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**SUSITNA HYDROELECTRIC PROJECT
CULTURAL RESOURCES - MITIGATION RECOMMENDATIONS**

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**Prepared For
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1 - INTRODUCTION

The purpose of this report, and the recommendations contained therein, is to provide the Alaska Power Authority with scientifically informed procedures for alleviating adverse impacts to cultural resources associated with the Susitna Hydroelectric Project. Mitigation recommendations are based mainly on cultural resource considerations with the understanding that the feasibility of these recommendations will be evaluated and a mitigation plan developed (in concert with the appropriate state and federal agencies) for submittal to the Federal Energy Regulatory Commission, who have the responsibility for providing the Advisory Council on Historic Preservation and opportunity to comment on the plan. Measures for avoiding or lessening adverse impact to cultural resources expressed in this report are the views of the University of Alaska Museum.

This report is developed from and designed to be used in association with the following reports: "Susitna Hydroelectric Project, Cultural Resources - Significance" (Saleeby et al. 1985) and "Susitna Hydroelectric Project, Cultural Resources - Impact Assessment" (Smith and Dixon 1985) both prepared by the University of Alaska Museum.

Mitigation recommendations are based on information contained in the following documents: "The Management of Archeological Resources" (McGimsey and Davis 1977), "Conservation Archaeology" (Schiffer and Gumerman 1977), "Treatment of Archeological Properties: A Handbook" (Advisory Council on Historic Preservation 1980), "National Reservoir Inundation Study" (Lenihan et al. 1981), and "Susitna Hydroelectric Project Cultural Resources Investigation 1979 - 1985" (Dixon et al. 1985).

The report is divided into four chapters. Chapter 2 discusses the approach used, methods employed, and presents site specific mitigation recommendations. Chapter 3 discusses the schedule for implementation of mitigation recommendations based on proposed construction, inundation, and operation schedules for the Susitna Hydroelectric Project. The estimated cost of implementing mitigation recommendations is presented in chapter 4. References cited are included

in the bibliography. Appendix A includes letters concerning consultation, and Appendix B contains recommendations for archeological data recovery.

2 - MITIGATION

2.1 - Approach

Mitigation, in its broadest application, is the alleviation of adverse effects. As such it can be a valuable tool for assisting in the management of our nations non-renewable cultural resources. Because it has been deemed by various state and federal legislation, as well as the archeological profession, to be in the public interest to locate, evaluate, protect, preserve, study, and exhibit the nations past as reflected in material remains (including their spatial relationships and environmental context), and because development (such as a hydroelectric project) may also be in the public interest, mitigation must be flexible in order to address these two oftentimes opposing public benefits. The mitigation recommendations presented in this document address the need for flexibility through the application of various mitigation measures based on site specific criteria.

Mitigation recommendations contained in this document are based on the premise that all 270 cultural resources documented in the Museum's report (Dixon et al. 1985) appear eligible for inclusion in the National Register of Historic Places, either individually or as a district. Nominations of these cultural resources to the National Register will need to be prepared and submitted, and the results of that process considered with respect to the Museum's recommendations and the final mitigation plan.

Mitigation in this document is based on a conservation philosophy, the basic premise of which is "... that the greatest possible return be obtained from a piece of research, because each research effort ordinarily requires expanding a part of the finite research base" (McGimsey and Davis 1977:28), or as stated by Schiffer and Gumerman (1977:xix) "... protecting and utilizing the cultural remains to their fullest scientific and historic extent." This does not imply that mitigation is synonymous with excavation. Mitigation is a tool that requires a scientific/management view of the total resource base of which excavation is one option. What is required is a framework within which numerous scientific and management factors can be taken into consideration in the selection of mitigation options. A framework revolving around the

following four mitigation options is used in this report: avoidance, preservation, investigation, and no additional data recovery.

The four mitigation options mentioned above are applied to the 270 cultural resources considered in the Museum's report. In keeping with the conservation ethic avoidance is the first option considered followed by preservation, investigation, and no additional site recovery. Site specific mitigation is discussed in the following section.

2.2 - Site Specific Mitigation

(a) Introduction

Mitigation options applied in this section (avoidance, preservation, investigation, no additional data recovery), and the subsequent recommendations made, are based on site significance as reflected in the potential for cultural resources to address research questions, and/or their importance to Native heritage, and/or unique qualities they may possess, or the lack thereof. (Although this report considers research questions as they are presented in the "Significance" report (Saleeby et al. 1985) this should not be construed as limiting research questions that Susitna Project cultural resources could address). Also considered is the location of cultural resources in relation to proposed project features and facilities as outlined in the Susitna Hydroelectric Project DEIS (May 1984). To assist in recommending appropriate mitigation measures cultural resources are organized within a classification system that takes into consideration the range, type, and number of research questions which a cultural resource could address. For cultural resources which are recommended for investigation through excavation, an investigation priority based on the sequence of expected impacts to cultural resources as reflected in proposed construction, inundation, and operation schedules is applied. Detailed information on significance and impact are presented in the Museum's "Significance" (Saleeby et al. 1985) and "Impact Assessment" (Smith and Dixon 1985) reports. Classification and investigation priority are discussed below.

(b) Classification System

The classification system employed is designed to assist in evaluating cultural resources with respect to their potential to address research questions, Native heritage, or uniqueness. This system consists of ten classes (A-J) and forms the basis for determining the level of investigation (various levels of excavation or surface collection) for cultural resources which investigation is the recommended mitigation measure (Table 1).

Classification takes into consideration: location (as reflected in zones, see Impact Assessment report, Smith and Dixon 1985), expected impact (direct, indirect, no impact), cultural affiliation, and the potential to address research questions (Table 2). Criteria for class inclusion are as follows:

- Class A Direct impact (zones A, A1, A2, A3, A4), or Indirect impact (zones B1, B2, B3), known cultural affiliation, very high potential to address 3-4 research questions, and/or high potential to address 12-13 research questions, and/or the potential to address 13 or more research questions, and/or important to Native heritage, and/or unique.
- Class B Direct impact (zones A, A1, A2, A3, A4), or Indirect impact (zones B1, B2, B3), known cultural affiliation, very high potential to address 1-2 research questions, and/or high potential to address 8-11 research questions, and/or the potential to address 9-12 research questions.
- Class C Direct impact (zones A, A1, A2, A3, A4), or Indirect impact (zones B1, B2, B3), known cultural affiliation, high potential to address 4-7 research questions, and/or the potential to address 5-8 research questions.
- Class D Direct impact (zones A, A1, A2, A3, A4), or Indirect impact (zones B1, B2, B3), known cultural affiliation, high potential to address 1-3 research questions, and/or the potential to address 1-4 research questions.

TABLE 1.

Classification System

CLASS	DI (A,A1,A2,A3,A4)	II (B1,B2,B3)	II (A4,B4)	NI	CA	VHP	HP	P	HE	UN
A	X	X	-	-	X	3-4	12-13	13 or more	X	X
B	X	X	-	-	X	1-2	8-11	9-12	-	-
C	X	X	-	-	X	-	4-7	5-8	-	-
D	X	X	-	-	X	-	1-3	1-4	-	-
E	X	X	-	-	*	3-4	12-13	13 or more	-	-
F	X	X	-	-	*	1-2	8-11	9-12	-	-
G	X	X	-	-	*	-	4-7	5-8	-	-
H	X	X	-	-	*	-	1-3	1-4	-	-
I	-	-	X	-	*	any	any	any	-	-
J	-	-	-	X	*	any	any	any	-	-

*	Cultural affiliation not required but may be known
DI	Direct Impact
II	Indirect Impact
(A,A1,A2,A3,A4 B1,B2,B3,B4)	Zones as related to project features and facilities
NI	No Impact
CA	Cultural Affiliation (Euro American, Athapaskan, Late Denali, Northern Archaic, American Paleoarctic)
VHP	Very high potential to address research question(s)
HP	High potential to address research question(s)
P	Potential to address research question(s)
HE	Importance to Native heritage
UN	Unique quality

Class E Direct impact (zones A, A1, A2, A3, A4), or Indirect impact (zones B1, B2, B3), very high potential to address 3-4 research questions, and/or high potential to address 12-13 research questions, and/or the potential to address 13 or more research questions.

Class F Direct impact (zones A, A1, A2, A3, A4), or Indirect impact (zones B1, B2, B3), very high potential to address 1-2 research questions, and/or high potential to address 8-11 research questions, and/or the potential to address 9-12 research questions.

Class G Direct impact (zones A, A1, A2, A3, A4), or Indirect impact (zones B1, B2, B3), high potential to address 4-7 research questions, and/or the potential to address 5-8 research questions.

Class H Direct impact (zones A, A1, A2, A3, A4), or Indirect impact (zones B1, B2, B3), high potential to address 1-3 research questions, and/or the potential to address 1-4 research questions.

Class I Indirect impact (zones A4, B4), the potential to address any research question(s) at any level.

Class J No impact (zone C), potential to address any research questions at any level.

(c) Investigation Priority

The classification system discussed in the previous section is based on the potential for cultural resources to address research questions, and as such all 270 cultural resources are included within this system (Table 13). Investigation priority, however, applies only to cultural resources for which investigation is the recommended mitigation measures. Investigation categories 1 - 9 (Table 3) reflect the proposed construction and inundation schedule for the hydroelectric project as outline in the DEIS (May 1984), and the location of cultural resources with respect to project features and facilities as reflected by placement within the appropriate zone(s) (see Impact Assessment report 1985). Priority is given to cultural resources that will be impacted first during the construction phases. Cultural resources that will not be impacted until the reservoirs are impounded, are given lower priority for investigation.

Within each investigation priority (1 - 9) cultural resources are organized with respect to their research potential as reflected in the classification system. This provides an additional set of criteria for outlining the investigation sequence. This is discussed further in following sections.

TABLE 2.

Cultural Resources - Testing Level, Location, Zone, Cultural Affiliation, Expected Impact and Research Potential

AHRS NUMBER	TESTING LEVEL TO DATE (1984)	LOCATION	ZONE	CULTURAL AFFILIATION	EXPECTED IMPACT	RESEARCH POTENTIAL P/H/VH
TLM 005 (H)	AHRS	AJ(RR)	B4	EA	II	1/0/0
TLM 006 (H)	AHRS	AJ(RR)	B4	EA	II	1/0/0
TLM 007 (P)	AHRS	03	C		NI	1/0/0
TLM 009 (P)	AHRS	RA-D	A		DI	1/0/0
TLM 015 (P)	SU	AJ(AR)	B4		II	1/0/0
TLM 016 (P)	SY	AJ(WC-PAS)	B3		II	2/2/1
		AJ(WC-WCC)	B3		II	-
		AJ(AR)	B4		II	-
TLM 017 (P)	SY	AJ(DR)	B4*	NA	II	10/0/0
TLM 018 (P)	SY	AJ(WC-WD)	B4	AT	II	5/3/1
		AJ(T W-E)	B4		II	-
		AJ(AR)	B4		II	-
TLM 020 (H)	SU	03	A4	EA	II	1/1/0
TLM 021 (P)	SU	AJ(RA-K)	C	AT(B)	NI	6/3/0
TLM 022 (P)	SY	B-E	A	AT	DI	6/4/1
		AJ(DR)	B1*		II	-
TLM 023 (H)	SU	DR	A2, A4	EA	DI	1/0/0
		B-E	A		DI	-
TLM 024 (P)	SU	AJ(DR)	B4*		II	1/0/0
		AJ(B-E)	B4		II	-
TLM 025 (P)	SU	04	C		NI	1/0/1
TLM 026 (P)	SU	AJ(WR)	B1*	AT	II	6/1/0
TLM 027 (P)	SY	AJ(DR)	B4*	AT, LD, AP	II	4/6/2

TABLE 2. (Continued)

AHRS NUMBER	TESTING LEVEL TO DATE (1984)	LOCATION	ZONE	CULTURAL AFFILIATION	EXPECTED IMPACT	RESEARCH POTENTIAL P/H/VH
TLM 028 (P)	SU	04	C		NI	1/0/0
TLM 029 (P)	SY	AJ(DR)	B4*	NA	II	8/3/1
TLM 030 (P)	SY	AJ(DR)	B3*	AT, NA	II	2/13/2
		AJ(B-H)	B4		II	-
TLM 031 (P)	SU	AJ(WR)	B4*		II	1/0/0
TLM 032 (P)	SU	AJ(WR)	B4*		II	0/0/1
TLM 033 (P)	SY	WR	A1		DI	2/0/0
TLM 034 (P)	SY	DR	A2, A4	LD	DI	7/0/0
		B-I	A		DI	-
TLM 035 (P)	SU	AJ(B-E)	B4		II	1/0/0
TLM 036 (P)	SU	02	C		NI	0/1/0
TLM 037 (P)	SU	02	C		NI	1/0/0
TLM 038 (P)	SY	AJ(WR)	B4*	LD	II	8/1/0
TLM 039 (P)	SY	WR	A2	AT, AP	DI	5/3/3
TLM 040 (P)	SY	WR	A1	AT, LD, AP	DI	4/5/3
TLM 041 (P)	SU	AJ(B-H)	B4		II	1/0/0
TLM 042 (P)	SY	AJ(WR)	B3*		II	1/1/1
TLM 043 (P)	SY	WR	A1	AT	DI	3/4/1
		AJ(B-J)	B4		II	-
TLM 044 (P)	SU	02	C		NI	2/1/0
TLM 045 (P)	SU	02	C		NI	2/2/0
TLM 046 (P)	SY	02	C		NI	2/2/0
TLM 047 (P)	SU	AJ(WR)	B4*		II	0/1/0
TLM 048 (P)	SY	WR	A2	AT	DI	4/4/1
TLM 049 (P)	SU	AJ(WR)	B4*		II	2/0/0
TLM 050 (P)	SY	WR	A1	AT	DI	1/0/3

TABLE 2. (Continued)

AHRS NUMBER	TESTING LEVEL TO DATE (1984)	LOCATION	ZONE	CULTURAL AFFILIATION	EXPECTED IMPACT	RESEARCH POTENTIAL P/H/VH
TLM 051 (P)	SU	AJ(B-F)	B4		II	1/0/0
TLM 052 (P)	SU	05	C	AT(A)	NI	5/0/1
TLM 053 (P)	SU	05	C		NI	1/0/0
TLM 054 (P)	SU	B-C	A	AT	DI	7/1/0
		AJ(RA-H)	B3		II	-
TLM 055 (P)	SY	B-C	A	AT	DI	4/5/0
		AJ(RA-H)	B4		II	-
TLM 056 (H)	SU	B-C	A	EA	DI	1/1/0
		AJ(RA-H)	B4		II	-
TLM 057 (P)	SU	AJ(RA-L)	B4		II	0/1/0
TLM 058 (P)	SY	WR	A1	AT	DI	5/2/0
		AJ(B-I)	B4		II	-
TLM 059 (P)	SY	WR	A2	AT	DI	2/8/0
TLM 060 (P)	SY	WR	A2		DI	1/1/0
TLM 061 (P)	SY	WR	A1	AT, AP	DI	4/5/3
TLM 062 (P)	SY	WR	A1	AT	DI	3/4/1
TLM 063 (P)	SY	WR	A1	LD	DI	8/1/0
		AJ(B-J)	B4		II	-
TLM 064 (P)	SY	AJ(WR)	B1*	AT(B)	II	3/3/0
TLM 065 (P)	SY	WR	A1	AT	DI	5/5/0
TLM 066 (P)	SU	04	C		NI	0/1/0
TLM 067 (P)	SU	04	C		NI	1/0/1
TLM 068 (P)	SU	GT	C		NI	0/1/0
TLM 069 (P)	SY	05	B4	AT	II	6/3/0
TLM 070 (P)	SU	GT	C		NI	0/1/0
TLM 071 (H)	SU	01	C	EA	II	1/1/0

TABLE 2. (Continued)

AHRS NUMBER	TESTING LEVEL TO DATE (1984)	LOCATION	ZONE	CULTURAL AFFILIATION	EXPECTED IMPACT	RESEARCH POTENTIAL P/H/VH
TLM 072 (P)	SU	WR	A1	AT	DI	6/1/0
TLM 073 (P)	SY	AJ(WR)	B2*		DI	1/0/0
TLM 074 (P)	SU	AJ(WR)	B2*	LD	II	7/0/0
TLM 075 (P)	SU	WR	A1	AT(A)	DI	3/3/0
TLM 076 (P)	SU	AJ(WR)	B4*		II	2/2/0
TLM 077 (P)	SY	WR	A1	AT, LD	DI	3/7/0
TLM 078 (P)	SU	B-C	A	AT, LD	DI	6/3/0
		RA-H	A		DI	-
TLM 079 (H)	SU	WR	A1	EA	DI	2/0/0
TLM 080 (H)	SU	WR	A1	EA	DI	2/0/0
		B-J	A		DI	-
TLM 081 (P)	SU	B-C	A		DI	2/0/0
		AJ(RA-H)	B4		II	-
TLM 082 (P)	SU	GT	C		NI	1/0/0
TLM 083 (P)	SU	AJ(RA-H)	B1		II	2/0/0
TLM 084 (P)	SU	B-C	A	AT	DI	7/0/0
		AJ(RA-H)	B4		II	-
TLM 085 (P)	SU	B-C	A		DI	2/0/0
		AJ(RA-H)	B4		II	-
TLM 086 (P)	SU	B-C	A		DI	3/0/0
		AJ(RA-H)	B4		II	-
TLM 087 (P)	SU	B-C	A	AT	DI	7/0/0
		AJ(RA-H)	B4		II	-
TLM 088 (P)	SU	B-C	A	AT	DI	7/0/0
		RA-H	A		DI	-
TLM 089 (P)	SU	AJ(RA-H)	B4	AT	II	6/3/0

