041	AS 071			X		X				+		Off project area, data remain, looting has occurred	Aly,81
LIV-073/ CIR-010	AS 080	X							X	?	Test	Historical, needs archival research, data to be directly affected, partly Register accepted	AHRS 77,81
FAI-208	AS 080	X							X	?	Test	Historical, needs archival research, data to be directly affected	81
FAI-209	AS 080	X							X	?	Test	Historical, needs archival research, data to be directly affected	81
FAI-210	AS 081	X							X	?	Test	Historical, needs archival research, data to be directly affected	81
FAI-211	AS 082	X							X	?	Test	Historical, needs archival research, data to be directly affected	81
FAI-212	AS 084			X					X	?	No action	Off project area, data remain, impact by erosion and flooding	81
ADD 042	AS 084									-	action	Site has been disturbed	80



TABLE 9 (Continued)

		POTENTIAL EFFECT BY PROJECT		EVIDENCE & CONDITION										
SITE*	LOCATION**	On	Close <200 ft.	Off >200 ft.	Undisturbed	Partially Undisturbed	No Data Remains	Find Without Context	Insufficient Data	Recommended Eli- gibility Status	RECOMMENDED ACTION	REASON (NOTES)	YEAR DESCRIBED	
XBD-053	AS 093			X					X	?	Test	Off/near project area, data remain, 81 indirect impact likely during construction		
XBD-057	AS 096			X						?	No action	Off project area, location not verified	Smith 74,78	
XMH-251	AS 101		X						X	?	Test	Data remain, indirect impact likely	AHRS,Cook 81 (BLM) 78,79	
XMH-246	EMS 6P-2A (AS 103)	X					X			-	No action	No known data remain	Rabich and Reger 78,79	
TNX-Find	AS 118(T-8)	X					X			-	No action	No further data remain	80	
NAB-015	EMS 29P-1A (AS 126)	X							X	?	Test	Data remain, data to be directly affected	79	
NAB-018	AS 127			X	X					-	No action	Modern	AHRS 80	
NAB-017	AS 127	X							X	?	Test	Data remain, private land, ? partially historic	AHRS 80	
NAB-016	AS 127	X			X					-	No action	Modern	AHRS 80	
NAB-022	AS 128			X		X				+	No action	Off project area, data remain	Cook 81 (BLM)	
NAB-021	AS 129	X							X	?	Test	Insufficient data to evaluate	Cook 81 (BLM)	
NAB-020	AS 130		X						X	?	Test	Data remain, indirect impact likely during construction	Cook 81 (BLM)	

\*Sites are placed north to south.

\*\*"AS" refers to NWA Alignment Sheets (March 1981).

\*\*\*"Aly" indicates years associated with Alyeska pipeline project.

Thirty-three resources contain insufficient information to render an opinion of eligibility at this time. (An additional 10 off the project contain insufficient data for an assessment.) Some 66 resources reviewed are not, in the authors' estimation, of Register quality. That is, they do not contain data which will provide insight(s) into local or regional history of prehistory. Most of these are finds without context, or are sites that have been previously excavated or destroyed through earlier construction activities.

Of relevance to the sponsor for management considerations, 10 cultural resources are identified from the surveys which contain information and which are potentially threatened with adverse impact (directly and indirectly, as described above) by NWA construction plans. It is suggested to the sponsor and to the reviewing agencies that sufficient data exist at these localities to seek determinations of Register eligibility at this time. In these 10 cases the sponsor and agencies need to coordinate the development of a management program.

In 31 cases where insufficient information is available to render an opinion on site significance and where the potential resource is endangered by proposed construction activities, it is recommended that additional testing or analysis of existing data be undertaken during the next field season in order to plan for their management. There are 83 cases for which it is recommended that no further action be required or taken. These include sites for which no information potential is present, and 17 which contain data but lie well outside the project boundaries.

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**APPENDIX 1**

**FIELD PERSONNEL 1981**

## APPENDIX 1

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\*Crew Chief

**APPENDIX 2**  
**SITE REPORTS 1981**

Alaska State Site No.: SAG-Find 1

(1981 Field No.: AS012-1-L)

University of Alaska Museum Accession No.: UA81-130

Location:

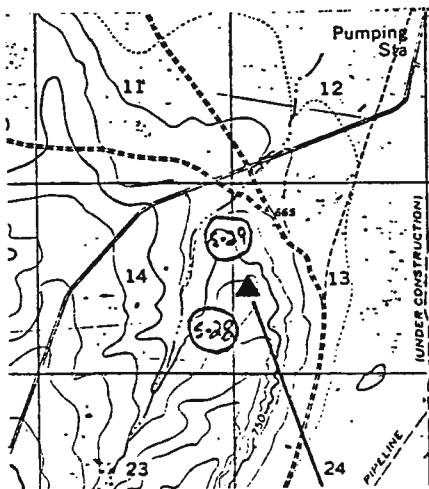
Latitude: 69° 26' 28"

Longitude: 148° 36' 00"

UTM Coordinates: (Zone 6), 437300 E; 7704200 N  
SAG B-3 quadrangle

Section, Township, Range: NE/4 of NW/4 of NW/4 of SW/4, Sec. 13,  
T1N, R14E (Umiat Meridian)

General: SAG-Find 1 is located on the middle knoll at the north end of the Sagwon Bluffs, 1.56 miles southwest of Alyeska Pump Station 2 and 3100 ft south of the Dalton Highway.



Environmental Setting

SAG-Find 1 is located on a knoll at the northern end of a series of bluffs composed of folded metamorphic and metasedimentary rocks. These bluffs rise 1000 to 1500 ft above the surrounding tundra and floodplain of the Sagavanirktok River, affording an excellent view of at least 50 miles in all directions but the south. The surface of the site is covered with generally exposed sand and gravel with patches of thin vegetation. Frost shattered slabs of rock also occur in a discontinuous manner.

Caribou, grizzly bear, fox and squirrel occur locally, and noteworthy avifauna comprise gyrfalcon and rough-legged hawk. The Sagavanirktok River lies approximately 1 mile away to the east.

### Survey Methodology

The site was surveyed as an extra-curricular event in an attempt to verify the locations of SAG-005 and site S-29 formerly investigated by Alyeska archaeologists, and evaluate present site status. The find locality was ground inspected and mapped.

### Site Description

The find is located about midway along an elongate knoll (600 ft north-south and 80 ft. east-west) (Fig. 6). The find consists of a complete end blade of greenish-brown chert (UA81-130-1; Fig. 5). Workmanship on the specimen is excellent. The end blade was situated with no context on the surface of a patch of stabilized vegetation among the sand and gravels near the bluff edge. Several fragments of caribou bone were scattered nearby along the northeast edge (Fig. 6), and may reflect human activity. Another find was located near the southern end of the bluff (Fig. 6), consisting of a worked chunk of blue-green chert. The two finds are apparently without context and limited testing revealed no additional surficial or subsurficial materials.

As time on-site was short, however, additional cultural materials may still be extant. The "linear arrangement of shattered rock slabs" shown in Figure 6 were tentatively identified as a variation on the classic Eastern Arctic, Paleo-Eskimo 'mid-passage structure,' commonly found in Pre-Dorset and Early Dorset sites in Labrador. In addition to a hearth area/interior pavement of slabs, these features also commonly incorporate a box-like hearth with an outer rim of 'tie-down' stones. The site, however, did not exhibit these architectural features, and the feature noted may well be the remains of frost shattered boulder. However, no intact boulders are presently on the site. In addition, the Labrador slabs commonly have lithic waste flakes and tools associated with them, but no such materials were noted at SAG-Find 1. It is possible that such materials may have been collected during earlier surveys. In any event, these features need to be re-examined to provide a definitive interpretation.

There is some doubt as to the true location of sites SAG-005 and S-29 described earlier by Alyeska archaeologists, and as to whether SAG-Find 1 may in fact be one of them. SAG-005 (a 'Kavik' hearth and chipping station) was described as, "located on the northern tip of a series of crustally upwarped ridges...situated near the most northerly point of the bluffs, roughly 3/4 of a mile west of [the Alyeska pipeline]... The view to the south being blocked by the rising bluffs themselves" (Derry in Cook 1970:123). This suggests that SAG-005 may be on the next ridge/bluff 1300 ft to the southeast of SAG-Find 1. Site "S-29"

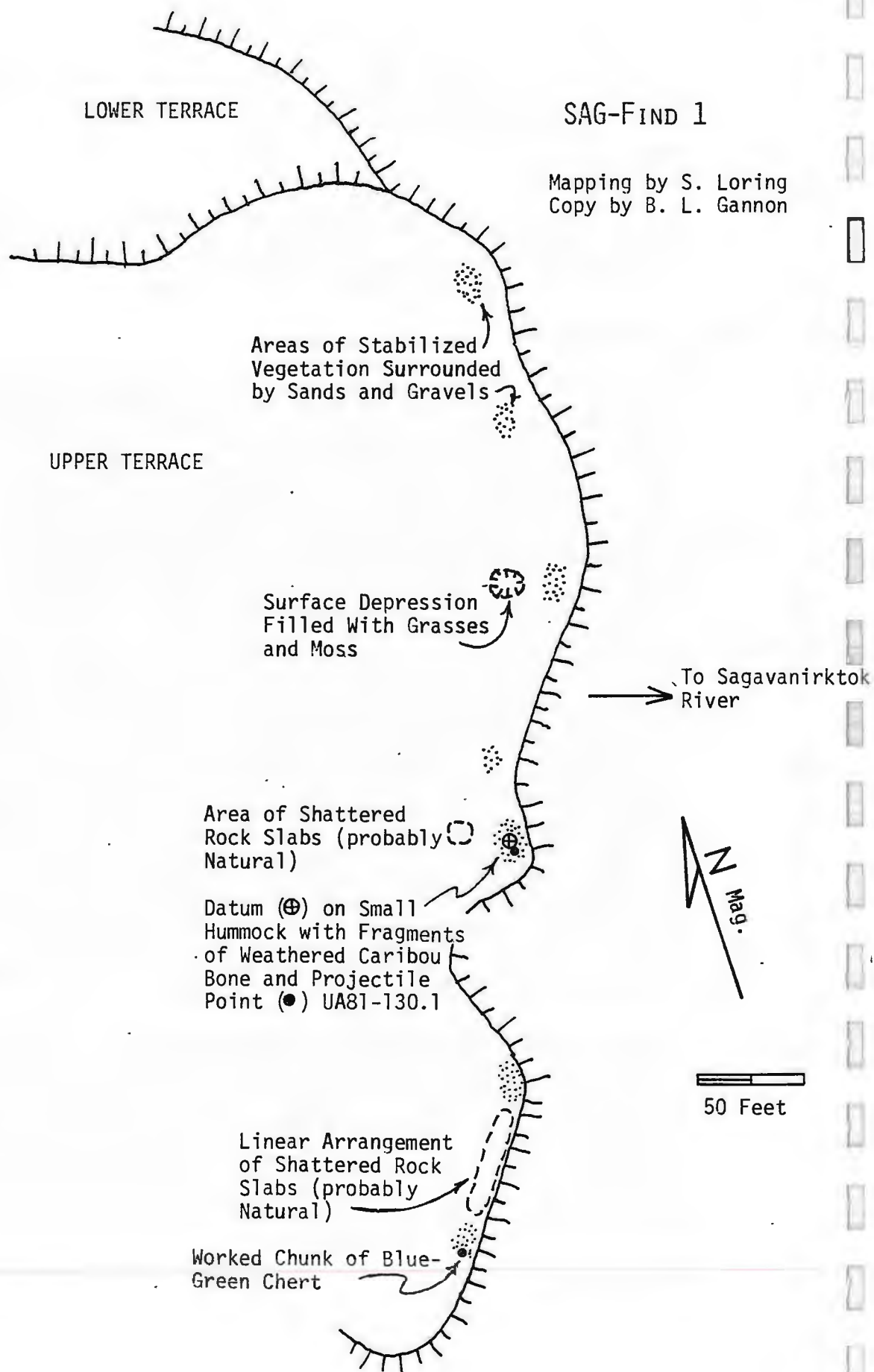


Figure 6.

is described as, "located on the northernmost knoll of the Sagwon Bluffs, just west of [the Alyeska pipeline]..." (Harris? in Cook 1970:132), suggesting a location on the knoll 2000 ft northwest of SAG-Find 1.

#### Impact

The site is well outside the project area and is not affected.

#### Significance

The site lies in a culturally high potential area and is associated with other nearby archaeological sites with Arctic Small Tool tradition assemblages. There are probably additional cultural materials extant even though those recovered in 1981 have no cultural context.

#### Recommendation

No further action.

Alaska State Site No.: SAG-006 (addendum)

Formerly known (in part) as Alyeska archaeology site S-9.

University of Alaska Museum Accession No.: UA80-242

Location:

Latitude: 69° 09' 23"

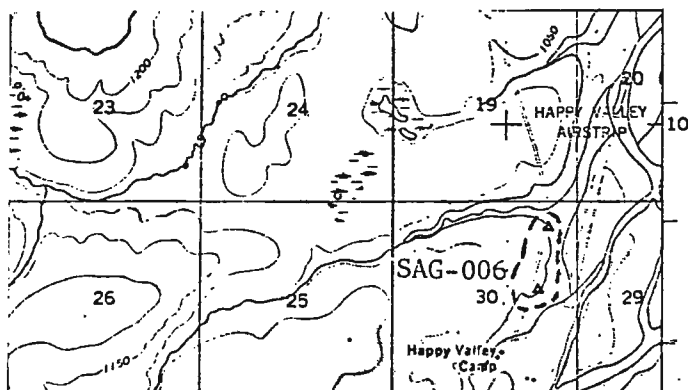
Longitude: 148° 49' 36"

UTM Coordinates: (Zone 6), 427495 E; 7672690 E  
SAG A-4 quadrangle

Section, Township, Range: W/2 of E/2 of NE/4, Sec. 30, T3S, R14E  
(center of site) (Umiat Meridian)

General: The site lies along a 2900 ft long, 50 ft high terrace remnant of the Sagavanirktok River, immediately north of Happy Valley Camp. The haul road passes through the observed limits of the site.

The original location of the site (S-9) is described as "...located on a small gravel till knoll roughly one-half mile north of the [Happy Valley Camp]," (Derry in Cook 1970: 95). This knoll is the dominant high near the southern end of the terrace.



Environmental Setting

The terrace upon which the site is located marks the contact between the Sagavanirktok River floodplain to the east and the piedmont region of frozen upland silts overlying older till deposits to the west. The terrace is 1250 ft west of the present Sagavanirktok River and is bordered to the north by Milke Creek and the south and east by Happy Valley Camp Creek. Numerous, low relief knobs (a few feet high) occur along the terrace edge and are void of any significant vegetation



and veneered with abundant frost-shattered rock debris. A lower, secondary terrace lies 20 ft below (to the east) of the main terrace (Fig. 7). In both locales, an excellent vista of the Sagavanirktok River floodplain is available.

Vegetation in the area comprises cotton grass, cloud berry, bear berry, purple plume, narrow leaf saussurea, labrador tea, yellow dryas, kinnikinnik, tall Jacobs ladder, large flowered wintergreen, monks hood, Alp lily, arctic bell heather, bog rosemary, reindeer moss (lichen), arctic dock, fireweed and dwarf fireweed. Tussocks are locally common.

Animal life observed comprise owl, ptarmigan and jaegers. Sign of caribou, wolf and bear is present.

### Survey Methodology

The site area was routinely surveyed in conjunction with archaeological survey along a segment of the proposed NWA gasline in 1980. At this time, thirty test pits were placed in various localities along the terrace with negative results.

A few days later, with the impression that the area had at least moderate cultural resource potential, the terrace was re-visited, and an additional twenty test pits were placed, primarily at the southern and northern ends, yielding two flakes of black chert. The northern flake (UA80-242-1) was found 125 ft from the terrace's northern edge above Milke Creek and 220 ft east of the haul road. The other flake (UA80-242-2) was found 1875 ft south of the northern edge and 150 ft east of the haul road. Although sparse, the occurrence of these lithic remains encouraged yet another visit while doing other work in the vicinity. Twenty additional test pits were placed in the more southerly find area with an additional flake (UA80-242-3) located 1500 ft south of the northern edge and 200 ft east of the haul road. All three flakes were found 2-3 inches below the surface in a rich, very dark brown organic zone underlying the sod.

To fully confirm that the locality had no further cultural loci, SAG-006 was again intensively tested in 1981. The southern part of the terrace was mapped and 24 2 ft square test pits were placed at various points (Fig. 7). The northern part of the terrace was surveyed by spaced walking (20 ft apart) and frequent shovel testing.

### Site Description

The site is on a gently rolling terrace, and has been described above. It has vague limits, but the main apparent focus seems to occur around the knoll originally described as SAG-006 (S-9). The haul road now effectively bisects this knoll.

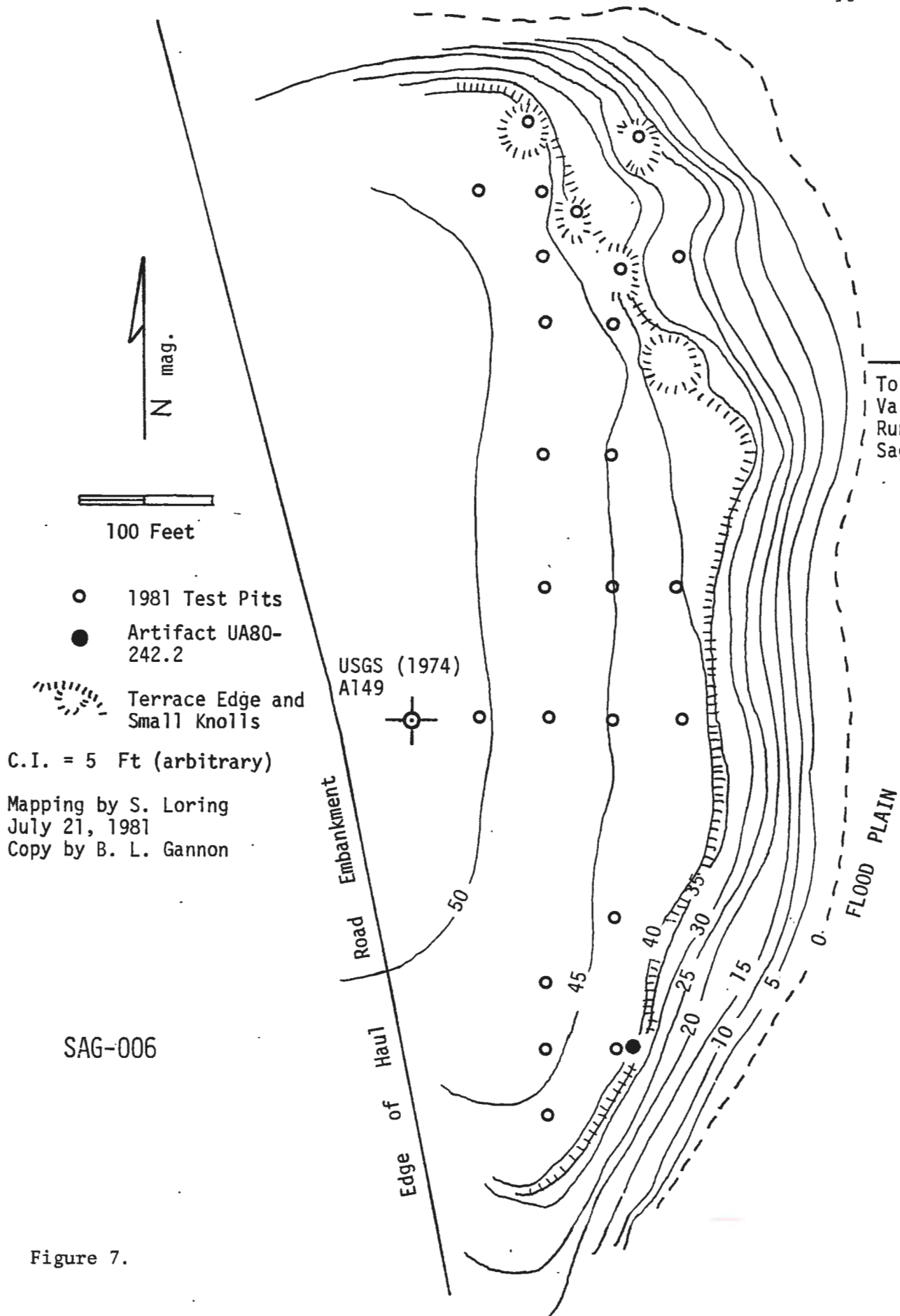


Figure 7.

Cultural materials. The 1980 cultural materials have been discussed above. Derry (Cook 1970:95) found one piece of possibly saw-cut bone from the knoll locality and inferred it to be the work of "very recent hunters." At this time no other cultural material was recovered from testing in the area. No further materials were located in 1981.

Stratigraphy. A generalized stratigraphic format along the terrace consists of a 2-5 inch vegetation/sod layer overlying a 3-4 inch thick, dark humic silt ("cultural" zone) which in turn overlies a yellowish 'clay' of indeterminant thickness with scattered sub-rounded pebbles. Frozen ground appears locally at depths of 6-10 inches.

### Impact

The haul road presently cuts the site or at least comes very close to it. The proposed NWA gasline route lies adjacent to the haul road on its eastern site, thereby posing potential direct impact. As the limits of the site are ill-defined, however, it is difficult to accurately assess potential damage through gasline construction activities. Cultural materials appear to be sparse, and construction related activities pose little immediate threat to any cultural resource.

### Significance

Because of the scant observed artifacts and their wide dispersal, it is difficult to assess the significance of SAG-006. The terrace and its setting are considered as high potential for cultural resources, but extensive testing has revealed no discrete cultural loci. The located materials appear to be unrelated.

### Recommendation

SAG-006 may contain archaeological information but intensive testing has not been demonstrative. We recommend no further action.

Alaska State Site No.: PSM-Find 3

(1981 Field No.: AS019-2-L)

University of Alaska Museum Accession No.: UA81-132

Location:

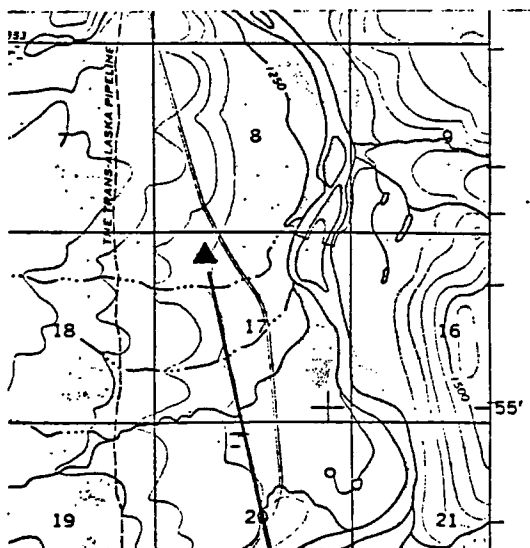
Latitude: 68° 55' 43"

Longitude: 148° 51' 27"

UTM Coordinates: (Zone 6), 425420 E; 7647295 N  
PSM-D-4 quadrangle

Section, Township, Range: NE/4 of SE/4 of NW/4 of NW/4, Sec. 17,  
T6S, R14E (Umiat Meridian)

General: PSM-Find 3 is located along an ephemeral stream channel,  
3400 ft north of Polygon Creek and 500 ft west of the  
Dalton Highway.



Environmental Setting

The site is located on a well-drained 5 ft high knoll (kame terrace remnant?) along an ephemeral stream channel. The overall area is arctic rolling prairie/tundra and locally part of the old Sagavanirktok River floodplain. A view of several miles is afforded from the knoll and the Sagavanirktok River lies 0.3 miles away to the east. The knoll is vegetated sparsely with moss and crowberries. Caribou, moose, grizzly bears, ground squirrels, fox, and golden plovers are present in the vicinity.

### Survey Methodology

The site was located as an extra-curricular event while investigating areas of high cultural resource potential near the scheduled survey areas. The site was carefully surface inspected and twelve test pits were excavated.

### Site Description

The site consists of a single find without context, a grey chert flake, situated on the knoll surface. Further testing revealed no additional materials on or below the surface.

### Impact

The site is outside the project area (ca. 1000 ft east of the proposed NWA centerline), and will not be affected by construction.

### Significance

PSM-Find 3 is an isolated find without context. The data have been collected, and no further data remain.

### Recommendation

No further action.

Alaska State Site No.: PSM-196

(1981 Field No.: AS019-1-L)

University of Alaska Museum Accession No.: UA81-131

Location:

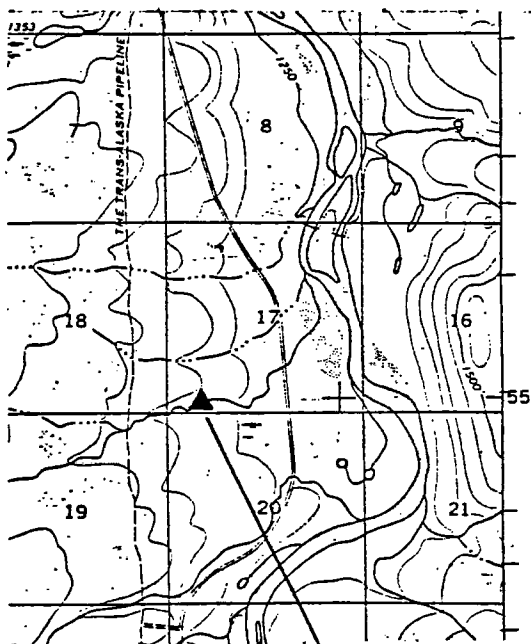
Latitude: 68° 55' 00"

Longitude: 148° 51' 40"

UTM Coordinates: (Zone 6), 425240 E; 7646000 N  
PSM D-4 quadrangle

Section, Township, Range: SE/4 of SW/4 of SW/4, Sec. 17, T6S, R14E  
(Umiat Meridian)

General: PSM-196 is located on the north side of Polygon Creek, 180 ft east of the proposed NWA gasline corridor centerline, and 2500 ft due west of the Dalton Highway.



Environmental Setting

PSM-196 lies about 280 ft north of Polygon Creek, on a small terrace projection rising 33 ft above the creek. The local environment consists of gently rolling tundra, and views from the site extend at least 3 miles. Local drainage direction is to the north and east. The Sagavanirktok River lies within one mile to the east. Dominant vegetation comprises dwarf willow, scrub alder, mosses, lichens, grasses, and berries. Caribou and moose were observed in the area.

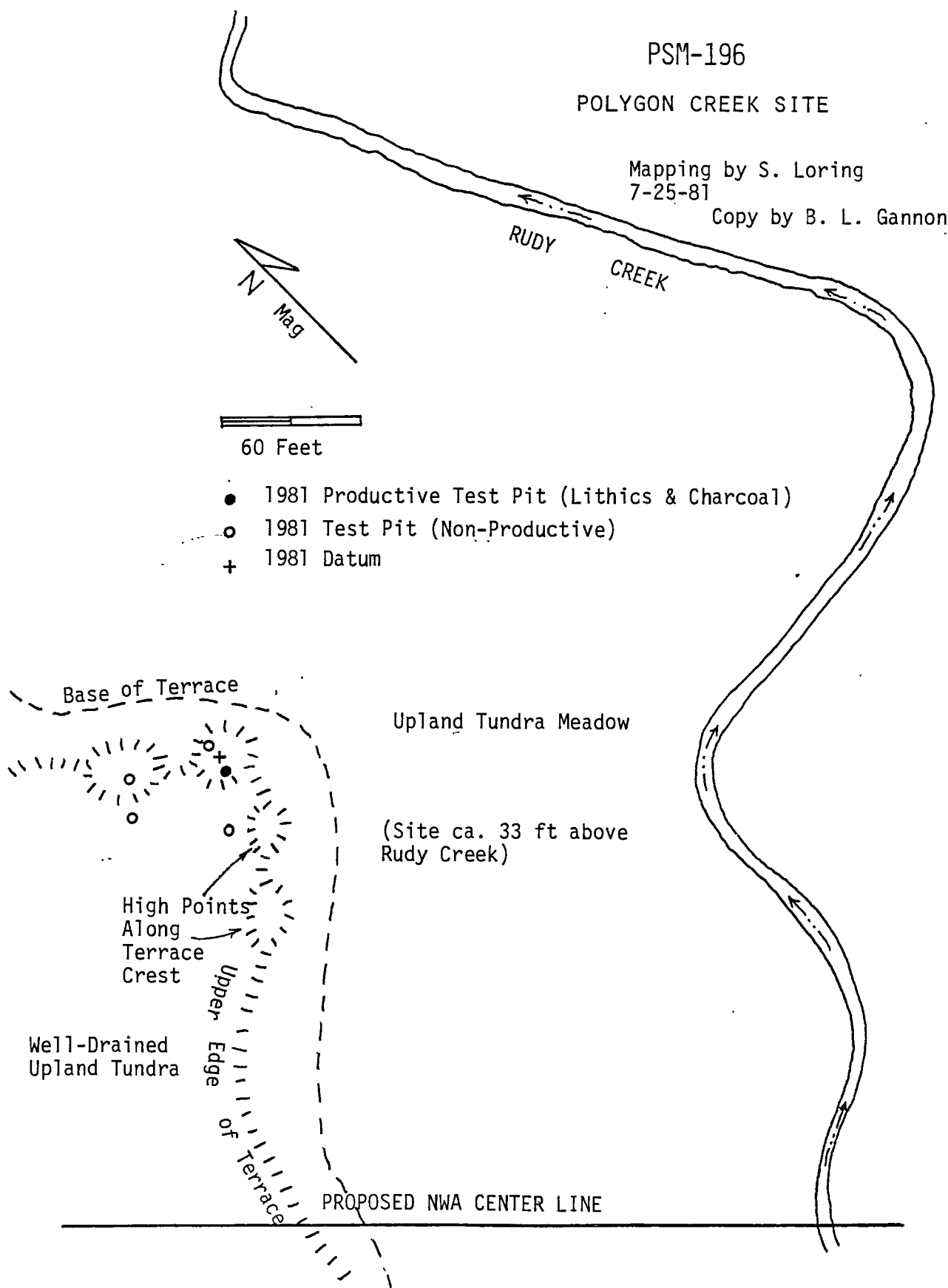


Figure 8.

### Survey Methodology

PSM-196 was located during routing archaeological survey along the proposed NWA centerline. The site was mapped and five subsurface test pits were placed (Fig. 8).

### Site Description

PSM-196 is located on a small terrace projection (20 x 30 ft), above Polygon Creek. Of the five test pits placed in this locality, only one (Fig. 8) was productive. Here, a feature comprising numerous small, grey chert waste flakes was noted. Fifty-seven flakes were collected for analysis.

Stratigraphy. The general site matrix is composed of brownish, poorly sorted, fluvial sediments, overlain by a thick mat of vegetation and humus up to 18 inches thick in places. Permafrost occurs locally beneath the vegetative mat. Some charcoal flecks are present in the matrix.

### Impact

The site is within the proposed centerline corridor and is threatened by construction.

### Significance

PSM-196 is apparently a briefly occupied, single component site. Further data, while probably limited, are still extant. The site is potentially eligible for inclusion on the National Register of Historic Places.

### Recommendation

Additional testing is recommended.



Alaska State Site No.: PSM-Find 4

(1981 Field No.: AS019-3-L)

University of Alaska Museum Accession No.: UA81-133

Location:

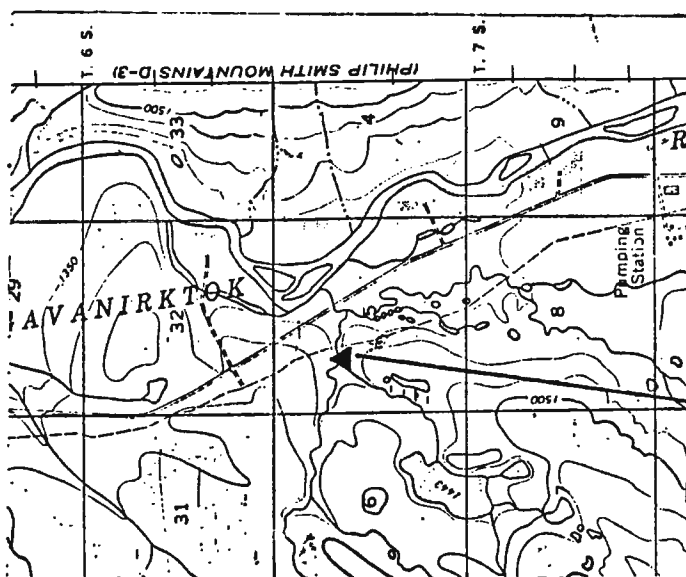
Latitude: 68° 52' 02"

Longitude: 148° 51' 22"

UTM Coordinates: (Zone 6), 425300 E; 7640460 N  
PSM D-4 quadrangle

Section, Township, Range: SW/4 of NW/4 of SE/4 of NW/4, Sec. 5,  
T7S, R14E (Umiat Meridian)

General: PSM-Find 4 is located along the south side of Rudy Creek, 375 ft west of the Alyeska pipeline and 250 ft east of the proposed NWA centerline (Rev. 3).



Environmental Setting

The site is on a low relief knoll ca. 6 ft above the level of the active Rudy Creek. The knoll is one of several located along the Rudy Creek terrace. The local environment consists of arctic rolling tundra with primary drainage towards the north (Sagavanirktok River 0.5 miles to the east), and secondary drainage towards the east. Some medium-size lakes lie nearby to the southwest. A view of several miles is available from the site. On-site vegetation consists of patchy scrub willow and alder, lichens and mosses. Dense stands of alder occupy the nearby floodplain. Fauna comprises moose, caribou, and ground squirrel.

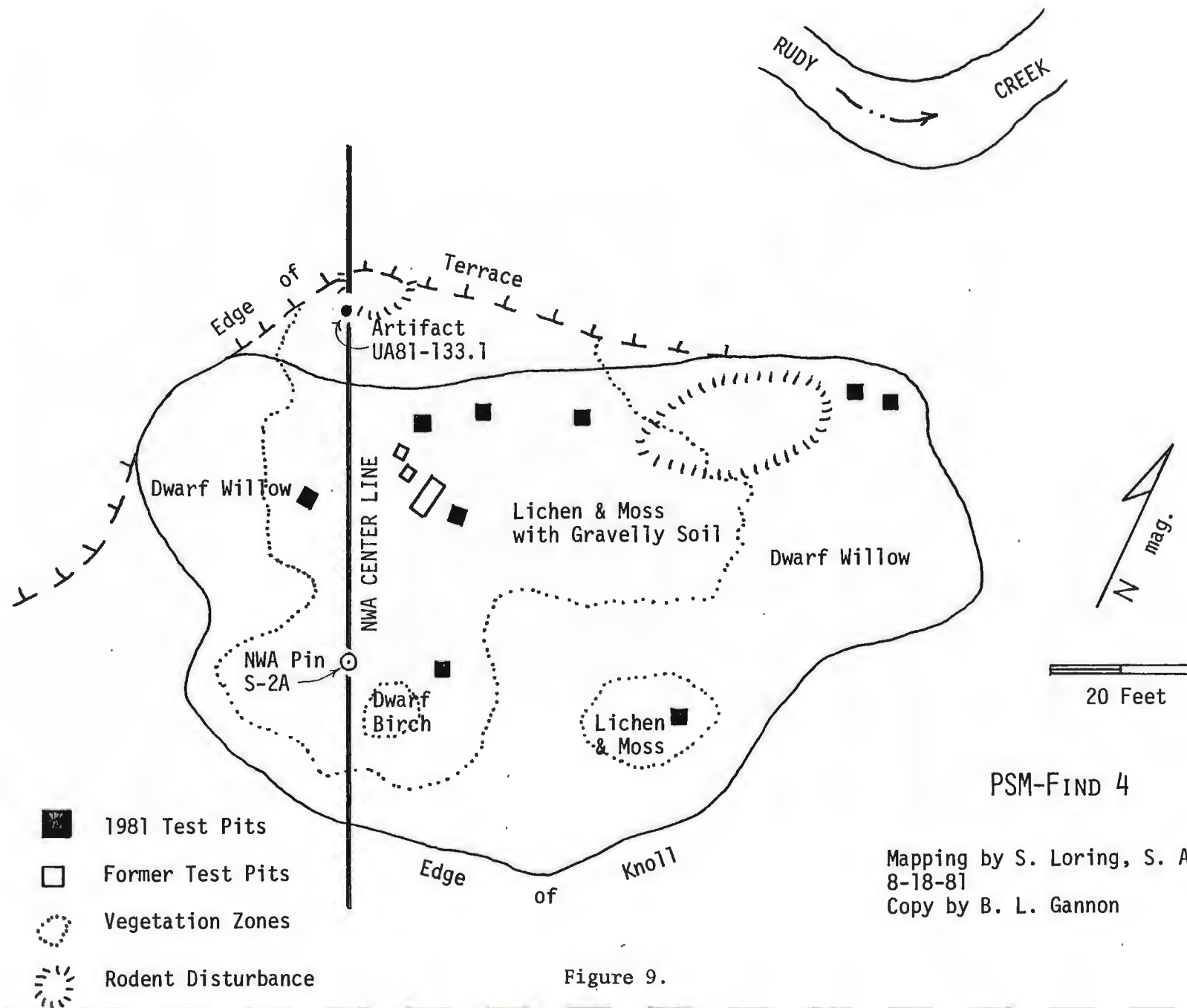


Figure 9.

### Survey Methodology

PSM-Find 4 was located during routine archaeological survey along the proposed NWA centerline. On-site inspection consisted of five persons conducting intensive ground coverage and subsurface testing by shovel and trowel. A minimum of nine 24 x 24 inch test pits were placed around the site. All frost boils and other exposed areas were inspected as well. None of the test pits were productive. Testing on the adjacent knolls also had negative results.

### Site Description

PSM-Find 4 is defined by the presence of a single black chert flake found on the northern edge of the knoll in the disturbed context of rodent burrow throw-out (Fig. 9). The knoll itself covers about 8800 ft<sup>2</sup> (ca. 0.2 acres).

A NWA centerline survey pin #S-2A.R (probably Rev. 1) runs across the western part of the knoll. Three formerly placed 'test' excavations lie in the west-central part of the knoll, the largest of which is 18 x 40 inches and 3 inches deep. These may be earlier Alyeska archaeological tests.

Stratigraphy. The matrix of the site consists of poorly sorted fluvial sediments.

### Impact

PSM-Find 4 is less than 200 ft from the proposed NWA centerline (indicated Rev. 3), and is therefore subject to indirect impact during construction. Ground squirrel activity has affected the knoll to a moderate degree.

### Significance

PSM-Find 4 appears to be an isolated find without context.

### Recommendation

No further data remain and no further action is recommended.

Alaska State Site No.: PSM-Find 8

(1981 Field No.: AS019-4-L)

University of Alaska Museum Accession No.: None

Location:

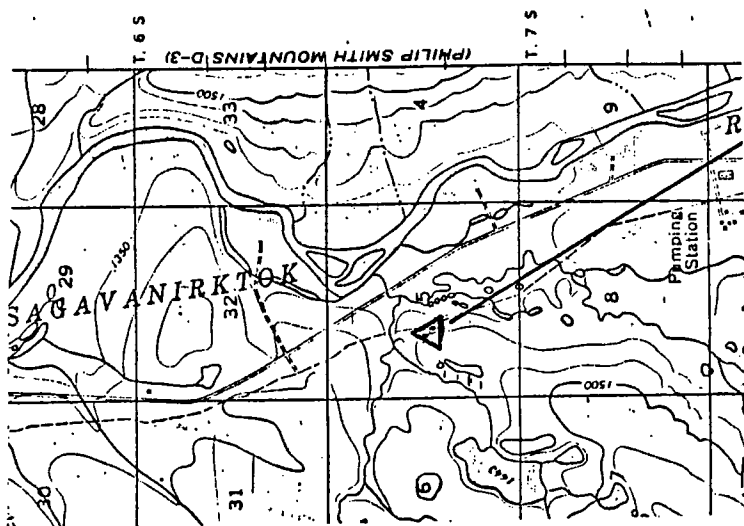
Latitude: 68° 51' 53"

Longitude: 148° 51' 15"

UTM Coordinates: (Zone 6), 425360 E; 7640200 N  
PSM D-4 quadrangle

Section, Township, Range: SE/4 of SW/4 of SE/4 of NW/4, Sec. 5,  
T7S, R14E (Umiat Meridian)

General: The site consists of two small knolls, 250 ft apart, on an upper fluvial terrace, ca. 1150 ft southwest of the confluence of Rudy Creek and Lower Oskrukuyik Creek. The Alyeska pipeline lies ca. 250 ft to the east and PSM-Find 4 is ca. 625 ft away to the northwest.



Environmental Setting

The site is situated on a stream terrace within an arctic rolling tundra environment cut and shaped by the Sagavanirktok River, 0.5 miles to the east. Several small streams including Rudy Creek and Lower Oskrukuyik Creek are close to the site, and a number of medium sized lakes are within 1.0 miles to the southwest. Ground squirrel activity and predatory grizzly bears have affected the knoll tops.

### Survey Methodology

The site was encountered while approaching the proposed NWA centerline segment to be surveyed. As the knolls were felt to have some cultural resource potential, they were duly surface inspected and tested.

### Site Description

The site encompasses two small but distinct knolls, spaced ca. 250 ft apart in a northwest-southeast direction. A single chert flake was found on each knoll. Testing and careful scrutiny revealed no additional materials.

### Impact

The site lies 450 ft to the east of centerline and is not threatened by construction. Squirrel and bear activities have significantly churned up parts of each knoll.

### Significance

The site consists of two isolated finds without apparent archaeological context. The flakes were not collected.

### Recommendation

No action. The site is outside the project area and has been documented.

Alaska State Site No.: PSM-Find 5

(1981 Field No.: AS020-1-L)

University of Alaska Museum Accession No.: UA81-134

Location:

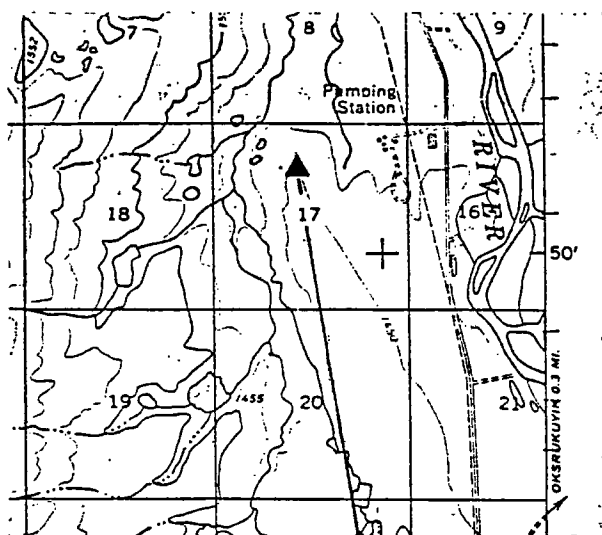
Latitude: 68° 50' 25"

Longitude: 148° 50' 58"

UTM Coordinates: (Zone 6), 425445 E; 7637435 N  
PSM D-4 quadrangle

Section, Township, Range: SW/4 of SE/4 of NE/4 of NW/4, Sec. 17,  
T7S, R14E (Umiat Meridian)

General: PSM-Find 5 lies on the northern end of an old terrace 1500 ft southeast of lower Oskrukuyik Creek and ca. 3000 ft west-southwest of the center of Alyeska Pump Station 3.



Environmental Setting

The site lies on a terrace remnant of a glacial outwash plain cut by the Sagavanirktok River. The terrace rises 7-10 ft above the surrounding Sagavanirktok floodplain. Overall, the area is one of low relief. Several active streams, including lower Oskrukuyik Creek and Margaret's Marsh Creek occur locally, and marshes, lakes and the Sagavanirktok River lie within one mile of the site. The significant 'Ribdon Site' (PSM-060) lies on the same terrace two miles to the southeast.

### Survey Methodology

PSM-Find 5 was located during routine archaeology survey along the proposed NWA centerline. The general vicinity of the find was subsequently scrutinized and at least ten subsurface tests were placed. In addition, adjacent parts of the terrace were also investigated.

### Site Description

The site consists of a single 'blade' core of black chert (Fig. 5), 1.7 x 2.0 inches, without apparent archaeological context. The core was found on the surface. Testing revealed no other cultural materials whatsoever. However, it was noted by the field party supervisor that the area is high in cultural resource potential, and additional undisclosed materials/sites may be present along the terrace.

### Impact

The find spot lies on centerline and will be affected by construction.

### Significance

PSM-Find 5 is an isolated find without archaeological context. The find was collected (UA81-134-1) and no further data apparently remain. The entire terrace edge has at least some cultural resource potential however, and undisclosed loci may be present.

### Recommendation

No action; no further data remain.

Alaska State Site No.: PSM-197

(1981 Field No.: AS021-1-L)

University of Alaska Museum Accession No.: UA81-135

Location:

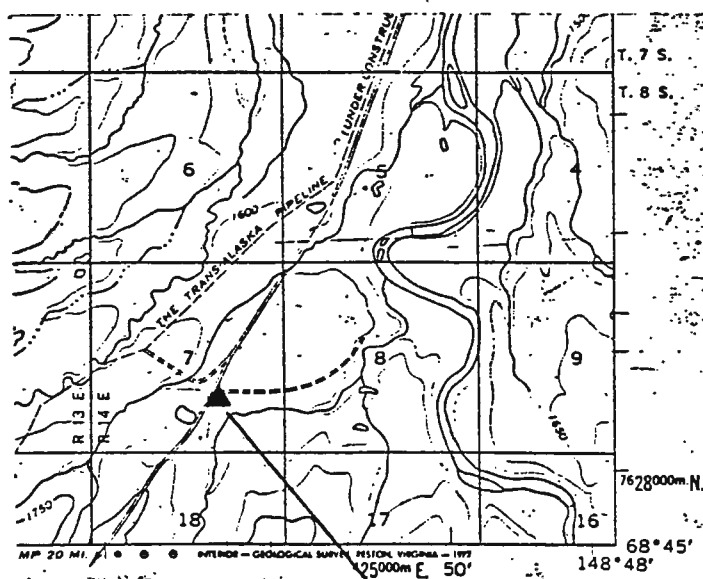
Latitude: 68° 45' 40"

Longitude: 148° 52' 48"

UTM Coordinates: (Zone 6), 423950 E; 7628700 N  
PSM D-4 quadrangle

Section, Township, Range: SE/4 of NW/4 of SE/4, Sec. 7, T8S, R14E  
(Umiat Meridian)

General: PSM-197 is located adjacent to the junction of the Dalton Highway and the Fluor Slope Mountain Camp access road. The site is 'east' of the Dalton Highway and 'south' of the access road.



Environmental Setting

The local environment is a broad arctic rolling tundra consisting of glacial sediment and old floodplain deposits of the Sagavanirktok River (one mile to the east). Relief is generally low, and many kettles and ponds, bogs and knolls dot the landscape. Vegetation comprises scrub alder, dwarf willow, grasses, lichens and mosses.



The site is situated on a low ridge-like kame terrace overlooking the northern end of a bowl-shaped depression ca. 0.25 miles in diameter. The terrace extends 680 ft east-west and is 180 ft wide. Its relief is about 10 ft above the tundra and depression to the south. A small kettle, surrounded by a bog, lies directly below the terrace to the south.

### Survey Methodology

PSM-197 was found during routine archaeology survey of the proposed NWA gasline in 1981. Upon discovery, the site was intensively ground-inspected, described, mapped and photographed. Some representative artifacts were collected from the surface. Minimal subsurface testing was conducted.

### Site Description

PSM-197 is projected to cover an area 300 ft north-south and 680 ft east-west (4.7 acres), but cultural materials appear to be distributed in fairly discrete clusters within this area, suggesting several components or activity loci. The site lies immediately adjacent to the Slope Mountain Camp access road and the Dalton Highway, and evidently was originally found and described by Glen Bacon (pers. comm. 1981) during the Alyeska archaeological project. Reports or data from that survey, however, are not located at this time.

The major foci comprise a modern? 'tent ring' and associated caribou limbs, a somewhat dispersed cluster of flakes and blades (UA81-135-1 to 5; collected), and a small flake concentration 730 ft east of the Dalton Highway (Fig. 10).

Stratigraphy. The site surficial stratigraphy comprises 1.5 inches humus underlain by tan silt with admixed cobbles which increase in number down to 12 inches. No permafrost was encountered.

### Impact

PSM-197 lies in the main, within the proposed NWA corridor, and is directly affected by construction. Indirect impact, including trampling and possible collecting, is likely from nearby camp personnel.

### Significance

The site has extant data and lies in an important archaeological area (Gallagher Flint Station/PSM-050 lies two miles to the south). Information regarding prehistoric land and resource use and settlement patterns is retrievable at PSM-197.

### Recommendation

Further testing at PSM-197 is recommended.

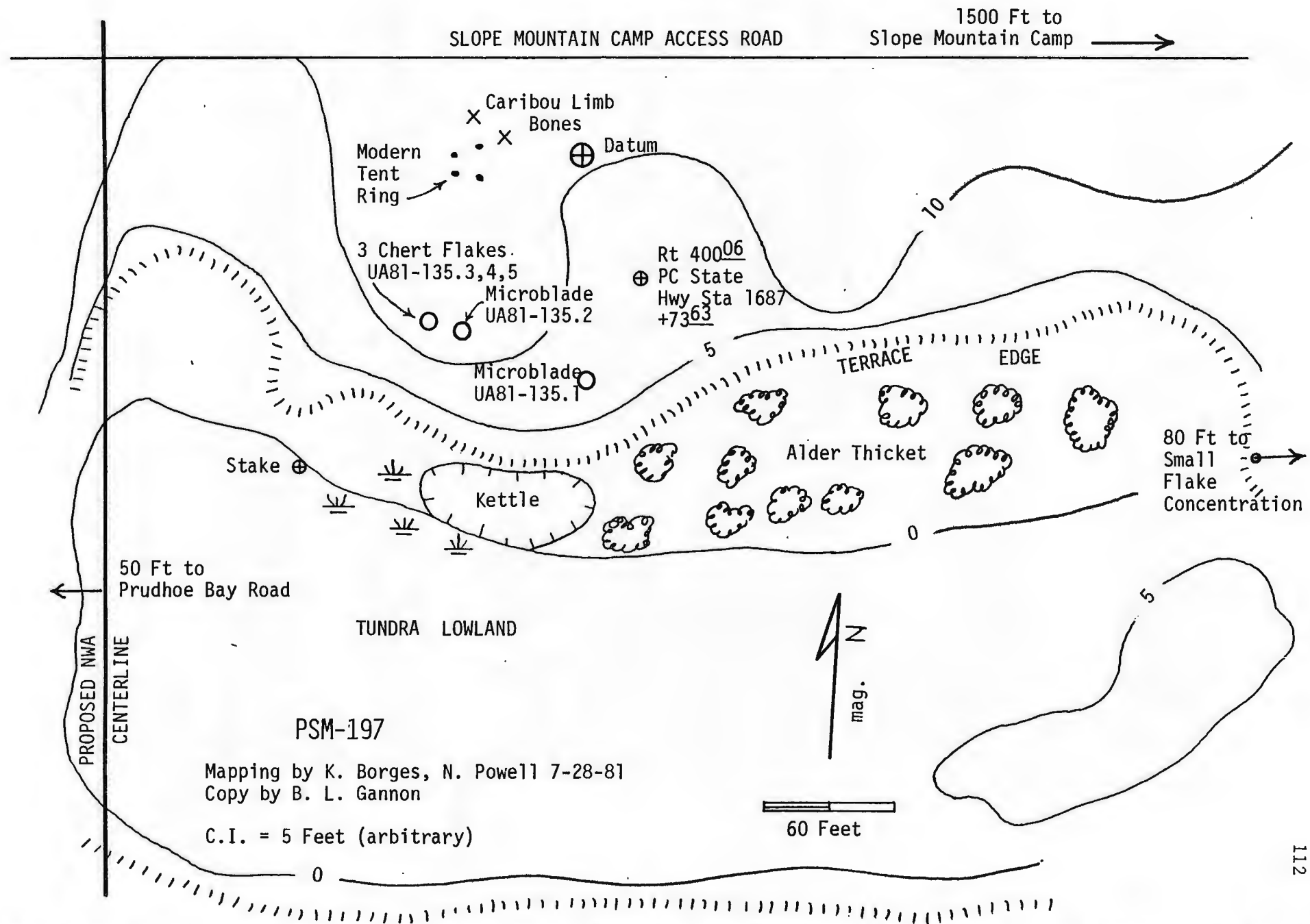


Figure 10

Alaska State Site No.: PSM-001

(1981 Field No.: AS021-2-L)

University of Alaska Museum Accession No.: UA81-136

Location:

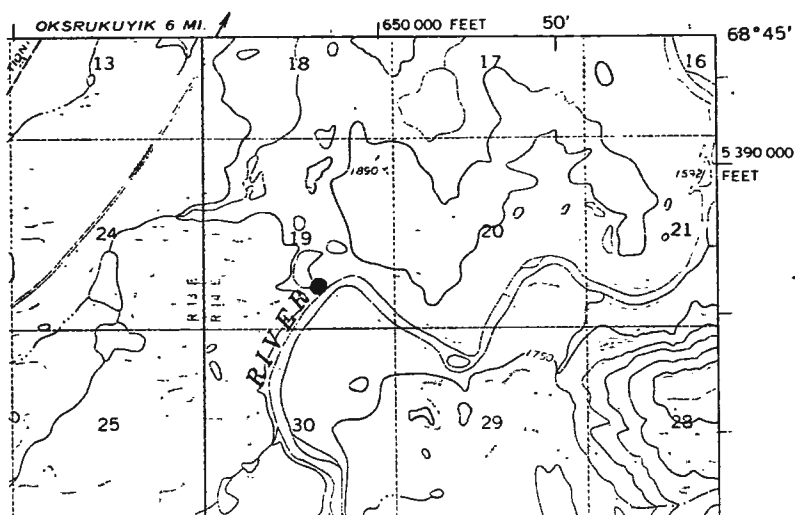
Latitude: 68° 43' 54"

Longitude: 148° 52' 52"

UTM Coordinates: (Zone 6), 423800 E; 7625365 N  
PSM C-4 quadrangle

Section, Township, Range: NE/4 of NW/4 of SW/4 of SE/4, Sec. 19,  
T8S, R14E (Umiat Meridian)

General: PSM-001 lies along the western edge of the Sagavanirktok River, near the southern tip of a crescent-shaped lake, 2.08 miles due south of the Slope Mountain camp access road junction.



Environmental Setting

The site is situated on a remnant terrace of the Sagavanirktok River, 83 ft above the river. The terrace is almost an island of higher relief as it is bordered on the south by the Sagavanirktok River, on the west and north by a kettle pond and on the east by another small kettle and an eroded channel now poorly drained and filled with wet tundra vegetation. The terrace forms part of the southern border of an area of kame and kettle topography. The terrace top is a slightly undulating nearly level plain approximately 12000 ft E-W/600 ft N-S. The tent-ring is situated near the center of the southern edge of the terrace,

50 ft back from the steep drop down to the river. Much of the terrace top has exposed pebbly soils with a thin lichen and moss cover. The steep bank down to the river supported a stand of low (3 to 5 ft) scrub alder.

Parka squirrel dens are scattered about the top of the terrace and several caribou and an uncommonly large grizzly bear were observed from the site. The only bird life on the terrace itself were Lapland longspurs. There were Lesser scaup, northern Phalaropes, and horned grebes in the kettle lakes.

Not only is the site area exposed to prevailing northern and southern winds (consequently providing relief from mosquitoes) but it affords a commanding view to the west (two miles to the base of Slope Mountain) and to the south (over the flood plain and the Accomplishment Creek Valley) and partially to the jumbled kame topography of the country north of the site.

### Survey Methodology

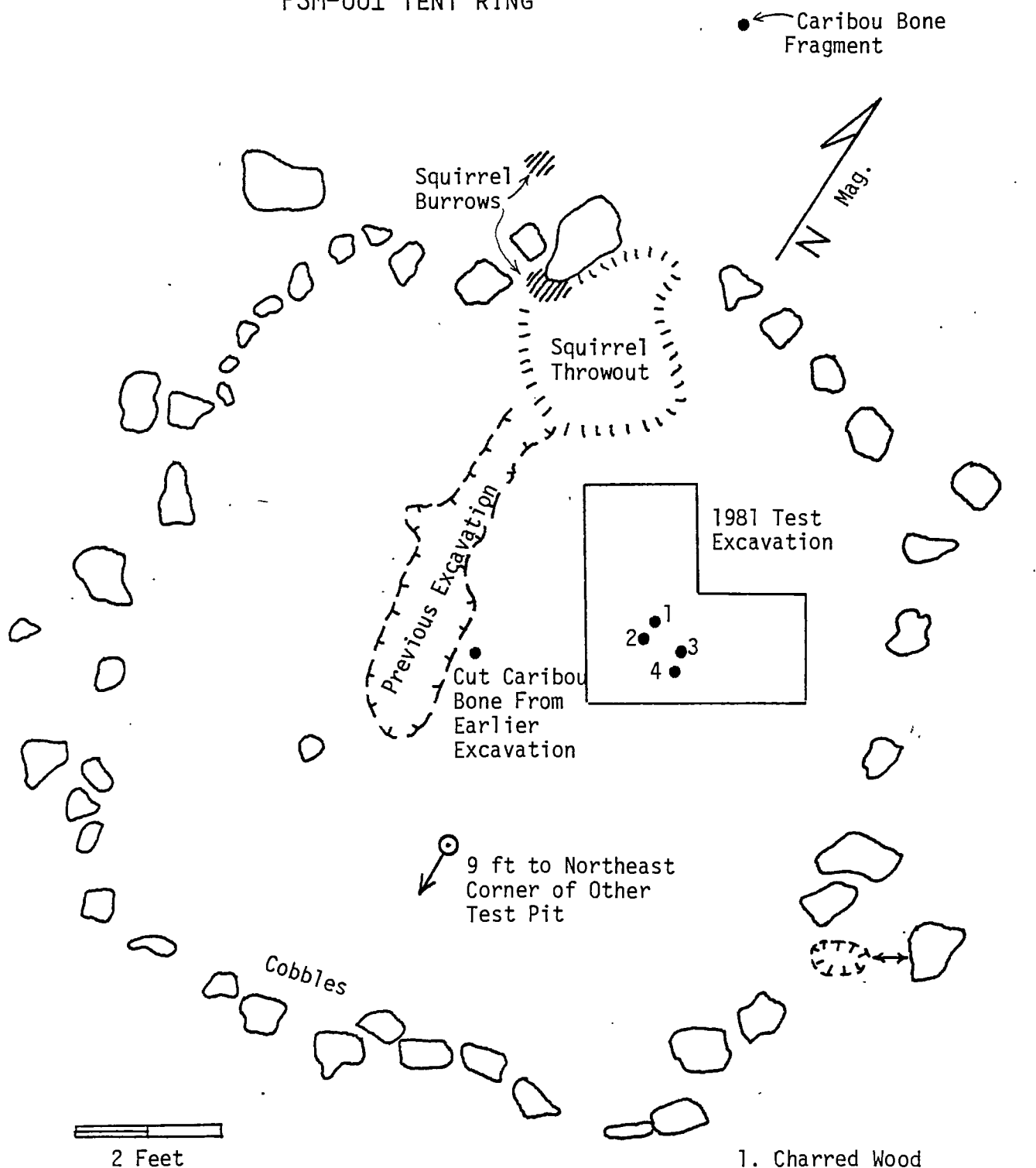
The site was located during an intensive survey of the kame terraces and kame knolls (situated between the haul road and the Sagavanirktok River) that are the dominant topographic features between Slope Mountain camp and Slope Mountain to the south. After the site was located the tent ring was gridded and mapped. Two test pits were excavated, one inside the tent ring and one outside, approximately 5 ft to the south between the structure and the possible presence of additional structures, but none were located.

### Site Description

A roughly square tent ring (Fig. 11) nearly 12 ft across was found situated 10 ft north of a shallow alder-filled channel and 50 ft north of the edge of the terrace overlooking the Sagavanirktok River. Parka squirrel dens had partially disturbed the northern periphery of the structure and what appeared to be an old archaeological test pit had been placed in the middle of the tent ring. Both of these areas of disturbance were mapped with the other structure features. It was originally thought that the central disturbance might have been attributed to grizzly bear activity as many of the squirrel dens on the adjacent kames had been destroyed by bears. However, another small rectangular test pit was found 8 ft to the west of the tent ring's west wall. Neither of these two test pits had been filled in.

Two rotted wooden stakes whittled from alder branches were found almost completely covered by vegetation in the shallow alder-filled channel 10 ft in front of the structure. The only other cultural features visible (Fig. 11) were a small cut piece of caribou bone (triangular in shape) from a long bone that had been exposed by the previous excavators, and a fragment of a caribou scapulae, found on the surface 3 ft north of the structure. The structure was completely vegetated. The rocks that defined the structure appeared weathered and were covered with lichen.

## PSM-001 TENT RING



Mapping by K. Borges, N. Powell  
7-28-81  
Copy by B. L. Gannon

1. Charred Wood
2. Charred Wood
3. Bullet UA81-136.4
4. Wooden 'Tent Peg' UA81-136.1

NOTE: Artifacts 1-4  
ca. 0.5 in Below Surface

Figure 11.

While mapping the structure a test pit was excavated in the interior of the tent ring. A cultural layer - the occupation floor - was found immediately below the surface layer of vegetation and black peaty soils at a depth of approximately 0.5 inches or less. Cultural materials recovered included a single large caliber bullet (44-40?), and several fragments of cottonwood and burned wood. The artifacts were mapped and collected and the test pit carefully covered. A test pit (2 x 2 ft) was excavated 5 ft from the southern wall of the tent ring. It proved to be sterile, tan silty soil with cobbles.

This tent ring is probably part of the complex of six tent rings, "S-87", "S-89" and "S-90" (generically numbered as PSM-001) described by Cook (1970:200). However, no maps are available, so it is not possible to know which number, if any, this tent ring should be ascribed. Except for some sharpened sticks in one (S-87), the formerly reported tent rings produced no artifacts.

Stratigraphy. A very thin layer of crowberry and lichen vegetation has an active root zone up to 0.5 inch below the surface. The root zone is characterized by a black organic peaty soil that lies above a layer of dark-brown silty-sandy pebbly soils. Test pits were only excavated to about 2 inches below the surface. The habitation level in the interior of the structure was located approximately 0.5 inches below the surface.

#### Impact

The site lies well outside the project area and is not affected. The locality, however, is frequented by tourists and sportsmen, and is subject to indirect impact.

#### Significance

This tent ring (and probably others nearby) is most likely attributable to an historic Nunamiut occupancy. While cultural materials are limited in these features as a rule, some in situ data remain at this tent ring.

This feature is compatible with the configurations of other tent rings in the area (see PSM-201), and has additional significance in tracing historic Nunamiut settlement patterns.

#### Recommendation

No action; site is outside project area.

Alaska State Site No.: PSM-201

(1981 Field No.: AS024-1-L)

University of Alaska Museum Accession No.: None

Location:

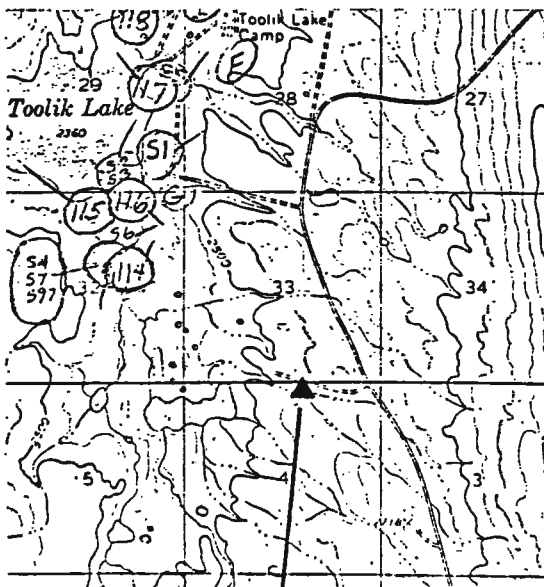
Latitude: 68° 36' 44"

Longitude: 149° 33' 20"

UTM Coordinates: (Zone 6), 395095 E; 7613095 N  
PSM C-5 quadrangle

Section, Township, Range: N/2 of E edge of NW/4 of NW/4 of NE/4,  
Sec. 4, T10S, R11E (Umiat Meridian)

General: The site is located 1500 ft west of the Dalton Highway and 200 ft south of the MS116-2 access road. MS116-2 lies 500 ft to the west.



Environmental Setting

PSM-201 lies on probable moraine remnants. The general area consists of glacial deposits with numerous kettle and thaw lakes of moderate size. The nearest such lake lies 2000 ft west of the site, and Toolik Lake (aka Murphy Lake), the largest in the area, is located ca. 2.0 miles away to the northeast. The topography is gently rolling arctic tundra, with moderate to low relief, and incorporates numerous localized meadows, bogs and small streams.

### Survey Methodology

PSM-201 was located during a casual walk and later was intensively surveyed and mapped as an extracurricular activity.

### Site Description

The site comprises one and possibly two adjacent tent rings situated in a slight depression on a jumbled moraine remnant. The northerly structure (Figs. 12 and 13) is well-preserved, oval in plan, and ca. 10 ft in diameter. There is a secondary outer ring of large stones ("tie-downs?") on the eastern and western sides of the primary structure. The structure surface is thinly vegetated and some of the stones are partially buried.

A less well-defined structure lies within 5 ft to the southwest, and may be either the remains of a habitation or a boulder cache (Fig. 12). The northeastern and southwestern sides only are apparent, and a small cluster of stones occupies the inferred structure center. The northeastern side appears straight and the adjoining southeastern side is curved inward. The projected diameter is ca. 9 ft. This structure is more in the lee of a small ridge, and is more densely vegetated with scrub willow.

Only the northerly structure was subsurface tested (a 3 x 3 ft test pit) in the center, but no cultural materials were found.

Several tent rings of the same general configuration as PSM-201 have been documented in the Toolik Lake area by Bacon (in Cook 1971: 208-271) (Fig. 14), but there is no evidence that PSM-201 has been previously described.

### Impact

PSM-201 is ca. 0.7 miles away from the proposed NWA centerline and is therefore not affected by construction. MS116-2, however, lies within 500 ft, and if re-activated, could threaten the site.

### Significance

PSM-201 has a probable historic Nunamiut affiliation, and while no cultural remains were observed (other than the structures), the features can provide insight into aboriginal land use.

### Recommendation

Data remain at PSM-201, but as it is outside the project area, no further action is recommended. However, if MS116-2 is re-activated, the site should be more thoroughly investigated.



PSM-201

Mapping by S. Loring,  
H. Thorsen  
Copy by B. L. Gannon  
C.I. = 1 Ft. arbitrary

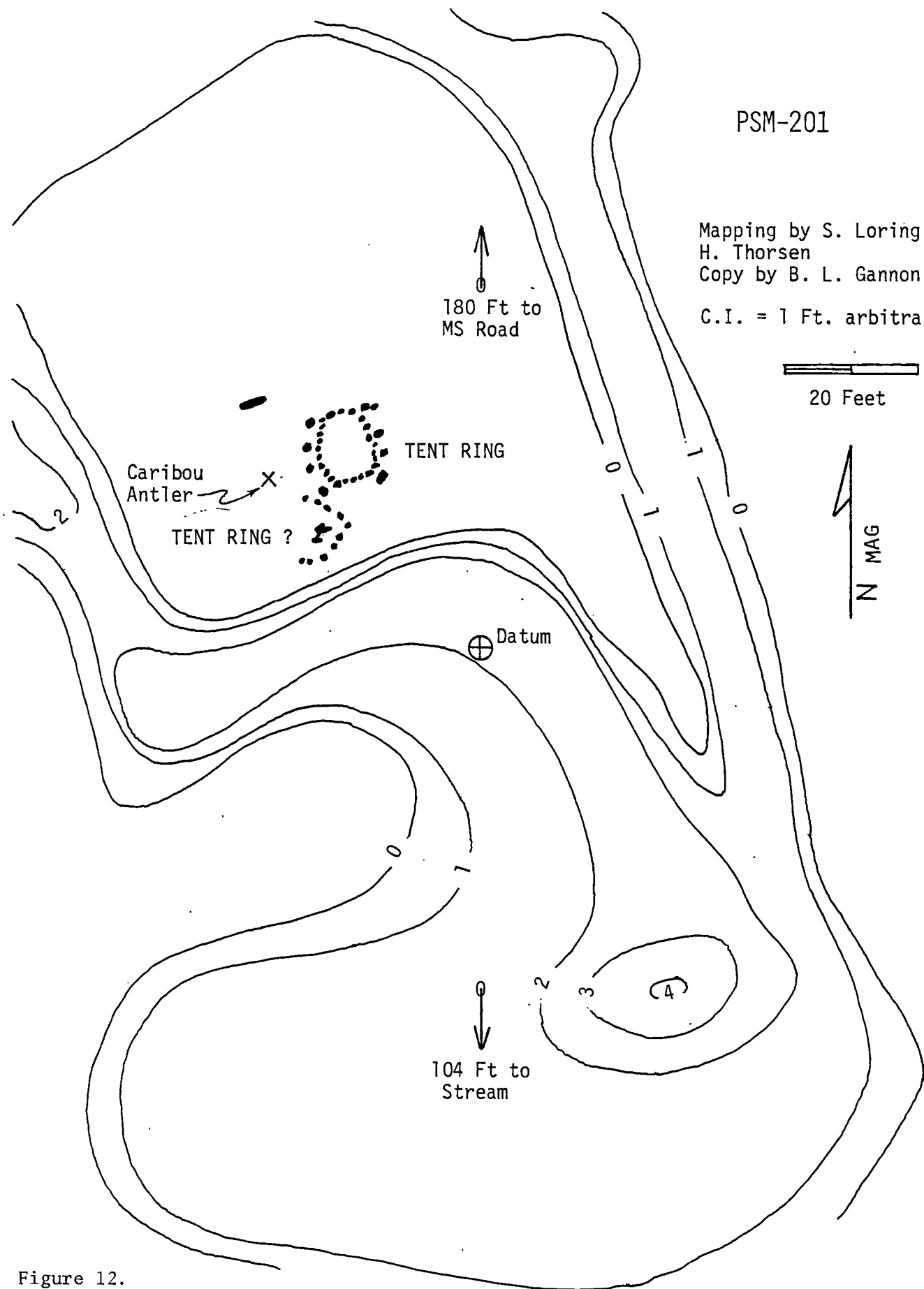


Figure 12.

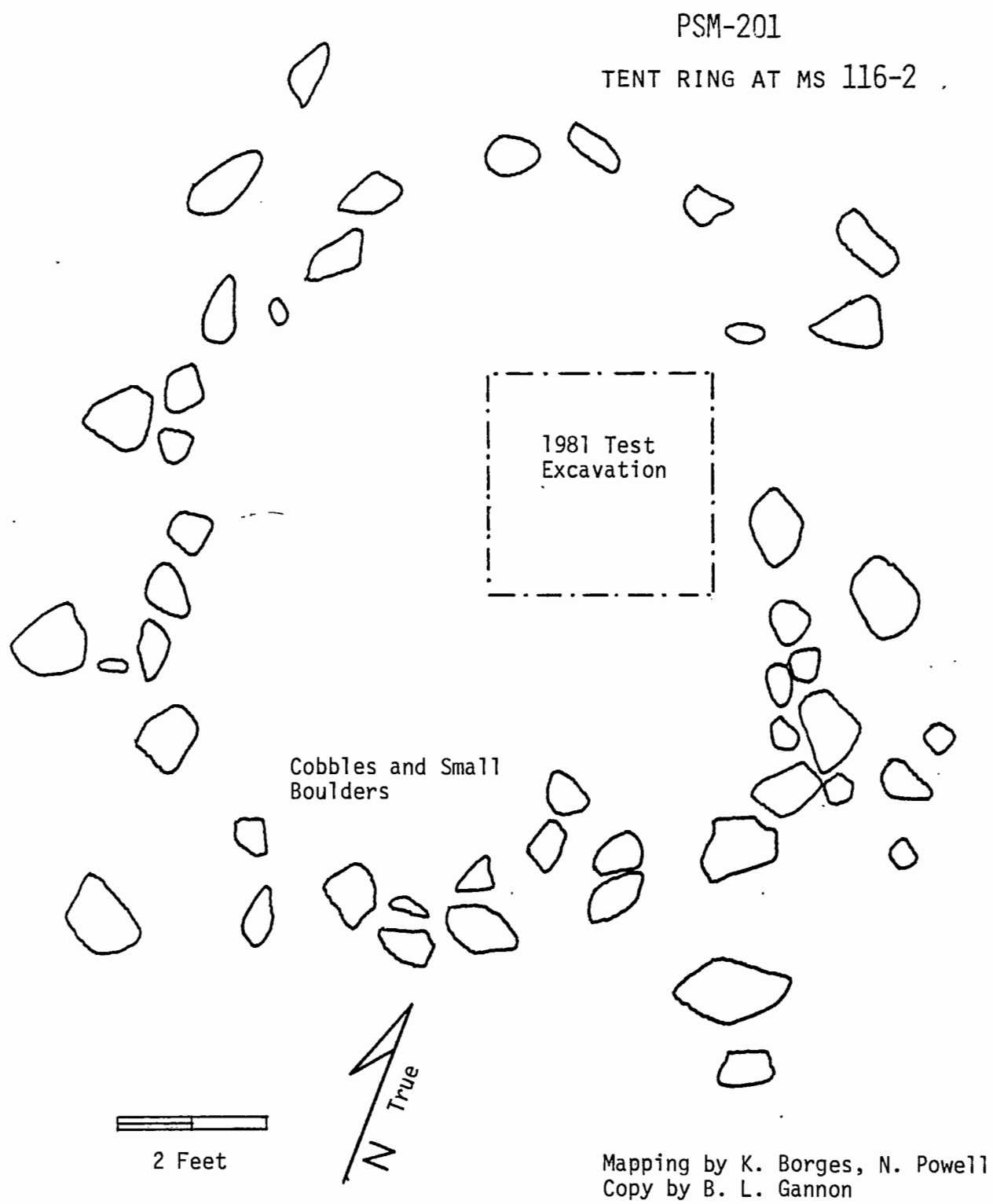


Figure 13.

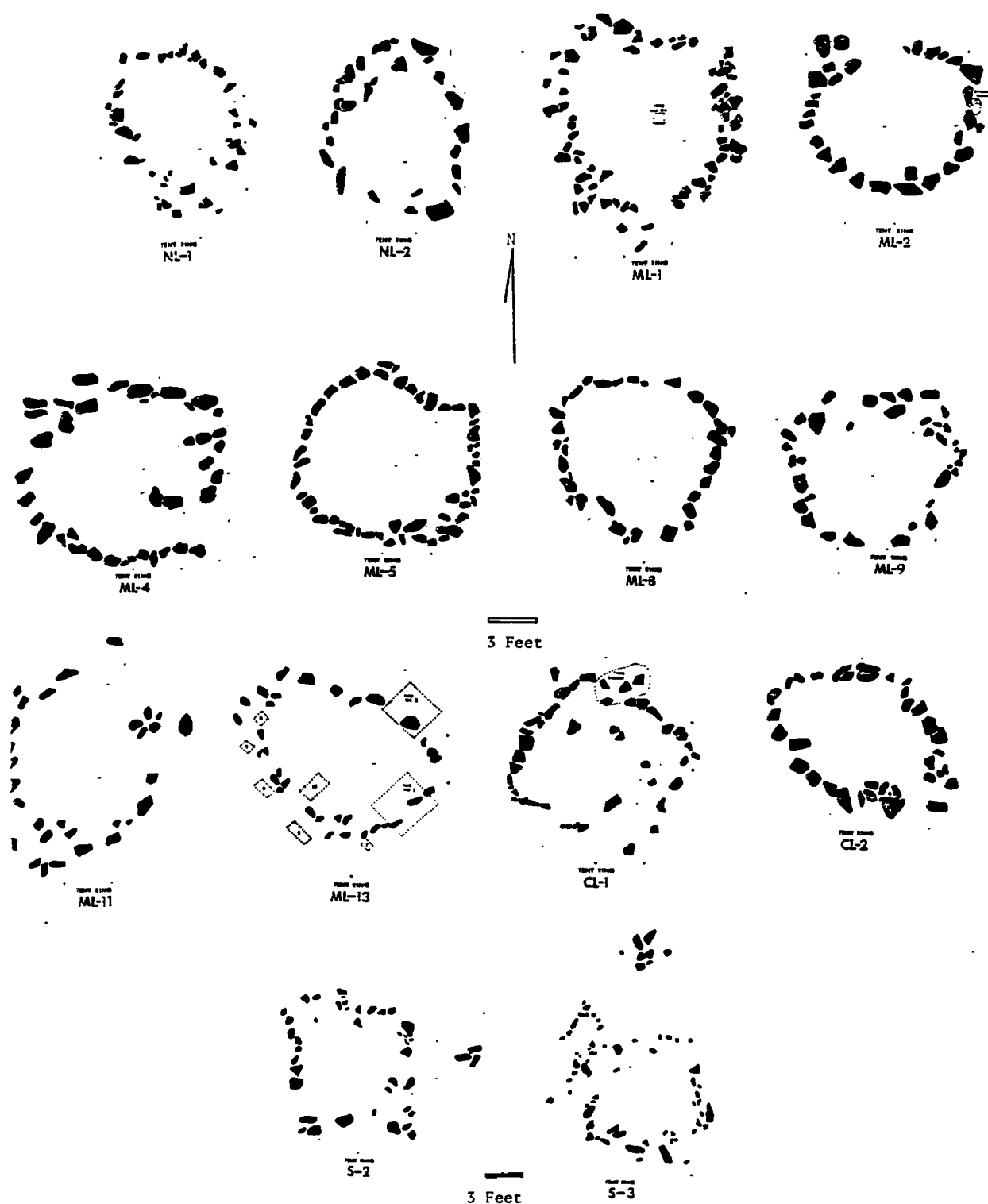


Figure 14. Toolik Lake tent rings, after Bacon (in Cook 1971:208-271).

Alaska State Site No.: PSM-Find 9

(1981 Field No.: AS025-1-L)

University of Alaska Museum Accession No.: None

Location:

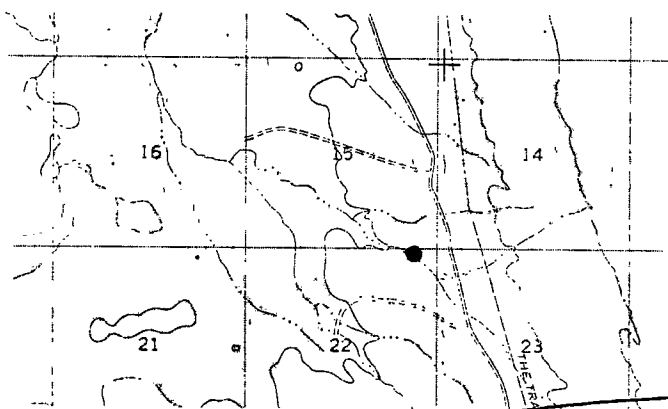
Latitude: 68° 34' 10"

Longitude: 149° 30' 21"

UTM Coordinates: (Zone 6), 397820 E; 7608200 N  
PSM C-5 quadrangle

Section, Township, Range: NW/4 of NW/4 of NE/4 of NE/4, Sec. 22,  
T10S, R11E (Umiat Meridian)

General: PSM-Find 9 is located on the northern edge of Terry Creek,  
1450 ft west of the Dalton Highway and 1375 ft north of  
the EMS-25-1 access road.



Environmental Setting

PSM-Find 9 lies on a fluvial terrace formed within glacial deposits. The general area is rolling arctic tundra with numerous knolls (kame and moraine remnants), thaw and kettle lakes and small east-west trending streams. Local relief is moderate.

Local vegetation consists of dwarf willow and a moss/lichen mat. On-site vegetation comprises a discontinuous, thin moss/lichen mat on an otherwise exposed, pebbly surface. Mammals observed in the area comprise ground squirrels and caribou.

### Survey Methodology

PSM-Find 9 was located during routine archaeological survey of the proposed NWA gasline corridor (5 persons spaced over 200 ft). As the edges (knolls and terraces) of Terry Creek were determined to have high cultural resource potential, some peripheral areas were surveyed, and the site was located in the process. The site was surface inspected, photographed, and sketch mapped (Fig. 15).

### Site Description

The site (as defined) lies 15 ft from the terrace edge on the north side of Terry Creek. The terrace itself has a largely exposed, gravelly surface.

The 'site' consists of an alignment of five spaced stone clusters, 40 ft long, and parallel to the terrace edge. Of these five clusters, only nos. 2 and 3 are clearly of cultural origin. The remaining clusters appear to be fortuitous arrangements caused by cryostatic and other natural processes. Cluster no. 1, however, does partially overlie a caribou antler. The only reference located which describes possibly similar features is in Kunz (1976) for PSM-153 where, among an historic Nunamiut tent ring and two clusters of 20 to 40 stones in solid circles 2-3 m in diameter, four rock slabs were found aligned in a 2 m long row. No other cultural remains were found associated with these stones.

### Impact

The feature is 1400 ft from the proposed project area (centerline), and is not affected by construction.

### Recommendation

No action is recommended.

PSM-FIND 9

SKETCH MAP

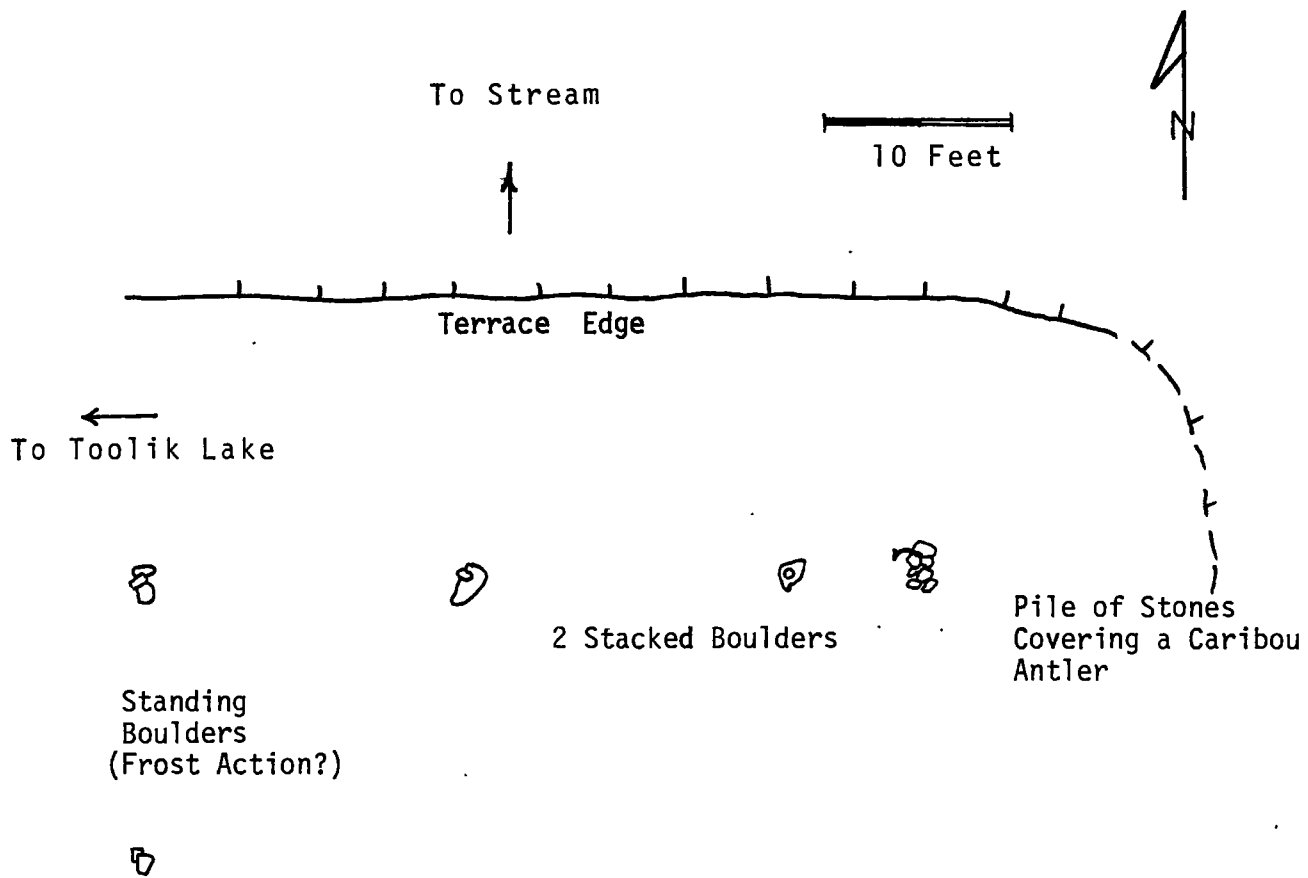


Figure 15.

Alaska State Site No.: PSM-074 (East)

(The Atigun River Site)

University of Alaska Museum Accession No.: UA 81-137

Location: (center of site)

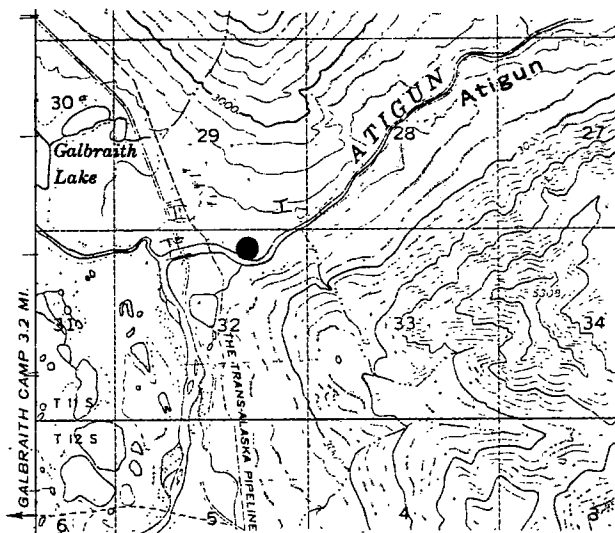
Latitude: 68° 27' 09"

Longitude: 149° 21' 25"

UTM Coordinates: (Zone 6), 403400 E; 7594980 N  
PSM B-4 quadrangle

Section, Township, Range: NE/4 of NW/4 of NE/4, Sec. 32, T11S, R12E  
(Umat Meridian)

General: PSM-074 (East) is located on the northern side of the Atigun River, from 1100 to 2300 ft east of the Atigun River Bridge (Dalton Highway).



## Environmental Setting

PSM-074 (East) lies in a riverine-lacustrine environment in the Atigun River valley. The valley, locally, is 2-3 miles wide and bounded by portions of the Philip Smith Mountains rising to 4500 ft, providing a local relief of about 2500 ft. The Atigun River borders the southern edge of the site, near the point where it swings eastward through the Atigun Gorge (Fig. 16). Many lakes are present in the area, ranging from small ponds to two mile long Galbraith Lake, one mile to the west.

# ATIGUN RIVER SITE AREA (PSM-074, 075, 076)

2 • 1981 Hearth Localities

A Alexander 1973, Wilson

B Alexander 1967

⊕ PSM-075 Locality  
(Bridge Site)

1/4 Mile

Mapping based on aerial photos  
and field map of S. Loring 1981

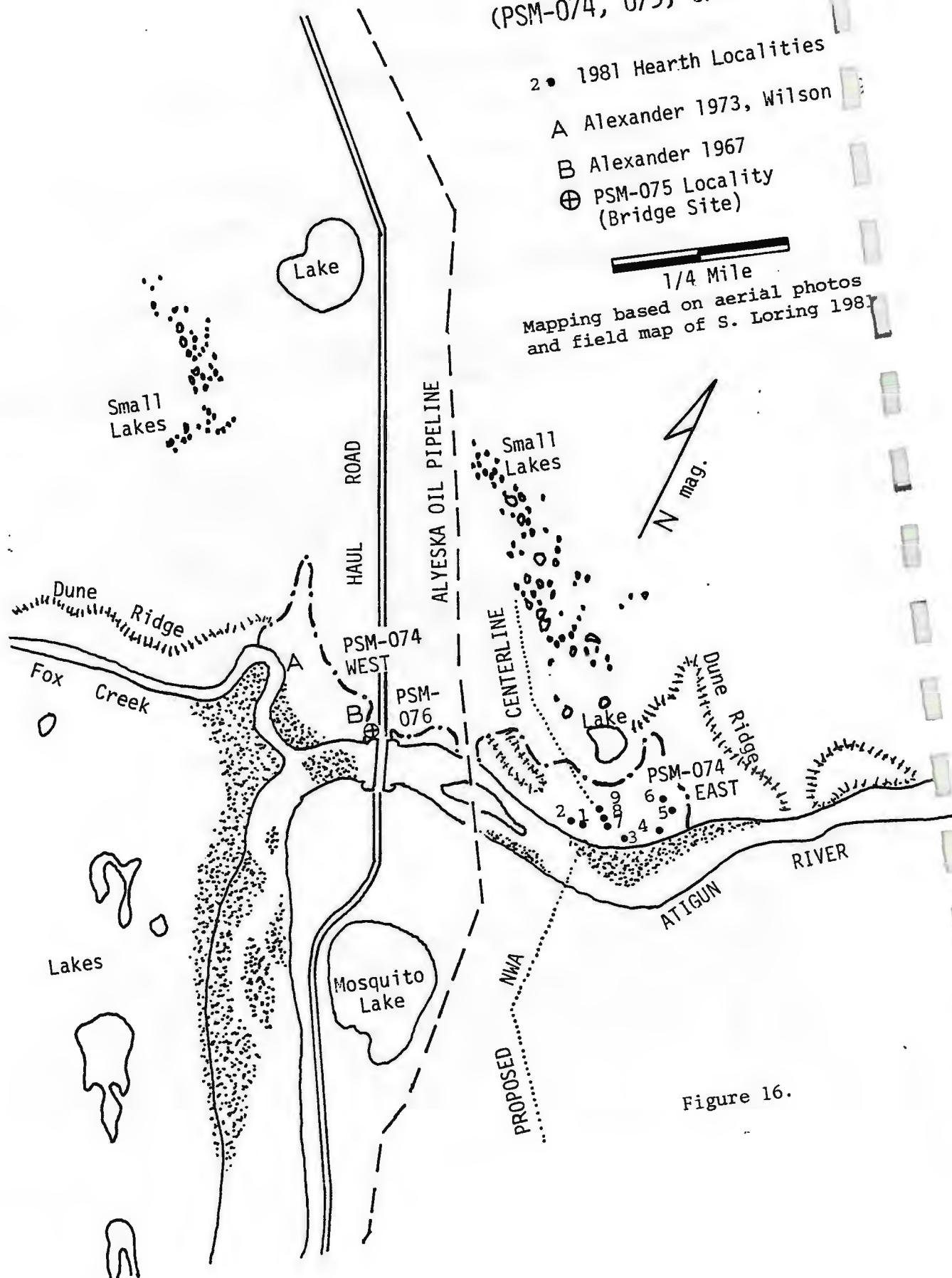


Figure 16.



The area is a focus for several resources, no doubt a chief factor in the large number of archaeological sites in the vicinity, which span several millennia. Dall sheep occur within three miles of the site and the valley is a well-established caribou migration route (at least in times past). Arctic ground squirrels, fox, wolf, grizzly bear, and fox are among the other resident mammals. Avifauna comprises swans, geese, ducks and cranes. Ptarmigan is also present. Most of the lakes support lake trout and grayling, and arctic char and ling (burbot) are present in the Atigun River during spawning season. The remains of many of these species are present at PSM-074 (East).

An important source of chert is located a couple of miles downstream, along the Atigun River. This is referred to as the Krogh Quarry (PSM-064) and material from there was both used locally and evidently traded over fairly great distances.

Scrub willow is the dominant shrubby plant in the area and one which was evidently of high value among the former inhabitants. The remaining ground cover consists of grasses, moss, lichens and a variety of small shrubs and wildflowers. Some scrub alder occurs in patches near the river.

PSM-074 (East) itself is located in an area of exposed dunes of aeolian sand between the river and a tussock bog to the north.

### Survey Methodology

PSM-074 (East) is part of a known site and was encountered during routine archaeological survey of the proposed NWA gasoline corridor in 1981.

The site area, including peripheral localities, was intensively ground-inspected and numerous shovel tests were placed at close intervals in a crude gridded manner and whenever else judgment dictated. Many of the tests were 18+ inches deep and some as deep as 40 inches. Primary artifact and feature locations are plotted on the prepared site map (Fig. 17).

Due to constraints of time, only the site area on or close to center-line was mapped; the site is considerably larger than shown. As the site is very rich, testing particularly of features, was somewhat non-systematic. In other words, more is present at PSM-074 (East) than what is reflected on Figure 17. A small collection of artifacts and bone was made from different loci in order to obtain some idea of the variability of materials present.

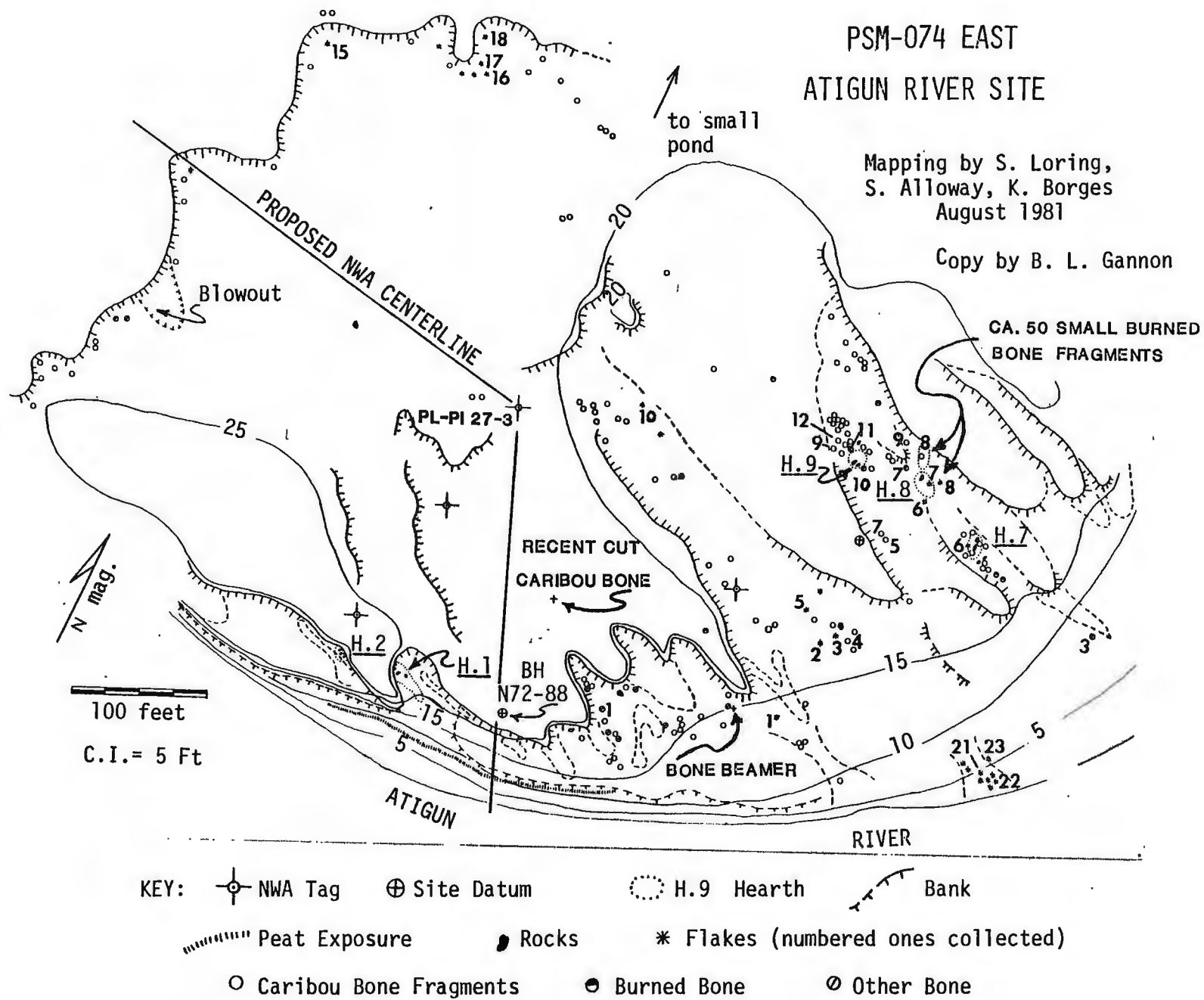


Figure 17.

*at this time  
it is snow  
covered for NW*

## Site Description

General information. The entire northshore of the Atigun River from the confluence of Fox Creek (Galbraith Lake's outlet) east to the vicinity of a prominent knoll (a fragment of an end moraine on an otherwise featureless beach - a distance of approximately 4000 ft), is characterized by an extensive deposit of aeolian sands that are actively eroding due to both the Atigun River and to the energies of prevailing winds (Fig. 17). According to John Cook (personal communication, 1981) this entire area is "one large site."

The site has been partially destroyed by construction of the haul road and by the Alyeska pipeline which bisect the site area. The wind-deflated dunes have exposed a number of impressive archaeological features including refuse bone, stone and bone artifacts, debitage and hearths. Previous archaeological work at the site has attributed the occupations largely to a late-prehistoric Indian component (Kavik complex, of Campbell 1968a), of which PSM-074 is one of the most significant manifestations heretofore demonstrated.

History of investigations. The Atigun River site was discovered in the course of an archaeological survey of the region by Herbert L. Alexander on July 31, 1966 (Alexander 1967:26-27). His account of the discovery is the first reference to the site location and to the presence of several distinct artifact and bone loci:

As we approached the junction of our stream [Fox Creek] (the Galbraith Lake outlet) with the Atigun we came onto an area of sand hills and blowouts and immediately began finding bones and flakes.

The whole day was spent in this small area finding one artifact exposure after another over an area three-quarters of a mile long. We were on the north bank of the Atigun where it turns east, becomes constricted to a fourth of its previous size, and roars out of the valley. The north bank is a thick sand deposit extending back perhaps half a mile. The area must have been a favorite camping spot for an earlier culture...The area is at the eastern entrance to the valley where game would certainly pass. It is also at the first place where game coming from the east would be able to ford the river...

Although the surface of the site was scattered with large flakes and with fire-cracked rock and fragments of broken bone refuse, no diagnostic artifacts were found. The similarity of biface fragments to ones found at a Denbigh surface site, "a chipping station located on a high bluff directly across the river" [probably PSM-049] led Alexander to tentatively propose that the Atigun River site resulted from a Denbigh-related occupation. Locality uncertainty manifests itself in the map he prepared for the 1966 report (1967:23) where the Atigun River site

is shown as a long contiguous area labeled "Denbigh Camp site," and in one of the article's photographs (Ibid.:27) which purports to show "the sand dunes across the river is the largest of the Denbigh camp-sites." This photograph is a view to the west taken from one of the Mosquito Lake (PSM-049) site localities. In the photo distance lie Mosquito Lake, the narrow strip of land between the lake and the river which is now occupied by the haul road, the Atigun River, and the dunes south of Fox Creek - The Galbraith Lake outlet - with Galbraith Lake and the future site of the Galbraith airstrip in the background. Although the dunes south of Fox Creek are a continuation of the same landform feature, no archaeological sites are shown to be present south of the creek on either Alexander's map (1967) or in the more detailed map from his dissertation (1969:Fig. 9). Therefore, it appears that the photograph is only a general location view. Another photograph (Alexander 1967:26) shows particular Atigun River site artifact loci, "one of the numerous exposures at the largest Denbigh campsite," but it is unspecified as to which locality it is.

The archaeological potential of the Atigun River site was clearly apparent to Alexander: "at this point in our survey we knew that the region is archaeologically so important that we must return for a full season's excavations," "this site will receive the first attention when we return to the Atigun" (Ibid.:27).

In 1967 Alexander returned to the Atigun River valley (Alexander 1968) where it was his expressed desire to intensively excavate in the vicinity of the sand dunes at the Atigun River site in the prospect of finding a stratified deposit:

Excavation began at Site B13, one of the 1966 test trenches in the sand deposit area. We failed to find levels below the one subsurface deposit but, on moving some forty yards east to Area 2, our excavations uncovered four distinct superimposed levels. Twenty yards north of there at Area 3 we found an additional series of three levels. The uppermost occupation in Area 3 had a few historic artifacts just under the surface. The remaining levels of the Atigun site, our name for the three excavations and adjacent exposed artifacts, are prehistoric and represent at least five separate occupations. (Ibid.:37)

Alexander's most recent comments on his Atigun excavations appears in his dissertation (1969:153) in which he identifies the Atigun River site as B12, B13, and B14:

Sites B12, B13 and B14 are exposures of the Atigun site, an area extending nearly 3/4 mile along the north bank of the Atigun River. Our 1967 work located over 30 surface exposures of artifacts and testing uncovered occupations throughout most of the area where artifacts are not found on the surface.

B12. Located at 149° 23' 55" W, 68° 27' 16" N in a large sand deposit. The site was discovered in a long north-south blowout trench from 120 to 230 yards north of the junction of Galbraith Lake's outlet and the Atigun River. Three concentrations of flakes and fire-cracked rock were found in the trench although individual flakes were scattered uniformly over the area of the blowout.

B13. This site is 115 yards south-southeast of Site B12. It was also exposed in a wind-cut trench, but only a few flakes were found on the floor of the trench. An undisturbed cultural layer was uncovered by making a vertical cut on the trench wall...Excavation of a 5 x 7 ft area and test pits indicate a lens shaped layer from 20-30 ft in diameter.

B14. Located at 149° 21' 35" W, 68° 27' 16" N at the eastern-end of the sand deposit in which B12, and 13 are located, one-half mile from those sites, B14 is 65 yards north of the Atigun. The site was located in a wind cut trench 25 ft deep. Testing failed to uncover an undisturbed deposit... An area 10 x 70 ft was littered with fire-cracked rock, flakes of chert, broken bone and a bear's canine.

In the fall of 1969 John Cook, as part of an initial archaeological reconnaissance of the proposed Trans-Alaska Pipeline System right-of-way, visited some of the archaeological localities previously recorded by Alexander in the Atigun Valley (Campbell 1973:6) and confirmed that a number were jeopardized by proposed pipeline construction. Campbell and Alexander visited the Atigun Valley region in February 1970 and confirmed Cook's observations. In compliance with Federal statutes and mandates archaeologists at the University of Alaska were contracted to perform necessary surveys and excavations throughout the course of the proposed pipeline between 1970 and 1976.

In 1973 Alexander returned again to the Atigun Valley with the intention of excavating several early sites lower down the Atigun drainage near its confluence with the Sagavanirktok (Wilson 1978:35-36). However, the allure of the Atigun River site had not waned with time and Alexander, accompanied by Ian Wilson, "spent a further three weeks test-excavating and mapping the Atigun site" (Ibid.). Wilson's paper (n.d.) is the only extant publication on this season of fieldwork, but it is not widely available.

According to Wilson (1978:43), "the objectives of the summer's work were to draw a topographic map of the site; to determine the site's boundaries; to horizontally connect previously excavated cultural areas, and to collect dateable charcoal for these layers."

Wilson returned to conduct archaeological excavations of his own at the Atigun River site in 1974, and the results of this work appear in his Master's thesis at Simon Fraser University in 1977 and as a Mercury Series publication in 1978. Wilson writes that his excavations

followed up on the 1973 work: "First, 2 x 2 m test pits from the 1973 field season were expanded in all directions, radiating from the original excavation" (Ibid.:45). From this it appears that Alexander's 1973 excavations were conducted in the same area that Wilson later explored more intensively (Fig. 18).

Actually the 1974 field season at the Atigun River site had begun prior to Wilson's thesis research. The plan to link the Prudhoe operation with connecting road service to the south necessitated a bridge across the Atigun River. In the spring of 1974 construction plans included a cut in the north bank above the river bisecting the Atigun River site. Knowing the archaeological potential of the region, a crew was assembled to conduct archaeological salvage excavations between April 19 and 28 under adverse weather conditions and threat of impending construction. Sources for this information include Michael Kunz's field notebook 4/11 to 6/10, 1974 and Ian Wilson's field notebook 4/21 to 5/28, 1974 which are maintained as part of the Alyeska archaeological archives at the University of Alaska, Fairbanks, Museum. Pertinent sections are as follows:

Michael Kunz

4/17/74 About 10 a.m. went over to the Atigun River crossing site and examined the site. I had not realized that the site extended through the bridge right-of-way... It does not appear that the site extends too far upslope from the bridge. Therefore OK'd the cat to start ripping several hundred yards beyond the bridge provided I was there to direct the operation.

4/23/74 He [Ian Wilson] showed me the Atigun site, etc. it is roughly 200 yards west and north of bridge crossing site.

4/26/74 Flew over site and saw bulldozer at work cutting a trench. Ian said nothing was turning up.

Ian Wilson

4/23/74 Went out to Atigun crossing site. This area is 200 yards east of previous excavations and 50 yards west of blowout area where surface indications were present and noted in 1973.

4/24/74 Galbraith Locality 1. Surface collected surface blowout 100 yards east of road (among 1973 localities).

4/26/74 Galbraith Locality 2 (Atigun II) 5-8 cm B.S. 150 ft east of Atigun crossing datum + 80 ft north...I showed him [Steve McKutchen, Alyeska photographer] some of the Atigun site proper.

From these notes it appears that the Alyeska excavations at the Atigun River site did not impact significant archaeological features.

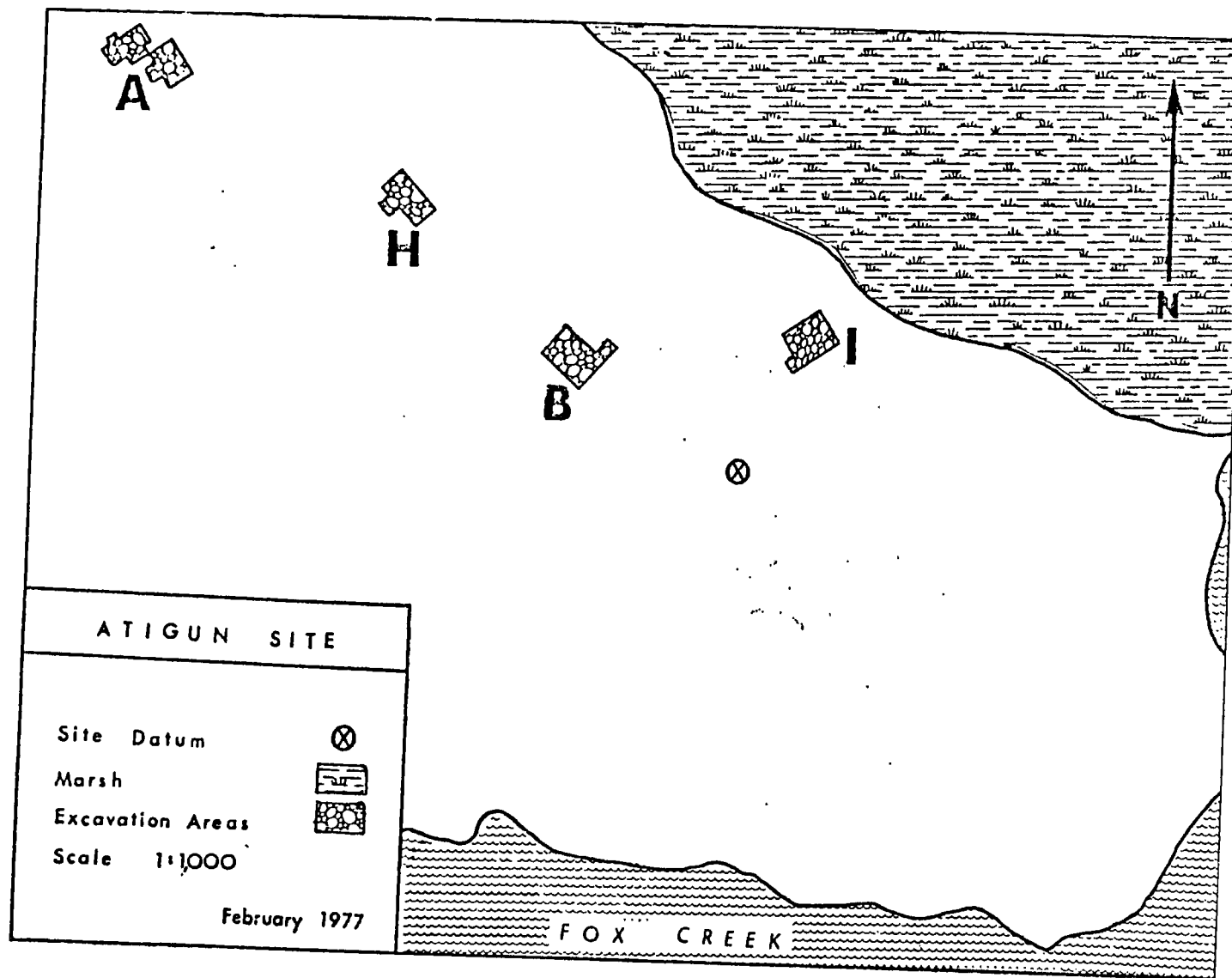


Figure 18. PSM-074 'East' 1974 Excavation Localities from Wilson (1978).

The Atigun River site localities later were ascribed three separate AHRS site numbers: PSM-074-076 (Atigun I, Atigun II, Atigun III (Cook 1976:121). This along with the listing of four radiocarbon dates from Wilson's 1974 excavation (Cook 1977:63), is the only apparent discussion of the site(s) in the Alyeska archaeology reports (see "1981 Investigations").

In a background study (Aigner and Gannon 1980), written preparatory to the 1980 NWA archaeological survey from Delta Junction to Prudhoe Bay, the Atigun River site was given (in perceived accord with the preceding) the following designations/descriptions:

- PSM-074 Atigun I - Late Prehistoric Indian (Kavik), flakes, bone and fire-cracked rock, T11S, R12E, 29 SE/4 of SE/4/4.
- PSM-075 Atigun III - Bridge site?, late prehistoric Indian (Kavik) campsite, T11S, R12E, 32 NW/4 of NE/4/4.
- PSM-076 Atigun II - Late prehistoric Indian (Kavik) bone, T11S, R12E, 29 SW/4 of SE/4/4.

1981 investigations. A total of three days were spent in 1981 surveying and mapping portions of the Atigun River site. From necessity, most of the work was conducted within the 500 foot wide proposed NWA corridor. As time permitted, however, and because of the importance of the site, other areas were inspected in order to evaluate present status and clarify the locations of earlier investigations. Even so, considerable portions of the site were not investigated, and additional materials undoubtedly still remain undisclosed within the project area.

Based on apparent similarities and close associations of all the features found on the north bank of the Atigun River, in the vicinity of what Alexander called the "sand dunes," the area - despite the fact that it extends over 4000 ft in an east-west direction - is herein referred to with the same site designation but with specific loci numbers for each feature or set of features. The general site designation as PSM-074 was confirmed in a visit (August 1981) by Mike Kunz (currently an employee of NWA) who embraced the entire Atigun north shore sand dunes area under PSM-074. Past and present site designations are summarized in the following chart (Fig. 19).

A 500 ft wide strip of dunes located between the road cut and the Alyeska oil pipeline is partially exposed and appears to be essentially undisturbed by previous construction activities. As this area was outside the confines of the present project it was not afforded much consideration. A brief walk-over of this area, however, yielded two deflated hearths and a partially in situ chipping station. More to be in compliance with prior site designations than in any belief that this area differs from the other Atigun River north shore localities, the PSM-076 designation for the area between the pipeline and the haul road is retained with the understanding that it is strictly a work area



Alexander (1969)  
(1966-1967 excavations)

Wilson  
(1974 Notebook)

Aigner & Gannon (1980)  
(based on Cook et al.)

(1981 Field-Work/Research)

B-12, 120 to 230 yds  
north of junction of  
Galbraith Lake outlet  
and Atigun River.

PSM-074-West Wilson;  
Alexander's 1973 excavation;  
Wilson's 1974 excavations.

PSM-074-West Alexander;  
Alexander's 1967 excavation.

HAUL ROAD



B-13, 115 yds SSE  
of B-12.

PSM-075-Bridge Site  
Atigun III

PSM-075-Bridge Site

Galbraith Locality 2;  
Atigun II,  
150' E of Atigun  
crossing datum & 80'N

PSM-076  
Atigun II

PSM-076; area between the  
haul road and the pipeline.

OIL PIPELINE

B-14, at the eastern-end  
of sand deposits 1/2 a  
mile away from B-12 & 13;  
65 yds north of Atigun  
River in wind-cut trench  
25' deep.

Galbraith Locality 1;  
Atigun I, blowout  
100 yds east of road

PSM-074  
Atigun I

PSM-074-East

Figure 19. PSM-074 locality correlation chart.

geographical designation and in no way implies either cultural or temporal distinctions (Fig. 16).

A brief visit into the dune region between 300 and 600 ft west of the haul road relocated Alexander's 1967 excavation (based on the photograph of this site in his 1968 Expedition article, p. 36). This locality consists of several excavated areas, surface deposits of caribou bone fragments, and a pile of fire-cracked rock that was first thought to be an exposed cobble hearth but which was later concluded to be the remains of hearth-stones piled by Alexander's crew after their excavation of several superimposed hearth features. This area is presently referred to as PSM-074-West/Alexander (Figs. 16, 19).

The area west of Alexander's 1967 excavations was not visited in 1981, where, in the vicinity overlooking Fox Creek, additional excavations and surface exposures of fire-cracked rock, debitage, and refuse bones remain that are attributable to Alexander's 1973 explorations and Wilson's 1974 excavations (Wilson 1978; Gannon 1980 field observation). This locality is herein referred to as PSM-074-West/Wilson (Fig. 19).

PSM-074-East, the site area that will be impacted by the proposed gas pipeline construction, lies in a 500 ft wide area of exposed sand dunes between the Atigun River to the south and a poorly-drained region of tussock vegetation and a small kettle pond 250 ft in diameter to the north. The pond and its drainage into the Atigun River form the surveyed eastern limit of the site (Figs. 16 and 17). The archaeological potential of the exposed dunes between the stream and a 50 ft high steep-sided remnant of an end-moraine to the east, that dominates the local topography and overlooks the first rapids leading into Atigun Gorge, was not assessed. The western limit of PSM-074-East can be considered to be the Alyeska oil pipeline although this is an arbitrary designation as archaeological features continue to the west. The whole area is both slumping towards the river in response to river erosion and is being deflated in areas that have become exposed and lack vegetation cover to inhibit aeolian processes. Vegetation cover, principally lichen and moss and dwarf birch, where it is extant, is a successful deterrent to local deflation. Radiocarbon dates obtained from features at PSM-074-West/Wilson indicate that the processes of aeolin deposition are extremely active (Wilson 1978:48-49, 167-168):

- Hearth B1. 10 cms accumulation in 115 years.
- Hearth B2. 25 cms accumulation in less than 200 years.
- Hearth B3. 45 cms accumulation in 360 years.
- Hearth H1. 20 cms accumulation in 310 years.

Survey of PSM-074-East in 1981 consisted of three tasks: (1) location and description of surficial artifacts, artifact clusters and features, (2) location and description of subsurface features, and (3) mapping of the primary artifacts and features.

A total of 23 artifacts and 12 bones (UA 81-137/1-35) were collected from different general loci at the site (Figs. 16 and 17; Appendix 6) to obtain a sample of styles and materials present. A considerable amount of the lithic material consists of a bluish-grey veined chert.

A total of nine features classified as hearths were located within the limits of PSM-074-East (Fig. 16), five of which (no.'s 1, 2, 7, 8 and 9) are within the area mapped in Figure 17. The features outside the map area were field-posted and are described below. As some of these features were found as deep as 42 inches below surface, it was not possible to locate all subsurface loci. Consequently, a decision was made to concentrate on describing a few of these features thoroughly as a representation of what exists throughout the site.

Profiles in the walls of the aeolian-excavated "trenches" (Fig. 17) revealed up to 42 inches of horizontally-bedded sands overlying cultural features. Although some of these bedded sands contained coarser-grained sandy zones that might have been captured by a vegetation cover, there are no buried humus deposits or peat layers that are indicative of a stabilized surface. Rather, it appears that aeolian sands have been regularly and consistently deposited through time. The centerline, where it crosses over to the south shore of the Atigun, bisects a buried bed of peat that is exposed in the cut bank. This peat bed is at least 2 ft thick and is approximately 10 ft above the river level and at least 12 ft below the "stabilized" surface (the vegetation-covered sandy plain above the river upon which the hearths are located). This peat bed is a pronounced local phenomena and is visible in the cut bank east of the Alyeska oil pipeline. It has been investigated by geomorphologists and a series of radiocarbon dates have been obtained dating to around 2000 years B.P. (M. Kunz, personal communication 1981).

Hearth No. 1 (Figs. 17 and 20) is located in the west wall of an eroding sand dune which has been cut into, by wind and rain-water action, creating an elongated bowl-shaped depression which opens out to the Atigun River 100 ft to the south. According to Mike Kunz (personal communication 1981), this hearth has been eroding out for many years and has been extensively collected by previous investigators. The dune overlying the hearth has been undercut 19 inches. The level at which the hearth is exposed is 40 inches from the top of the dune to the point where the hearth is found eroding out of the side wall. The profile of the exposed in situ hearth shows it to be 15 inches long x 3 inches thick (Fig. 20). The area was not excavated, so it is unknown how far back the hearth extends under the dune; it may be, for the most part, eroded. Part of the hearth has eroded out of the side wall and has slumped through loose sand to the bottom of the depression. The part of the hearth found in situ is basically composed of two flat hearth stone slabs and several fragments of burned bone. The part of the hearth found in the loose sand consisted of three additional hearth stones which were fire-cracked and more burned bone (probably caribou). The hearth-stones and bone have eroded ca. 9 ft down the slope to the bottom of the depression.

PSM-074 EAST  
PROFILE OF HEARTH 1

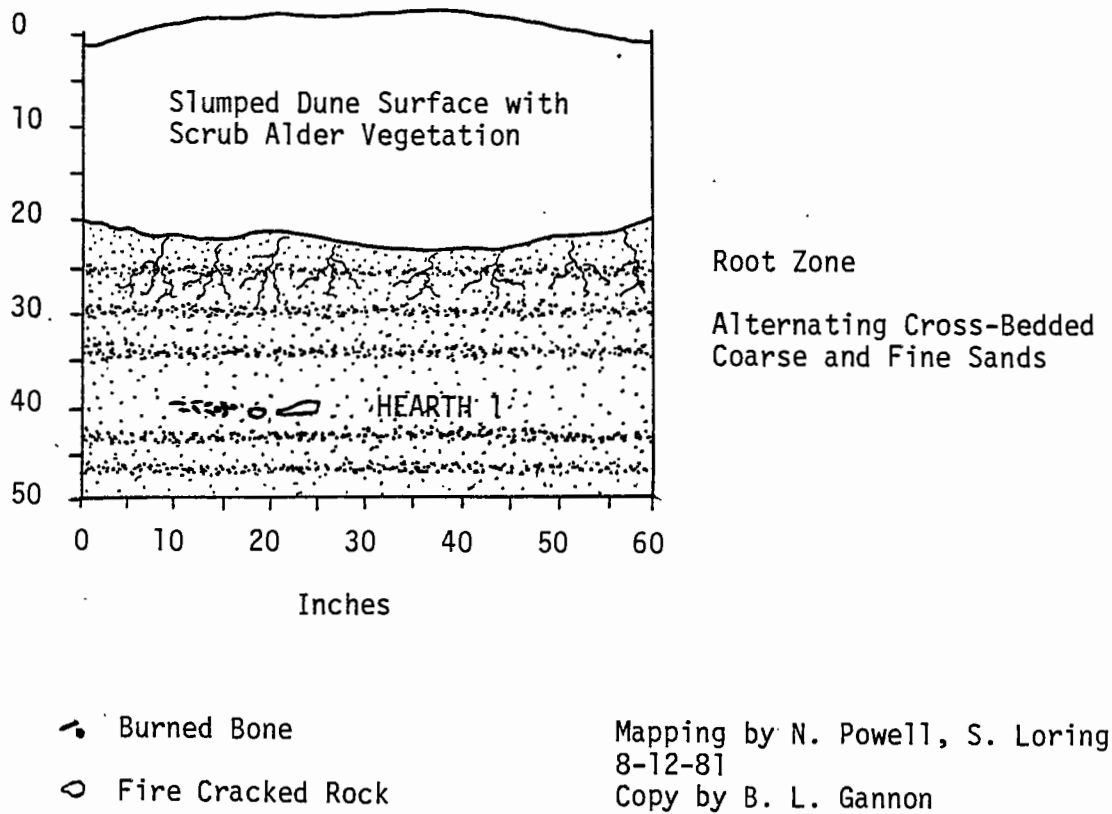


Figure 20.

The hearth profile was cut immediately north of the actual exposure so as not to impact remaining in situ materials. Scrub alder vegetation is found growing on the top of the dune 20 inches above where the hearth is exposed. Numerous roots are exposed in the soil which extend 6 inches down at which point the side wall has been undercut 19 inches back into the wall. Below this point, crossbedding of sand-layers is characterized by thin bands of coarse-grained sand interlayered with finer grained sand. Both caribou and ground squirrel bones (carbonized) were found in situ.

Hearth No. 2 is 50 ft north of the Atigun River and 125 ft west of the datum established at NWA borehole #27-31 (Figs. 17 and 21). The hearth had been buried by aeolian sands but subsequent slumping has exposed part of the feature.

The stratigraphy of Hearth No. 2 is shown in Figure 22. The 'dune' within which the feature lies has been surface-stabilized by mosses, lichens, grasses and scrub alder. The root zone, humus and tan sands extend downwards ca. 4 inches. The remaining matrix down to the hearth/cultural level (ca. 3.5 ft below surface), consists of fine-grained, crossbedded aeolian sand with interbedded, partially discontinuous laminae of coarser sand.

The hearth was built on a slight slope to the south and east. A layer of charcoal (partially burnt wood) and carbon-stained sands occurs throughout the cultural level and was observed to be thickest directly west of the hearth stones (Figs. 21 and 22). This buried occupation layer varied in thickness from 0.1 inch to just over 1.0 inch. Incorporated in the cultural level was an abundance of root material, some of it carbonized and much of it partially humified (there were a few thin living roots from the alders 3.5 ft above). The carbonized roots suggest the hearth was built on a stabilized dune. The cultural level crossbedded sands occurred comparable to the sands above.

Originally only two rocks of Hearth No. 2 were exposed (Fig. 22). Without excavation, it could not be determined if they were in situ, or had eroded from above. To determine which was the case, these rocks were covered with a tarp and the eroding bank cut back, smoothing out and enlarging a semi-circle around the rocks (Fig. 22). When nothing was found in the bank, the tarp was removed and excavations begun on the level of the rocks, exposing the cultural level and the hearth itself (Fig. 22). The hearth was pedestaled while the associated area to the west was excavated through the cultural level. Locations of all cultural materials were mapped. Most of the charcoal was retained from the hearth; 7.62 grams were submitted to Washington State University for radiocarbon dating (WSU #2654). The date obtained from this analysis is  $80 \pm 90$ . The situation of sand accumulating rapidly on a late prehistoric/historic feature parallels findings at PSM-074 West, described above.

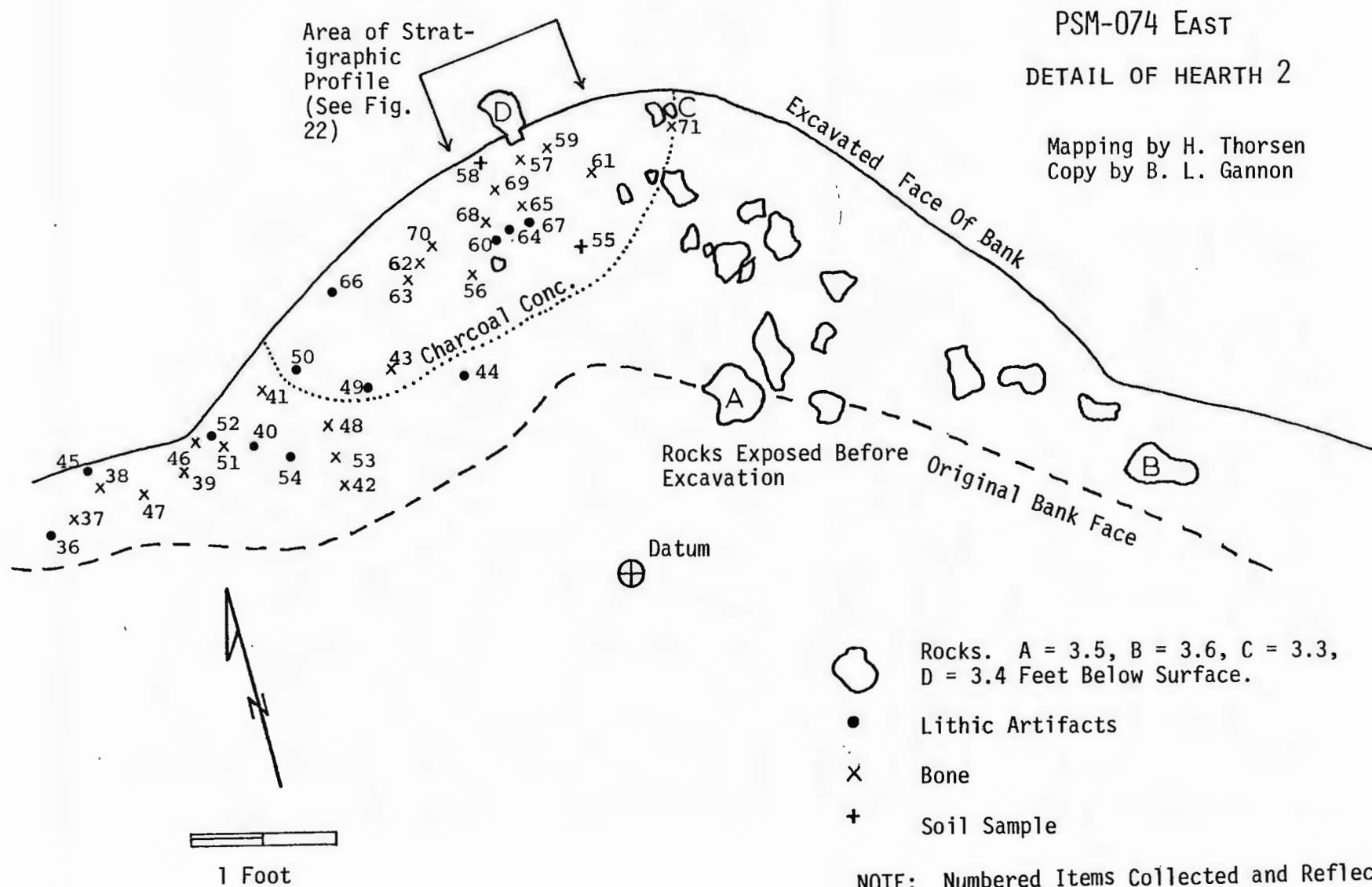


Figure 21.

Vegetative Mat in Tan Sand with  
Humic Material

Matted Tan Sand with No Humus

## PSM-074 EAST

### PROFILE OF HEARTH 2

Mapping by H. Thorsen  
Copy by B. L. Gannon

Profile Shows Loess Deposits  
(White) With Interbedded Lenses  
And Laminae of Coarser Sand

Extensive Root Penetration  
Above this Line

Protruding Rock ('D')

Carbonized Layer (Hearth 2)  
80  $\pm$  90 (WSU-2654)

Charcoal

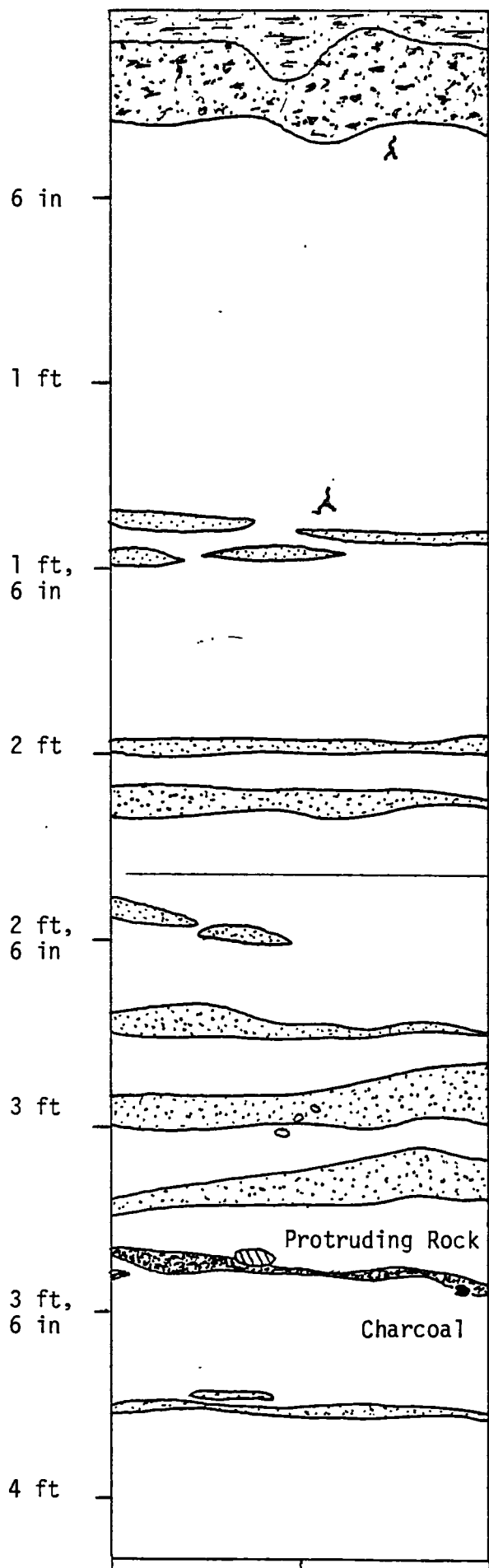


Figure 22.

While much of the hearth probably still remains unexposed, the excavated portion yielded a fairly rich but generally undiagnostic assemblage of artifacts. Most of these materials consist of greenish-grey and bluish-grey chert flakes and numerous carbonized squirrel and caribou bone fragments. Of the 35 bone and lithic artifacts exposed, 12 were collected as a representative sample (Fig. 5; Appendix 6). A few additional small calcined mammal bones were recovered from the charcoal sample matrix.

Hearth No. 3 is located ca. 450 ft east of the main site datum at borehole on centerline #N72-80 (Fig. 16) in a large sandy blowout that slopes 5-8° to the east. Hearth No. 3 is composed of 10+ hearth stones associated with numerous fragments of cut and shattered caribou long bones and ribs. The hearth has been deflated by drifting and slump movement of the dune. Consequently, a part of the hearth and bone fragments have drifted downslope creating two discrete concentrations. The majority of the bones are caribou. The non-carbonized mandible of a ground squirrel was also noted in the upper concentration, but it may be intrusive. The matrix of the soil is a coarse-grain sand with small gravels intermixed. The extent of the concentration is 35 ft long east-west x 10 ft wide north-south. The upper concentration measures 4 ft and the lower concentration measures 1.7 ft in diameter.

Hearth No. 4 is located ca. 700 ft east of Datum Station 1 (borehole #N72-88) and is situated on a relatively flat sandy beach within 20 ft east of the Atigun River. The hearth area is represented by two separate concentrations, both characterized by fire-reddened and fire-cracked rocks associated with unburned caribou bone. The matrix of the soil is a coarse-grain sand and small gravels. The extent of the hearth area measures 10 ft north-south x 30 ft east-west.

Hearth No. 5 (Fig. 16) is located ca. 820 ft northeast of Datum Station 1 (borehole #N72-88) and 150 ft northwest of the Atigun River, which is clearly visible from the feature. The hearth is completely deflated and lies exposed on a relatively flat sandy beach on the west side of a narrow stream which flows into the Atigun River to the southwest. This stream drains the small kettle pond that is found along the northern margin of the site. The hearth is characterized by a circular concentration of fire-cracked rocks associated with a few pieces of unburned caribou bone. The matrix of the soil is a coarse-grain sand intermixed with small gravels. The extent of the hearth area measures 6 ft north-south x 11 ft east-west. Hearth No. 4 lies 100 ft to the north.

Hearth No. 6 (Fig. 16) is completely deflated and exposed. It is located ca. 800 ft northeast of Datum Station 1 (borehole #N27-88) and 210 ft west of Hearth No. 5 (360 ft west of the Atigun River). The feature is situated in a small sandy blowout depression on top of a relatively flat dune. The hearth is characterized by a small concentration of several



(7+) fire-reddened and fire-cracked rocks associated with a few small fragments of unburned caribou bone and two flakes of greyish-white chert (UA 81-137-11, 12). The matrix of the soil is a coarse-grained sand intermixed with small gravels. The Atigun River can be seen clearly to the east of the feature. The hearth area contains a good vantage point for views to the north, east and west. The hearth measures 2 ft north-south x 4 ft east-west. Two other veined grey chert flakes were found 10 ft northwest of the hearth and were also collected (UA 81-137-19, 20).

Hearth No. 7 is located 85 ft northeast of Datum Station 2 (Fig. 17) and is situated in a relatively flat sandy blowout that is slightly depressed and deflated. The feature is characterized by two fire-cracked rocks associated with a few burned and unburned long bones, identified to be caribou, and a bifacial flake made of greenish-grey chert (UA 81-137-6). The extent of the hearth measures 4 ft north-west-southeast x 3 ft northeast-southwest. Two other fire-cracked rocks were located 12 ft east of the concentration, and two burned bones were found 7 ft east of the two fire-cracked rocks.

Hearth No. 8 is located 70 ft northeast of Datum Station 2 (Fig. 17) and ca. 50 ft northwest of Hearth No. 7. The feature is situated in a relatively flat sandy blowout which gently slopes to the east toward the Atigun River. The feature consists of a fire-cracked hearth stone associated with burned and unburned bone fragments and two black chert flakes. Cultural material that was collected includes two block chert flakes (UA 81-137-7, 8), a Dall sheep horn core (UA 81-137-29), a long bone fragment of swan? (UA 81-137-30), a caribou long bone fragment and a caribou phalange (Fig. 5). The extent of the hearth measured 37 ft north-south x 12 ft east-west.

Hearth No. 9 is located 50 ft north of Datum Station 2 (Fig. 17) and 37 ft west-northwest of Hearth No. 8. The feature is situated in a relatively flat sandy blowout. The hearth consists of two flat fire-reddened hearth stones associated with burned and unburned bone fragments and a veined grey-green chert flake. Cultural material that was collected (Fig. 5) includes a Dall sheep horn core (UA 81-137-33), a bird (swan?) bone (UA 81-137-34), and a caribou long bone (UA 81-137-9). The extent of the cultural material measures 37 ft north-south x 50 ft east-west. The extent of the hearth proper measures 4 ft north-south x 2 ft east-west.

### Impact

A larger part of the western component of PSM-074-East lies within the 500 ft wide corridor (proposed NWA gasline), and will be directly affected by construction (Fig. 17). Specifically, Hearths 1, 2 and 9, numerous surficial exposures and an as-yet undisclosed amount of sub-surface cultural material lies within the project area. The adjacent areas are subject to indirect impact.

## Significance

The Atigun site has contributed to the understanding of the prehistory of the Alaskan interior, but considerably more remains here within an area exhibiting a long prehistoric record.

The chief significance of the Atigun site appears to be its association with the late prehistoric "Kavik" phase attributed to precursors of the modern Athapaskans. The Kavik phase was first described by Campbell (1968) from a site near Anaktuvuk Pass earlier attributed to prehistoric Eskimos. While several such Kavik sites are now known over a wide area, many questions remain concerning this important period, particularly with regard to its spatial and temporal extent. Early work suggested the Kavik was restricted to northern interior Alaska and the Yukon Territory with possible extension into northern British Columbia (Clark 1974).

Temporally, a date as early as 1975 B.P. for Kavik (at Mosquito Lake) was proposed by Kunz (1976) and into the historic era for the Yukon Territory (Morlan 1972).

Wilson (1978), through his work at the Atigun site, began to clarify some of these problems. Such items as 'Kavik' points, tear drop-shaped or ovate bifaces, small antler rectangles, barbed antler leisters, and possibly copper materials and unbarbed bone points recovered at PSM-074 stand to better characterize Kavik technology.

Ten radiocarbon dates ranging from A.D. 1500 to 1800 have been obtained from the Atigun River site (Wilson 1978:48-49, 167-168) showing the site to be younger than the postulated date obtained by Kunz for possible Kavik-attributed materials from PSM-049.

Another important aspect of work done by Wilson at PSM-074 involves reconstruction of activities. Of the seven occupation areas excavated by Wilson, all but one contained hearths containing faunal remains and lithic material. The hearths were typically ovate with flat stones serving as the hearth surface; no hearth rings were noted. Based on the identity of the faunal remains, Wilson concluded that the site was occupied by one to three family task groups during late summer, primarily for hunting ground squirrel. The other occupation (I2) was evidently a butchering locality.

Work done in 1981 at PSM-074-East augments the work of Wilson and demonstrates that further work (a larger sample) can provide further characterization of the Kavik phase including intrasite variations, subsistence patterns and resource utilization. With the relatively small sample collected in 1981, it was demonstrated that additional faunal resources such as Dall sheep, caribou and possibly swan were exploited.

Further understanding of intrasite variability can, in turn, help researchers to use or test established models concerning relationships

between settlement patterns and subsistence resources, particularly in definition of the Kavik settlement system. Understanding of the variability can also shed light on how Kavik has changed over time.

Finally, further work at PSM-074, specifically the eastern component within the project area, can help provide comparative data relating how Denbigh Flint complex, Kavik and early historic Eskimo-related peoples have adapted to an environment containing the same basic resources.

#### Recommendations

Much of PSM-074-East lies within the project and while some investigations have been conducted and some materials disturbed, considerable data remain. As the data will be affected by construction, testing of newly found loci is warranted. The site may have Register eligibility, but the recommended testing is necessary before a request can be made.