TABLE 2. (Continued)

AHRS NUMBER	TESTING LEVEL TO DATE (1984)	LOCATION	ZONE	CULTURAL AFFILIATION	EXPECTED IMPACT	RESEARCH POTENTIAL P/H/VH
TLM 090 (P)	SU	AJ(RA-H)	B4		II	2/0/0
TLM 091 (P)	SU	AJ(RA-H)	B4		II	1/1/0
TLM 092 (P)	SU	05	C		NI	2/0/0
TLM 093 (P)	SU	05	C	AT	NI	5/2/0
TLM 094 (P)	SU	B-C	A	AT	DI	4/3/0
		AJ(RA-H)	B4		II	-
TLM 095 (P)	SU	B-C	A		DI	2/0/0
		AJ(RA-H)	B4		II	-
TLM 096 (P)	SU	B-C	A	AT	DI	5/3/0
TLM 097 (P)	SY	B-C	A	AT, LD, NA	DI	2/12/3
		AJ(RA-H)	B4		II	-
TLM 098 (P)	SU	AJ(AR)	B4		II	2/0/0
		AJ(RA-L)	B4		II	-
TLM 099 (P)	SU	AJ(AR)	B4		II	2/0/0
TLM 100 (P)	SU	AJ(RA-J)	B4	AT	II	6/1/0
TLM 101 (P)	SU	AJ(RA-Q)	B1		II	2/0/0
TLM 102 (P)	SY	WR	A1	AT	DI	4/2/0
TLM 103 (P)	SU	AJ(RA-Q)	B4		II	0/1/0
TLM 104 (P)	SY	WR	A1	AT	DI	6/3/0
TLM 105 (P)	SU	AJ(RA-J)	B4	AT	II	6/0/0
TLM 106 (P)	SU	ARB	A		DI	0/1/0
		AJ(AR)	B4		II	-
		AJ(T W-I)	B4		II	-
TLM 107 (P)	SU	ARB	A		DI	0/1/0
		AJ(AR)	B4		II	-
		AJ(T W-I)	B4		II	-

TABLE 2. (Continued)

AHRS NUMBER	TESTING		LOCATION	ZONE	CULTURAL AFFILIATION	EXPECTED IMPACT	RESEARCH POTENTIAL P/H/VH
	LEVEL	TO DATE (1984)					
TLM 108 (P)	SU	ARB	A			DI	2/0/0
		AJ(AR)	B4			II	-
TLM 109 (P)	SU	ARB	A			DI	1/0/0
		AJ(AR)	B4			II	-
TLM 110 (P)	SU	ARB	A			DI	0/1/0
		AJ(AR)	B4			II	-
		AJ(T W-I)	B4			II	-
TLM 111 (P)	SU	ARB	A	AT		DI	6/0/0
		AJ(AR)	B4			II	-
TLM 112 (P)	SU	AJ(T W-I)	B4			II	1/0/0
		AJ(AR)	B4			II	-
TLM 113 (P)	SU	ARB	A			DI	0/1/0
		AJ(AR)	B4			II	-
TLM 114 (P)	SU	ARB	A			DI	2/0/0
		AJ(AR)	B4			II	-
TLM 115 (P)	SY	WR	A1			DI	0/1/0
TLM 116 (P)	SU	AJ(RA-I)	B4			II	1/0/0
TLM 117 (P)	SU	AJ(AR)	B4			II	2/0/0
		AJ(RA-L)	B4			II	-
TLM 118 (P)	SU	AJ(DR)	B4*			II	0/1/0
TLM 119 (P)	SY	WR	A2			DI	0/1/0
TLM 120 (P)	SU	AJ(WR)	B4*			II	1/0/0
TLM 121 (P)	SU	AJ(WR)	B1*			II	2/0/0
TLM 122 (P)	SU	AJ(WR)	B4*			II	1/0/0
TLM 123 (P)	SU	AJ(WR)	B4*	AT		II	6/3/0
TLM 124 (P)	SU	AJ(WR)	B4*			II	0/1/0

TABLE 2. (Continued)

AHRS NUMBER	TESTING LEVEL TO DATE (1984)	LOCATION	ZONE	CULTURAL AFFILIATION	EXPECTED IMPACT	RESEARCH POTENTIAL P/H/VH
TLM 125 (P)	SU	AJ(WR)	B4*		II	1/0/0
TLM 126 (P)	SY	WR	A2		DI	1/0/0
TLM 127 (P)	SU	AJ(WR)	B4*	AT	II	6/0/0
TLM 128 (P)	SY	AJ(WR)	B4*	AT, AP	II	2/6/3
TLM 129 (P)	SU	AJ(WR)	B4*	AT(A,B)	II	6/0/0
TLM 130 (P)	SY	WR	A3	AT,LD	DI	2/6/2
TLM 131 (P)	SU	AJ(WR)	B4*		II	1/0/0
TLM 132 (P)	SU	AJ(WR)	B4*		II	1/0/0
TLM 133 (P)	SU	AJ(WR)	B4*		II	0/1/0
TLM 134 (P)	SU	AJ(WR)	B4*		II	2/0/0
TLM 135 (P)	SU	AJ(WR)	B4*		II	1/1/0
TLM 136 (P)	SU	AJ(WR)	B4*	LD	II	7/3/0
TLM 137 (P)	SU	AJ(T W-I)	B4		II	1/0/0
TLM 138 (P)	SU	05	B4		II	2/0/0
TLM 139 (P)	SU	AJ(WR)	B4*	AT	II	7/1/0
TLM 140 (P)	SU	AJ(WR)	B4*	AT	II	4/3/0
TLM 141 (P)	SU	AJ(WR)	B4*	AT	II	4/3/0
TLM 142 (P)	SU	AJ(WR)	B4*	LD	II	7/3/0
TLM 143 (P)	SY	AJ(WR)	B4*	AT, LD, NA	II	2/11/3
TLM 144 (P)	SU	05	B4	NA	II	8/4/0
TLM 145 (P)	SU	AJ(WR)	B4*		II	2/1/0
TLM 146 (P)	SU	05	B4		II	2/0/0
TLM 147 (P)	SU	AJ(WR)	B4*		II	2/0/0
TLM 148 (P)	SU	AJ(WR)	B4*	AT	II	7/0/0
TLM 149 (P)	SU	05	C	LD	NI	8/2/0
TLM 150 (P)	SU	05	C	AT	NI	7/1/0

TABLE 2. (Continued)

AHRS NUMBER	TESTING		LOCATION	ZONE	CULTURAL AFFILIATION	EXPECTED IMPACT	RESEARCH POTENTIAL P/H/VH
	LEVEL	TO DATE (1984)					
TLM 151 (P)	SU	05	B4	AT	II	7/1/0	
TLM 152 (P)	SU	05	C		NI	1/0/0	
TLM 153 (P)	SU	ARB	A	AT	DI	6/0/0	
		AJ(AR)	B4		II	-	
TLM 154 (P)	SU	05	C	AT	NI	5/1/0	
TLM 155 (P)	SU	AJ(AR)	B4		II	2/0/0	
TLM 159 (P)	SU	AJ(WR)	B4*	LD	II	3/3/2	
TLM 160 (P)	SU	AJ(WC-WCV)	B4		II	1/0/0	
		AJ(AR)	B4		II	-	
TLM 164 (P)	SU	AJ(B-F)	B3	LD	II	7/0/0	
TLM 165 (P)	SU	AJ(DR)	B4*	AT	II	3/3/0	
		AJ(T W-I)	B4		II	-	
		AJ(WC-WD)	B4		II	-	
TLM 166 (P)	SU	AJ(WR)	B4*		II	0/1/0	
		AJ(T W-I)	B4		II	-	
		AJ(WC-WD)	B4		II	-	
TLM 167 (P)	SU	AJ(WR)	B4*		II	1/0/0	
		AJ(WC-WD)	B4		II	-	
TLM 168 (P)	SU	AJ(AR)	B4		II	2/0/0	
TLM 169 (P)	SY	WR	A2	LD	DI	5/5/0	
TLM 170 (P)	SU	AJ(WR)	B4*		II	0/1/0	
TLM 171 (P)	SY	WR	A2	AT, LD	DI	6/1/3	
TLM 172 (P)	SU	AJ(WC-WCV)	B4		II	1/0/0	
TLM 173 (P)	SY	WR	A2	AT(B), LD(B)	DI	6/0/3	
TLM 174 (P)	SY	WR	A1		DI	0/1/0	
TLM 175 (P)	SY	WR	A1	AT	DI	3/2/1	

TABLE 2. (Continued)

AHRS NUMBER	TESTING		LOCATION	ZONE	CULTURAL AFFILIATION	EXPECTED IMPACT	RESEARCH POTENTIAL P/H/VH
	LEVEL	TO DATE (1984)					
TLM 176 (P)	SU	B-F	A			DI	3/0/0
TLM 177 (P)	SY	AJ(WR)	B1*			II	1/0/0
		AJ(B-J)	B4			II	-
TLM 178 (H)	SU	DR	A1, A4	EA		DI	0/1/0
		B-I	A			DI	-
TLM 179 (P)	SU	AJ(RA-K)	B4			II	2/0/0
TLM 180 (P)	SY	O2	C	AP		NI	3/5/1
TLM 181 (P)	SU	AJ(ARB)	B4	LD		II	7/0/0
TLM 182 (P)	SY	WR	A2			DI	1/0/0
		AJ(RA-J)	B4			II	-
TLM 183 (P)	SU	AJ(WR)	B4*			II	2/0/0
TLM 184 (P)	SY	WR	A1	AT, LD		DI	3/6/3
TLM 185 (P)	SU	AJ(WR)	B4*			II	0/1/0
TLM 186 (P)	SU	AJ(RA-K)	B4	AT		II	5/3/0
TLM 187 (P)	SU	AJ(RA-J)	C	AT		NI	7/0/0
TLM 188 (P)	SU	B-F	A	AT		DI	6/0/0
TLM 189 (P)	SU	AJ(WR)	B4*	AT		II	6/0/0
TLM 190 (P)	SU	AJ(WR)	B4*	LD		II	7/0/0
TLM 191 (P)	SU	AJ(ARB)	B4			II	1/0/0
TLM 192 (P)	SU	AJ(WC-WCV)	B4			II	1/0/0
		AJ(AR)	B4			II	-
TLM 193 (P)	SU	AJ(ARB)	B4			II	1/0/0
TLM 194 (P)	SY	WR	A1			DI	1/0/0
TLM 195 (P)	SU	AJ(WR)	B4*			II	1/0/0
TLM 196 (P)	SU	WR	A2			DI	0/0/0
TLM 197 (P)	SU	AJ(WC-PAS)	B3			II	0/1/0

TABLE 2. (Continued)

AHRs NUMBER	TESTING		LOCATION	ZONE	CULTURAL AFFILIATION	EXPECTED IMPACT	RESEARCH POTENTIAL P/H/VH
	LEVEL	TO DATE (1984)					
TLM 198 (P)	SU	AJ(WR)	B4*			II	1/0/0
TLM 199 (P)	SY	WR	A1	AT		DI	7/0/0
		AJ(B-J)	B4			II	-
TLM 200 (P)	SY	WR	A1			DI	2/0/0
		AJ(B-J)	B4			II	-
TLM 201 (P)	SU	B-C	A	AT		DI	6/0/0
		AJ(RA-H)	B4			II	-
TLM 202 (P)	SU	B-F	A	LD		DI	9/0/0
		AJ(RA-H)	B4			II	-
TLM 203 (P)	SU	B-F	A	AT		DI	8/0/0
		AJ(RA-H)	B4			II	-
TLM 204 (H)	SU	WR	A1	EA		DI	1/0/0
TLM 205 (P)	SU	O1	C			NI	1/1/0
TLM 206 (P)	SY	WR	A2	AT		DI	6/0/0
TLM 207 (P)	SY	AJ(WR)	B2*	AT, AP		II	1/6/3
TLM 208 (P)	SU	AJ(RA-K)	B4			II	1/0/1
TLM 209 (P)	SU	B-F	A	AT		DI	7/0/0
		AJ(RA-H)	B3			II	-
TLM 210 (P)	SU	B-F	A	AT		DI	7/0/0
		AJ(RA-H)	B4			II	-
TLM 211 (P)	SU	B-C	A	AT		DI	7/0/0
		AJ(RA-H)	B4			II	-
TLM 212 (H)	SU	B-F	A	EA		DI	1/0/0
TLM 213 (P)	SU	B-C	A	LD		DI	8/0/0
		AJ(RA-H)	B4			II	-

TABLE 2. (Continued)

AHRS NUMBER	TESTING LEVEL TO DATE (1984)	LOCATION	ZONE	CULTURAL AFFILIATION	EXPECTED IMPACT	RESEARCH POTENTIAL P/H/VH
TLM 214 (P)	SU	B-F AJ(AR)	A B4	AT(B)	DI II	7/1/0 -
TLM 215 (P)	SY	WR	A1	AT	DI	5/4/0
TLM 216 (P)	SY	WR	A1	LD	DI	2/7/0
TLM 217 (P)	SY	WR	A2	AT, LD	DI	3/4/3
TLM 218 (P)	SU	WR	A3	LD(B)	DI	4/4/0
TLM 219 (P)	SU	AJ(WR)	B4*		II	0/1/0
TLM 220 (P)	SY	WR	A1	AT, LD	DI	3/6/3
TLM 221 (P)	SY	WR	A1	AT	DI	6/4/0
TLM 222 (P)	SU	WR	A1	AT(A,B,D,E), LD(A,C)	DI	5/5/1
TLM 223 (P)	SU	WR	A1	AT	DI	6/1/0
TLM 224 (P)	SU	WR	A1	AT	DI	6/0/0
TLM 225 (P)	SY	WR	A1	AT, LD	DI	7/1/2
TLM 226 (P)	SY	WR	A1	AT(A,B,D,E),	DI	4/5/2
TLM 227 (P)	SU	WR	A1	AT LD(A,C)	DI	7/1/0
TLM 228 (P)	SU	WR	A1	LD	DI	7/0/0
TLM 229 (P)	SY	WR	A1	LD	DI	8/1/0
		AJ(B-J)	B4		II	-
TLM 230 (P)	SY	WR	A1	AT. LD	DI	3/3/4
		AJ(B-J)	B4		II	-
TLM 231 (P)	SU	WR	A1	AT	DI	7/2/0
TLM 232 (P)	SU	WR	A1	AT(A,B)	DI	3/5/1
TLM 233 (P)	(SU	WR	A1	AT	DI	6/0/0
)AJ(B-J)	B4		II	-
TLM 234 (P)	SU	WR	A1	AT(A,B)	DI	6/4/0
TLM 235 (P)	SU	WR	A1	AT(C)	DI	3/3/0

TABLE 2. (Continued)

AHRS NUMBER	TESTING LEVEL TO DATE (1984)	LOCATION	ZONE	CULTURAL AFFILIATION	EXPECTED IMPACT	RESEARCH POTENTIAL P/H/VH
TLM 236 (P)	SU	WR	A1	AT	DI	7/0/0
TLM 237 (P)	SU	WR	A1	AT	DI	6/0/0
TLM 238 (P)	SU	WR	A1	AT	DI	6/0/0
TLM 239 (P)	SU	WR	A1		DI	3/1/0
TLM 240 (P)	SU	WR	A1	AT	DI	6/3/1
TLM 241 (P)	SU	WR	A1		DI	1/0/0
TLM 242 (P)	SU	WR	A1	AT	DI	8/2/0
TLM 243 (P)	SU	WR	A1		DI	1/0/0
TLM 244 (P)	SU	WR	A2	AT	DI	6/0/0
TLM 245 (P)	SU	AJ(ARB)	B4		II	1/0/0
		AJ(WR)	B4*		II	-
TLM 246 (P)	SU	WR	A1	AT, LD	DI	7/1/2
TLM 247 (P)	SU	WR	A1	AT(A,B,C)	DI	4/5/1
TLM 248 (H)	SU	WR	A1	EA	DI	0/1/0
TLM 249 (P)	SU	WR	A1	AT(A,B)	DI	4/5/1
TLM 250 (P)	SU	WR	A1	AT	DI	5/2/1
TLM 251 (P)	SY	WR	A2		DI	1/0/0
TLM 252 (P)	SU	DR	A1, A4	AT	DI	2/5/0
TLM 253 (P)	SU	DR	A1, A4	AT	DI	6/2/0
TLM 256 (P)	SU	WR	A1	AT	DI	6/1/0
TLM 257 (P)	SU	WR	A1	AT	DI	6/0/0
TLM 258 (P)	SU	DR	A2, A4	AT	DI	6/0/0
		B-E	A		DI	-
TLM 259 (P)	SU	DR	A1, A4	AT	DI	4/1/0
		B-I	A		DI	-

TABLE 2. (Continued)