Alaska State Site No.: PSM-049

(Mosquito Lake Site; Alyeska B-15, S-63)

University of Alaska Museum Accession No.: UA 70-166, UA 74-70, UA 75-183,  
UA 75-205, 206, UA 81-138

Location: (center of site)

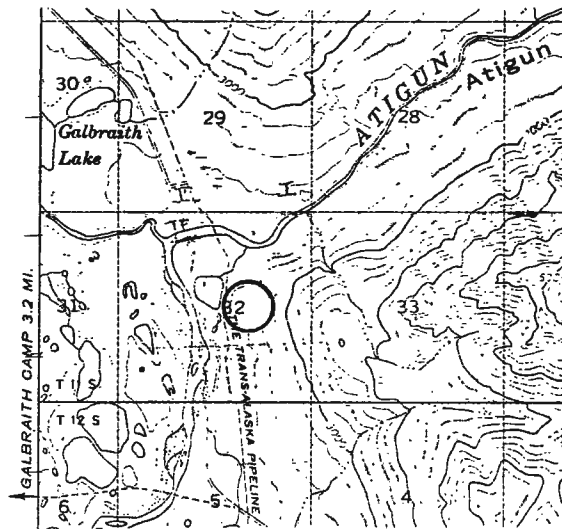
Latitude: 68° 26' 49"

Longitude: 149° 21' 29"

UTM Coordinates: (Zone 6), 403310 E; 7594310 N  
PSM B-4 quadrangle

Section, Township, Range: S/4 of SW/4 of NE/4 and N/4 of NW/4 of SE/4,  
Sec. 32, T11S, R12E (Umiat Meridian)

General: PSM-049 is located from 250 to ca. 1000 ft due east of Mosquito Lake, just east of the Alyeska pipeline, 1.66 miles north of Alyeska Pump Station 4.



### Environmental Setting

The Mosquito Lake site lies on and around a soil-mantled rocky lobe rising from the eastern side of Mosquito Lake (a kettle lake) up to a spectacular limestone promontory referred to occasionally as "Guardhouse Rock" (Fig. 23).

The Atigun River flows northward to a point ca. 2000 ft northwest of the site, then turns abruptly and flows in a general easterly direction - through Atigun Gorge. Numerous lakes occupy the vicinity, ranging

MOSQUITO LAKE SITE AREA  
(PSM-049)

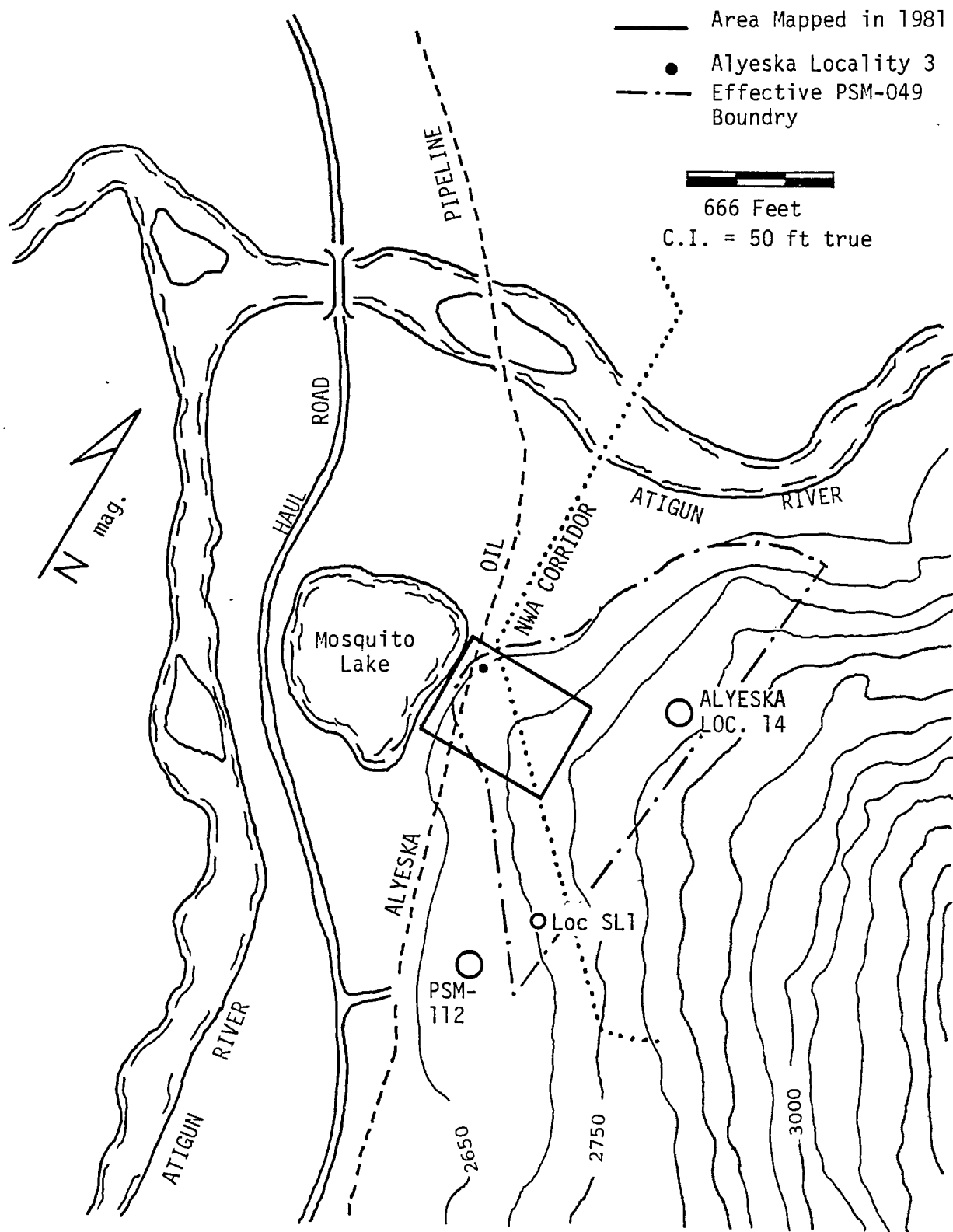


Figure 23.

in size from small ponds to nearby Galbraith Lake, two miles in length.

The Atigun Valley is 2-3 miles wide in the immediate area, and bounded on both sides by parts of the Philip Smith Mountains rising to 4500 ft and providing a local relief of about 2500 ft. The view afforded from the higher parts of the site is extraordinary.

The area concentrates several resources, due in large part to the river, numerous lakes and relatively sheltered aspects of the valley, and this is probably a major factor in accounting for the large number of varied archaeological sites found locally.

The more noteworthy faunal resources in the area comprise Dall sheep (within three miles), caribou (a main migration route passes below the site and along the Atigun River), arctic ground squirrel, some moose, and red fox. The avifauna is also rich, and includes ptarmigan and waterfowl such as cranes, swans, geese and ducks. All the lakes support trout and grayling, and arctic char and ling (burbot) occur in the Atigun River during spawning season.

An important source of chert is located along the Atigun River, a few miles away downstream. This is referred to as the Krogh Quarry (PSM-064), and is important in that the material was extensively traded in prehistoric times.

The bedrock lobe upon which the site is situated is flanked by small kame terraces probably dating to the Itkilik II glacial advance ca. 14,000 B.C. These terraces, and most of the other flatter areas as well, were covered by later aeolian deposits (loess).

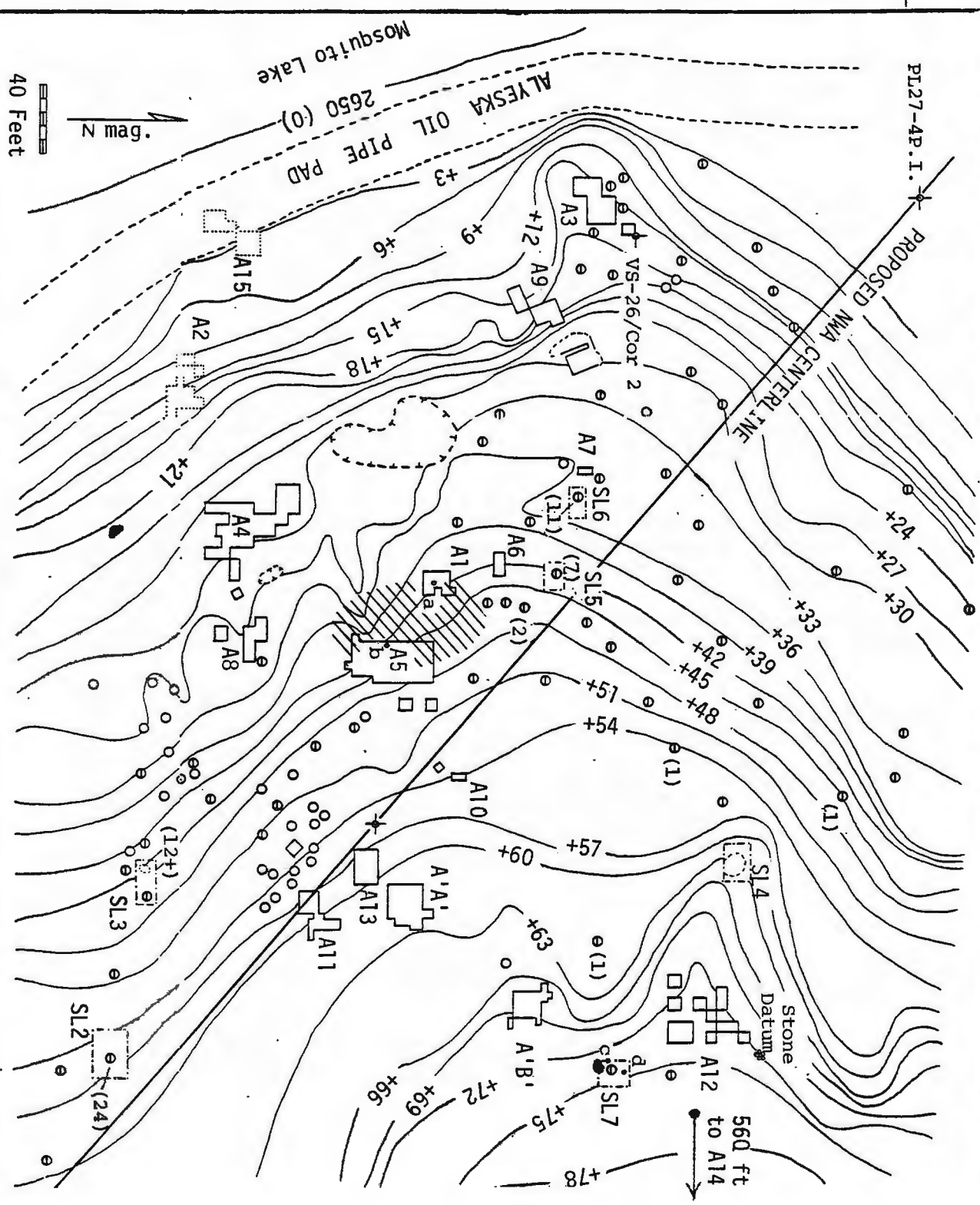
Local ground cover is a tundra mat with limited areas of scrub willow. The site itself is fairly well-drained and solifluction activity, while present, is apparently not severe. Cryoturbation of the soil zone appears to be the dominant disruptive process at the site. Additional environmental information can be found in Cook (1977:747-753).

### Survey Methodology

PSM-049, a well-known and highly important archaeological site, was re-visited in 1981 in the course of conducting archaeological survey along the proposed NWA gasoline corridor.

Between August 13 and August 22, 1981 the site, which had been previously investigated largely by Alyeska archaeologists, was intensively ground inspected, and 2 x 2 ft test pits were placed every 50 ft in a grid-like manner within the NWA corridor and wherever else discretion dictated. Many smaller test pits were placed at various other localities of the site. The site was then re-mapped (Fig. 24) as

- NWA Survey Pin
- A6 Alyeska Archaeological Locality
- [SL4] 1981 Locality
- ⊖ (2) 1981 Test Pit; Number Indicates Yield
- Former Test Pit
- Flake Scatter
- Rock
- ⊖ Bear Disturbance
- a Burin #UA81-138.1
- b Chert Chunk #UA81-138.2
- c Microblade #UA81-138.3
- d Burin #UA81-138.4
- High Archaeological Potential



C.I. = 3 feet  
 Mapping by S. Loring, S. Alloway,  
 K. Borges, N. Powell, H. Thorsen  
 August 1981  
 PSM-049 MOSQUITO LAKE SITE  
 Figure 24.

an update to the map in Cook (1977:755) (Fig. 25), showing all areas of excavation, test pits, topography and areas of remaining high cultural resource potential.

Only a few artifacts were recovered; the remainder were documented, left in situ and field-posted for future reference.

### Site Description

General information. The known core area of PSM-049 lies on the lower central part of the bedrock lobe over approximately 6.6 acres (Figs. 23 and 24). However, peripheral loci occur on the south flank of the lobe and Alyeska Locality 14 lies on an upper terrace well to the southeast of the core area (Figs. 23 and 24). Consequently, the realistic proposed site limits consist of a triangular-shaped area incorporating the lobe, its flanks and the upper terrace (Fig. 23). Total relief present at the site is nearly 150 ft.

History of investigations. PSM-049 was discovered by Herbert Alexander in 1966 during an archaeological survey of the Atigun River valley (Alexander 1967, 1968, 1969).

With the beginning of the Alyeska oil pipeline project in 1970, Alexander and a crew of six again visited the site but only tested a few areas (Cook 1970).

In the summer of 1971, Mike Kunz, Charles Ditters and Douglas Reger excavated Locality 1 (Figs. 24 and 25). Sixteen additional localities were excavated at PSM-049 in 1974 under the supervision of Kunz and Dale Slaughter. At this time it was uncertain as to whether the pipeline here would be built above ground or below. The below-ground option seemed at the time more likely and would create the possibility of much of the site lobe being taken as a material source. Consequently, archaeological work was carried out to greater limits than would have otherwise been required (Cook 1977:749). Most of the investigations were carried out during that summer (655 m<sup>2</sup> and 4200 worker hours). In 1975 a construction schedule change led to a brief testing program by Kunz and Gordon Lothson.

Results of early investigations. The work of Kunz and others between 1971 and 1975 determined that PSM-049 consisted of a number of spatially discrete cultural loci. These varied in character from simple flake scatters to more complex artifact clusters and other distinct features.

Of the 17 localities investigated during the Alyeska pipeline era, 12 were associated to varying degrees with the Denbigh Flint Complex: 1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 14 and B. The remaining five localities were undiagnostic or ascribed to later cultural manifestations including Kavik (late prehistoric Athapaskan) and late prehistoric Eskimo (tentatively Nunamiut). Table 10 summarizes from Cook (1977) some of the pertinent aspects of all the localities with some revisions based on the 1981 survey.



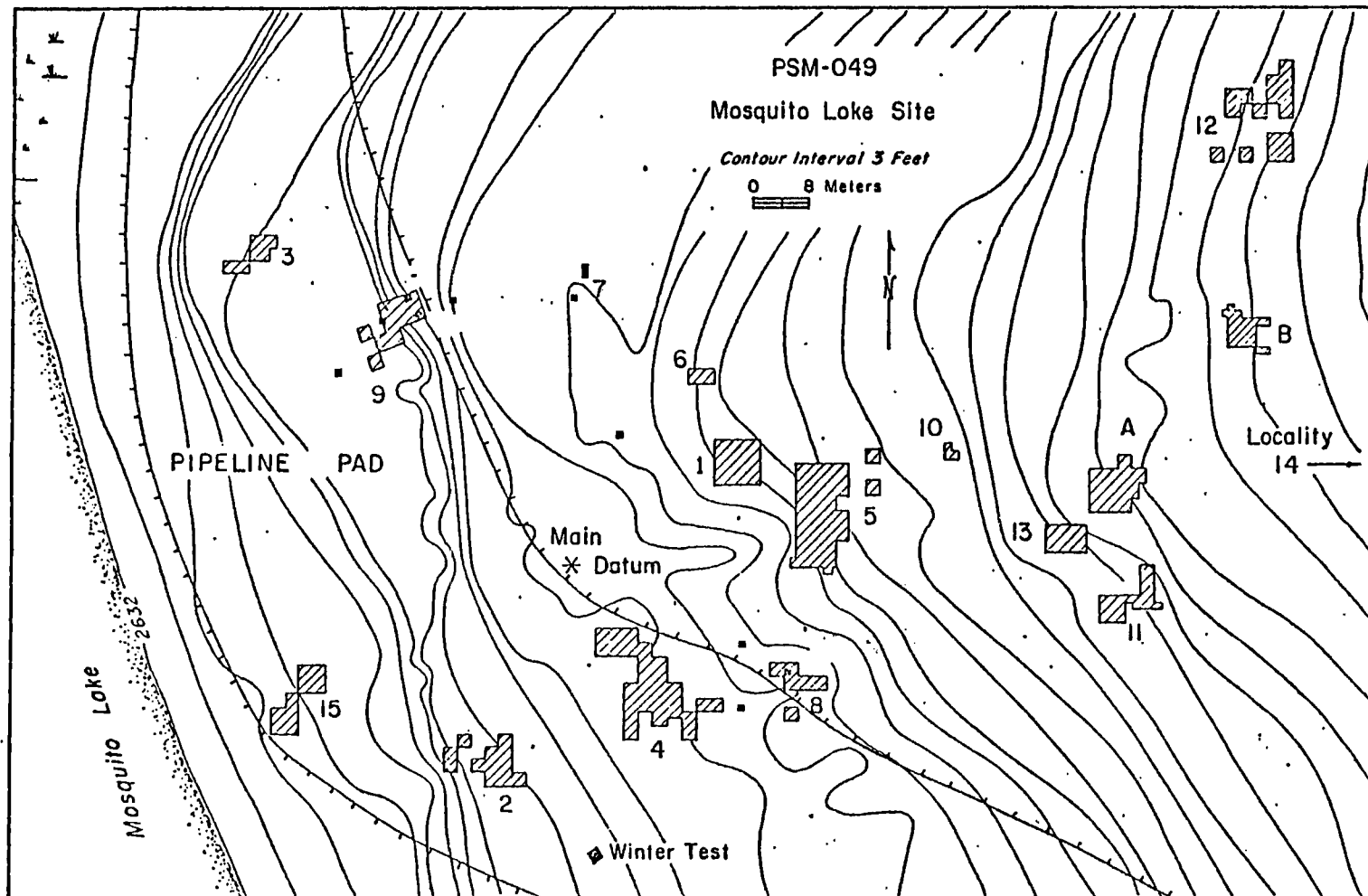


Figure 25. PSM-049 (Mosquito Lake) site and locality map, from Cook (1977:755).

TABLE 10

SUMMARY OF PSM-049 LOCALITIES  
(from Cook 1977:763-970)

Locality No.	No. of Flakes	No. of Diagnostic Artifacts	C <sup>14</sup> Date (B.P.)	Obsidian Hydration Date	Totally Excavated	Partly Excavated	Extant Locality	Materials Extant	Activity Style/ Cultural Affiliation
A	2692	60	305+ <u>130</u>	-	X	-	yes	no	Proto Nunamiut (recent) possibly Kavik.
B	429	52	-	ca.900B.C.	X	-	yes	no	Campsite, Denbigh.
1	3957	106	-	ca.2553B.P.	X	-	yes	yes	Hunting camp, Denbigh.
2	1160	55	2705+ <u>160</u>	-	X	-	no <sup>1</sup>	no	Hunting camp? with butchering area, probably Denbigh.
3	1102	26	2135+ <u>160</u>	-	X	-	yes <sup>2</sup>	no	Short duration camp site, probably Denbigh
4	8939	242	2540+ <u>170</u> 1950+ <u>175</u>	- ca.2194B.P.	X	-	yes <sup>2</sup>	no?	Four areas of charcoal/artifact concentration; two (1&2) Denbigh, one (4) Kavik and one (3) either Denbigh or Kavik.
5	9564	163	ca.2850	-	-	X	yes	yes	Two areas of tool manufacture, Denbigh.
6	14	-	-	-	X	-	yes	no	Late prehistoric Nunamiut? tent ring.
7	120	3	-	-	X	-	yes	no <sup>3</sup>	No assignment.
8	543	22	ca.3650	-	X	-	yes <sup>2</sup>	no	Brief camp with a hearth, Denbigh.

TABLE 10  
Continued

Locality No.	No. of Flakes	No. of Diagnostic Artifacts	C <sup>14</sup> Date (B.P.)	Obsidian Hydration Date	Totally Excavated	Partly Excavated	Extant Locality	Materials Extant	Activity Style/ Cultural Affiliation
9	85	21	-	-	X	-	yes <sup>2</sup>	no	Disturbed, probably Denbigh.
10	13	8	-	ca. 707 B.C.	X	-	yes	no	Denbigh?
11	458	68	-	-	-	X	yes	no?	Denbigh work area.
12	1250	32	-	-	-	X	yes	no <sup>3</sup>	Brief Denbigh manifestation.
13	569	20	1030±140	-	X	-	yes	no	Probably Denbigh.
14	4	3	-	-	-	X	yes	yes	Denbigh, at least 95% of site remains.
15	2481	16	-	-	-	X	no	no	Limited excavation/ data, no assignment

<sup>1</sup>Locality 2 was reported by Cook (1977:835) as being buried by the pipepad. This is not demonstrated by the maps produced in 1981, but the locality was not found.

<sup>2</sup>Localities 3, 4, 8 and 9 were reported by Cook (1977) as being buried by the pipe pad but 1981 survey/mapping showed them to still be extant.

<sup>3</sup>While no materials were observed directly in the old excavations, 1981 tests nearby showed extant in situ materials (see text).

Kunz (in Cook 1977) proposed that the 12 Denbigh-affiliated localities were both temporally and spatially associated, based on (1) the presence of 32 obsidian microblades from all localities (with no waste obsidian) and (2) the radiocarbon and obsidian hydration dates (see Table 10) which yield generally consistent and comparable dates, averaging 500-600 B.C.

1981 review of Alyeska localities. Investigations in the summer of 1981 comprised relocating and re-evaluating work done during the Alyeska project, conducting additional tests for cultural loci and preparing a map of all localities.

With the exception of a few cases, the former Alyeska localities were not directly tested. The following is an updated summary of the localities' present status (see Table 10).

Locality A was the only one with a high incidence of bone preservation which, along with Ipiutak-like projectile points and recent radiocarbon dates, suggests an undefined recent Brooks Range Eskimo culture (Cook 1977). Minimal testing around Locality A in 1981 produced no new materials. However, a film can was found containing a note from the 1971 excavations of Kunz and Ditters.

Locality B, 6, 7, 10 and 13 were described in Cook (1977:769, 770, 776, 791, 940) as "completely worked," "not disturbed by construction activities and...extant." These observations are presently concurred with.

Locality 11, according to Cook (1977:942, 952) was/is a Denbigh-related work area where further testing and/or excavation should be encouraged.

Locality 1 was described in Cook (Ibid:799, 817-818) as totally excavated but physically extant. 1981 survey revealed a burin (UA 81-138-1; Figs. 5 and 24) and numerous small pressure flakes scattered about the exposed excavation. It is felt that the area between the eastern edge of Locality 1 and the western edge of Locality 5 (see below) warrants further investigation (Fig. 24).

Localities 2 and 15 were not observed in 1981, and are presumed to have been destroyed by the pipeline. However, the Locality 2 location (Fig. 24) does not, as mapped, lie on the pipeline.

Localities 3, 4, 8 and 9 were all described in Cook as completely excavated and subsequently buried by the pipe pad. However, 1981 results showed these localities to still be extant. The localities lie on a series of small topographic hummocks near the western edge of the site (Fig. 24). The area is moderately impacted by 'bear pits.' No artifacts were noted, even though Locality 4 was one of the richer areas worked by Alyeska archaeologists.

Locality 5 was described in Cook (1977:910-911) as extant but completely worked or nearly so. Survey in 1981 revealed numerous small pressure flakes lying along the western surface of the excavation. A single large chunk of chert (UA 81-138-2) also lay within the old pit. Further work is certainly warranted here, especially towards Locality 1 to the west (Fig. 24).

Locality 12 was outside the Alyeska construction zone and was not completely excavated. It was suggested in Cook (1977:961) that more work could be done. The locality is within the present construction zone, and while nothing was found in 1981 on or in close proximity to the locality, materials were found in the vicinity (Fig. 24). Further testing of the area seems warranted.

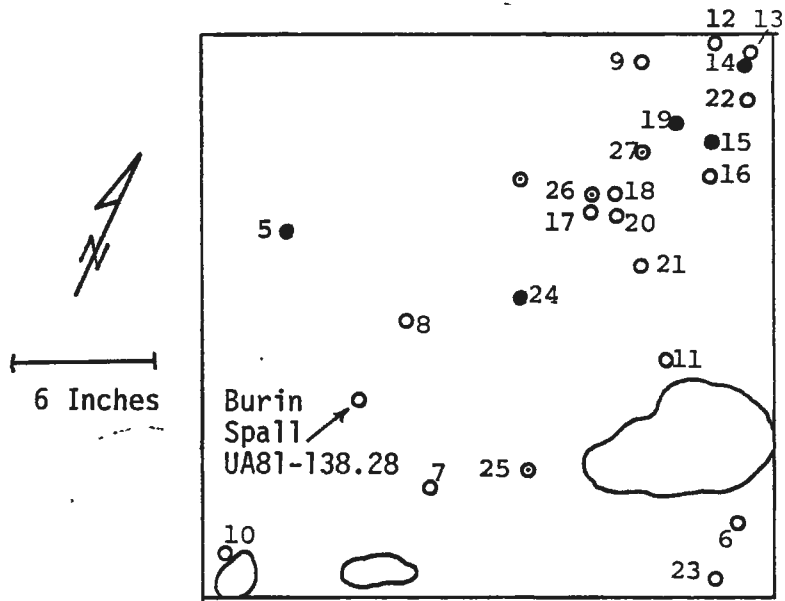
Locality 14 lies 510  $\pm$  ft to the east of the eastern edge of Figure 24, on a broad flat terrace. As the locality was well outside the Alyeska construction zone, only a 4 m<sup>2</sup> area was excavated. The locality was re-visited in 1981, and while outside the present project area, was found to be a prolific locality, harboring considerable in situ materials.

1981 localities. In the course of 1981 survey work at PSM-049 seven new localities containing in situ cultural materials were located, all within the 500 ft-wide NWA corridor. All of these localities (I-VII; Fig. 24) warrant additional testing or excavation.

Locality I lies well to the south of the PSM-049 core area, but is within the designated site limits (Fig. 23). It is located on a relatively higher and well drained gravelly area northeast of PSM-112, 1000 ft southward along centerline from the NWA centerline survey pin "27-4-1 POT" and 90 ft west of the center of the corridor (Fig. 24). A 20 x 26 inch test pit was placed on the northwestern corner of the rise, adjacent to a rodent disturbed area with six small flakes of greenish chert. Six additional flakes were noted on the surface of the test pit area and excavations yielded fifteen more as well as some scattered charcoal immediately below the sod. The activity area is considered not to exceed 5 ft in diameter.

Locality II (Fig. 26) consists of a 2 ft<sup>2</sup> test excavation 20 ft west of the center of the corridor. The pit yielded 24 items (UA 81-138/5-28) comprising waste flakes, utilized flakes and a burin spall (Fig. 5). The materials were found on the surface and immediately below the sod zone. The locality is considered to be a small, discrete activity area.

Locality III consists of a slight 'blister' containing a small cluster of boulders, ca. 80 ft west-northwest of Locality II and ca. 80 ft southwest of the center of the corridor (Fig. 24). A surface scatter of 12  $\pm$  flakes was found in the exposed sand near the base of the boulders. These were left in situ. A 24 x 62 inch test pit placed 15 ft east of the boulders exposed charcoal stained sands (cultural?) and additional flakes. The locality is a small although undefined activity area apparently intact, and warrants further work.



- Flake
- Retouch Flake
- ⊙ Pressure Flake
- Cobble

NOTE: All numbers reflect assigned accession numbers:  
UA81-138. \_\_.

PSM-049: DETAIL OF TEST PIT 2 (Alloway)

Figure 26.

Locality IV occupies the western end of a small ridge just west of Alyeska Locality 12 (Fig. 24). The center of the corridor lies ca. 170 ft to the southwest. This locality seems to be a small though as yet undefined activity area manifested by at least one microblade and a discrete concentration of flakes, 45 ft to the west of Locality 12. Two additional flakes were found in the intervening areas between the two localities. All materials were left in situ.

Localities V and VI located just southeast of the center of the corridor, near the core area (Fig. 24), each consist of two 2 ft<sup>2</sup> test pits which produced seven and eleven small pressure flakes, respectively. Each represents a small, discrete activity area, and, in conjunction with the proximity of Localities 1 and 5 to the south, certainly has potential and warrants further attention. All materials were left in situ.

Locality VII occurs just southeast of Alyeska Locality 12 (Fig. 24) and consists of two surface finds near a large boulder, a burin and a microblade (UA 81-138-4 and 3; Fig. 5). Subsurface testing in and around the locality produced nothing, but as Alyeska Locality 12 was not completely worked, the area may still harbor significant materials.

### Impact

Virtually all of the Alyeska and 1981 localities at PSM-049, save 14 and perhaps part of 12 and VII, are within the proposed NWA corridor and will be directly affected by construction.

As the site is highly visible and accessible, indirect impact is also likely. Some ground disturbance has already taken place by the action of bears, ground squirrels and probably caribou, but the overall effect appears negligible. Some cryostatic heaving of materials has also transpired, but as most of the cultural components appear as single horizons, contextual data are probably still intact and retrievable.

### Significance

PSM-049 is one of the more important known sites located along or near the proposed NWA corridor. The vicinity in general harbors extensive archaeological data.

The work conducted at PSM-049 during the Alyeska era substantially contributed to the understanding of interior manifestations of the Arctic Small Tool tradition (Denbigh) as well as demonstrated the presence of one and possibly two late prehistoric or protohistoric Eskimo and Athapaskan occupations.

Most of the available information concerning Denbigh-related cultures comes from coastal or riverine environments. Interior riverine/lakeside

manifestations are less well-known and therefore valuable in what they might reveal concerning variations in adaptation.

Kunz has proposed that most of the Mosquito Lake localities are distinct but basically coeval Denbigh related functional loci, occupied only briefly. The radiocarbon and obsidian hydration dates, however, averaging 500-600 B.C., appear somewhat late for traditionally accepted Denbigh materials. This suggests that this component at PSM-049 may indeed be a late or conservative Denbigh manifestation or, due to the presence of certain atypical materials, may be a transitional Denbigh-related phase. Dumond (1977:93) has noted that Arctic Small Tool tradition components throughout Alaska seem to be followed by a short, as yet unexplained, hiatus. The somewhat anomolous later materials at PSM-049 may help to explain if not fill in part of this critical period in interior Alaskan prehistory.

The younger components at PSM-049 are also significant in terms of late prehistoric Athapaskan (Kavik) and Eskimo land and resource use and settlement styles in the Atigun Valley. One of the more important local Kavik sites is PSM-074, immediately to the north of PSM-049, across the Atigun River (see PSM-074 above). The late Eskimo components at PSM-049, in conjunction with other large, probably contemporaneous sites such as nearby Aniganigaruk (PSM-036; Corbin 1975, 1976) can supplement demographic information such as that obtained by Campbell (1968) on the Tuluaqmiut centered around Anaktuvuk Pass.

Finally, most of the localities at PSM-049 are small and discrete, and can be valuable in providing information on specific activities and subsistence strategies which may not be extractable from larger, more complex sites.

In short, PSM-049 has extant data which can continue to provide insight into prehistoric interior land and resource utilization, adaptive strategies and settlement systems. The site may have Register eligibility.

#### Recommendations

PSM-049 has extant data at several localities which have significance and which may have Register eligibility. However, further testing of the new loci found in 1981, including newly located materials on or near former Alyeska excavations, is warranted before a recommendation for a request for determination is made.



Alaska State Site No.: PSM-112

University of Alaska Museum Accession No.: UA81-139

Location:

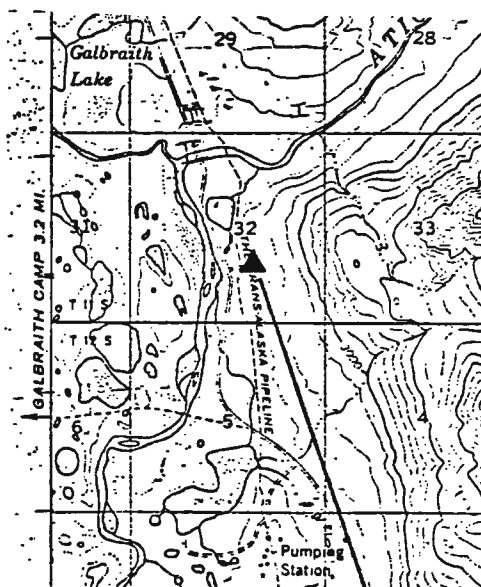
Latitude: 68° 26' 37"

Longitude: 149° 21' 32"

UTM Coordinates: (Zone 6), 403295 E; 7594000 N  
PSM B-4 quadrangle

Section, Township, Range: E/4 of SW/4 of NW/4 of SE/4, Sec. 32,  
T11S, R12E (Umiat Meridian)

General: PSM-112 lies between 40 and 280 ft east of the Alyeska oil pipeline and 1060 ft south-southeast of the southern tip of Mosquito Lake, directly in line with a short Alyeska pipeline access road.



Environmental Setting

PSM-112 is one of two contiguous knoll sites (see PSM-113) situated near Mosquito Lake, in the Atigun River Valley. The valley itself is one of low to moderate relief with adjacent mountains rising to 4500 ft. Many lakes occur in the area in addition to the Atigun River, 1200 ft to the west, and other smaller streams. The area concentrates resources including several mammals, avifauna and fish. Lithic resources are located within four miles (PSM-064).

The knoll upon which PSM-112 is located rises 18-20 ft above the boggy tundra/floodplain; the view afforded from the site is fairly good.

### Survey Methodology

Although PSM-112 lies ca. 150 ft west of the proposed NWA corridor (Rev. 3) it was located in 1981 during routine centerline survey while investigating other nearby, high potential areas. No sub-surface tests were placed, but intensive surface examination was conducted and two maps (Figs. 27 and 28) showing artifact distributions were prepared. A qualitative representative sample of artifacts (15 in number) was collected.

### Site Description

PSM-112 was originally located and partially investigated by Alyeska archaeologists, but the only published reference is a map location in Cook (1976:120; 1977:747). One old excavation was located on the western flank of the site, measuring ca. 10 x 19 ft (Fig. 27). Numerous small chert flakes were exposed within this area.

The site occupies an 18-20 ft high knoll covering about 1.4 acres. The knoll has an abrupt easterly side and a more gentle slope to the west (Fig. 27). The knoll top is discontinuously covered with a thin mat of lichen, and there is some scattered dwarf willow.

Artifacts are liberally distributed over the knoll surface, occurring as five discrete concentrations, less concentrated and more diffuse scatters and individually. The five main concentrations (Figs. 27 and 28) strongly suggest distinct activity areas. All cultural materials appear to be largely surficial.

A fairly broad variety of artifacts make up the assemblage, comprising flakes, burins, burin spalls, microblades and a variety of bifaces. Many of the flakes appear utilized. Overall, paleo-Eskimo/Arctic Small Tool tradition affiliations are suggested by the assemblage.

A sample of 15 artifacts was collected (UA139-1 to 15; Figs. 5 and 27; Appendix 6) as a qualitative estimate of the assemblage character.

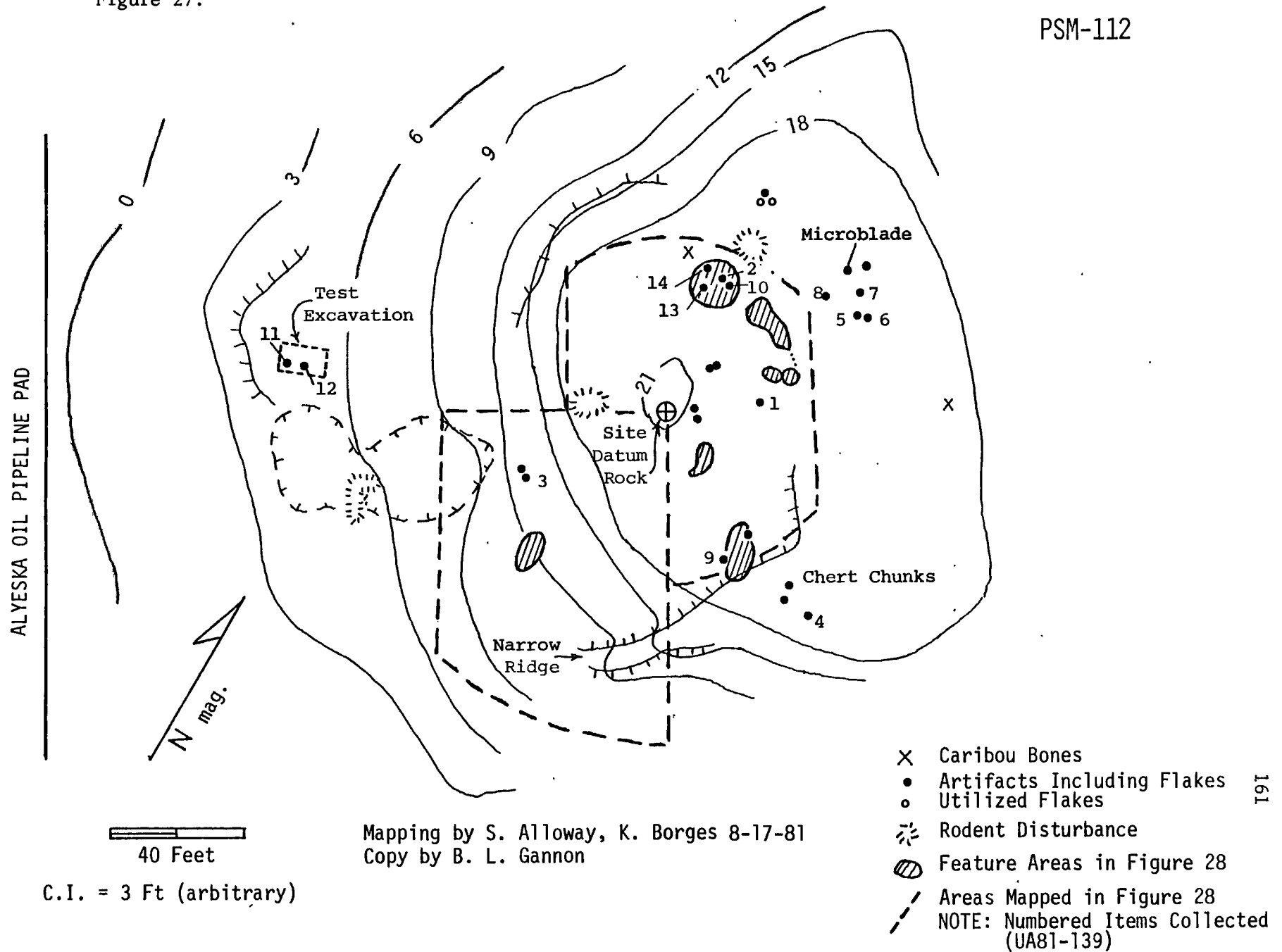
Stratigraphy. The surficial makeup of the knoll comprises non-stratified, poorly sorted coarse sand and pebbles.

### Impact

PSM-112 lies close to (ca. 150 ft) the proposed corridor, and is subject to indirect impact during construction; the knoll's prominent nature may be an inviting area to visit.

Figure 27.

PSM-112



PSM-112

## DETAIL OF FLAKE SCATTERS

- F Flakes  
 U Utilized Flakes  
 M Microblade  
 MC Microblade Core  
 B Biface  
 X Bone

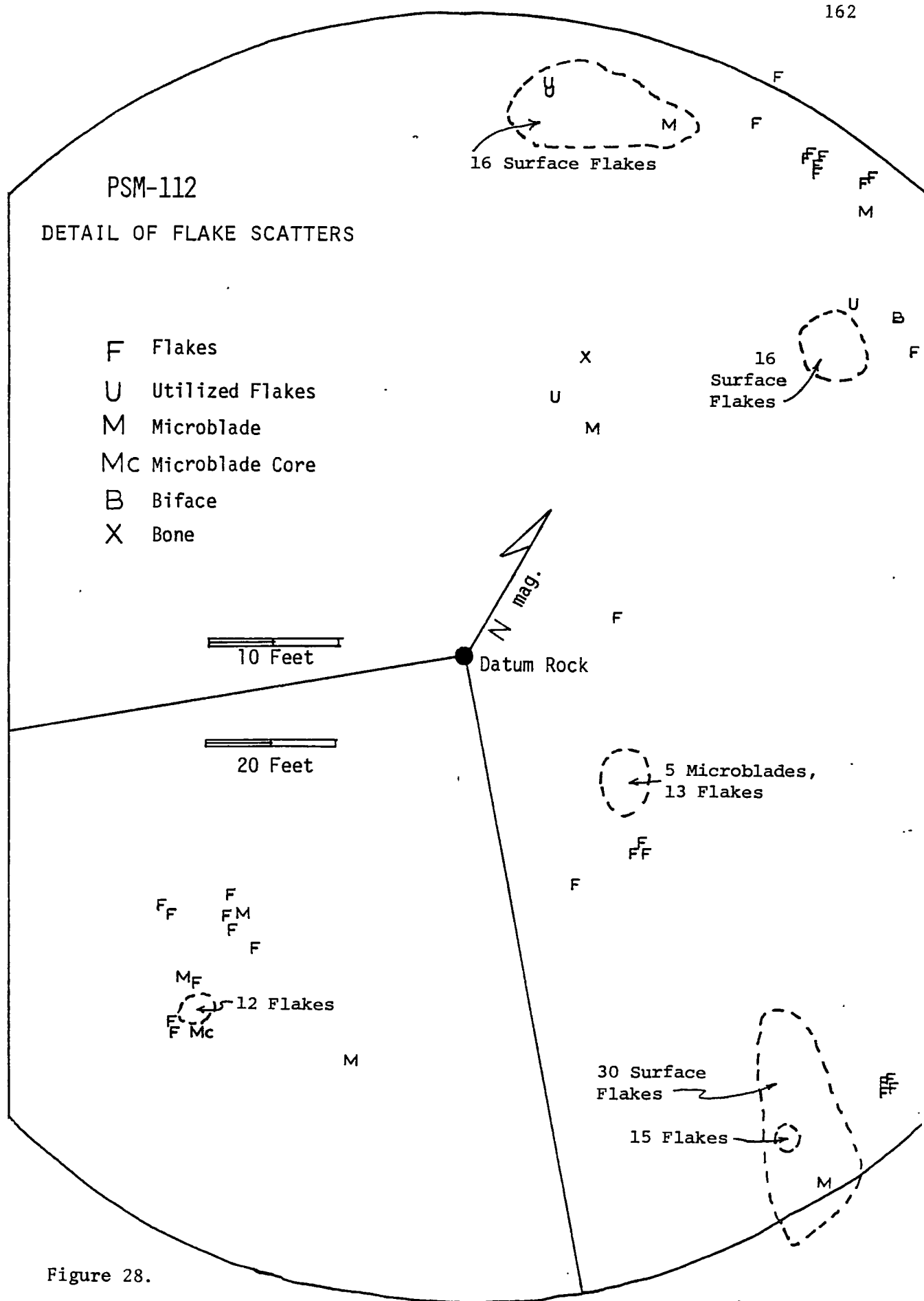


Figure 28.

Significance

PSM-112 has a discrete artifact assemblage arising from several activity areas which may be attributable to an Arctic Small Tool tradition occupation. Along with other sites in the area, such as PSM-049, substantial contribution to this particular cultural adaption and its variations may be obtained from PSM-112.

Recommendation

Data remain at PSM-112 and they may provide Register eligibility. Further testing is recommended.

Alaska State Site No.: PSM-113

University of Alaska Museum Accession No.: None

Location:

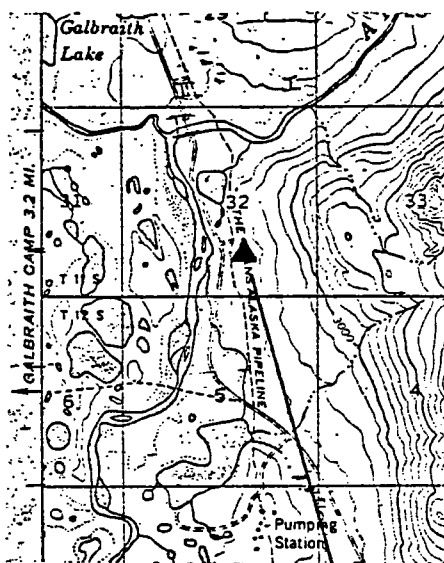
Latitude: 68° 26' 24"

Longitude: 149° 21' 32"

UTM Coordinates: (Zone 6), 403275 E; 7593895 N  
PSM B-4 quadrangle

Section, Township, Range: S central edge of NW/4 of SE/4, Sec. 32,  
T11S, R12E (Umiat Meridian)

General: PSM-113 is located ca. 250 ft east of the Alyeska pipeline and 1250 ft south-southeast of the southern tip of Mosquito Lake.



Commentary

PSM-113 lies on an arcuate knoll rising 20 ft above the surrounding tundra. It is 200 ft due south of PSM-112. The site was first documented by Alyeska archaeologists, but only a reference and a map location are available (Cook 1976:120, 1977:747). The site was briefly visited in 1981 during NWA archaeology survey in order to verify its status. In most respects, information regarding PSM-112 applies to this site as well.

No maps were prepared nor testing conducted in 1981, but a cursory examination of the knoll revealed a former 2 m<sup>2</sup> excavation on the northeast limb, in the middle of a prolific scatter of chert flakes and implements. Unlike PSM-112, PSM-113 appears to have most of its

cultural assemblage confined to this area. Despite the excavation, however, in situ materials remain, some of them subsurface.

PSM-113 appears to be another small briefly occupied late/variant Arctic Small Tool tradition site. It lies within 150 ft of the proposed project area and, like PSM-112, is subject to indirect impact during construction. It may have Register eligibility, but further testing is recommended.

Alaska State Site No.: PSM-198

(1981 Field No.: AS027-1-L)

University of Alaska Museum Accession No.: None

Location:

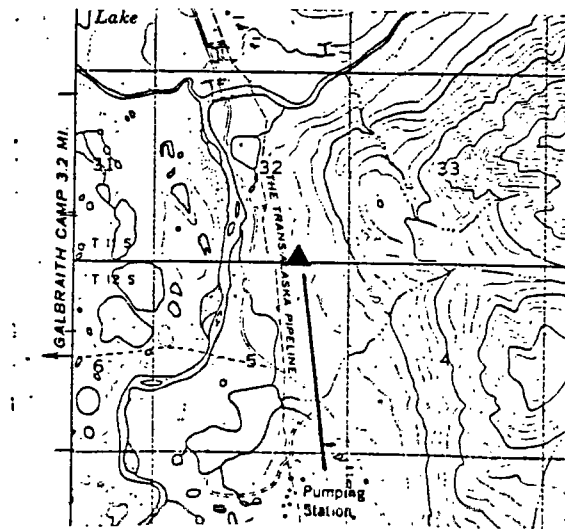
Latitude: 68° 26' 23"

Longitude: 149° 21' 18"

UTM Coordinates: (Zone 6), 403445 E; 7593550 N  
PSM B-4 quadrangle

Section, Township, Range: SE/4 of SE/4 of SW/4 of SE/4, Sec. 32,  
T11S, R12E (Umiat Meridian)

General: PSM-198 is located 625 ft east of the Alyeska pipeline,  
and 2500 ft south-southeast of the southern tip of Mosquito  
Lake.



Environmental Setting

At MP 149.4 the centerline route passes east of a high rocky knoll that forms the southern terminus of a broad, level flow of colluvial debris across which the centerline route traverses. This knoll is composed of small boulders and forms an elongate feature whose western edge forms a steep slope down to a small series of solifluction lobes at its base. This surface supports a uniform tundra vegetation, principally composed of tussocks, a thick layer of sphagnum moss, Labrador tea, and cotton grass. It is poorly drained due to the proximity of permafrost beneath the vegetation cover; there are some small localized areas of standing water.



The site is situated on the narrow part of a two-level terrace adjacent to the northern flanks of the high rocky knoll (immediately north of the highest knoll in the area). The colluvial fan forms a number of solifluction lobes that are encroaching the terrace upon which the site is located (Fig. 29). The terrace is well-drained and appears to be a remnant moraine or outwash deposit, partially overlain by more recent deposits.

The site commands a view of the Atigun River and Mosquito Lake region to the north and west, but the southern view is curtailed by the slightly higher rocky knoll several hundred yards from the site, and the western view by the knoll upon which PSM-192 is situated. There is no readily available water source short of the scattered ponds in the tundra above and below the site terrace, or from the Atigun River 1150 ft to the west. There are, however, many sizeable lakes in the area.

The site itself is covered by a sparse lichen and moss vegetation mat, with some Labrador tea and crowberry (*Empetrum nigrum*). This region of the Atigun Valley supports caribou, grizzly bears, wolf, red fox, Dall sheep, and arctic ground squirrel. Major avifauna comprises ptarmigan, swans, yellow-billed loons, ducks (scaups or pin-tails) and geese.

The proximity of the Krogh Site (PSM-064), the source for preferred lithic materials used by the prehistoric populations of this region, approximately four miles away above the north shore of the Atigun River at the mouth of the Atigun Gorge, must also be considered as a resource of importance.

### Survey Methodology

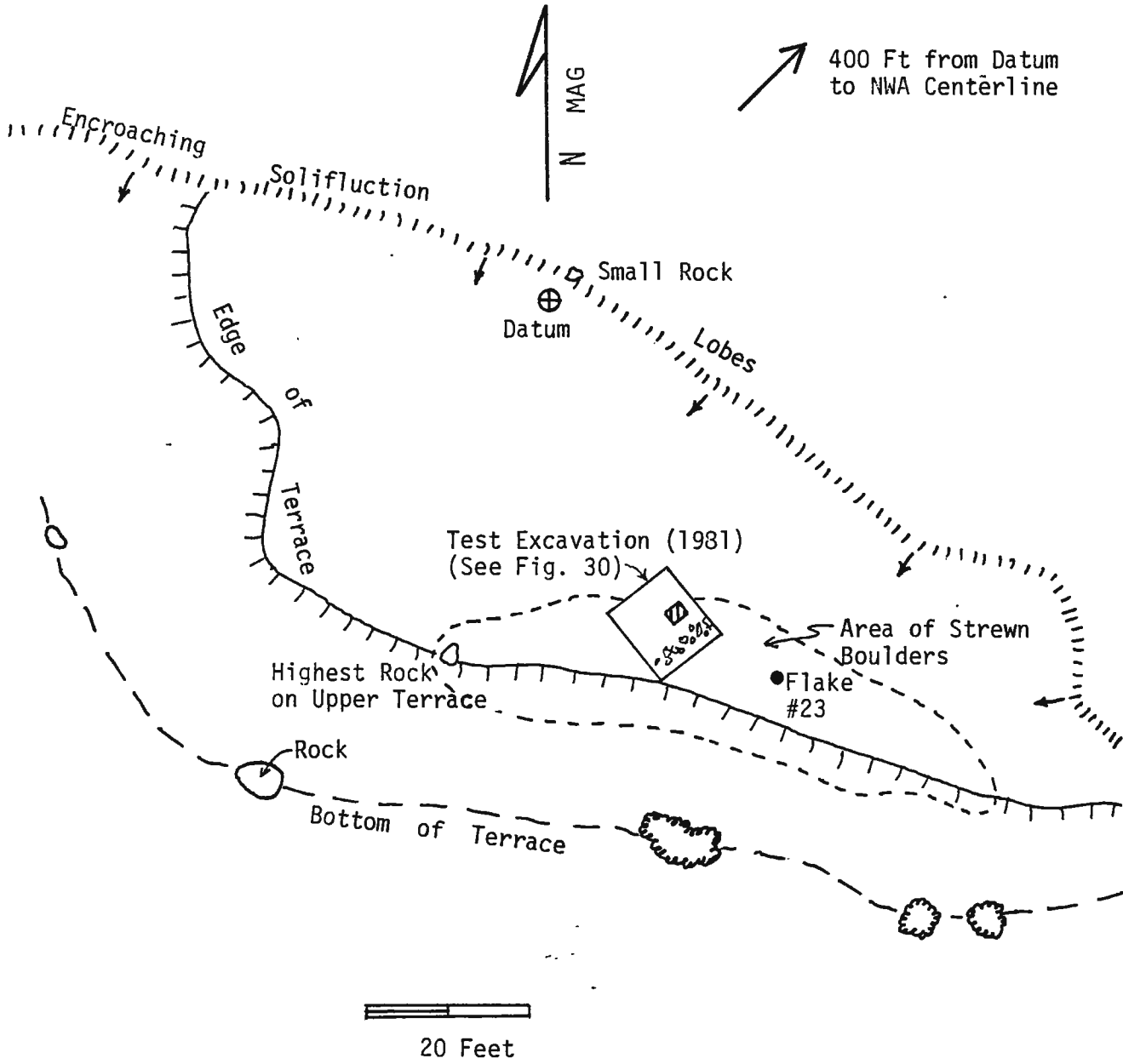
PSM-198, although outside the project area, was located during routine NWA centerline survey while investigating peripheral areas with high cultural resource potential.

Surface inspection revealed flakes, partially buried architectural features and fire-cracked rocks. Limited subsurface testing was conducted to verify depth of materials and to clarify function of features. The site, including features, was subsequently mapped and photographed. Charcoal from a hearth was recovered for radio-carbon dating. After testing, the test pit was backfilled.

### Site Description

Unlike many prehistoric sites that consist solely of a scatter of debitage and/or bone fragments, this site had several architectural elements including a 10-foot long linear alignment of stones and the remains of a stone-lined hearth (Figs. 29 and 30).

The 10 ft long, linear 'wall' consists of a single east-west course of small boulders running perpendicular to the length of the small terrace upon which it is situated. The wall is constructed from



PSM-198

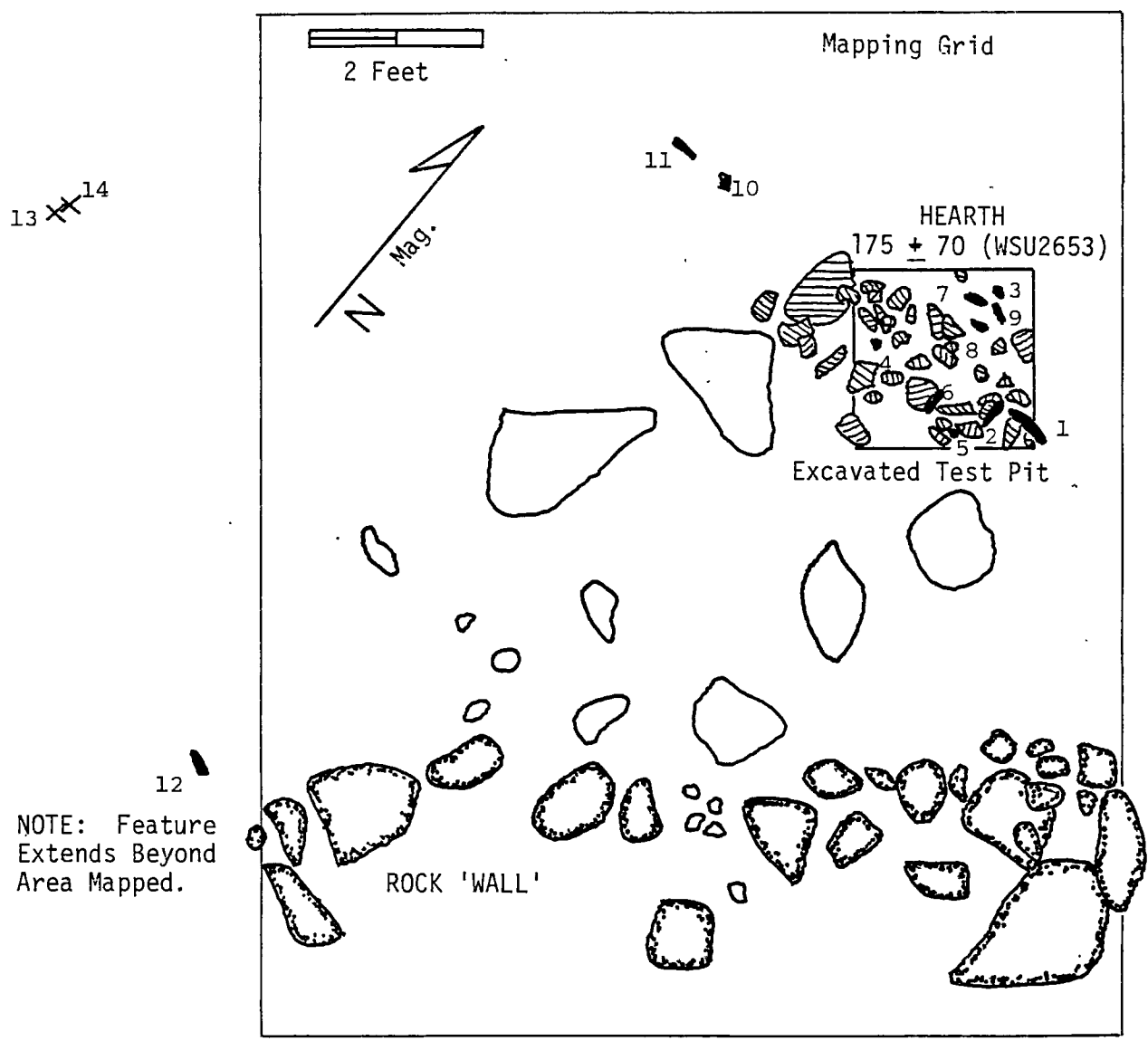
Mapping by K. Borges, S. Loring,  
S. Alloway, N. Powell 8-21-81  
Copy by B. L. Gannon

Figure 29.

X 15      16  
X

18 22  
19 21  
17 20

# PSM-198 FEATURE



NOTE: Feature  
Extends Beyond  
Area Mapped.

Mapping by N. Powell  
8-17-81  
Copy by B. L. Gannon






-  Rocks Apparently Used in Construction of Feature
-  Miscellaneous Rocks
-  Fire Cracked Rock
-  Bone. All Except those in Hearth Found on Surface.
-  Chert Flakes, All on Surface

Figure 30.

boulders that were obtained from the rocks strewn about the immediate vicinity and appears to have served as a windbreak or as "tie-down" boulders for a skin lean-to or Baker-type tent structure. There does not appear to be either any lateral or opposite wall construction suggesting that the structure (since it was not enclosed) was occupied during an inclement summer or fall. The hearth is situated 5 ft in front (to the north) of the wall. The hearth was recognized by the presence of several small boulders that had been thermally-altered and are in the process of crumbling. Excavation of a test-pit adjacent to the eastern margin of the hearth (Fig. 30) exposed charred and calcined bone fragments (caribou and ground squirrel) and charcoal. A 3.4 g sample of charcoal from this hearth was submitted to Washington State University for radiocarbon dating (WSU #2653), and yielded a date of  $175 \pm 70$  B.P.

Several fragments of caribou bone and five chert flakes were found on the surface, mostly within 7 ft of the hearth (Fig. 30).

#### Impact

PSM-198 lies 250 ft from the proposed NWA corridor and is not directly affected. However, increasing recreational use of the area poses some threat of indirect impact.

#### Significance

PSM-198 appears to be the remains of a small single component camp that was briefly occupied by either a group of hunters, or by a family, while hunting caribou in the Atigun Valley. Excavations at the Atigun River site (PSM-074) by Alexander (1967, 1968, 1969), Wilson (1970), and our survey in 1981 demonstrate the presence of a late prehistoric "Athapaskan" (Kavik) component in the North Slope of the Brooks Range.

Excavations along the south shore of the Atigun River directly opposite the Kavik components revealed an early historic contact period Nunamiut site, Aniganigurak (PSM-036) (Corbin 1971). Both of these excavations are key sites in reconstructing Indian-Inuit adaptations to the North Slope environment, and PSM-198 is probably affiliated with one or the other of these manifestations. The Kavik components were characterized by large cobble hearths; the Nunamiut components by circular tent rings with interior hearths. PSM-198 does not have any apparent architectural features to clearly affiliate it with one or the other of these cultural manifestations and the radiocarbon date of  $175 \pm 70$  B.P. from PSM-198 is inconclusive.

Unlike the other sites which were situated next to the river, PSM-198 is perched high on the hillside overlooking the Atigun Valley and may be expected to provide ancillary data to the earlier excavations.

The excellent state of bone preservation revealed in the test pit and the presence of charcoal in significant quantities to allow for a radiocarbon determination hold promise that the site can provide specific data to further clarify the range of variability in late prehistoric-early historic adaptations north of the Brooks Range.

#### Recommendations

PSM-198 has extant data and warrants a determination of Register eligibility. However, the site lies outside the project area and no further action is recommended.

Alaska State Site No.: PSM-Find 7

(1981 Field No.: AS027-5-L)

University of Alaska Museum Accession No.: None

Location:

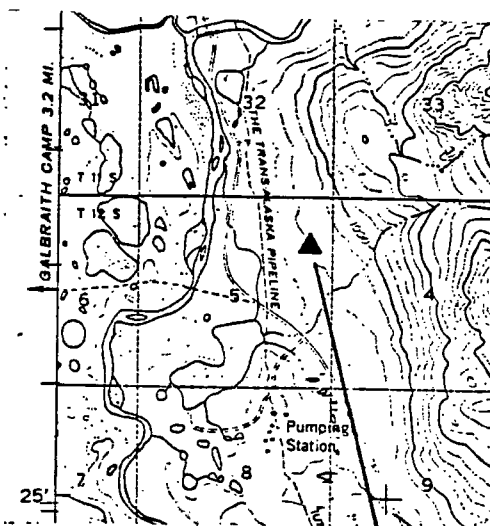
Latitude: 68° 26' 09"

Longitude: 149° 20' 55"

UTM Coordinates: (Zone 6), 403660 E; 7593090 N  
PSM B-4 quadrangle

Section, Township, Range: SE corner of SW/4 of NE/4 of NE/4, Sec. 5,  
T12S, R12E (Umiat Meridian)

General: The site lies 1250 ft east of the Alyeska pipeline and 4150 ft south-southeast of the southern tip of Mosquito Lake.



Environmental Setting

PSM-Find 7 lies on a small knoll within the Atigun River Valley. This knoll is one of several localized knolls, apparently remnants of old colluvial flows, producing a somewhat hummocky terrain. The surrounding terrain consists of fairly flat tundra and the floodplain of the Atigun River. Within one mile on each side of the valley the mountains rise to 4500 ft, providing a relief of 2500 ft.

Numerous lakes are in the area as well as the Atigun River and other small streams. The area, overall, concentrates several mammals, avifauna and fish. There are also important lithic resources (the

Krogh Quarry/PSM-064) less than 4 miles away. Sites PSM-191, 192 and 193 are all within 1000 ft of PSM-Find 7. Additional environmental data are given in descriptions for sites PSM-049 and 074.

#### Survey Methodology

PSM-Find 7 was located in 1981 during routine archaeological survey of the proposed NWA gasline corridor (Rev. 3). The site was carefully surface inspected and, in addition to five small shovel tests, two 12 x 12 inch test pits were placed near the find spot. Note: the site may have been posted incorrectly in 1981 as "AS027-2-L."

#### Site Description

A total of three chert flakes was located on top the small knoll. Peripheral testing revealed no other cultural materials. The flakes were not collected.

#### Impact

The site lies directly within the project area (corridor) and will be affected by construction.

#### Significance

PSM-Find 7 represents a find area without context and does not warrant a request for determination of eligibility.

#### Recommendation

No action; the site has been documented.

Alaska State Site No.: PSM-199

(1981 Field No.: AS027-2-L)

University of Alaska Museum Accession No.: None

Location:

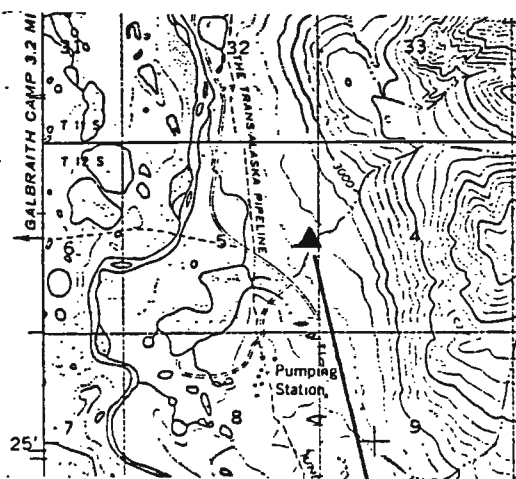
Latitude: 68° 25' 56"

Longitude: 149° 20' 46"

UTM Coordinates: (Zone 6), 403760 E; 7592665  
PSM B-4 quadrangle

Section, Township, Range: NW/4 of NE/4 of NE/4 of SE/4, Sec. 5,  
T12S, R12E (Umiat Meridian)

General: PSM-199 is located 1625 ft east-northeast of the northeastern tip of Tea Lake and 6000 ft (1.14 miles) south-southeast of the southern tip of Mosquito Lake. The Alyeska pipeline crosses the Dalton Highway 1375 ft to the west.



Environmental Setting

PSM-199 lies on several broad coalescent colluvial fans forming a gently sloping plain just east of the Atigun River, opposite Pump Station 4. This poorly drained surface supports an arctic 'upland tundra' vegetation regime of mosses, grasses, lichen and scrub willow. The surface is hummocky and cut by westward trending streams from the nearby mountains which rise to 4500 ft.



PSM-199 is a small site adjacent to the southern channel of two merging streams on the fan constituting the first major drainage south of Mosquito Lake.

The Atigun River Valley/Mosquito Lake area has many lakes and streams and concentrates several mammals, avifauna, and fish. Some of these are available on a year-round basis.

### Survey Methodology

PSM-199 was located during routine archaeology survey of proposed NWA centerline (Rev. 3) in 1981. In exploring topographic anomalies felt to have high cultural resource potential, in situ materials were found both on and below the surface. Intensive testing followed, and the site was mapped and photographed. All test pits were back-filled.

### Site Description

PSM-199 lies on a terrace bounded by active and ephemeral streams cutting a colluvial fan (Fig. 31). The site is bordered to the north by a rim of naturally occurring boulders and the lower level of the terrace is strewn with boulders.

The site was located by the presence of three bleached caribou bones lying on the surface. A 1 x 1 ft test pit was placed next to these bones, revealing a dense concentration of cut caribou bone fragments, fire-altered rock, charcoal, some small bits of worked stone and several large, greenish-grey chert flakes. Following documentation of these finds, the vegetative mat was replaced leaving the materials in situ; it was felt that their removal at this time would create a loss of context in a small but probably productive locus. Overall, materials at this site appear to be analogous with those found at PSM-074 and PSM-190.

Stratigraphy. A 2-3 inch thick vegetative/peat mat overlies charcoal stained brown sand containing cultural materials.

### Impact

PSM-199 lies within 35 ft of the proposed NWA corridor center and is subject to direct impact during construction.

### Significance

PSM-199 is a small discrete site characterized by a hearth, flaked stone and butchered caribou bones of possible Kavik derivation. As these materials remain in situ, the site may provide reliable information on late prehistoric Athapaskan land and resource use and settlement patterns, and contribute, overall, to understanding of the important Mosquito Lake/Atigun River area.

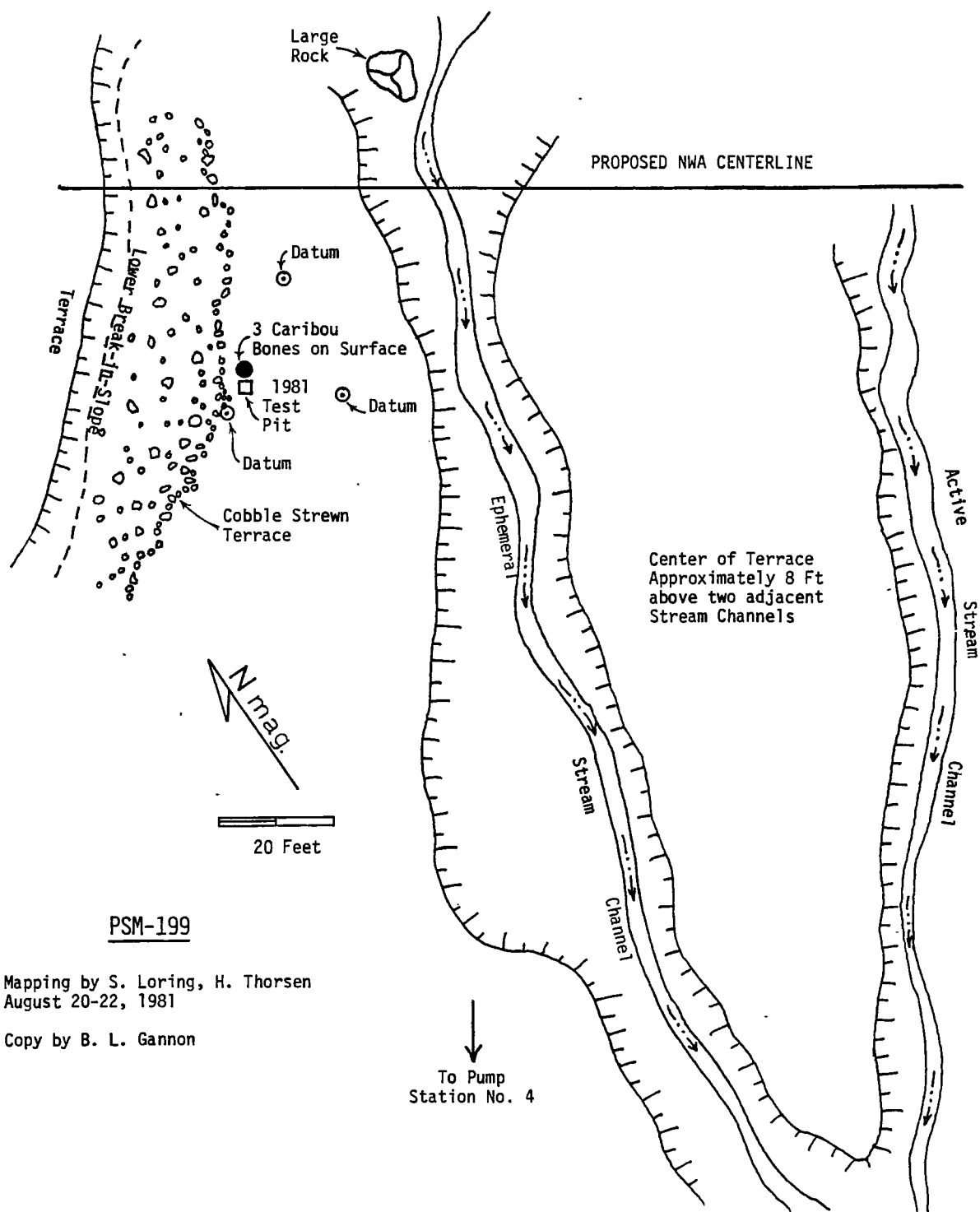


Figure 31.

Recommendation

PSM-199 has remaining data, but insufficient information warrants a recommendation for further testing.

Alaska State Site No.: PSM-200

(1981 Field No.: AS027-3-L)

University of Alaska Museum Accession No.: None

Location:

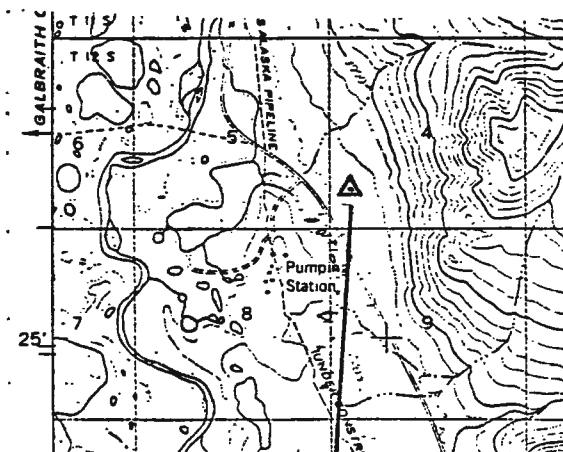
Latitude: 68° 25' 42"

Longitude: 149° 20' 22"

UTM Coordinates: (Zone 6), 403990 E; 7592205 N  
PSM B-4 quadrangle

Section, Township, Range: NE corner of NW/4 of SW/4 of SW/4, Sec. 4,  
T12S, R12E (Umiat Meridian)

General: PSM-200 lies 1250 ft due east of the junction of the Dalton Highway and the Pump Station 4 access road, and 1.37 miles south-southeast of the southern tip of Mosquito Lake.



Environmental Setting

In most respects, the environmental setting of PSM-200 is like that described for PSM-199. PSM-200 is located on a low gravelly knoll on the southern flank of a large colluvial fan. A limited view of only about one mile is afforded from the site.

### Survey Methodology

The site was located during routine archaeology survey along the proposed NWA gasline corridor in 1981. PSM-200 actually lies somewhat outside the survey area, but was found while inspecting nearby areas with high cultural resource potential. Exposed areas of the site were scrutinized and test pits were placed in the vicinity of the site locality.

### Site Description

PSM-200 was identified by the presence of a scattered concentration of small greenish-grey chert retouch flakes. The scatter measures 3 x 5 ft, and lies on the side and top of the terrace edge. Further testing revealed no other materials. Those materials found were documented and left in place.

### Impact

The site lies ca. 175 ft east of the proposed NWA corridor (Rev. 3), and may be subject to indirect impact during construction.

### Significance

PSM-200 appears to be a small flaking station. While this kind of site is fairly common, its significance has not been adequately addressed. Data (limited in scope) remain at this site and its thorough documentation could contribute to the overall knowledge of prehistoric land and resource use and settlement patterns in the archaeologically important Mosquito Lake area.

### Recommendation

PSM-200 has extant materials and extant activity specific information. We have insufficient data at this time and recommend further testing.

Alaska State Site No.: PSM-Find 6

(1981 Field No.: AS027-4-L)

University of Alaska Museum Accession No.: UA81-140

Location:

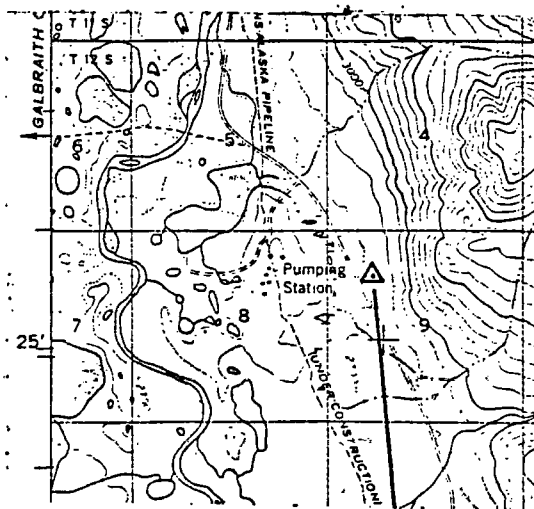
Latitude: 68° 25' 18"

Longitude: 149° 20' 09"

UTM Coordinates: (Zone 6), 403980 E; 7591495 N  
PSM B-4 quadrangle

Section, Township, Range: SE/4 of SE/4 of NW/4 of NW/4, Sec. 9,  
T12S, R12E (Umiat Meridian)

General: PSM-Find 6 lies 3125 ft southeast of the junction of the Dalton Highway and the Pump Station 4 access road, and 375 ft east-northeast of the Dalton Highway proper.



Environmental Setting

PSM-Find 6 lies on a small knoll on the truncated terminus of a small, stabilized colluvial fan. The boggier Atigun River Valley floor lies below the locality, and the adjacent mountains rise to 4500 ft. The area supports several mammals, avifauna, fish and contains useful lithic materials; many lakes and streams are nearby. A limited view of ca. one mile is afforded from the locality, and Tea Lake, ca. 0.75 miles to the northwest, is the nearest large body of water.

### Survey Methodology

PSM-Find 6 was located during routine archaeology survey of the proposed NWA centerline in 1981. The area around this find was surface inspected and followed by four 2 x 2 ft test pits (Fig. 32). The find was collected.

### Site Description

PSM-Find 6 consists of a single, isolated unifacial 'flake knife' (UA81-140-1; Fig. 5, Appendix 6) found on top of the well-vegetated knoll surface (Fig. 32). The specimen is of black chert and measures 1.2 x 3 inches. Testing revealed no other materials.

### Impact

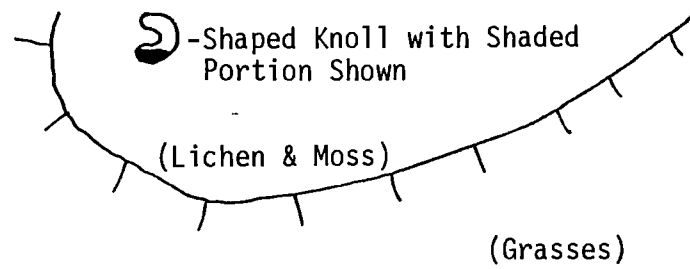
The find lies 50 ft east of the corridor and, while the locality may be subject to indirect impact during construction, no data remain.

### Significance

PSM-Find 6 represents an isolated find without archaeological context.

### Recommendation

Data have been collected and no further action is recommended.



# PSM-FIND 6 SKETCH MAP

Mapping by H. Thorsen 8-19-81  
Copy by B. L. Gannon

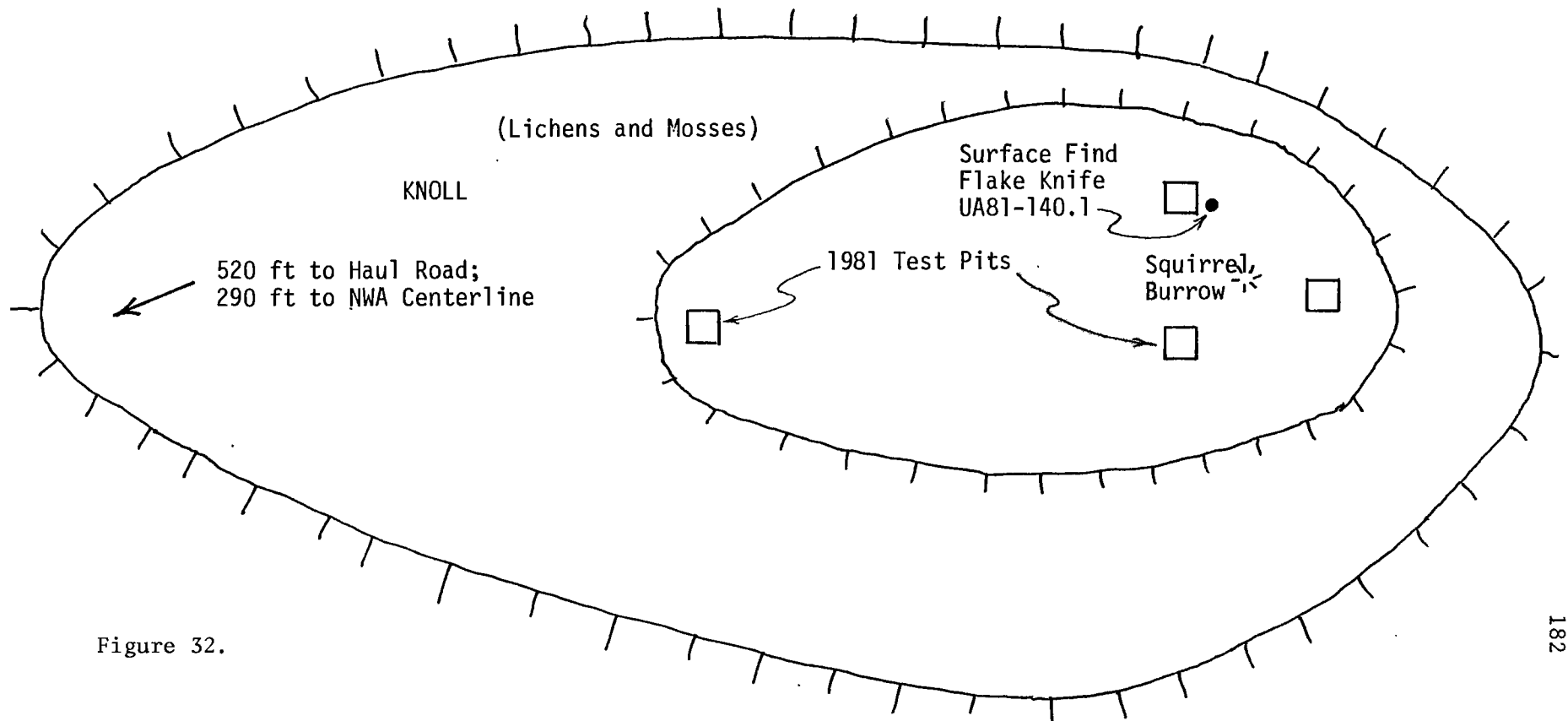
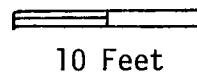
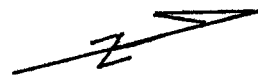


Figure 32.



Alaska State Site No.: CHN-016

(1981 Field No.: EMS-37-3/1D)

University of Alaska Museum Accession No.: UA 81-125

Location:

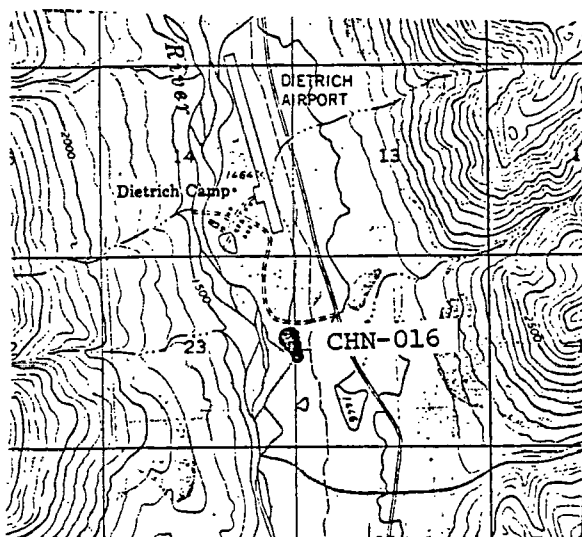
Latitude: 67° 40' 15"

Longitude: 149° 43' 25"

UTM Coordinates: (Zone 6), 384475 E; 7508600 N  
CHN C-6 quadrangle

Section, Township, Range: SE/4 of SE/4 of NE/4 and NE/4 of NE/4 of SE/4,  
Sec. 23, T33N, R10W and SW/4 of SW/4 of NW/4  
and NW/4 of NW/4 of SW/4, Sec. 24, T33N, R10W  
(Fairbanks Meridian)

General: CHN-016 is located 0.6 miles south-southeast of Dietrich Camp between EMS-37-3A and 37-3B. Access is gained from the Dalton Highway via Alyeska Access Road 104 APL/AMS-3. The site lies immediately to the south of the access road, 1000 ft west of the junction.



Environmental Setting

CHN-016 is situated near the eastern edge of the Dietrich River, along the contact between the river's floodplain and the distal end of an alluvial fan originating from the northeast. The Dietrich River valley is ca. 1 mile wide and is bordered on both sides by hilly terrain.

Local vegetation consists of scattered black spruce, willow, shrub alder and a lush understory of moss, grass, shrubs and lichen. Faunal resources include moose, Dall sheep, wolf, hare, fox, bear, numerous species of rodents, fish and abundant avifauna. The nearest water is the Dietrich River, 800 ft to the west. A few lakes and several small streams occur in the area.

### Survey Methodology

The site was located in the process of conducting routine archaeological survey of EMS-37-3B. The locality was thoroughly investigated (including some subsurface testing), and a general site map and sketch plans of selected principal features were prepared.

### Site Description

The site consists of three deteriorated structures, one pole cubby set, one deadfall trap, and scattered refuse and an area of axe-cut trees (Fig. 33). The refuse includes a Dall sheep horn ladle, tin cans, metal fragments, stove piping and metal dish pans. There are also a number of animal trails that criss-cross the site area. Their locations suggest that they may have been initiated by the inhabitants of the structures then subsequently taken over by the animals in the area. Most of the archaeological remains lie in an area of ca. 1 acre between Areas A and B of the proposed EMS but the deadfall is located at the eastern apex of Area B.

Structure A (Figs. 33 and 34) is of an open log construction, measuring approximately 9 x 11 ft. The logs appear to have been vertically placed with a window/entrance on the northeast wall. The only standing part of the structure is one large, saw cut, vertical post at the southeastern end. The remainder of the walls have fallen over. A few logs appear to have rotted off but the majority have just fallen over and many still have their bases in the sod. The walls appear to have been constructed of small logs of varying sizes and lengths. A few still have bark fragments attached. Both saw and axe cut logs were used in the construction of this structure. A slight bank is apparent around this structure especially around the southeastern corner. The remains of the sod roof is apparent along the middle part of the southwestern wall.

An age of 50+ years is suggested for this structure on the basis of its state of collapse, the lichen growths apparent on several of the logs and the decomposed state of the wood used in its construction. This structure is the most complete of any of the three present at this site. Nails were sparingly used in the construction.

The logs and debris associated with Structure B cover an area of approximately 13 x 15 ft. The construction of this structure is not as substantial as A. Along the northern border is a line of cans and metal containers that may be related to a feature such as a

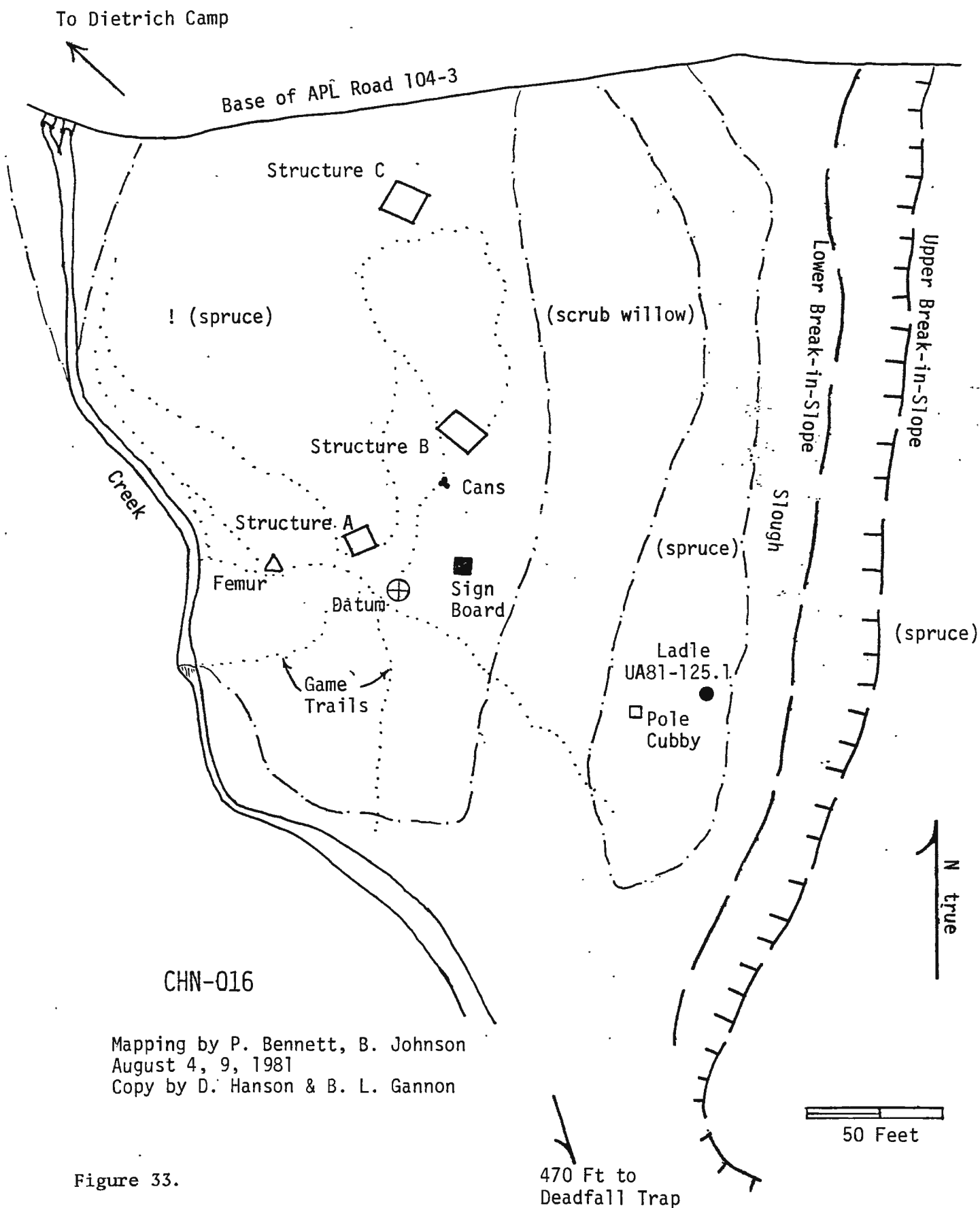


Figure 33.

collapsed shelf. Some of these cans and associated logs are partially buried by the humic mat. Just south of this debris is a wooden feature made up of logs. This structure has two shaped logs running approximately east-west with spaced, saw cut, cross "beams." These beams have been notched, or shaped, to fit the two parallel logs and are attached by nails; the ends of these beams have been saw-cut. The northwest corner of this feature is held off the ground by a post that has also been saw-cut and is still standing. There are also a number of smaller logs and poles that still have their bases in the sod but most are leaning severely. There are two upright posts at the northern part of the eastern end.

Structure C is in the worst state of preservation. It is apparent as an outline of logs laying flat on the ground, partially covered by moss (Fig. 34). There are two upright post fragments in the main area that are less than one foot tall. Just northwest of this area is a ladder-like feature, consisting of one support log with two cross pieces nailed to it. The function of this structure has not been determined.

Structures A, B, and C are all collapsed remains of what were probably dwellings. Structure A, especially, appears to be similar to the Nunamiut pole/moss house or ivrulik described by Spearman near Anaktuvuk Pass. As Spearman notes (1979:104) the collapsed ivrulik resembles a "jumble of jackstraws," much like the array seen at Structure A at CHN-016. The major style of ivrulik (near Anaktuvuk) used in the late 1950's consists of two 6 ft-high spruce poles placed vertically, front and rear, for primary support. These vertical posts support a ridge pole from whose ends poles extend toward the ground, perpendicular to the long axis, providing a gabled roof. These gable poles have upright supports of their own, and are notched to hold "horizontal stringers" (ca. 4 inches diameter) extending the length of the house. These horizontal stringers serve as supports for "roof stringers" extending from the ridge pole, and against which the "wall stringers" lean. Roof stringers average ca. 6 ft long (3 inches diameter), spaced every 8-10 inches. The wall stringers are generally a smaller diameter and placed every 4-6 inches. They vary in length from 5-7 ft, depending on wall height. The doorway, made from saplings, is placed close to the uprights so as to provide maximum headroom, and measures 2 x 4 ft. The door is commonly covered with grizzly bear and/or caribou skins. The ca. 12 x 12 ft house frame is finally interwoven with willow branches and covered with a special moss (ivruq) (Spearman 1979:108, 110).

The structures at CHN-016 also resemble the cabin of Arctic John Etalook (CHN-015) (Aigner and Gannon 1981:175-176). As Structures A, B, and C are in various states of deterioration, it is possible they were inhabited at different times, and earlier structures perhaps 'cannibalized' to build later ones. As Corbin (1975) notes, moss houses were only occupied one season (winter), which would eventually produce a set of variously intact houses in a given area.

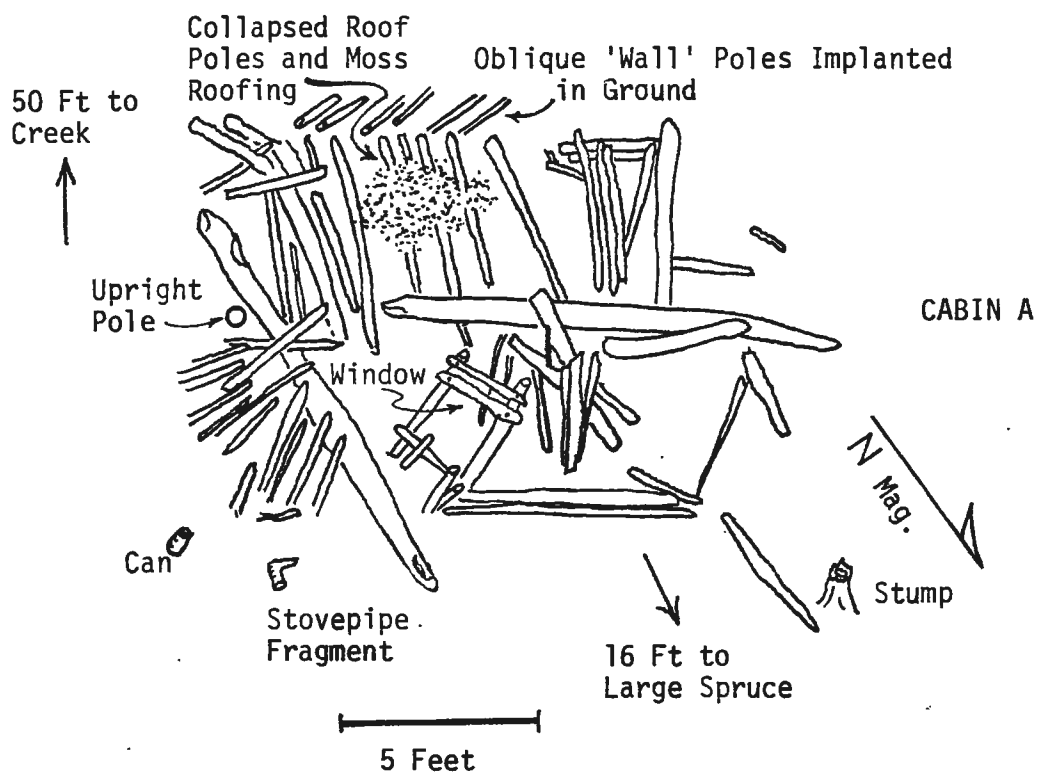


Figure 34.

CHN-016  
CABINS A & C

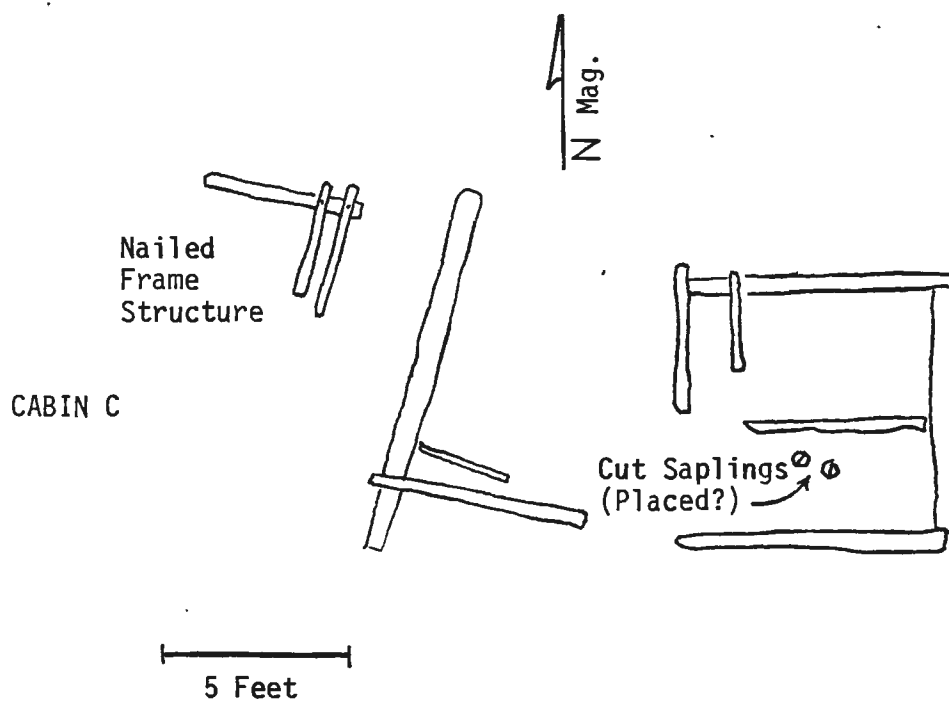


Figure 35.

Two trap mechanisms occur at CHN-016. The remains of a pole cubby set are present 125 ft S65°E from Structure A (Fig. 33). This trap set consists of a number of small axe-cut poles laying in a diffused pattern around the base of a live standing spruce tree. Most of the ends of these poles are at this standing tree. This type of trap set requiring a steel trap to catch the animal is designed specifically for all members of the cat family (Fig. 36).

The other trap mechanism is a deadfall located 407 ft S and 20°E of the site datum, along a small creek that forms the eastern boundary of EMS 37-3B. This feature measures approximately 5 x 6 ft with many of the logs leaning up against three live standing trees to a height of ca. 3 ft. Many of the smaller trees used in the construction still have their branches attached. These smaller trees are laying on top of the larger axe-cut trees that would form the main part of the deadfall. The outline is vague and poorly defined owing to its collapsed state (Fig. 37). This feature is similar to that described at CHN-011 (Aigner and Gannon 1981:158-160).

Other miscellaneous artifacts of interest comprise a ladle made of Dall sheep horn (UA 81-125-1; Fig. 5, Appendix 6). This ladle style was commonly used by both Athapaskans and Eskimos in prehistoric and historic times. A rusty two-pound Hills Bros. coffee can (UA 81-125-2), showing an 'art nouveau' design, was recovered from the debris south of Structure B (Fig. 33). The design dates from the 1920's and 1930's, and the diagnostic 'lapped and locked' side-seam post-dates 1922.

### Impact

The main part of the site is outside the EMS and will be subject to indirect impact during mining. The deadfall is in disrepair and is threatened with erosion by the nearby stream. In addition, the deadfall lies on the boundary of EMS-37-3B and will be directly affected by mining.

### Significance

CHN-016 appears to be a seasonally occupied camp, probably built and inhabited by natives oriented towards trapping (assuming temporal association of the traps). Based on styles of artifacts and state of deterioration of the features, a general period of occupancy from ca. 1922 to 1925 seems reasonable. As such, it has value in understanding historic (probably native) land and resource use and settlement patterns.

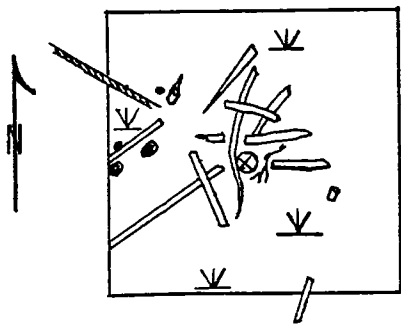
### Recommendations

CHN-016 for the most part, lies outside of but close to the project area. Furthermore, data remain which may have Register eligibility but further on-site and archival data gathering (testing) are required before a request for determination is warranted.

Slight modification of the EMS boundaries could ameliorate the threat of impact.

CHN-016







DEADFALL AND POLE CUBBY

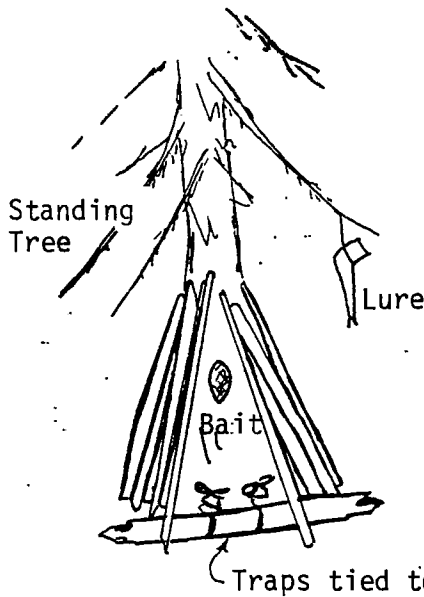


1 Foot

PLAN VIEW OF POLE CUBBY  
(Collapsed)

Figure 36.

-  Bushes
-  Straight Branches, Cut
-  Spruce Deadwood
-  Standing Tree
-  Carnation Milk Can
-  Standing Saplings

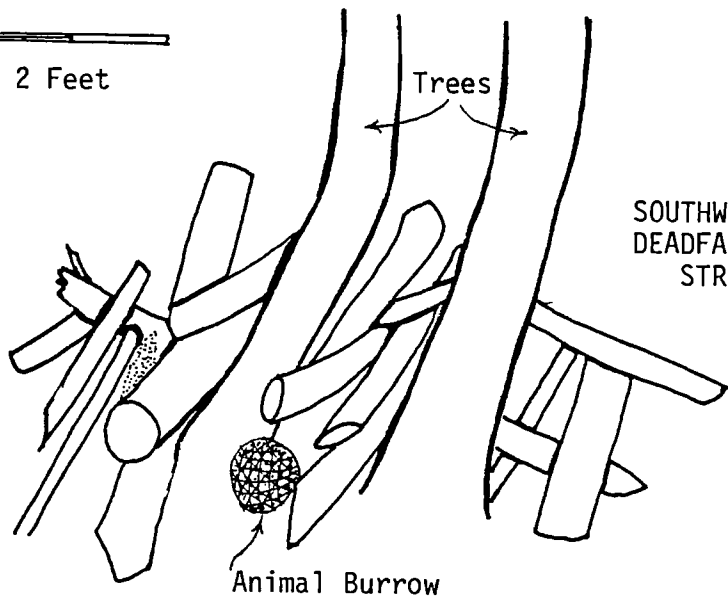


TYPICAL  
POLE CUBBY SET

-after Clawson 1977



2 Feet



SOUTHWEST SIDE OF  
DEADFALL TRAP FROM  
STREAM BANK

Figure 37.

Alaska State Site No.: BET-123 (addendum)

University of Alaska Museum Accession No.: UA 80-227, UA 81-126

Location:

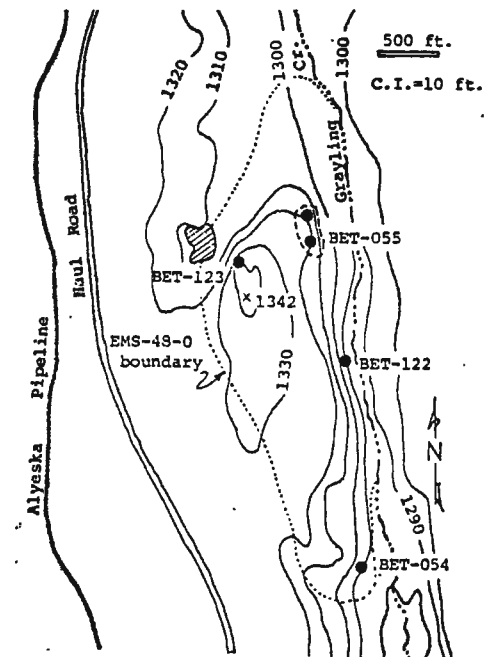
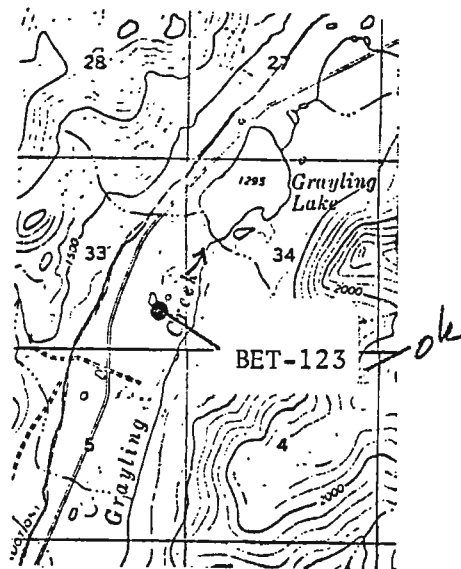
Latitude: 66° 56' 44"

Longitude: 150° 24' 19"

UTM Coordinates: (Zone 5), 613335 E; 7427600 N  
BET D-1 quadrangle

Section, Township, Range: NE/4 of NW/4 of SE/4 of SE/4, Sec. 33,  
T25N, R13W (Fairbanks Meridian)

General: BET-123 lies 1100 ft west of Grayling Creek, and 200 ft west-southwest of a small un-named lake, 2200 ft north-northeast of Alyeska access road 93-AMS-2A, and 2500 ft south-southeast of Grayling Lake. It also lies within the limits of proposed EMS-48-0, 150 ft from the edge in the northeastern sector, 36 ft southeast of Borehole C.



Data from NWA-Route Soil Conditions map, 1980  
No. 4680-13-00-B-G-048.



### Environmental Setting

BET-123 is situated on a kame terrace in a generally resource-rich area. The site overlooks a small lake to the west and the view is also good to the north. Grayling Lake and Grayling Creek are nearby, to the north and east, respectively.

Well-developed game trails near the site attest to animal presence, particularly moose and hare. Bear is also present in the area, and fish occur in the local streams and lakes.

The kame surface is covered with lichen, blueberries, and crowberries. Tall scattered spruce, scattered willow and alder are present as well.

### Survey Methodology

The site was located during routine archaeological reconnaissance of proposed EMS-48-0 in 1980. It was intensively examined visually as well as by sub-surface testing. Thirteen test pits placed averaged 1 x 1 ft and most were taken down to about 6 inches where unweathered till occurred. The site was mapped and all test pits were re-filled.

BET-123 was re-investigated in 1981 to ascertain site limits and correct deficiencies of 1980 mapping. An additional fifteen 1 x 1 ft test pits were placed around the site (Fig. 38).

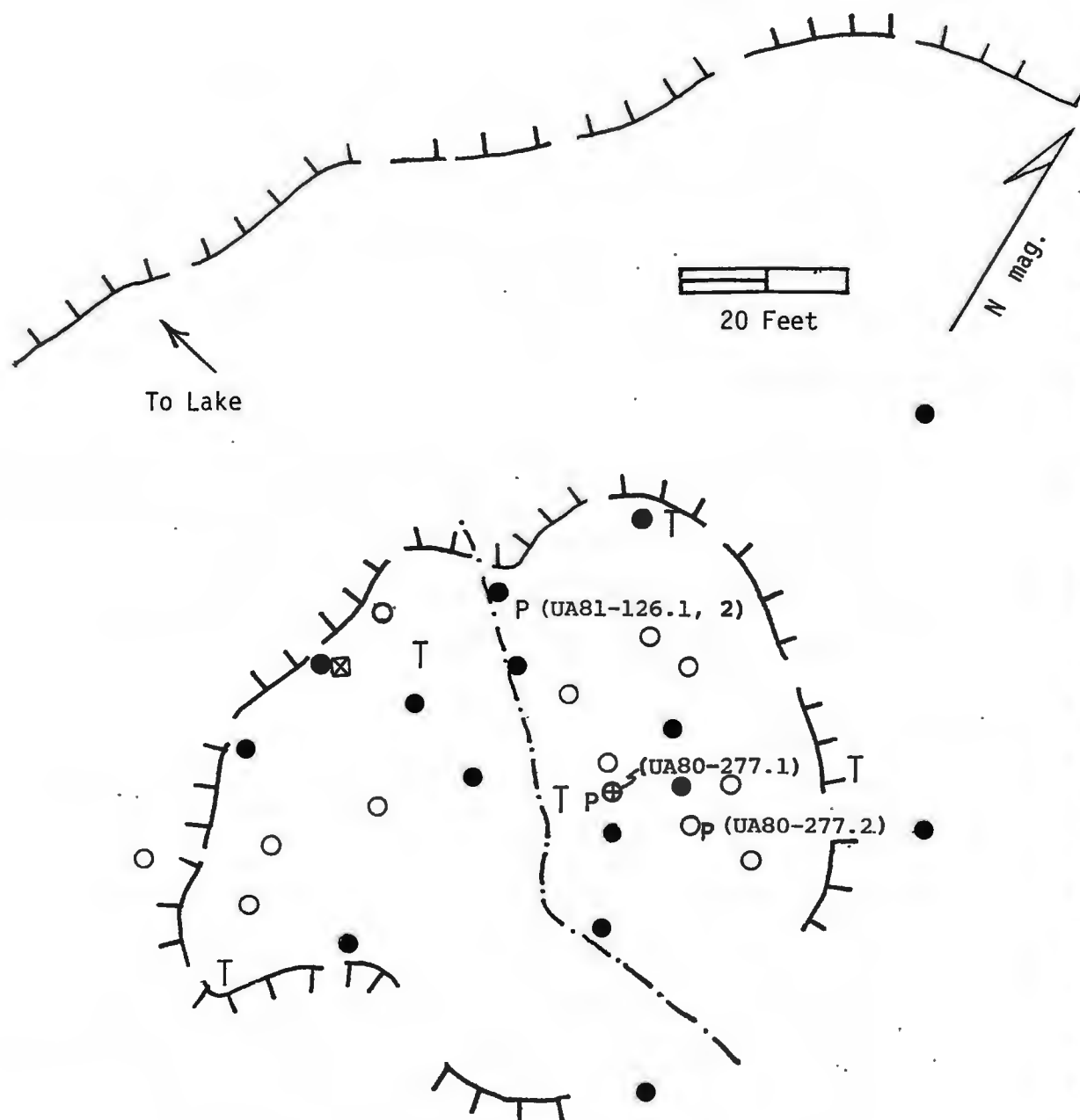
### Site Description

This is one of many 'kame sites' in the Grayling Lake/Jim River area, evidently strategically located so as to provide shelter, vantage and access to resources.

The limits of the site are uncertain since materials are sparse and diffuse. What few artifacts exist, however, are apparently restricted to the eastern half of the knoll.

Cultural materials. Only two artifacts were recovered in 1980, a tabular flake (possibly natural) and a fragment of a black chert tool, unimarginally retouched or utilized (UA 80-227-1), which is probably a scraper. The scraper was found in an eroded area (frost heave?) at the base of some trees just south of the 1981 site datum, located on the highest spot; the flake was located in a test pit eight ft south-east of the datum (Fig. 38).

Further testing in 1981 did not result in locating any distinct artifact concentrations, but all observed artifacts appear to be restricted to the eastern half of the knoll. One test pit located 28 ft northwest of the 1981 datum (Fig. 38) yielded only two chert flakes (Appendix 6). This locality is in a dip which appears to be affected by slope erosion, so the two finds may be out of original context.



### BET-123

mapping by P. Bennett, J. Dale,  
B. Johnson, P. Gree, W. Toussaint  
8-16-81  
Copy by D. Hanson

Map revised April 1982

- T Spruce Tree
- ⊕ 1980 Datum in Productive Test
- 1980 Test Pit (P = Productive)
- 1981 Test Pit (P = Productive)
- ⊠ Borehole Stake 'C' (NWA)
- Break-in-Slope
- .- Swale

Figure 38.

Stratigraphy. The generalized stratigraphy of BET-123 consists of a thin, lichenous vegetative mat overlying brown-red silt with admixed pebbles, grading downwards into normal till deposits.

#### Impact

The site was found to be in an undisturbed state in 1980. It is, however, threatened by direct impact with mining of proposed EMS-48-0. The channel of Grayling Creek, incidentally, also appears threatened by planned mining activities.

#### Significance

Due to the small and scattered artifact inventory observed at BET-123 in 1980 and 1981, it is difficult to postulate site function beyond concluding it served as a briefly occupied camp site or lookout station. Testing programs, however, have evidently found and recovered most of the extant data.

The kame upon which BET-123 is located has other sites and figures within the prehistory of the Grayling Lake area. While the significance of BET-123, in itself, is minimal, its context within the area provide insight into prehistoric land and resource use, settlement patterns and perhaps task-specific activities.

#### Recommendations

Little or no data remain at BET-123 and no further action is required.

Alaska State Site No.: BET-122 (addendum)

University of Alaska Museum Accession No.: UA 80-229, UA 81-127

Location:

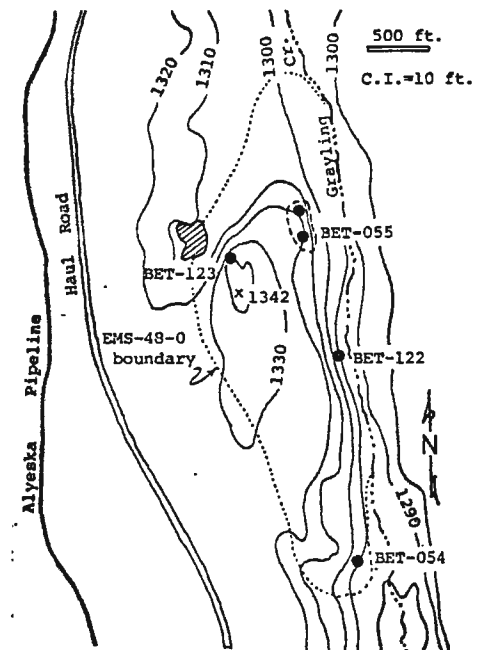
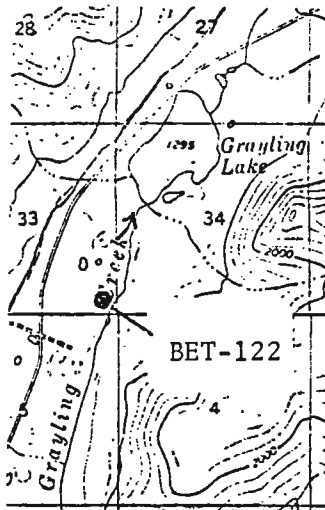
Latitude: 66° 56' 33"

Longitude: 150° 24' 09"

UTM Coordinates: (Zone 5), 613450 E; 7427300 N  
BET D-1 quadrangle

Section, Township, Range: N/2 of SE/4 of SE/4 of SE/4, Sec. 33,  
T25N, R13W (Fairbanks Meridian)

General: The site is located 1130 ft north-northeast of existing Alyeska borrow pit MS-93-3, 2900 ft south-southwest of Grayling Lake (outlet channel) and about 250 ft west of Grayling Creek. It also lies within the east-central limits of proposed EMS-48-0, 153 ft northeast of Borehole B.



Data from NWA Route Soil Conditions map, 1980  
No. 4680-13-00-B-G-048.

### Environmental Setting

BET-122 is situated on the eastern face of a kame terrace above Grayling Creek. The view to the north and east is good. Like other similarly located sites in the area, there are available several resources. Grayling Lake and other small lakes and streams are near. Moose, hare and bear are present in the area and fish are available.

The kame is vegetated with scattered tall spruce trees and an understory of labrador tea, cranberries, crowberries, moss and lichen.

### Survey Methodology

The site was located during routine NWA archaeological survey of proposed EMS-48-0 in 1980. Due to limited time, the site was only minimally tested (14 test pits measuring 1 x 1 ft) in the vicinity of older, existing (Alyeska) test pits. Current testing and visual survey, however, established site presence, but no cultural concentrations or site limits were determined. The site was mapped, and all test pits were re-filled.

BET-122 was re-investigated in 1981 to establish site limits and to correct deficiencies in the 1980 mapping. An additional 22 test pits were placed around the knoll in 1981.

### Site Description

BET-122 is one of several 'kame sites' in the Grayling Lake/Jim River area, evidently strategically located so as to provide shelter, vantage and access to resources. The site limits were not determined in 1980 nor were any discrete concentrations of cultural materials found. Testing centered around eight old located archaeological test pits along the terrace edge, an area of 2000 ft<sup>2</sup> (Fig. 39). There is no available information on the results of this earlier testing.

Further testing in 1981 produced only a small additional amount of cultural material and established site limits with fair certainty to cover an area ca. 15 x 20 ft (Fig. 39). Cultural materials are very sparse at BET-122, suggesting occupation to be both brief and ephemeral.

Cultural materials. Only two artifacts were found at BET-122 in 1980. One was a lateral end fragment of a black chert implement (UA 80-229-1A, B, C; Fig. 39) found in three associated fragments. The lateral margin shows tiny marginal utilization scars, and an adjacent 'graver bit' appears to be formed through retouch. The other artifact was a flake found in the backdirt of a former test pit (Fig. 39); it was not collected.

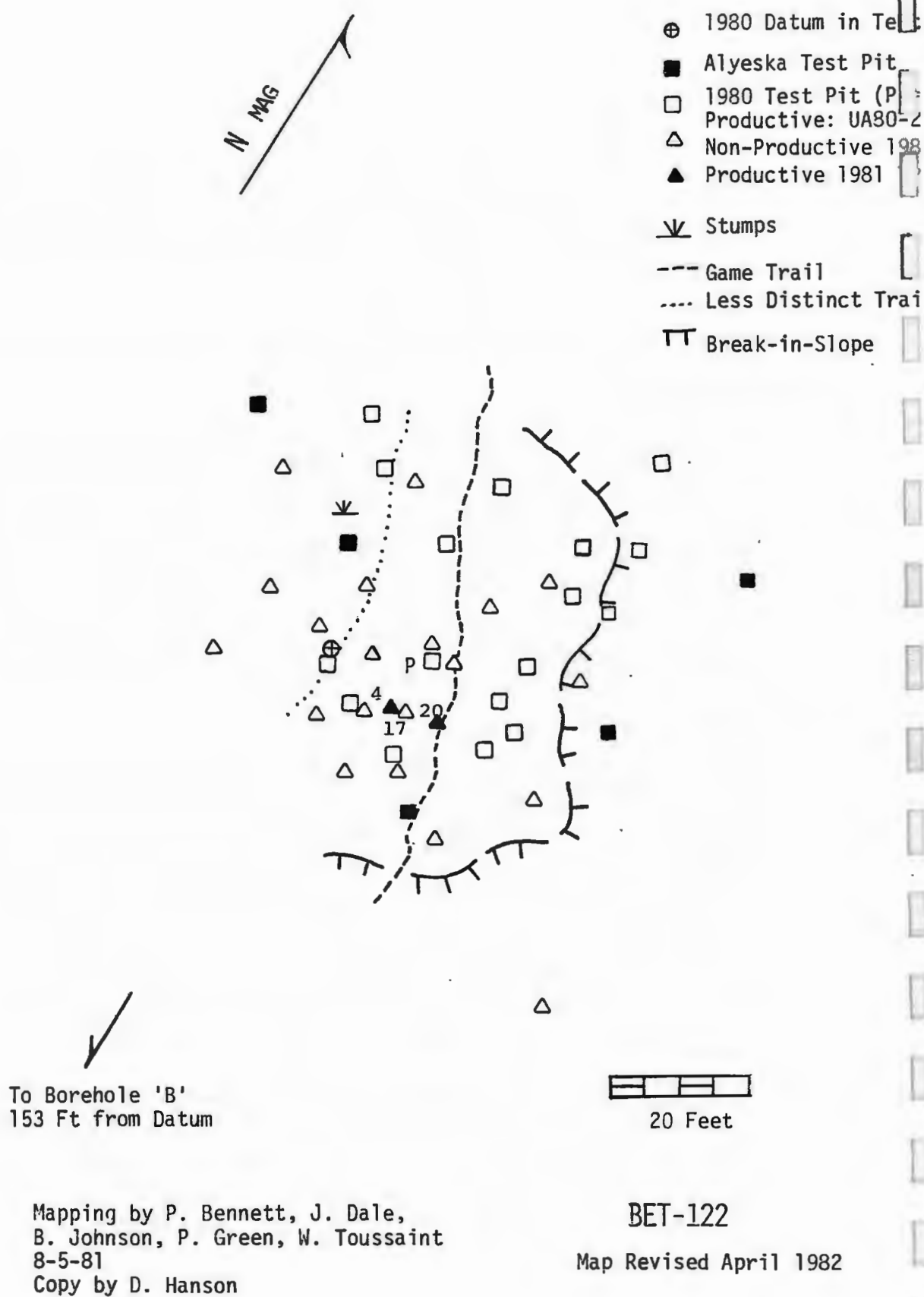


Figure 39.

Of the 22 1 x 1 ft test pits placed at BET-122 in 1981, only one was productive - yielding two chert flakes (Fig. 39; Appendix 6). An adjacent pit (to the east), however, exposed a cluster of 1-4 inch diameter cobbles that has a vague possibility of being a hearth (Figs. 39 and 40).

Stratigraphy. The prevailing matrix is red-brown silt with admixed 'gravel' grading into typical till deposits.

#### Impact

Except for the former test pits, BET-122 appears to be in fairly good condition. The site is threatened with direct impact from mining of proposed EMS-48-0.

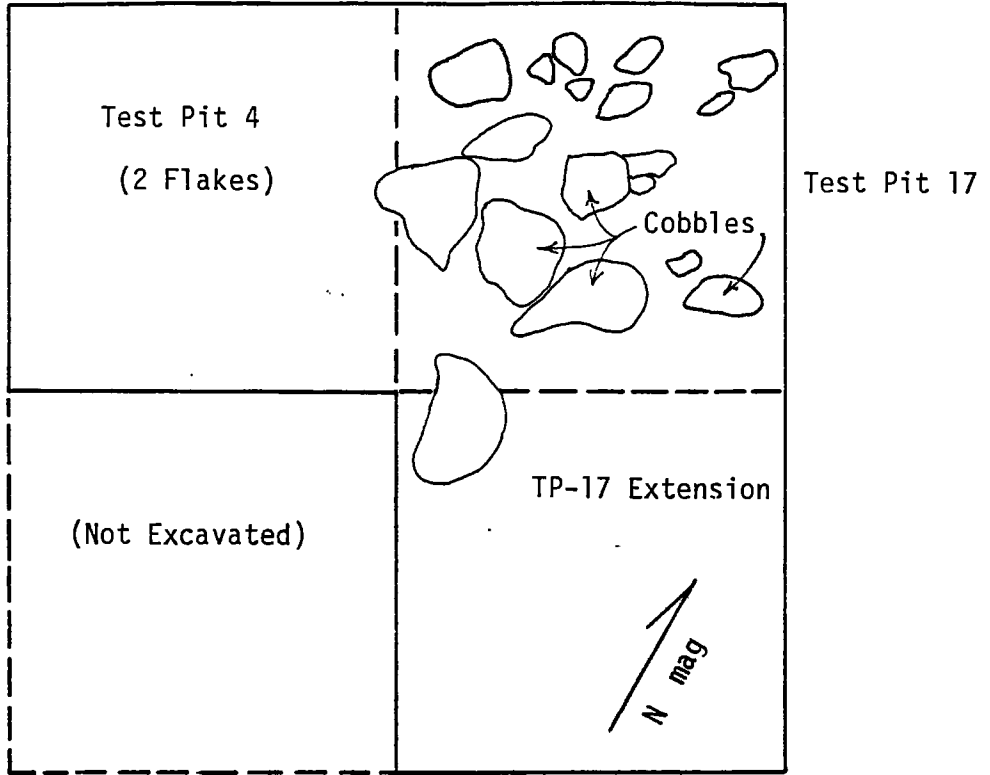
#### Significance

Due to the small artifact inventory observed at BET-122 in 1980 and 1981, it is difficult to adequately postulate site function beyond concluding it served as a briefly occupied camp site or lookout station. Testing programs in 1980 and 1981 appear to have adequately found (and recovered) most of the extant data, all within a 300 ft<sup>2</sup> area.

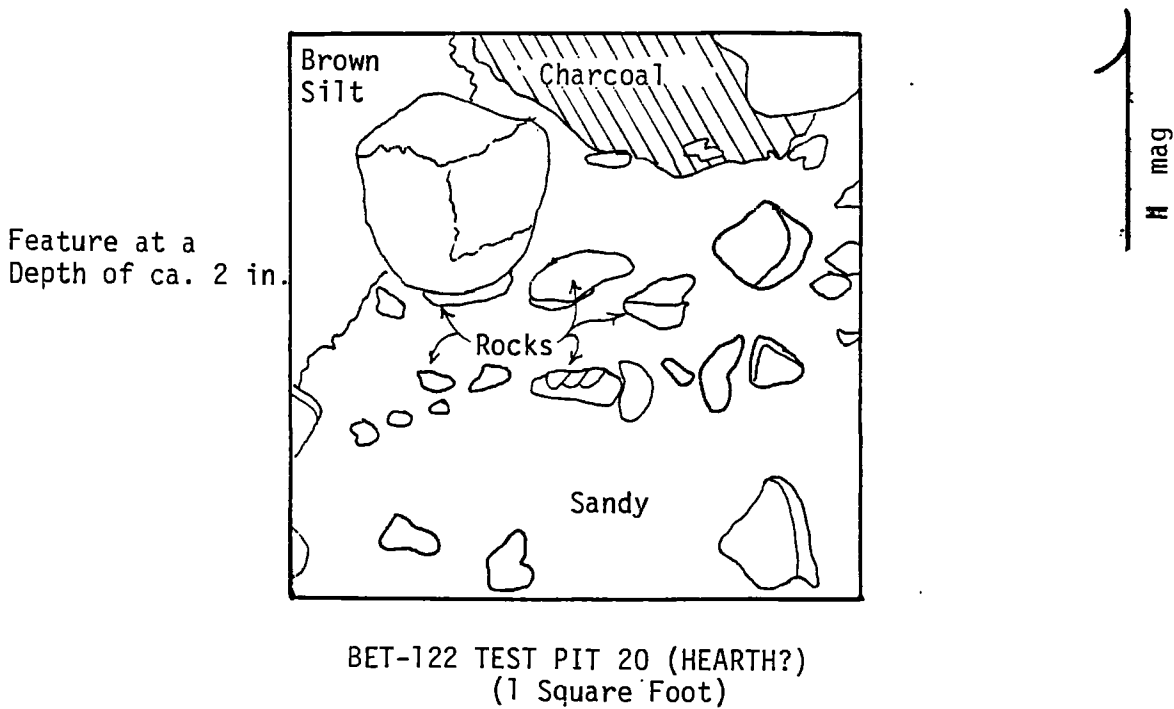
Other portions of the associated kame have high cultural resource potential (and known sites), and within the context of the prehistorically important Grayling Lake area, these sites as well as BET-122 can provide additional insight into prehistoric land and resource use, settlement patterns and task-specific activities.

#### Recommendations

Little or no data remain at BET-122 and no further action is required.



BET-122 TEST PITS 4 and 17 (1981)  
(Each Unit 1 Square Foot)



BET-122 TEST PIT 20 (HEARTH?)  
(1 Square Foot)

Figure 40.



Impact

The site is on EMS-63-3 and will be directly affected by mining.

Significance

The site is a find without archaeological context and of doubtful human manufacture.

Recommendations

The data were retrieved and no other data remain. No further action is needed.

Alaska State Site No.: LIV-Find 3

(1981 Field No.: None)

University of Alaska Museum Accession No.: UA 81-129

Location:

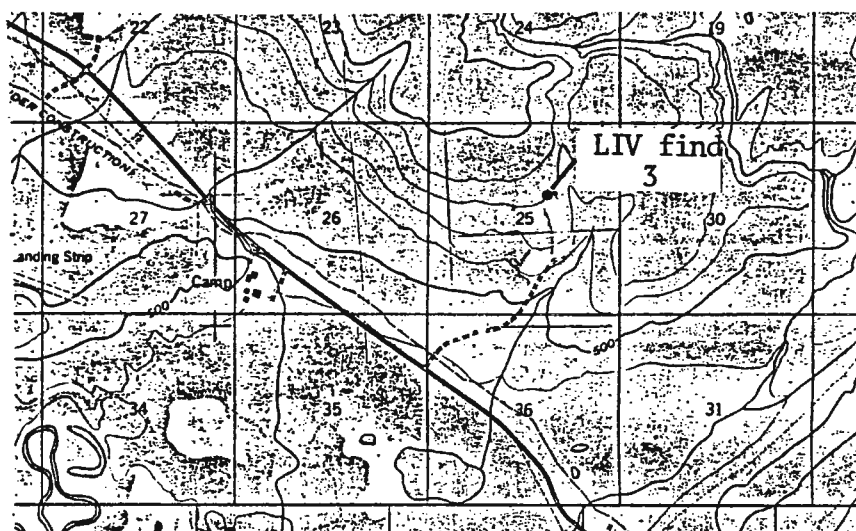
Latitude: 65° 55' 37"

Longitude: 149° 46' 18"

UTM Coordinates: (Zone 6), 373880 E; 7314300 N  
LIV D-6 quadrangle

Section, Township, Range: NE/4 of SW/4 of NE/4, Sec. 25, T13N, R11W  
(Fairbanks Meridian)

General: The site is located in the north-central part of EMS-63-3A,  
1.6 miles east-northeast of Five Mile Camp.



Environmental Setting

See Site Description.

Site Description

LIV-Find 3 consists of a single chert fragment with bifacial flaking of questionable cultural origin. It was located on the north-northwest edge of an existing gravel pit on EMS-63-3A, 2.7 miles north of the Yukon River. Access is gained to the borrow pit from the Dalton Highway by Alyeska access road 78 APL/AMS-3. Local vegetation comprises medium dense spruce with large patches of alder. Cranberries, willow and wild rose are also present.

Alaska State Site No.: LIV-055 (addendum)

Also known as "Juswon"

University of Alaska Museum Accession No.: UA75-111 (former); no 1980 or 1981 collections

Location:

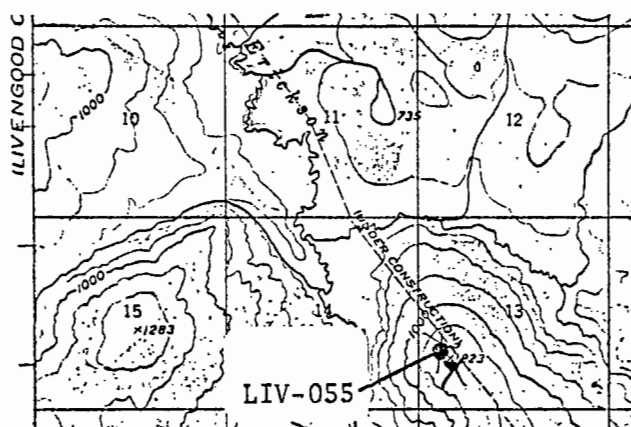
Latitude: 65° 36' 13"

Longitude: 148° 55' 26"

UTM Coordinates: (Zone 6), 411300 E; 7276880 N  
LIV C-4 quadrangle

Section, Township, Range: SW/4 of SE/4 of NW/4 of SW/4, Sec. 13,  
T9N, R7W (Fairbanks Meridian)

General: The site is located 4,450 ft southeast from where the Alyeska pipeline crosses Erickson Creek, and 100 ft southwest of the workpad. It also lies in the west-central part of proposed EMS-69-3B.



Environmental Setting

LIV-055 is located on a comparatively vegetation-free knoll near the crest of a steep northwest-southeast trending bedrock ridge measuring 1 x 2 mi. The ridge is almost surrounded by tributaries of Erickson Creek, 700 ft below. The general terrain is rugged, but the crest area is fairly flat and open.

Local vegetation consists of large, well-spaced spruce and birch trees with some willow and alder. The understory includes chiefly dwarf willow, lichen, moss, labrador tea and cranberries. Some of the vegetation is scorched from old burns.

Faunal resources include moose, bear, fox, shrews, voles, spruce grouse, squirrels, jays, owls, and other birds.

An important local resource is the outcropping of chert near the site which may constitute the main reason for site presence. The nearest water is Erickson Creek, but access is not easy. Another channel lies within 2000 ft which may provide a better potential water source closer to the ridge summit.

### Survey Methodology

The site was encountered during routine archaeological survey of EMS-69-3B in 1980 and re-visited in 1981. Site presence was manifested by old exposed excavations placed by Alyeska archaeologists. Intensive testing was conducted in 1980, placing new test pits and expanding parts of the old excavations. An intensive visual survey of the locality, including examination of the exposed areas and old backdirt piles, was carried out as well. A map of LIV-055 was prepared in 1981 and two test pits were placed (Fig. 41).

Other knolls located on EMS-69-3B were also inspected in 1980. Exposed pits indicate that they were previously tested by Alyeska archaeologists.

### Site Description

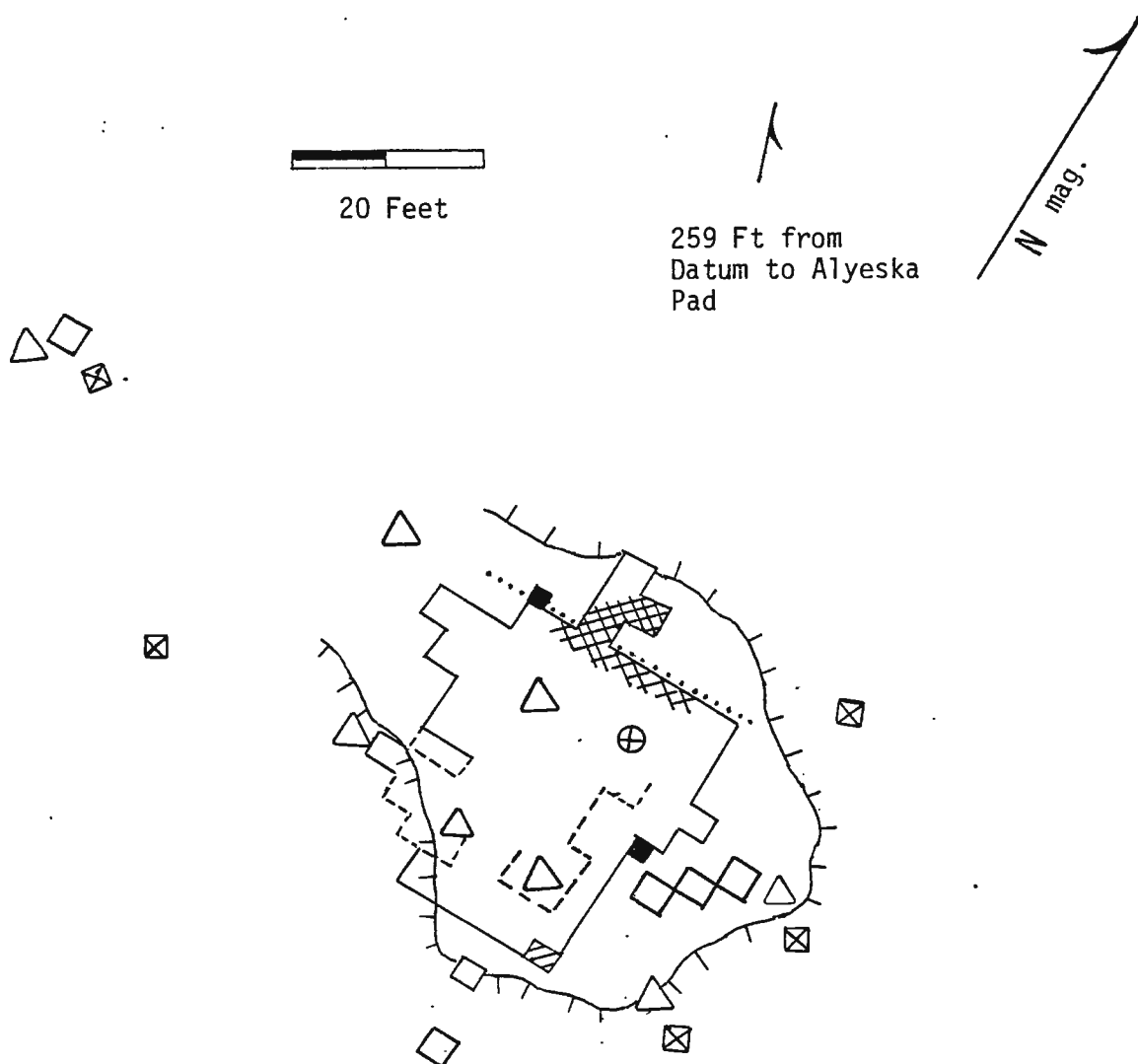
The site lies on a knoll measuring 70 x 100 ft. An area measuring approximately 33 x 66 ft had been previously excavated by Gal in 1975 (in Cook 1976:18) who reports the excavation of 113 one-meter squares (Fig. 41). A large volume of field notes exists for this work at the University of Alaska Museum. No final report has been prepared.

Cultural materials. No additional artifacts were found at LIV-055 during the 1980 and 1981 surveys. Gal, however, collected over 500 chert flakes and assorted biface fragments, point fragments, obsidian flakes, scrapers and cutting tools. Most of these artifacts are accessioned at the University of Alaska Museum (UA75-111) but some are missing.

Stratigraphy. The stratigraphy on the knoll consists of a one inch thick vegetative mat over two inches of red, semi-compacted silt/loess ("arctic red") which overlies decomposing rock material.

### Impact

The former Alyeska excavations have not been backfilled and have been subjected to erosive processes. The site is directly threatened by impact from exploitation of proposed EMS-69-3B. "Revision 3" of the proposed gasline corridor lies 200 ft to the southwest of the site, posing some indirect threat of impact through construction activities.



LIV-055

JUSWON

Mapping by P. Bennett, J. Dale,  
W. Toussaint, P. Green 7-30-81  
Copy by D. H. Hanson, B .L. Gannon











-  Former Excavations (Metric)
-  1981 Datum
-  Excavated Bedrock
-  Stripped Humic Mat
-  1981 Test Pit
-  Former Backdirt Piles
-  Break-in-Slope
-  Indistinct Excavation Boundries
-  Former Test Pit
-  Highest Ridge Crest of Knoll

Figure 41.

### Significance

Gal (in Cook 1976:18) speculates on the basis of his collected information that LIV-055 "was occupied for only a short time and that it was probably used as a temporary camp site by people moving through the area."

A single occupation is suggested by artifact concentrations occurring on only one side of the knoll and the absence of any large amount of debris, except for two localized areas.

This is one of many sites identified in the Livengood area which seem in some way oriented towards the abundant outcrops of "Livengood chert". These sites, from what evidence is available, seem to be mainly temporary camp sites or quarry/stone reduction sites, but no documentation is available or known that discusses any meaningful cultural relationships or site functions.

LIV-055 can be accepted as having been mitigated as no further cultural materials apparently remain. The surrounding area no doubt harbors other sites.

### Recommendation

LIV-055 lies within the proposed project area, but contains no extant information. We recommend no further action.

Alaska State Site No.: LIV-103, LIV-107, LIV-108

University of Alaska Museum Accession No.: UA80-220 (LIV-103)  
UA80-219 (LIV-107)  
UA80-218 (LIV-108)

Location:

Latitude:

LIV-103: 65° 29' 20"  
LIV-107: 65° 29' 22"  
LIV-108: 65° 29' 23"

Longitude:

148° 40' 38"  
148° 40' 44"  
148° 40' 49"

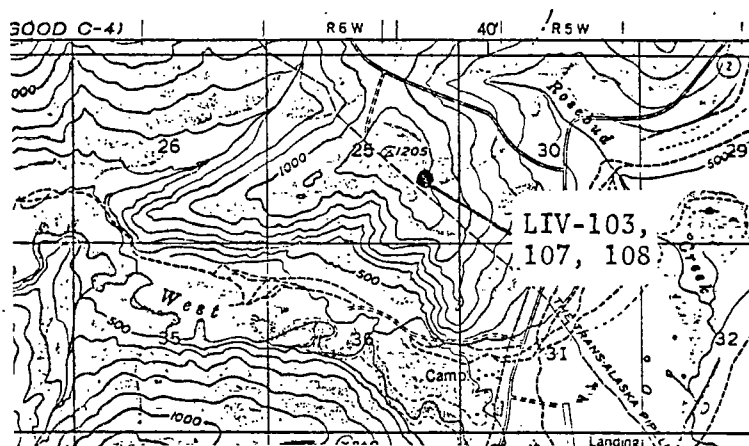
UTM Coordinates: (Zone 6), LIV B-4 quadrangle.