AHRS NUMBER	TESTING		LOCATION	ZONE	CULTURAL AFFILIATION	EXPECTED IMPACT	RESEARCH POTENTIAL P/H/VH
	LEVEL	TO DATE (1984)					
HEA 007 (P)	AHRS	AJ(T H-F)	B4			II	1/0/0
HEA 012 (P)	AHRS	AJ(T H-F)	B4			II	1/0/0
HEA 033 (P)	AHRS	AJ(T H-F)	B4			II	1/0/0
HEA 035 (P)	AHRS	AJ(T H-F)	B4			II	1/0/0
HEA 038 (P)	AHRS	AJ(T H-F)	B4			II	3/0/0
HEA 081 (H)	AHRS	AJ(T H-F)	B4		EA	II	1/0/0
HEA 091 (H)	AHRS	T(H-F)	A		EA	DI	1/0/0
HEA 137 (P)	AHRS	AJ(T H-F)	B4			II	1/0/0
HEA 174 (P)	SU	02	B4			II	0/0/1
HEA 175 (P)	SY	02	C			NI	1/2/1
HEA 176 (P)	SU	AJ(RA-L)	C			NI	1/0/0
HEA 177 (P)	SU	GT	C			NI	0/1/0
HEA 178 (P)	SU	GT	C			NI	0/1/0
HEA 179 (P)	SU	GT	C			NI	1/0/0
HEA 180 (P)	SU	AJ(AR)	B4			II	0/1/0
HEA 181 (P)	SU	ARB	A		LD	DI	7/0/0
		AJ(AR)	B4			II	-
HEA 182 (P)	SU	ARB	A			DI	1/1/0
		AJ(AR)	B4			II	-
HEA 183 (P)	SU	AJ(RA-L)	B4			II	2/0/0
HEA 184 (P)	SU	AJ(RA-L)	B4			II	2/0/0
HEA 185 (P)	SU	02	C			NI	1/1/0
HEA 186 (P)	SU	02	C			NI	0/1/0
HEA 210 (P)	SU	02	C			NI	1/0/0
HEA 211 (P)	SU	AJ(ARB)	C			NI	2/0/0

TABLE 2. (Continued)

AHR NUMBER	TESTING	LOCATION	ZONE	CULTURAL AFFILIATION	EXPECTED IMPACT	RESEARCH POTENTIAL P/H/VH
	LEVEL TO DATE (1984)					
FAI 070 (H)	AHRS	AJ(T H-F)	B4	EA	II	1/0/0
FAI 089 (H)	AHRS	AJ(T H-F)	B4	EA	II	1/0/0
FAI 090 (H)	AHRS	AJ(T H-F)	C	EA	NI	1/0/0
FAI 169 (H)	AHRS	AJ(T H-F)	B4	EA	II	1/0/0
FAI 213 (P)	SU	02	C		NI	1/0/0
FAI 214 (P)	SU	02	C		NI	1/0/0
TYO 014 (P)	AHRS	AJ(T W-A)	B1		II	1/0/0

*	Adjacent to reservoir
(H)	Historic
(P)	Prehistoric
AHRS	Alaska Heritage Resource Survey
SU	Survey Level Testing
SY	Systematic Testing
EA	Euro American
AT	Athapaskan Tradition
LD	Late Denali
NA	Northern Archaic Tradition
AP	American Paleoarctic Tradition
(B)	Indicates Site Locus
P	Potential
H	High Potential
VH	Very High Potential

Table 3.

Investigation Priority

ZONE(S)	A	B1	B2 B3 B4	A1	A2	A3	A4	B1*	B2* B3* B4*	C
INVESTIGATION PRIORITY	1	2	3	4	5	6	7	8	9	-
EXPECTED IMPACT	DI	II	II	DI	DI	DI	DI	II	II	NI

IMPACT

I-----I

SCHEDULE

construction

I-----I

inundation

* Adjacent to Reservoirs

DI Direct Impact

II Indirect Impact

NI No Impact

(d) Recommendations

Recommendations are based on data resulting from the Museum's cultural resource program (Dixon et al. 1985), and the proposed hydroelectric project. Recommendations include avoidance, preservation, investigation, and no additional data recovery. Cultural resources for investigation are further evaluated with respect to the recommended type and level of investigation. Site specific mitigation recommendations are presented in table format. Information presented in this table is discussed below.

(1) Avoidance

Following the conservation model (Schiffer and Gumerman 1977) the first mitigation measure considered is avoidance. Of the 270 cultural resources evaluated 128 (47.7%) are in areas (zones B4 and C) that facilitate avoidance (Figures 1 and 2). These zones are more than 300 feet from project features and facilities and can effectively be avoided because of their distance from activity areas associated with construction, inundation, and operation of the hydroelectric project (Table 13).

Due to the possibility that project modifications may change impact assessment, and because the full extent of the actual recreational use beyond designated recreation areas is not fully understood, it is recommended that a monitoring plan be developed in concert with the appropriate land managing agency (state, federal), for sites in this category. The monitoring program should, at minimum, establish a photographic record (on a periodic basis) of each cultural resource that is to be avoided. Should adverse impact, resulting from activities associated with the Susitna Hydroelectric Project, occur it should be documented. Should any particular cultural resource or group of cultural resources experience adverse impact as a result of the project, the appropriate mitigation measure(s) should be applied. The monitoring program should be continued throughout the course of the project, until the hydroelectric facility is operational. At this time the monitoring program should become the responsibility of the appropriate land managing agency. The cultural resource monitoring program should take into consideration data collected as a result of the recreation monitoring program (Susitna

Figure 1. Pie Graph - Avoidance, Preservation, Investigation, and No Additional Data Recovery

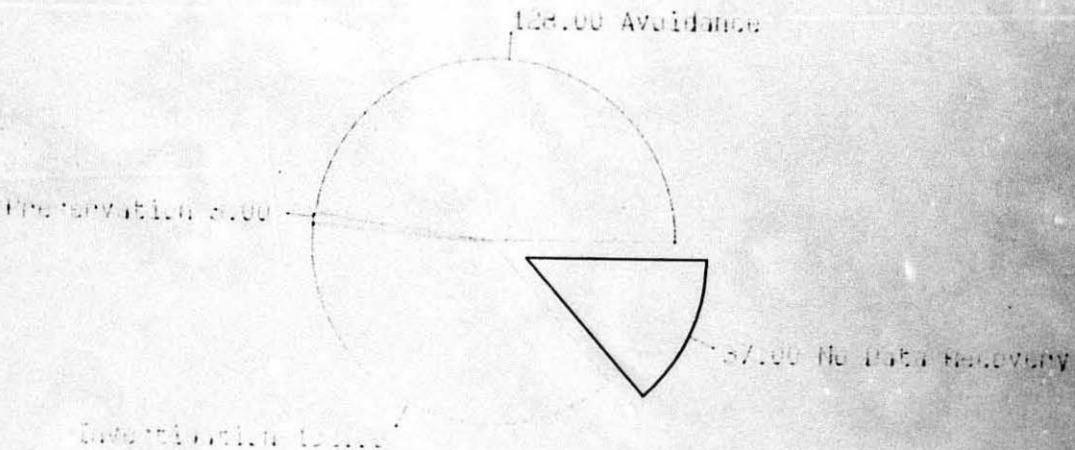
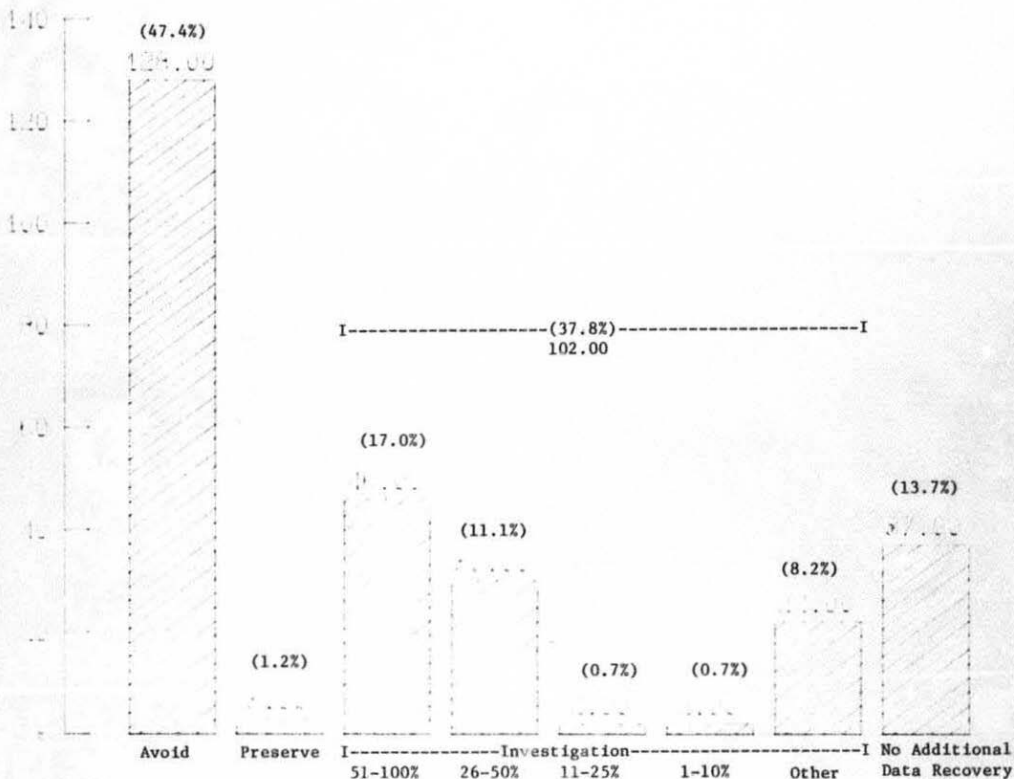


Figure 2. Bar Graph - Avoidance, Preservation, Investigation and No Additional Data Recovery



Hydroelectric Project, DEIS, vol. 1:2-10, 1984). An estimated cost for a monitoring program is presented in chapter 4.

(2) Preservation

Preservation is recommended for three cultural resources (1.2%) (Figures 1 and 2; Table 13). One is the 1897 rock inscription (TLM 020) documenting early exploration of the Susitna River above Devil Canyon (Dixon et al. 1985:D91). It is recommended that the rock face on which the inscription is located be examined for any signs of weakness that could result in the loss or damage to this unique resource. In the event that weakness is noted or predicted it should be stabilized. In addition, a cast or rubbing of the inscription should be made and housed in a suitable repository. A copy of the cast or rubbing could be used in the proposed Watana visitors center or Museum. It is further recommended that the inscription be developed for interpretative purposes, by clearing the area in front of the inscription and making a trail (with appropriate interpretative marker) to the inscription.

The second cultural resource recommended for preservation is the only well preserved trappers cabin in the area (TLM 071). The cabin, belonging to Elmer Simco contains many period items representing early trapping and mining in the area (Dixon et al. 1985:D591). Some stabilization has been conducted to date, however, additional stabilization and conservation will be required before the cabin can be moved. Due to the remoteness of the cabin and the fact that a proposed recreation trail is to be located nearby providing a clear view and access to the cabin, it is recommended that the cabin be moved to the Watana dam site and incorporated into interpretative exhibits in the proposed museum (Susitna Hydroelectric Project DEIS, vol 1:2-17, 1984). This exhibit should be developed within the guidelines of sound museum design, conservation, and preparation criteria. Before moving the cabin a detailed inventory and photographic documentation should be made inside and outside the cabin. A marker should be placed on the site indicating the original location of the cabin.

The third cultural resource recommended for preservation is the human burial at TLM 230. As requested by Mrs. Agnes Brown (President and Chairmen Tyonek

Native Corporation) it is recommended that the burial not be disturbed unless the Watana dam is constructed and the reservoir impounded. The Watana reservoir will inundate the burial. In the event that it should be necessary to move the burial it should be relocated to Native land or as close to Native land as possible. See Appendix A for correspondence concerning this burial. The estimated cost of preserving the three sites is discussed in chapter 4.

(3) Investigation

Investigation is recommended for 102 (37.8%) of the cultural resources based on location to project facilities and features, the related level of impact, and the potential of cultural resources to address research questions as reflected in the classification system previously discussed (Figures 1 and 2; Table 13). Investigation levels include excavation at the 51-100%, 26-50%, 11-25% and 1-10% levels and/or the collection of surface material. Cultural resources in class A and B are recommended for 51-100% excavation; class C and D, 26-50%; class E and F, 11-25%; class G and H, 1-10%. Excavation levels are designed to provide flexibility during research design development and data recovery. Of the cultural resources recommended for investigation 46 (17.0%) are recommended at the 51-100% level, 30 (11.1%) at the 26-50% level, 2 (0.7%) at the 11-25% level, and 2 (0.7%) at the 1-10% level (Figure 2). For 22 (8.2%) cultural resources, collection of surface artifacts with no excavation is recommended (Figure 2).

With respect to construction, inundation and operation scheduling the 102 cultural resources recommended for investigation are broken down by investigation priority as follows (Figure 3): priority 1, 32 sites (31.0%); priority 2, 0 sites (0.0%); priority 3, 5 sites (4.8%); priority 4, 41 sites (39.8%); priority 5, 11 sites (10.6%); priority 6, 2 sites (1.9%); priority 7, 1 site (0.9%); priority 8, 3 sites (2.9%); and priority 9, 8 sites (7.7%). Tables 4 through 12 indicated cultural resources by investigation priority categories.

It is further recommended that within the context of the research design developed for implementation of an investigation program flexibility be included in the excavation program to evaluate data with respect to the

redundance of information. At such time when data from sites (as this applies to research questions in the "Significance" report or research questions generated at a future date) becomes redundant investigation procedures should be modified.

Data recovery should be conducted within the framework of contemporary archeological method and theory. At minimum data recovery should follow guidelines set forth by the National Park Service in "Archeological and Historic Preservation; Secretary of the Interior's Standards and Guidelines" (1983) and the Advisory Council on Historic Preservation's "Recommendations for Archeological Data Recovery: (1980). Copies of these documents are presented in Appendix B. Estimated costs are presented in chapter 4.

(4) No Additional Data Recovery

No additional data recovery is recommended for 37 (13.7%) of the cultural resources (Figures 2 and 3; Table 13). Although these sites are in direct or indirect impact areas and are significant, testing to date (survey, systematic, and grid shovel testing) is commensurate with recommended investigation levels and no additional data recovery is recommended.

Figure 3: Bar Graph - Zones and Investigation Priorities

1-25

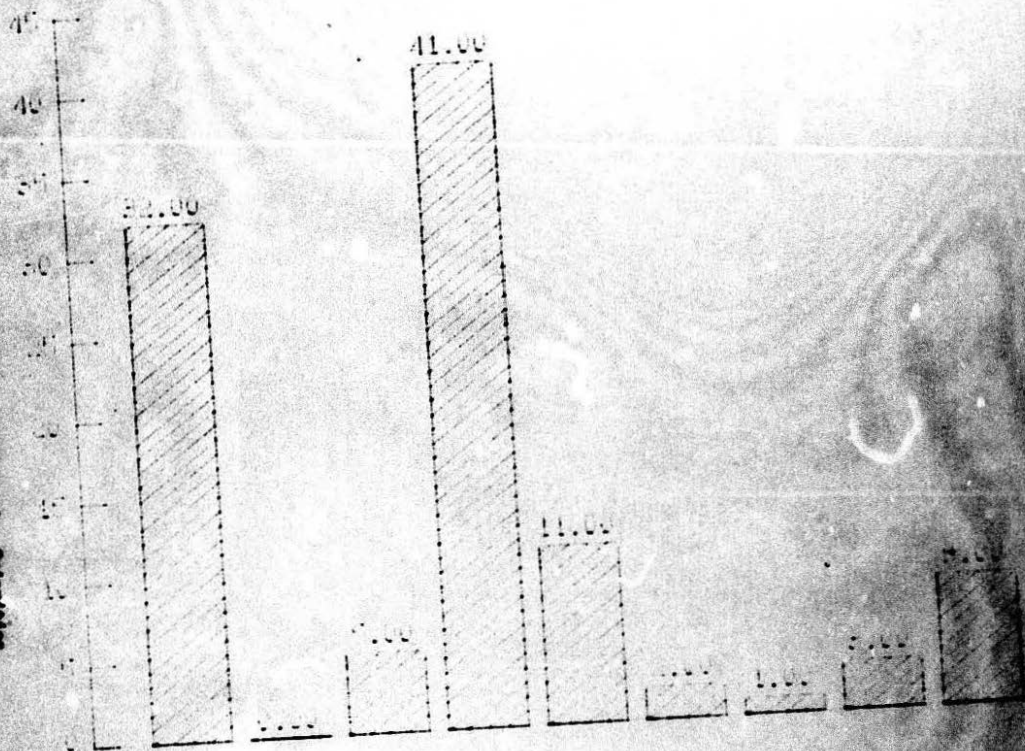


TABLE 4

Investigation Priority 1 by Site Classification

CLASS									
A	B	C	D	E	F	G	H	I	J
TLM 030	TLM 022	TLM 084	TLM 023	-	-	-	TLM 086	-	-
TLM 097	TLM 055	TLM 087	TLM 056				TLM 106		
	TLM 078	TLM 094	TLM 080				TLM 107		
		TLM 153	TLM 204				TLM 108		
		TLM 188					TLM 109		
		TLM 201					TLM 110		
		TLM 203					TLM 113		
		TLM 209					TLM 114		
		TLM 210					TLM 178		
		TLM 212							
		TLM 214							
		TLM 258							
		TLM 259							
		HEA 181							
		HEA 182							

TABLE 5.