LIV-103: 422400 E; 7264405 N  
LIV-107: 422300 E; 7264465 N  
LIV-108: 422260 E; 7264508 N

Section, Township, Range: Fairbanks Meridian

LIV-103: SE/4 of SW/4 of NE/4 of SE/4, Sec. 25, T8N, R6W.  
LIV-107: S/2 of SW/4 of NE/4 of SE/4, Sec. 25, T8N, R6W.  
LIV-108: S/2 of SW/4 of NE/4 of SE/4, Sec. 25, T8N, R6W.

General: The sites lie adjacent to the Alyeska workpad, on its north-eastern side, 1500, 1560 and 1700 ft (LIV-108, 107 and 103, respectively) southeast from where Alyeska access road 70-APL/AMS-1M intersects the Alyeska workpad. All three sites lie within the central part of proposed EMS-71-3A (Fig. 42).



Environmental Setting

All three sites occur on a broad flat ridge crest in a forest environment. This ridge is part of Rosebud Knob and numerous outcrops of chert (so-called "Livengood chert") are present in the area.

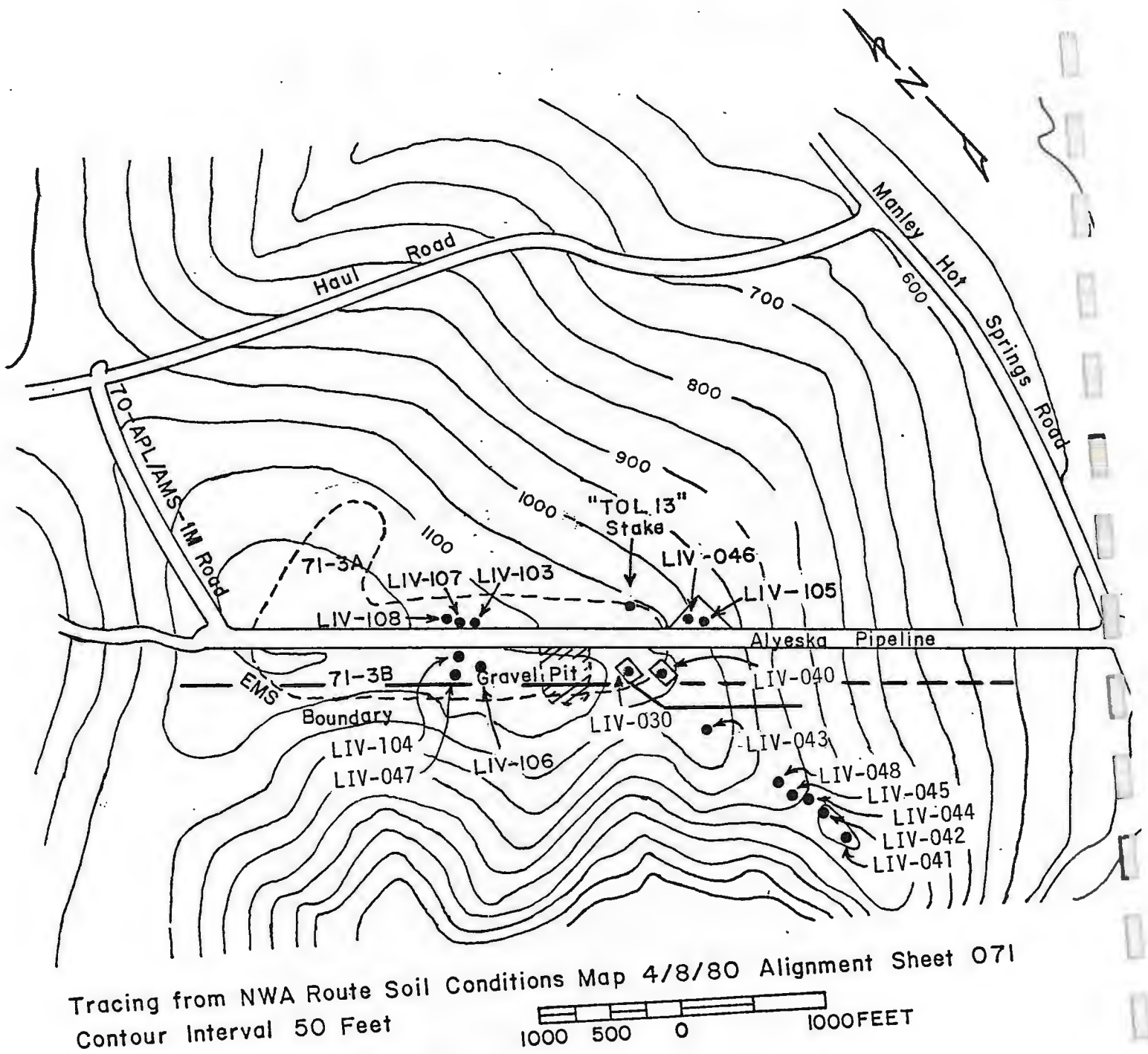


Figure 42. Rosebud Knob archaeological sites.



The on-site vegetation, unlike that of most of the other recorded sites in the vicinity, is fairly dense, consisting mainly of well-spaced birch and spruce trees, alder and shrub willow thickets. The understory comprises labrador tea, cranberries, blueberries and a generally thick mossy mat. The view from all three sites is limited to poor.

Animals or their sign observed comprise moose, fox, bear, and squirrels.

Rosebud Creek lies one mile to the east and northeast and the west fork of the Tolovana River lies about one mile to the southwest. The terrain is locally hilly.

### Survey Methodology

LIV-103, 107 and 108 were found during routine archaeological survey of EMS 71-3A in 1980. Each locality represents an apparent cultural locus, and as such, each was subsequently defined as an individual archaeological site. As the general area has already been severely affected by prior excavations and pipeline construction activities, only a minimal amount of on-site testing was conducted in 1980 at LIV-103, 107 and 108 once the sites were located through intensive visual and incremented subsurface prospecting techniques - in order to conserve their undisturbed states as much as possible for future study. No subsurface tests were placed at LIV-103 and LIV-107. Three contiguous 1.5 x 1.5 ft test pits and one isolated pit of the same size were placed at LIV-108. The three sites, all surface finds and test pit locations are shown in Figure 43.

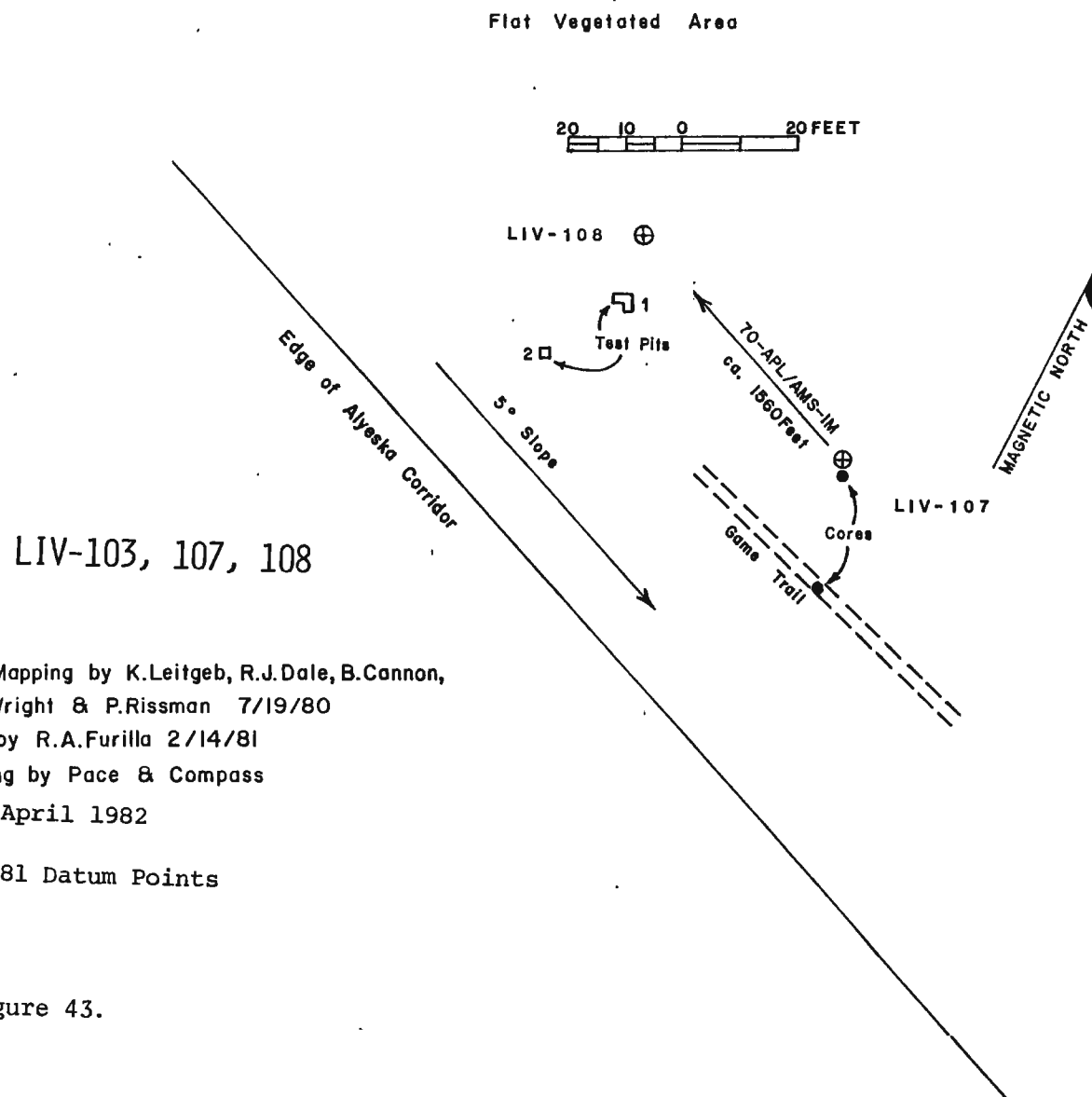
### Site Description

Once located, LIV-103, 107 and 108 were not intensively tested. Consequently, the limits of each site are presently undetermined. They may, in fact, constitute one locus area.

LIV-108 is the northwestern-most site, separated from LIV-107 by 60 ft which, in turn, is 140 ft from LIV-103. Unlike other observed sites in the region, they lie in a forested environment rather than on a relatively unvegetated knoll or ridge. The ridge-crest covers an estimated 12,000 ft<sup>2</sup> (Fig. 43).

Cultural materials. Only one artifact, a large chert chunk with flake scars, was found at LIV-103 on the vegetated ground surface, 10 ft from the Alyeska pipe pad. No similar materials were seen in the bank spoils, indicating that the item is relatively in context.

LIV-107 is identified on the basis of three artifacts: one black chert retouched flake found in a game trail, and two additional flakes half-buried in the moss 20 ft to the north, 50 ft northeast of the Alyeska work pad.



Field Mapping by K. Leitgeb, R.J. Dale, B. Cannon,  
M. Wright & P. Rissman 7/19/80  
Copy by R.A. Furilla 2/14/81  
Mapping by Pace & Compass  
Rev. April 1982

⊕ 1981 Datum Points

Figure 43.

LIV-108 was first identified by a half-buried surficial flake of black chert, approximately 40 ft northeast of the work pad. Three contiguous test pits (Test Pit-1) placed under this find yielded three black chert flakes and two small, grey, translucent flakes (southeast corner), one grey and black banded flake (northeast corner), and a similar flake from the northwestern corner. Test Pit-2 placed 17 ft to the southwest yielded 22 chert flakes, most of which are black chert.

Stratigraphy. The general stratigraphic format for these three sites, and specifically for LIV-108 (Test pit-1) comprises a one inch vegetative (mossy) mat overlaying two inches of black humus with admixed chert (including artifacts), which in turn overlies 'gravel.'

#### Impact

The three sites are still in a pristine state, but any manifestation to the southwest may have been obliterated by construction of the Alyeska pipeline. Direct impact of LIV-103, 107 and 108 is posed by potential exploitation of EMS 71-3A within which the sites lie. The proposed NWA gasline route poses no threat.

#### Significance

Due to the limited amount of cultural materials recovered in 1980 from these three sites, especially LIV-103 and LIV-107, it is difficult to posit any site function. LIV-108, however, is evidently either a quarry locality or a campsite, and testing suggests activity areas may be present and cultural materials abundant. LIV-103 and 107 may or may not be components of LIV-108.

One noteworthy observation is the identification of this site in an environment other than where sites have traditionally been found locally, namely in 'alpine meadows' on ridge crests and knolls. This enhances the notion that this entire portion of Rosebud Knob constitutes one large cultural locality used over millennia, concentrated on the exploitation of the locally abundant chert deposits.

In light of past impact to the area and the sketchy nature of archaeological documentation, these three sites may be valuable in providing a fresh opportunity to study aboriginal lithic reduction techniques and spatial distribution of related activities.

#### Recommendation

LIV-103, 107 and 108 are part of the proposed "Rosebud Knob Archaeological District. Together they contain potentially valuable data and we recommend a request for determination of eligibility.

Alaska State Site No.: LIV-047, 104 and 106

LIV-047 (also known as "Tolovana 10")

University of Alaska Museum Accession No.: UA80-214 (LIV-047),  
UA80-217 (LIV-104),  
UA80-215 (LIV-106)

Location:

<u>Latitude:</u>	<u>Longitude:</u>
LIV-047: 65° 29' 18"	148° 40' 54"
LIV-104: 65° 29' 20"	148° 40' 50"
LIV-106: 65° 29' 17"	148° 40' 50"

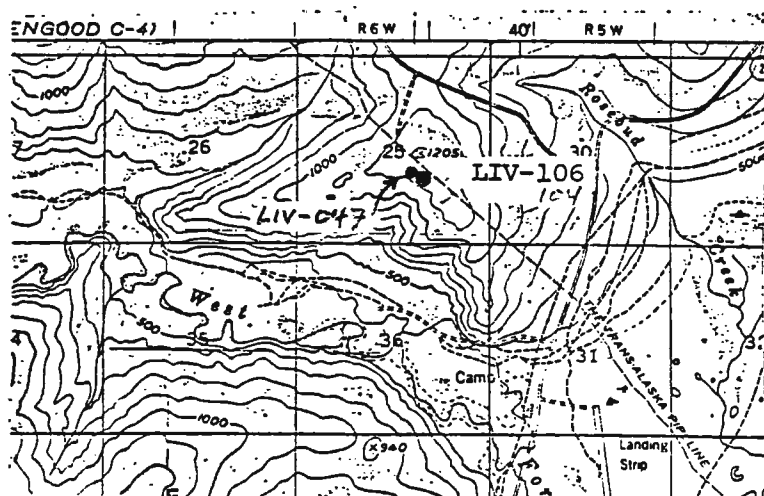
UTM Coordinates: (Zone 6), LIV B-4 quadrangle.

LIV-047: 422200 E; 7264360 N  
LIV-104: 422250 E; 7264400 N  
LIV-106: 422240 E; 7264300 N

Section, Township, Range: (Fairbanks Meridian)

LIV-047: SE/4 of NW/4 of SE/4, Sec. 25, T8N, R6W;  
LIV-104: SW/4 of NE/4 of SE/4, Sec. 25, T8N, R6W;  
LIV-106: NW/4 of SE/4 of SE/4, Sec. 25, T8N, R6W

General: The three sites are located 1600-1900 ft southeast of Alyeska access road 70-APL/AMS-1M from where it connects with the pipeline workpad, and southerly from the workpad 15-100 ft. The sites are also located within the north central part of proposed EMS-71-3B (Fig. 42).



The proposed NWA centerline (marked by P.O.T. stake 1506 + 81, Rev. 3) cuts LIV-047 across the ridge, approximately 75 ft west-southwest of the site summit and heaviest concentration of cultural material (Fig. 44). LIV-106 is located approximately 70 ft north-northeast of the centerline (imaginary stake 1509 + 20) within the corridor. LIV-107 does not lie within the corridor.

### Environmental Setting

The sites are closely associated, and lie on two flat to gently west-sloping metamorphic bedrock ridge crests near the summit of Rosebud Knob. The ridge system trends southwest-northeast, and overlooks the Tolovana River watershed.

The sites themselves are in a meadow-like setting which is comparatively sparsely vegetated with birch and scattered spruce and willow trees, and some alder. The understory consists of labrador tea, cranberries, grasses, fireweed and several species of leafy plants. Mosses and lichens are also present. The off-site vegetation is similar, but more dense.

Bear and moose sign were seen, and squirrels are present.

The ridge is bounded on the east and northeast by Rosebud Creek (over one mile away). Water is also available at the bottom of the ridge but access is not easy.

Extensive outcrops of black chert (the so-called "Livengood chert") are present in the general vicinity, especially on or near the site locations. The general area contains numerous archaeological sites.

### Survey Methodology

The sites were identified during routine archaeological survey of the proposed NWA Material Site 71-3B in 1980 and again encountered during centerline survey in 1981.

It was observed that LIV-047 had previously been excavated by Alyeska archaeologists. The ground surface was literally paved with lithic cultural materials. As the former excavations are still exposed, the provenience of the remaining artifacts is uncertain and specific documentation is unknown. Consequently, all that was done in 1980 consisted of mapping and photographing the sites, and collecting enough artifact samples to make some assessment of significance. Thomas Andrews (Alberta, Canada) reportedly is currently analyzing materials from this site and his results are pending.

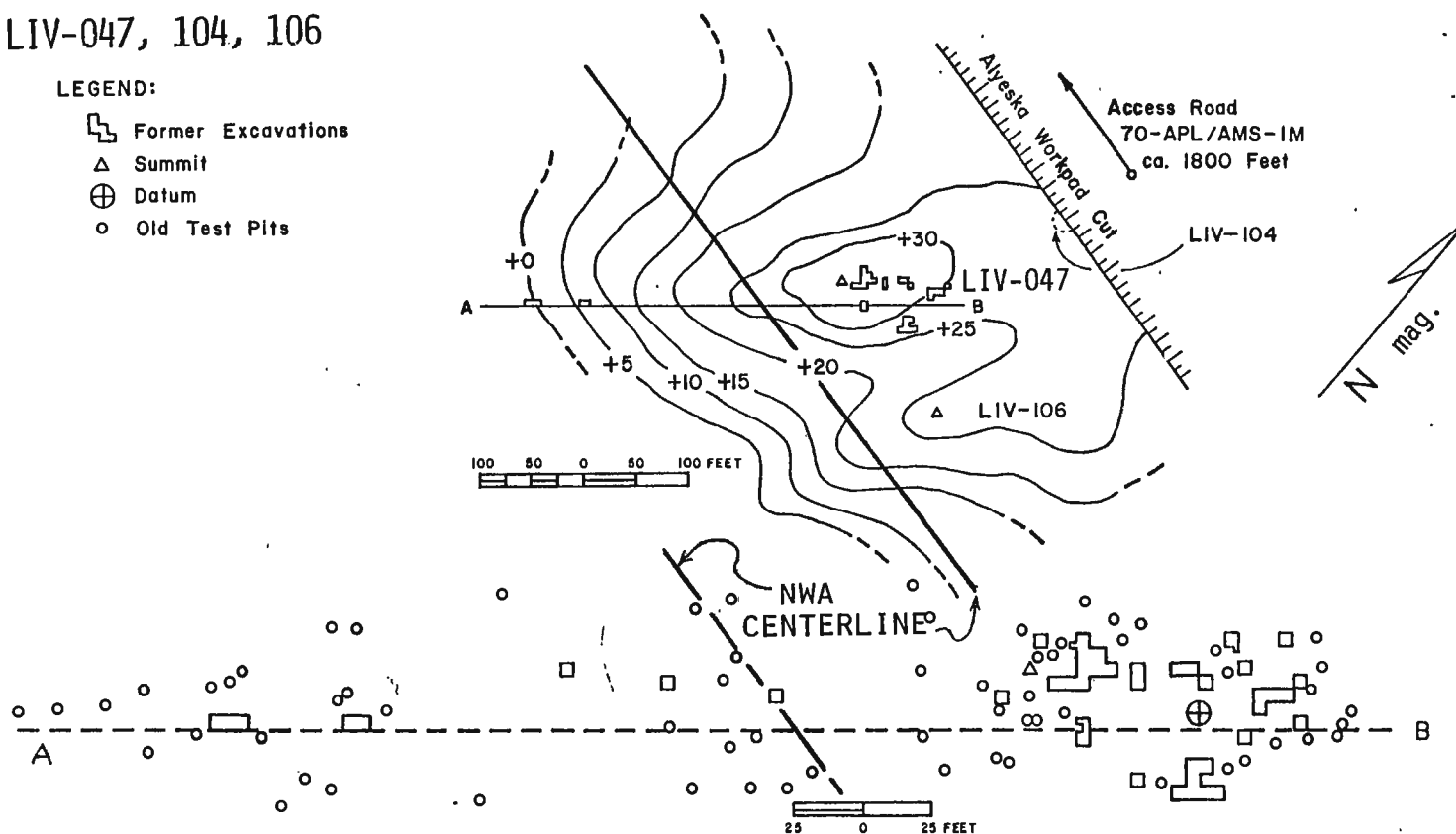
Site LIV-106, on the next ridge 120 ft to the southeast, was also tested in the past. However, the site apparently was never described or given a site designation. Cultural materials are extant, but not to the degree seen at LIV-047. Only one small test pit was placed in 1980.

Figure 44.

# LIV-047, 104, 106

## LEGEND:

- ◻ Former Excavations
- △ Summit
- ⊕ Datum
- Old Test Plots



Field Mapping by B.L.Gannon, S.Fetter,  
& P.L.Bennett 8/25/80

Copy by R.A.Furilla 12/19/80, Rev. Dec. 1981

Mapping by Pace & Compass

Contour Interval ca. 5 Feet

(Contours by Inspection, Arbitrary

Baseline Set (1-9))

Detail of Excavations  
LIV-047

LIV-104 was surface collected only minimally, and no subsurface testing was conducted due to the disturbed nature of the locality and its limited exposure.

### Site Description

LIV-047, the largest and most complex of these three associated sites, occupies an area of 100 x 600 ft along the crest of a small ridge. A total of 43 excavation units, measuring 5 x 5' (1075 ft<sup>2</sup>), placed by Alyeska archaeologists, were situated along the ridge. Most of these center around the 'summit' (Fig. 44). None of the units was backfilled. In addition, at least 65 small test pits were present, extending along the crest. Some backdirt piles still remain, notably in the eastern-most excavation unit, and unexplained piles of lithic cultural material occur in and around the larger excavation unit off the crest to the south. The site surface, especially the area around the summit, is covered with lithic cultural debris.

The site was identified as Tolovana 10 on the basis of the number on the stake present at the site and Derry's field notes.

LIV-104 is located about 100 ft from LIV-047, along the same crest to the east, adjacent to the edge of the workpad cut (Fig. 44). This locality may be a distinct cultural locus, but its limits are not clear. Whatever manifestations it might have had eastward have been obliterated by pipeline construction. Some of the lithic material was on the vegetation mat and some was half buried in moss. Tentatively, LIV-104 may be considered as a cultural component related to LIV-047. One possible black chert core fragment and a black chert chunk were collected.

LIV-106 is located on an adjacent small ridge crest 120 ft southeast of LIV-047; the settings are similar (Fig. 44). The two localities are separated by a 5-10 ft-deep ravine, paralleling the ridges. A lithic scatter is present on the surface along the summit area, but not to the extent seen at LIV-047. Some limited testing has occurred along the crest. Two old disturbed areas lie along the crest near the western break-in-slope which may possibly be old excavation units. Nine medium and small-sized flakes of black chert were recovered from one test pit in 1980.

Cultural materials. A total of 44 artifacts were collected at LIV-047 in 1980 (Appendix 6 in Aigner and Gannon 1981). Two small test pits yielded one long curved black chert blade (test pit #1), and six black chert flakes from test pit #2. A third test pit revealed nothing. Thirty-three flakes of black chert and two chert chunks (possibly flake cores) were collected from the surface. Most of the lithic remains are products of aboriginal stone reduction and quarrying techniques, but many fragments are also due to cryoturbation.

David Derry is now deceased, and Rosebud Knob materials (including LIV-047) collected during the Alyeska Pipeline Project, are currently being studied by Thomas Andrews in Alberta, Canada.

The materials from LIV-104 and 106 have been mentioned above (site description) and are described in Appendix 6 of Aigner and Gannon (1981). The samples are too meager for any meaningful analysis.

Stratigraphy. The basic stratigraphy at LIV-047 comprises a very thin, discontinuous, vegetative mat (chiefly moss and/or lichen) overlying a discontinuous but locally dense accumulation of fragmented chert, gravels, and decomposing metamorphic bedrock - all in a thin red silt matrix. Depth to 'solid' bedrock is rarely deeper than 8 inches.

The stratigraphy of LIV-106 is similar, comprising a 1-1.5 inch lichen moss mat with tiny admixed chert fragments and flakes overlying a 1.5 inch dark brown organic material overlying six inches of reddish silt with chunks of chert, in turn, over bedrock.

### Impact

LIV-047 was formerly excavated by Alyeska archaeologists. There are unfilled pits where erosion has been in effect and obviously disturbed surface, but only about 2% of the area containing material has been excavated.

The site is presently threatened by direct impact. It lies within the proposed NWA EMS-71-3B; it is also directly threatened by the 1980 replacement ("Revision 3") of the proposed NWA gasline corridor along the lower (western) portions of the crest.

The same situation applies to LIV-106, but this site is better preserved. LIV-104 is already impacted by the Alyeska pipeline, and may be further impacted by exploitation of EMS-71-3B. Any further trampling by personnel on any of the sites constitutes an indirect impact insofar as the surficial distribution of the lithic cultural materials is important in interpreting discrete activities at the sites.

### Significance

These sites, LIV-047 and LIV-106 in particular, are part of an areal complex of stone reduction, quarry sites around Rosebud Knob which exploit Livengood chert. In a sense the area can be considered as one large archaeological focus used over millennia. Despite past disturbances, an enormous amount of potential information is still available concerning prehistoric resource utilization, stone working techniques, and spatial activity partitioning.

### Recommendation

LIV-047, 104 and 106 are part of the proposed "Rosebud Knob Archaeological District". No further action is recommended for LIV-104. LIV-047 and 106 contain significant data and a determination of Register eligibility is recommended.



Alaska State Site No.: LIV-050

Possibly "Tolovana 13"

University of Alaska Museum Accession No.: None

Location:

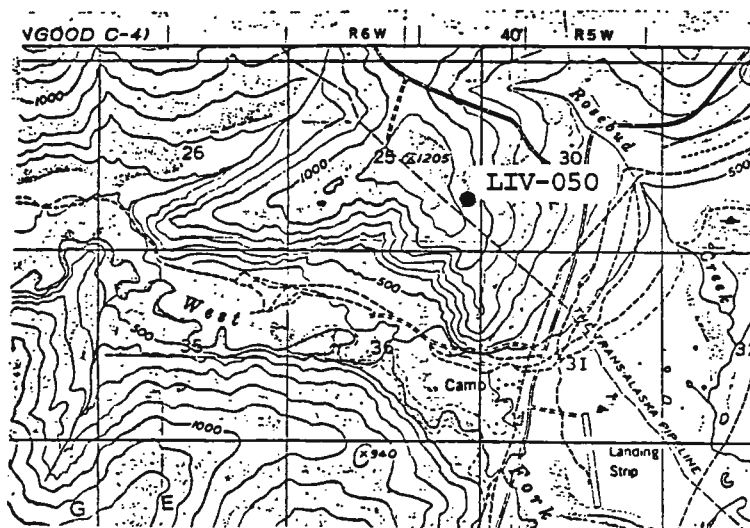
Latitude: 65° 29' 17"

Longitude: 148° 40' 29"

UTM Coordinates: (Zone 6), 422515 E; 7264305 E  
LIV B-4 quadrangle

Section, Township, Range: SE/4 of NE/4 of SE/4 of SE/4, Sec. 25,  
T8N, R6W (Fairbanks Meridian)

General: The site is located 225 ft northeast of the Alyeska workpad, 2600 ft southeast from where Alyeska access road 70-APL/AMS-1M intersects the workpad. It is also on the southeastern edge of proposed EMS-71-3A (Fig. 42).



Environmental Setting

The site is situated on the flat crest of a bedrock ridge (Rosebud Knob). The locale is in a moderately forested setting. The general environment is the same as that described for the other 'Tolovana' sites on Rosebud Knob. The location of this site in the spongy moss mat/forest environment separates it from all the sites on Rosebud Knob, except for the find sites (LIV-103, 107 and 108). The majority of the Tolovana sites are located on lichen covered 'knolls' or terraces.

### Survey Methodology

LIV-050 was located during routine archaeological survey along the proposed NWA gasline route in 1980. This locality was surface inspected and subsurface tests were dug.

The Tolovana 13 stake area was tested again during the 1981 field season. This area was mapped and 13 1 x 1 ft test pits were excavated by trowel to a depth of at least six inches. None of these test pits yielded cultural remains, as was the case in the 1980 field season.

### Site Description

On the site is a 2 x 2 inch wooden stake driven into the moss-covered ground, labelled "Tolovana 13." There were no surficial cultural features, excavations or ground exposure observed. There is also no known published information on this site, save the Alaska Heritage Resource card which states, "surface 10 to 15 flakes," collected presumably by Alyeska archaeologists. The stake may not be in its original position.

Stratigraphy. Test pits placed around the LIV-050 locality revealed, top to bottom: 1 inch sod and humus mat; 2-5 inch small frost shattered chert fragments and some charcoal; 0-2 inch brown and grey-brown, mottled silt and sandy silt with some frost shattered rocks and charred roots; and at least 2 inch lighter brown silt with some rock fragments.

### Impact

LIV-050 is directly threatened by exploitation of proposed EMS 71-3A.

### Significance

Beyond the few flakes mentioned above, which may not relate to this locality, the significance of LIV-050 appears to be nil. Testing was performed revealing no in situ materials.

Any undisturbed site in the Rosebud Knob area is potentially important, especially in light of past impact through construction activities, and inadequate archaeological investigations and documentation. The Rosebud Knob area is important primarily because of the extensive outcrops of Livengood chert, and use over millennia by aboriginal peoples. Still, LIV-050 is an unproven locality, despite testing in 1980 and 1981.

### Recommendation

LIV-050 evidently does not contain (extant) materials. It is part of the proposed "Rosebud Knob Archaeological District". No further action is recommended for LIV-050.

Alaska State Site No.: LIV-030

Also known as Tolovana 2 (Derry's field notes 1974, 1975 and maps;  
S. Anderson's Senior Thesis 1975); Tolovana 1 (Cook 1976 and 1977)

University of Alaska Museum Accession No.: UA70-218 (former),  
UA80-216 (present)

Location:

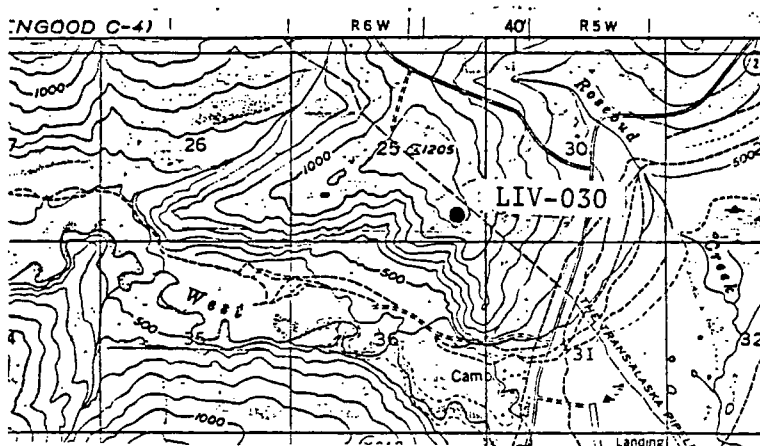
Latitude: 65° 29' 13"      Longitude: 148° 40' 35"

UTM Coordinates: (Zone 6), 422460 E; 7264200 N  
LIV B-4 quadrangle

Section, Township, Range: NW/4 of NE/4 of SE/4 of SE/4, Sec. 25,  
T8N, R6W (Fairbanks Meridian)

General: The site is located 2600 ft southeast of where Alyeska access road 70-APL/AMS-1M intersects the Alyeska pipeline, and 200 ft southwest of the work pad. LIV-030 also lies within the southeastern part of proposed EMS 71-3B, and 190 ft south-southeast of the southern edge of an existing Alyeska material source (Fig. 42).

The most southwest "small" Alyeska test pit lies 25 feet northeast of imaginary centerline stake 1516 + 60 (Fig. 45).



Environmental Setting

LIV-030 lies on the crest of a small ridge near the summit of Rosebud Knob. The ridge drops off abruptly to the south. The view is good, especially to the west where the west fork of the Tolovana River watershed is overlooked.

## LIV-030 (TOLOVANA 1: COOK; TOLOVANA 2: DERRY, ANDERSON)

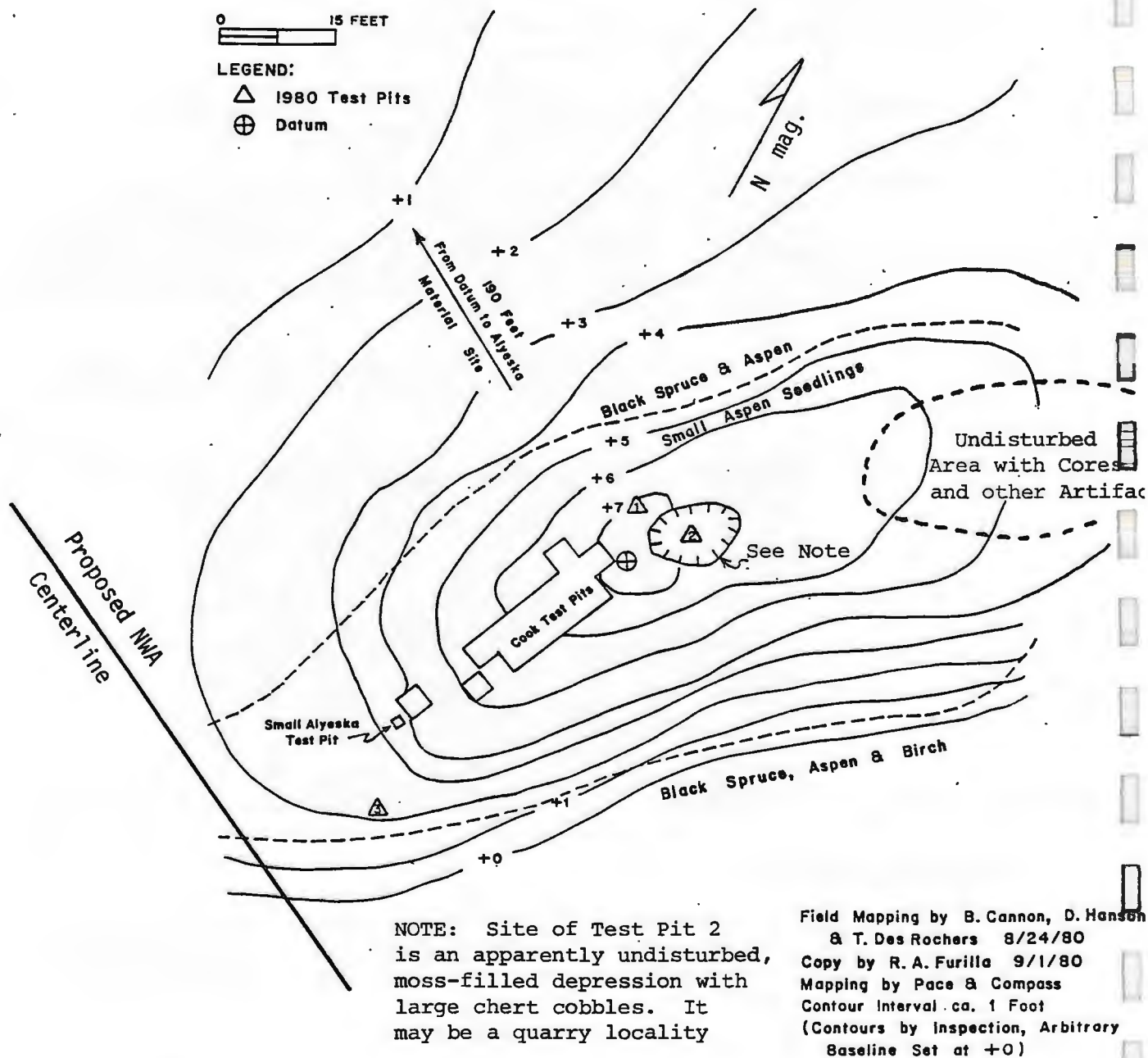


Figure 45.

The ridge crest is sparsely vegetated compared to the surrounding areas. Local vegetation comprises mainly birch and spruce trees, with some shrub willow and alder. The understory includes labrador tea, grasses, cranberries, rose, blueberries, fireweed and several species of low, leafy plants. Moss and lichen constitutes a discontinuous but significant part of the on-site ground cover.

Fauna in the area includes bear, moose, fox and squirrels. Rosebud Creek lies about 1 mi to the east and northeast, and is the closest major water source to the site.

Rosebud Knob, and the site location, specifically, contains extensive outcrops of blackish and grey chert (the so-called "Livengood chert") which is an important cultural resource, transported and utilized at least 100 mi from this general area. The occurrence of the many sites in this area is also, no doubt, due mainly to the presence of this material.

### Survey Methodology

LIV-030 was located during routine archaeological survey of EMS 71-3B in 1980. The site was identified by an old stake labelled "Tol-2," and the presence of former Alyeska archaeological excavations. This site has been recently discussed in a re-study by Anderson (1975). Anderson's map corresponds exactly with the one produced in 1980 (Figs. 46 and 47).

The site was mapped, photographed and described in 1980, and was followed by an intensive visual reconnaissance for cultural materials. A number of routine test pits were placed off the knoll, and only three test pits were placed on the knoll itself (Fig. 45). LIV-030 was re-visited and re-examined again in 1981 during centerline survey.

### Site Description

LIV-030 is situated on an elongated northeast-southwest trending ridge crest, characterized by a small knoll. The estimated site area is about 1600 ft<sup>2</sup>. The 1974 Alyeska excavations, which lie immediately southwest of the ridge summit, however, only cover 18 m<sup>2</sup>, about 9% of the site (Fig. 45). An anomolous depression lies just east of the site summit, and may reflect aboriginal quarrying activities.

This site has been identified as Tolovana 2 by the presence of an Alyeska stake labelled 'Tolovana 2', field notes and maps (Derry 1974) and a Senior Thesis by Sue Anderson (1975). Tolovana 2 according to Derry and his crew's field notes (on file in the archaeology laboratory) indicate that the site was excavated in a long narrow formation. This pattern corresponds to the diagrams found in Anderson's thesis and the 1980 and 1981 observed excavations at this geographic locality.

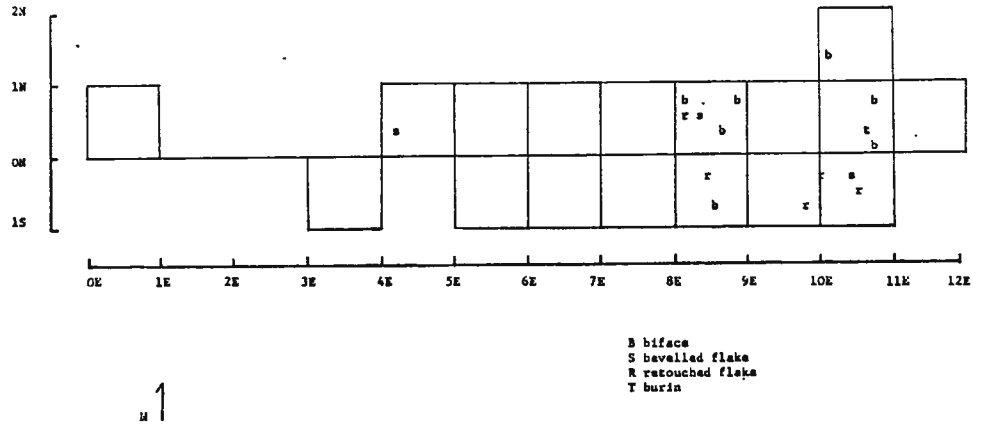


Figure 46. Distribution of selected diagnostic artifacts from LIV-030.

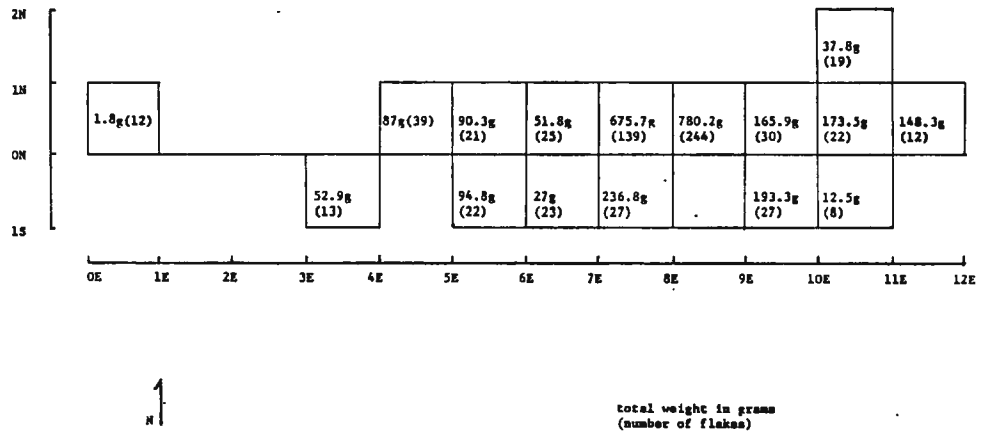


Figure 47. Distribution of lithic flakes from LIV-030 by number and weight.

(From Anderson 1975)

The identification of this site was complicated in 1980 by the fact that the locations of Tolovana 1 and 2 were reversed in the published report in Cook 1976. Tolovana 2 according to Derry's field notes is located north and west of Tolovana 1. Derry (23 June 1974) states that he "walked up hill (from Tolovana 1) to the next point of terrace. Also faces southwest; about 600-800 ft north and above Tolovana 1." But Tolovana 2 according to Derry (in Cook 1976) is located 100 m south and below Tolovana 1. According to Cook 1977, LIV-030 is 100 m north and 15 m above LIV-040.

To overcome the confusion created by the available literature we have assigned the AHRS number LIV-030 on the basis of the geographic location of this staked locality rather than on the basis of previous designations.

Cultural materials. For a senior thesis at the University of Alaska, V. Sue Anderson (1975) performed further analysis of twenty-seven selected artifacts from LIV-030 (accessioned as UA70-218). The University Museum lists site LIV-26 (Y-40) for this accession number. Her classification comprised: bevelled flakes (15%), bifaces (37%), retouched flakes (18%), retouched nodules (15%), burins (4%) and amorphous cores (11%). While not all of her specimens were mapped, Anderson (1975:17) shows the heaviest apparent concentration of these artifacts occurring in the northeastern part of the excavation, between 5 and 15 ft southwest of the datum (Figs. 46 and 47). Anderson's plotting of flake density (Anderson 1975:18) shows a similar focus in the same area, with flake numbers/weight decreasing both southwest and northeast from this area (within the excavation). Her conclusion is that LIV-030 is a quarry site where much of the material was worked at its source, and that no evidence exists for long-term occupation (Ibid.:14).

Despite the unknown sampling procedure applied during this time, it is presently felt that Anderson's functional assessment is essentially correct, but a reservation is presently held about length of occupancy or other, subsidiary site functions.

Of the three on-site test pits placed in 1980, only Test Pit-1 (Fig. 45) produced any cultural materials (one flake at a depth of 3 inches). Very little in the way of surficial artifacts were seen, but some material, including a burin, was observed and collected at the base of the knoll.

Stratigraphy. The stratigraphic format on the knoll top consists of a 0-0.5 inch discontinuous lichen mat overlying 2 inches reddish silt (loess?) with admixed chert fragments (including artifacts). Decomposing bedrock lies below. The format is similar at the base of the knoll, but the vegetative mat and the reddish silt/loess? are thicker.

### Impact

The site has formerly been excavated (in part), and as the excavations have not been backfilled, erosion is impacting the site to a minor degree. Direct impact is threatened by proposed mining of EMS 71-3B, within which the site lies. In addition, "Revision 3", (1980) of the NWA gasline places the centerline within 200 ft of LIV-030, to the southwest, posing direct impact by construction.

### Significance

LIV-030 has been only partially excavated. The complete artifact assemblage is presumed to be repositied in the University of Alaska Museum, but any further evaluation of the materials must await their inspection.

LIV-030 has been defined as a quarry site, and is part of an areal complex of other prehistoric stone reduction and camp sites distributed on Rosebud Knob due, chiefly, to the locally abundant outcrops of Livengood chert. The entire area can perhaps be considered as one cultural focus, inhabited and exploited probably over millennia.

### Recommendation

LIV-030 is part of the proposed "Rosebud Knob Archaeological District", and warrants a request for determination of eligibility.



Alaska State Site No.: LIV-040

Also known as 'Tolovana 1' (Derry 1974, 1975); 'Tolovana 2' (Cook 1976, 1977)

University of Alaska Museum Accession No.: UA75-40 (former); none ascribed in 1980

Location:

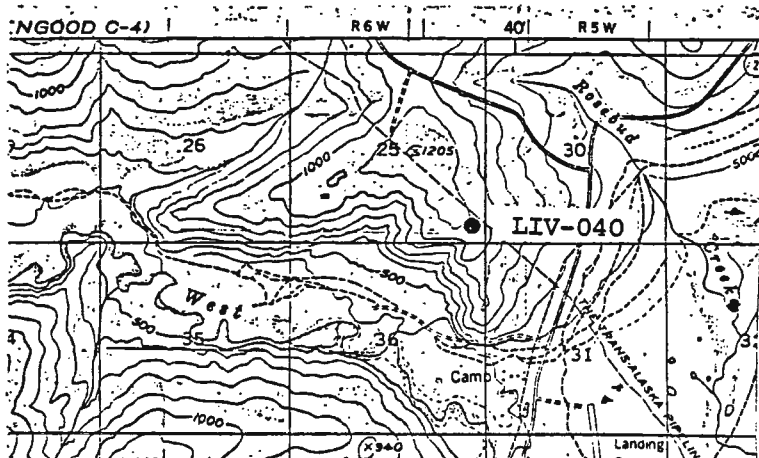
Latitude: 65° 29' 12"

Longitude: 148° 40' 28"

UTM Coordinates: (Zone 6), 422540 E; 7264145 N  
LIV B-4 quadrangle

Section, Township, Range: NE/4 of SE/4 of SE/4 of SE/4, Sec. 25,  
T8N, R6W (Fairbanks Meridian)

General: The site lies 3100 ft southeast of where Alyeska access road 70-APL/AMS-1M intersects the Alyeska pipeline, and southwest of and immediately adjacent to the workpad. It lies 200 ft southeast of proposed EMS 71-3B (Fig. 42). It lies to the northeast of centerline, approximately 200 ft at a right angle to imaginary stake 1520 + 26.



Environmental Setting

The site lies on a low knoll of generally cherty composition, near the summit of Rosebud Knob. The knoll rests on a low relief ridge which is the southwestern extension of the one upon which sites LIV-046 and LIV-105 are situated. The location overlooks the Tolovana River watershed, and vantage from the site is fairly good.

LIV-040 is set in a relatively clear area (vegetatively). Dominant local vegetation comprises birch and spruce trees and shrub willow. The understory includes labrador tea, grasses, cranberries, rose,

fireweed and several species of low, leafy plants. Mosses and lichens are present as discontinuous but significant on-site ground cover. Fauna in the area includes bear, moose, fox and squirrel.

The site location is bounded to the east and northeast by Rosebud Creek (about one mile away). No other substantial body of water is close by.

Rosebud Knob, and the site location specifically, contain extensive outcrops of blackish chert (so-called "Livengood chert"), an important cultural resource, and one which is probably the primary reason for the abundance of archaeological sites in the area.

### Survey Methodology

LIV-040 was located during routine archaeological survey of proposed EMS 71-3B in 1980. The site actually lies outside the prospective EMS boundary, but due to the high site density in the area, peripheral localities felt to have high cultural resource potential were also inspected.

The site was noted first (1980) by the presence of former Alyeska excavations (Fig. 48) and a weathered wooden stake reading either "Tol-5" or "Tol-3" (datum on map). As of 1981 this stake was unreadable.

The site was mapped, described and photographed, and four small test pits placed in 1980. No artifact samples were collected. LIV-040 was briefly re-evaluated in 1981 during Rev. 3 centerline survey.

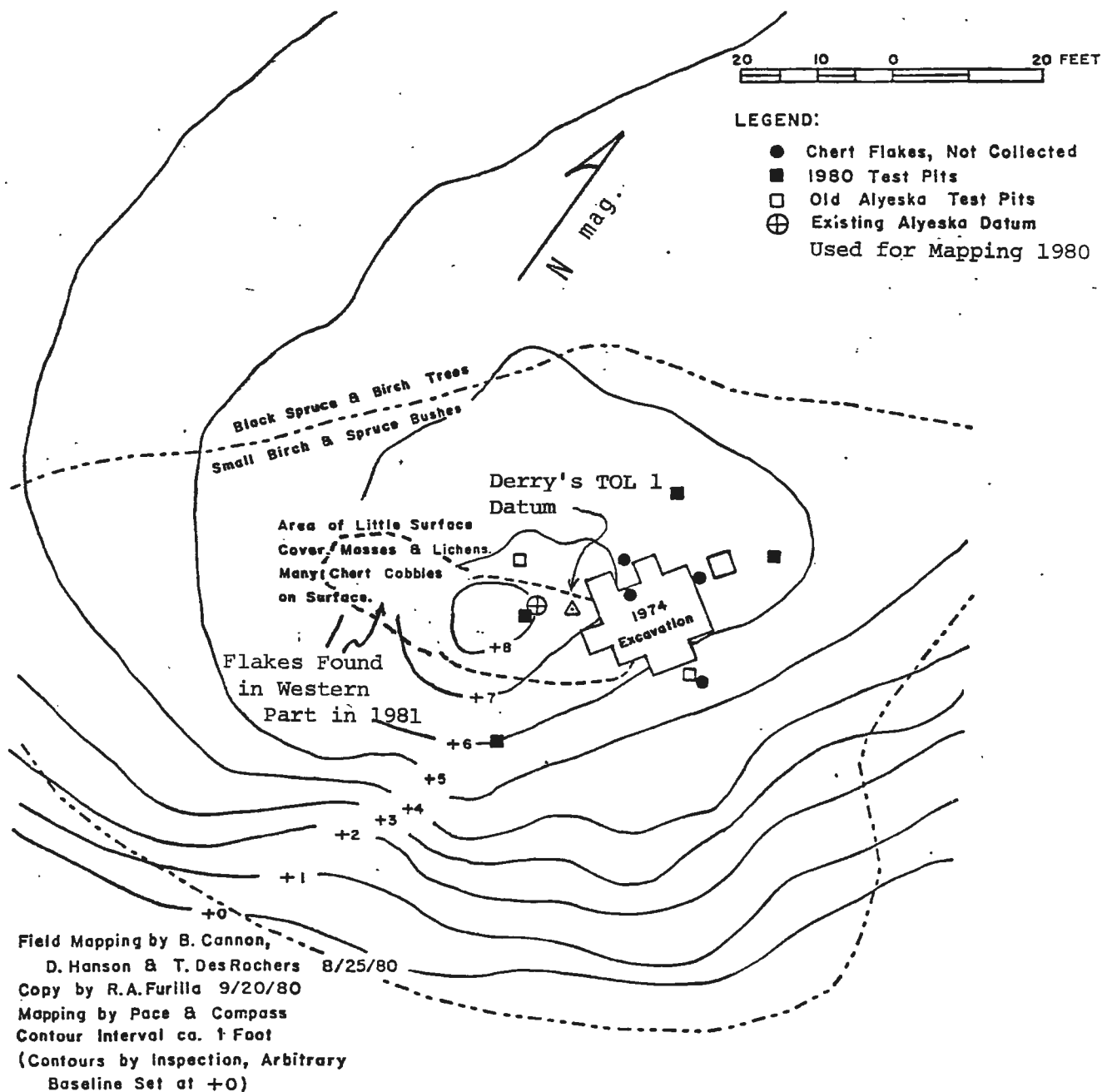
### Site Description

The site is situated on and around a small knoll rising approximately 3-5 ft above the immediate surroundings, and measuring approximately 50 ft in diameter. The slope drops off fairly abruptly to the south; the terrain to the northeast is relatively flat. Much of the ground is exposed near the higher parts of the knoll, displaying many chert cobbles.

The locality immediately east of the knoll summit (20 ft) is occupied by an excavated area formerly worked by Alyeska archaeologists. The main excavation covers approximately 175 ft<sup>2</sup> (17 m<sup>2</sup>), and a single 1 x 1 m excavation unit lies adjacent to the main one, east, by about three feet (Fig. 48). Two other old smaller test pits lie northeast of the knoll summit and along the south edge of the excavated area.

LIV-040 has been equated with Tolovana 1 on the basis of Derry's field maps, found in his notes of 10 July, 1974 (on file in the archaeology laboratory). The excavation outlines from these field notes correspond with what was found to be present at this site in 1980.

LIV-040 (TOLOVANA 1: DERRY 1974; TOLOVANA 2: COOK 1977)



Revised Dec. 1981

Figure 48.

The identification of this site was complicated by the fact that the location of Tolovana 1 and 2 was reversed in the published report in Cook 1976. Tolovana 1 according to Derry's field notes is located south and east of Tolovana 2. Derry (23 June 1974) states that he found a site he designated as Tolovana 1 "on high bluff overlooking river with view down Manly Hot Springs Road." He further states that he "walked up hill to next point of terrace. Also faces southwest; about 600-800 ft north and above Tolovana 1" to find Tolovana 2. But Tolovana 2 according to Derry (in Cook 1976) is located 100 m south and 15 m below Tolovana 1. According to Cook (1977), LIV-040 is 100 m south and 15 m below LIV-030.

To overcome the confusion created by the available literature, the AHRS number LIV-040 has herein been assigned on the basis of the geographic location of this site rather than on the basis of previous field designations.

Cultural materials. Four chert waste flakes were found in 1980 on the site surface in and around the excavated area (Fig. 48). They were not collected. No other cultural remains were noted, and four test pits yielded negative results. Thomas Andrews (University of Alberta) is evidently attempting to organize and study materials from this and other 'Rosebud Knob' sites, and indications are that a preliminary report is forthcoming.

In 1981, additional extant materials were noted both within and peripheral to the Alyeska excavations, suggesting a basal sterile zone was not reached. Extant materials were also noted in 1981 to the east and west of the excavation area on the bench or summit of the knoll. No collections were made in 1980 or 1981.

Stratigraphy. The general stratigraphic makeup of LIV-040 is a thin, discontinuous humic zone overlying a reddish-brown silt (loess?) with abundant admixed chert cobbles and cultural materials. 'Bedrock' is shallow (no deeper than 8 inches).

### Impact

There is cultural information of value at the site which lies very close to the southeastern end of proposed EMS 71-3B, and may be subject to indirect impact during construction.

The proposed NWA corridor ("Revision 3") includes the site, which is threatened with direct impact by construction equipment or personnel. The Alyeska excavation pits are currently subject to erosion which is creating minor disturbance.

### Significance

The site is part of an areal complex of stone reduction/quarry sites around Rosebud Knob due, for the most part, to the outcrops of Livengood chert. The area may be described as one large cultural locus which was used over millennia. There is some potential for additional cultural materials occurring in the vicinity.

### Recommendation

LIV-040 is part of the proposed "Rosebud Knob Archaeological District." However, the site has been excavated nearly completely and is no longer a significant cultural resource. No further action is recommended.

Alaska State Site No.: LIV-046 and 105

LIV-046 is also known as "Tolovana-9"

University of Alaska Museum Accession No.: UA80-210, UA74-61? (LIV-046);  
UA80-221 (LIV-105)

Location:

<u>Latitude:</u>	LIV-046: 65° 29' 17"	<u>Longitude:</u>	148° 40' 20"
	LIV-105: 65° 29' 13"		148° 40' 17"

UTM Coordinates: (Zone 6), LIV B-4 quadrangle  
LIV-046: 422650 E; 7264205 N  
LIV-105: 422700 E; 7264195 N

Section, Township, Range: (Fairbanks Meridian)

LIV-046: center of NW/4 of SW/4 of SW/4, Sec. :  
T8N, R5W;  
LIV-105: center of NW/4 of SW/4 of SW/4, Sec. :  
T8N, R5W.

General: These two sites are located 3,375 ft southeast of Alyeska access road 70-APL/AMS-1M from where it connects with the pipeline workpad, and 40-120 ft northeast from the workpad (Fig. 42). The sites lie just outside (approximately 200 ft) of proposed EMS 71-3A, to the east. An Alyeska benchmark (APSC 633 RM-1, 1977) is located 48 ft southwest of the datum at LIV-105.

[See Figure 42]

Environmental Setting

These two sites are closely associated on a series of four low relief, generally east-west trending ridge crests on the metamorphic terrain of Rosebud Knob. The slope drops abruptly to the east and southeast. The view is limited, but good to the east and southeast, and the nearest water is Rosebud Creek, one mile to the northeast. Overall, the regional terrain is rugged.

The sites themselves appear to occupy a meadow-like (sparsely vegetated) setting, surrounded by similar, but more dense, forested habitat. General vegetation comprises birch and spruce trees with some willow and alder. The understory consists of labrador tea, cranberries, grasses, fireweed and several species of leafy plants. Mosses and lichens are also present.

Extensive local outcrops of black chert (the so-called "Livengood chert") occur in the area. The presence of this key resource is a primary factor for the large number of sites in the vicinity.

### Survey Methodology

The sites were encountered during routine archaeological survey of the proposed EMS 71-3A. LIV-046 had previously been tested to a minimum degree by Alyeska archaeologists, but has never been documented except on a State Heritage Resource card which refers to "Alyeska Notes" (see Site Description and Significance).

In 1980 the area of the two sites was divided on the basis of four separate recognized cultural foci. The three northerly ones were considered as part of LIV-046, and named, north to south, 'Knolls 1', '1A' and '2' (Fig. 49). A fourth focus, a bit more separated from the others to the south, was arbitrarily designated as LIV-105 due to its still undisturbed character and presumed facilitation of future discussion and analysis.

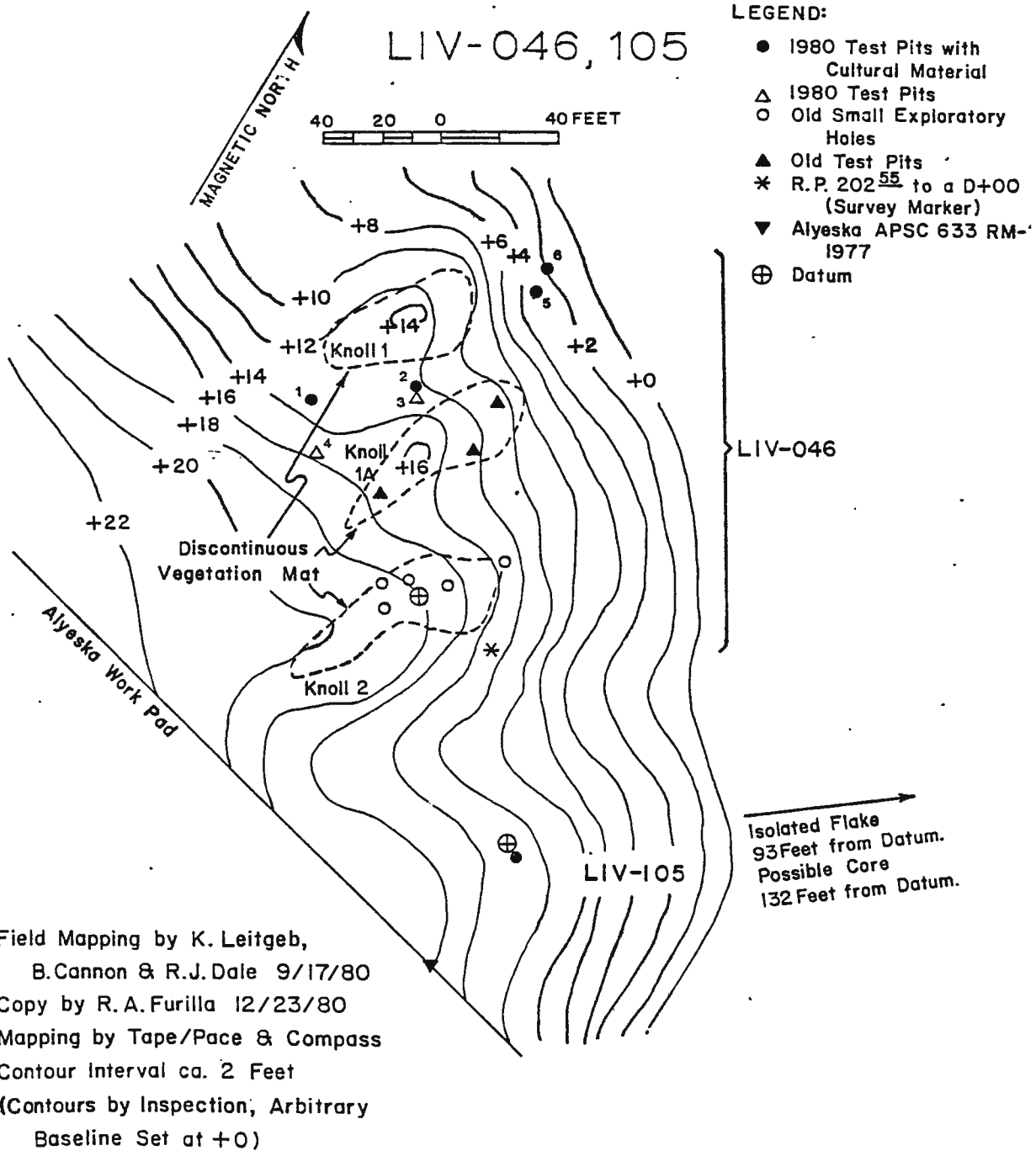
Investigation of these sites in 1980 consisted of routine mapping, photography and documentation. A minimal amount of artifact sampling was conducted in order to aid the assessment of significance. Both old and new test sites are shown in Figure 49, and results of the tests are given below.

1980 testing was primarily visual, and only six test pits were placed in the vicinity of Knoll 1. Of these, the four closest to the knoll itself had positive yields. Some limited surface collecting was conducted on Knolls 1 and 2.

### Site Description

As mentioned, LIV-046 is sub-divided into three foci (Knolls 1, 1A and 2), each on a subtle ridge crest separated and from one another by swales (Fig. 49). The ridge crest covers about 13,000 ft<sup>2</sup>. The site was discovered (1980) by the presence of surficial lithic artifacts on all three knolls and a wooden stake (datum) on Knoll 2 identified as "Tolovana-9". A survey marker (R.P. 20255 to a D + 00) lies 32 ft southeast of this stake.

Figure 49. LIV-046, 105 site map.





The site was previously tested by Alyeska archaeologists, but no bona-fide excavations were present. Three old 1 x 1 ft test pits were located on Knoll 1A, and five small exploratory holes on Knoll 2. Knoll 1 displayed no evidence of prior testing despite the surface scatter of cultural material and chert outcrops. As bedrock occurs immediately beneath the discontinuous lichen mat, however, evidence of prior testing may not have been visible due to erosion.

No documentation of this site beyond an entry on an Alaska Heritage Resource card is known. A check with the University of Alaska Museum revealed that an accession number (UA74-61) had been reserved for this material by David Derry (now deceased), but no artifacts were ever submitted, and their whereabouts is unknown. (This accession number may have been used for some other Rosebud Knob site.)

LIV-105 was tested by only one pit in 1980 to keep disturbance to a minimum. It was not formerly tested and it had no surficial exposure of artifacts. This locality apparently was not included in Derry's or Kegler's description of LIV-046. LIV-105 is in a similar setting to that of LIV-046, and lies 100 ft southeast of the LIV-046 datum on Knoll 2 (Fig. 49). Its areal extent is somewhat vague, but cultural materials extend easterly at least 130 ft from the datum point.

Cultural materials. Most of the cultural materials lie on or just below the lichen vegetative mat at both sites. The bulk of this material comprises black or grey chert flakes, chunks and core fragments. Most of the flaking is primary, and few or no finished implements were noted.

Appendix 6 in Aigner and Gannon (1981) itemizes the materials collected from LIV-046 and LIV-105. Briefly, six black and grey chert flakes were collected from the surface of Knoll 1 and five similar specimens from Knoll 2 at LIV-046. Specimen UA80-210-7 found on the surface of Knoll 2 appears to be a preform (Fig. 49). Test pits 1, 2, 5 and 6 yielded three, four, three and one flakes, respectively. Test pits 3 and 4 were sterile. The total entry on the earlier Heritage Resource card states a "single biface" was found.

Materials noted and collected at LIV-105 comprise specimens of blackish chert. Some appear cryoturbated. The test pit (Fig. 49) yielded 14 flakes. A core fragment and two chert chunks with possible retouch scars were collected from the southeast slope of LIV-105 (Fig. 49).

Stratigraphy. A generalized profile, top to bottom, observed at LIV-046 between Knolls 1 and 1A comprises 0-2 inches vegetative mat; 1 inch black organic layer; 1-2.5 inches grey 'clay'; 7-10 inches bright red cohesive silt; and basal gravel with chert fragments. Fragmented chert occurs in all layers. The profile on the knolls is similar but the silt unit is more brown than red. Decomposing bedrock is found at a depth of 1.2 feet. In both localities subsurface cultural material seemed to originate at the contact of the grey 'clay' and the red/brown silt. Much of the surficial material may have been transported upward by frost action.

The ground profile at LIV-105 consists of a very thin vegetative mat with a basal black organic zone overlying clayey silt with pebbles and chert fragments.

#### Impact

LIV-046 and LIV-105 are not directly threatened with impact from NWA gasline construction. The sites lie slightly outside (to the southeast) of the boundaries of proposed EMS 71-3A, and the center-line lies on the opposite side of the Alyeska work pad to the west.

Portions of LIV-046 have been impacted by former archaeological work, exacerbated by unfilled test pits acted upon by erosive processes.

#### Significance

LIV-046 and LIV-105 are members of an areal prehistoric complex of stone reduction/quarry sites in the region of Rosebud Knoll due to the occurrence of the Livengood chert. The area can be considered as one large cultural focus, but no one site should be considered as 'typical'. The 'significance' of LIV-046 should not be noted as 'nil', as indicated in the Alaska Heritage Resource card..

Despite past disturbances and poor documentation, a body of potential information is still to be had concerning prehistoric resource utilization, stone working techniques and spatial activity partitioning.

#### Recommendation

LIV-046 and LIV-105 are outside but close to the project area and subject to indirect impact. Both are part of the proposed "Rosebud Knob Archaeological District". Data remain at the sites and additional testing is recommended.

Alaska State Site No.: LIV-043

Also known as "Tolovana-5"

University of Alaska Museum Accession No.: Unknown

Location

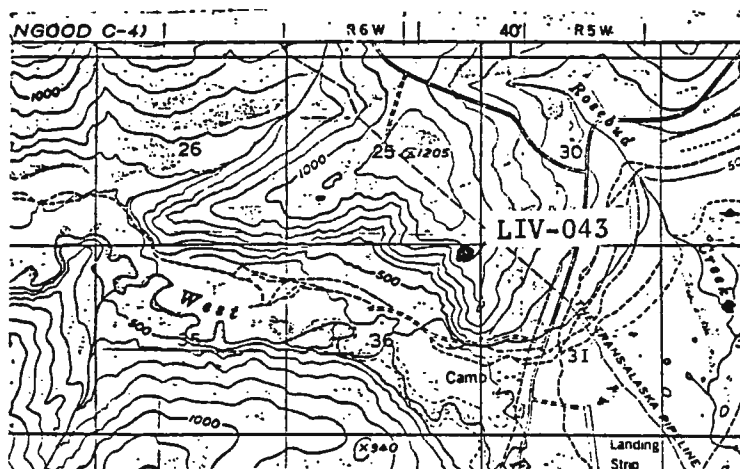
Latitude: 65° 29' 03"

Longitude: 148° 40' 29"

UTM Coordinates: (Zone 6), 422608 E; 7263890 N  
LIV B-4 quadrangle

Section, Township, Range: N/2 of NE/4 of NE/4 of NE/4, Sec. 36, T8N,  
R6W (Fairbanks Meridian)

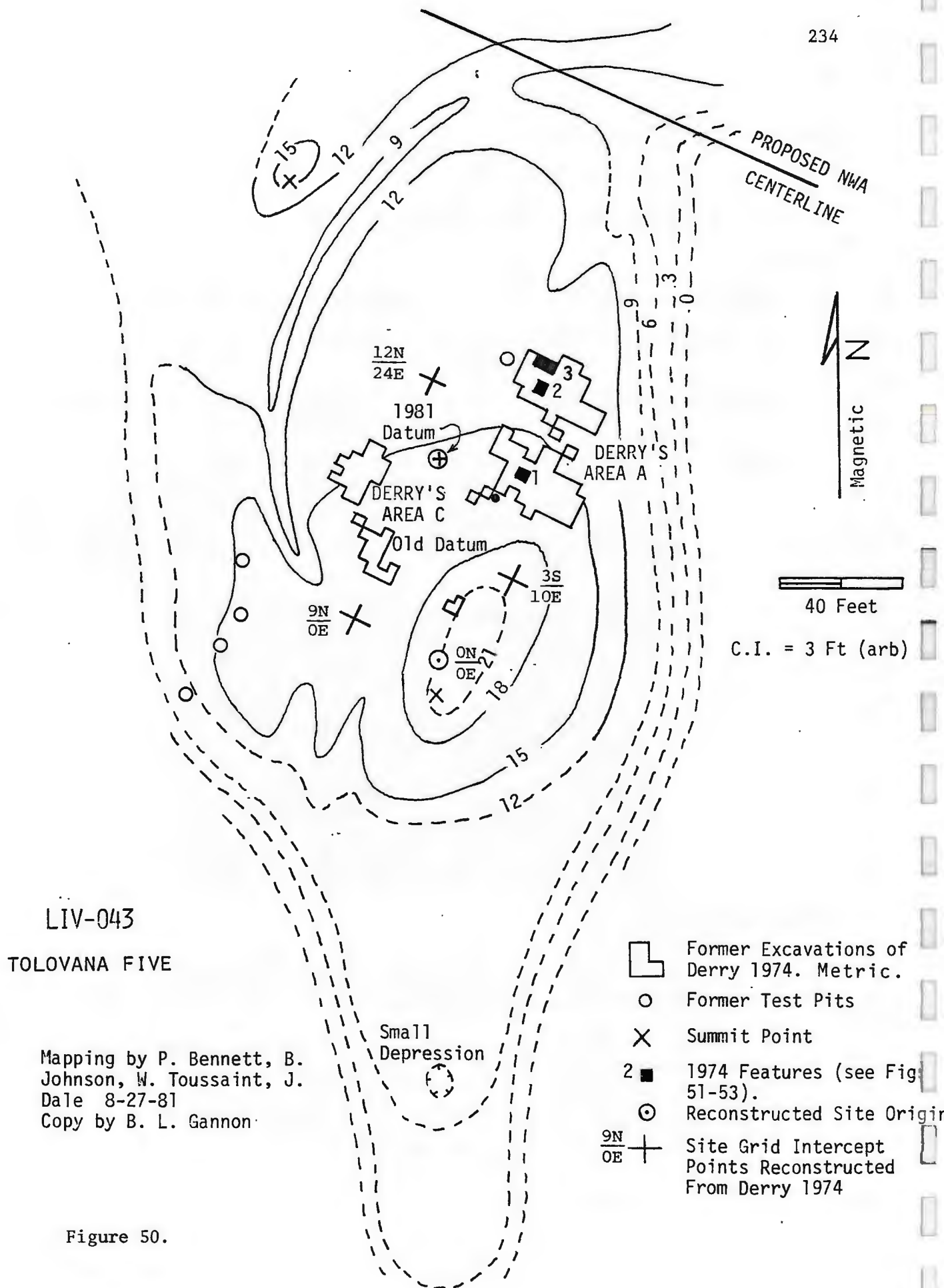
General: The site is located 3300 ft southeast of where Alyeska access road 70-APL/AMS-1M intersects the workpad, and 600 ft southwest of the workpad (Fig. 42). It lies to the right of the proposed centerline. The mostly northerly excavations lie approximately 80 ft from imaginary center-line stake 1526 + 55.



Environmental Setting

The site is described as an alpine knoll site, much like the setting of others in the area. The site is located on the flat crest of a bedrock ridge, known as Rosebud Knob.

The vegetation on this site consists of a lichen covered meadow with scattered birch trees and some spruce trees. Lichens, with some mosses and cranberries, form the basic ground cover. On the southeast end of the site area there is a small knoll approximately three to six feet higher than area I (Fig. 50). On the eastern side of the site there are a large number of aspen trees.



## Survey Methodology

The site was located during routine archaeological reconnaissance of proposed EMS-71-3B in 1980. No test pits were placed as cultural material was surficially exposed, and the site lies off the proposed EMS.

LIV-043 was re-encountered in 1981 during routine centerline survey (Rev. 3). As the impact status of this site is different than it was in 1980, LIV-043 was mapped in detail.

## Site Description

The site has previously been excavated by Alyeska archaeologists (Derry in Cook 1977:274-275), and a weathered stake on-site is probably labelled "Tol-5."

The site is located on the last knoll before a steep drop-off to the south and west, which generally correlates with the map in Cook (1977:258), and the related written description of location (Ibid.:268). Abundant cultural material is visible on the site surface and in the sides of old exposed test pits. Two excavated areas exist, one on a small, sharp knob, and another on the flat area to the west and north-west. Strong evidence of horizontal stratification exists at this site.

The site was not subsurficially tested during the 1981 field season but archaeological materials were observed inside and outside the existing excavation units. Derry estimated the site to be 500 m<sup>2</sup> in size. Approximately 30% of the area was excavated but 80% of the major concentrations were removed (Derry's field notes June-August, 1974).

The outlines of the excavations have been compared with data in Derry's field notes for Tolovana 5 and these match as to shape, size and distance separating major loci (Fig. 50). There is an Alyeska archaeological site datum stake near area I that does not appear in any of Derry's field notes and should not be confused with Derry's field datum, which is projected to lie on the highest point on the site (Fig. 50).

Cultural materials. Abundant cultural material was observed in 1980, eroding out of the sides of the old excavations and lying about on the site surface. None was collected.

Examination of Derry's field notes and the subsequent report (in Cook 1976) have led to the following conclusions and correlations.

Each excavation area (I, II and III; Fig. 50) had distinctive artifacts associated with it. Area I had 43 lx1 m squares excavated and revealed a well defined hearth (Feature 1), Tuktu-like points, 10 convex

end-scrapers, flakes, flake cores, and one crude tchi-tho-like piece. Nearby Area II had two scattered hearths (Features 2 and 3) with ochre, lanceolate, triangular?, and stemmed points. No scrapers were found in Area II but two large ovate bifacial knives (one very thin) were recovered. The material types of both Area I and II were chert and chalcedony. Area III had microblades and blades, but no cores. Chalcedony is less abundant and one piece of obsidian occurred (Derry's field notes).

The three features described by Derry at LIV-043 are as follows:

Feature 1 (Area I)

Coordinates: OS 19E

The north half of this square yielded a flake concentration of 1000+ flakes, the major area of concentration being the northwest quadrant. There is a concentration of rocks in the east-central part of the square which appears to be associated with an area of compact orange soil. This soil patch is immediately adjacent and south of the main cluster of these rocks (Fig. 51).

Feature 2 (Area II)

Coordinates: 2N 27E

The southcentral portion of this square has a compact burn and charcoal soil deposit. Associated with this feature are ash, firecracked rock, and scattered patches of ochre. A large patch of ochre occurs in the southeast corner of the square and patches associated with two unworked chert slabs occur along the northern border of the square (Fig. 52).

Feature 3 (Area II)

Coordinates: 2N 29E and 3N 29E (as well as the eastern portion of 2N 28E and 3N 28E)

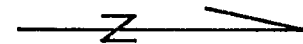
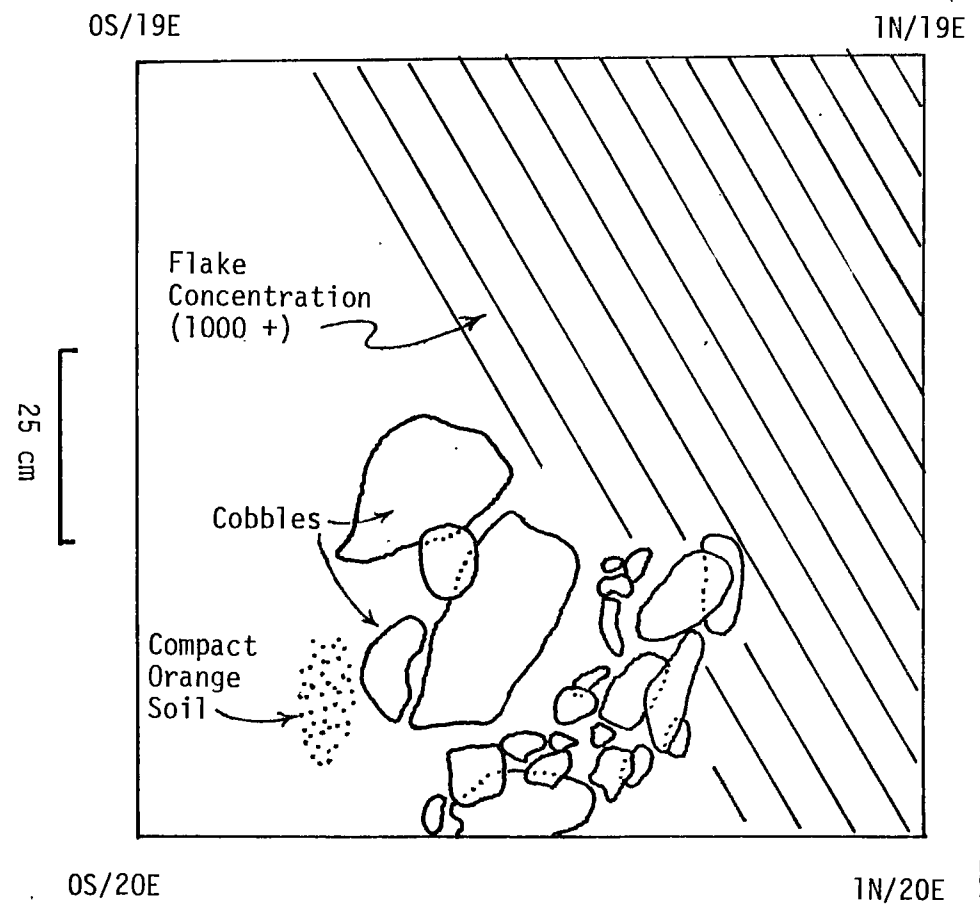
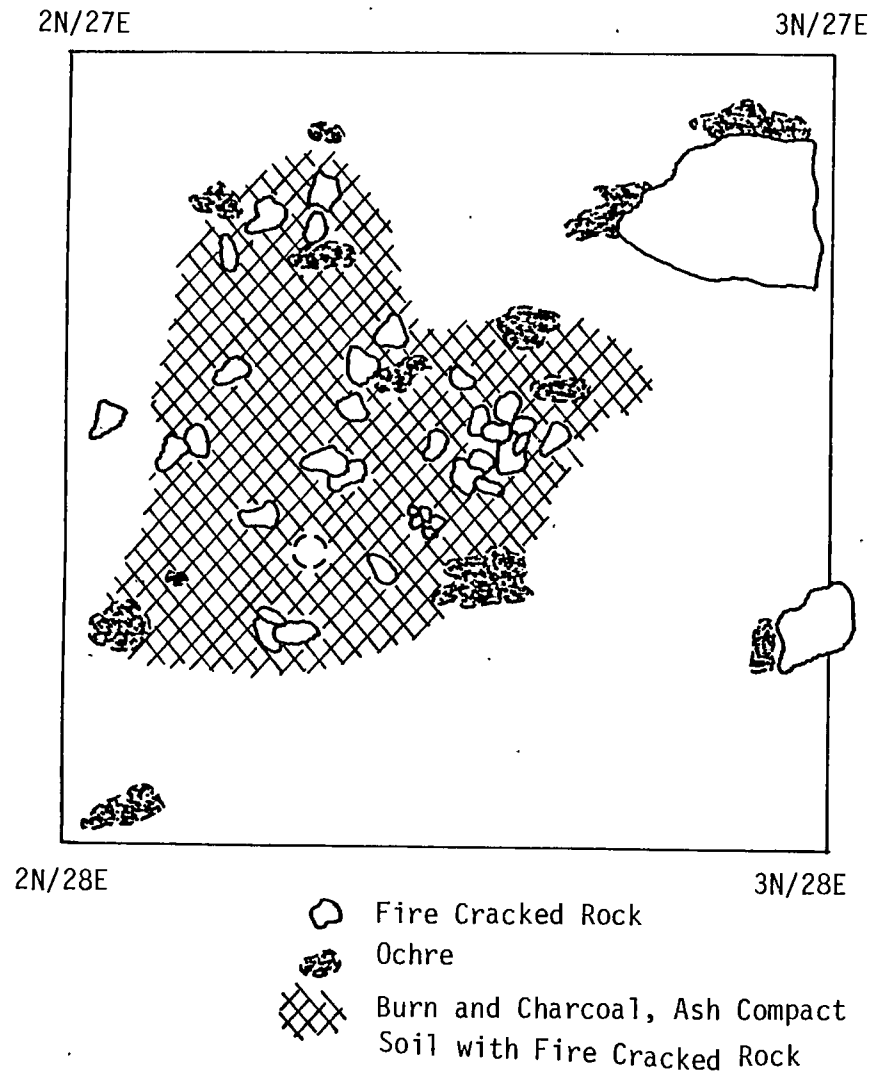
The major part of this feature occurs in 2N 29E where a large patch of gray compact soil occurs with charcoal extending into the east-central part of 2N 28E. There are two associated patches of red ochre, one in the southeast edge and one on the northeast edge of the soil zone. Rocks are associated with this gray soil. Two other gray soil zones exist, one in the northeast corner of the square and one in the 'central' part of the north wall. A number of other rocks are present in these four squares of which the majority appear to be in the western two-thirds of the south half of square 3N 29E. The remainder appear concentrated around the vicinity of the corner post 3N 29E (Fig. 53).

Derry refers to Areas I, II and III only in his notes and maps; he does not employ these designations in his report (in Cook 1976:18-20). Instead, he discusses Areas "A" and "C" as representing cultural components. Area "B" is evidently not mentioned or used.

Figure 52. LIV-043 FEATURE 2

Figure 51. LIV-043 FEATURE 1

(after Derry 1974)



## LIV-043 (TOL. 5) FEATURE 3 FROM DERRY 1974

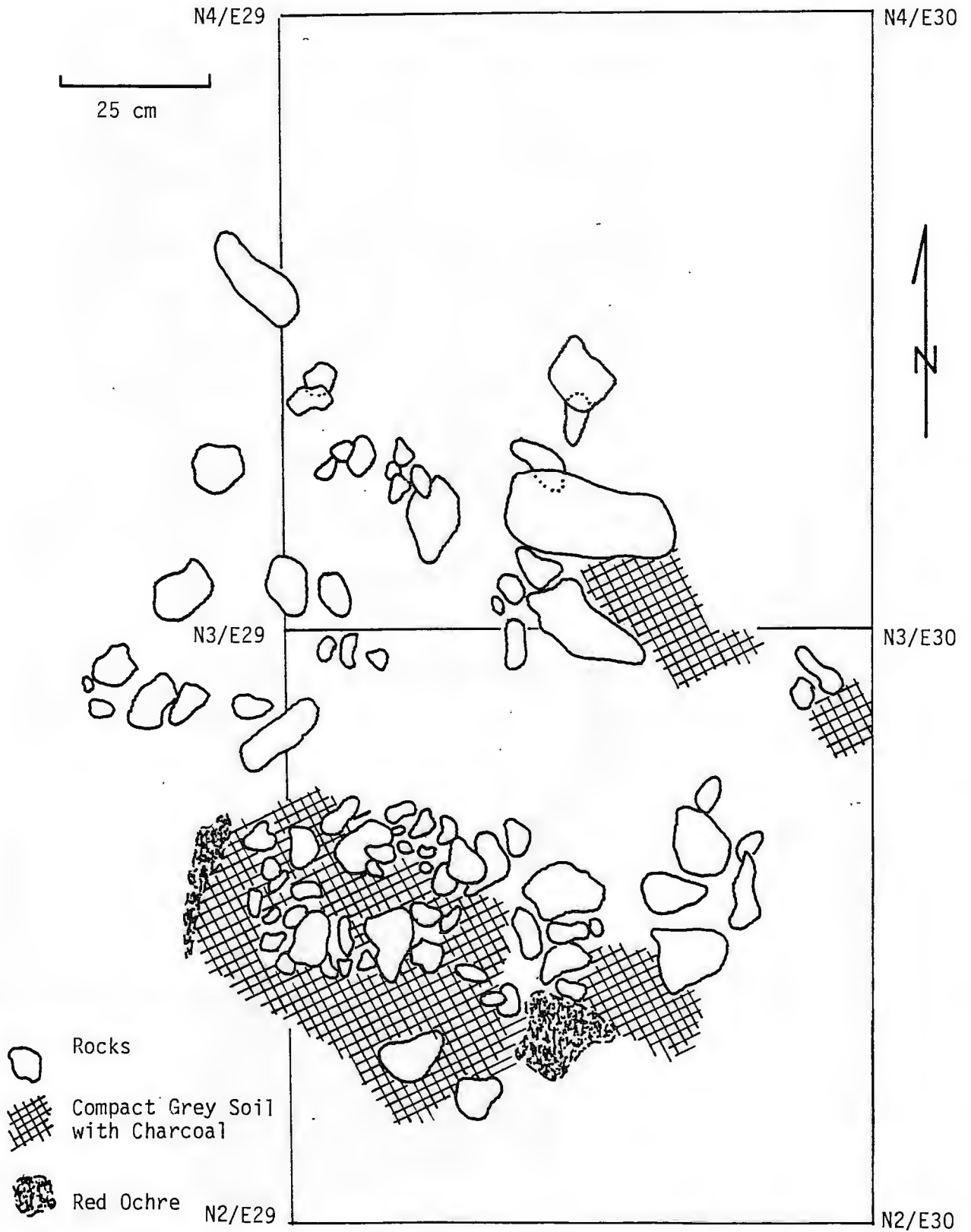


Figure 53.



From the description of features and artifacts contained in these components, it appears that Derry translated Areas I and II into Area A and Area III into Area C, based on discrete cultural evidence. These correlations, characterized below, have been reconstructed from existing notes and reports, and appear to be accurate.

Area A (Cook 1976:19) produced no microblades (also true of Areas I and II), has Tuktu-type points (found in Area I), lanceolate points (found in Area I), a high frequency of scrapers (found in Area I), and there are two small charcoal smears with ochre (found in Area II). Area A (Cook 1976 and 1977) corresponds well with the field notes describing Areas I and II, which are definitely located.

Area C (Cook 1976:19) has microblades (found in Area III but not in Areas I and II). Obsidian occurs solely in this area.

Stratigraphy. No test pits were placed on the site proper in 1980 or 1981, but test pits placed around the site periphery yielded a generalized soil profile of:

<u>organic zone with charcoal</u>	<u>1-2"</u>
<u>brown silt zone</u>	<u>2-3"</u>
<u>yellow to yellow-brown</u>	
<u>silt with frost-fractured</u>	
<u>small rock fragments</u>	<u>6+"</u>

Derry's field notes (1974) indicate that the soil profile 100 ft east of Area I (towards the present proposed NWAP centerline) yielded a soil profile of:

<u>organic</u>	
<u>red</u>	assumed to be oxidized silts
<u>yellow/orange soil</u>	- silt?
<u>loess</u>	
<u>gravel</u>	

Derry further notes that the site area itself did not have a loess zone.

According to Derry, the cultural materials occurred in the organic and red (oxidized) zones. Only rarely did artifacts occur in the mottled yellow-orange soil. In some areas of the site, especially Area III, the orange soil overlies the yellow and there appears to have been minimal subsurface frost action. (Derry appears to be indicating that the mottled soil zone is actually a product of frost action.)

### Impact

The site has been formerly excavated. The pits were not backfilled and erosion is severely impacting the remaining, undisturbed portions.

The site lies approximately 300 ft south of proposed boundaries EMS 71-3B, so it is not threatened with direct impact from mining activities. The "Revision 3" placement of the proposed gasline corridor includes the site and poses a direct threat.

### Significance

LIV-043 is a horizontally stratified site with two distinct cultural components. There is some evidence that the materials can be culturally correlated with the vertically stratified site LIV-041 (below). In contrast to many of the Rosebud Knob sites, LIV-043 has diagnostic artifacts, suggesting functions in addition to lithic rendering and quarrying activities. LIV-043 has been excavated and reported.

### Recommendation

LIV-043 is part of the proposed "Rosebud Knob Archaeological District." Few data apparently remain and no further action is recommended.

The actual field placement of the NWA centerline observed in 1981 is at some variance to the route indicated on Rev. 3 maps.

Alaska State Site No.: LIV-048, 045, 044, 042 .

Also known, respectively, as: "Tolovana 11, 7, 6 and 4".

University of Alaska Museum Accession No.: None

Location:

Latitude:

Longitude:

LIV-048: 65° 28' 58"

148° 40' 22"

LIV-045: 65° 28' 56"

148° 40' 25"

LIV-044: 65° 28' 54"

148° 40' 22"

LIV-042: 65° 28' 53"

148° 40' 22"

UTM Coordinates: (Zone 6), LIV B-4 quadrangle

LIV-048: 422600 E; 7263750 N

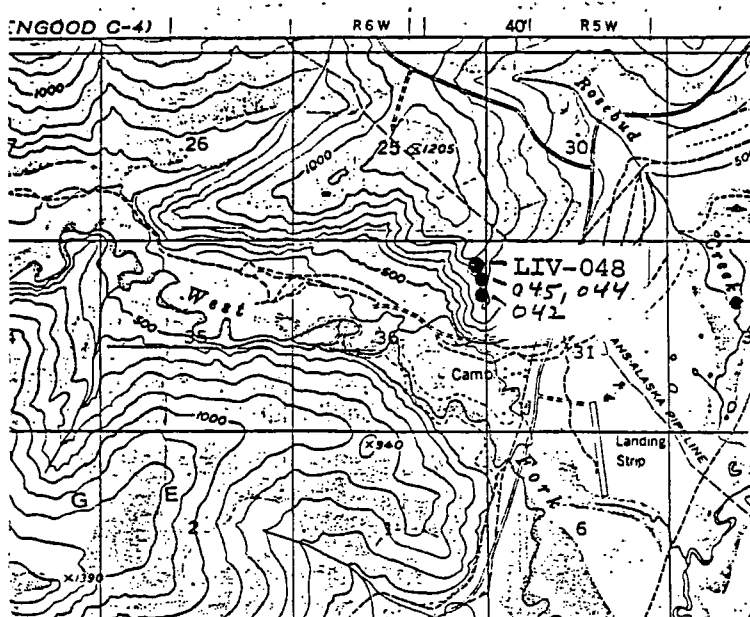
LIV-045: 422595 E; 7263690 N

LIV-044: 422600 E; 7263620 N

LIV-042: 422610 E; 7263590 N

Section, Township, Range: All sites: SE/4 of NE/4 of NE/4, Sec. 36, T8N, R6W (Fairbanks Meridian)

General: LIV-048, 045, 044 and 042 are situated north to south, respectively, along the south ridge crest of Rosebud Knob, approximately 4000 ft southeast along the Alyeska pipeline cut from access road 70-APL/AMS-1M, and from 900 to 1125 ft southwest of the pipeline (Fig. 42).



### Environmental Setting

The four sites are in a chain, separated only by a few hundred feet, on small knoll tops situated along the southern ridge terminus of Rosebud Knob (Fig. 42). Rosebud Knob is a local topographic high of metamorphic bedrock rising above the west fork of the Tolovana River. Localized veins of black 'Livengood' chert penetrate the rock. All sites but LIV-048 afford an excellent view of the valley of the West Fork of the Tolovana River.

The sites are basically on small bedrock ridges with a very thin soil (loess) lens overlain by lichens and mosses with scattered brush alders and birch. Rock outcroppings are also present. This site is suffering some natural erosion, i.e. slumping. The surrounding vegetation is comprised of a lichen-moss-cranberry understory with tall birch trees and scattered spruce trees forming the canopy. Only LIV-048 is in an open alpine-like meadow surrounded by an open aspen-birch forest.

### Survey Methodology

These four sites were initially located and described during the Alyeska oil pipeline archaeology project. With the help of a map by Derry, they were again located, described and ground inspected in 1981 during the NWA gasoline archaeology survey. Although all sites are located off the project area, their location and status were determined to be important in correcting deficiencies in the general archaeological description of Rosebud Knob. The sites are very small and no subsurface testing or collections were made in 1981.

### Site Description

LIV-048: The site was identified by the presence of a 2 inch by 2 inch wooden stake marked "Tolovana 11" beside an open test pit. Derry (University of Alaska Archaeological Site Status Report Form, Alyeska Pipeline Archaeological Survey 1975) stated that the site consisted of a surface find of six chert flakes. There is one open test pit apparent with a chert cobble (possible core) laying to the south of this test pit.

LIV-045: The site was identified by the presence of a 2 inch by 2 inch wooden stake reading "Tolovana 7". There are no excavations apparent at this site but Derry (University of Alaska Archaeological Site Status Report Form, Alyeska Pipeline Archaeological Survey 1975) stated that he had recovered less than a dozen chert flakes from the surface (from a 2-3 m<sup>2</sup> area). There are rubble exposures present at this site and there is little soil development. The site faces south and west with an excellent view of the valley of the West Fork Tolovana River. Derry called this a "lookout site".

LIV-044: The site was identified by the presence of a 2 inch by 2 inch wooden stake reading "Tolovana 6". There are no excavations apparent at this site but Derry (University of Alaska Archaeological Site Status Report Form, Alyeska Pipeline Archaeological Survey 1975) stated that random testing yielded flakes and one possible microblade from the humic zone directly over the bedrock outcrop. Derry states that the "site appears small (4 x 4 m) and is largely surficial. Material occurs on surface of rubble exposure and down about 4 cm in the mixed rubble and loess... Site faces south and west with a view down the Valley (of the West Fork Tolovana River) that is exceptional" (Derry's 29 June, 1974 field notes). Derry called this a lookout site.

LIV-042: The site was identified by the presence of a 2 inch by 2 inch wooden stake reading "Tolovana 4" beside a small test square. Derry (University of Alaska Archaeological Site Status Report Form, Alyeska Pipeline Archaeological Survey 1975) stated that random testing yielded flakes of Livengood chert in the organic zone and thin loess overlaying the bedrock outcrop. Derry (August 1974 field notes) stated that the "site appears small but is at least 4 by 4 m (16 m<sup>2</sup>). Like Tolovana 6 and 7 this site faces south and east, affording an excellent view of the West Fork Tolovana River. Derry states (UA/Alyeska forms) that this site is not a workshop but apparently a flint station-lookout that may be related to Tolovana 3. It was to be tested (randomly) in 1976.

#### Impact

The sites are in a good state of preservation, although LIV-042 and 045 are experiencing some natural slumping. All sites are well outside the project area and are not affected.

#### Significance

Although LIV-048, 045, 044 and 042 are small sites with limited assemblages, they figure significantly into the rest of the Rosebud Knob archaeology area, especially with regard to the presence and aboriginal utilization of the Livengood chert. These four sites, however, with the exception of LIV-048, do not appear to be primary quarry workshops, and may be simple 'overlook' sites exhibiting some incidental stone working activities. Information can be obtained on prehistoric land and resource use, and settlement patterns. Some data remain.

#### Recommendation

Although outside the project area, LIV-048, 045, 044 and 042 are part of the proposed "Rosebud Knob Archaeology District." Individually, however, the sites are not of Register quality and no further action is recommended for the sites.

Alaska State Site No.: LIV-041

Also known as "Tolovana 3"

University of Alaska Museum Accession No.: UA74-45, UA75-40, UA81-128

Location:

Latitude: 65° 28' 51"

Longitude: 148° 40' 20"

UTM Coordinates: (Zone 6), 422650 E; 7263490 N  
LIV B-4 quadrangle

Section, Township, Range: N/4 of E edge of SE/4 of NE/4, Sec. 36,  
T8N, R6W (Fairbanks Meridian)

General: LIV-041 is located on the end of the southern ridge of Rosebud Knob, 4350 ft southeast along the Alyeska pipeline cut from where access road 70-APL/AMS-1M intersects the pipeline, and 1350 ft southwest from the pipeline (Fig. 42).

[See Figure 42]

Environmental Setting

LIV-041 is among a series of closely associated sites situated along a south-trending ridge of 'Rosebud Knob.' Rosebud Knob is a topographic high of metamorphic bedrock with incorporated veins of black (Livengood) chert.

The vegetative cover is basically a lichen and moss mat with scattered shrub birch on the site. The area around the site is an aspen and birch forest with a lichen and moss understory. Fauna includes bear, spruce grouse and rodents.

### Survey Methodology

LIV-041 proper was not located in 1980 at which time (Aigner and Gannon 1981) its location was confused with LIV-043 as the 'last site on the ridge.'

This error is here corrected following re-survey of the area in 1981 and a subsequent literature search which revealed the location and consequent proper identity of all the Rosebud Knob archaeology sites defined by Derry (1974, 1975).

In 1981, LIV-041 was intensively ground tested, evaluated and mapped (Fig. 54).

### Site Description

The site was identified on the basis of a 2 inch by 2 inch wooden stake which reads "Tolovana 3." The site is situated on the last knoll before a steep drop-off into the valley of the West Fork Tolovana River, overlooking the Alyeska Livengood camp. Derry (1974, 1975 field notes) states that Tolovana 3 "lies on terrace with an excellent view of Tolovana Valley to west and southeast as well as up West Fork Valley northwest. Main area of site situated on 'bench' along bedrock outcrop." The site is on the northeastern side of a small northwest-southeast trending ridge, on the southern terminus of Rosebud Knob. The ridge is basically composed of bedrock overlain by loess. The excavations are on the loess-covered bench just below the highest bedrock outcrop. Many of the excavation squares are dug to a depth of 15-20 inches below the ground surface (Fig. 55). The soil, according to Derry's notes, is composed of an organic zone (sterile) 1-3 cm below surface, oxidized loess (with Tuktut materials) 4-14 cm below surface, loess (with Denali remains) 15-28 cm below surface, loess with bedrock rubble (with micro-blades) 28-34 cm below surface and finally bedrock. Bedrock is apparent in many of the squares excavated by Derry. None of the excavations was backfilled.

LIV-041 is described by Derry (in Cook 1977:268-289) as the only vertically stratified site in the Rosebud Knob area. While it does not occur on or near a chert outcrop, it is within 0.5 miles from such a lithic source. The site was estimated to cover "175-200 square meters," with cultural materials occurring along the highest part of the ridge crest. Three cultural horizons were identified, top to bottom: CH-I, CH-II, and CH-III.

LIV-041  
(TOLOVANA 3)

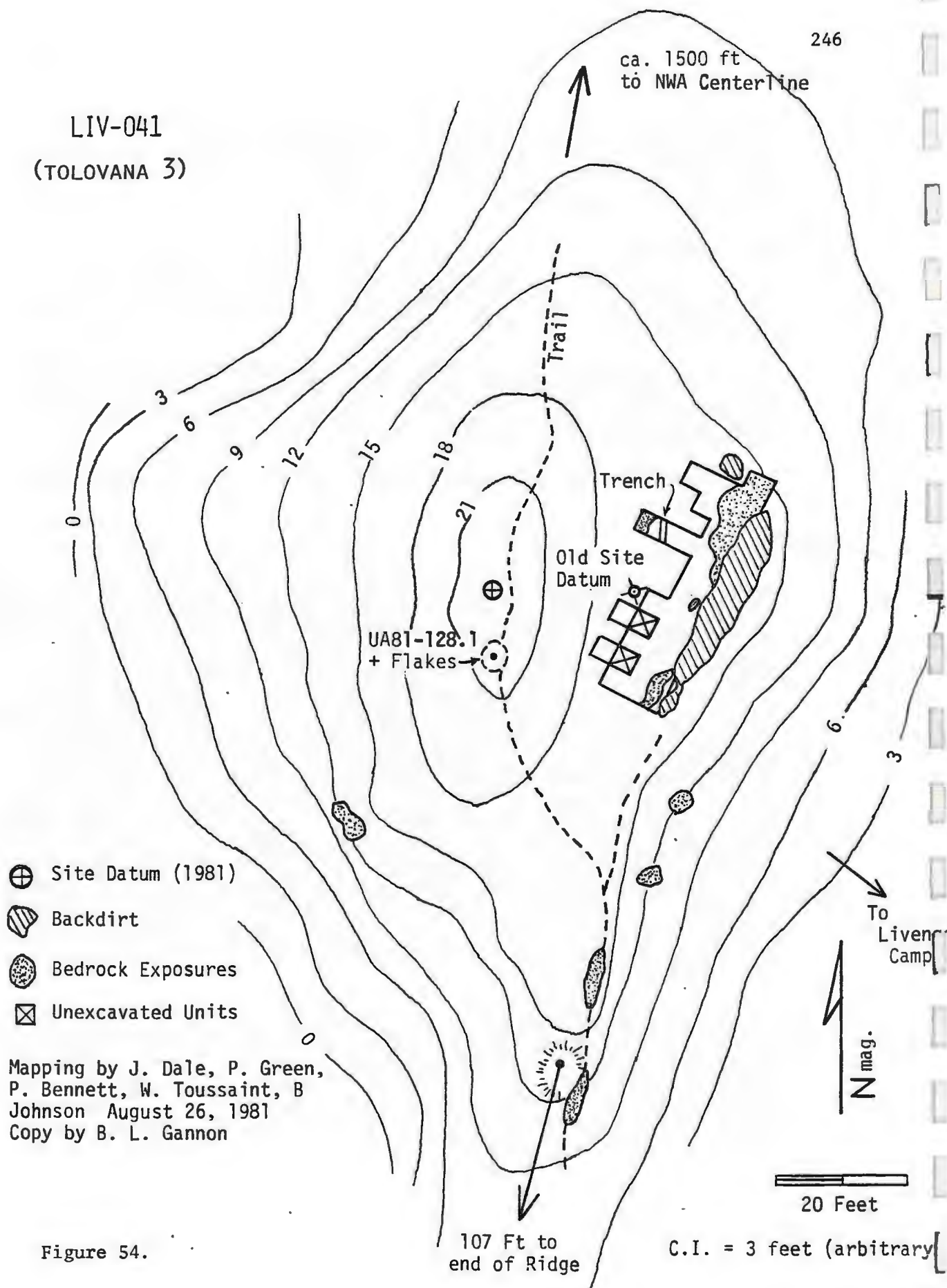


Figure 54.



Figure 55. DELETED

Cultural materials. In 1981 abundant cultural material was observed eroding from the former excavations and lying on the undisturbed parts of the site surface (Fig. 55).

Derry's Cultural Horizon-I (Cook 1977:270-272) was identified as Tuktu/Palisades characterized by Tuktu tabular microblade cores, both side-notched and lanceolate projectile points, and a variety of scrapers (Fig. 56). Interestingly, a number of these implements are made of non-local chert, yet no lithic waste of similar composition was recovered at the site. An approximate age of 5500-7500 years B.P. was suggested for this horizon based on typological dating. Due to the comparatively broader range of implement types, it was also suggested this horizon did not reflect a primary quarry/workshop emphasis.

Cultural Horizon-II was termed the 'wedge-shaped microblade core component,' radiocarbon dated at 5845  $\pm$  246 B.P. (Ibid.:272). Burins, absent in CH-I are present, and projectile points with corner notching and expanding stems are present along with end scrapers having graver tips (Fig. 57). These scrapers are similar to UA80-229-1 recovered from BET-122. None of the buff colored 'foreign' chert was present in this horizon, but obsidian did occur. Derry's designation as 'Denali' would probably be understood as 'late Denali' today, based upon the date and presence of notched points in the assemblage.

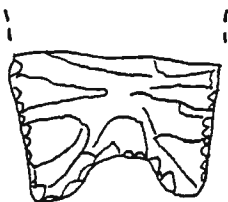
Cultural Horizon-III was the oldest recognized component at LIV-041, with 20% of the artifacts lying directly upon the bedrock at the base of the loess. No microblade cores were recovered, but burinated microblades and projectile points showing concave bases and convex sides were observed. All the points were broken in a manner suggestive of use (Fig. 58). One blade-like, edge-utilized implement (UA81-128-1) was collected from the site surface in 1981 (Figs. 5 and 54).

Stratigraphy. Most of the cultural materials lie within a loess varying in thickness from 14-30 inches, equated with the Ready Bullion Formation. A very thin soil horizon occurs on top of the loess. Beneath the soil horizon a mildly oxidized A<sub>2</sub> horizon is present, grading downward (ca. 6 inches) into an unoxidized tan loess (C horizon). Beneath the base of the loess and bedrock, another zone occurs which is also a loess but with a higher clay content and coarser upward size range. The unit contains scattered angular pebbles mainly derived from the eroding bedrock. The bedrock itself appears pitted due to natural abrasion, and in one case, probably due to prehistoric quarrying activities (Derry in Cook 1977:268-269).

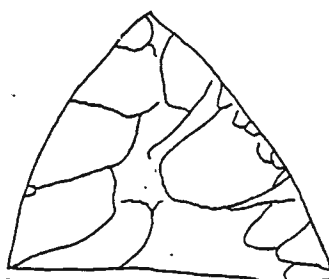
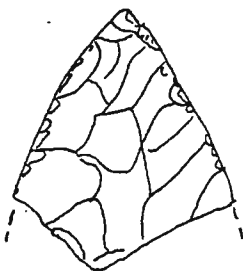
### Impact

LIV-041 has previously been excavated during the Alyeska pipeline project. The excavations were not backfilled and erosion is affecting the site which lies outside the NWA project area and will not be affected by construction.

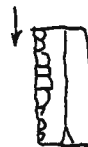
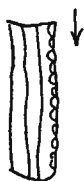
Figure 58. LIV-041, CH-III artifacts.



Concave base point fragments



Large biface fragments



Edge-burinated microblades (note retouch adjacent to facets on all specimens)

[from Cook 1976]

### Significance

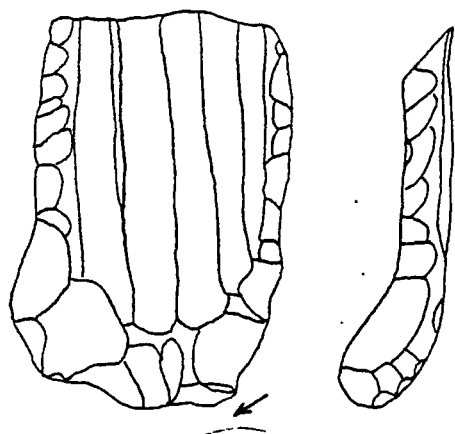
LIV-041 is a significant locality which is vertically stratified with three distinct cultural components. It is important for what it can reveal about mid-Holocene technological components, land and resource utilization, and both inter- and intra-site relationships. No final report is available for LIV-041 which is being subjected to erosion, and it is known that some additional materials remain that could reveal more about this important cultural/archaeological prehistoric locus.

### Recommendation

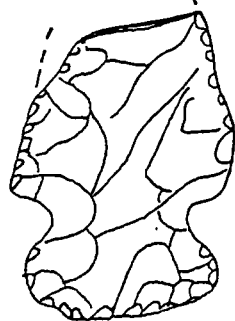
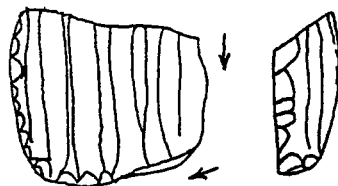
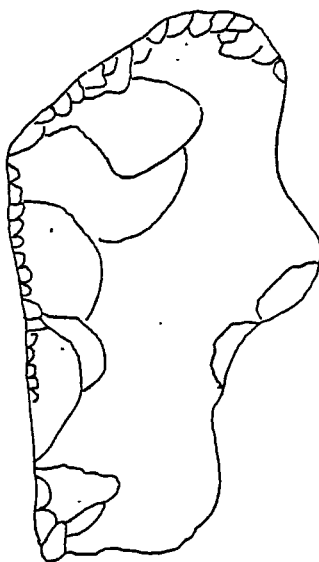
LIV-041 contains extant materials but lies outside the project area. It is part of the proposed "Rosebud Knob Archaeological District." No further action is recommended.

Figure 56. LIV-041, CH-I artifacts.

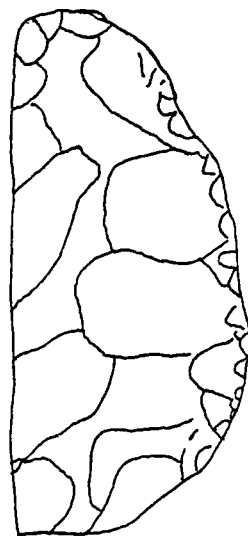
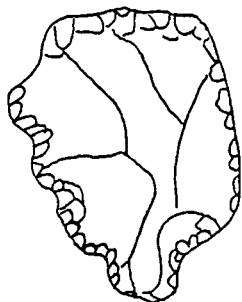
[from Cook 1976]



Tuktuk type microcores (note burin blows)

Large side-notched  
point

Flake knife

Bifacial semi-lunar  
knife

Notched scraper

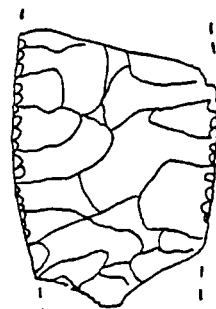
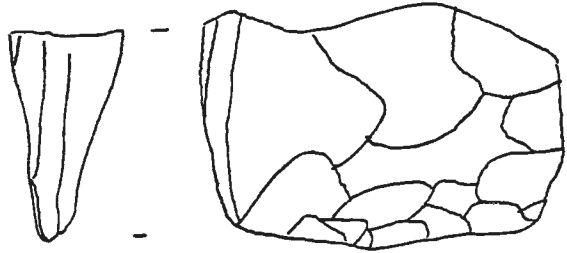
Medial section of  
lanceolate? point

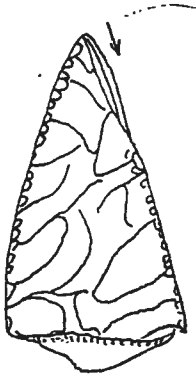
Figure 57. LIV-041, CH-II artifacts.



Core tablet



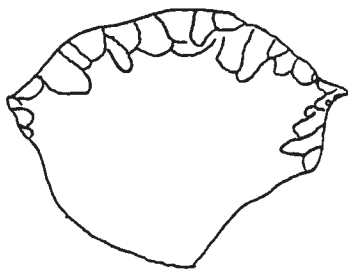
Wedge-shaped microcore



Burinated point tip



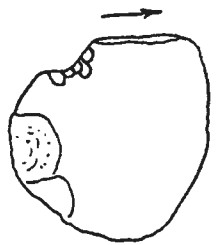
Corner notched/expanding stem points



Scraper-graver



End-of-blade scraper



Burin on a concave truncation

[from Cook 1976]

Significance

Davidson Ditch has significance to the gold mining history of the Fairbanks area. It was nominated to the National Register in 1971. This construction was determined eligible in 1977 from Mile 32 to Mile 69 of the Steese Highway. However, although the request refers to only 32 miles of the property (to the northeast, in the Livengood and Circle quadrangles) the remaining 40 southwestern miles of the main ditch, in addition to 25 miles of feeder ditches, penstocks, flumes, siphons, and a tunnel, may also be eligible for listing in the National Register (Determination of Eligibility Notification E.O. 11593, 1977).

Recommendation

Additional archival research is needed for this portion of the Davidson Ditch, and other decisions will be based on the results of the pending request for a determination of Register eligibility.

If mitigation is imminent at this locality prior to construction, it is recommended that the associated debris upslope from the ditch be carefully examined. Likewise, the structure spanning the ditch 512 ft northwest of the centerline should be inspected. Construction, however, will probably not affect the overall integrity of the feature.

*Should be  
fostered - m.s.  
droughts.*

Alaska State Site No.: FAI-208

(1981 Field No.: AS 080-1H)

University of Alaska Museum Accession No.: None

Location:

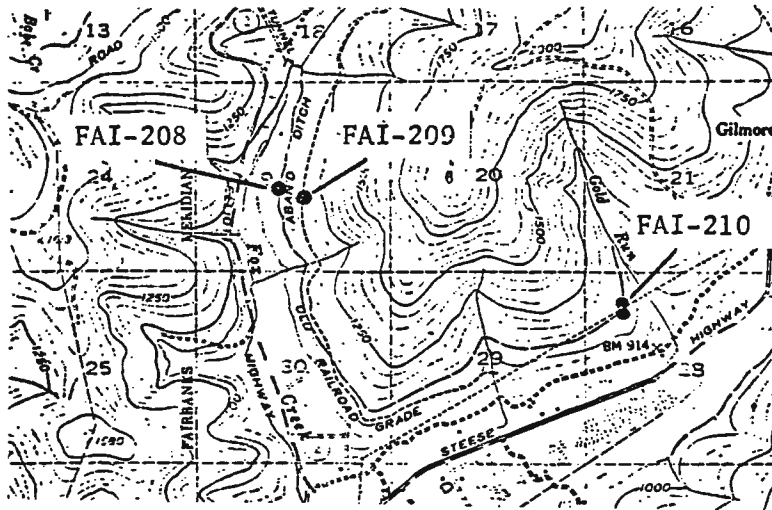
Latitude: 64° 59' 11"

Longitude: 147° 37' 38"

UTM Coordinates: (Zone 6), 470490 E; 7206845 N  
FAI D-2 quadrangle

Section, Township, Range: NE/4 of NE/4 of SW/4, Sec. 19, T2N, R1E  
(Fairbanks Meridian)

General: FAI-208 is located 10 miles north of Fairbanks, 2 miles north of Fox and 1000 ft east of the Elliot Highway.



Environmental Setting

The site is located on the east side of the hill 500 ft east of Fox Creek at an elevation of 1050 ft, 50 ft above the creek. The hill is composed of Birch Creek Schist, and vegetated with moderately dense spruce and an understory of labrador tea, alder, willow, horsetail and wild rose. Among the varied fauna in the area, moose sign and squirrels were observed.



Alaska State Site No.: LIV-073/CIR-010

(1981 Field No.: AS 080-2H; Davidson Ditch)

University of Alaska Museum Accession No.: None

Location:

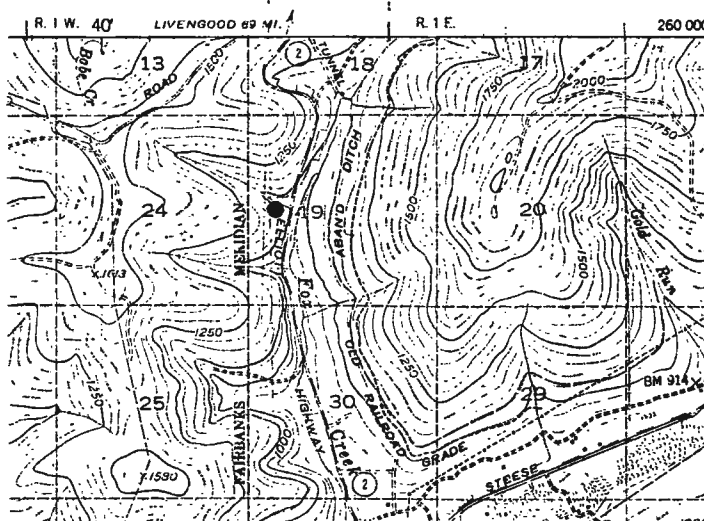
Latitude: 64° 59' 14"

Longitude: 147° 38' 10"

UTM Coordinates: (Zone 6), 470045 E; 7206940 N  
FAI D-2 quadrangle

Section, Township, Range: SE/4 of NE/4 of NE/4 of SW/4, Sec. 19,  
T2N, R1E (Fairbanks Meridian)

General: The site lies 150 south of Pershing Creek, a small tributary of Fox Creek, 400 ft west of the Elliot Highway. The community of Fox lies 2 miles to the south.



## Environmental Setting

The pertinent part of Davidson Ditch lies on a hillside on the west side of the Fox Creek valley, approximately 150 ft higher than the valley floor. The general area is one of moderate relief (up to 500 ft locally).

Geologically, the hill upon which the Davidson Ditch sits consists of Metamorphic Bedrock, probably associated with the Birch Creek Schist. Downslope from the ditch the ground consists primarily of redeposited materials especially in areas associated with Pershing Creek and Fox Creek.

The predominant vegetation in the area uphill from Davidson Ditch consists of poplar trees and some alder thickets, with moss as the dominant ground cover. Downslope from the ditch the vegetation changes rapidly to black and white spruce of medium density and moss and horse-tail as the dominating understory. This vegetational change coincides with the location of the Pershing Creek valley.

Evidence of the presence of moose bedding down was found 200 ft below Davidson Ditch. Other animals in the area include spruce grouse.

### Survey Methodology

The ditch was encountered during routine archaeological survey along the proposed NWA centerline (Rev. 3) in 1981. The locality was photographed and described.

### Site Description

The Davidson Ditch was constructed for the purpose of stepping up gold mining by creating a constant water supply between Fox and the Chatanika River. Its construction began in 1925 and was completed in 1928. The main ditch, as finally constructed, had a bottom width of 12 ft, a grade of 0.04% (2.11 ft per mile) and a carrying capacity of 125 ft<sup>2</sup> per second. Average depth of water was 3.75 ft. The over-all main ditch length, upon completion, was 90.5 mi including penstocks, penstock flumes (see FAI-210), siphons and tunnels (Boswell 1979:11).

The U.S. Smelting, Refining and Mining Co. released its hold on the ditch in 1959 and sold it to the Chatanika Power Co. who used it for the production of hydroelectric power. In 1967 flooding caused the ditch to be abandoned and it has been in disuse since.

The width of the ditch at the present locality is estimated to be 20 ft across from the top of each surrounding berm. There are boulders scattered around the ditch measuring ca. two feet across. The base of the ditch is leveled and over-grown by grasses and shrub alder. There are no pipes or siphons present as was reported for the more southerly sections of the ditch. 512 ft to the northwest of centerline is a small bridge or similar such structure crossing the ditch. Possibly it is associated with a cabin to the east of the ditch.

Approximately 170 ft southeast of centerline (within the 500 foot wide corridor), 50 ft upslope from the ditch, is a concentration of cans and wooden boxes in an area 12 x 12 ft. This concentration also has two charred logs associated. This debris may be younger than the ditch itself.

### Impact

This locality of the Davidson Ditch is crossed by the proposed NWA centerline and the site will be directly affected during construction.

## Survey Methodology

FAI-208 was found during routine archaeological reconnaissance along the proposed NWA centerline (Rev. 3) in 1981. The site was intensively surface inspected, and features were mapped and described.

## Site Description

FAI-208 lies along an abandoned subsidiary ditch of the Davidson Ditch (LIV-073/CIR-010). The respective components are probably historical, and appear to be associated with construction, maintenance or use of the Davidson Ditch complex and its ancillary operations.

The site consists of two components: a set of three decomposed pole features (Component 1); and a small subsidiary ditch to the Davidson Ditch (Component 2).

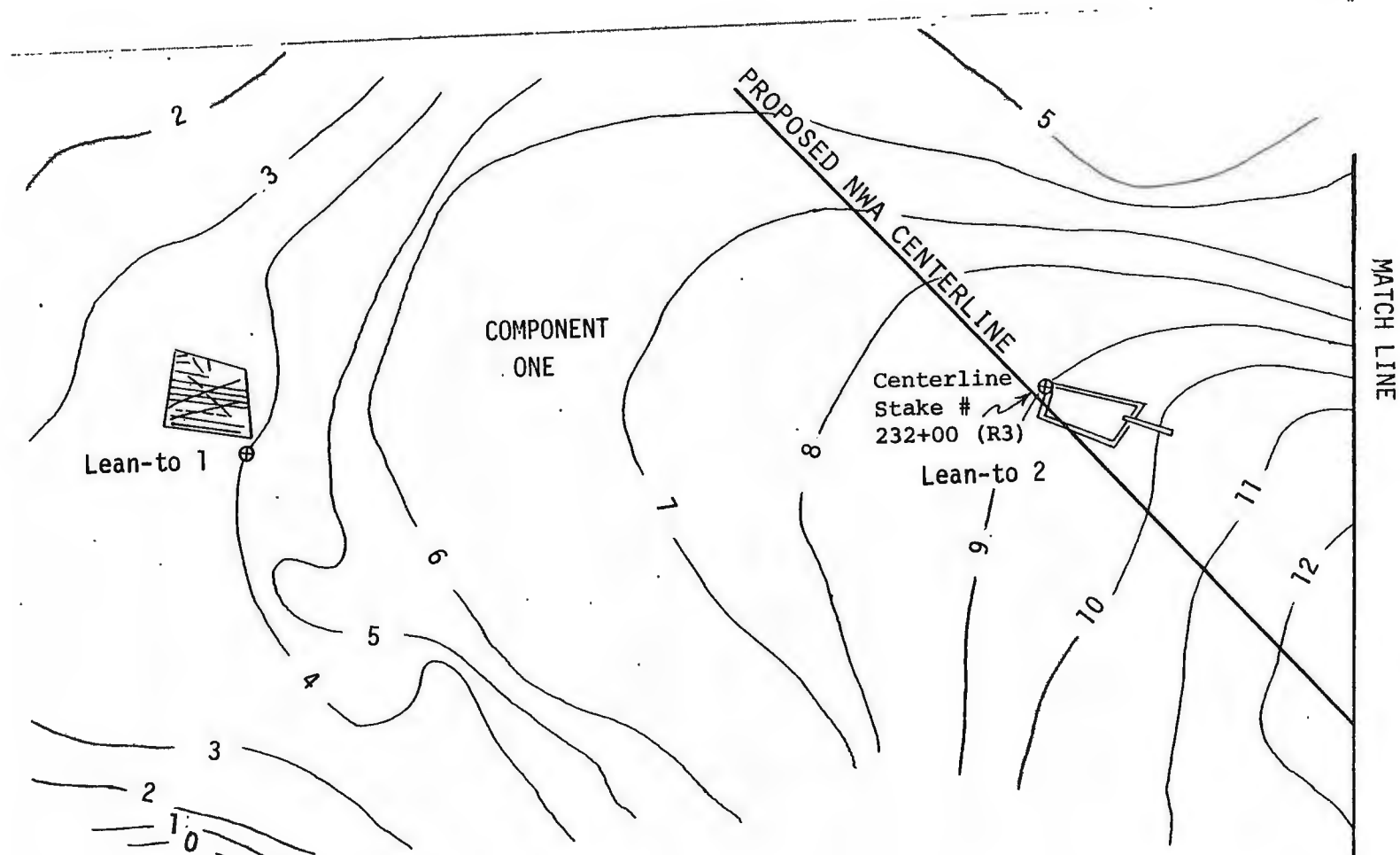
The three collapsed and deteriorated pole features comprising Component 1 are tentatively identified as lean-tos. These are designated, west to east, 1, 2 and 3. Lean-to 1 lies ca. 100 ft S76°W of centerline stake 232 + 00 (Fig. 59). The structure measures 11.25 ft x 13.70 ft, and is composed of a number of poles lying in a subparallel manner partially covered with moss (Fig. 60).

Lean-to 2 lies adjacent to centerline stake 232 + 00 (Fig. 59). It measures 9.0 x 17.5 ft and resembles Lean-to 1 as another collapsed, subparallel arrangement of partially moss-covered poles (Fig. 61). An old road track lies 20 ft north of the feature and trends east-west.

Lean-to 3 lies 92 feet S85°E of Lean-to 2 and 50 ft northeast of the centerline (Fig. 59). This is another subparallel arrangement of decomposing poles, partly covered by moss and inhabited by squirrels (Fig. 62). It measures 7.0 x 12.0 ft. A stand of alder trees lies adjacent to the feature on its southern side. This lean-to also seems to have been built next to a small mound.

Component 2 lies ca. 160 ft S15°E of Lean-to 3, 54 ft southwest of centerline. This is a man-made ditch leading northward to a deep feeder channel to the Davidson Ditch (LIV-073/CIR-010). This feeder connects with FAI-210 on Gold Creek, nearly 3 miles away. It passes 75 ft to the east of Lean-to 3.

The small tertiary ditch (Component 2 proper) is a 2-3 ft deep, artificial channel trending northwest-southeast (Fig. 59). The distinctive aspect of the feature is a group of sandbags packed into the channel (Figs. 59 and 63). The northerly side of the channel is bordered by a bench-like feature, possibly used as access, and the southerly side is characterized by the artificial dike constructed from ditch excavations.



FAI-208

Mapping by D. Hanson, M. Lynch,  
T. Des Rochers. Copy by B. L.  
Gannon

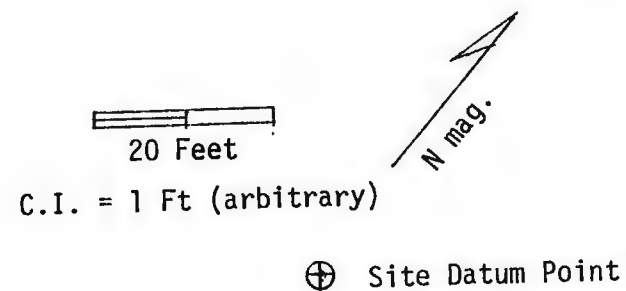
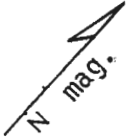


Figure 59.

COMPONENT ONE

MATCH LINE

Lean-to 3



DITCH

COMPONENT TWO

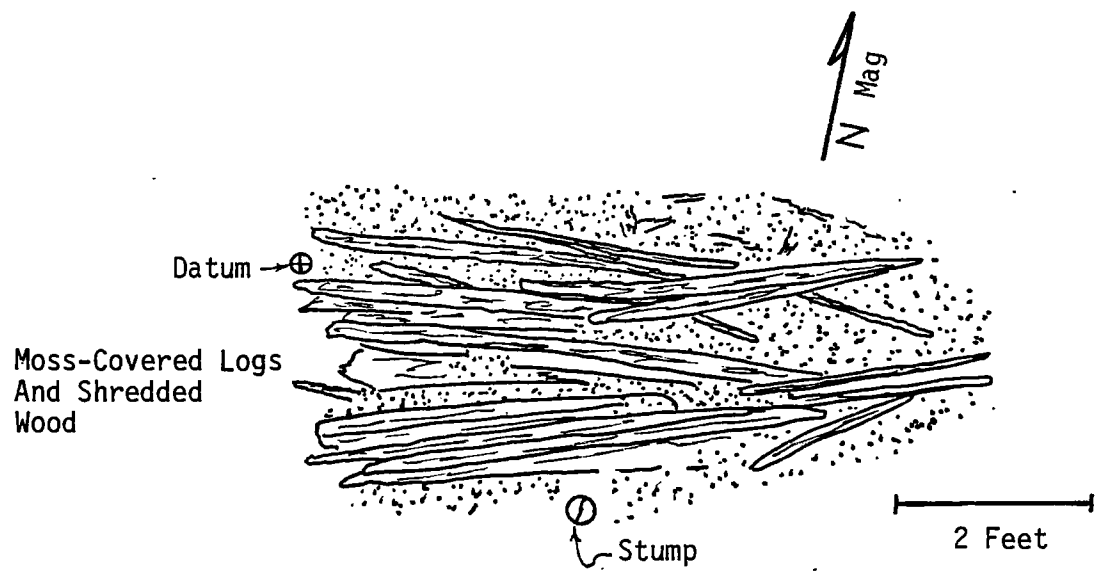
Sandbags



20 Feet

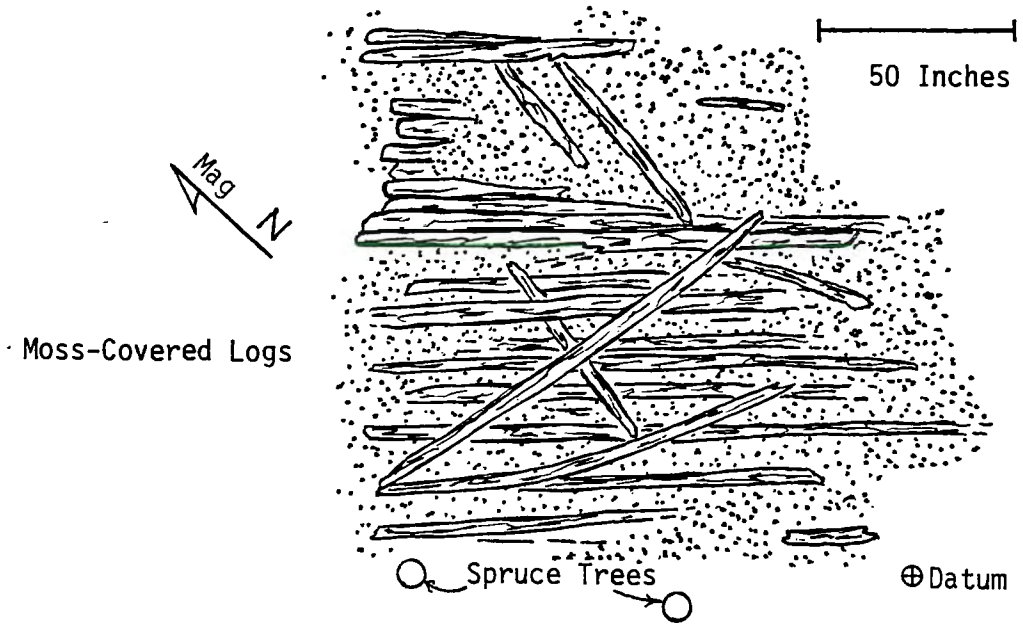
FAI-203  
(CONTINUED)

Figure 59 (continued).



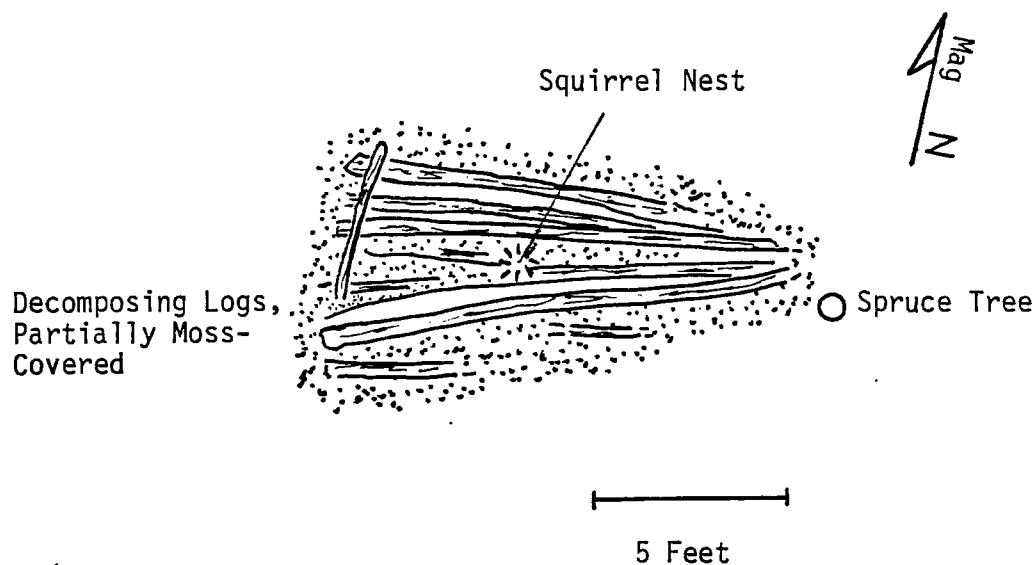
FAI-208: PLAN OF COMPONENT 1, LEAN-TO # 2

Figure 61.



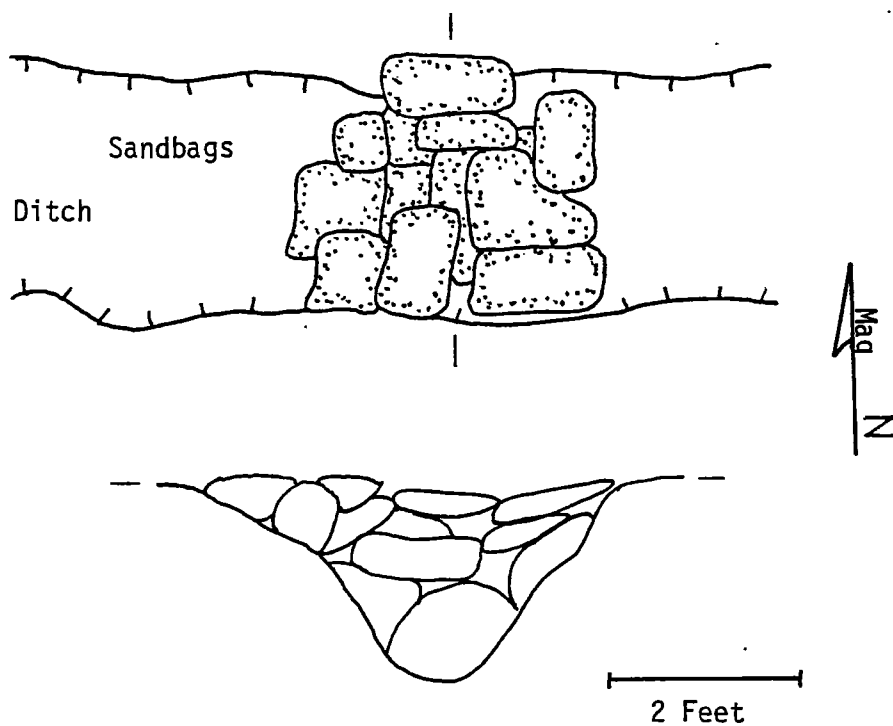
FAI-208: PLAN OF COMPONENT 1, LEAN-TO # 1

Figure 60.



FAI-208: PLAN OF COMPONENT 1, 'LEAN-TO' #3

Figure 62.



FAI-208: COMPONENT 2 (DITCH) PLAN AND PROFILE

Figure 63.

Impact

All components of FAI-208 are within the project area (500 foot wide corridor) and will be directly affected by construction. Lean-to 2 has been slightly impacted recently by brush-cutting during centerline route survey.

Significance

The Davidson Ditch network has historical significance with respect to the early gold mining history in the Fairbanks area (see FAI-210 and LIV-073/CIR-010).

At the time the Davidson Ditch (LIV-073/CIR-010) was determined eligible for the National Register, it was suggested that the associated feeder ditches might also be eligible for listing (Determination of Eligibility Notification E.O. 11593, 1977).

Recommendations

FAI-208 has limited data of historical significance and may have Register eligibility. However, archival research is needed before the Fairbanks portion of the Davidson Ditch and its components are recommended for a determination of eligibility.



Alaska State Site No.: FAI-209

(1981 Field No.: AS 080-3H)

University of Alaska Museum Accession No.: None

Location:

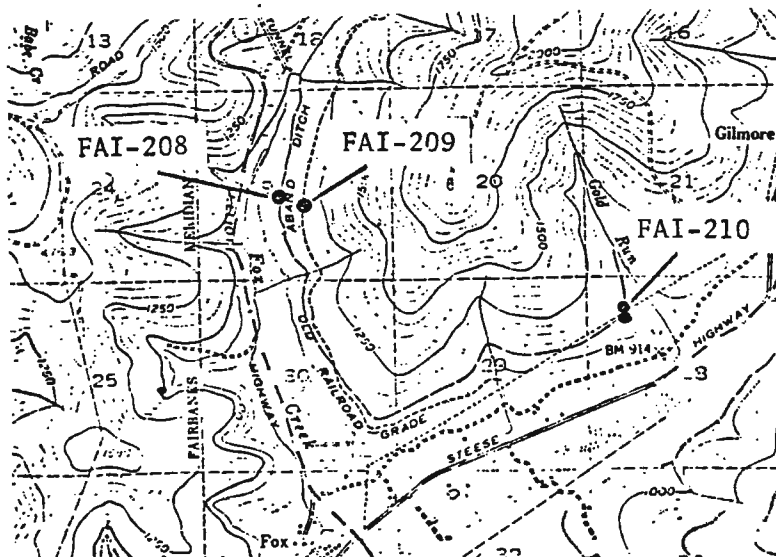
Latitude: 64° 59' 08"

Longitude: 147° 37' 21"

UTM Coordinates: (Zone 6), 470685 E; 7206775 N  
FAI D-2 quadrangle

Section, Township, Range: W/2 of NW/4 of SE/4, Sec. 19, T2N, R1E  
(Fairbanks Meridian)

General: FAI-209 lies on the hillside 1600 ft east of the Elliot Highway, 2 miles north of the community of Fox.



Environmental Setting

The site lies on a hillside ca. 200 ft above Fox Creek. Moderately dense poplar trees and some alder and small spruce are the dominant vegetation.

Survey Methodology

FAI-209 was located during routine archaeological survey of the proposed NWA gasoline corridor (Rev. 3) in 1981. The site was mapped, tested and described.

### Site Description

FAI-209 is a portion of the abandoned Tanana Mines Railroad, later known as the Tanana Valley Railroad. This line was important in opening up much of the interior around Fairbanks for settlement and mining enterprises.

Prior to the building of the railroad, most travel (and most of the development) in the central interior followed the more navigable waterways. Twenty-five miles of the railroad were constructed in 1905 and the remaining 20 miles in 1907 (Fig. 64), all in two working seasons of about six months each, and without any aid or subsidy. Original costs of the project were exorbitant in that much of the material (locomotives, rails, etc.) were shipped over 6000 miles, and freight charges levied (3-6¢ per pound) were more than twice the original cost of the equipment.

Between September 1905 and 1909, the railroad operated every day, year-round, and by June 30, 1908 had transported 54,013 passengers and 14,666 tons of freight at the respective earnings of 13¢ per mile and 58¢ per ton (Justin 1909:247).

FAI-209 consists of a portion of the railroad bed, an incorporated feature of beams and a telegraph? line (Fig. 65).

The railroad bed consists of a 2 ft high earthen pad, approximately 20 ft wide, trending locally in a general north-south direction. Each side is flanked by a shallow ditch reflecting the borrow areas. The top surface is largely overgrown - especially the southern portion. The original wooden ties are still in place on the pad beneath the sod/vegetative cover, and through probing, appear to be 8-10 inches wide and spaced from 12 to 18 inches apart. All the rails have been removed.