Investigation Priority 2 by Site Classification

CLASS									
A	B	C	D	E	F	G	H	I	J
-	-	-	-	-	-	-	-	-	-

TABLE 6.

Investigation Priority 3 by Site Classification

CLASS									
A	B	C	D	E	F	G	H	I	J
TLM 181	TLM 018	TLM 164	TLM 089	-	TLM 016	-	-	-	-

TABLE 7.

Investigation Priority 4 by Site Classification

CLASS									
A	B	C	D	E	F	G	H	I	J
TLM 039	TLM 063	TLM 062	TLM 079	-	-	-	-	-	-
TLM 040	TLM 065	TLM 072	TLM 248						
TLM 043	TLM 077	TLM 199							
TLM 050	TLM 104	TLM 223							
TLM 061	TLM 175	TLM 224							
TLM 184	TLM 215	TLM 229							
TLM 216	TLM 221	TLM 231							
TLM 220	TLM 222	TLM 235							
TLM 230	TLM 225	TLM 236							
	TLM 226	TLM 238							
	TLM 232	TLM 252							
	TLM 234	TLM 256							
	TLM 240								
	TLM 242								
	TLM 246								
	TLM 247								
	TLM 249								
	TLM 250								

TABLE 8.

Investigation Priority 5 by Site Classification

CLASS									
A	B	C	D	E	F	G	H	I	J
TLM 171	TLM 048	TLM 206	-	-	-	-	TLM 060	-	-
TLM 173	TLM 059						TLM 119		
TLM 217	TLM 169						TLM 182		
							TLM 251		

TABLE 9.

Investigation Priority 6 by Site Classification

CLASS									
A	B	C	D	E	F	G	H	I	J
-	TLM 130	218	-	-	-	-	-	-	-

TABLE 10.

Investigation Priority 7 by Site Classification

	CLASS									
	A	B	C	D	E	F	G	H	I	J
TLM 020	-	-	-	-	-	-	-	-	-	-

TABLE 11.

Investigation Priority 8 by Site Classification

	CLASS									
	A	B	C	D	E	F	G	H	I	J
-	-	TLM 026	-	-	-	-	-	TLM 121	-	-
		TLM 064								

TABLE 12.

Investigation Priority 9 by Site Classification

CLASS										
A	B	C	D	E	F	G	H	I	J	
TLM 128	TLM 027	TLM 074	-	-	TLM 042	-	-	-	-	
TLM 143	TLM 123									
TLM 190										
TLM 207										

TABLE 13.

Mitigation Recommendations

AHRS NUMBER	ZONE (a)	TESTING LEVEL TO DATE (1984)	EXPECTED IMPACT (a)	SITE CLASSIFICATION (b)	AVOIDANCE	PRESERVATION	INVESTIGATION PRIORITY (c)	INVESTIGATION					ADDITIONAL DATA RECOVERY	COMMENTS
								51-100%	26-50%	11-25%	01-10%	OTHER		
TLN 005 (H)	B4	AHRS	II	D	X		-							-
TLN 006 (H)	B4	AHRS	II	D	X		-							-
TLN 007 (P)	C	AHRS	NI	J	X		-							-
TLN 009 (P)	A	AHRS	DI	H	X		-						X	Site could not be documented during the field survey and does not exist in the reported location.
TLN 015 (P)	B4	SU	II	I	X		-							-
TLN 016 (P)	B3	SY/GST	II	F			3		X					Located near construction area for the Katana Dam and difficult to protect.
TLN 017 (P)	B4*	SY/GST	II	B			-	X						Testing to date is commensurate with recommended level of investigation.
TLN 018 (P)	B4	SY/GST	II	B			3	X						Located near construction area for the Katana Dam and difficult to protect.
TLN 020 (H)	A4	SU	II	A		X	7							Only known rock inscription (1027). Make a cast or rubbing of inscription. Develop as an interpretative display.
TLN 021 (P)	C	SU	NI	J	X		-							-
TLN 022 (P)	A	SY/GST	DI	B			1	X						-
TLN 023 (H)	A	SU	DI	D			1					X		Collect surface artifacts.
TLN 024 (P)	B4*	SU/GST	II	H	X		-							-
TLN 025 (P)	C	SU	NI	J	X		-							-
TLN 026 (P)	B3*	SU/GST	II	C			B		X					-
TLN 027 (P)	B4*	SY/GST	II	D			9	X						Interpretation of 2 sites in the project area with an American Polynesian compound that produced blocky corals, and blades.

TABLE 13. (Continued)

AMS NUMBER	TESTING LEVEL TO DATE (1984) ZONE (a)	EXPECTED IMPACT (a)	SITE CLASS- IFICATION (b)	AVOID- ANCE	PRESE- RVATION	INVESTI- GATION PRIORITY (c)	INVESTIGATION					NO ADDI- TIONAL DATA RECOVERY	REMARKS
							51- 100%	26- 50%	11- 25%	01- 10%	OTHER		
TLM 028 (P)	C SU	NI	J	X		-							-
TLM 029 (P)	B4* SY/GST	II	I	X		-							-
TLM 030 (P)	B3* SY/GST	II	A ₀			1	X						Located between borrow area K and the upper floodpool. Largest stratified Northern Archaic site in the project area.
TLM 031 (P)	B4* SU	II	I	X		-							-
TLM 032 (P)	B4* SU	II	I	X		-							-
TLM 033 (P)	A1 SY/GST	D1	M			-						X	Systematic testing did not produce any additional cultural material.
TLM 034 (P)	A SY/GST	D1	C			-	X-----X						Testing to date is commensurate with recommended level of investigation.
TLM 035 (P)	B4 SU	II	I	X		-							-
TLM 036 (P)	C SU	NI	J	X		-							-
TLM 037 (P)	C SU	NI	J	X		-							-
TLM 038 (P)	B4* SY	II	I	X		-							-
TLM 039 (P)	A1 SY/GST	D1	A			4	X						-
TLM 040 (P)	A1 SY/GST	D1	A			4	X						-
TLM 041 (P)	B4 SU	II	I	X		-							-
TLM 042 (P)	B3* SY/GST	II	F			9					X-----X		Testing to date is commensurate with recommended level of investigation.
TLM 043 (P)	A1 SY/GST	D1	B			4	X						-
TLM 044 (P)	C SU	NI	J	X		-							-
TLM 045 (P)	C SU	NI	J	X		-							-

TABLE 13. (Continued)

AHS NUMBER	ZONE (a)	TESTING LEVEL TO DATE (1984)	EXPECTED IMPACT (a)	SITE CLASS- IFICA- TION (b)	AVIATION ANCE	PRESER- VATION	INVESTI- GATION PRIORITY (c)	INVESTIGATION					NO ADDI- TIONAL DATA RECOVERY	COMMENTS
								SI- 100	26- 50	11- 25	01- 10	OTHER		
TLM 046 (P)	C	SU	N1	J	X									-
TLM 047 (P)	B4*	SU	I1	I	X		-							-
TLM 048 (P)	A2	SY/GST	D1	B			5	X						-
TLM 049 (P)	B4*	SU	I1	I	X		-							-
TLM 050 (P)	A1	SY/GST	D1	A			4	X						-
TLM 051 (P)	B4	SU	I1	I	X		-							-
TLM 052 (P)	C	SU	N1	J	X		-							-
TLM 053 (P)	C	SU	N1	J	X		-							-
TLM 054 (P)	A	SU/GST	D1	A			-	X-----X						Testing to date is commensurate with recommended level of investigation.
TLM 055 (P)	A	SU/GST	D1	B			1	X						-
TLM 056 (H)	A	SU	D1	D			1				X			Collect surface artifacts.
TLM 057 (P)	B4	SU	I1	I	X		-							-
TLM 058 (P)	A1	SY/GST	D1	D			-	X-----X						Testing to date is commensurate with recommended level of investigation.
TLM 059 (P)	A2	SY/GST	D1	B			5	X						-
TLM 060 (P)	A2	SY/GST	D1	H			5				X-X			Testing to date is commensurate with recommended level of investigation but collect surface artifacts.
TLM 061 (P)	A1	SY/GST	D1	A			4	X						-
TLM 062 (P)	A1	SY/GST	D1	C			4		X					-
TLM 063 (P)	A1	SY/GST	D1	B			4	X						-
TLM 064 (P)	B1*	SY/GST	I1	C			8	X-----X						Testing to date is commensurate with recommended level of investigation, but collect surface artifacts.

TABLE 13. (Continued)

ANRS NUMBER	ZONE (a)	TESTING LEVEL TO DATE (19/2)	EXPECTED IMPACT (a)	SITE CLASS- IFICATION (b)	AVIOD- ANCE	PRESER- VATION	INVESTI- GATION PRIORITY (c)	INVESTIGATION					NO ADDI- TIONAL DATA RECOVERY	COMMENTS	
								51- 100%	26- 50%	11- 25%	01- 10%	OTHER			
TLM 065 (P)	A1	SY/GST	D1	B			4	X							-
TLM 066 (P)	C	SU	H1	J	X		-								-
TLM 067 (P)	C	SU	H1	J	X		-								-
TLM 068 (P)	C	SU	H1	J	X		-								-
TLM 069 (P)	B4	SY	II	I	X		-								-
TLM 070 (P)	C	SU	H1	J	X		-								-
TLM 071 (H)	C	SU	II	A		X	-								Best example of trapping cabin with associated artifacts. Moved to Katana Dam Museum.
TLM 072 (P)	A1	SU	D1	C			4	X							-
TLM 073 (P)	B2*	SY/GST	D1	H			-			X	X	X	X		Testing to date is commensurate with recommended level of investigation.
TLM 074 (P)	B2*	SU	II	C			9		X						-
TLM 075 (P)	A1	SU/GST	D1	C			-			X	X	X	X		Testing to date is commensurate with recommended level of investigation.
TLM 076 (P)	B4*	SU	II	I	X		-								-
TLM 077 (P)	A1	SY/GST	D1	B			4	X							-
TLM 078 (P)	A	SU/GST	D1	B			1	X							-
TLM 079 (H)	A1	SU	D1	D			4					X			Collect surface artifacts.
TLM 080 (H)	A	SU	D1	D			1					X			Collect surface artifacts.
TLM 081 (P)	A	SU/GST	D1	H			-					X	X		Testing to date is commensurate with recommended level of investigation.
TLM 082 (P)	C	SU	H1	J	X		-								-
TLM 083 (P)	B1	SU/GST	II	H			-					X	X		Testing to date is commensurate with recommended level of investigation.

TABLE 13. (Continued)

AHRS NUMBER	ZONE (a)	TESTING LEVEL TO DATE (1964)	EXPECTED IMPACT (a)	SITE CLASS- IFICA- TION (b)	AVIOO- ANCE	PRESER- VATION	INVESTI- GATION PRIORITY (c)	INVESTIGATION					NO ADDI- TIONAL DATA RECOVERY	COMMENTS
								51- 100%	26- 50%	11- 25%	01- 10%	OTHER		
TLM 084 (P)	A	SU/GST	DI	C			1	X						-
TLM 085 (P)	A	SU/GST	DI	H			-				X	X		Testing to date is commensurate with recommended level of investigation.
TLM 086 (P)	A	SU/GST	DI	H			1				X	X		Testing to date is commensurate with recommended level of investigation, but collect surface artifacts.
TLM 087 (P)	A	SU/GST	DI	C			1	X						-
TLM 088 (P)	A	SU/GST	DI	C			-	X	X	X	X	X		Testing to date is commensurate with recommended level of investigation.
TLM 089 (P)	B4	SU	II	D			3	X						-
TLM 090 (P)	B4	SU	II	I	X		-							-
TLM 091 (P)	B4	SU	II	I	X		-							-
TLM 092 (P)	C	SU	NI	J	X		-							-
TLM 093 (P)	C	SU	NI	J	X		-							-
TLM 094 (P)	A	SU/GST	DI	C			1	X						-
TLM 095 (P)	A	SU/GST	DI	H			-				X	X		Testing to date is commensurate with recommended level of investigation.
TLM 096 (P)	A	SU/GST	DI	C			-	X	X	X	X	X		Testing to date is commensurate with recommended level of investigation.
TLM 097 (P)	A	SY/GST	DI	A			1	X						-
TLM 098 (P)	B4	SU	II	I	X		-							-
TLM 099 (P)	B4	SU	II	I	X		-							-
TLM 100 (P)	B4	SU	II	I	X		-							-
TLM 101 (P)	B1	SU/GST	II	H	X		-							-

TABLE 13. (Continued)

AHS NUMBER	ZONE (a)	TESTING LEVEL TO DATE (1984)	EXPECTED IMPACT (a)	SITE CLASS- IFICA- TION (b)	AVIOO- ANCE	PRESER- VATION	INVESTI- GATION PRIORITY (c)	INVESTIGATION					NO ADDI- TIONAL DATA RECOVERY	COMMENTS
								51- 100S	26- 50S	11- 25S	01- 10S	OTHER		
TLH 102 (P)	A1	SY/GST	D1	C			-							Testing to date is commensurate with recommended level of investigation.
TLH 103 (P)	B4	SU/GST	I1	I	X		-							
TLH 104 (P)	A1	SY/GST	D1	B			4	X						
TLH 105 (P)	B4	SU	I1	I	X		-							
TLH 106 (P)	A	SU/GST	D1	H			1					X-X		Testing to date is commensurate with recommended level of investigation, but collect surface artifacts.
TLH 107 (P)	A	SU/GST	D1	H			1					X-X		Testing to date is commensurate with recommended level of investigation, but collect surface artifacts.
TLH 108 (P)	A	SU/GST	D1	H			1					X-X		Testing to date is commensurate with recommended level of investigation, but collect surface artifacts.
TLH 109 (P)	A	SU/GST	D1	H			1					X-X		Testing to date is commensurate with recommended level of investigation, but collect surface artifacts.
TLH 110 (P)	A	SU/GST	D1	H			1					X-X		Testing to date is commensurate with recommended level of investigation, but collect surface artifacts.
TLH 111 (P)	A	SU/GST	D1	C			-							Testing to date is commensurate with recommended level of investigation.
TLH 112 (P)	B4	SU	I1	I	X		-							
TLH 113 (P)	A	SU/GST	D1	H			1					X-X		Testing to date is commensurate with recommended level of investigation, but collect surface artifacts.
TLH 114 (P)	A	SU/GST	D1	H			1					X-X		Testing to date is commensurate with recommended level of investigation, but collect surface artifacts.

TABLE 13. (Continued)

AHRS NUMBER	ZONE (a)	TESTING LEVEL TO DATE (1984)	EXPECTED IMPACT (a)	SITE CLASS- IFICATION (b)	AVIOD- ANCE	PRESER- VATION	INVESTI- GATION PRIORITY (c)	INVESTIGATION					NO ADDI- TIONAL DATA RECOVERY	COMMENTS
								51- 100%	26- 50%	11- 25%	01- 10%	OTHER		
TLN 115 (P)	A1	SY/GST	DI	H			-				X	X		-
TLN 116 (P)	B4*	SU	II	I	X		-							-
TLN 117 (P)	B4	SU	II	I	X		-							-
TLN 118 (P)	B4*	SU	II	I	X		-							-
TLN 119 (P)	A2	SY/GST	DI	H			5				X	X		Testing to date is commensurate with recommended level of investigation, but collect surface artifacts.
TLN 120 (P)	B4*	SU	II	I	X		-							-
TLN 121 (P)	B3*	SU	II	H			8				X			-
TLN 122 (P)	B4*	SU	II	I	X		-							-
TLN 123 (P)	B4*	SU	II	B			9	X						-
TLN 124 (P)	B4*	SU	II	I	X		-							-
TLN 125 (P)	B4*	SU	II	I	X		-							-
TLN 126 (P)	A2	SY/GST	II	H			-				X	X		Testing to date is commensurate with recommended level of investigation.
TLN 127 (P)	B4*	SU	II	I	X		-							-
TLN 128 (P)	B4*	SY	II	A			9	X						Only site with a dated component and stratigraphic units below the Oshetna tephra.
TLN 129 (P)	B4*	SU	II	I	X		-							-
TLN 130 (P)	A3	SY	DI	E			6	X						-
TLN 131 (P)	B4*	SU	II	I	X		-							-
TLN 132 (P)	B4*	SU	II	I	X		-							-
TLN 133 (P)	B4*	SU	II	I	X		-							-
TLN 134 (P)	B4*	SU	II	I	X		-							-
TLN 135 (P)	B4*	SU	II	I	X		-							-

TABLE 13. (Continued)

AHRS NUMBER	ZONE (a)	TESTING LEVEL TO DATE (1984)	EXPECTED IMPACT (a)	SITE CLASS- IFICA- TION (b)	AVI- DANCE	PRESER- VATION	INVESTI- GATION PRIORITY (c)	INVESTIGATION					NO ADDI- TIONAL DATA RECOVERY	COMMENTS
								51-	26-	11-	01-	OTHER		
								100%	50%	25%	10%			
TLM 136 (P)	B4*	SU	II	I	X		-							-
TLM 137 (P)	B4	SU/GST	II	I	X		-							-
TLM 138 (P)	B4	SU	II	I*	X		-							-
TLM 139 (P)	B4*	SU	II	I	X		-							-
TLM 140 (P)	B4*	SU	II	I	X		-							-
TLM 141 (P)	B4*	SU	II	I	X		-							-
TLM 142 (P)	B4*	SU	II	I	X		-							-
TLM 143 (P)	B4*	SY/GST	II	A			9	X						Only northern Archaic site in the project with in situ artifacts and associated with a mineral lick.
TLM 144 (P)	B4	SU	II	I	X		-							-
TLM 145 (P)	B4*	SU	II	I	X		-							-
TLM 146 (P)	B4	SU	II	I	X		-							-
TLM 147 (P)	B4*	SU	II	I	X		-							-
TLM 148 (P)	B4*	SU	II	I	X		-							-
TLM 149 (P)	C	SU	NI	J	X		-							-
TLM 150 (P)	C	SU	NI	J	X		-							-
TLM 151 (P)	B4	SU	II	I	X		-							-
TLM 152 (P)	C	SU	NI	I	X		-							-
TLM 153 (P)	A	SU/GST	DI	C			1		X					-
TLM 154 (P)	C	SU	NI	J	X		-							-
TLM 155 (P)	B4	SU	II	I	X		-							-
TLM 159 (P)	B4*	SU	II	I	X		-							-
TLM 160 (P)	B4	SU	II	I	X		-							-
TLM 164 (P)	B3	SU	II	C			3		X					-

TABLE 13. (Continued)

AHS NUMBER	TESTING LEVEL TO DATE (1984) ZONE (a)	EXPECTED IMPACT (a)	SITE CLASS- IFICA- TION (b)	AVOID- ANCE	PRESER- VATION	INVESTI- GATION PRIORITY (c)	INVESTIGATION				NO ADDI- TIONAL DATA RECOVERY	COMMENTS
							51- 100%	26- 50%	11- 25%	01- 10%	OTHER	
TLW 165 (P)	B4* SU/GST	I1	C	X		-						-
TLW 166 (P)	B4* SU/GST	I1	I	X		-						-
TLW 167 (P)	B4* SU/GST	I1	I	X		-						-
TLW 168 (P)	B4 SU	I1	I	X		-						-
TLW 169 (P)	A2 SY/GST	D1	B			5	X					-
TLW 170 (P)	B4* SU	I1	I	X		-						-
TLW 171 (P)	A2 SY/GST	D1	A			5	X					-
TLW 172 (P)	B4 SY/GST	I1	I	X		-						-
TLW 173 (P)	A2 SY/GST	D1	A			5	X					-
TLW 174 (P)	A1 SY/GST	D1	H			-				X		Testing to date is commensurate with recommended level of investigation.
TLW 175 (P)	A1 SY/GST	D1	B			4	X					-
TLW 176 (P)	A SU/GST	D1	H			-				X		Testing to date is commensurate with recommended level of investigation.
TLW 177 (P)	B1* SY/GST	I1	H			-				X		Testing to date is commensurate with recommended level of investigation.
TLW 178 (H)	A SU	D1	H			1				X		Collect surface artifacts.
TLW 179 (P)	B4 SU	I1	I	X		-						-
TLW 180 (P)	C SU	N1	J	X		-						-
TLW 181 (P)	B4 SU	I1	A			3	X					Single component Late Denali site.
TLW 182 (P)	A2 SY/GST	D1	H			5				X		Testing to date is commensurate with recommended level of investigation, but collect surface artifacts.
TLW 183 (P)	B4* SU	I1	I	X		-						-

TABLE 13. (Continued)

AHS NUMBER	ZONE (a)	TESTING LEVEL TO DATE (1964)	EXPECTED IMPACT (a)	SITE CLASS- IFICATION (b)	AUTO- ANCE	PRESER- VATION	INVESTI- GATION PRIORITY (c)	INVESTIGATION					NO ADDI- TIONAL DATA RECOVERY	COMMENTS
								51+	26+	11+	01+	OTHER		
								100%	50%	25%	10%			
TLM 184 (P)	A1	SY/GST	D1	A			4	X						-
TLM 185 (P)	B4*	SU	I1	I	X		-							-
TLM 186 (P)	B4	SU	I1	I*	X		-							-
TLM 187 (P)	C	SU	W1	J	X		-							-
TLM 188 (P)	A	SU/GST	D1	C			1		X					-
TLM 189 (P)	B4*	SU	I1	I	X		-							-
TLM 190 (P)	B4*	SU	I1	A			9	X						Single component Late Senali site.
TLM 191 (P)	B4	SU	I1	I	X		-							-
TLM 192 (P)	B4	SU	I1	I	X		-							-
TLM 193 (P)	B4	SU	I1	I	X		-							-
TLM 194 (P)	A1	SY/GST	D1	H			-						X	Testing to date is commensurate with recommended level of investigation.
TLM 195 (P)	B4*	SU	I1	I	X		-							-
TLM 196 (P)	A2	SU	D1	-			-						X	Possible cultural resource site. Contained paleontological specimens.
TLM 197 (P)	B3	SU	I1	H			3						X	Testing to date is commensurate with recommended level of investigation.
TLM 198 (P)	B4*	SU	I1	I	X		-							-
TLM 199 (P)	A1	SY/GST	D1	C			4		X					-
TLM 200 (P)	A1	SY/GST	D1	H	X		-							-
TLM 201 (P)	A	SU/GST	D1	C			1		X					-
TLM 202 (P)	A	SU/GST	D1	E			-						X	Testing to date is commensurate with recommended level of investigation.
TLM 203 (P)	A	SU/GST	D1	C			1		X					-

TABLE 13. (Continued)

ANRS NUMBER	ZONE (a)	TESTING LEVEL TO DATE (1984)	EXPECTED IMPACT (e)	SITE CLASS- IFICATION (b)	AVIOD- ANCE	PRESER- VATION	INVESTI- GATION PRIORITY (c)	INVESTIGATION					NO ADDI- TIONAL DATA RECOVERY	COMMENTS
								51- 100%	26- 50%	11- 25%	01- 10%	OTHER		
TLM 204 (H)	A1	SU	D1	D			1					X		Collect surface artifacts.
TLM 205 (P)	C	SU	N1	J	X		-							-
TLM 206 (P)	A2	SY/GST	D1	C			5		X					-
TLM 207 (P)	B2*	SY/GST	I1	A			9		X					-
TLM 208 (P)	B4	SU	I1	I	X		-							-
TLM 209 (P)	A	SU/GST	D1	C			1		X					-
TLM 210 (P)	A	SU/GST	D1	C			1		X					-
TLM 211 (P)	A	SU/GST	D1	C			-		X			X		Testing to date is commensurate with recommended level of investigation.
TLM 212 (H)	A	SU	D1	C			1					X		Collect surface artifacts.
TLM 213 (P)	A	SU/GST	D1	C			-		X			X		Testing to date is commensurate with recommended level of investigation.
TLM 214 (P)	A	SU/GST	D1	C			1		X					-
TLM 215 (P)	A1	SY/GST	D1	B			4		X					-
TLM 216 (P)	A1	SY/GST	D1	A			4		X					-
TLM 217 (P)	A2	SY/GST	D1	A			5		X					-
TLM 218 (P)	A3	SU	D1	C			6			X				-
TLM 219 (P)	B4*	SU	I1	I	X		-							-
TLM 220 (P)	A1	SY/GST	D1	A			4		X					-
TLM 221 (P)	A1	SY/GST	D1	B			4		X					-
TLM 222 (P)	A1	SU/GST	D1	B			4		X					-
TLM 223 (P)	A1	SU/GST	D1	C			4			X				-
TLM 224 (P)	A1	SU/GST	D1	C			4			X				-
TLM 225 (P)	A1	SY/GST	D1	B			4		X					-

TABLE 13. (Continued)

AHS NUMBER	ZONE (a)	TESTING LEVEL TO DATE (1984)	EXPECTED IMPACT (a)	SITE CLASS- IFICA- TION (b)	AVOID- ANCE	PRESER- VATION	INVESTI- GATION PRIORITY (c)	INVESTIGATION					NO ADDI- TIONAL DATA RECOVERY	COMMENTS
								51- 1001	26- 501	11- 251	01- 101	OTHER		
TLM 226 (P)	A1	SY/GST	D1	B			4	X						-
TLM 227 (P)	A1	SU/GST	D1	C			-		X			X		Testing to date is commensurate with recommended level of investigation.
TLM 228 (P)	A1	SU/GST	D1	C			-		X			X		Testing to date is commensurate with recommended level of investigation.
TLM 229 (P)	A1	SU/GST	D1	C			4	X						-
TLM 230 (P)	A1	SY/GST	D1	A			4					X		Move burial to nearest non-impacted Native land.
TLM 231 (P)	A1	SU/GST	D1	C			4	X						-
TLM 232 (P)	A1	SU/GST	D1	B			4	X						-
TLM 233 (P)	A1	SU/GST	D1	C			-		X			X		Testing to date is commensurate with recommended level of investigation.
TLM 234 (P)	A1	SU/GST	D1	B			4	X						-
TLM 235 (P)	A1	SU/GST	D1	C			4	X						-
TLM 236 (P)	A1	SU/GST	D1	C			4	X						-
TLM 237 (P)	A1	SU/GST	D1	C			-		X			X		Testing to date is commensurate with recommended level of investigation.
TLM 238 (P)	A1	SU/GST	D1	C			4	X						-
TLM 239 (P)	A1	SU/GST	D1	D			-			X		X		Testing to date is commensurate with recommended level of investigation.
TLM 240 (P)	A1	SU/GST	D1	B			4	X						-
TLM 241 (P)	A1	SU/GST	D1	H			-				X	X		Testing to date is commensurate with recommended level of investigation.
TLM 242 (P)	A1	SU/GST	D1	B			4	X						-

TABLE 13. (Continued)

AHRS NUMBER	ZONE (a)	TESTING LEVEL TO DATE (1984)	EXPECTED IMPACT (a)	SITE CLASS- IFICA- TION (b)	AVIOO- ANCE	PRESER- VATION	INVESTI- GATION PRIORITY (c)	INVESTIGATION					NO ADDI- TIONAL DATA RECOVERY	COMMENTS
								51- 100%	26- 50%	11- 25%	01- 10%	OTHER		
TLM 243 (P)	A1	SU/GST	D1	H			-				X			Testing to date is commensurate with recommended level of investigation.
TLM 244 (P)	A2	SU/GST	D1	C			-			X				Testing to date is commensurate with recommended level of investigation.
TLM 245 (P)	B4	SU	I1	I	X		-							-
TLM 246 (P)	A1	SU/GST	D1	B			4	X						-
TLM 247 (P)	A1	SU/GST	D1	B			4	X						-
TLM 248 (H)	A1	SU	D1	D			4					X		Collect surface artifacts.
TLM 249 (P)	A1	SU/GST	D1	B			4	X						-
TLM 250 (P)	A1	SU	D1	B			4	X						-
TLM 251 (P)	A2	SY/GST	D1	H			5				X			Testing to date is commensurate with recommended level of investigation, but collect surface artifacts.
TLM 252 (P)	A1	SU/GST	D1	C			4	X						-
TLM 253 (P)	A1	SU/GST	D1	C			-			X				Testing to date is commensurate with recommended level of investigation.
TLM 256 (P)	A1	SU	D1	C			4	X						-
TLM 257 (P)	A1	SU/GST	D1	C			-			X				Testing to date is commensurate with recommended level of investigation.
TLM 258 (P)	A	SU/GST	D1	C			1	X						-
TLM 259 (P)	A	SU/GST	D1	C			1	X						-
MEA 007 (P)	B4	AHRS	I1	I	X		-							-
MEA 012 (P)	B4	AHRS	I1	I	X		-							-
MEA 033 (P)	B4	AHRS	I1	I	X		-							-
MEA 035 (P)	B4	AHRS	I1	I	X		-							-

TABLE 13. (Continued)

AHS NUMBER	ZONE (a)	TESTING LEVEL TO DATE (1984)	EXPECTED IMPACT (a)	SITE CLASS- IFICATION (b)	AVOID- ANCE	PRESER- VATION	INVESTI- GATION PRIORITY (c)	INVESTIGATION					NO ADDI- TIONAL DATA RECOVERY	COMMENTS
								51- 1001	26- 501	11- 251	01- 101	OTHER		
HEA 038 (P)	B4	AHRS	II	I	X		-							-
HEA 061 (H)	B4	AHRS	II	I	X		-							-
HEA 091 (H)	A	AHRS	D1	H	X		-							Historic trail.
HEA 137 (P)	B4	AHRS	II	I	X		-							-
HEA 174 (P)	B4	SU	II	I	X		-							-
HEA 175 (P)	C	SU	N1	J	X		-							-
HEA 176 (P)	C	SU	N1	J	X		-							-
HEA 177 (P)	C	SU	N1	J	X		-							-
HEA 178 (P)	C	SU	N1	J	X		-							-
HEA 179 (P)	C	SU	N1	J	X		-							-
HEA 180 (P)	B4	SU	II	I	X		-							-
HEA 181 (P)	A	SU/GST	D1	C			1		X					-
HEA 182 (P)	A	SU/GST	D1	H			1				X			-
HEA 183 (P)	B4	SU	II	I	X		-							-
HEA 184 (P)	B4	SU	II	I	X		-							-
HEA 185 (P)	C	SU	N1	J	X		-							-
HEA 186 (P)	C	SU	N1	J	X		-							-
HEA 210 (P)	C	SU	N1	J	X		-							-
HEA 211 (P)	C	SU/GST	N1	J	X		-							-
FA1 070 (H)	B4	AHRS	II	I	X		-							-
FA1 089 (H)	B4	AHRS	II	I	X		-							-
FA1 090 (H)	C	AHRS	N1	J	X		-							-
FA1 169 (H)	B4	AHRS	II	I	X		-							-
FA1 213 (P)	C	SU	N1	J	X		-							-
FA1 214 (P)	C	SU	N1	J	X		-							-
FA1 215 (P)	B1	AHRS	II	I	X		-							-

Key to Table 13

- * Associated with Reservoirs.
- (a) Based on Impact Assessment report; relationship to project facilities and features.
- (b) Potential to address research questions.
- (c) Priority based on proposed construction and inundation schedules.
- (H) Historic
- (P) Prehistoric
- AHRS Alaska Heritage Resource Survey
- SU Survey level testing
- SY Systematic testing
- GST Grid shovel testing
- DI Direct Impact
- II Indirect impact
- NI No Impact
- X—X Indicates the evaluation of two mitigation options.

3 - PROPOSED SCHEDULE

Mitigation of adverse effects should begin during the initial construction phase of the hydroelectric project or at such time that ground disturbing activities require it. Mitigation during the planning stage (feasibility studies) of the project was conducted through avoidance (1980 - 1984). Avoidance of cultural resources can begin immediately and should continue throughout the course of the project as well as after the hydroelectric facilities are operational. Preservation of the Simco cabin (TLM 071) should take place before construction of recreational trails J and K, or in conjunction with the construction of the Watana dam site museum, whichever comes first. The human burial at TLM 230 should be moved prior to inundation by the Watana reservoir. Preservation of the Portage rock inscription (TLM 020) should commence prior to the construction of the Devil Canyon dam and associated facilities. Investigation should correspond with project construction schedules. Project schedules are taken into consideration in the preparation of the investigation priorities discussed in chapter 3, Tables 4 through 12.

4 - ESTIMATED COST

Estimated costs presented in this chapter are based on 1985 dollars. The estimate for the amount of time for excavating a 1 m square is based on the Museum's systematic testing program conducted between 1980 and 1984. Costs do not include helicopter support or food and lodging. Estimated costs for implementing the proposed mitigation plan address the following:

1. Monitoring 128 cultural resources.
2. Excavation of 80 cultural resources and surface collection at 22 cultural resources (surface collection can be achieved in a relatively short time and therefore it is included within the framework of the excavation program).
3. Preservation of three cultural resources.

4.1 - Monitoring Program

It is estimated that it would take one person 2 months per year, (for the nine year between beginning of construction and operation of the hydroelectric project) to monitor 128 cultural resources recommended for avoidance, for signs of impact associated with the Susitna project. This time would include report preparation and preparation of mitigation measures should they be required. Estimated cost \$139,661.00.

1 Principal Investigator @ 2870 per month x 18 months	\$51,660
Leave Allowance (18.3% of salary)	9,454
Benefits (26.9% of salary plus leave)	16,440
	<hr/>
	77,554
Services/Supplies/Equipment	9,000
Report Preparation	9,000
	<hr/>
	18,000
Curation (5%)	4,777

Overhead (39.2)	39,330
Total	<u>\$139,661</u>

4.2 - Preservation

It is estimated that it will take 4 people 4 months to develop the Portage Creek rock inscription (including making a cast or rubbing of the inscription) (TLM 020) inventory, dismantle and reassemble the Kosina Creek cabin (TLM 071) at the Watana dam visitor's center (exhibit design, conservation, and exhibit preparation for the Kosina Creek cabin is estimated as a lump sum) and relocate the human burial of TLM 230. Estimated cost \$271,224.00.