An exposed and slightly depressed area (5 ft wide) crosses the pad, revealing a decomposed and partially moss-covered feature constructed of wooden beams (Fig. 65). The feature consists primarily of two beams, spaced ca. 3 ft apart, running in-line with the pad (and appearing to extend into the pad a short distance on both sides). Badly fragmented planks or beams (ties?) lie transverse to these beams and are attached in places with 10 inch long railroad spikes. Within 10 ft to the west, and in-line with the two beams in the pad exposure (Fig. 65), three other beams lie buried by overburden. These are parallel to each other and are spaced ca. 3 ft apart. Their lengths are undetermined.

It is presently uncertain what function was served either by the feature in the pad exposure or the three nearby beams, or whether they are even functionally associated. The feature on the pad itself may have served as some support structure or something along the

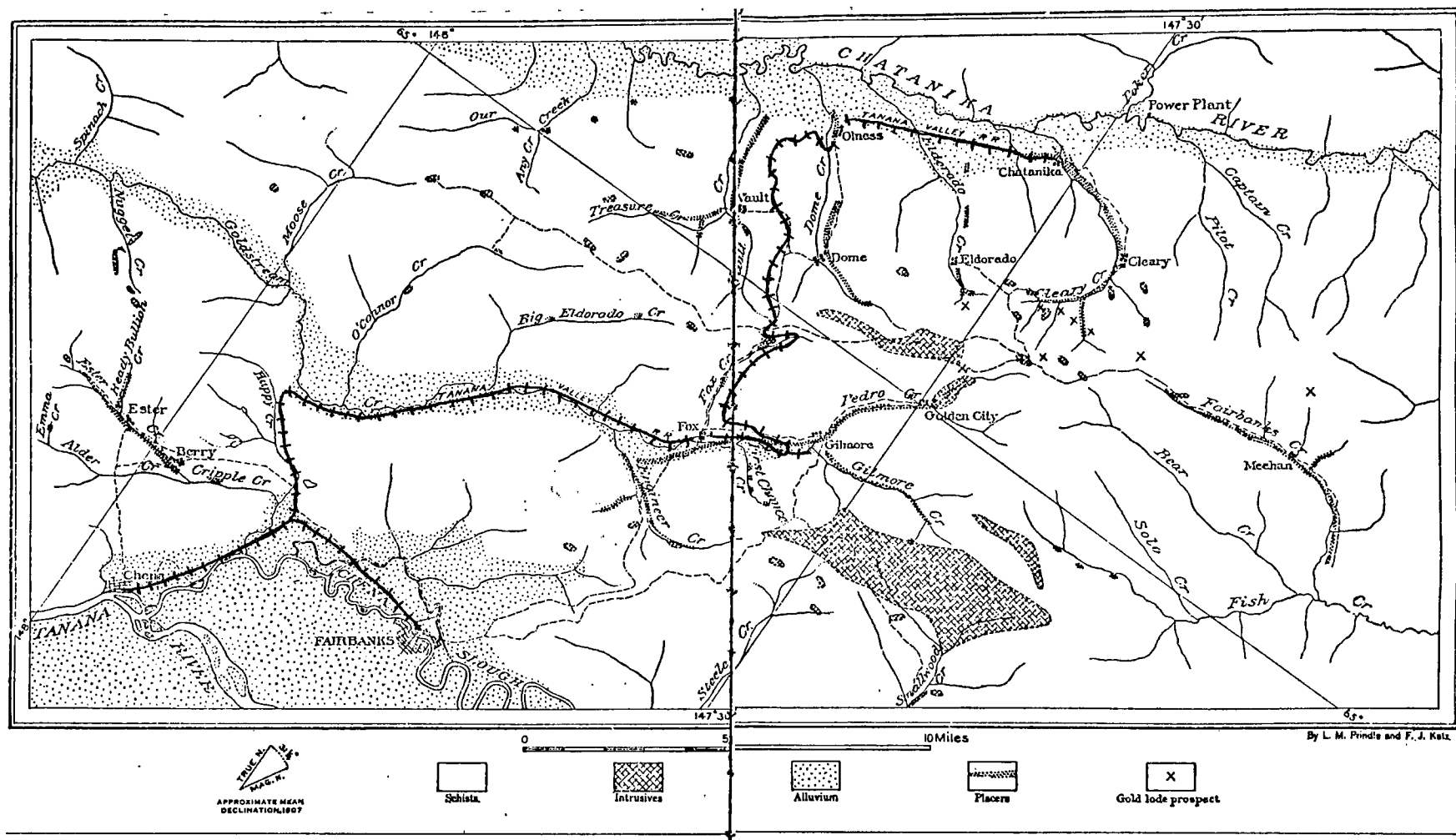
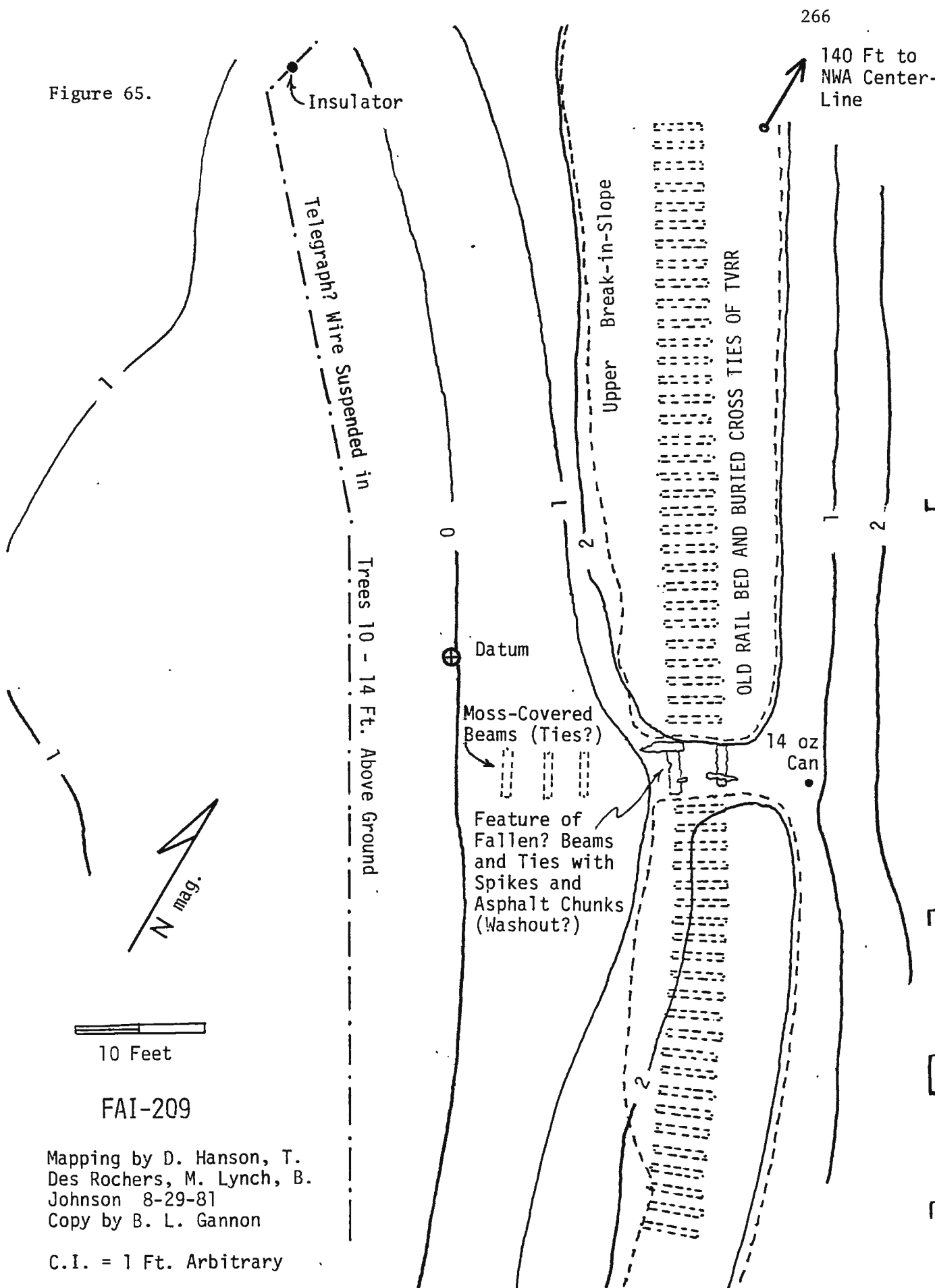


Figure 64. Route of the Tanana Valley Railroad, from U.S. Geological Survey.

Figure 65.



lines of a culvert crossing. As the beams are suspiciously parallel to the ones to the west, however, the feature, collectively, may be an access spur, siding or crossing. A few small chunks of asphalt lie on the beams of the pad exposure.

The feature which may be an old telegraph line associated with the railroad lies ca. 23 ft to the west of the pad and trending in a parallel manner. It is composed of galvanized wire attached to trees and varies in height from 10-15 ft. A light-blue glass insulator is wired into the line ca. 57 ft north-northwest of the exposed pad feature.

### Impact

The site lies within the proposed NWA gasline corridor (193 ft S30°W of centerline), and will be directly affected by construction.

### Significance

The Tanana Mines Railroad, later changed to the Tanana Valley Railroad, has historical importance to commercial expansion in interior Alaska, beginning in 1905. The remains of this railroad (including FAI-209) may have Register eligibility.

### Recommendations

Insufficient data preclude requesting a determination of Register eligibility. More archival research is warranted to satisfy the deficiency. However, construction will probably not affect the overall integrity of the resource.

Alaska State Site No.: FAI-210

(1981 Field No.: AS 081-1H; Gold Run Penstocks)

University of Alaska Museum Accession No.: None

Location:

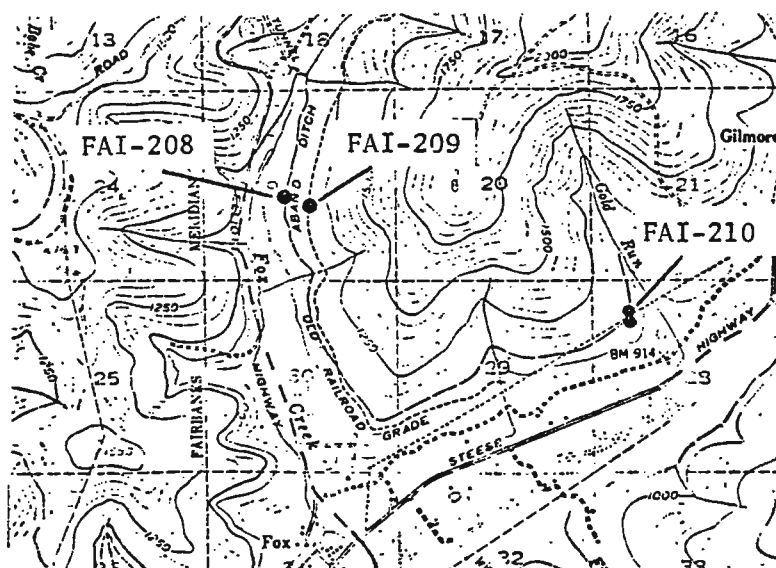
Latitude: 64° 58' 40"

Longitude: 147° 33' 58"

UTM Coordinates: (Zone 6), 473280 E; 7205845 N  
FAI D-2 quadrangle

Section, Township, Range: SE/4 of NW/4 of NW/4, Sec. 28, T2N, R1E  
(Fairbanks Meridian)

General: FAI-210 is located 2000 ft northwest of the Steese Highway, 2 miles northeast of Fox. It is on the northwest side of a hill 230 ft above the Goldstream Valley, 800 ft west of Gold Run Creek, and in direct association with a powerline clear-cut.



Environmental Setting

The environment is one of moderate topographic relief. The hills are made up of Birch Creek Schist. Dominant vegetation comprises poplar and aspen and scattered spruce trees, moss, cranberries, wild rose and labrador tea. Bear and moose sign were seen in the area.

## Survey Methodology

FAI-210 was found during routine archaeology reconnaissance of the proposed NWA centerline (Rev. 3) in 1981. The site was mapped, described and photographed.

## Site Description

FAI-210 probably dates to the 1920's and 1930's. It is associated with and is incorporated as part of a feeder ditch which is also a part of FAI-208, and ultimately connects with the Davidson Ditch (LIV-073/CIR-010). The site has been divided into two components.

Component 1 consists of a number of artifacts and debris associated with the feeder ditch, a possible side ditch and an abandoned road (Fig. 66).

The artifacts include a wooden plank spanning the ditch, most likely a wheel-barrow crossing, a can containing nails, several wooden planks, wire, two old wheel-barrow (with thick metal wheel spokes) and a wooden frame supporting the large metal bucket or basin of the wheel-barrow, a number of metal cans and galvanized corrugated roofing. These artifacts are centered around the main feeder ditch (Fig. 66).

Branching from the feeder ditch is a smaller side ditch blocked by an earthen 'dike' (Fig. 66). This short ditch lies to the east-southeast of the main feeder ditch. It may have served as a control for water flow at one time. Leading away from the feeder ditch, heading eastward, is a barely discernible abandoned road. It has become over-grown by grasses, shrubs and trees and is no longer functional.

Component 2 lies north of the centerline and includes two wooden structures (A and B) interpreted as penstocks and flumes (Fig. 67). The one closest (A) to centerline (265 ft north) is fairly well preserved (Figs. 67 and 68). It stands ca. 12 ft high at the penstock. The flume connecting with the feeder ditch is ca. 30 ft long, giving an overall length of ca. 38 ft to the structure. The flume is partially collapsed.

From a verbal description, Dan Egan, manager of the Alaska Gold Company, Fairbanks (personal communication 1981), believed these features were used to transfer water from one ditch to another, much like a valve. Water flowing in the ditch, controlled by spill gates, would be raised to the desired level, channeled into the penstock and thereby transferred into another ditch via the flume as needs dictated. Several such penstocks and spill gates were managed by individual 'ditch tenders' or 'ditch walkers'.

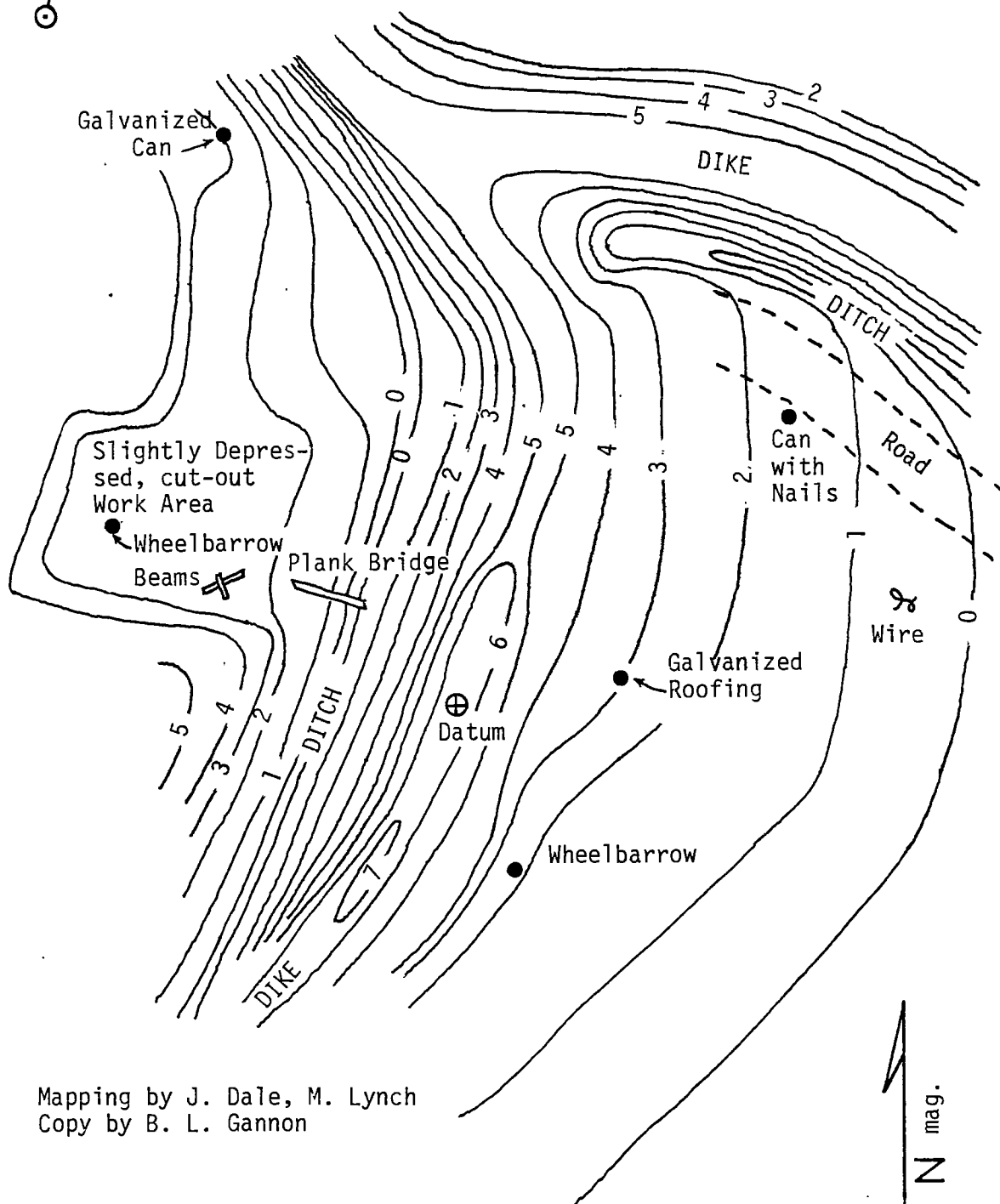
Artifacts associated with Penstock A include a wooden ladder leaning against a tree, a small wooden barrel, galvanized wire, a wooden "saw-horse," corrugated metal, a rusted can and the ditches themselves. Approximately fifteen 1 in diameter iron pipes lie in the distal part of the flume (Fig. 68), and may have originally been placed in an upright manner to serve as filters.

304 ft to  
Penstock A Datum

FAI-210

COMPONENT ONE

(AREA 'A')



Mapping by J. Dale, M. Lynch  
Copy by B. L. Gannon

C.I. = 1 Ft (arbitrary)

20 Feet

Figure 66.



FAI-210

## COMPONENT 2

Mapping by D. Hanson, T. Des Rochers  
Copy by B. L. Gannon

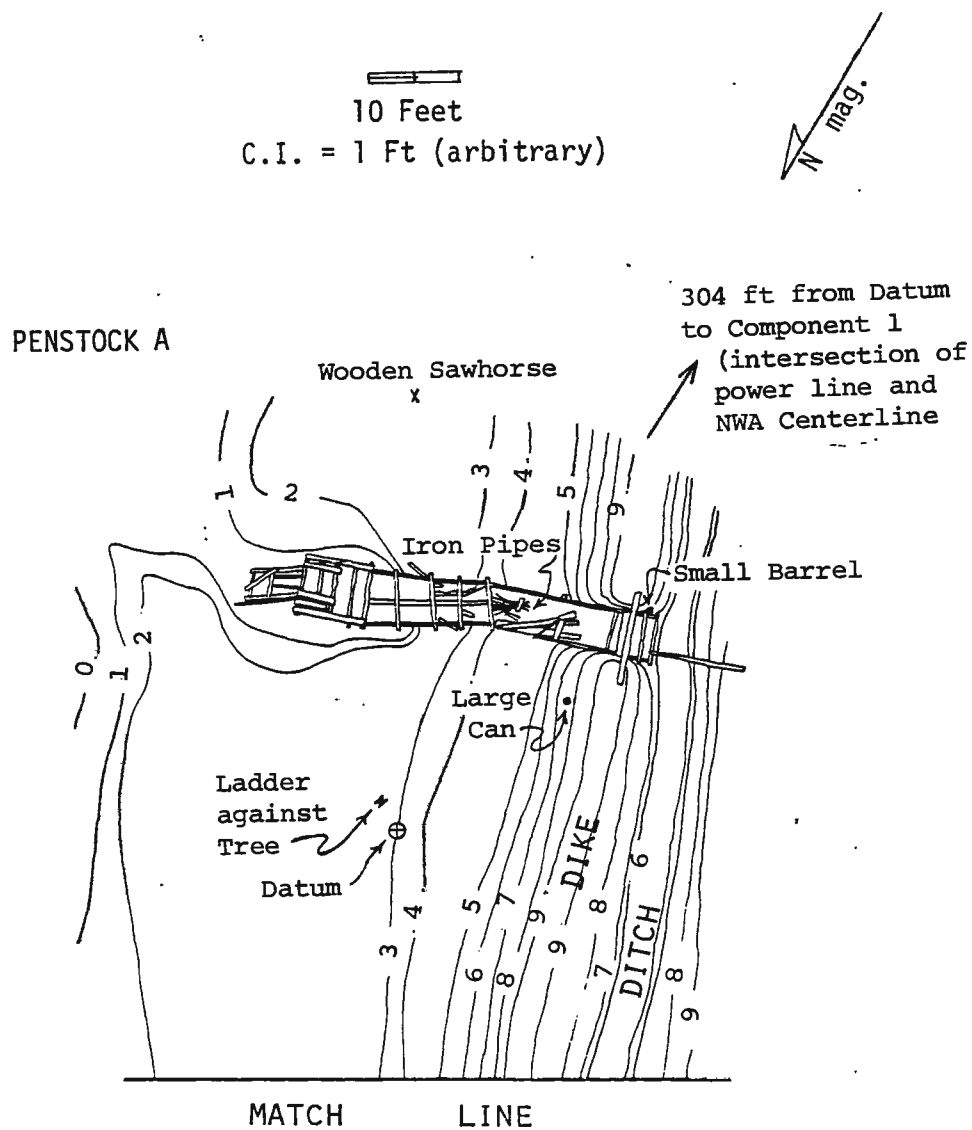


Figure 67.

FAI-210 (CONTINUED)

COMPONENT 2

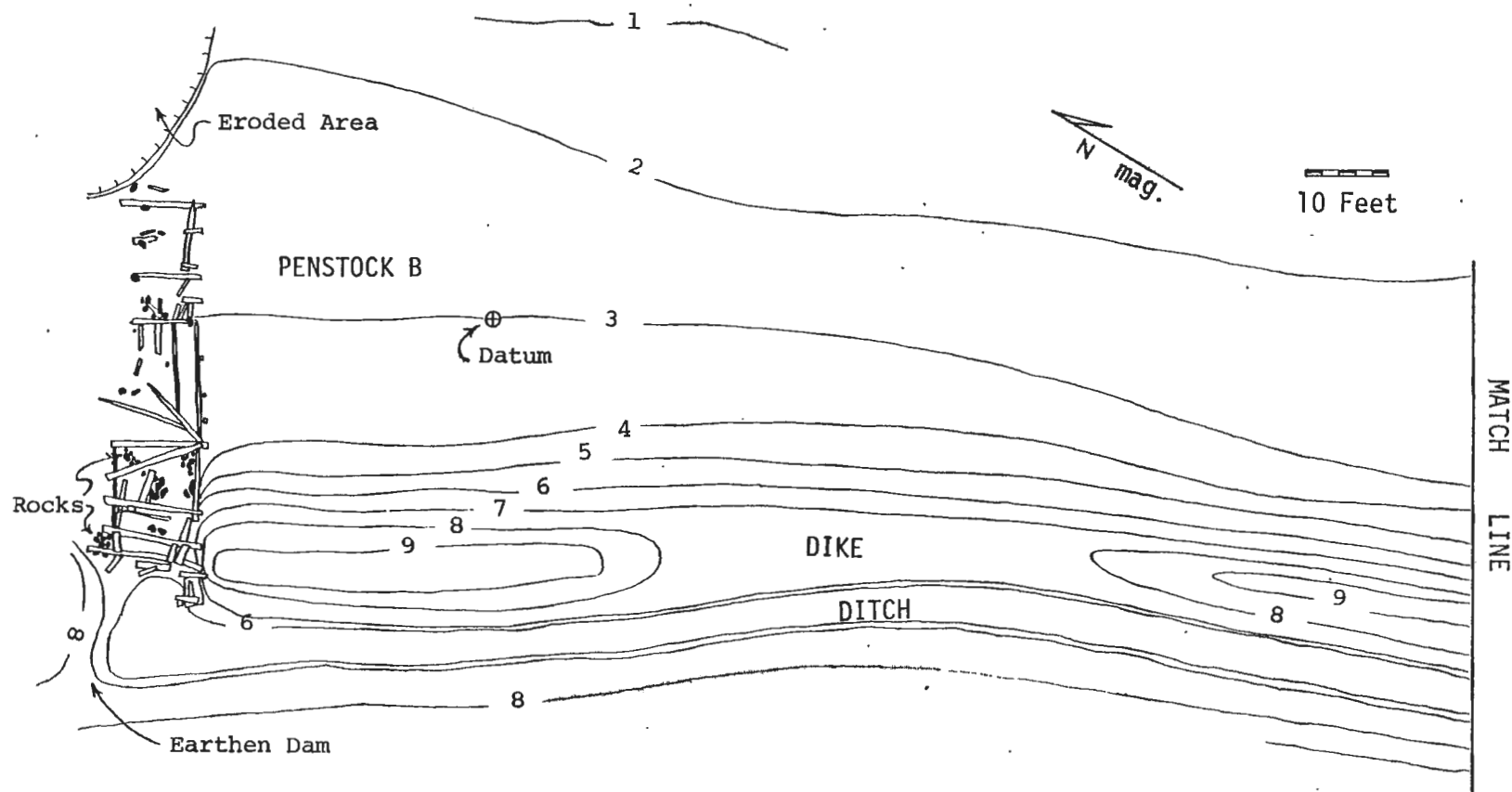


Figure 67 (continued).

FAI-210

CROSS SECTION OF PENSTOCK A  
COMPONENT 2

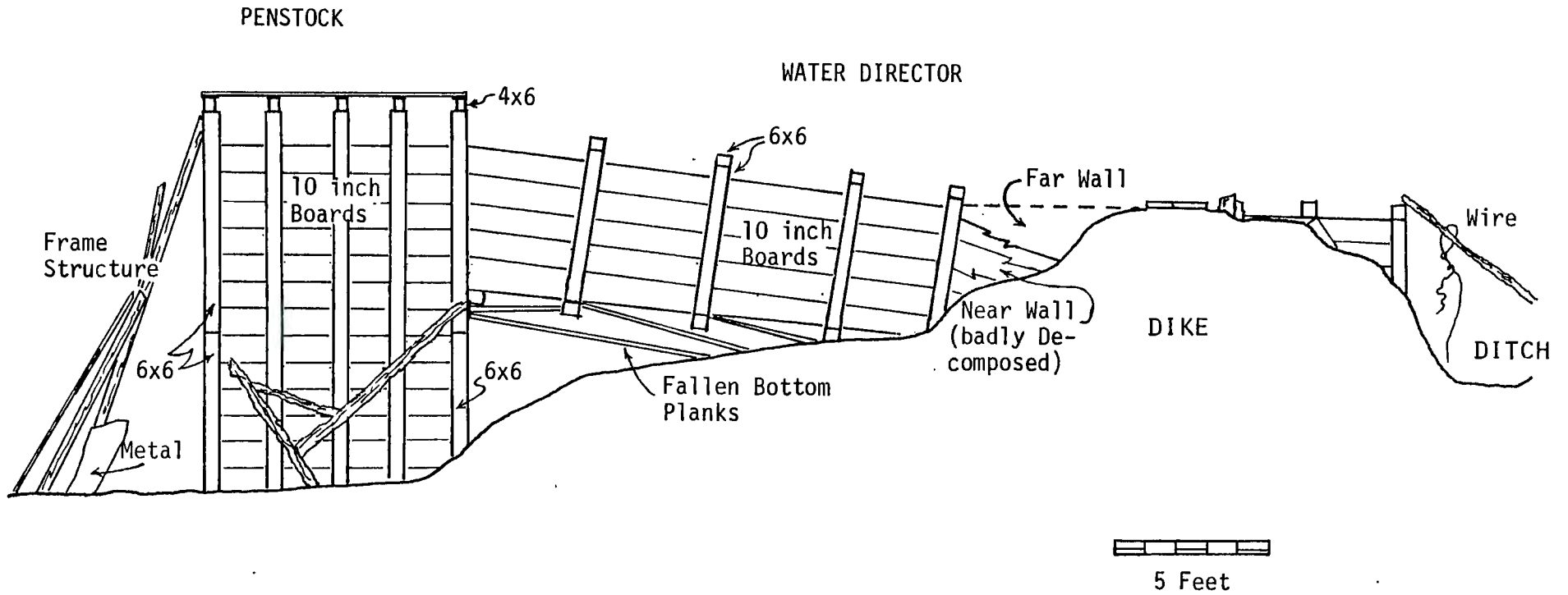


Figure 68.

Penstock B (Fig. 67) lies ca. 200 ft north of Penstock A. It is considerably more deteriorated and has a somewhat different apparent construction style. This penstock may have been constructed earlier than Penstock A, and may have been partially 'cannibalized' for materials. Penstock B is ca. 45 ft long. The western end connects with the feeder ditch and the eastern end leads into a badly eroded gully (Fig. 67), which may be the input channel. Immediately to the north, the feeder ditch has been blocked with earth.

A stripped birch tree lies ca. 18 ft east-southeast of Penstock B, and a small amount of trash, including a rusted food can, is found scattered near the feature.

### Impact

The NWA centerline passes within 145 ft (to the north) of Component 1, placing the focus within the corridor and thereby posing a threat of direct impact. Component 2 lies a minimum of 265 ft to the north of centerline just outside the corridor, and may be subject to indirect impact during construction.

### Significance

FAI-210 is a relatively well-preserved example of historical gold mining operations in the Fairbanks area. It may have Register eligibility.

### Recommendations

FAI-210 contains historic data of possible significance, but archival research is needed before a recommendation can be made for eligibility status. The site is partially threatened with direct impact during construction.

Alaska State Site No.: FAI-211

(1981 Field No.: AS 082-1H; Smallwood Creek Site)

University of Alaska Museum Accession No.: None

Location:

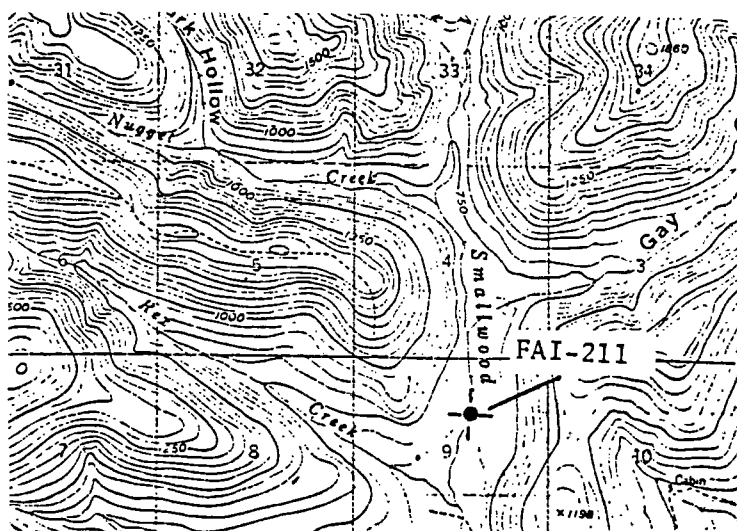
Latitude: 64° 55' 55"

Longitude: 147° 20' 53"

UTM Coordinates: (Zone 6), 483490 E; 7200680 N  
FAI D-1 quadrangle

Section, Township, Range: NW/4 of SW/4 of NE/4, Sec. 9, T1N, R2E  
(Fairbanks Meridian)

General: FAI-211 lies along Smallwood Creek ca. 2200 ft north of the confluence of Rex Creek, 12.5 miles northeast of Fairbanks.



Environmental Setting

FAI-211 lies in the Smallwood Creek valley on both sides of the creek. Smallwood Creek ultimately flows into the Little Chena River which in turn flows into the Chena River. The ridge to the northwest of the site is bound by Nugget Creek and Rex Creek and has an elevation of 1500 ft, increasing to 2200 ft within one mile. The hill to the east has an elevation of ca. 1000 ft where the centerline crosses. The elevation increases 400 ft in a half-mile. The Smallwood Creek site lies at an elevation of 650 ft above sea level.

Geologically the site rests on redeposited materials associated with the creek. The hills surrounding Smallwood Creek are underlain by the Birch Creek Schist. Vegetation consists of spruce, alder, willow, horsetail, labrador tea, cranberries, blue berries and rose hips. Black spruce trees are small and moderately dense near the creek increasing in both height and density with increasing elevation. The area around the features themselves is relatively clear consisting mostly of grasses, small shrubs and a few white spruce. Animal resources include moose, bear, ptarmigan, rabbit, squirrel and fish.

### Survey Methodology

FAI-211 was encountered during routing archaeological survey along the proposed NWA gasline (Rev. 3) in 1981. Note: Centerline, as surveyed in 1981, lies ca. 1500 ft southwest of the route indicated in the March 1981 Environmental Master Guide.

The site was ground inspected, subsurficially tested, and all features were mapped and described. Pace and compass contour maps were prepared as well.

### Site Description

FAI-211 is a complex of features related to gold mining activities beginning in the early 1900's and sporadically continuing up to present times. The features comprise three cabins, a log structure, two lean-to's, a cache, two mine shafts and an area of tailings. Associated trash lies scattered about the site. Collectively, the loci cover about 1.6 acres (including their immediate surroundings). The features are keyed into a site datum point placed 10 ft S70°W of NWA "Thermistor Sta. No. 756 + 58/100 ft Rt. BH 82-3A" (Fig. 69).

Cabin 1 (Figs. 69 and 70) lies 270 ft S 06°E of the Thermistor Station, 90 ft to the southeast of Smallwood Creek. The feature measures 15.4 x 16.7 ft, and stands three feet high; it may have been partially 'cannibalized' for materials. A doorway is set approximately in the center of the northwest wall. The cabin interior has a moss-covered platform located in the southwestern corner, three feet above the ground. A pulley assembly, similar to the 'Sampson Carrier' is located near the southwest wall. The Sampson Carrier was used to transfer ore loads by bucket, and was efficient in that it employed a trip mechanism to automatically dump the load (Parker 1929:55). Whiskey barrels were commonly used as ore buckets in many early mining operations (Ibid.:56) and such barrel remnants are seen at FAI-211 at the tailings area and at Shaft 1. The first automatic ore dumping devices were developed in 1898-1899 (Ibid.:52).

Cabin 2, (Figs. 69 and 71) lies approximately 40 ft southwest of Cabin 1, 310 ft due south of the Thermistor Station. It measures about 14.5 ft across, and while it is leaning to the south and west, it stands 6.7 ft high. The cabin is more intact than Cabin 1 but the

FAI-211  
SMALLWOOD CREEK SITE

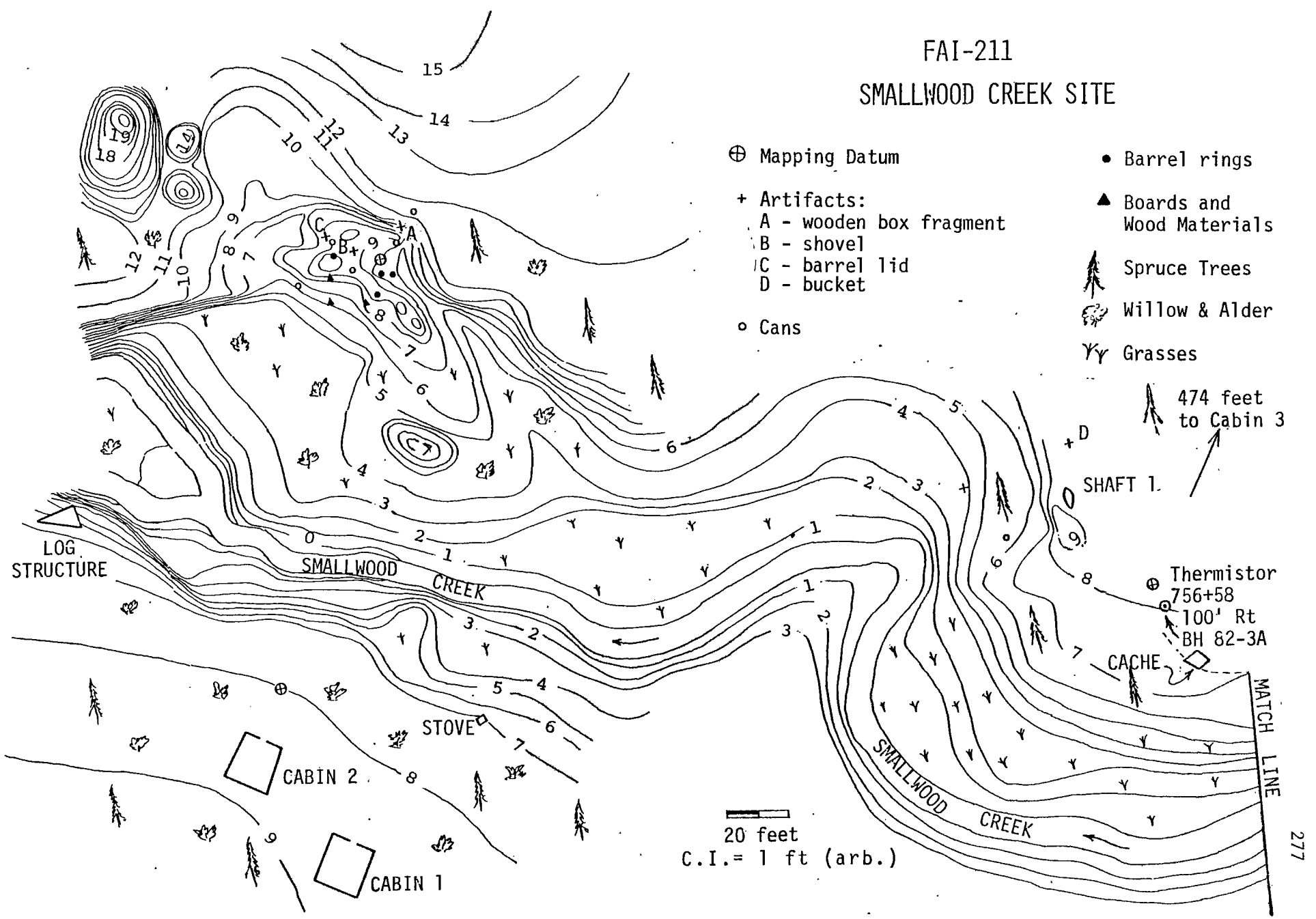


Figure 69.

FAI-211 (CONTINUED)

Mapping by D. Hanson, T. Des Rochers,  
M. Lynch, B. Furilla August 6, 1981

Copy by B. L. Gannon

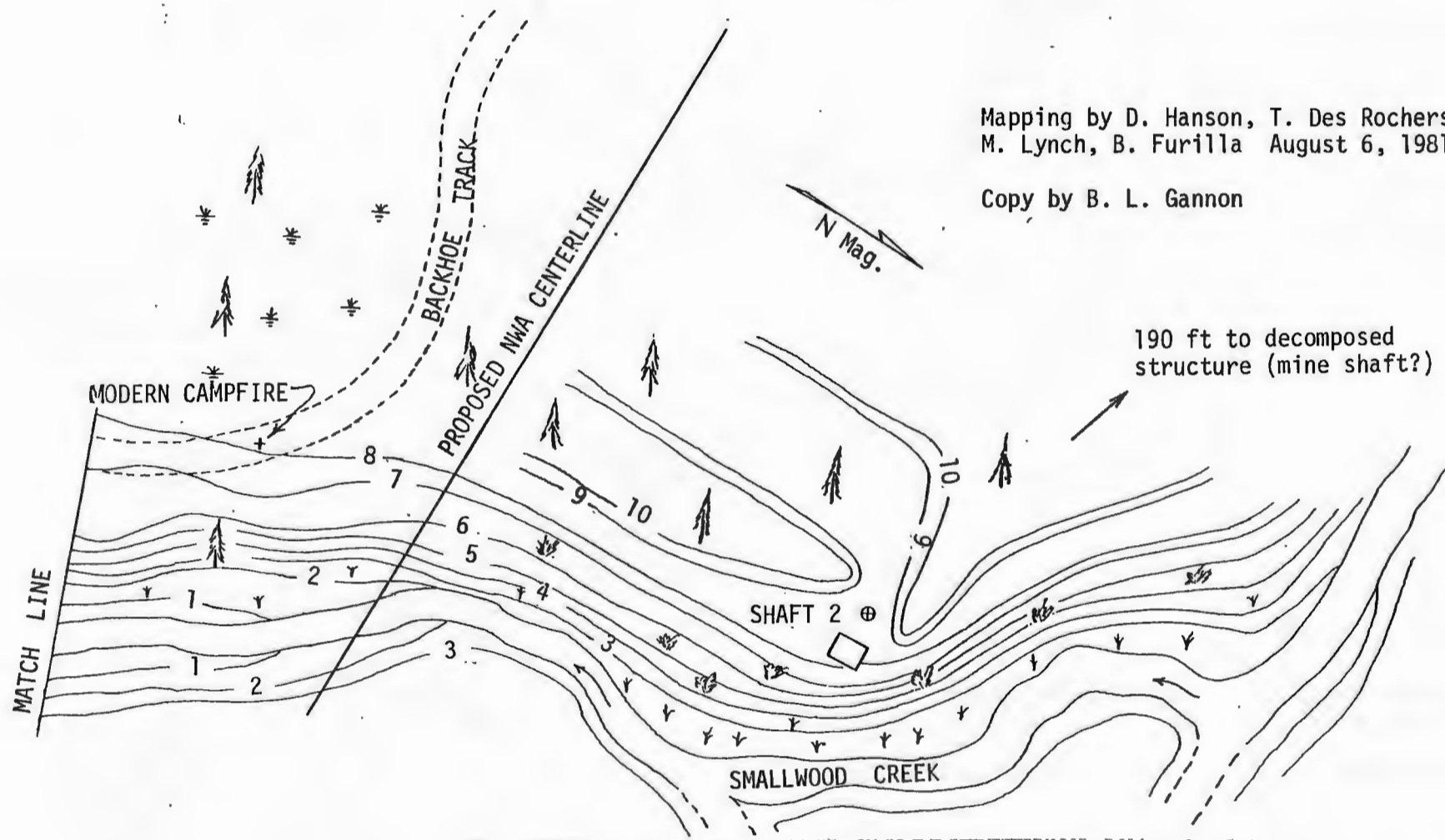
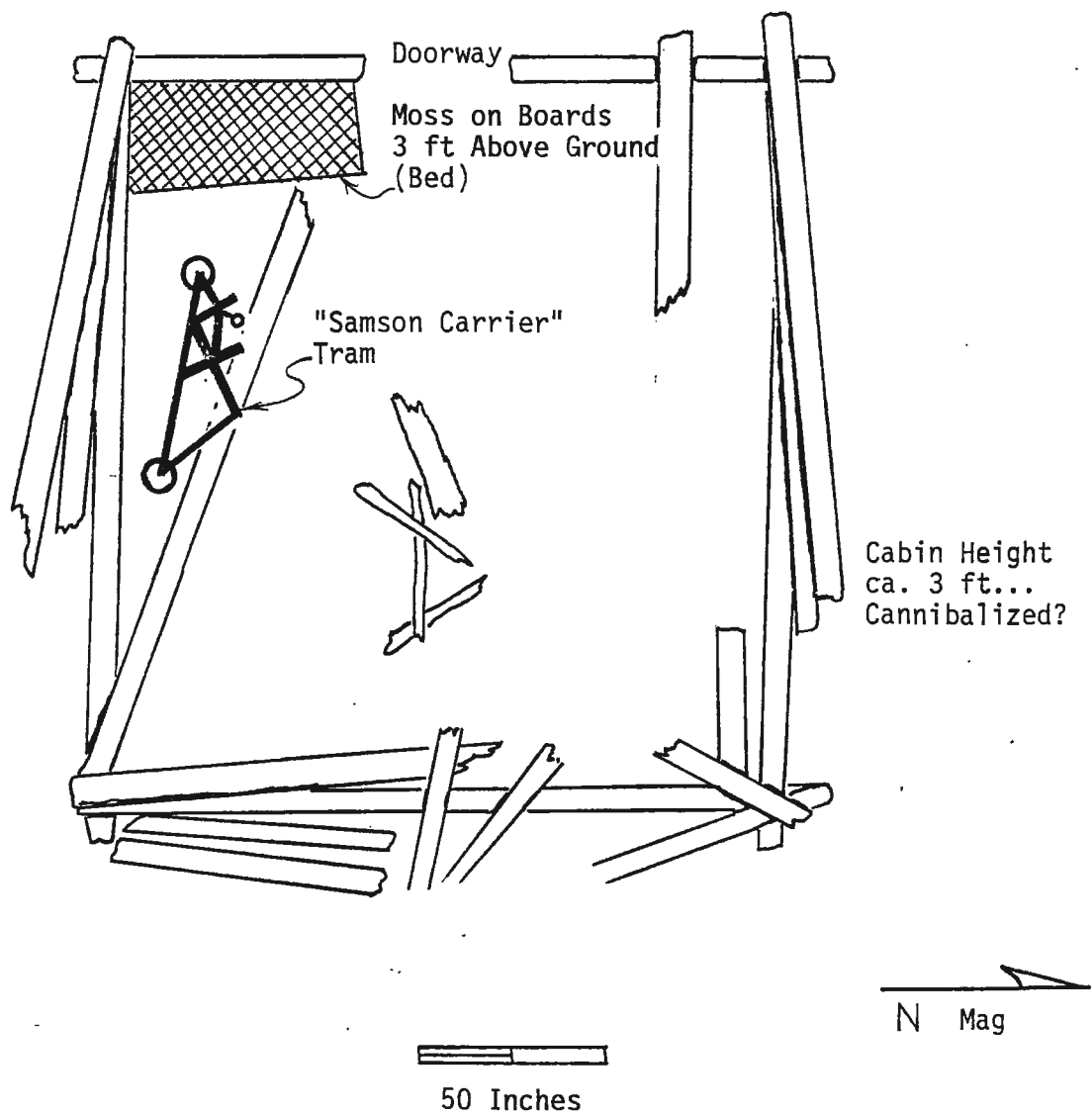


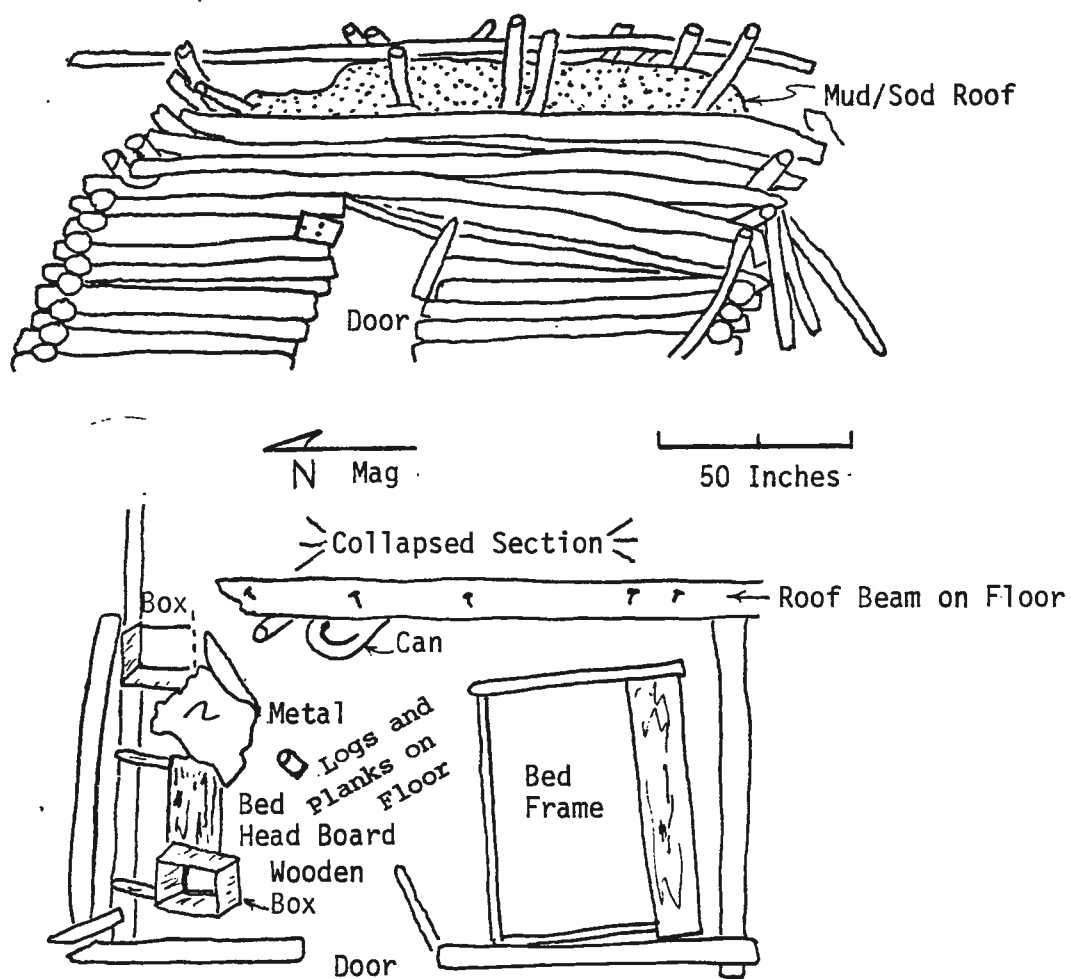
Figure 69 (continued).





FAI-211: PLAN OF CABIN 1

Figure 70.



FAI-211: PLAN AND CROSS SECTION OF CABIN 2

Figure 71.

southeastern side has collapsed. The doorway lies midway in the northwest wall, and appears to have a canvas covering. The roof is composed of planks and sod, and is deteriorating. The cabin interior is occupied by a bedframe constructed of cut lumber along the southeast wall. The headboard of the bed lies on the opposite side of the cabin in association with corrugated metal, wooden boxes and other trash (Fig. 71). Miscellaneous scattered trash, such as a bottomless pail, shovel head, pan, sheet metal, tin cans and log debris, lies outside the cabin.

Cabin 3 lies 474 ft N 53°W of the Thermistor Station, 45 ft southwest of centerline (Fig. 72). Smallwood Creek lies 440 ft to the east. The cabin appears to have been 'cannibalized' for materials as no log debris is found nearby. The dimensions are 21.1 x 24.2 ft and 2.5 ft high. The cabin's door lies in the southeast wall. Squirrel activity has contributed to the decomposition of the walls. A wooden sawhorse-like feature lies outside the cabin, 15 feet to the northwest. Other local, scattered debris includes Log Cabin Syrup cans (classic style), a camp stove, metal box with cut-out hole, and a rubber shoe.

A log structure of indeterminant function lies 350 ft S 19°W from the Thermistor Station and ca. 100 feet southwest of Cabin 2 (Fig. 69). Smallwood Creek lies 20 feet to the west. The feature is a collapsed, subparallel array of 4-8 inches diameter logs set in a roughly triangular, three feet deep depression (Fig. 73). The array is partly moss-covered, and the logs range in length from 2 to 6.5 feet. The only conceived function of the structure is one of a tram support to the tailings area, possibly for the pulley assemblage in Cabin 1.

Two lean-to's are located along centerline, 326 ft N 40°W of the Thermistor Station and approximately 150 feet southeast of Cabin 3 (Fig. 72). One lean-to lies on a Nodwell/borehole track and has been crushed. The second lies 40 feet away at N30°E. No specific information on the characteristics is available.

A possible cache was located 28 feet from the Thermistor Station datum on a bearing of N70°E (Fig. 69). Smallwood Creek lies 45 feet to the east. The feature has been crushed by a Nodwell during borehole drilling. The structure measures 6.8 x 6.8 ft and sits in a depression 29 inches deep. It is constructed of nailed, axe-cut logs which have average dimensions of 3.5 inches long and 4.3 feet long (Fig. 74). The logs were originally placed vertically as if to form a wall diagonally across the depression. Several logs lay over this wall although it is uncertain whether they were part of a surficial structure or were broken off from the vertical posts. A modern cut spruce tree lies across the structure.

Figure 72.

FAI-211 CONTINUED

CABIN 3



20 Feet

C.I. = 1 ft (arbitrary)

Sawhorse  
Remains

Metal Box  
with Hole

Rubber  
Shoe

Cans

Cabin 3

Camp  
Stove

PROPOSED NWA CENTERLINE

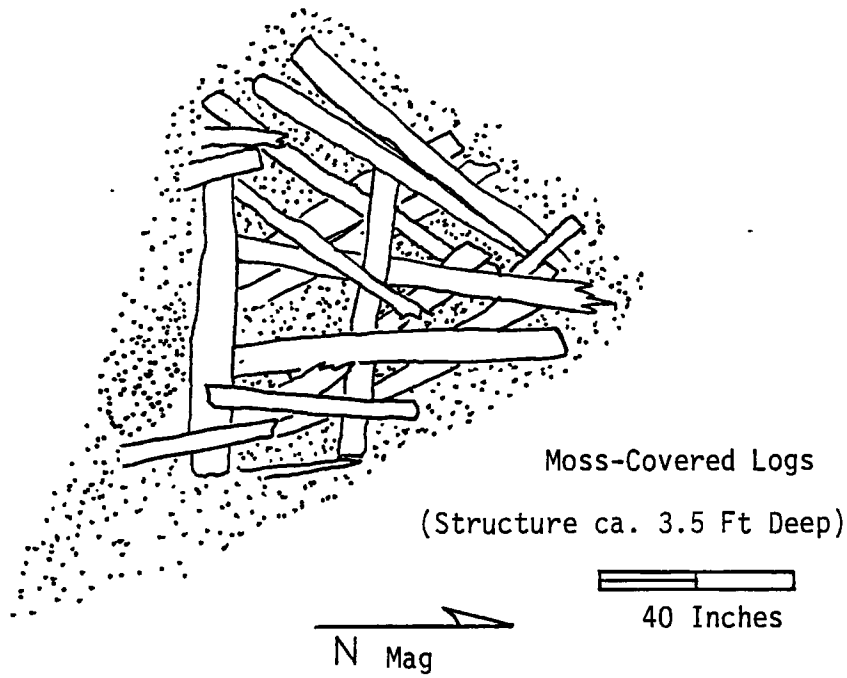
Lean-to 2

BACKHOE  
TRACK

Lean-to 1

474 ft from  
south corner of  
Cabin 3 to  
Thermistor Datum  
756+58

Mapping by T. Des Rochers,  
S. Fetter, B. Furilla August 9, 1981  
Conv. by R. L. Gannon



FAI-211: PLAN OF LOG STRUCTURE

Figure 73.

Mine Shaft 1 lies 40 ft S60°W of the Thermistor Station datum, 66 feet southwest of the 'cache' (Fig. 69). The shaft is characterized as a mossy depression dipping into a square pit. The pit is 18 inches deep (although originally deeper) and 3.8 x 4.5 feet in plan (Fig. 75). The pit is surrounded by a wall of planks. An old wooden bucket found with a metal band lies along the north wall and sheet metal debris lies near the shaft to the south.

Shaft 2 lies 235 feet N 11°E of the Thermistor Station datum, and 30 feet west of Smallwood Creek (Fig. 69). This shaft is more well defined than Shaft 1. It measures 6.6 x 7.0 feet in plan. The basic configuration consists of a three foot deep depression with a log encased shaft partially filled with water. The discerned depth is 6.3 feet (Fig. 76).

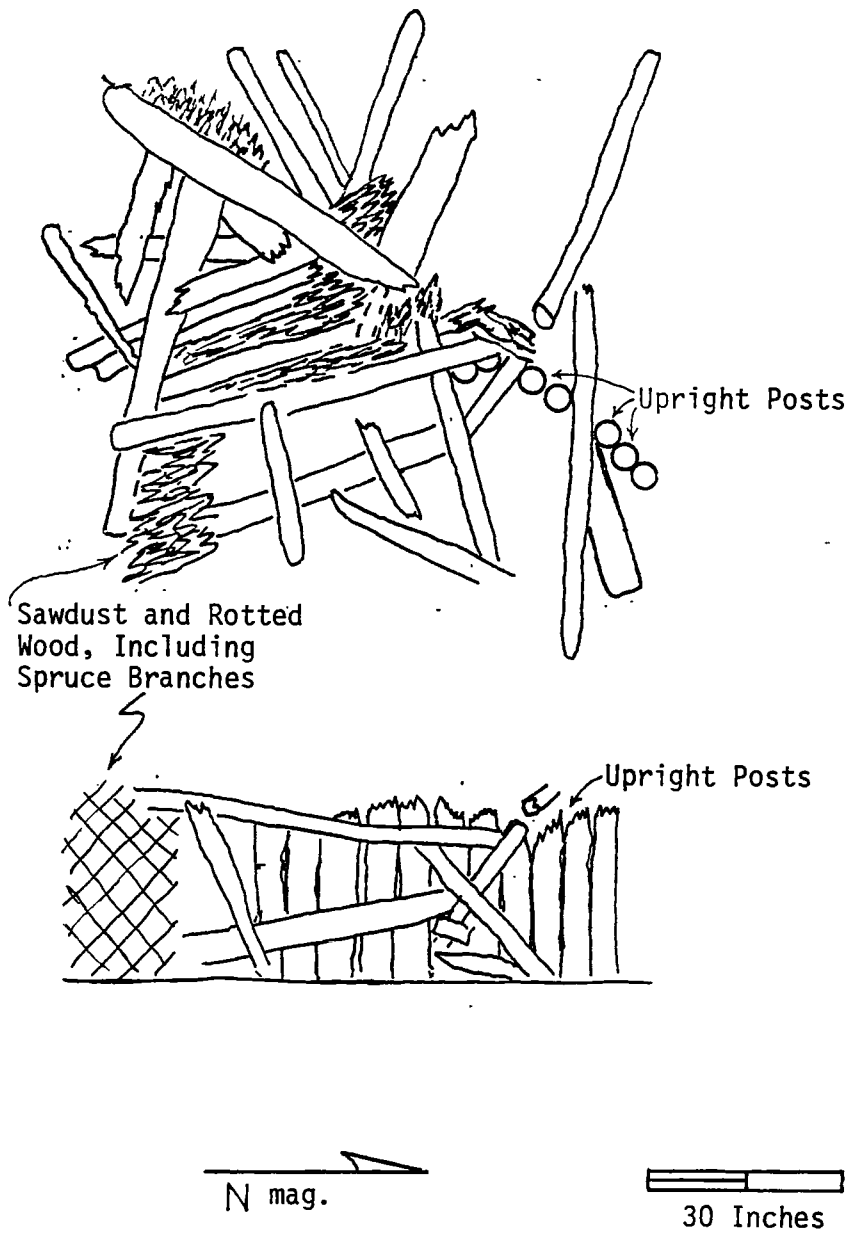
Mine shaft size in drift mining is commonly 3 x 5 feet which is fairly compatible with Shafts 1 and 2. The object of drift mining is to remove the gravels next to the subsurface bedrock with minimal disturbance to the ground surface. "Opening the deposit is made by shaft or adit the method being governed by the topography. When the 'pay' is struck drifts are put out and the deposit mined by methods very similar to those used in a coal mine" (Parker 1929:50). Mining in the Smallwood Creek area consisted of extensive drift mining by thawing the ground and digging out the materials. Some mines in the area were commonly 70-80 ft deep and some as much as 317 feet deep (M. Killion 1981:personal communication).

An area of mine tailings lies approximately 260 feet S 35°W of the Thermistor Station datum, along the northwestern bank of Smallwood Creek (Fig. 69). Cabin 2 lies ca. 180 feet to the east.

This component consists of six distinct earthen mounds varying from 2 to 11.5 feet in height. They are highly visible from the air and serve as an aid in locating the site. Associated artifacts consist of a shovel head, metal barrel hoops and lids, wooden box fragments and food cans (including a classic style Log Cabin Syrup can).

### Impact

FAI-211 lies within the proposed NWA gasline corridor and, with the possible exception of the tailings, Cabins 1 and 2, and the log structure, will be directly affected by construction. The other features will be subject to indirect impact. To date, the 'cache' and one of the lean-to's has been crushed by borehole drilling activities.



FAI-211: PLAN AND EAST PROFILE OF CACHE

Figure 74.

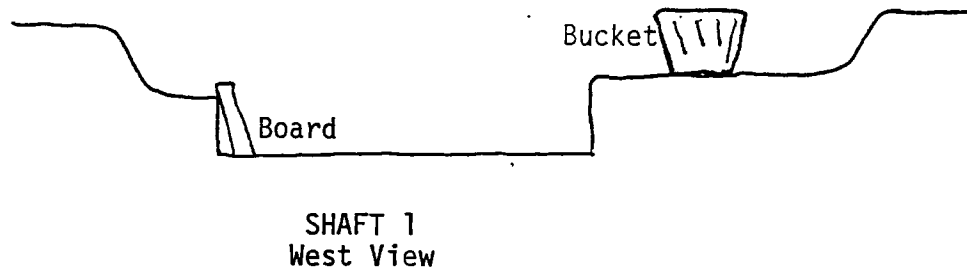
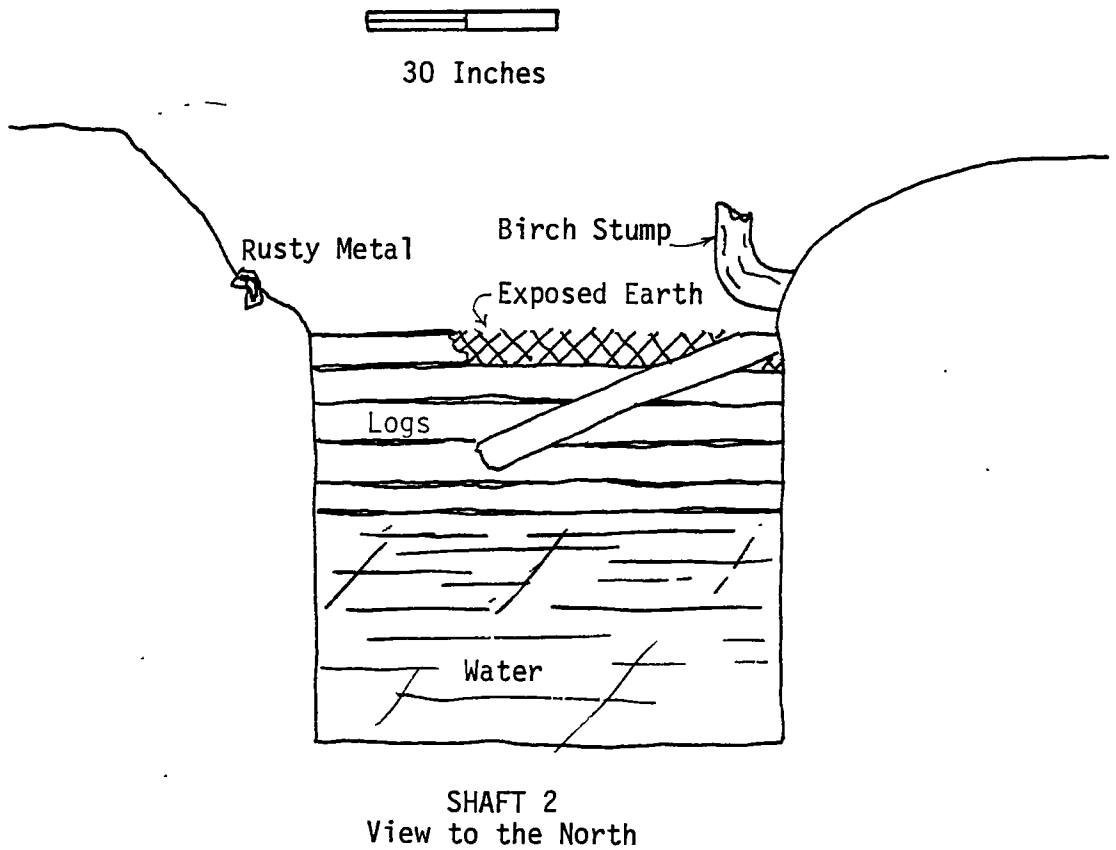


Figure 75.



FAI-211: CROSS SECTIONS OF SHAFTS 1 &amp; 2.

Figure 76.



### Significance

FAI-211 may have Register eligibility but additional archival research is required before a request for eligibility status is warranted. The site has historical as well as on-going importance as a gold mining operation in the Fairbanks/Gilmore area.

In a personal communication with Mr. Mick Killion, current lessee of the Smallwood Creek operation, it was learned that in 1906-1907 there were about thirty cabins in the vicinity and drift mining activity was extensive up to 1916 when operations were curtailed with the onset of World War I. After the war, in the mid-1920's, Mr. Gus Vedin restaked the Smallwood Creek claim, but some preparatory work was apparently all that followed during his tenure. The present owner of the property is Mr. Cliff Burglin of Fairbanks.

### Recommendations

Further archival research is recommended before requesting a determination for Register eligibility.

Alaska State Site No.: FAI-212

(1981 Field No.: AS 084-1H; Chena River Cabin)

University of Alaska Museum Accession No.: None

Location:

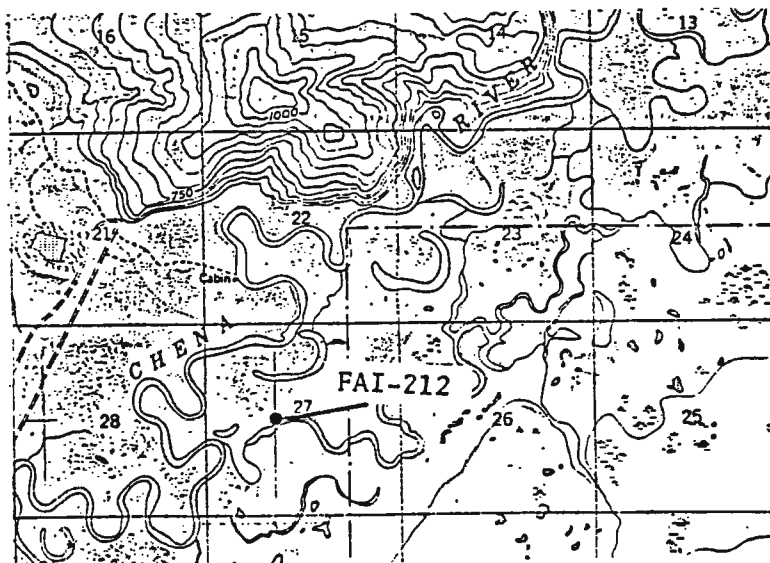
Latitude: 64° 47' 57"

Longitude: 147° 07' 36"

UTM Coordinates: (Zone 6), 494000 E; 7185870 N  
FAI D-1 quadrangle

Section, Township, Range: NE/4 of NW/4 of NE/4 of SW/4, Sec. 27,  
T1S, R3E (Fairbanks Meridian)

General: The site is located along the north bank of the Chena River, 1 mile northwest of the Chena Dam project and 5 miles south of Chena Hot Springs Road.



Environmental Setting

FAI-212 lies on the north bank of the 'Chena Riverside Channel' (NWA designation RX-084-3). The local environment is one of very low relief, and is part of the Chena River floodplain. Most of the area is boggy and covered with spruce trees, scrub alder, grasses, wild rose, horsetail and berries. Some willow and birch is present, as well, and most of the local large spruce trees have been cut. Fauna comprises beaver (dams and gnawed trees), squirrels, hare and a variety of bird life including spruce grouse and woodpecker (observed).

## Survey Methodology

The site was located during helicopter reconnaissance and routine archaeological survey of the proposed NWA centerline (Rev. 3) in 1981. The site was mapped and described.

## Site Description

FAI-212 consists of a single deteriorated log cabin alongside a river meander of the Chena River Side Channel (45 feet away). The roof of the cabin has collapsed almost entirely. A canvas fragment, probably roof-covering, is draped over some remaining central roof beams (Figs. 77 and 78). The logs making up the walls are deteriorating.

The cabin is oriented north-south and measures ca. 13 x 18 ft. The doorway opens toward the south, towards the river, and a window with shattered glass is set in the west wall (Figs. 77 and 78). The logs appear to have been cut with a power saw.

The interior of the cabin contains home-made furniture including a table (lashed construction) and a 'bench' nailed to the northwest corner. Three stovepipe sections also lie in the northwestern corner (Fig. 77).

Modern trash lies scattered outside the cabin, comprising a power boat fuel container, ketchup bottle, food tins (including a Hills Bros. coffee can), buckets and stovepipe sections. A metal barrel stove lies outside the doorway (Fig. 77).

Cut tree stumps are abundant at the site, in the surrounding woods, and six feet from the present stream bank. Log piles were found scattered between the cabin and the slough over a distance of 320 feet to the west, along the slough. An old grass-covered road lies 20 feet north of the cabin.

The area has apparently been flooded in the past and the current water level is only 4-5 feet below the cabin level; some cut stumps are presently submerged.

## Impact

The cabin lies 600 feet away, west of the current centerline, and is not affected by construction. However, the site has been (and probably will be) subjected to flooding.

FAI-212

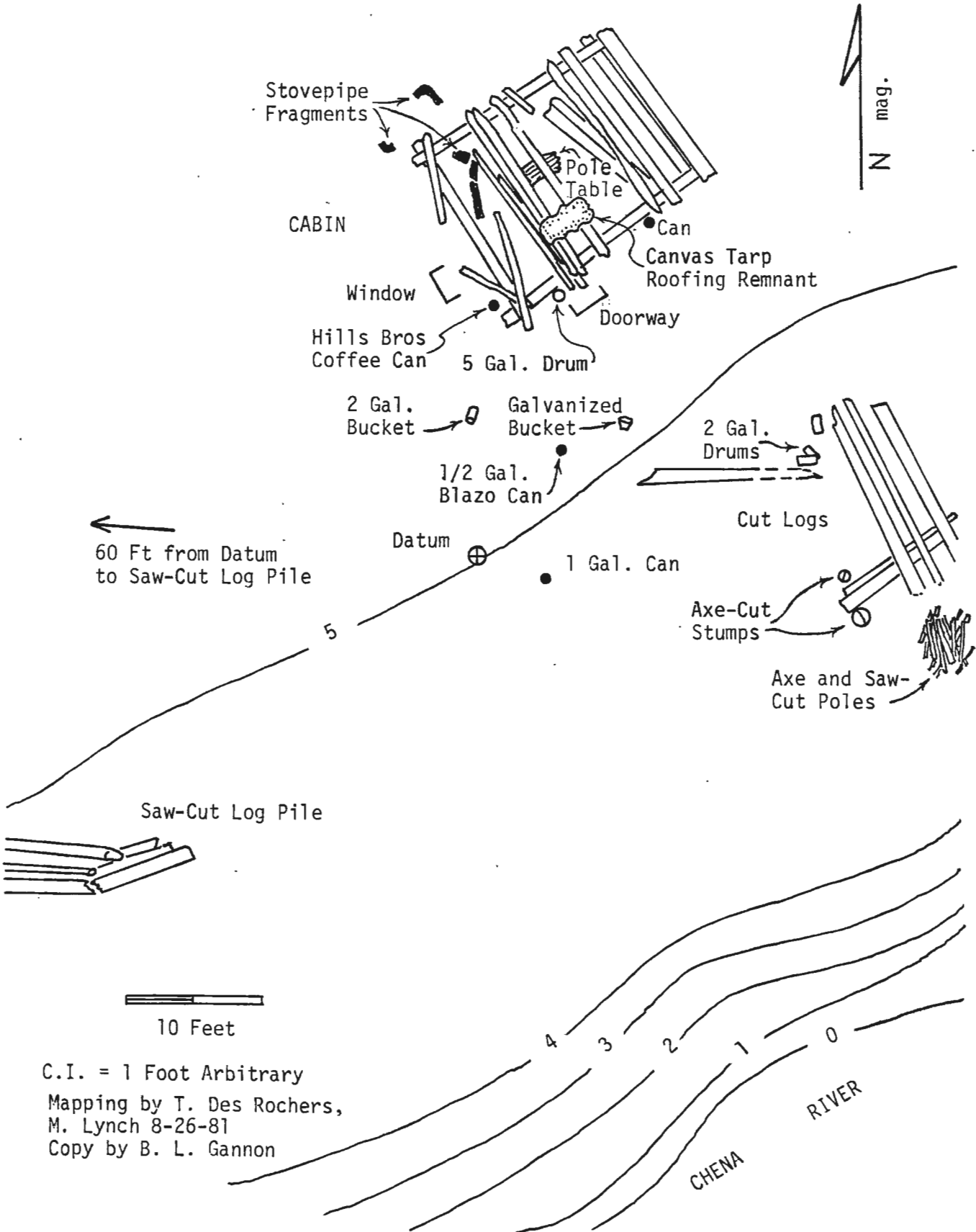
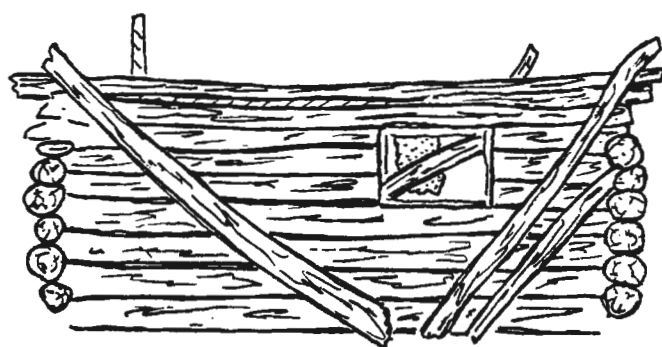


Figure 77.

FAI-212  
WEST WALL OF CABIN



Canvas Remnant  
Hanging from Roof  
Beam (seen in window)

5 Feet

Figure 78.

Significance

The cabin is modern, but may provide some information on Alaskan homesteading activity. It is not Register eligible.

Recommendations

No further action is recommended. The cabin has been documented. The builder/owner is unknown.

Alaska State Site No.: XBD-053

(1981 Field No.: AS 093-1H; Seppala Cabin)

University of Alaska Museum Accession No.: None

Location:

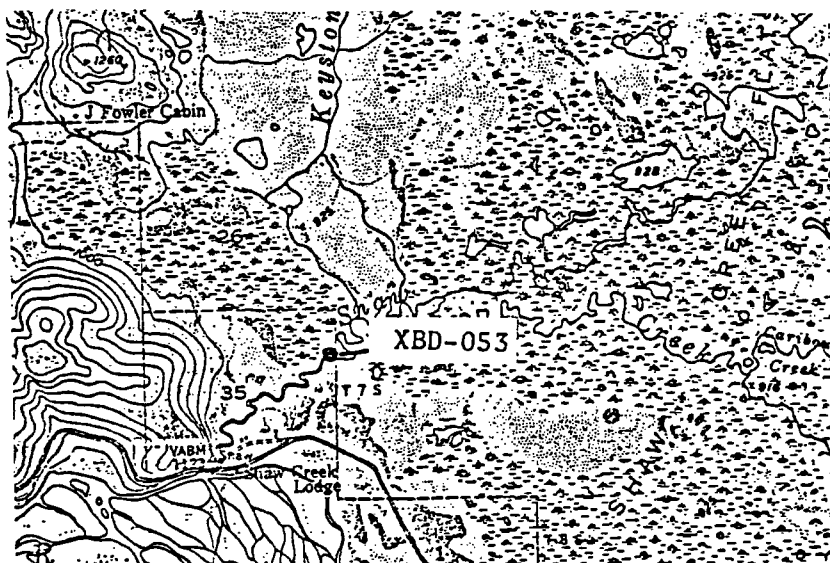
Latitude: 64° 16' 08"

Longitude: 146° 05' 11"

UTM Coordinates: (Zone 6), 544205 E; 7127100 N  
XBD B-4 quadrangle

Section, Township, Range: E/2 of N edge of NE/4 of SE/4 of NE/4, Sec. 35,  
T7S, R8E (Fairbanks Meridian)

General: The Seppala Cabin (XBD-053) lies along the northern side of Shaw Creek, 1250 ft west-southwest of the Alyeska pipeline/Shaw Creek crossing.



Environmental Setting

The site sits on the modern floodplain of Shaw Creek, between the Creek and an oxbow lake ca. 150 ft to the north. Shaw Creek is a tributary to the Tanana River. The topography is flat and locally boggy, and hosts scattered spruce and birch trees and a varied understory/ground cover. Fish, squirrels, bear, geese, moose, and bats (in cabin) comprise observed wildlife.

### Survey Methodology

XBD-053 was located during routine archaeological reconnaissance along the proposed NWA centerline (Rev. 3) in 1981. As the site was observed to be still occasionally occupied and to lie mainly outside the project area, only a minimal survey was conducted. A decision was made after the field season, however, to ascribe full site status to the locality.

### Site Description

The cabin and associations (Fig. 79) are of recent vintage (probably built in the 1940's or 1950's), and are still occasionally utilized. The site is located on a slight topographic high between Shaw Creek and a nearby oxbow lake, surrounded by otherwise low, boggy terrain. The site covers ca. 0.5 acres.

The cabin lies near the oxbow lake and is the focal point of the site. Other features include several outbuildings in various states of disrepair, greenhouse, dog houses around the lake, cache, garden, trash dump and scattered domestic implements and refuse. The cabin itself has a six-paned window and a ripped canvas tarpaulin roof extending over a depressed area in the rear. The interior of the cabin includes kerosene lamps (filled), pictures, stove, bed with a 'garden furniture' mattress, fishing hat, cabinet, table and a set of moose antlers painted pink.

A possible grave site lies 180 feet south of the cabin, 20 feet from Shaw Creek. This feature consists of a low mound 62 inches long, covered by angular cobbles and wood, and partly re-vegetated. An odor of decay permeated the area. The feature was not more thoroughly investigated at the time due to legal uncertainties. The 'grave' has been brought to the attention of the Alaska State Police.

Additional materials occur across Shaw Creek to the south, 98 feet from the edge. These include logs and log piles, 'cross-pieces,' possible lean-to, trap set-ups, wire (including wire with rubber insulation), and areas of wood cutting. Some of the cuts appear to have been made with an adze.

This locality covers ca. 0.14 acres. Its association with the cabin locality is uncertain.

### Impact

The cabin locality lies just outside the proposed corridor (ca. 340 feet west of centerline) and will be subject to indirect impact during construction. The feature tentatively identified as a grave, however, lies 160 feet from centerline (within the corridor) and will be directly affected by construction.



Figure 79. DELETED

### Significance

XBD-053 appears to be a homestead of recent vintage and is still being utilized at times. The name Hans Seppala is painted over the cabin door. Ownership is being claimed by the State and by Paul S. Wagner. The area is allocated to Josephine Van Reenan by Native allotment.

### Recommendations

The site is modern and is Register eligible. Most of the site lies off the project area and, except for the "grave site," will not be directly affected by construction. However, indirect impact is likely. No further action by the sponsor is needed.

## APPENDIX 3

### ARTIFACT CATALOG

Note: Artifact numbers are keyed into site maps located in Appendix 2.

APPENDIX 3  
Artifact Catalog

SAG-FIND 1

Date Collected: 7-20-81  
S. Loring

AS 012-1-L

<u>Artifact No. UA81</u>	<u>Provenience/Description</u>	<u>Significance</u>	<u>Comments</u>
130-1	Gray-green projectile point (stemmed); Sagwon Bluffs area at MP 64.7	Apparently not associated with sites SAG-005 or "S-29"	See Figures 5, 6

PSM-FIND 3

Date Collected: 7-25-81  
S. Loring

AS 019-2-L

<u>Artifact No. UA81</u>	<u>Provenience/Description</u>	<u>Significance</u>	<u>Comments</u>
132-1	Dark gray chert flake--isolated find spot on surface	No context	

PSM-196  
(Polygon Creek)  
AS 019-1-L

Date Collected: 8/25/81  
S. Loring

<u>Artifact No. UA 81</u>	<u>Provenience/Description</u>	<u>Significance</u>	<u>Comments</u>
131-1	57 small, gray to black chert pressure flakes all found in association mixed with charcoal; flakes were found in one small test pit and numbered as a lot	Suggests an activity area	

# APPENDIX 3

## Artifact Catalog

PSM-FIND 4

Date Collected: 7-26-81  
S. Loring

AS 019-3-L

<u>Artifact No.</u> UA81	<u>Provenience/Description</u>	<u>Significance</u>	<u>Comments</u>
133-1	Black chert flake, found in rodent burrow back-dirt		

PSM-FIND 5

Date Collected: 7-27-81  
S. Loring

AS 020-1-L

<u>Artifact No.</u> UA81	<u>Provenience/Description</u>	<u>Significance</u>	<u>Comments</u>
134-1	Black chert core - found at MP 110.5 (NWAP); find spot on northern point of glacial outwash plain on the Lower Oksrukuyik River	No context	See Figure 5

PSM-197

Date Collected: 7-28-81  
S. Loring

AS 021-1-L

<u>Artifact No.</u> UA81	<u>Provenience/Description</u>	<u>Significance</u>	<u>Comments</u>
135-1	Black chert microblade with use wear present on the right lateral edge		See Figures 5, 10
135-2	Dark greenish-gray chert blade-like flake; the right dorsal edge shows possible use-wear and retouch; two denticulate notches occur on the distal end of the right lateral edge		See Figures 5, 10
135-3	Light gray chert flake, found near #4 and #5		
135-4	Black chert flake, found near #3 and #5		
135-5	Black chert flake, found near #4 and #3		

# APPENDIX 3

## Artifact Catalog

PSM-001

Date Collected: 7-28-81  
S. Loring

AS 021-2-L

<u>Artifact No.</u> UA81	<u>Provenience/Description</u>	<u>Significance</u>	<u>Comments</u>
136-1	Cut and grooved wood fragment, found inside the tent ring (tent peg?)		See Figures 5, 11
136-2	Charred wood fragment (cut), found inside the tent ring		
136-3	Charred wood fragment (cut), found inside the tent ring		
136-4	Bullet		See Figures 5, 11
136-5	Caribou bone fragment, found outside the tent ring area to the north		
136-6	Caribou cut bone fragment, from previous central excavations inside the tent ring		

PSM-074 EAST

Date Collected: 8-11-81  
S. Loring

\*General Site Lithic Artifacts

<u>Artifact No.</u> UA81	<u>Provenience/Description</u>	<u>Significance</u>	<u>Comments</u>
137-1	Veined gray chert flake		
137-2	Blue-gray chert flake		
137-3	Tan chert flake		
137-4	Veined gray chert flake		
137-5	Veined gray chert flake		

APPENDIX 3  
Artifact Catalog

PSM-074 EAST (continued)

<u>Artifact No.</u>	<u>UA81</u>	<u>Provenience/Description</u>	<u>Significance</u>	<u>Comments</u>
137-6		Bifacially-worked, mottled gray-green chert chunk, possibly a biface implement fragment		See Figures 5, 17
137-7		Black chert flake, from Hearth 8; cortex on dorsal surface and some edge-use scars		
137-8		Black chert flake with cortex present on the dorsal surface		
137-9		Veined gray chert flake from Hearth 9		
137-10		Light gray chert flake		
137-11		Gray chert flake from Hearth 5		
137-12		Veined gray chert from Hearth 6		
137-13		Veined and varigated gray to tan chert flake		
137-14		Veined gray (bluish hue) chert chunk, possibly a core		See Figures 5, 17
137-15		Light gray chert blade-like flake		
137-16		Blue-gray chert flake		
137-17		Dark greenish-gray chert flake		
137-18		Veined gray chert flake		
137-19		Veined gray chert flake, with possible use wear right dorsal edge (distal end), found 10 feet northwest of Hearth 6		

## APPENDIX 3

## Artifact Catalog

PSM-074 EAST (continued)

<u>Artifact No.</u>	<u>UA81</u>	<u>Provenience/Description</u>	<u>Significance</u>	<u>Comments</u>
137-20		Veined gray chert flake, found 10 feet north-west of Hearth 6		
137-21		Mottled gray chert flake, found near #22 and #23		
137-22		Mottled gray chert blade-like flake, found near #21 and #23		
137-23		Brown chert flake, found near #22 and #23		
<u>Note:</u> Specimens 1, 2, 4, 5, 9, 11, 12, 13, 14, 15, 16, 18, 19, 20, 21 and 22 all appear to be from the same material, a bluish-gray veined chert.				
137-24		Bird (swan?) long bone shaft, Bone #1		
137-25		Caribou canon bone badly bent and incomplete, Bone #2 (probably a metacarpal)		
137-26		Immature caribou tibia, proximal end fragment (deteriorated), Bone #3		
137-27		Caribou(?) phalanx, Bone #4		
137-28		Caribou(?) phalanx, distal end fragment, Bone #5		
137-29		Dall sheep horn-core, found in Hearth #8, Bone #6		See Figures 5, 17
137-30		Bird (swan?) long bone shaft, found in Hearth #8, Bone #7		



APPENDIX 3  
Artifact Catalog

PSM-074 EAST (continued)

<u>Artifact No.</u>	<u>UA81</u>	<u>Provenience/Description</u>	<u>Significance</u>	<u>Comments</u>
137-31		Caribou distal end fragment of a metatarsus, Bone #8		
137-32		Caribou(?) phalanx, Bone #9		
137-33		Dall sheep horn core, found in Hearth #9, Bone #10		See Figures 5, 17
137-34		Bird (swan?) long bone midsection, found in Hearth #9, Bone #11; shows signs of disease (protuberances)		See Figures 5, 17
137-35		Caribou canon bone - metacarpal, found in Hearth #9, Bone #12		
*Lithic and faunal materials associated with Hearth #2 follows:			Date Collected: 8-10-81 S. Loring	
137-36		(Item #1) gray chert flake with possible use-wear on the left ventral edge		
137-37		(Item #2) large mammal long bone fragment		
137-38		(Item #3) bone chip		
137-39		(Item #4) cranial fragment		
137-40		(Item #5) gray chert core, exhausted		
138-41		(Item #6) right half of a rodent mandible, probably ground squirrel		
137-42		(Item #7) long bone fragment, probably caribou		

## APPENDIX 3

## Artifact Catalog

PSM-074 EAST (continued)

<u>Artifact No.</u>	<u>UA81</u>	<u>Provenience/Description</u>	<u>Significance</u>	<u>Comments</u>
137-43		(Item #8) auditory bulla of small mammal		
137-44		(Item #9) gray chert flake fragment		
137-45		(Item #10) small black chert flake (possible biface trimming flake)		
137-46		(Item #11) long bone fragment of a large mammal		
137-47		(Item #12) A and B two rib fragments of small rodents		
137-48		(Item #13) cranial fragment, small mammal		
137-49		(Item #14) gray chert flake fragment		
137-50		(Item #15) small gray chert flake		
137-51		(Item #16) left half of mandible of small rodent, probably ground squirrel		
137-52		(Item #17) small mottled gray chert flake		
137-53		(Item #18) four small fragments of burnt mammal bone		
137-54		(Item #19) A and B two small gray chert flakes		
137-55		(Item #20) organic samples - collected from the occupation level adjacent to Hearth #2		
137-56		(Item #21) burnt long bone fragment, probably ground squirrel		

# APPENDIX 3

## Artifact Catalog

### PSM-074 EAST (continued)

<u>Artifact No.</u>	<u>UA81</u>	<u>Provenience/Description</u>	<u>Significance</u>	<u>Comments</u>
137-57		(Item #22) burnt right manibular fragment of a small mammal, probably ground squirrel		
137-58		(Item #23) wood sample, some charring is present; collected from occupation level associated with Hearth #2		
137-59		(Item #24) A and B two burnt bone fragments; A - distal end of a left rodent humerus, probably ground squirrel; B - "chip" of burnt bone		
137-60		(Item #25) A and B, two small gray chert flakes		
137-61		(Item #26) cranial fragment, rodent		
137-62		(Item #27) A and B; A - articular facet of a large mammal; B - cranial fragment of a small rodent		
137-63		(Item #28) A-C, bone fragments; A - rib fragment of a rodent, probably ground squirrel; B - cranial fragment of rodent, probably ground squirrel; C - fragment of long bone, large mammal		
137-64		(Item #29?) small gray chert flake, proximal end fragment [this flake was assigned #29, as there are 2 artifacts field numbered #31 and #29, the decision is somewhat arbitrary]		
137-65		(Item #30) A and B, bone fragments; A - long bone fragment of a large mammal; B - cranial fragment, small mammal		

## APPENDIX 3

## Artifact Catalog

PSM-074 EAST (continued)

<u>Artifact No. UA81</u>	<u>Provenience/Description</u>	<u>Significance</u>	<u>Comments</u>
137-66	(Item #31?) small grey chert flake fragment, mid-section fragment [this flake was assigned #31, as there are 2 artifacts field numbered #31, but no #29, the decision is somewhat arbitrary]		
137-67	(Item #32) gray chert fragment (distal end), the distal end shows scraper-like use-wear and the proximal end shows a hinge fracture		
137-68	(Item #33) A-C; burnt bone fragment, all fragments are carbonized; A - rodent incisor fragment; B - rodent rib fragment; C - rodent cranial fragment		
137-69	(Item #34) A-F; bone fragments; A - long bone fragment of a large mammal; B - slightly carbonized fragment of a large mammal long bone; C - long bone shaft fragment of small mammal, probably rodent; D - rib fragment of small mammal (right rib); E - medial half of the distal end of a right humerus of a small mammal, probably ground squirrel; F - small mammal left scapula (articular facet missing), probably ground squirrel		
137-70	(Item #35) burnt bone fragment		
137-71	Dark gray chert flake, surface find from the area of Hearth #2		
137-72	Charcoal sample from Hearth #2 submitted to Washington State University for radiocarbon dating		WSU #2654 dating 80+90 B.P.

APPENDIX 3  
Artifact Catalog

PSM-074 EAST (continued)

<u>Artifact No.</u>	<u>UA81</u>	<u>Provenience/Description</u>	<u>Significance</u>	<u>Comments</u>
137-73		Ten calcined bone fragments of various mammals in matrix associated with #72		

PSM-049

Date Collected: 8-19-81  
S. Loring

<u>Artifact No.</u>	<u>UA81</u>	<u>Provenience/Description</u>	<u>Significance</u>	<u>Comments</u>
138-1		Burin preform? (mottled gray-black chert with retouch on the right ventral surface and left dorsal surface; a notch is taken out of the distal end, which has bifacial working); found on the surface eroding out of the edge of Alyeska excavation in Locality 1		See Figures 5, 24
138-2		Large, banded gray chert flake; found on the surface of an old excavation (Alyeska Locality #5)		See Figures 5, 24
138-3		Gray chert blade-like flake, surface find south of Alyeska Locality 12		
138-4		Dark gray chert burin, with bifacial flaking and grinding present on the dorsal and ventral surfaces		See Figures 5, 24
138-5		Mottled gray-green chert flake with use-wear along the right lateral edge; found in 1981 test SL-2		
138-6		Gray mottled chert flake with possible use/re-touch on the right ventral surface and left dorsal surface; found in 1981 test SL-2		

# APPENDIX 3

## Artifact Catalog

PSM-049 (continued)

<u>Artifact No.</u>	<u>UA81</u>	<u>Provenience/Description</u>	<u>Significance</u>	<u>Comments</u>
138-7		Gray chert flake fragment, found in 1981 test SL-2		
138-8		Mottled gray-green chert flake, found in 1981 test SL-2		
138-9		Banded gray chert flake, found in 1981 test SL-2		
138-10		Gray chert flake fragment, found in 1981 test SL-2		
138-11		Gray chert flake fragment, found in 1981 test SL-2		
138-12		Mottled gray chert flake with use-wear apparent on one edge, found in 1981 test SL-2		
138-13		Mottled tan chert flake (possibly a low grade of the mottled gray chert represented by other artifacts present at this site), found in 1981 test SL-2		
138-14		Dark gray chert flake fragment, found in SL-2		
138-15		Mottled gray-green flake fragment, use-wear apparent on the right ventral surface, found in SL-2		
138-16		Gray chert flake fragment, found in SL-2		
138-17		Mottled tan chert flake (material similar to #13), found in SL-2		

# APPENDIX 3

## Artifact Catalog

PSM-049 (continued)

<u>Artifact No.</u> UA81	<u>Provenience/Description</u>	<u>Significance</u>	<u>Comments</u>
138-18	Gray chert flake fragment, found in SL-2		
138-19	Banded gray-tan chert flake, found in SL-2		
138-20	Gray banded chert flake, found in SL-2		
138-21	Gray-tan chert flake, with possible retouch/ use-wear along the proximal half of right lateral edge, found in SL-2		
138-22	Gray chert flake fragment, found in SL-2		
138-23	Gray-tan chert flake, found in SL-2		
138-24	Mottled gray-tan chert flake, possible use-wear along right lateral edge, found in SL-2		
138-25	Light gray chert flake, found in SL-2		
138-26	Dark gray chert flake, found in SL-2		
138-27	Light white-gray chert flakes, found in SL-2		
138-28	Veined gray chert flake fragment, found in SL-2		

Note: All artifacts, with the exception of 10, 16, 18, 22, 25, 27 and 28, all appear to come from the same parent rock, a gray-tan banded chert/chalcedony).

# APPENDIX 3

## Artifact Catalog

PSM-112

Date Collected: 8-17&19-81  
S. Loring

<u>Artifact No.</u> UA81	<u>Provenience/Description</u>	<u>Significance</u>	<u>Comments</u>
139-1	Dark gray banded chert end scraper with unifacial use-wear present along the right distal edge (just proximal to the scraper working edge)		See Figures 5, 27
139-2	Midsection of a gray-black obsidian microblade, there appears to be limited use-wear along the distal end and sides		
139-3	Banded gray-green chert burin with unifacial re-touch on the lateral edge, dorsal surfaces		See Figures 5, 27
139-4	Banded gray-brown chert biface end fragment		See Figures 5, 27
139-5	Midsection of a gray chert end blade or drill fragment		See Figures 5, 27
139-6	Midsection of a gray chert end blade/projectile point		See Figures 5, 27
139-7	Gray chert burin, with bifacial flaking and heavily ground on the proximal end of the lateral edges, possibly to facilitate hafting		See Figures 5, 27
139-8	Black chert unifacially flaked burin fragment, proximal end of obverse surface and edges, however, show some retouch/thinning		See Figures 5, 27
139-9	Small gray-green flake fragment - midsection		
139-10	Mottled gray chert flake fragment - midsection		



# APPENDIX 3

## Artifact Catalog

### PSM-112 (continued)

<u>Artifact No.</u> UA81	<u>Provenience/Description</u>	<u>Significance</u>	<u>Comments</u>
139-11	Gray veined chert flake		
139-12	Large blue-green veined chert flake		
139-13	Mottled gray chert flake		
139-14	Gray veined chert flake		
139-15	Gray chert flake		

### PSM-FIND 6

Date Collected: ?  
S. Loring

AS 027-4-L

<u>Artifact No.</u> UA81	<u>Provenience/Description</u>	<u>Significance</u>	<u>Comments</u>
140-1	Black chert flake "knife," the right lateral edge is steep and unworked, while the left lateral edge shows unifacial retouch on the dorsal face, prodominantly on the proximal half; some unifacial retouch (use-wear) is present on the ventral surface; surface find from MP 150.7		See Figures 5, 32

### CHN-016

Date Collected: 8-9-81  
R. J. Dale

EMS 37-3  
Site #1

<u>Artifact No.</u> UA81	<u>Provenience/Description</u>	<u>Significance</u>	<u>Comments</u>
125-1	Dall sheep horn ladle - found on the surface 47 feet from the datum at N23°W; style dates post-1922		See Figures 5, 33

APPENDIX 3  
Artifact Catalog

CHN-016 (continued)

<u>Artifact No. UA81</u>	<u>Provenience/Description</u>	<u>Significance</u>	<u>Comments</u>
125-2	Hills Bros coffee can (1 lb.) found on the surface 47 feet from the datum at N23°W; style dates post-1922		

BET-122

Date Collected: 8-5-81  
R. J. Dale

EMS 48-0/3/F 1980  
Site #3

<u>Artifact No. UA81</u>	<u>Provenience/Description</u>	<u>Significance</u>	<u>Comments</u>
127-1	Reddish-brown chalcedony flake; previous flakes scars are present on dorsal surface, thermal scarring on the ventral side		
127-2	Reddish-brown chalcedony flake fragment; resembles #127-1		

BET-123

Date Collected: 8-6-81  
R. J. Dale

EMS 48-0/2/F 1980  
Site #2

<u>Artifact No. UA81</u>	<u>Provenience/Description</u>	<u>Significance</u>	<u>Comments</u>
126-1	Dark gray-brown chert flake found in test pit "D"		
126-2	Small brown-gray chert fragment - proximal end fragment		

# APPENDIX 3

## Artifact Catalog

### LIV-FIND 3

EMS 63-3A

Date Collected: ?  
D. Hanson

<u>Artifact No.</u>	<u>UA81</u>	<u>Provenience/Description</u>	<u>Significance</u>	<u>Comments</u>
129-1		Black chalcedony biface(?) fragment, found in the northern edge of an existing gravel pit		May be an ecofact

### LIV-041

Tolovana 3

Date Collected: 8-22-81  
R. J. Dale

<u>Artifact No.</u>	<u>UA81</u>	<u>Provenience/Description</u>	<u>Significance</u>	<u>Comments</u>
128-1		Mottled buff and brown chalcedony blade-like flake with unifacial retouch (dorsal surface), found at approximately 11 feet south of 1981 datum at 182° magnetic; use-wear is most apparent along the left dorsal edge (distal half)		See Figures 5, 54

#### APPENDIX 4

WORK COMPLETED 1978-1981: CENTERLINE SEGMENTS

October 20, 1981  
Revised March 23, 1982

## APPENDIX 4

## COMPLETED CENTERLINE SURVEY, 1978-1981

Centerline Segment*	Alignment Sheet	Miles	Year Surveyed	Notes
0-4.0(h)**	001	4.0	1980	
24.5-56.0	005-010	31.5	1980	Minor 250' re-route at MP 43.8
56.0-61.85	010-011	5.85	1980, 1981	Intensively surveyed 1980, visually surveyed 1981
61.85-63.65	011-012	1.80	1981	
63.65-93.8	012-017	30.15	1980	
93.8-125.0	017-022	31.2	1981	
125.0-126.0	022-023	1.0	1980, 1981	
126.0-132.0	023-024	6.0	1980	
132.0-150.8	024-027	18.8	1981	
150.8-153.14(h)	027	2.34	1980	
182.0-184.1(h)	032-033	2.1+	1980	Approx.: adjusted MP 182 marker
198.0-205.5(h)	033-037	7.5	1980	
221.65-221.96(h)	039	0.31	1980	
223.65-223.9(h)	040	0.25	1980	
237.1-247.0(h)	042-044	9.9+	1980	Referenced to Rev. 1 MP 237 marker
248.55-253.85(h)	044-045	5.3	1980	
339.0-360.7(h)	060-064	21.7	1981	
362.4-405.45(h)	064-071	43.05	1981	
452.5-456.9(h)	080-081	4.4	1981	
457.2-496.3(h)	081-088	39.1	1981	1) indicated centerline incorrectly located MP 462.0+ to 466.5+ 2) MP 478.4-483.2, 483.6-485.7 visually surveyed from helicopter
499.0-501.0	088	2.0	1980	
501.0-503.3	089	2.3	1980, 1981	
503.3-504.0	089	0.7	1981	Approx.: adjusted MP 504 marker
504.0-522.0	089-092	18.0	1980	
522.0-528.35(h)	092-094	6.35	1981	MP 526.6-527.35 visually surveyed
529.75-532.45(h)	094	2.7	1980	
532.85-535.2(h)	095	2.35	1980	
541.0-548.0(h)	096-097	7.0	1980	
549.0-550.15(h)	097-098	1.15	1979	
550.76-551.1(h)	098	0.34	1979	

APPENDIX 4  
(Continued)

Centerline Segment*	Alignment Sheet	Miles	Year Surveyed	Notes
551.22-553.6(h)	098	2.38	1979	
554.35-557.1	098-099	2.75	1979	
557.1-564.55	099-100	7.45	1978	
564.55-565.73	100	1.18	1979	
565.73-580.87(h)	100-103	15.14	1978	Gerstle River: MP 576.35 576.85
581.0-588.3	103-104	7.3	1978	
588.3-589.72	104-105	1.42	1979	Johnson River: MP 588.63 588.8
589.72-592.15	105	2.43	1978	
592.15-594.7	105-106	2.55	1979	
594.7-604.6	106-107	9.9	1978	
604.6-604.95	107	0.35	1978, 1979	
604.95-607.8	107-108	2.85	1978	
607.8-610.9	108	3.1	1979	
610.9-621.0	108-110	10.1	1978	
621.0-622.15	110	1.15	1979	Robertson River: 621.20 621.50
622.15-637.5	110-113	15.35	1978	
637.5-638.8(h)	113	1.3	1979	
639.35-641.65	113-114	2.3	1979	
641.65-642.8	114	1.15	1978	
642.8-643.1	114	0.3	1978, 1979	
643.1-645.27	114	2.17	1979	Minor (500') re-route to opposite side of Haines pipeline: MP 643.4-643.5
645.27-646.05	114	0.78	1978, 1979	
646.05-660.6	114-117	14.55	1979	
660.6-665.9	117-118	5.3	1978	
665.9-666.45	118	0.55	1979	Includes Tanana River crossing
666.45-672.44	118-119	5.99	1978	
672.44-672.7	119	0.26	1978, 1979	
672.7-674.8	119	2.1	1978	
674.8-675.05	119	0.25	1979	
675.05-680.3	119-120	5.25	1978	
680.3-682.04(h)	120-121	1.74	1979	
683.5-685.05(h)	121	1.55	1978	
685.45-686.35	121	0.9	1978	
686.35-686.65	121	0.3	1978, 1979	

APPENDIX 4  
(Continued)

Centerline Segment*	Alignment Sheet	Miles	Year Surveyed	Notes
686.65-689.2	121-122	2.55	1979	
689.2-689.75	122	0.55	1978	
689.75-691.42	122	1.67	1979	
691.42-695.1(h)	122-123	3.68	1978	
695.75-696.12	123	0.37	1978	
696.12-697.5	123	1.38	1979	
697.5-698.8	123-124	1.3	1978	
698.8-699.12	124	0.32	1979	
699.12-701.25	124	2.13	1978	
701.25-706.6(h)	124-125	5.35	1979	MP 707.15-707.45 Northway access permission but difficult accessibility (bounded by private property); not surveyed
708.02-708.62(h)	125	0.6	1979	
709.0-711.0(h)	125-126	2.0	1979	
711.15-711.35	126	0.2	1978, 1979	
711.35-711.92(h)	126	0.57	1978	
712.35-717.14(h)	126-127	4.79	1978	
717.65-718.42(h)	127	0.77	1978	
718.68-725.0(h)	127-128	6.32	1978	MP 725.3-725.43 USA access permission but difficult accessibility (bounded by private property); not surveyed
725.95-733.35	128-130	7.4	1978	
733.35-733.85	130	0.5	1979	
733.85-736.75	130	2.9	1978	
736.75-737.0	130	0.25	1979	
737.0-739.2	130-131	2.2	1978	
739.2-739.6	131	0.4	1979	
739.6-743.17	131	<u>3.57</u>	1978	
Total centerline miles surveyed		493.05	(66.3%)	

\* Centerline segment mileages are based on Rev. 3, March 1981 mile markers.

\*\* The appended 'h' denotes a following mileage hiatus.

CENTERLINE SEGMENTS NOT SURVEYED  
1978-1981

Centerline Segment	Alignment Sheet	Miles	Notes
4.00- 24.50	001-005	20.50	Unsurveyed reroute
153.14-182.00	027-032	28.86	Unsurveyed reroute
184.10-198.00	033-035	13.90	Unsurveyed reroute
205.50-221.65	036-039	16.15	Unsurveyed corridor & reroute
221.96-223.65	039-040	1.69	Unsurveyed reroute
223.90-237.10	040-042	13.20	Unsurveyed corridor & reroute
247.00-248.55	044	1.55	Unsurveyed corridor (not flagged)
253.85-339.00	045-060	85.15	Unsurveyed corridor
360.70-362.40	064	1.70	Yukon River & uncleared Native allotment (Butler)
405.45-452.50	071-080	47.05	Unsurveyed corridor
456.90-457.20	081	0.30	Private property (Nyholm), not cleared
496.30-499.00	088	2.70	Private property (Ringstad & Hensley - not cleared: 496.35-496.41, 496.75-496.80) & unsurveyed corridor
528.35-529.75	094	1.40	Unsurveyed reroute
532.45-532.85*	094	0.40	Potential route adjustment
535.20-541.00	095-096	5.80	Unsurveyed corridor, reroute and Tanana River (539.25-539.35)
548.00-549.00	097-098	1.00	Unsurveyed corridor (not flagged) & reroute
550.15-550.76*	098	0.61	Unsurveyed reroute
551.10-551.22*	098	0.12	Private property
553.60-554.35*	098	0.75	Unsurveyed reroute
580.87-581.00*	103	0.13	Native allotment
638.80-639.35	113	0.55	Native allotment
682.04-683.50	121	1.46	Native allotment
685.05-685.45	121	0.40	Private property
695.10-695.75	123	0.65	Private property
706.60-708.02*	125	1.42	Native allotments and unsurveyed corridor; Northway property (707.15-707.45) cleared for access but not practical for survey with adjacent Native allotment parcels closed
708.62-709.00*	125	0.38	Native allotment
711.00-711.15*	126	0.15	Unsurveyed reroute
711.92-712.35	126	0.43	Private property
717.14-717.65	127	0.51	Private property
718.42-718.68*	127	0.26	Unsurveyed reroute
725.00-725.95*	128	0.95	Unsurveyed corridor (725.30-725.43) and private property
Total centerline miles not surveyed		250.12	(33.7%)

\*Short segments of low cultural resource potential and/or high logistic difficulty in access for survey; recommended cleared status.



March 23, 1982

## APPENDIX 4 (Continued)

SUMMARY OF COMPLETED CENTERLINE SURVEY  
1978-1981

Centerline Segment	Miles
0- 4.00	4.00
24.50-153.14	128.64
182.00-184.10	2.10
198.00-205.50	7.50
221.65-221.96	0.31
223.65-223.90	0.25
237.10-247.00	9.90
248.55-253.85	5.30
339.00-360.70	21.70
362.40-405.45	43.05
452.50-456.90	4.40
457.20-496.30	39.10
499.00-528.35	29.35
529.75-535.20*	5.45
541.00-548.00	7.00
549.00-638.80*	89.80
639.35-682.04	42.69
683.50-685.05	1.55
685.45-695.10	9.65
695.75-711.92*	16.17
712.35-717.14	4.79
717.65-743.17*	25.52
Total Miles Surveyed	498.22 (67%)*

\*These segments include portions with low cultural resource potential and/or high logistic difficulty in access for survey; recommended cleared status (see Exhibits A and B).

?? See p. 315  
not surveyed tho.

## APPENDIX 5

WORK COMPLETED 1978-1981: EMS'S

## APPENDIX 5

## COMPLETED EMS SURVEY 1979-1981

EMS No.	Total Acreage	Acreage Intensively* Surveyed	Acreage Visually Surveyed**	Notes
<u>1979</u>				
1P-1	33	33+***	-	
1P-3	40	40+	-	
2P-1	16	16+	-	
2P-3	10	10+	-	
3P-1	14	14+	-	
3P-2	21	21+	-	
4P-1	20	20+	-	
4P-2	19	19+	-	
5P-1	22	22+	-	
5P-2A	11	11+	-	
5P-2B	11	11+	-	
6P-2A	4	4+	-	
6P-2B	13	13+	-	
6P-3A	25	25+	-	
7P-2	36	36+	-	
8P-2	19	19+	-	
8P-3	17	17+	-	
9P-1	30	30+	-	
10P-1	46	46+	-	
11P-1	43	43+	-	
12P-1	21	21+	-	
12P-2	43	43+	-	
13P-1A	6	6+	-	
13P-2	17	17+	-	
14P-1	27	27+	-	
14P-2	18	18+	-	
15P-1	36	36+	-	
15P-2	24	24+	-	
16P-1	39	39+	-	
16P-2A	31	31+	-	
16P-2B	31	31+	-	
17P-1	30	30+	-	
17P-2	37	37+	-	
18P-1	28	28+	-	
19P-1	33	33+	-	
20P-1	10	10+	-	
20P-2	38	38+	-	
21P-1	9	9+	-	
21P-2	13	13+	-	
21P-3	19	19+	-	
22P-1	22	22+	-	
22P-2	24	24+	-	
23P-1	14	14+	-	
23P-2	17	17+	-	

COMPLETED EMS SURVEY 1979-1981  
(Continued)

EMS No.	Total Acreage	Acreage Intensively Surveyed	Acreage Visually Surveyed	Notes
24P-1	20	20+	-	
24P-2	25	25+	-	
24P-3	4	4+	-	
25P-1	6	6+	-	
25P-2	15	15+	-	
26P-1	16	16+	-	
26P-2	14	-	-	Deleted from schedule; private native allotment
26P-3	17	17+	-	
27P-1	16	16+	-	
27P-2	37	37+	-	
28P-1	22	22+	-	
28P-2A	11	11+	-	
28P-2B	19	19+	-	
28P-3	12	12+	-	
28P-4	12	12+	-	
29P-1A	20	20+	-	
29P-1B	12	12+	-	
30P-1	19	19+	-	
30P-2	24	24+	-	
31P-1	10	10+	-	
31P-2	13	13+	-	
32P-1	33	33+	-	
32P-2	15	15+	-	
33P-1A	25	25+	-	
33P-1B	25	12+	10+	EMS incompletely covered due to navigation error
<u>1980</u>				
1-1	88	-	88	
1-2	101	-	101	
1-3	63	-	63	
1-4	40	40	-	Scheduled for visual survey but surveyed intensively due to accessibility and moderate archaeological potential
2-1	754	-	200+****	
3-1	346	-	150+	
3-2	384	-	300+	
4-1	459	-	150+	
4-2	688	-	200+	
4-3A	355	-	150+	
4-3B	42	-	42	

COMPLETED EMS SURVEY 1979-1981  
(Continued)

EMS No.	Total Acreage	Acreage Intensively Surveyed	Acreage Visually Surveyed	Notes
5-1	622	-	100+	
5-2	217	-	100+	
5-3A	158	-	50+	
5-3B	213	-	50+	
6-1	388	-	180+	
6-2	194	-	50+	
7-1	258	-	200+	
8-1A	121	-	15+	
8-1B	181	-	-	Examined by aerial photos
8-2	370	-	75+	
8-3	354	-	100+	
9-0	259	-	200+	
9-1	718	-	500+	
10-1A	121	-	121	
10-1B	363	-	300+	
10-2	439	-	400+	
10-3	155	-	-	Not readily visible from ground; inspected by aerial photos
11-1	325	-	-	Not examined from ground; inspected by aerial photos
11-2	98	98	-	
12-1	320	-	300+	
12-2A	37	37	-	Not scheduled but examined due to moderate cultural resource potential and accessibility
12-2B	10	10	-	
14-1	421	-	400+	
14-2	81	40	41	
14-3	43	-	40+	Active bird habitat
15-2	288	-	-	Not inspected from ground; examined by aerial photos
16-1	110	30	80	Partly accessible
16-2	29	-	29	Scheduled for intensive survey but inaccessible
16-3	96	96	-	
17-2	28	-	20+	
18-1A	19	19	-	
18-1B	17	-	17	
18-1C	112	112	-	
18-1.1	94	-	80+	
19-1	67	20+	47+	
19-1.1A	59	-	59	
19-1.1B	133	-	100+	Also cleared during winter 1980 borehole program

COMPLETED EMS SURVEY 1979-1981  
(Continued)

EMS No.	Total Acreage	Acreage Intensively Surveyed	Acreage Visually Surveyed	Notes
19-2A	86	45+	41+	
19-2B	26	-	10+	
20-3A	32	32	-	
20-3B	50	50	-	Not scheduled but surveyed due to proximity of site on 20-3A
21-1	246	246	-	
21-2	128	128	-	
22-1	37	37	-	
22-2	18	18	-	
24-1A	69	69	-	
24-1B	41	41	-	
25-1	75	75	-	
25-2	50	50	-	
26-0	153	153	-	
26-1	169	169	-	
27-1A	54	54	-	
27-1B	27	27	-	
27-2	56	56	-	
28-1A	46	46	-	
28-1B	15	15	-	
28-4A	14	14	-	
28-4B	8	8	-	
29-1A	10	10	-	
29-1B	21	21	-	
29-1C	53	33	20	Partly inaccessible
29-2	31	-	-	Inspected by aerial photos
29-3A	20	5	15	
29-3B	13	13	-	
30-1	31	31	-	
30-2	43	-	-	Inspected by aerial photos
30-3	21	-	-	Deleted from schedule; no access; inspected by aerial photos
30-4	16	-	-	Inspected by aerial photos
31-1	8	8	-	
31-2	8	8	-	
31-3A	43	43	-	
31-3B	39	39	-	
32-1	42	42	-	
32-2	111	111	-	
32-3	119	80	39	Partly inaccessible
33-1	21	21	-	Deleted from schedule but surveyed due to accessibility and requisition by L. Ericson

COMPLETED EMS SURVEY 1979-1981  
(Continued)

EMS No.	Total Acreage	Acreage Intensively Surveyed	Acreage Visually Surveyed	Notes
34-0	19	-	-	EMS's 34-0 through 39-1 inaccessible; inspected via aerial photos
34-2	33	-	-	
34-3	102	-	-	
34-4	196	-	-	
35-2.1	229	-	-	
36-1	91	-	-	
36-2	329	-	-	
36-4	115	-	-	
37-2	66	-	-	
38-2	51	-	-	
39-1	94	-	-	
39-3	201	201	-	
41-1	48	48	-	
41-2A	54	25	29	
41-2B	35	-	35	
41-3	31	31	-	
42-3	41	41	-	
43-2	86	-	86	
43-3	144	-	144	
44-1	208	-	208	
44-4	147	-	147	
44-5	27	27	-	
45-1	73	73	-	Scheduled as visual but surveyed intensively due to accessibility
45-2A	62	62	-	
45-3	191	191	-	
46-1	118	118	-	
48-0	66	66	-	Re-examined in 1981
48-2A	28	28	-	
48-2B	56	56	-	
48-3	100	100	-	
48-4	139	139	-	
51-1	37	37	-	
51-3	88	88	-	
52-3B	9	9	-	
54-1B	19	19	-	
55-1B	18	18	-	
55-2A	47	47	-	
60-1	85	85	-	
60-1.1	69	69	-	Not scheduled but surveyed since close to EMS 60-1

COMPLETED EMS SURVEY 1979-1981  
(Continued)

EMS No.	Total Acreage	Acreage Intensively Surveyed	Acreage Visually Surveyed	Notes
64-1	201	-	201	Cleared for hand sample only; not accessible for survey
69-3A	14	14	-	Helicopter access
69-3B	15	15	-	Helicopter access
71-0A	9	9	-	
71-1	15	15	-	
71-3A	23	23	-	EMS 71-3A,B re-examined in part 1981
71-3B	17	17	-	
<u>1981</u>				
37-3A	21	21	-	
37-3B	25	10	11	
43-4	108	108	-	
48-0	66	10+	-	Re-examined in part because of site
49-1	50	50	-	
49-2	29	29	-	
50-1A	19	19	-	
50-1B	132	100	32	Some standing water
54-2	36	36	-	
62-3	31	31	-	
63-3A	39	39	-	
63-3B	17	17	-	
71-3A	23	20+	-	EMS 71-3A,B re-examined in part in conjunction with centerline survey and archaeology sites
71-3B	17	17+	-	
71-4	14	-	-	
96-1	75	75	-	

\* "Intensive" survey implies 100% walk-over coverage and subsurface testing.

\*\* "Visual" survey implies inspection from a distance, or cursory or partial walk-over coverage with little or no subsurface testing. Most areas with this survey mode are inaccessible or consist of un-navigable terrain.

\*\*\* The "+" indicates more area surveyed than scheduled due to the superposed rectilinear grid systems employed for ease of navigating the EMS's.

\*\*\*\* The "+" denotes the estimated portion of the EMS surveyed 'visually' which was seen or covered.



APPENDIX 6

MISCELLANEOUS WORK COMPLETED 1978-1981

## APPENDIX 6

Miscellaneous Work - 1980-1981

<u>Work 1980</u>	<u>Acres</u>
Trench stability plot TS-A1, 1300 x 600 ft. 5 persons @ 100 ft. spacing	17.9
Trench stability plot TS-D4, 1000 x 1000 ft. 4 persons @ 100 ft. spacing	23.0
Trench stability plot TS-E4, 700 x 1200 ft. 5 persons @ 80 ft. spacing	19.3
Trench stability plot TS-I5, 1100 x 800 ft. 5 persons @ 100 ft. spacing	20.2
Trench stability plot TS-B4, 1000 x 800 ft. 5 persons @ 80 ft. spacing	18.3
Borehole 41-32 + vicinity 260 x 200 ft., 5 persons	1.2
Borehole 42-35 + vicinity 260 x 200 ft., 5 persons	1.2
Borehole 42-37 + vicinity 260 x 200 ft., 5 persons	1.2
Borehole 27-32 + vicinity 150 x 150 ft., 5 persons	0.5
Borehole 27-33 + vicinity 150 x 150 ft., 5 persons	0.5
TOTAL	103.3 ACRES

<u>Work 1981</u>	<u>Acres</u>
Livengood airport extension	13.8
Lithic anomaly, MP 422.5	0
Fault zone test: (AS118-MP666)	0
TOTAL	13.8 ACRES

## APPENDIX 6 (Continued)

Summary of Monitored Backhoe Trenches on EMS's 1980Southern Portion - Canadian border to Yukon River; amended to W.O. #8

<u>EMS Number</u>	<u>Number of Trenches</u>
125-3	3
120-3	3
117-2	2
116-1	2
114-1	4
113-1	3
112-2	3
112-1	3
111-2	3
110-2	3
106-1	1
105-2	1
105-1	2
103-2B	2
102-1	5
99-2	3
98-2	5
98-1	3
95-5	8
92-1	5
86-3.1A	1
86-2A	2
86-2B	5
76-1	1
72-3B	2
71-0C	2
Total 26 EMS's	77 Trenches

Northern Portion - Exhibit E; W.O. #8

68-4D	4
68-4B	3
67-2	4
60-3	7
60-2	4
60-1	3
59-2	5
56-1	9
54-2	8
50-1B	8
49-3	3
49-2	3

Northern Portion - Continued

<u>EMS Number</u>	<u>Number of Trenches</u>
47-2	6
46-2C	1
46-2A	3
45-2B	4
45-2A	3
45-1	4
44-5	4
43-4	20
43-1	10
42-3	5
42-1	8
40-2B	0 access cleared but could not get through muskeg
40-2A	3
39-3	5
38-4	12
38-3	8
37-3	8
36-5	7
36-3	7
35-4	8
35-2A	4
<u>35-2B</u>	<u>8</u>
Total 34 EMS's	119 Trenches

Sites north of the area in Exhibit E; added to program in the field.

33-3	3
32-2	9
32-1	4
31-3	5
31-2	2
31-1	5
30-3	6
30-1	9
29-3	5
29-1	11
28-4A	3
28-4B	2
28-1A	4
28-1B	3
27-2	7
27-1	7
26-1A	12
26-0	2
25-1	3
24-1	4

Sites north of Exhibit E - Continued

<u>EMS Number</u>	<u>Number of Trenches</u>
22-2	3
21-2	2
21-1	2
<u>18-1A</u>	<u>1</u>
Total 24 EMS's	114 Trenches

TOTAL OF SITES: 84

TOTAL OF TRENCHES: 390

Field Changes to the Work Order:

## Deleted in field:

34-1	4
38-2	3
39-4	2
40-B	7 inaccessible
41-3.1	12
41-5	12
42-2A, B, C	12
43-3	6
50-2	5
51-A	-

## Added in field:

39-3	5
42-3	5
44-5	4
45-2A	3
45-2B	4
46-2A	3
46-2C	1
49-3	3
54-2	8
56-1	9
67-2	4

APPENDIX 7

UPDATE ON CULTURAL RESOURCES IN  
BEECHEY POINT QUADRANGLE

## APPENDIX 7

UPDATE ON CULTURAL RESOURCES  
IN BEECHEY POINT QUADRANGLE\*

Figure: Based on Lobdell 1980; additions  
from Aigner and Gannon 1980. From  
Aigner 1981.

Table: Based on Aigner and Gannon 1980  
with updating from Lobdell 1980.  
From Aigner 1981.

\*Cultural resources reported for Beechey Point (Aigner and Gannon 1980) have been assigned AHRS numbers and have been augmented by more recent work. The following Figure and Table update earlier summaries. Of interest is XBP-007, a fortuitously preserved prehistoric site with Late Denbigh remains. There is a date of 125 B.C. ( $2075 \pm 70$ ; UGa-3719) [R. Gal, written communication 1982].

[illegible]

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Table 11

Cultural Resources in the Beechy Point Quadrangle, Alaska.

AHSR	NAME	MAP	TNSP	RANGE	SECTION	STATUS	AGE	LOCATN	RES	SEAS	SHEEP	CARIBOU				MOOSE			
												Pr	Ca	W	S	Pr	S	F	W
XBP-001	Anxiety Point	XBP250	T11N	R16E	NE¼ SE¼	4	5	8	1	1	-	-	-	-	-	-	-	-	-
XBP-002	Uliktuk, Oliktok= .117, 91	XBP250	T13N	R 9E	NW¼ NW¼	4	5	18	3	2	-	-	-	-	+	+	-	-	-
XBP-003	Beechy Point 102, 118	XBP250	T13N	R12E	NW¼ SE¼	4	5	8	3	2	-	-	-	-	+	+	-	-	-
XBP-004	98=Kavearak Point	XBP250	T13N	R11E	NW¼ NE¼	4	5	8	3	2	-	-	-	-	+	+	-	-	-
XBP-005	S-81, Kaniqtuq; 107	XBPB3	T11N	R15E 10	SE¼ SW¼	4	6	6428	3	2	-	-	-	-	+	+	-	-	-
XBP-006	S-80, Heald Point; 108= Niaquq	XBPB3	T12N	R15E 36	SE¼ SE¼	34	5	8	3	2	-	-	-	-	+	+	-	-	-
XBP-007	Putuligayuk River Delta Overlook	XBP250	T11N	R14E 11	SE¼ SE¼	24	235	718	3	2	-	-	-	-	+	+	-	-	-
XBP-008= XBP-031?	115, 114: Tigvoriak Is. and Lookout	XBP250	T10N	R19E	NE¼ SE¼	4	5	768	1	1	-	-	-	-	-	-	-	-	-
XBP-009	110A=Cross Island	XBP250	T13N	R16E	NE¼ NW¼	4	5	78	0	0	-	-	-	-	-	-	-	-	-
XBP-010	96=Milne Point	XBP250	T14N	R10E	SE¼ SE¼	4	5	8	3	2	-	-	-	-	+	+	-	-	-
XBP-011	94=Pingu	XBP250	T14N	R10E	SE¼ NE¼	4	5	78	1	1	-	-	-	-	-	-	-	-	-
XBP-012	Pingok Island Old Village	XBP250	T14N	R10E 22	NE¼ NE¼	24	25	78	1	1	-	-	-	-	-	-	-	-	-
XBP-013	Peet Island	XBP250	T14N	R11E 30	NE¼ NE¼	4	5	8	1	1	-	-	-	-	-	-	-	-	-
XBP-014	Cottle Island	XBP250	T14N	R12E 31	SW¼ SE¼	5	9	8	0	0	-	-	-	-	-	-	-	-	-
XBP-015	Back Pt; ? same as 103 Sakanaulyak and	XBP250	T13N	R12E	SE¼ SW¼	4	5	8	3	2	-	-	-	-	+	+	-	-	-
	104 Aquvlak				SW¼ NE¼	4	5	8	3	2	-	-	-	-	+	+	-	-	-
XBP-016	Gwydyr Pt; ? same as 11 Ikipkaurak	XBP250	T12N	R13E	NW¼ NW¼	4	5	61	3	2	-	-	-	-	+	+	-	-	-
XBP-017	105 Kukpaagruk	XBP250	T12N	R13E	SW¼ NE¼	4	5	1	3	2	-	-	-	-	+	+	-	-	-
XBP-018	101 Tapkakturuak-Long Is. and Long Is. whaling boat	XBP250	T13N	R12E	NE¼ SE¼	0,4	9	8	1	1	-	-	-	-	-	-	-	-	-
XBP-019	106 Siglaktitaq	XBP250	T12N	R14E	NW¼ SE¼	4	5	8	3	2	-	-	-	-	+	+	-	-	-
XBP-020	Sagavanirktok River, Main Channel	XBP250	T10N	R16E 16	NE¼ SE¼	4	5	18	3	2	-	-	-	-	+	+	-	-	-
XBP-021	Small Boat	XBP250	T10N	R16E 13	NE¼ NE¼	4	5,9	18	3	2	-	-	-	-	+	+	-	-	-
XBP-022	Point Brower (14)	XBP250	T11N	R17E	SE¼ NW¼	4	5,9	8	3	2	-	-	-	-	+	+	-	-	-
XBP-023	Foggy Is. Bay #1; ? (9)	XBP250	T10N	R17E	NE¼ SW¼	4	5	68	3	2	-	-	-	-	+	+	-	-	-

Table 11 (Continued)

W FOWL				FISH		ECOSYSTEM			BRIEF DESCRIPTION	REFERENCES*		
L	M	H	Vh	Ava	O	Prime	2nd	3rd				
-	-	-	+	-	-	WT	MT	5	AT10	Historic Eskimo, 1900's	Derry in Cook 1971: 103	
-	-	+	-	-	-	WT	AT<5	MT	5	Historic Eskimo, 1900's	Derry/Cook 1971: 103; Hoffman et al., N.D.: App. F; Amsden 1977: App. A	
-	-	+	-	-	-	WT	AT<5	MT	5	Historic Eskimo camp, 1930, year-round; Fall - Sp. fishing, trapping, caribou, sealing	Derry in Cook 1971: 102; Hoffman et al., N.D.: App. F; Amsden 1977: App. A	
-	-	+	-	-	-	WT	AT<5	MT10		Historic Eskimo, 1900's, graves	Derry in Cook 1971: 103; Hoffman et al., N.D.: App. F	
-	-	-	+	-	-	WT	AT10	MT10		Late Historic-modern Eskimo cabin? 1938-40's	Derry in Cook 1970: 195-8 & 1971: 25-103; Hoffman et al., N.D.: App. F	
-	-	-	+	-	-	WT	AT	5	MT10	Late Historic (1921-37) driftwood house "Igloo", pits, caches; year-round	Derry in Cook 1970: 195-198 & 25-103; Hoffman et al., N.D.: App. F	
-	-	-	+	-	-	WT	AT	5	MT10	Prehistoric, Paleo-Arctic tradition, Northern Archaic and Arctic Small Tool tradition elements, hearth, microblades, microcores, points, scrapers	Lobdell 1980: 15 ff.	
-	-	+	-	-	-	WT	MT	5	AT	5	Historic Eskimo, graves, sod house, fishing	Hoffman et al., N.D.: App. F; Lobdell 1980: 32
-	-	-	-	-	-	AT	WT10	MT20		Historic Eskimo Ca. 1921, cabins, hunting-trapping; landmark for whalers	Hoffman et al., N.D.: App. F	
-	-	+	-	-	-	WT	AT	5	MT	5	Historic-modern Eskimo, cabin, graves	Hoffman et al., N.D.: App. F; Lobdell 1980: 3
-	-	+	-	-	-	WT	AT	5	MT10	Historic-modern Eskimo sealing, whaling; 3 graves, sod house	Hoffman et al., N.D.: App. F; Lobdell 1980: 5	
-	-	+	-	-	-	WT	AT	5	MT10	8 prehistoric dwellings, 1 historic(?) house, artifacts, site is extant	Lobdell 1980: 5 ff.	
-	-	+	-	-	-	WT	AT	5	MT10	2 historic sod houses, birthplace of L. Ahvakana, site is extant but eroding	Lobdell 1980: 10 ff.	
-	-	-	-	-	-	AT	WT<5	MT10		2 nearly destroyed driftwood structures; attached storage or grave site	Lobdell 1980: 11	
-	-	+	-	-	-	WT	AT<5	MT10		Historic-modern Eskimo gathering place, graves; fish, trap, hunt, camp use	Hoffman et al., N.D.: App. F; Lobdell 1980: 13	
-	-	+	-	-	-	WT	AT<5	MT10		Ruins		
-	-	+	-	-	-	WT	AT<5	MT10		Historic Eskimo, 3 sod houses "one mile away on Kunuatchiak"	Hoffman et al., N.D.: App. F; Lobdell 1980: 13	
-	-	+	-	-	-	WT	AT<5	MT	5	Historic Eskimo; 1905 grave; cabin; fishing, trapping, berries	Hoffman et al., N.D.: App. F	
-	-	+	-	-	-	WT	MT10	AT<5		Eskimo use indicated; modern longboat, well preserved; boat is extant	Hoffman et al., N.D.: App. F; Lobdell 1980: 15 ff.	
-	-	+	-	-	-	WT	AT<5	MT10		Historic Eskimo ruins, cellars, cabins	Hoffman et al., N.D.: App. F	
-	-	-	+	-	-	WT	MT10	AT10		Historic structure and cellars, possible fish camp	Lobdell 1980: 24 ff.	
-	-	-	+	-	-	WT	MT10	AT10		Historic/modern boat of milled wood, boat is extant	Lobdell 1980: 24 ff.	
-	-	-	+	-	-	WT	MT10	AT10		3 modern/historic sod houses, fuel cans; site is extant	Hoffman et al., N.D.: App. F (map); Lobdell 1980: 26 ff.	
-	-	-	+	-	-	WT	MT10	AT10		Historic Eskimo, grave, 1 sod house; hunting/camping area	Hoffman et al., N.D.: App. F; Lobdell 1980: 26	

Table 11 (Continued)

XBP-024	Foggy Island Bay #2	XBP250	T10N	R17E	24	SE½ NW¼	4	5	68	3	2	-	-	-	-	+	+	-	-	-
XBP-025	113=Calgusik	XBP250	T10N	R18E		SW½ NE¼	4	5	618	3	2	-	-	-	-	+	+	-	-	-
XBP-026	(8) Ekoolook Inaat	XBP250	T10N	R18E		SE½ NW¼	4	5	68	3	2	-	-	-	-	+	+	-	-	-
XBP-027	116=Savviagvik River	XBP250	T10N	R19E		SE½ NW¼	4	5	68	1	1	-	-	-	-	-	-	-	-	-
XBP-028	Mikkelson Bay	XBP250	T 9N	R20E	5	SW½ SW¼	4	5	68	3	2	-	-	-	-	+	+	-	-	-
XBP-029	Pole Island	XBP250	T10N	R22E	32	NW½ SW¼	4	5	8	1	1	-	-	-	-	-	-	-	-	-
XBP-030	Pingok Island Grave (mislabelled XBP-029 in Lobdell 1980)	XBP250	T14N	R10E	24	SE½ NW¼	4	5	8	1	1	-	-	-	-	-	-	-	-	-
XBP-031	See XBP-008																			
XBP-033	Discovery Well	XBP250	T11N	R14E		NE½ NE¼	4	9		3	2	-	-	-	-	+	+	-	-	-
XBP-NO2**	Ugrugnavik, 95 (Shrew's Place)	XBP250	T13N	R 9E		NE½ SW¼	4	5	18	3	2	-	-	-	-	+	+	-	-	-
XBP-NO4**	97=Ugrugnavik River	XBP250	T13N	R 9E		NE½ SE¼	4	5	61	3	2	-	-	-	-	+	+	-	-	-
XBP-NO6**	99=Kataktuguvik	XBP250	T13N	R10E		NE½ SW¼	4	5	6	3	2	-	-	-	-	+	+	-	-	-
XBP-NO7**	110B on Reindeer Island	XBP250	T13N	R15E		NE½ NW¼	4	9	8	0	0	-	-	-	-	-	-	-	-	-
XBP-NO8**	111=Foggy Island	XBP250	T11N	R17E		SE½ SW¼	4	5	78	1	1	-	-	-	-	-	-	-	-	-
XBP-NO9**	112=McClure Islands	XBP250	T12N	R18E		NE½ SW¼	4	5	78	0	0	-	-	-	-	-	-	-	-	-
XBP-N12**	(7)=Spy Island	XBP250	T14N	R 9E		NW½ SE¼	4	5	8	1	1	-	-	-	-	-	-	-	-	-
XBP-N14**	(12) Takpam Inaat	XBP250	T13N	R11E		NW½ SW¼	4	5	768	3	2	-	-	-	-	+	+	-	-	-
XBP-N16**	119 Kikuvagiak	XBP250	T11N	R16E		NE½ SE¼	4	5	18	1	1	-	-	-	-	-	-	-	-	-
XBP-N17**	100 Nukatpiat	XBP250	T14N	R11E		SE½ SW¼	0	9	78	0	0	-	-	-	-	-	-	-	-	-

\*Data on status, age, resources, etc. compiled by Aigner and Gannon, 1980.

\*\*Sites which do not have assigned AHRS numbers (see Aigner and Gannon 1980).

Table 11 (Continued)

-	-	-	+	-	-	WT	MT10	AT10	2 historic sod house remains; site is extant	Lobdell 1980: 26 ff.
-	-	+	-	-	-	WT	MT<5	AT10	Historic Eskimo, sod house, fishing, graves	Hoffman et al., N.D.: App. F
-	-	+	-	-	-	WT	MT<5	AT10	Historic-modern Eskimo, 3 graves, 3 sod houses	Hoffman et al., N.D.: App. F
-	-	+	-	-	-	WT	MT<5	AT10	Historic Eskimo, sod house	Hoffman et al., N.D.: App. F
-	-	+	-	-	-	WT	MT<5	AT10	5 historic house ruins on two sides of bay, metal artifacts	Lobdell 1980: 32 ff.
-	-	+	-	-	-	WT	AT 5	MT 5	Historic sod house ruin (one noted, two illustrated)	Lobdell 1980: 34 ff.
-	-	+	-	-	-	WT	AT 5	MT10	Historic grave of Billy Shacklow (1925)	Lobdell 1980: 10 ff.
-	-	+	-	-	-	WT	AT 5	MT10	Modern, non-native	AHRS
-	-	+	-	-	-	WT	AT 5	MT 5	Historic-modern, Eskimo cellars	Hoffman et al., N.D.: App. F
-	-	+	-	-	-	WT	AT 5	MT 5	Historic-modern Eskimo/frame & 13 sod houses, 3 graves, cellar; hunting, camp	Hoffman et al., N.D.: App. F
-	-	+	-	-	-	WT	MT 5	AT 5	Historic Eskimo, sod house, fishing, camping area	Hoffman et al., N.D.: App. F
-	-	-	-	-	-	AT	WT10	MT20	Landmark for whalers	Hoffman et al., N.D.: App. F
-	-	-	+	-	-	WT	MT10	AT10	Historic Eskimo, 10 graves, sod house, whaling	Hoffman et al., N.D.: App. F
-	-	-	-	-	-	AT	WT10	MT15	Historic Eskimo, sod house, hunting, trapping, whaling	Hoffman et al., N.D.: App. F
-	-	+	-	-	-	AT	WT 5	MT10	Historic-modern Eskimo, hunting, trapping area, summer whaling, sealing	Hoffman et al., N.D.: App. F
-	-	-	+	-	-	WT	AT<5	MT 5	Historic Eskimo, old ruins, cabin, graves, sealing	Hoffman et al., N.D.: App. F
-	-	-	+	-	-	WT	MT 5	AT10	Historic-modern Eskimo, sod house	Hoffman et al., N.D.: App. F
-	-	-	-	-	-	AT	WT<5	MT10	Modern Eskimo hunting/camping, whaling area	Hoffman et al., N.D.: App. F

CODE:     Status

- 0 = No data
- 1 = Collected
- 2 = Tested
- 3 = Excavated
- 4 = (Partially) extant
- 5 = Destroyed
- 6 = Other

Age

- 1 = Historic or Prehistoric Native
- 2 = Prehistoric Native
- 3 = Late Prehistoric Native
- 4 = Late Prehistoric or Historic Native
- 5 = Historic Native
- 6 = Modern Native
- 7 = Historic Non-native
- 8 = No Site
- 9 = Other (Duplicate Number, No Data, etc.)

Location (more than one may pertain)

- 1 = River or Stream
- 2 = Confluence of Rivers/Streams
- 3 = Lake Outlet
- 4 = Lake Inlet
- 5 = Lake
- 6 = Bog, Wetlands
- 7 = Lookout (Knoll, Knob, Kame, Bluff, etc.)
- 8 = Coast

Ecosystem (distances in miles)

- AT = Alpine Tundra
- BS = Bottomland Spruce
- HB = High Brush
- LB = Low Brush Bog and Muskeg
- LS = Lowland Spruce
- MT = Moist Tundra
- US = Upland Spruce
- WT = Wet Tundra

Resources

- Sheep = present or absent
- Caribou = present or absent, calving grounds, winter concentration, summer concentration
- Moose = present or absent, spring/summer, fall or winter concentration
- Water Fowl = Low, medium, high or very high concentration
- Fish = Anadromous (salmon) or other (mainly whitefish)

Resources and Seasons

A numerical summary of the number of resources recorded and number of seasons they are available over the year.

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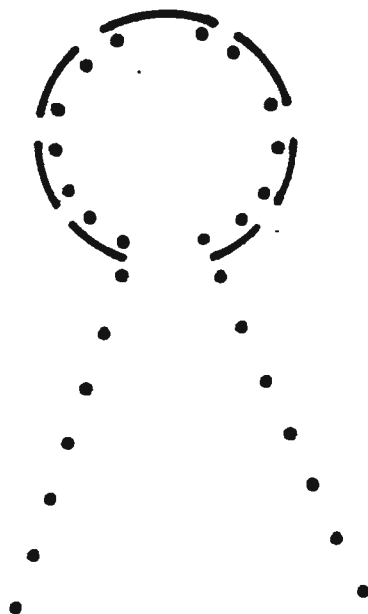
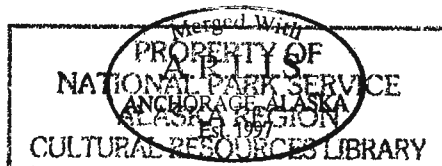
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## ARCHAEOLOGICAL SURVEY IN ALASKA

Final Report on the 1981 Archaeological  
Survey Along the Northwest Alaskan  
Pipeline Company Natural Gas  
Pipeline Corridor from Prudhoe Bay,  
Alaska to Delta Junction, Alaska

Submitted to Fluor Northwest, Inc.  
Contract Number 4780-9-K217



by  
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December 31, 1981

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