1 Principal Investigator @ 2870 per month x 4 months	\$11,480
3 Crew members @ 1889 per month x 4 months	22,668
	<u>34,148</u>
Leave Allowance (18.3% of salary)	6,249
Benefits (Full-time 26.9% of salary plus leave)	3,088
(Part-time 7.2% of salary plus leave)	2,082
	<u>11,419</u>
Conservation, Design, Preparation	125,000
Services/Supplies/Equipment	15,000
Curation (of specimens not included in exhibit 5%)	9,278
Overhead (39.2%)	76,379
	<u>\$271,224</u>

4.3 - Investigation (excavation and surface collection)

Excavation costs take into consideration surface collection at 22 cultural resources, and various stages of excavation at 80 cultural resources. Excavation estimates are based on the fact that it took approximately 97 man/months to excavate 203 one meter squares during the Museum's systematic testing program. Based on this it took approximately 12.4 days per one meter square. This includes site mapping, site gridding, excavation, profiling, cleaning and cataloging artifacts, and draft report preparation including drafting graphics. Amount of excavation is based on the range of excavation recommended as expressed in the percent of excavation range, i.e. 1 - 10%, 11 - 25% etc. (Table 14). This produced a low range and a high range for excavation. The low estimate for excavation represents the excavation of 4560 square meters (Table 14).

Based on the estimate of 12.4 days per square meter it is estimated that it will take 56,544 man/days to excavate the 4560 square meters. This level of effort would take 50 people (in the field) 1131 days (3.09 years) to complete. Analysis and final report preparation would take a comensurate amount of time, based on the Museum's five year cultural resource program. Therefore, it is estimated that it would take 6.18 years to complete the low excavation program and complete the final report. The high excavation program would require the excavation of 9114 square meter. It is estimated that it would take 50 people 2825 (6.19 years) to complete this level of excavation. Analysis and report preparation would take a comensurate amount of time. Therefore it is estimated that it would take 12.38 years to complete the program. Estimated cost for the low excavation program is \$11,092,611 and \$22,221,121 for the high excavation program. The following is a budget for one year of the program. Multiply by 6.18 for low excavation program and 12.38 for high excavation program.

1 Principal Investigator @ 4235 per month for 12 months	\$50,820
1 Project Supervisor @ 3555 per month for 12 months	42,660
5 Field Supervisors @ 2870 per month for 12 month	172,200
7 Crew Leaders @ 1941 per month for 12 months	163,044
8 Crew Leaders @ 1941 per month for 4 months	62,112

30 Crew Members @ 1889 per month for 3.5 months	198,345
1 Geologist @ 3585 per month for 4 months	14,336
2 Graphic Technicians @ 2215 per month for 12 months	53,160
1 Secretary @ 2083 per month for 12 months	24,636
1 Word Processor @ 2083 per month for 12 months	24,636
	<hr/>
	805,949
COLA (% of salary)	40,297
Leave Allowance (18.3% of salary plus cola)	154,863
Benefits (Full-time 26.9% of salary plus cola and leave	195,377
(Part-time 7.2% of salary plus cola	22,686
	<hr/>
	413,223
Services/Supplies/Equipment	30,000
Report Preparation	15,000
	<hr/>
	45,000
Curation (2% per year)	25,283
Overhead (39.2%)	505,466
	<hr/>
Total for 1 year	\$1,794,921
Low level excavation program $\$1,794,921 \times 6.18$ (years) =	11,092,611
High level excavation program $\$1,794,921 \times 12.38$ (years) =	22,221,121

TABLE 14.

Investigation by Excavation

AHRS #	SITE SIZE m ²	AREA EXCAVATED (testing) m ²	% OF TOTAL	AREA REMAINING m ²	RECOMMENDED LEVEL OF EXCAVATION (percent of remaining area)	AREA TO BE EXCAVATED m ² LOW - HIGH
TLM 016	79	8.16	10.3	70.8	11-25	7.7 - 17.7
TLM 018	171	7.9	4.6	163.1	51-100	83.1 - 163.1
TLM 022	57	6.98	12.2	50.0	51-100	25.5 - 50.0
TLM 026	75	9.3	12.0	65.7	26-50	17.0 - 32.8
TLM 027	105	6.28	5.9	98.7	51-100	50.3 - 98.7
TLM 030	2,571	29.24	1.1	2541.8	51-100	1296.3 - 2541.8
TLM 039	75	7.96	10.6	67.0	51-100	34.1 - 67.0
TLM 040	144	15.63	10.8	128.4	51-100	65.4 - 128.4
TLM 043	40	9.14	22.8	30.9	51-100	15.7 - 30.9
TLM 048	50(E)	7.56	15.1	42.4	51-100	21.6 - 42.4
TLM 050	51	8.23	16.1	42.8	51-100	21.8 - 42.8
TLM 055	8	2.84	35.5	5.2	51-100	2.6 - 5.2
TLM 059	41	5.16	12.5	35.8	51-100	18.2 - 35.8
TLM 061	21	3.75	17.8	17.2	51-100	8.7 - 17.2
TLM 062	384(E)	12.3	8.1	375.9	26-50	97.9 - 187.9
TLM 063	15	3.84	25.6	11.2	51-100	5.7 - 11.2
TLM 065	552	24.55	4.4	527.4	51-100	268.9 - 527.4
TLM 072	28	0.48	1.7	27.5	26-50	7.1 - 13.7
TLM 074	10(E)	0.81	8.1	9.2	11-25	1.0 - 2.3
TLM 077	46	4.73	10.2	41.3	51-100	21.0 - 41.3
TLM 078	39	3.19	8.1	35.8	51-100	18.2 - 35.8

TABLE 14. (Continued)

AHRS #	SITE SIZE -m ²	AREA EXCAVATED (testing) m ²	% OF TOTAL	AREA REMAINING m ²	RECOMMENDED LEVEL OF EXCAVATION (percent of remaining area)	AREA TO BE EXCAVATED m ²	LOW - HIGH
TLM 084	12	2.49	20.7	9.5	26-50	2.4 -	4.7
TLM 087	28	3.12	11.1	24.9	26-50	6.4 -	12.4
TLM 089	375(E)	0.16	.04	374.9	26-50	97.4 -	187.4
TLM 094	20	1.63	8.1	18.4	26-50	4.7 -	9.2
TLM 097	185	16.58	8.9	168.4	51-100	85.8 -	168.4
TLM 104	24	6.70	27.9	17.3	51-100	8.8 -	17.3
TLM 121	4(E)	0.03	7.5	3.9	1-10	0.04 -	0.3
TLM 123	75(E)	0.65	0.8	74.3	51-100	37.8 -	74.3
TLM 128	600(E)	8.51	1.4	591.5	51-100	301.6 -	591.5
TLM 130	12(E)	4.23	35.2	7.8	51-100	3.9 -	7.8
TLM 143	844	15.10	1.7	828.9	51-100	422.7 -	828.9
TLM 153	16	2.56	16.0	13.4	26-50	3.4 -	6.7
TLM 164	4	0.51	12.7	3.5	26-50	0.9 -	1.7
TLM 169	45	5.36	11.9	39.6	51-100	20.1 -	39.6
TLM 171	9	2.98	33.1	6.0	51-100	3.0 -	6.0
TLM 173	48	8.97	18.6	39.0	51-100	19.8 -	39.0
TLM 175	34	5.19	15.2	28.8	51-100	14.6 -	28.8
TLM 181	4(E)	0.58	14.5	3.4	51-100	1.7 -	3.4
TLM 184	93	20.43	21.9	72.6	51-100	37.0 -	72.6
TLM 188	4	1.14	0.2	2.9	26-50	0.7 -	1.4
TLM 190	12(E)	0.23	1.9	11.8	51-100	6.0 -	11.8
TLM 199	46	3.54	7.6	42.5	26-50	11.0 -	21.2
TLM 201	43	2.49	5.7	40.5	26-50	10.5 -	20.2

TABLE 14. (Continued)

AHRS #	SITE SIZE m ²	AREA EXCAVATED (testing) m ²	% OF TOTAL	AREA REMAINING m ²	RECOMMENDED LEVEL OF EXCAVATION (percent of remaining area)	AREA TO BE EXCAVATED m ² LOW - HIGH
TLM 203	40	4.03	10.0	36.0	26-50	9.3 - 18.0
TLM 206	15	2.98	19.8	12.0	26-50	3.1 - 6.0
TLM 207	35	4.07	11.6	31.0	51-100	15.8 - 31.0
TLM 209	24	2.75	11.4	21.2	26-50	5.5 - 10.6
TLM 210	8	1.91	23.8	6.1	26-50	1.5 - 3.0
TLM 214	16	2.33	14.5	13.7	26-50	3.5 - 6.8
TLM 215	52	6.03	11.5	46.0	51-100	23.4 - 46.0
TLM 216	27	4.91	18.1	22.1	51-100	11.2 - 22.1
TLM 217	22	5.26	23.9	16.7	51-100	8.5 - 16.7
TLM 218	16(E)	1.79	11.1	14.2	26-50	3.6 - 7.1
TLM 220	145	8.46	5.8	136.5	51-100	69.6 - 136.5
TLM 221	28	5.08	18.1	23.0	51-100	11.7 - 23.0
TLM 222	662	23.98	3.6	638.0	51-100	325.3 - 638.0
TLM 223	40	3.94	9.8	36.1	26-50	9.3 - 18.0
TLM 224	16	2.82	17.6	13.2	26-50	3.4 - 6.6
TLM 225	31	4.17	13.4	26.8	51-100	13.6 - 26.8
TLM 226	170	22.78	13.4	147.2	51-100	75.0 - 147.2
TLM 229	24	4.17	17.3	19.8	26-50	5.1 - 9.9
TLM 231	19	2.54	13.3	16.5	26-50	4.2 - 8.2
TLM 232	439	18.27	4.1	420.7	51-100	214.5 - 420.7
TLM 234	160	9.54	5.9	150.5	51-100	76.7 - 150.5
TLM 235	71	8.53	12.0	62.5	26-50	16.2 - 31.2
TLM 236	30	4.15	13.8	25.8	26-50	6.7 - 12.9

TABLE 14. (Continued)

AHRS #	SITE SIZE m ²	AREA EXCAVATED (testing) m ²	% OF TOTAL	AREA REMAINING m ²	RECOMMENDED LEVEL OF EXCAVATION (percent of remaining area)	AREA TO BE EXCAVATED m ² LOW - HIGH
TLM 238	26	1.63	6.2	24.4	26-50	6.3 - 12.2
TLM 240	314	8.16	2.5	305.8	51-100	155.9 - 305.8
TLM 242	49	4.36	8.8	44.6	51-100	22.7 - 44.6
TLM 246	4	1.28	32.0	2.7	51-100	1.3 - 2.7
TLM 247	592	10.24	1.7	581.8	51-100	296.7 - 581.8
TLM 249	24	3.82	15.9	20.2	51-100	10.3 - 20.2
TLM 250	4(E)	0.0	0.0	4.0	51-100	2.0 - 4.0
TLM 252	25	1.14	4.5	23.9	26-50	6.2 - 11.9
TLM 256	6	0.86	14.3	5.1	26-50	1.3 - 2.5
TLM 258	12	1.00	8.3	11.0	26-50	2.8 - 5.5
TLM 259	123(E)	0.14	.01	122.8	26-50	31.9 - 61.4
HEA 181	34	2.82	8.2	31.2	26-50	8.1 - 15.6
HEA 182	16	1.28	8.0	14.7	1-10	0.1 - 1.4
Total	10,418					4560.3 - 9114.4

(E) Estimated Site Size

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APPENDIX A - CORRESPONDENCE

November 14, 1984

Ms. B. Agnes Brown, Chairman
CIRI Village Presidents
Tyonek Native Corporation
445 East 5th Avenue, Suite 9
Anchorage, AK 99501

Dear Ms. Brown:

As you are aware from your field visit to the proposed Susitna Hydroelectric Project area and through our ongoing dialogue with Mr. Bruce Bedard, the Native "Inspector" formerly employed by the Susitna project; over the years we have been soliciting information from Native organizations concerning religious or cultural sites that may exist within the Susitna Project area. During this past field season (late summer 1984) a human burial was discovered near the confluence of Watana Creek and the Susitna River. There was no indication on the surface of the ground suggesting a burial, and it was accidentally discovered while excavating a test pit. Fortunately the hole only exposed a very small portion (3 - 4 inches) of it and did not disturb the bones or objects which may have been contained within it. Mr. Paul Theadore and Mr. Roy Goodman were both in Watana camp at the time of the discovery and were kind enough to visit the site and provide us with their comments and observations. Mr. Theadore suggested that it should be left intact and undisturbed and action be considered only if the decision is made to construct the Watana dam. We restored the excavated area as close as possible to its original condition and did not disturb the remains contained within it. We do not know how old the burial is, however some trade beads were noted which might suggest that it may be about 200 years old.

In the event that the license is granted and the decision made to construct the Susitna Hydroelectric facility, we would appreciate your recommendations and opinions on what measures should be undertaken regarding this burial. In the event that the dam is constructed, the water rising behind it would inundate the burial. Should the dam be constructed the options seem limited. They are: 1) the burial could be left as is and subsequently covered by the rising water, or 2) the burial could be excavated and relocated to a site of your choosing. If there are other possible options which you feel are important or would like to see recommended, we will do our best to express your interests and concerns to the Alaska Power Authority. If you consider relocation of the burial to another site, I would like to suggest that scientific study of the burial be permitted concurrently with the

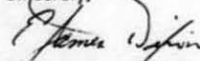
process of relocation because important and valuable scientific knowledge may be gained from it. However, I regard the decision as yours and will certainly respect your recommendations on how the burial should be treated in the event the Dam should be constructed.

Although we realize that no cemetery sites or historic places were selected within or adjacent to the proposed Susitna Project by the Cook Inlet Regional Corporation (or other Native Corporations) under the 14h (1) provisions of the Alaska Native Claims Settlement Act (1971), we would like to provide an opportunity for you to identify any sites or locations of this nature which might be adversely impacted by the proposed Susitna Project. I would like to suggest that any such locales which you might feel are important or significant for heritage reasons need not be represented by tangible remains resulting from former human activity, but could be significant natural features or even trails which are important for religious or other reasons.

We look forward to working cooperatively with you in this matter and will make every effort to insure your comments and recommendations are incorporated in the proposed mitigation plan which we must submit to the Alaska Power Authority in early January of 1985.

If you have any questions or would like to discuss anything outlined above, please feel free to call me (collect) at the University of Alaska Museum, 474-7818. Thank you for your help and cooperation.

Sincerely,



E. James Dixon, Ph.D.
Principal Investigator for
Cultural Resource Investigations
University of Alaska Museum

sao

TYONEK NATIVE CORPORATION

907-563-0707

OFFICE:
4433 Lake Otis Parkway
Anchorage, Alaska 99507

MAIL:
200 W. 34th, Suite 731
Anchorage, Alaska 99503

July 16, 1985

E. James Dixon, Ph.D.
Principal Investigator for
Cultural Resource Investigations
University of Alaska Museum
University of Alaska, Fairbanks
Fairbanks, Alaska 99701

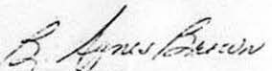
Re: Susitna Hydroelectric Project Site

Dear Mr. Dixon:

In response to your letter of November 14, 1984, please note that I am in concurrence with Mr. Theodore that the human burial be left intact. However, should the Watana Dam be constructed, we would request that the reburial be relocated as close to Native lands as possible.

Sincerely,

TYONEK NATIVE CORPORATION


B. Agnes Brown
President and Chairman

TYONEK NATIVE CORPORATION

907-563-0707

OFFICE:
4433 Lake Otis Parkway
Anchorage, Alaska 99507

MAIL:
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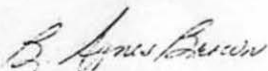
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TYONEK NATIVE CORPORATION



B. Agnes Brown
President and Chairman

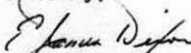
July 24, 1985

Mrs. B. Agnes Brown
President and Chairman
Tyonek Native Corporation
200 W. 34th, Suite 731
Anchorage, AK 99703

Dear Mrs. Brown:

Thank you for your recent letter concerning the human burial found in the Watana Creek area during the cultural resource investigations associated with the Susitna Hydroelectric Project. We are presently preparing our mitigation recommendations and our recommendation concerning the burial will be that the it remain intact unless it will be impacted by the Susitna Project. If this should occur, we will recommend that the burial be relocated to Native land or as close to Native land as possible. Again, thank you for your cooperation.

Sincerely,



E. James Dixon, Ph.D.
Curator of Archeology
University of Alaska Museum

sao

APPENDIX B -RECOMMENDATIONS FOR ARCHEOLOGICAL DATA RECOVERY

federal register

Thursday
September 29, 1983

Part IV

Department of the Interior

National Park Service

**Archeology and Historic Preservation;
Secretary of the Interior's Standards and
Guidelines**



United States Department of the Interior

NATIONAL PARK SERVICE
WASHINGTON, D.C. 20240

IN REPLY REFER TO:

O. H. A.

SEP 30 1983

OCT 6 1983


Dear State Historic Preservation Officers and Federal Preservation Officers:

Enclosed are the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation Activities published in the Federal Register on September 29, 1983, Vol. 48, No. 190, Part IV.

Many questions and comments followed the distribution of previous drafts of this document and most have been addressed in this latest version. The Standards and Guidelines are scheduled to be reviewed, commented on, and if needed, revised after a year of field use.

We urge you to review and use these Standards and Guidelines in program areas concerning historic preservation and the National Register Programs. States should make these available to individuals and organizations needing basic technical standards and guidelines for historic preservation activities. Federal agencies should find the Standards and Guidelines useful in meeting the requirements of Section 110 of the National Historic Preservation Act, as amended. As experience is gained with the use of these Standards and Guidelines over the coming year, comments and suggestions for their revision will be very helpful; these should be sent to the Chief, Interagency Resources Division, National Park Service, United States Department of the Interior, Washington, D.C. 20240.

Sincerely,


for Jerry L. Rogers
Associate Director,
Cultural Resources

Enclosure

property; and by retaining the primary (a field measurements and notebooks) from which the archival record was produced. Usefulness of the documentation products depends on preparing the documentation on durable materials that are able to withstand handling and reproduction, and in sizes that can be stored and reproduced without damage.

Recommended Sources of Technical Information

Recording Historic Buildings. Harley J. McKee. Government Printing Office, 1970. Washington, D.C. Available through the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. GPO number 024-005-0235-8.

HAER/HAER Procedures Manual. Historic American Buildings Survey/Historic American Engineering Record, National Park Service, 1980. Washington, D.C.

Photogrammetric Recording of Cultural Resources. Perry E. Borchers. Technical Preservation Services, U.S. Department of the Interior, 1977. Washington, D.C.

Rectified Photography and Photo Drawings for Historic Preservation. J. Henry Chambers. Technical Preservation Services, U.S. Department of the Interior, 1973. Washington, D.C.

Secretary of the Interior's Standards for Archeological Documentation

Archeological documentation is a series of actions applied to properties of archeological interest. Documentation of such properties may occur at any or all levels of planning, identification, evaluation or treatment. The nature and level of documentation is dictated by each specific set of circumstances. Archeological documentation consists of activities such as archival research, observation and recording of above-ground remains, and observation (directly, through excavation, or indirectly, through remote sensing) of below-ground remains. Archeological documentation is employed for the purpose of gathering information on individual historic properties or groups of properties. It is guided by a framework of objectives and methods derived from the planning process, and makes use of previous planning decisions, such as those on evaluation of significance. Archeological documentation may be undertaken as an aid to various treatment activities, including research, interpretation, construction, stabilization and data recovery when mitigating archeological losses resulting from construction. Care should be taken to assure that documentation efforts do not duplicate previous efforts.

Standard I. Archeological Documentation Activities Follow an Explicit Statement of Objectives and Methods That Responds to Needs Identified in the Planning Process

Archeological research and documentation may be undertaken to fulfill a number of needs, such as overviews and background studies for planning, interpretation or data recovery to mitigate adverse effects. The planning needs are articulated in a statement of objectives to be accomplished by the archeological documentation activities. The statement of objectives guides the selection of methods and techniques of study and provides a comparative framework for evaluating and deciding the relative efficiency of alternatives. Satisfactory documentation involves the use of archeological and historical sources, as well as those of other disciplines. The statement of objectives usually takes the form of a formal and explicit research design which has evolved from the interrelation of planning needs, current knowledge, resource value and logistics.

Standard II. The Methods and Techniques of Archeological Documentation are Selected To Obtain the Information Required by the Statement of Objectives

The methods and techniques chosen for archeological documentation should be the most effective, least destructive, most efficient and economical means of obtaining the needed information. Methods and techniques should be selected so that the results may be verified if necessary. Non-destructive techniques should be used whenever appropriate. The focus on stated objectives should be maintained throughout the process of study and documentation.

Standard III. The Results of Archeological Documentation are Assessed Against the Statement of Objectives and Integrated Into the Planning Process

One product of archeological documentation is the recovered data; another is the information gathered about the usefulness of the statement of objectives itself. The recovered data are assessed against the objectives to determine how they meet the specified planning needs. Information related to archeological site types, distribution and density should be integrated in planning at the level of identification and evaluation. Information and data concerning intra-site structure may be needed for developing mitigation strategies and are appropriately

integrated at this level of planning. The results of the data analyses are integrated into the body of current knowledge. The utility of the method of approach and the particular techniques which were used in the investigation (i.e. the research design) should be assessed so that the objectives of future documentation efforts may be modified accordingly.

Standard IV. The Results of Archeological Documentation are Reported and Made Available to the Public

Results must be accessible to a broad range of users including appropriate agencies, the professional community and the general public. Results should be communicated in reports that summarize the objectives, methods, techniques and results of the documentation activity, and identify the repository of the materials and information so that additional detailed information can be obtained, if necessary. The public may also benefit from the knowledge obtained from archeological documentation through pamphlets, brochures, leaflets, displays and exhibits, or by slide, film or multimedia productions. The goal of disseminating information must be balanced, however, with the need to protect sensitive information whose disclosure might result in damage to properties. Curation arrangements sufficient to preserve artifacts, specimens and records generated by the investigation must be provided for to assure the availability of these materials for future use.

Secretary of the Interior's Guidelines for Archeological Documentation

Introduction

These Guidelines link the Standards for Archeological Documentation with more specific guidance and technical information. They describe one approach to meeting the Standards for Documentation. Agencies, organizations or individuals proposing to approach archeological documentation differently may wish to review their approach with the National Park Service.

The Guidelines are organized as follows:

Archeological Documentation Objectives
Documentation Plan
Methods
Reporting Results
Curation
Recommended Sources of Technical Information

1. Collection of base-line data:

2. Problem-oriented research directed toward particular data gaps recognized in the historic context(s);

3. Preservation or illustration of significance which has been identified for treatment by the planning process; or

4. Testing of new investigative or conservation techniques, such as the effect of different actions such as forms of site burial (aqueous or non-aqueous).

Many properties having archeological components have associative values as well as research values. Examples include Native American sacred areas and historic sites such as battlefields. Archeological documentation may preserve information or data that are linked to the identified values that a particular property possesses.

Depending on the property type and the range of values represented by the property, it may be necessary to recover information that relates to an aspect of the property's significance other than the specified research questions. It is possible that conflicts may arise between the optimal realizations of research goals and other issues such as the recognition/protection of other types of associative values. The research design for the archeological documentation should provide for methods and procedures to resolve such conflicts, and for the close coordination of the archeological research with the appropriate ethnographic, social or technological research.

Archeological Documentation Objectives

The term "archeological documentation" is used here to refer specifically to any operation that is performed using archeological techniques as a means to obtain and record evidence about past human activity that is of importance to documenting history and prehistory in the United States. Historic and prehistoric properties may be important for the data they contain, or because of their association with important persons, events, or processes, or because they represent architectural or artistic values, or for other reasons. Archeological documentation may be an appropriate option for application not only to archeological properties, but to above-ground structures as well, and may be used in collaboration with a wide range of other treatment activities.

If a property contains artifacts, features, and other materials that can be studied using archeological techniques, then archeological documentation may be selected to achieve particular goals of the planning process—such as to address a specified information need, or to illustrate significant associative

values. Within the overall goals and priorities established by the planning process, particular methods of investigation are chosen that best suit the types of study to be performed.

Relationship of archeological documentation to other types of documentation or other treatments: Archeological documentation is appropriate for achieving any of various goals, including:

Documentation Plan

Research Design: Archeological documentation can be carried out only after defining explicit goals and a methodology for reaching them. The goals of the documentation effort directly reflect the goals of the preservation plan and the specific needs identified for the relevant historic contexts. In the case of problem oriented archeological research, the plan usually takes the form of a formal research design, and includes, in addition to the items below, explicit statements of the problem to be addressed and the methods or tests to be applied. The purpose of the statement of objectives is to explain the rationale behind the documentation effort; to define the scope of the investigation; to identify the methods, techniques, and procedures to be used; to provide a schedule for the activities; and to permit comparison of the proposed research with the results. The research design for an archeological documentation effort follows the same guidelines as those for identification (see the Guidelines for Identification) but has a more property-specific orientation.

The research design should draw upon the preservation plan to identify:

1. Evaluated significance of the property(ies) to be studied;
2. Research problems or other issues relevant to the significance of the property;
3. Prior research on the topic and property type; and how the proposed documentation objectives are related to previous research and existing knowledge;
4. The amount and kinds of information (data) required to address the documentation objectives and to make reliable statements, including at what point information is redundant and documentation efforts have reached a point of diminishing returns;
5. Methods to be used to find the information; and
6. Relationship of the proposed archeological investigation to anticipated historical or structural documentation, or other treatments.

The primary focus of archeological documentation is on the data classes

that are required to address the specified documentation objectives. This may mean that other data classes are deliberately neglected. If so, the reasons for such a decision should be carefully justified in terms of the preservation plan.

Archeological investigations seldom are able to collect and record all possible data. It is essential to determine the point at which further data recovery and documentation fail to improve the usefulness of the archeological information being recovered. One purpose of the research design is to estimate those limits in advance and to suggest at what point information becomes duplicative. Investigation strategies should be selected based on these general principles, considering the following factors:

1. Specific data needs;
2. Time and funds available to secure the data; and
3. Relative cost efficiency of various strategies.

Responsiveness to the concerns of local groups (e.g., Native American groups with ties to specific properties) that was built into survey and evaluation phases of the preservation plan, should be maintained in archeological investigation, since such activity usually involves site disturbance. The research design, in addition to providing for appropriate ethnographic research and consultation, should consider concerns voiced in previous phases. In the absence of previous efforts to coordinate with local or other interested groups, the research design should anticipate the need to initiate appropriate contacts and provide a mechanism for responding to sensitive issues, such as the possible uncovering of human remains or discovery of sacred areas.

The research design facilitates an orderly, goal directed and economical project. However, the research design must be flexible enough to allow for examination of unanticipated but important research opportunities that arise during the investigation.

Documentation Methods

Background Review: Archeological documentation usually is preceded by, or integrated with historical research (i.e. that intensive background information gathering including identification of previous archeological work and inspection of museum collections; gathering relevant data on geology, botany, urban geography and other related disciplines; archival research; informant interviews, or recording of oral tradition, etc.).

Depending on the goals of the archaeological documentation, the background historical and archeological research may exceed the level of research accomplished for development of the relevant historic contexts or for identification and evaluation, and focuses on the unique aspects of the property to be treated. This assists in directing the investigation and locates a broader base of information than that contained in the property itself for response to the documentation goals. This activity is particularly important for historic archeological properties where information sources other than the property itself may be critical to preserving the significant aspects of the property. (See the Secretary of the Interior's Standards and Guidelines for Historical Documentation for discussion of associated research activities.)

Field Studies: The implementation of the research design in the field must be flexible enough to accommodate the discovery of new or unexpected data classes or properties, or changing field conditions. A phased approach may be appropriated when dealing with large complex properties or groups of properties, allowing for changes in emphasis or field strategy, or

minimization of the program, based on analysis of recovered data at the end of each phase. Such an approach permits the confirmation of assumptions concerning property extent, content or organization which had been made based on data gathered from identification and evaluation efforts, or the adjustment of those expectations and resulting changes in procedure. In some cases a phased approach may be necessary to gather sufficient data to calculate the necessary sample size for a statistically valid sample. A phased documentation program may often be most cost-effective, in allowing for early termination of work if the desired objectives cannot be achieved.

Explicit descriptive statements of and justification for field study techniques are important to provide a means of evaluating results. In some cases, especially those employing a sampling strategy in earlier phases (such as identification or evaluation), it is possible to estimate parameters of certain classes of data in a fairly rigorous statistical manner. It is thus desirable to maintain some consistency in choice of sampling designs throughout multiple phases of work at the same property. Consistency with previously employed areal sampling frameworks also improves potential replication in terms of later location sampled and unsampled areas. It then is desirable to

estimate the nature and frequency of data parameters based on existing information or analogy to other similar cases. These estimates may then be tested in field studies.

An important consideration in choosing methods to be used in the field studies should be assuring full, clear, and accurate descriptions of all field operations and observations, including excavation and recording techniques and stratigraphic or inter-site relationships.

To the extent feasible, chosen methodologies and techniques should take into account the possibility that future researchers will need to use the recovered data to address problems not recognized at the time the data were recovered. The field operation may recover data that may not be fully analyzed; this data, as well as the data analyzed, should be recorded and preserved in a way to facilitate future research.

A variety of methodologies may be used. Choices must be explained, including a measure of cost-effectiveness relative to other potential choices. Actual results can then be measured against expectations, and the information applied later in similar cases.

Destructive methods should not be applied to portions or elements of the property if nondestructive methods are practical. If portions or elements of the property being documented are to be preserved in place, the archeological investigation should employ methods that will leave the property as undisturbed as possible. However, in cases where the property will be destroyed by, for example, construction following the investigation, it may be most practical to gather the needed data in the most direct manner, even though that may involve use of destructive techniques.

Logistics in the field, including the deployment of personnel and materials and the execution of sampling strategies, should consider site significant, anticipated location of most important data, cost effectiveness, potential time limitations and possible adverse environmental conditions.

The choice of methods for recording data gathered in the field should be based on the research design. Based on that statement it is known in advance of field work what kinds of information are needed for analysis; record-keeping techniques should focus on these data. Field records should be maintained in a manner that permits independent interpretation in so far as possible.

Record-keeping should be standardized in format and level of detail.

Archeological documentation should be conducted under the supervision of qualified professionals in the disciplines appropriate to the data that are to be recovered. When the general public is directly involved in archeological documentation activities, provision should be made for training and supervision by qualified professionals. (See the Professional Qualifications Standards.)

Analysis: Archeological documentation is not completed with field work; analysis of the collected information is an integral part of the documentation activity, and should be planned for in the research design. Analytical techniques should be selected that are relevant to the objectives of the investigation. Forms of analysis that may be appropriate, depending on the type of data recovered and the objectives of the investigation, include but are not limited to: studying artifact types and distribution; radiometric and other means of age determination; studies of soil stratigraphy; studies of organic matter such as human remains, pollen, animal bones, shells and seeds; study of the composition of soils and study of the natural environment in which the property appears.

Reporting Results

Report Contents: Archeological documentation concludes with written report(s) including minimally the following topics:

1. Description of the study area;
2. Relevant historical documentation/background research;
3. The research design;
4. The field studies as actually implemented, including any deviation from the research design and the reason for the changes;
5. All field observations;
6. Analyses and results, illustrated as appropriate with tables, charts, and graphs;
7. Evaluation of the investigation in terms of the goals and objectives of the investigation, including discussion of how well the needs dictated by the planning process were served;
8. Recommendations for updating the relevant historic contexts and planning goals and priorities, and generation of new or revised information needs;
9. Reference to related on-going or proposed treatment activities, such as structural documentation, stabilization, etc.; and

10. Information or the location of original data in the form of field notes, photographs, and other materials.

Some individual property information, such as specific locational data, may be highly sensitive to disclosure, because of the threat of vandalism. If the objectives of the documentation effort are such that a report containing confidential information such as specific site locations or information on religious practices is necessary, it may be appropriate to prepare a separate report for public distribution. The additional report should summarize that information that is not under restricted access in a format most useful to the expected groups of potential users. Peer review of draft reports is recommended to ensure that state-of-the-art technical reports are produced.

Availability: Results must be made available to the full range of potential users. This can be accomplished through a variety of means including publication of results in monographs and professional journals and distribution of the report to libraries or technical clearinghouses such as the National Technical Information Service in Springfield, Virginia.

Curation

Archaeological specimens and records are part of the documentary record of an archaeological site. They must be curated for future use in research, interpretation, preservation, and resource management activities. Curation of important archaeological specimens and records should be provided for in the development of any archaeological program or project.

Archaeological specimens and records that should be curated are those that embody the information important to history and prehistory. They include artifacts and their associated documents, photographs, maps, and field notes; materials of an environmental nature such as bones, shells, soil and sediment samples, wood, seeds, pollen, and their associated records; and the products and associated records of laboratory procedures such as thin sections, and sediment fractions that result from the analysis of archaeological data.

Satisfactory curation occurs when:

1. Curation facilities have a adequate space, facilities, and professional personnel;

2. Archaeological specimens are maintained so that their information values are not lost through deterioration, and records are maintained to a professional archival standard;

3. Curated collections are accessible to qualified researchers within a

reasonable time of having been requested; and

4. Collections are available for interpretive purposes, subject to reasonable security precautions.

Recommended Sources of Technical Information

Archaeomagnetism: A Handbook for the Archaeologist. Jeffrey L. Eighmy. U.S. Department of the Interior, Washington, D.C. 1980.

The Curation and Management of Archaeological Collections: A Pilot Study. Cultural Resource Management Series, U.S. Department of the Interior, September 1980.

Human Bones and Archaeology. Douglas H. Ubelaker. Intermountain Archaeological Services, Heritage Conservation and Recreation Service, U.S. Department of the Interior, Washington, D.C. 1980. Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Manual for Museums. Ralph H. Lewis. National Park Service, U.S. Department of the Interior, 1978.

Treatment of Archeological Properties: A Handbook. Advisory Council on Historic Preservation, Washington D.C. 1980.

Secretary of the Interior's Standards for Historic Preservation Projects.

General Standards for Historic Preservation Projects.

The following general standards apply to all treatments undertaken on historic properties listed in the National Register.

1. Every reasonable effort shall be made to provide a compatible use for a property that requires minimal alteration of the building, structure, or site and its environment; or to use a property for its originally intended purpose.

2. The distinguishing original qualities or character of a building, structure, or site and its environment shall not be destroyed. The removal or alteration of any historic material or distinctive architectural features should be avoided when possible.

3. All buildings, structures, and sites shall be recognized as products of their own time. Alterations which have no historical basis and which seek to create an earlier appearance shall be discouraged.

4. Changes which have taken place in the course of time are evidence of the history and development of a building, structure, or site and its environment. These changes may have acquired significance in their own right, and this significance shall be recognized and respected.

5. Distinctive architectural features or examples of skilled craftsmanship which characterize a building, structure, or site shall be treated with sensitivity.

6. Deteriorated architectural features shall be repaired rather than replaced, wherever possible. In the event replacement is necessary, the new material should match the material being replaced in composition, design, color, texture, and other visual qualities. Repair or replacement of missing architectural features should be based on accurate duplications of features, substantiated by historic, physical, or pictorial evidence rather than on conjectured designs or the availability of different architectural elements from other buildings or structures.

7. The surface cleaning of structures shall be undertaken with the gentlest means possible. Sandblasting and other cleaning methods that will damage the historic building materials shall not be undertaken.

8. Every reasonable effort shall be made to protect and preserve archeological resources affected by, or adjacent to, any acquisition, stabilization, preservation, rehabilitation, restoration, or reconstruction project.

Specific Standards for Historic Preservation Projects

The following specific standards for each treatment are to be used in conjunction with the eight general standards and, in each case, begin with number 9. For example, in evaluating acquisition projects, include the eight general standards plus the four specific standards listed under standards for Acquisition. The specific standards differ from those published for use in Historic Preservation Fund grant-in-aid projects (36 CFR Part 68) in that they discuss more fully the treatment of archeological properties.

Standards for Acquisition

9. Careful consideration shall be given to the type and extent of property rights which are required to assure the preservation of the historic resource. The preservation objectives shall determine the exact property rights to be acquired.

10. Properties shall be acquired in fee simple when absolute ownership is required to insure their preservation.

11. The purchase of less-than-fee-simple interests, such as open space or facade easements, shall be undertaken when a limited interest achieves the preservation objective.

12. Every reasonable effort shall be made to acquire sufficient property with the historic resource to protect its historical, archeological, architectural or cultural significance.

TREATMENT OF ARCHEOLOGICAL PROPERTIES:

A HANDBOOK *

A guide to principles, procedures, and
methods for the treatment of archeological
properties in accordance with 36 CFR Part 800.

Approved by the Council's Archeology
Task Force September 26, 1980

Endorsed by the Advisory Council November 5, 1980.

PART III
RECOMMENDATIONS FOR ARCHEOLOGICAL DATA RECOVERY

The following recommendations are for agency consideration in developing archeological data recovery operations. They are not mandatory under the authority of the National Historic Preservation Act and 36 CFR Part 800, but full consideration of them will facilitate the consultation process. They are designed to be consistent with the standards of the Department of the Interior, issued pursuant to the Archeological and Historic Preservation Act of 1974 (P.L. 93-291), and embodied in 36 CFR Part 1210.3.

I. Identification

1. Data recovery operations should be based on an adequate understanding of the range of archeological properties subject to adverse effect, and their importance and nature relative to other such properties. Accordingly, plans for data recovery should be based on an adequate identification effort.
2. Identification studies should be conducted in a manner consistent with 36 CFR Part 1210, Appendix B, and with the recommendations of the State Historic Preservation Officer. If standards and guidelines for identification have been adopted as part of the State Historic Preservation Plan, the identification effort should be consistent with them.
3. Agencies should use "The Archeological Survey: Methods and Uses" (GPO Stock No. 024-016-0091-9), "Guidelines for Local Surveys: A Basis for Preservation Planning" (GPO Stock No. 024-016-00089-7), and relevant State, regional, and local literature for general guidelines.

II. Qualified Supervision

1. Data recovery operations should be conducted under the supervision of qualified professionals in the disciplines appropriate to the data that are to be recovered. Minimum qualifications commonly required for professionals are set forth in 36 CFR Part 1210, Appendix C. For supervision of most projects, Appendix C qualifications should be taken as a minimum. The agency should develop additional qualifications for supervision of the particular project.

In some cases, it may be appropriate to select a supervisor whose qualifications differ from those given in 36 CFR Part 1210, Appendix C. In such cases, the qualifications should be specified by the agency in project documents, together with the rationale for their selection.

2. A data recovery operation should be directed by a Principal Investigator, whose background and performance demonstrates:
 - A. an understanding of the research value of the property, as specified in location and identification studies,

documentation for determination of eligibility or nomination to the National Register, and/or other relevant documents, such as the scope-of-work prepared by the agency;

- B. familiarity with previous relevant research, including research in the vicinity of the proposed undertaking and research on topics germane to the data recovery program regardless of where such research has been carried out;
- C. competence to address research problems pertinent to the data to be recovered, taking into account the identified research value of the property and other relevant research and general theory in the social and natural sciences and humanities;
- D. responsiveness to the need to recover a usable sample of data on the major research problems that reflect the property's research value, and a sensitivity to other valuable research problems that may become apparent during the project; and,
- E. competence in the methods and techniques necessary to recover the pertinent data contained in the property, or in supervising staff or consultants with such competence.

III. Relation to State Historic Preservation Plan and Other Plans

- 1. Where a State Historic Preservation Plan, developed by the State Historic Preservation Officer and approved by the Secretary of the Interior, details approved methods for data recovery from archeological properties, agency data recovery programs should take these methods into account.
- 2. Where regional or local plans, developed by the SHPO, professional organizations, local government, or others detail recommended methods for data recovery from archeological properties, agency data recovery programs should take these methods into account.

IV. Data Recovery Plan

- 1. Every data recovery operation should be conducted in accordance with a data recovery plan (often called a research design). The plan should be designed to ensure that the operation addresses legitimate research questions, that it produces useful results, that it is conducted efficiently, and that it produces the maximum direct and indirect benefit to the public for the least cost. Generally speaking, a data recovery plan should include the following elements:
 - A. Specification of properties to be studied and not studied within the environmental impact area of the undertaking. A rationale should be provided if it is proposed not to study any property included in or eligible for inclusion in the National Register that is subject to adverse effect.

- B. Development of research questions, taking into account the identified research value of the property and other relevant research and general theory in the social and natural sciences and humanities. These are questions of scientific or humanistic concern which are expected to be answered, partially answered, or at least elucidated through the work proposed, such as

- (1) questions of recognizable importance to science (cf. Appendix A), and
- (2) questions of humanistic interest, or interest to a local community, or of defined local historical value (cf. Appendix B).

In most areas of the United States, enough is known of history and prehistory to establish at least some basic research questions. Therefore, a plan that proposes data recovery because "little is known of the history or prehistory of the area," without setting forth more explicit research questions, should be treated with caution. Such undirected plans provide little basis for conducting research, may result only in the accumulation of useless, trivial, or repetitive information, and are sometimes only masks for the ignorance of the parties preparing the plan. There are, of course, some areas, and some time periods in history and prehistory, for which this is not the case.

- C. Establishment of study topics, springing from the research questions. These are the specific topics to be addressed in the study area. For example, if the research question is: "Why was agriculture adopted?" a study topic might be: "When, and in what cultural context, did agriculture appear in the study area?"
- D. Establishment of study priorities. It is not necessary, and is often counterproductive, to give the same level of effort to all study topics. The plan should consider all study topics but should establish and justify priorities for their investigation.
- E. Definition of data needs. The plan should identify the data needed to address each topic selected for study.
- F. Description of methods to be employed in fieldwork and analysis, in seeking the needed data. Methods should be justified in terms of the data sought or expected, but with recognition of the fact that unexpected important data may emerge during fieldwork or analysis and need to be addressed. As a rule, the fastest, least expensive available methods should be used, provided they are effective in recovering the data sought or expected, and provided they do not destroy properties or data that otherwise could be preserved in place.

2. The data recovery plan should be developed and reviewed by the agency, the SHPO, and where needed, the Council, Interagency Archeological Services, and others, before data recovery operations are begun.

V. Staff, Facilities, Equipment, and Consultants

1. A data recovery program should provide for adequate personnel, facilities, and equipment to implement fully the data recovery plan.
2. A data recovery program should provide for adequate consultation with scholars whose research interests or specialties would enable them to contribute to the program.

VI. Methods: Basic Standards

1. Regardless of the research topics being addressed, a data recovery program should employ methods that will ensure full, clear, and accurate descriptions of all field operations and observations. For example, excavation techniques, recording methods, stratigraphic and associational relationships, environmental relationships, and analytic techniques should be described, insofar as is feasible, in such a way as to allow future researchers to reconstruct what was done, what was observed, and why.
2. To the extent feasible, the methods should take into account the possibility that future researchers will need to use the recovered data to address problems not recognized at the time the data were recovered.
3. If portions or elements of the property under investigation can be preserved in place, the data recovery program should employ methods that will leave those portions or elements of the property in place. Destructive methods should not be applied to such portions or elements if nondestructive methods are practical.
4. Where architectural characteristics are recorded, such recording should be consistent with the standards published by the National Architectural and Engineering Record (NAER). Updated guidelines for recording architectural and engineering data may be obtained from the Director, Heritage Conservation and Recreation Service, or Executive Order Consultant for NAER.
5. To the extent feasible within the data recovery plan, data should be recorded in a manner compatible with those systems utilized by the State Historic Preservation Officer and by State and Federal agencies that store and utilize archeological data, so that they can have maximum applicability to future studies and planning efforts.

6. The data recovery program should include both field operations and post-fieldwork analysis sufficient to address the research topics.

VII. Public Participation

1. To the extent feasible, a data recovery program should provide for public participation, through arrangements for public inspection of the work in progress, the use of volunteers, cooperation with local educational programs, etc.
2. A data recovery program should provide a means by which the public can be informed of the program and its results, before, during, and/or at the conclusion of the program.

VIII. Cost Minimization

1. In developing a data recovery program, agencies should consider methods to minimize costs while ensuring that quality is not sacrificed. Examples of methods that may reduce costs include:
 - A. investment in full pre-fieldwork analysis of pertinent available data, to avoid spending time and money in the field gathering data to answer questions that are already answerable;
 - B. sharing of personnel and facilities among projects and agencies;
 - C. use of volunteers and trainees under appropriate supervision;
 - D. appropriate use of mechanized equipment and advanced technology (Experimentation with potentially cost-efficient methods of discovery, recovery, and processing of data is encouraged), and
 - E. use of methods to avoid late or accidental discoveries that could cause costly construction delays. (For example, where construction will destroy an archeological site, the last stage of data recovery should be to destroy the site under archeological supervision before construction begins).
2. Seeking to minimize costs by selecting contractors on the basis of bid is generally not encouraged; experience shows that this practice tends to produce substandard results. However, in cases where detailed data recovery plans have been developed in advance of soliciting proposals, and sufficient control is exercised to ensure receipt of technically comparable proposals, an agency might find this practice useful. Agencies should consider 36 CFR Part 1210, Appendix D, when preparing to procure services for data recovery operations.

IX. Reports and Data Management

1. In order for recovered data to be useful, they must be made available to scholars and planners in usable forms. Generally speaking, the following products (other than physical specimens) are expected from a data recovery operation:
 - A. a report or reports that describes the operation and its results, with reference to the research topics addressed by the operation;
 - B. digested data in the form of tables, charts, graphs, computer software, etc.;
 - C. raw data in the form of field notes, photographs, magnetic tapes, etc.; and,
 - D. scholarly and other articles utilizing the results of the work for analytic or public-interpretive purposes.
2. All data recovery projects should result in a report or reports containing the reasons for the project, the data recovery plan, the methods employed in both field work and analysis, the data recovered, observations made, insights gained, conclusions reached, and a presentation of pertinent data. The report should meet contemporary professional standards, and should be prepared in accordance with the format standards set forth in 36 CFR Part 1210, Appendix A.

Provision should be made for disseminating the report. At a minimum, two copies of the report must be provided to the Department of the Interior pursuant to P.L. 93-291, Section 3(a), and 36 CFR Part 1210.5. In addition, agencies are encouraged to disseminate reports to the widest possible audience. Appropriate methods of dissemination include, but are not limited to, publication in scholarly journals, monographs, popular articles, books, and the National Technical Information Service, and presentation of papers at scholarly Conference. Agencies should provide a copy of each report to the State Historic Preservation Officer and other appropriate archives and research libraries.

3. Digested data should be stored in a manner that makes them readily retrievable for further study and analysis. Use of modern systems of information storage and retrieval is encouraged. Such systems should be as compatible as possible with those used by the SHPO and other agencies and institutions with potential uses for the data.
4. Raw data should be stored in a manner that ensures their long-term maintenance and availability, usually in an appropriate research institution (cf. 36 CFR Sec. 1210.4).

5. Although agencies are not necessarily responsible for developing or supporting the development of scholarly analytic articles, beyond those embodied in the report(s) on each data recovery operation itself, use of recovered data for such purposes should be encouraged.

X. Curation of Specimens

1. A data recovery program should include provision for curation (care, maintenance, and where applicable, duplication and disposition) of recovered specimens. In developing such provisions, the agency should give due consideration to the standards set forth in 36 CFR Sec. 1210.4 and recognize any competing public and private interests. Care should be taken during conservation, curation, and handling of specimens and records to ensure that the material is not lost, inappropriately altered, or damaged.
2. In general, acceptable curation arrangements may include, but are not necessarily limited to:
 - A. permanent storage at a regional research center or appropriate public or private repository meeting the standards set forth at 36 CFR Sec. 1210.4(a)(1), provided reasonable access is guaranteed for future study;
 - B. return to private owners where private property rights so require, after description, study, and analysis in accordance with the data recovery plan are complete;
 - C. loan or lease to public or private parties, after description, study, and analysis in accordance with the data recovery plan are complete, provided access for future study and proper care of the specimens can be expected; and,
 - D. return of specimens having religious or cultural significance to practitioners of the religion or cultural institutions in question, after description, study, and analysis in accordance with the data recovery plan are complete.
3. Curation of human remains (eg., skeletons, cremations, mummified bodies), requires careful balancing of the needs of science and a sensitivity to the concerns of genetic and cultural descendants of the dead. Where a demonstrable ethnic affinity exists between recovered human remains and living groups, a systematic effort should be made to seek out and consult with appropriate representatives of such groups to define acceptable methods of treatment. Where recovery of human remains is expected, prior consultation with such groups, and with cultural anthropologists or others capable of serving as sensitive intermediaries where needed, is strongly recommended. If reinterment, cremation, or other disposal is requested that will place the human remains out of the reach of future scientists, documentation of the remains in consultation with specialists in physical anthropology and other pertinent

fields should be completed before disposal. Where no association can be determined between recovered human remains and living groups, the remains should be documented in accordance with the data recovery plan, and curated in a manner appropriate to the dignity and respect befitting any deceased person.

XI. Budgeting

1. At an appropriate stage in the process of developing a data recovery plan or procuring the necessary contractors or staff to execute it, the agency should develop or obtain a detailed budget, and subject it to careful analysis. Line items should refer clearly to elements of the data recovery plan, and should be justified. For example, if technical consultants are budgeted for, they should be those required to recover and analyze the data that are needed to address the research topics. Estimates of man-hours required for supervision, administration, fieldwork, analysis, specialist consultation, and other activities should be developed, together with fee schedules for the various types of personnel required. Time and fee schedules should be realistic in terms of project needs and local conditions. To minimize the danger of establishing budgetary "targets" not based on actual needs, the budget should be prepared without reference to the 1% limitation imposed by Sec. 7(a) of Public Law 93-291 on data recovery funds transferred to the Secretary of the Interior. Should the budget for a project to which Sec. 7(a) applies exceed 1% of the total cost of the undertaking, the Council will assist the agency as possible during the consultation process to find ways to reduce costs or to obtain additional funding.
2. Sufficient funds to support the data recovery program should be clearly identified by the agency. Should there be any uncertainty about the availability of funds, this should be revealed to the Council and SHPO so it can be taken into account during the consultation process. If the agency anticipates that the Secretary of the Interior will fund the program under the authority of Sec. 3(b), Sec. 4(a), or Sec. 7(c) of Public Law 93-291, the agency should document to the Council and the SHPO that the Secretary is aware of and has accepted this responsibility.

XII. Treatment of Non-Archeological Concerns

1. A data recovery program should relate positively to non-archeological concerns with the area and its archeological properties. Such concerns include, but are not limited to:
 - A. Religious and other cultural concerns of Native Americans and/or other descendants of the historic and prehistoric people of the study area;
 - B. The interests of local communities or other groups in the history of the area;

- C. The educational interests of local museums, academic institutions, etc.;
- D. The interests of private property owners in maintaining the integrity of their property rights;
- E. Any architectural, artistic, or aesthetic values that may be present in the property;
- F. Any paleontological, geological, or related values that may be present in the property; and
- G. The environmental integrity of the property and its environs.

XIII. Flexibility

1. Situations may arise or data may be encountered that were not anticipated in designing a data recovery program, particularly when it is conducted on a potentially complex property (e.g., a recent town site; a prehistoric site that may contain many occupation layers, cemeteries, or architectural remains). Adequate provision should be made for modification of the program to cope with unforeseen discoveries or other unexpected circumstances.
2. Innovative approaches to data recovery, which are constantly being developed, should be encouraged as long as the basic purposes of data recovery to preserve significant information are addressed.